

DJ-S41T/T2/(J)/(C) EC10 DJ-S11T/E Service Manual

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ALINCO, INC.

SPECIFICATIONS

1) General

DJ-S41T/T2/(J)/(C) & EC10

Frequency Range : 430.000~449.995MHz (T Version)
450.000~470.000MHz (T2 Version)
430.000~439.995MHz (J Version)
433.050~434.790MHz (C Version & EC10)

Modulation : F3E

DC Power Source : 3.6~4.5 Volts DC (internal battery)
5.5V (external regulated source)

Current Consumption : TX/approx. 30mA(@ 5.5V DC) (C Version & EC10)
280mA(Hi Power @ 5.5V DC) (T,J Version)
RX/approx. 33mA (squelched)

Dimensions : 55(W) × 100(H) × 28(D)mm without projections

Weight : approx 185g (with three AA drycells)

DJ-S11T/E

144.000~147.995MHz (T Version)
144.000~145.995MHz (E Version)

F3E

3.6~4.5 Volts DC (internal battery)
5.5V (external regulated source)

TX/approx. 260mA(Hi Power @ 5.5V DC)
RX/approx. 33mA (squelched)

55(W) × 100(H) × 28(D)mm without projections

approx 185g (with three AA drycells)

2) Transmitter

Output Power : approx. 10mW(with 5.5V DC supply)(C Version & EC 10)
approx. 340mW(with 5.5V DC supply)(T,J Version)
approx. 300mW(with 5.5V DC supply)(T2 Version)

Modulator : Variable Reactance

Max.Deviation : ± 5kHz

approx. 340mW(with 5.5V DC supply)

Variable Reactance

± 5kHz

3) Receiver

Configuration : Double Conversion Superheterodyne

Intermediate Frequency : First : 23.05MHz/Second : 450kHz

Sensitivity : Better than -15dB μ (12dB SINAD)

AF Output : Not less than 100mW (@ 10% distortion @ 8 Ω)

Double Conversion Superheterodyne

First : 23.05MHz/Second : 450kHz

Better than -15dB μ (12dB SINAD)

Not less than 100mW (@ 10% distortion @ 8 Ω)

Note : Specifications are subject to change without notice or obligation.

CIRCUIT DESCRIPTION

1) Receiver System

The receiver system is the double superheterodyne.
The first IF is 23.05MHz and the second IF is 450kHz.

1. Front End

The signal from the antenna is passed through a low-pass filter and input to RF coil L21.
The signal from L21 is amplified by Q10, Q12 and led to the band pass filter, and led to the first mixer base of Q7.

2. First Mixer

The amplified signal (f0) by Q10, Q12* is mixed with the first local oscillator signal (f0-23.05MHz) from the PLL circuit by the first stage mixer Q7 and so is converted into the first IF signal.
The unwanted frequency band of the first IF signal is eliminated by the monolithic crystal filter FL1, and led to IF amplifier Q9.

3. IF Circuit

The first IF signal is amplified by Q9, and input to pin16 of IC2, where it is mixed with the second local oscillator signal (22.6* or 23.5MHz) and so is converted into the second IF signal (450kHz).
The second IF signal is output from pin3 of IC2, and unwanted frequency band of second IF signal is eliminated by a ceramic filter FL2.
The resulting signal is then amplified by the second IF limiting amplifier, and detected by quadrature circuit. The audio signal is output from pin9 of IC2.

4. Audio Circuit

The detected signal from IC2 is passed through the low-pass filter and led to the amplifier Q307, Q306.
Q308 is switched ON/OFF by AFC signal from CPU.
The audio signal is input to the main volume VR301 and amplified by the power amplifier IC302 to drive the speaker.
The power supply voltage of IC302 is limited by AF regulator consisting of Q304.
The power supply voltage of IC302 is switched ON/OFF by AFP signal from CPU.

5. Squelch Circuit

The noise in the audio signal from IC2 is passed through the squelch control variable resistor RT2 and input pin8 of IC2.
IC2 includes filter amplifier, high-pass filter and rectifier.
When squelch circuit is close, pin13 of IC2 goes to "High".
When squelch circuit is open or a signal is received, pin13 of IC2 goes to "Low", then the signal of pin13 is led to CPU.

* for S41 only.

2) PLL, VCO Circuit

Output frequency of PLL circuit is set by the serial data from microprocessor.

PLL circuit consists of VCO Q101, buffer amplifier Q102.

The pulse wave output of charge pump is converted to DC voltage by PLL loop filter circuit, and supplied to D102, D103 of varicap diode in VCO unit.

The frequency modulation is executed when audio signal voltage is supplied to the varicap D104.

When PLL is unlocked, pin7 of IC1 goes to "High".

3) Transmitter System

1. Microphone Amplifier

The voice from the internal or external microphone is led to the pre-emphasis circuit, and then input to the microphone amplifier IC301, which consists of two operational amplifiers.

The amplified signal is input to the low-pass filter IC301.

The output from the microphone amplifier is passed through variable resistors RT301 for modulation adjustment to varicap diode of the VCO.

2. Power Amplifier

The signal from VCO is passed through Tx/Rx switch circuit D3.

The signal is amplified by Q4 and Q5, and input to power amplifier Q2, Q3, Q6, and then passed through the low-pass filter, the antenna switch circuit and the output low-pass filter.

The unwanted harmonics frequency signal is eliminated by the low-pass filter and input to the antenna.

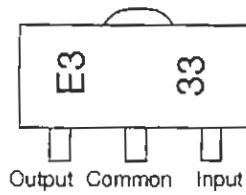
4) Terminal function of CPU

No.	Name	I/O	Description	H	L
1	UPK	I	Frequency UP key input		Active
2	DOWNK	I	Frequency DOWN key input		Active
3	TX LOW	O	TX output power switch High/Low	Low power	High power
4	NC	-	No Use		
5	LB	I	Low voltage detection input		
6	RXC	O	Power supply control for RX		Active
7	SMT (CAS)	I	S meter signal input		
8	SD	I	SD signal input		Active
9	EECLK	O	EEPROM clock output		
10	EEDATA	O	EEPROM data output		
11	CBEEP	O	No use		
12	BEEP	O	Beep sound output		
13	LBSW	O			
14	BP1	I	Band plan 1 input		
15	BP2	I	Band plan 2 input		
16	PSTB	O	PLL IC strobe output		
17	DATA	O	PLL IC data output		
18	CLK	O	PLL IC clock output		
19	TXD	O	Clone TX data output		
20	RXD	I	Clone RX data input		
21	TXC	O	Power supply control for TX output		Active
22	CLO	O	Power supply control for Clone output	Normal	Clone
23	TXA	O	Switches VCO output to TX		Active
24	UL	I	PLL unlock signal input	Active	
25	RESET	I	CPU reset input	at work	on reset
26	PLLC	O	Power supply control for VCO output		Active
27	LAMP	O	Lamp ON/OFF output		Active
28	X IN	I	Internal oscillator input		
29	X OUT	O	Internal oscillator output		
30	Vss	I	GND		
31	CALLK	I	Call key input		Active
32	SCANK	I	Scan key input		Active
33	VMK	I	V/M key input		Active
34	LAMPK	I	Lamp key input		Active
35	FK	I	Function key input		Active
36	MONIK	I	Moni key input		Active
37	SHIFTC	O	VCO shift output		
38	M.MUTE	O	Microphone mute output	Active	

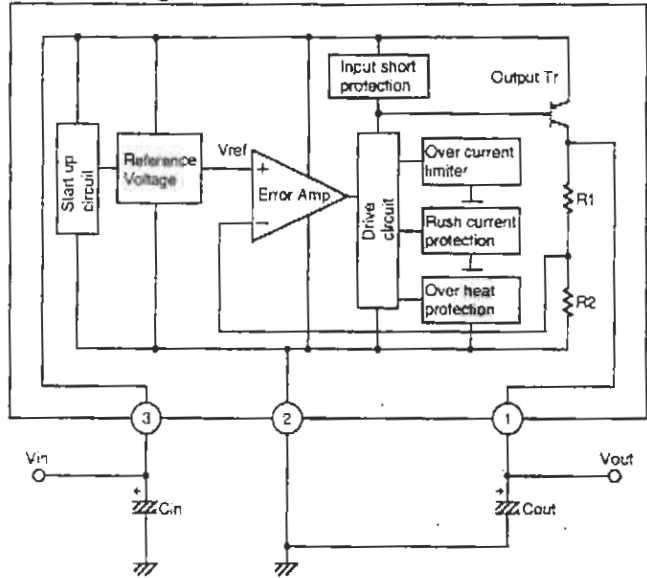
No.	Name	I/O	Description	H	L
39	AFP	O	Power supply control for AF amp		Active
40	AFC	O	AF mute		Active
41	TONE5	O	Sub tone signal output		
42	TONE4	O	Sub tone signal output		
43	TONE3	O	Sub tone signal output		
44	TONE2	O	Sub tone signal output		
45	TONE1	O	Sub tone signal output		
46	TONE0	O	Sub tone signal output		
47	PTTK	I	PTT key input		
48	REF	I	PLL reference select	22.6MHz	23.5MHz
49	OPEN	-	No use		
50	OPEN	-	No use		
51	OPEN	-	No use		
52	OPEN	-	No use		
53	OPEN	-	No use		
54	OPEN	-	No use		
55	OPEN	-	No use		
56	S14	O	LCD SEG14		
57	S13	O	LCD SEG13		
58	S12	O	LCD SEG12		
59	S11	O	LCD SEG11		
60	S10	O	LCD SEG10		
61	S9	O	LCD SEG9		
62	S8	O	LCD SEG8		
63	S7	O	LCD SEG7		
64	S6	O	LCD SEG6		
65	S5	O	LCD SEG5		
66	S4	O	LCD SEG4		
67	S3	O	LCD SEG3		
68	S2	O	LCD SEG2		
69	S1	O	LCD SEG1		
70	S0	O	LCD SEG0		
71	Vcc	I	Power supply terminal 3V		
72	VREF	I	A/D reference level 3V		
73	GND	I	Analog ground		
74	COM3	O	LCD COM3		
75	COM2	O	LCD COM2		
76	COM1	O	LCD COM1		
77	COM0	O	LCD COM0		
78	VL3	O	LCD power supply		
79	VL2	O	LCD power supply		
80	VL1	O	LCD power supply		

SEMICONDUCTOR DATA

1) AN77L03M (XA0230) Voltage Regulator

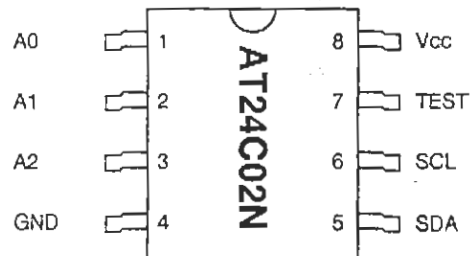
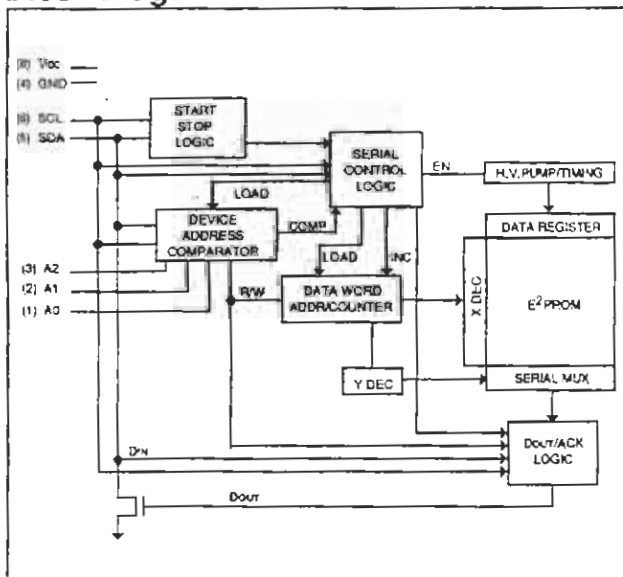


Block Diagram



2) AT24C02N (XA0364) CMOS Serial EEPROM

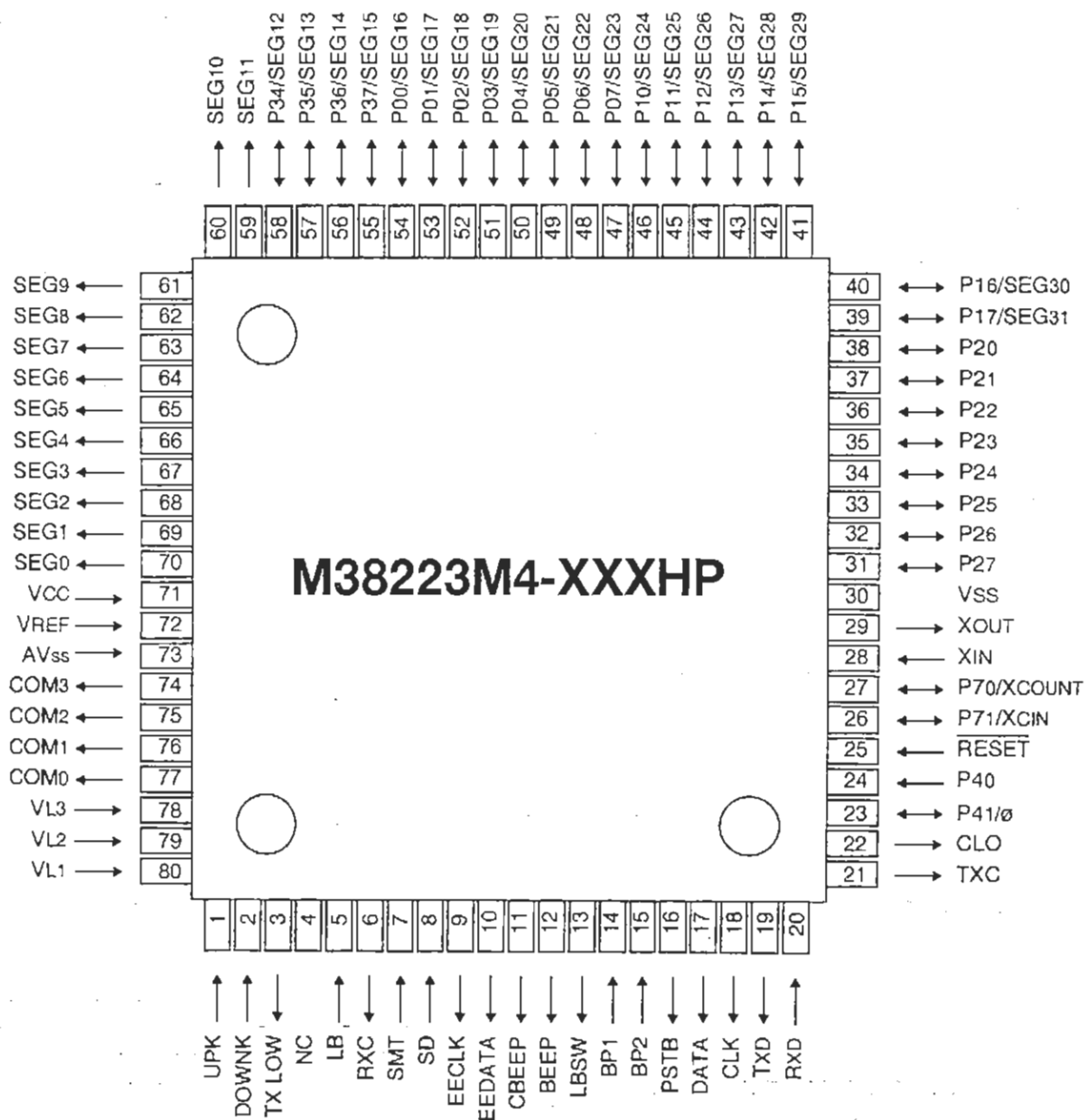
Block Diagram



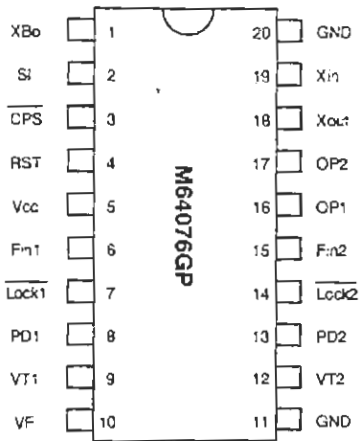
Pin Configurations

Pin Name	Function
A0 to A2	Address inputs
SDA	Serial Data
SCL	Serial Clock
Test	Test Input (GND or Vcc)
NC	No Connect

3) M38223M4HP (XA0470) CPU

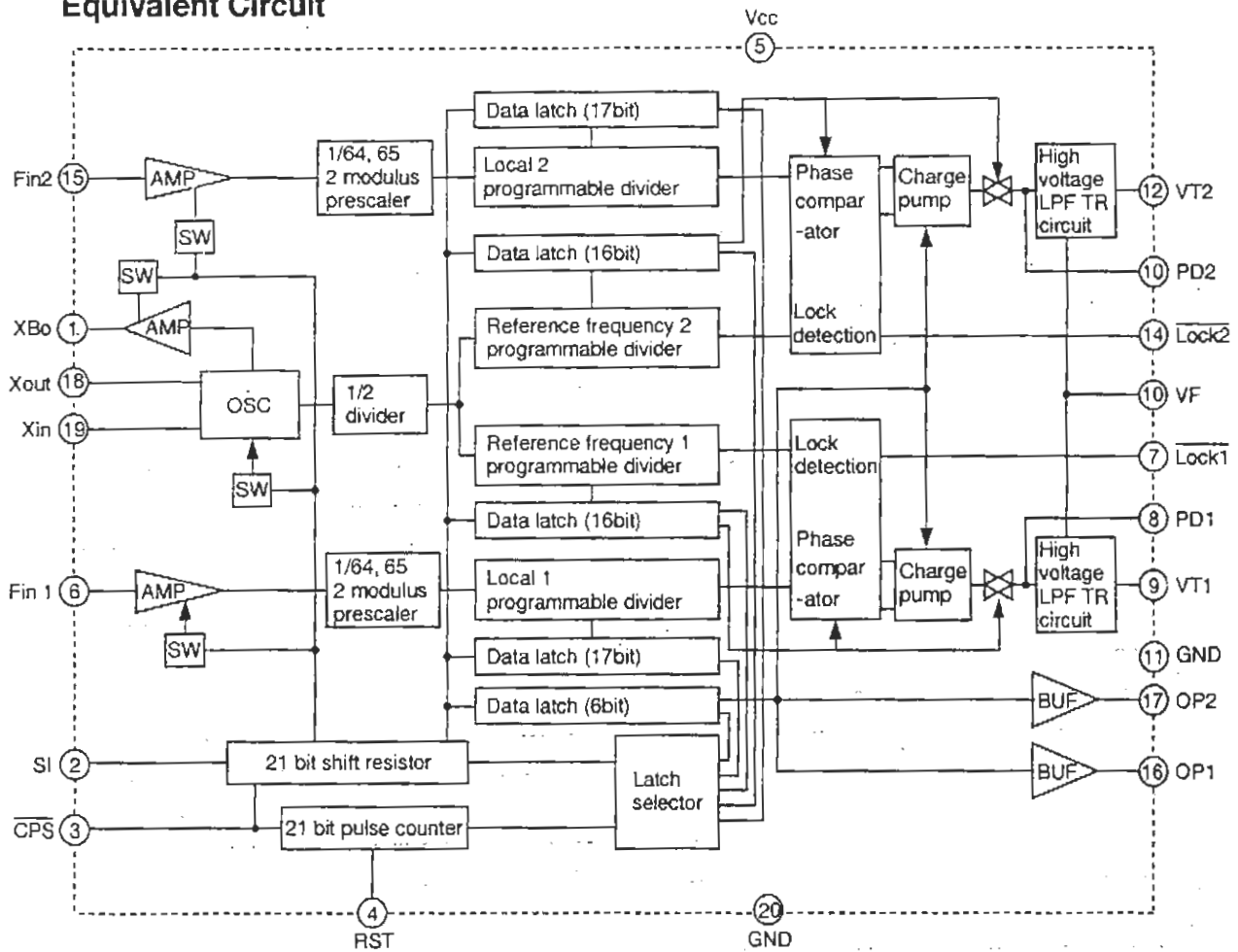


4) M64076GP (XA0352) Dual PLL Synthesizer



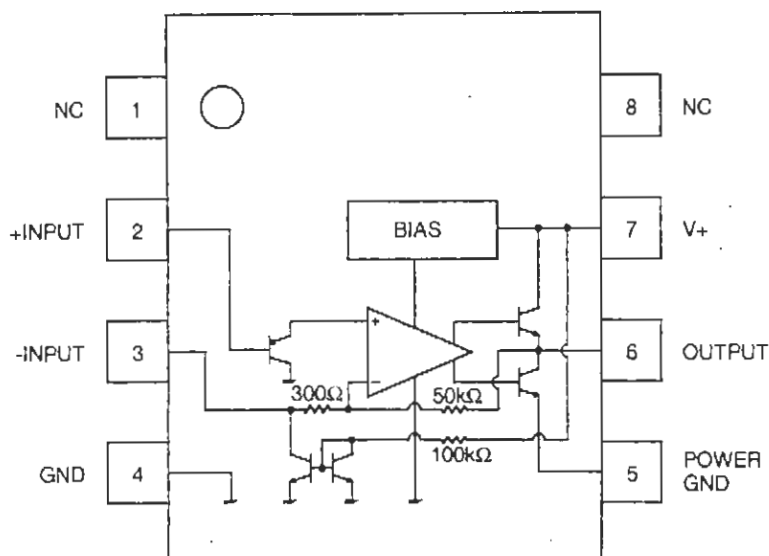
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply voltage	Vcc	Fin=80-520MHz Vin=-10dBm	2.7	-	5.5	V
LPF supply voltage	VF		-	9	12	V
Local oscillator input level	Vin	Fin=80-520MHz Vcc=2.7-5.5V	-20	-	-4	dBm
Local oscillator input frequency	Fin	Vin=-20~-4dBm Vcc=2.7-5.5V	80	-	520	MHz
Xin input level	Vxin	Vcc=2.7-5.5V Fxin=10-25MHz Sine wave	0.4	-	1.4	Vp-p
Xin input frequency	Fxin	Vcc=2.7-5.5V Vxin=0.4-1.4Vp-p	10	-	25	MHz

Equivalent Circuit



5) NJM2070M (XA0210) Low Voltage Power Amplifier

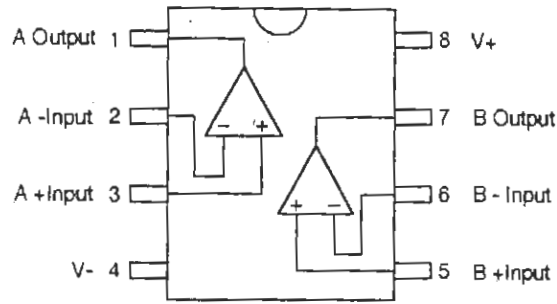
Equivalent Circuit



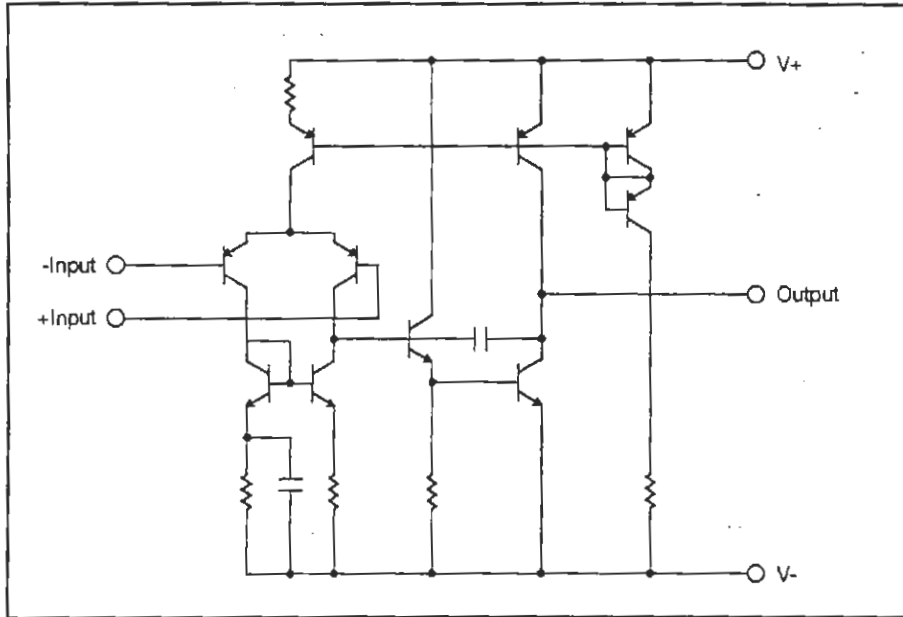
$V_{+}=6V, T_a=25\pm 2^{\circ}C$

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit	
Supply voltage		V_{+}	1.8	-	15	V	
Idle current	$R_L=\infty$	I_q	-	4	7	mA	
Output voltage		V_o	-	2.7	-	V	
Input bias current		I_b	-	200	-	nA	
Output power	THD=10%, $f=1kHz$	$V_{+}=6V, R_L=4\Omega$	P _o	0.5	0.6	-	W
		$V_{+}=4.5V, R_L=4\Omega$		-	0.32	-	W
		$V_{+}=3V, R_L=4\Omega$		-	120	-	mW
		$V_{+}=2V, R_L=4\Omega$		-	30	-	mW
	THD=1%, $f=1kHz$	$V_{+}=6V, R_L=4\Omega$		-	500	-	mW
		$V_{+}=4.5V, R_L=4\Omega$		-	250	-	mW
Distortion	$P_o=0.4W, R_L=4\Omega, f=1kHz$	THD	-	0.25	-	%	
Voltage gain	$f=1kHz$	A_v	41	44	47	dB	
Input impedance	$f=1kHz$	Z_{IN}	100	-	-	k Ω	
Equivalent input noise voltage	$R_s=10k\Omega$	A curve	V_{n1}	-	2.5	-	μV
		B=22Hz to 22kHz	V_{n2}	-	3	-	μV
Power supply voltage rejection ratio	$f=100Hz, C_x=100\mu F$	SVR	24	30	-	dB	
Power gain band width (-3dB)	$R_L=8\Omega, P_o=250mW$	P.B	-	200	-	kHz	

6) NJM2100M (XA0209)
Dual Operational Amplifiers

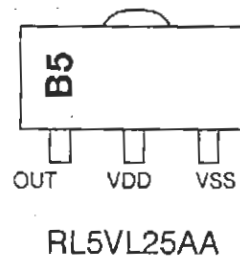
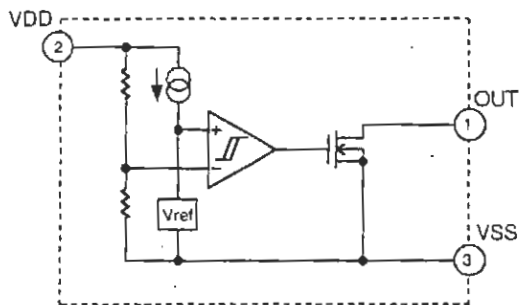


Equivalent Circuit

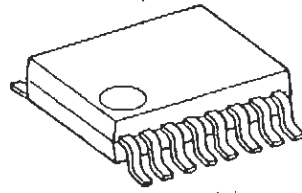


7) RN5VL25AA-T1 (XA0309)
C-MOS Voltage Detector

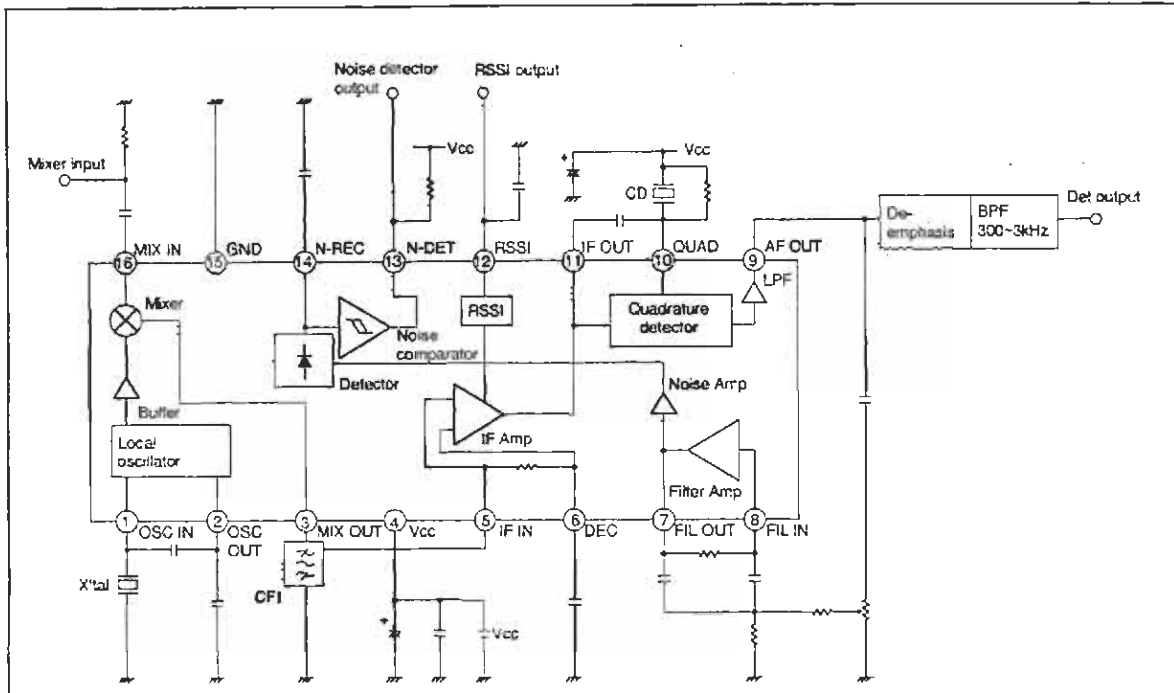
Equivalent Circuit



8) TA31136FN (XA0404)
Low Power FM IF



Block Diagram

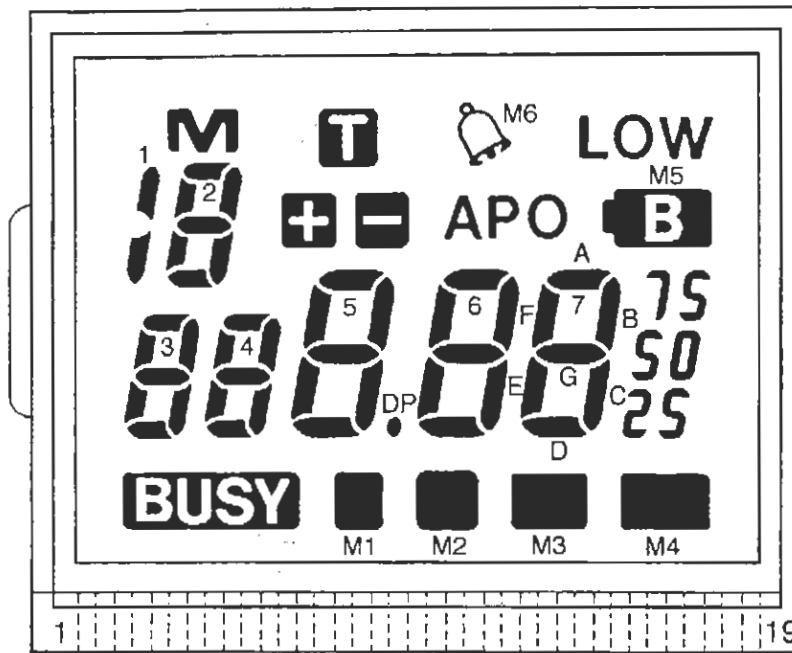


9) Transistor, Diode and LED Outline Drawings

Top View

1SS356 XD0272	1SV237 XD0141	1SV239 XD0236	1SV257 XD0293	MA111 XD0290	SML-110MT XL0037	SML-310UT XL0035	U1GWJ44 XD0225
2SA1576 XT0094	2SC3356 XT0142	2SC4081 XT0095	2SC4213A XT0105	2SC4226 XT0141	2SC5065 XT0137	UN511H XU0166	UN2122 XU0167
UN5214 XU0052	XN111M XU0046	XD0134 HVU359					

10) LCD
LCD Pattern

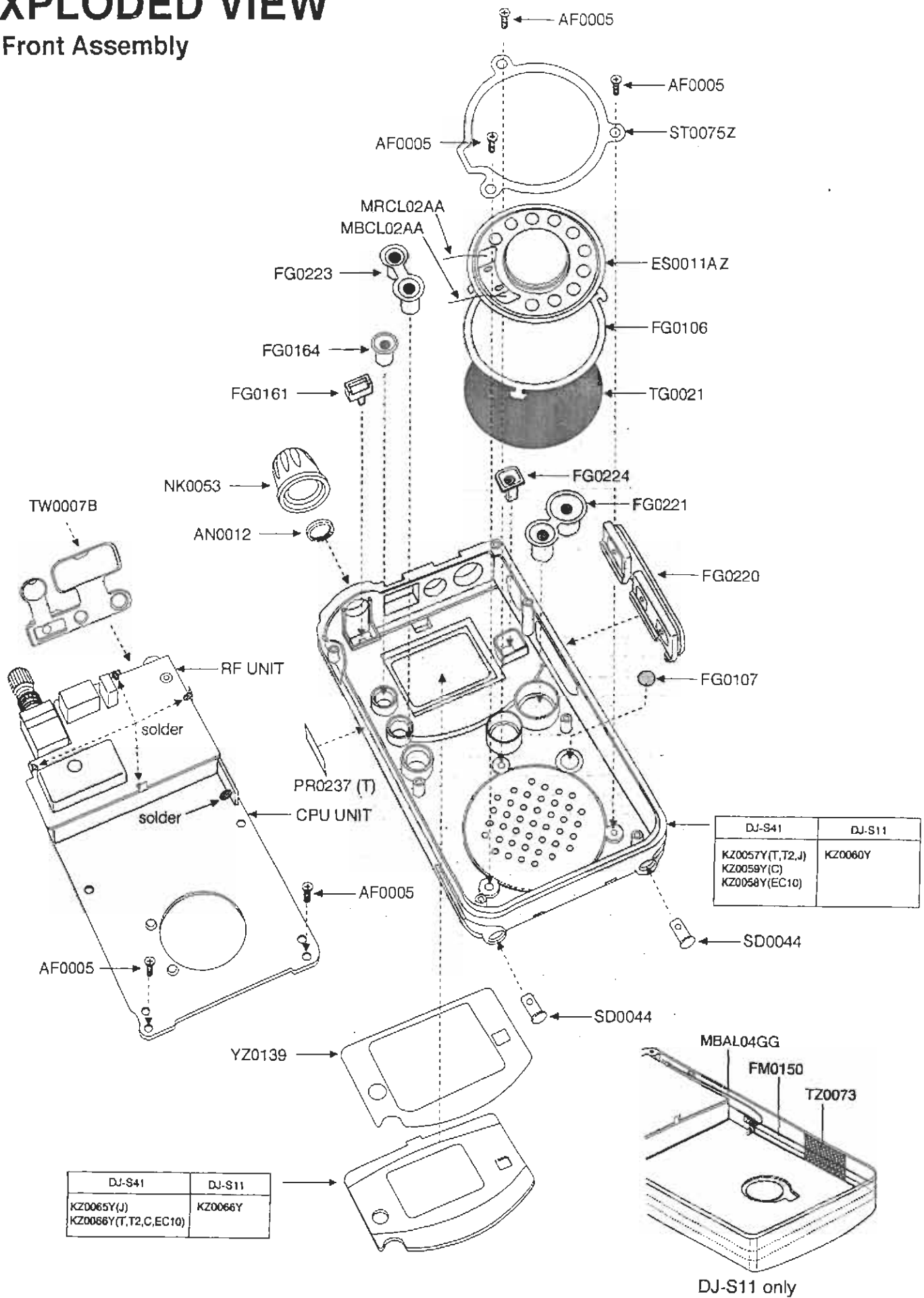


LCD connection table

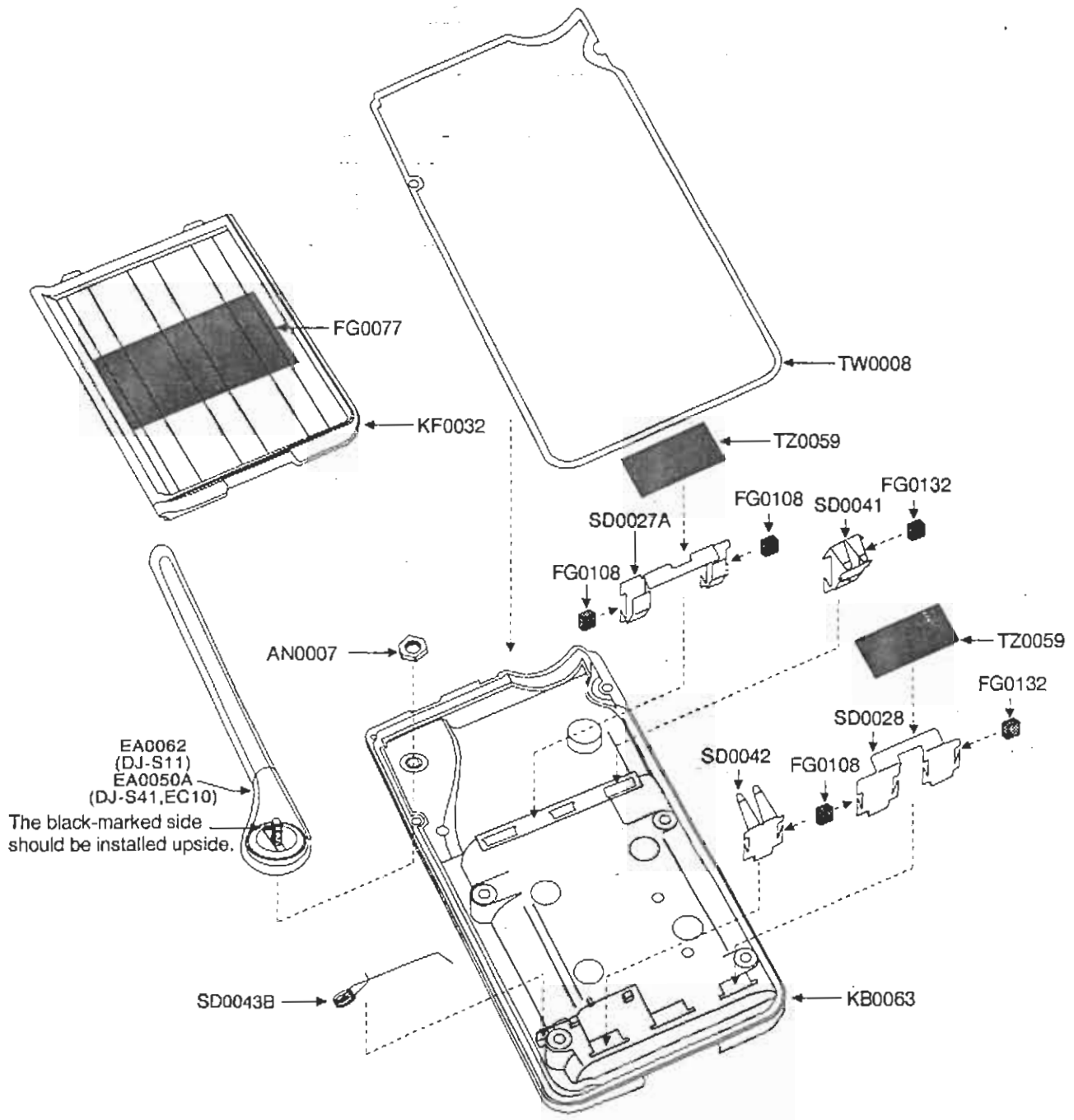
No.	COM1	COM2	COM3	COM4
1	COM1	-	-	-
2	-	COM2	-	-
3	-	-	COM3	-
4	-	-	-	COM4
5	[-]	[+]	[T]	M
6	2E	2G	2F	1B, C
7	2C	2B	2A	2D
8	APO	M5	LOW	M6
9	3F	3G	3E	[BUSY]
10	3A	3B	3C	3D
11	4F	4G	4E	M1
12	4A	4B	4C	4D
13	5F	5G	5E	M2
14	5A	5B	5C	5D
15	6F	6G	6E	DP
16	6A	6B	6C	6D
17	7F	7G	7E	M3
18	7A	7B	7C	7D
19	75	50	25	M4

EXPLODED VIEW

1) Front Assembly



2) Rear Assembly 1



For DJ-S41T/T2(J)/(C) & EC10

CPU Unit

Ref. No.	Parts No.	Description	Parts Name	Ver.
R16	RK3022	Chip R.	ERJ3GSY470V	
R19	RK3017	Chip R.	ERJ3GSY080V	
R20	RK3024	Chip R.	ERJ3GSY470V	
R21	RK3026	Chip R.	ERJ3GSY101V	
R22	RK3022	Chip R.	ERJ3GSY470V	
R23	RK3026	Chip R.	ERJ3GSY101V	
R24	RK3030	Chip R.	ERJ3GSY221V	
R25	RK3028	Chip R.	ERJ3GSY470V	
R26	RK3024	Chip R.	ERJ3GSY101V	
R27	RK3028	Chip R.	ERJ3GSY471V	
R28	RK3028	Chip R.	ERJ3GSY101V	
R29	RK3028	Chip R.	ERJ3GSY101V	
R30	RK3022	Chip R.	ERJ3GSY101V	
R31	RK3022	Chip R.	ERJ3GSY101V	
R32	RK3024	Chip R.	ERJ3GSY101V	
R33	RK3024	Chip R.	ERJ3GSY101V	
R34	RK3024	Chip R.	ERJ3GSY101V	
R35	RK3024	Chip R.	ERJ3GSY101V	
R36	RK3024	Chip R.	ERJ3GSY101V	
R37	RK3024	Chip R.	ERJ3GSY101V	
R38	RK3024	Chip R.	ERJ3GSY101V	
R39	RK3024	Chip R.	ERJ3GSY101V	
R40	RK3024	Chip R.	ERJ3GSY101V	
R41	RK3024	Chip R.	ERJ3GSY101V	
R42	RK3024	Chip R.	ERJ3GSY101V	
R43	RK3024	Chip R.	ERJ3GSY101V	
R44	RK3024	Chip R.	ERJ3GSY101V	
R45	RK3024	Chip R.	ERJ3GSY101V	
R46	RK3024	Chip R.	ERJ3GSY101V	
R47	RK3024	Chip R.	ERJ3GSY101V	
R48	RK3024	Chip R.	ERJ3GSY101V	
R49	RK3024	Chip R.	ERJ3GSY101V	
R50	RK3024	Chip R.	ERJ3GSY101V	
R51	RK3024	Chip R.	ERJ3GSY101V	
R52	RK3024	Chip R.	ERJ3GSY101V	
R53	RK3024	Chip R.	ERJ3GSY101V	
R54	RK3024	Chip R.	ERJ3GSY101V	
R55	RK3024	Chip R.	ERJ3GSY101V	
R56	RK3024	Chip R.	ERJ3GSY101V	
R57	RK3024	Chip R.	ERJ3GSY101V	
R58	RK3024	Chip R.	ERJ3GSY101V	
R59	RK3024	Chip R.	ERJ3GSY101V	
R60	RK3024	Chip R.	ERJ3GSY101V	
R61	RK3024	Chip R.	ERJ3GSY101V	
R62	RK3024	Chip R.	ERJ3GSY101V	
R63	RK3024	Chip R.	ERJ3GSY101V	
R64	RK3024	Chip R.	ERJ3GSY101V	
R65	RK3024	Chip R.	ERJ3GSY101V	
R66	RK3024	Chip R.	ERJ3GSY101V	
R67	RK3024	Chip R.	ERJ3GSY101V	
R68	RK3024	Chip R.	ERJ3GSY101V	
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R75	RK3024	Chip R.	ERJ3GSY101V	
R76	RK3024	Chip R.	ERJ3GSY101V	
R77	RK3024	Chip R.	ERJ3GSY101V	
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R79	RK3024	Chip R.	ERJ3GSY101V	
R80	RK3024	Chip R.	ERJ3GSY101V	
R81	RK3024	Chip R.	ERJ3GSY101V	
R82	RK3024	Chip R.	ERJ3GSY101V	
R83	RK3024	Chip R.	ERJ3GSY101V	
R84	RK3024	Chip R.	ERJ3GSY101V	
R85	RK3024	Chip R.	ERJ3GSY101V	
R86	RK3024	Chip R.	ERJ3GSY101V	
R87	RK3024	Chip R.	ERJ3GSY101V	
R88	RK3024	Chip R.	ERJ3GSY101V	
R89	RK3024	Chip R.	ERJ3GSY101V	
R90	RK3024	Chip R.	ERJ3GSY101V	
R91	RK3024	Chip R.	ERJ3GSY101V	
R92	RK3024	Chip R.	ERJ3GSY101V	
R93	RK3024	Chip R.	ERJ3GSY101V	
R94	RK3024	Chip R.	ERJ3GSY101V	
R95	RK3024	Chip R.	ERJ3GSY101V	
R96	RK3024	Chip R.	ERJ3GSY101V	
R97	RK3024	Chip R.	ERJ3GSY101V	
R98	RK3024	Chip R.	ERJ3GSY101V	
R99	RK3024	Chip R.	ERJ3GSY101V	
R100	RK3024	Chip R.	ERJ3GSY101V	

RF Unit / CPU Unit

Ref. No.	Parts No.	Description	Parts Name	Ver.
X1	XQ009	Crystal	36CHT 22.5MHz	J
X1	XQ008	Crystal	36CHT 22.5MHz	C
X1	XQ009	Crystal	36CHT 22.5MHz	EC10
X2	XK004	Discriminator	CDM4802A	
	772010	Silicon Damper		
	SS0057	Chassis		
	UW004C	PCB		
CPU Unit				
C301	CS004	Electrolytic C	4CV 2205Siloby	
C301	CS0612	Chip Tantal	F50C227MG Lalar	
C302	CS0063	Chip Tantal	TMC5A1V104MTR	
C303	CS0049	Chip Tantal	TMC5A1C005MTR	
C304	CU0047	Chip C.	C1608CH1H10K7A	
C305	CS0064	Chip Tantal	C1608JH1H10K7A	
C306	CS0064	Chip Tantal	TMC5A1C005MTR	
C307	CU0047	Chip C.	C1608JH1H10K7A	
C308	CS0049	Chip Tantal	TMC5A1C005MTR	
C309	CU0035	Chip C.	C1608JH1H10K7A	
C310	CU0021	Chip C.	C1608CH1H10K7A	
C311	CU0051	Chip C.	C1608JH1H10K7A	
C312	CU0041	Chip C.	C1608JH1H10K7A	
C313	CU0063	Chip Tantal	TMC5A1C005MTR	
C314	CS0049	Chip Tantal	TMC5A1C005MTR	
C315	CS0049	Chip Tantal	TMC5A1C005MTR	
C316	CU0035	Chip C.	C1608JH1H10K7A	
C317	CU0039	Chip C.	C1608JH1H10K7A	
C318	CU0051	Chip C.	C1608JH1H10K7A	
C319	CU0061	Chip C.	C1608JH1H10K7A	
C320	CS0049	Chip Tantal	TMC5A1C005MTR	
C321	CU0038	Electrolytic C	63CV 100B5	
C322	CU0047	Chip C.	C1608JH1H10K7A	
C323	CU0059	Chip C.	C1608JH1H10K7A	
C324	CU0059	Chip C.	C1608JH1H10K7A	
C325	CS0047	Chip Tantal	TMC5A1C005MTR	
C326	CU0051	Chip C.	C1608JH1H10K7A	
C327	CU0051	Chip C.	C1608JH1H10K7A	
C328	CU0059	Chip C.	C1608JH1H10K7A	
C329	CS0068	Chip Tantal	TMC5A1C005MTR	
C330	CU0047	Chip C.	C1608JH1H10K7A	
C331	CU0051	Chip C.	C1608JH1H10K7A	
C333	CU0059	Chip C.	C1608JH1H10K7A	
C334	CU0051	Chip C.	C1608JH1H10K7A	
C335	CU0068	Chip C.	C1608JH1H10K7A	
C336	CU0061	Chip C.	C1608JH1H10K7A	

CPU Unit

Ref. No.	Parts No.	Description	Parts Name	Ver.
R16	RK3022	Chip R.	ERJ3GSY470V	
R19	RK3017	Chip R.	ERJ3GSY080V	
R20	RK3024	Chip R.	ERJ3GSY470V	
R21	RK3026	Chip R.	ERJ3GSY101V	
R22	RK3022	Chip R.	ERJ3GSY470V	
R23	RK3026	Chip R.	ERJ3GSY101V	
R24	RK3030	Chip R.	ERJ3GSY221V	
R25	RK3028	Chip R.	ERJ3GSY470V	
R26	RK3024	Chip R.	ERJ3GSY101V	
R27	RK3028	Chip R.	ERJ3GSY471V	
R28	RK3028	Chip R.	ERJ3GSY101V	
R29	RK3028	Chip R.	ERJ3GSY101V	
R30	RK3022	Chip R.	ERJ3GSY101V	
R31	RK3022	Chip R.	ERJ3GSY101V	
R32	RK3024	Chip R.	ERJ3GSY101V	
R33	RK3024	Chip R.	ERJ3GSY101V	
R34	RK3024	Chip R.	ERJ3GSY101V	
R35	RK3024	Chip R.	ERJ3GSY101V	
R36	RK3024	Chip R.	ERJ3GSY101V	
R37	RK3024	Chip R.	ERJ3GSY101V	
R38	RK3024	Chip R.	ERJ3GSY101V	
R39	RK3024	Chip R.	ERJ3GSY101V	
R40	RK3024	Chip R.	ERJ3GSY101V	
R41	RK3024	Chip R.	ERJ3GSY101V	
R42	RK3024	Chip R.	ERJ3GSY101V	
R43	RK3024	Chip R.	ERJ3GSY101V	
R44	RK3024	Chip R.	ERJ3GSY101V	
R45	RK3024	Chip R.	ERJ3GSY101V	
R46	RK3024	Chip R.	ERJ3GSY101V	
R47	RK3024	Chip R.	ERJ3GSY101V	
R48	RK3024	Chip R.	ERJ3GSY101V	
R49	RK3024	Chip R.	ERJ3GSY101V	
R50	RK3024	Chip R.	ERJ3GSY101V	
R51	RK3024	Chip R.	ERJ3GSY101V	
R52	RK3024	Chip R.	ERJ3GSY101V	
R53	RK3024	Chip R.	ERJ3GSY101V	
R54	RK3024	Chip R.	ERJ3GSY101V	
R55	RK3024	Chip R.	ERJ3GSY101V	
R56	RK3024	Chip R.	ERJ3GSY101V	
R57	RK3024	Chip R.	ERJ3GSY101V	
R58	RK3024	Chip R.	ERJ3GSY101V	
R59	RK3024	Chip R.	ERJ3GSY101V	
R60	RK3024	Chip R.	ERJ3GSY101V	
R61	RK3024	Chip R.	ERJ3GSY101V	
R62	RK3024	Chip R.	ERJ3GSY101V	
R63	RK3024	Chip R.	ERJ3GSY101V	
R64	RK3024	Chip R.	ERJ3GSY101V	
R65	RK3024	Chip R.	ERJ3GSY101V	
R66	RK3024	Chip R.	ERJ3GSY101V	
R67	RK3024	Chip R.	ERJ3GSY101V	
R68	RK3024	Chip R.	ERJ3GSY101V	
R69	RK3024	Chip R.	ERJ3GSY101V	
R70	RK3024	Chip R.	ERJ3GSY101V	
R71	RK3024	Chip R.	ERJ3GSY101V	
R72	RK3024	Chip R.	ERJ3GSY101V	
R73	RK3024	Chip R.	ERJ3GSY101V	
R74	RK3024	Chip R.	ERJ3GSY101V	
R75	RK3024	Chip R.	ERJ3GSY101V	
R76	RK3024	Chip R.	ERJ3GSY101V	
R77	RK3024	Chip R.	ERJ3GSY101V	
R78	RK3024	Chip R.	ERJ3GSY101V	
R79	RK3024	Chip R.	ERJ3GSY101V	
R80	RK3024	Chip R.	ERJ3GSY101V	
R81	RK3024	Chip R.	ERJ3GSY101V	
R82	RK3024	Chip R.	ERJ3GSY101V	
R83	RK3024	Chip R.	ERJ3GSY101V	
R84	RK3024	Chip R.	ERJ3GSY101V	
R85	RK3024	Chip R.	ERJ3GSY101V	
R86	RK3024	Chip R.	ERJ3GSY101V	
R87	RK3024	Chip R.	ERJ3GSY101V	
R88	RK3024	Chip R.	ERJ3GSY101V	
R89	RK3024	Chip R.	ERJ3GSY101V	
R90	RK3024	Chip R.	ERJ3GSY101V	
R91	RK3024	Chip R.	ERJ3GSY101V	
R92	RK3024	Chip R.	ERJ3GSY101V	
R93	RK3024	Chip R.	ERJ3GSY101V	
R94	RK3024	Chip R.	ERJ3GSY101V	
R95	RK3024	Chip R.	ERJ3GSY101V	
R96	RK3024	Chip R.	ERJ3GSY101V	
R97	RK3024	Chip R.	ERJ3GSY101V	
R98	RK3024	Chip R.	ERJ3GSY101V	
R99	RK3024	Chip R.	ERJ3GSY101V	
R100	RK3024	Chip R.	ERJ3GSY101V	

ADJUSTMENT

For DJ-S41T/T2/(J)/(C) & EC10

1) Required Test Equipment

1. Digital Multimeter

2. Regulated Power Supply

Supply voltage: 5.5VDC
Current: 1A or more

3. Oscilloscope

Measurable frequency: Audio Frequency

4. Spectrum Analyzer

Measuring range: Up to 2GHz or more

5. Power Meter

Measurable frequency: Up to 500MHz
Impedance: 50Ω
Power: 1W or more

6. Speaker

Impedance: 8Ω

7. SSG

Output frequency: Up to 1GHz
Output level: -20dB/0.1μV to 120dB/1V
Modulation: FM

8. Transceiver Tester

Up to 500MHz

a. Frequency Counter

b. Power Meter

Impedance: 50Ω
Measuring range: 1W or more

c. Audio Voltmeter

Measurable frequency: 50Hz ~ 10kHz
Sensitivity: 1mV ~ 10V

d. Distortion Meter

Measurable frequency: 1kHz
Input level: Up to 40dB
Distortion level: 1% ~ 100%

e. Audio Generator

Output frequency: 1kHz ~ 10kHz
Output impedance: 600Ω

f. Linear Detector

Note:

1. 5.5V of power voltage is supplied from DC jack.
2. The transmitter system should be adjusted or inspected in high power.

2) Adjustment

For DJ-S41T/T2/(J)/(C) & EC10

Item	Condition	Measurement			Adjustment			Specifications
		Equipment	Unit	Terminal	Unit	Parts	Method	
PLL VCO	f=439.95 RX(J) f=434.05 RX (C)(EC10) f=449.95 RX(T)	Digital Multimeter	RF	PD	VCO		See *1.	1.6~1.8V(J) 1.2~1.4V(C) 0.7~0.9V(T)
	f=439.95 TX(J) f=434.05 TX (C)(EC10) f=449.95 TX(T)						-	Check
Reference Frequency	f=435.05 TX(J)(T) f=434.05 TX (C)(EC10)	Freq. Counter			RF	TC5	f=435.05 (J)(T) f=434.05 (C)(EC10)	±100Hz
TX Power	f=434.05 TX (C)(EC10)	Power Meter	RF	ANT	RF	RT3	10mW±0.5mW	10mW±0.5mW
TX Power Hi	f=435.05 TX(J)(T) DC=5.5V				-	-	Check	340mW or more
TX Power Low	See *2.				Check	150mW or below		
Diviation	f=435.05 TX(J)(T) f=434.05 TX (C)(EC10) AG:1kHz 50mV (-30dBm)	Linear Det. Oscilloscope Power Meter AG	RF	ANT	CPU	RT301	4.5±0.1kHz	4.5±0.1kHz
Tone	f=435.05 TX(J)(T) f=434.05 TX (C)(EC10)				Check	0.8 ~ 1.0kHz		
Sensitivity	f=435.05 RX(J)(T) f=434.05 RX (C)(EC10)	SSG Distortion Meter Oscilloscope Level Meter	RF	ANT	RF	TC2,4	12dB SINAD max.	-8dBμ (EMF) or below
Squelch	f=435.05 TX(J)(T) f=434.05 TX (C)(EC10) Output: -12dBμ Mod: ON				RF	RT2	SQ Open	-15dBμ > Close -9dBμ < Open
S meter	f=435.05 RX(J)(T) f=434.05 RX (C)(EC10) Out put: +12dBμ Mod: ON				CPU	RT302	All digits are lit up.	

*1:Extend the coil L102 so that the P.D. voltage becomes

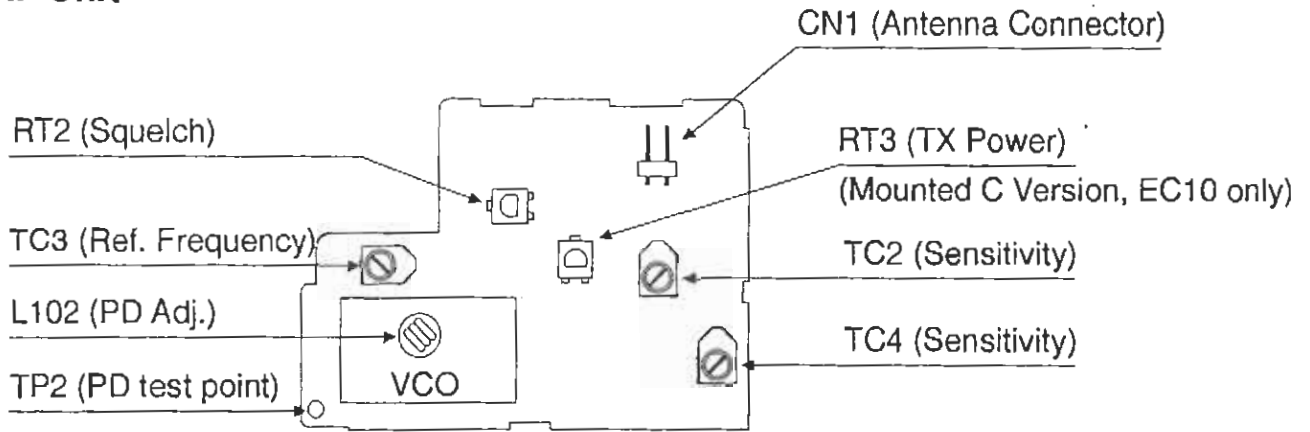
{	1.7±0.1V(J).
	1.3±0.1(C)(EC10).
	0.8±0.1V(T).

*2:Switching to Low power

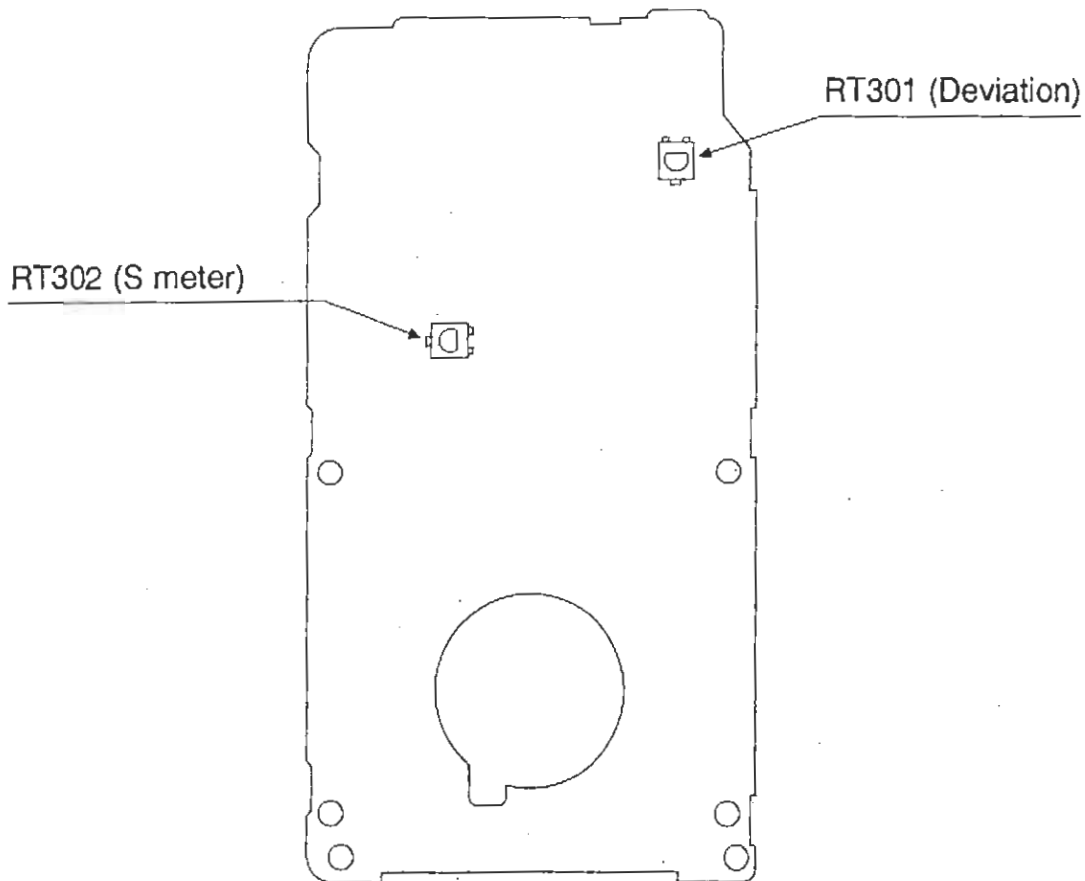
- (J)Press RPT key while transmitting.
- (T)Press SCAN key while transmitting.
- (C)(EC10)No TX power selector

3) Adjustment Points **For DJ-S41T/T2/(J)/(C) & EC10**

RF Unit



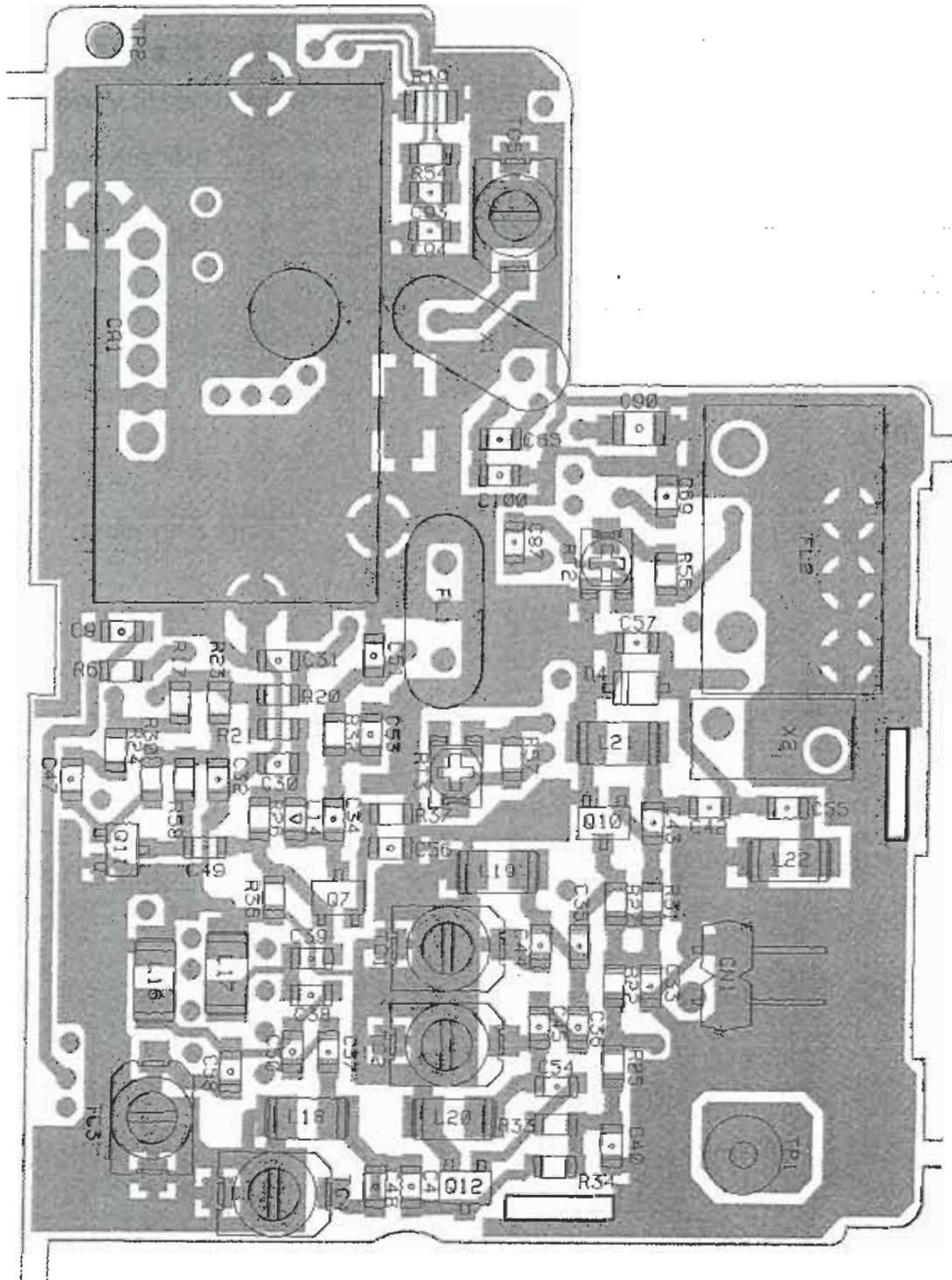
CPU Unit



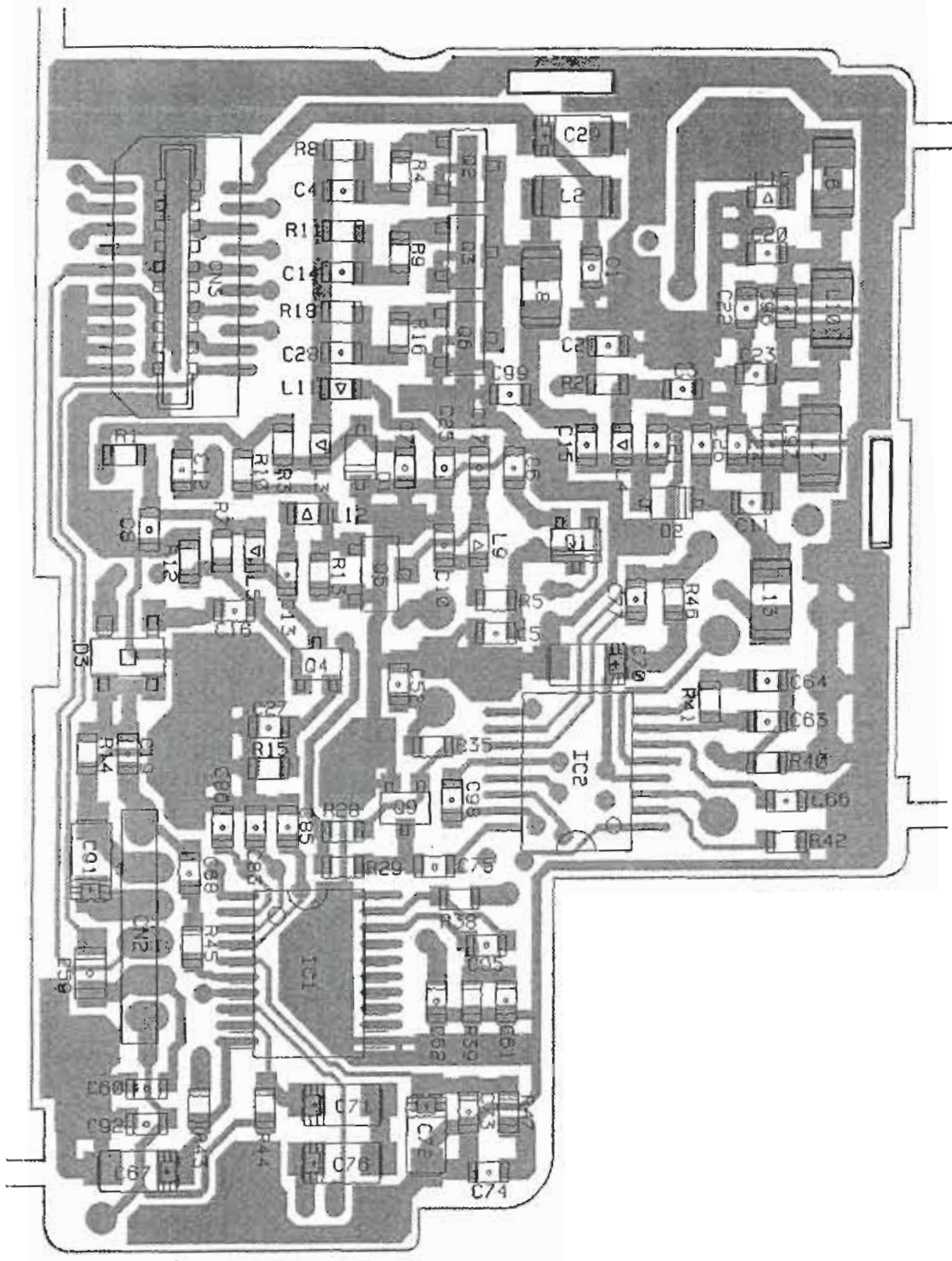
PC BOARD VIEW

1) RF Unit

Component side **For DJ-S41T/T2/(J)/(C) & EC10**

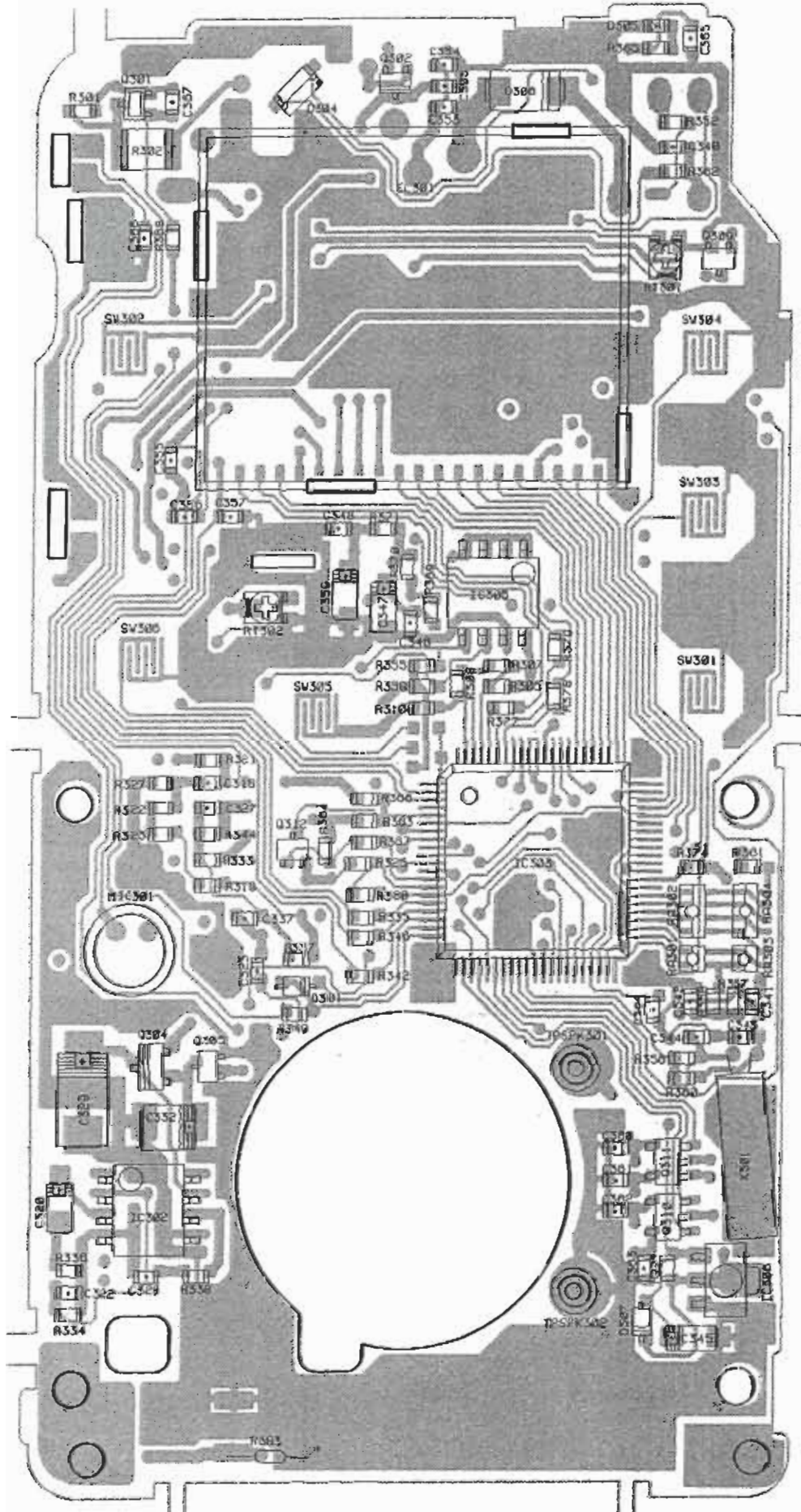


Solder side For DJ-S41T/T2/(J)/(C) & EC10



2) CPU Unit early version

Component side **For DJ-S41T/T2/(J)/(C)** (Not for EC10)

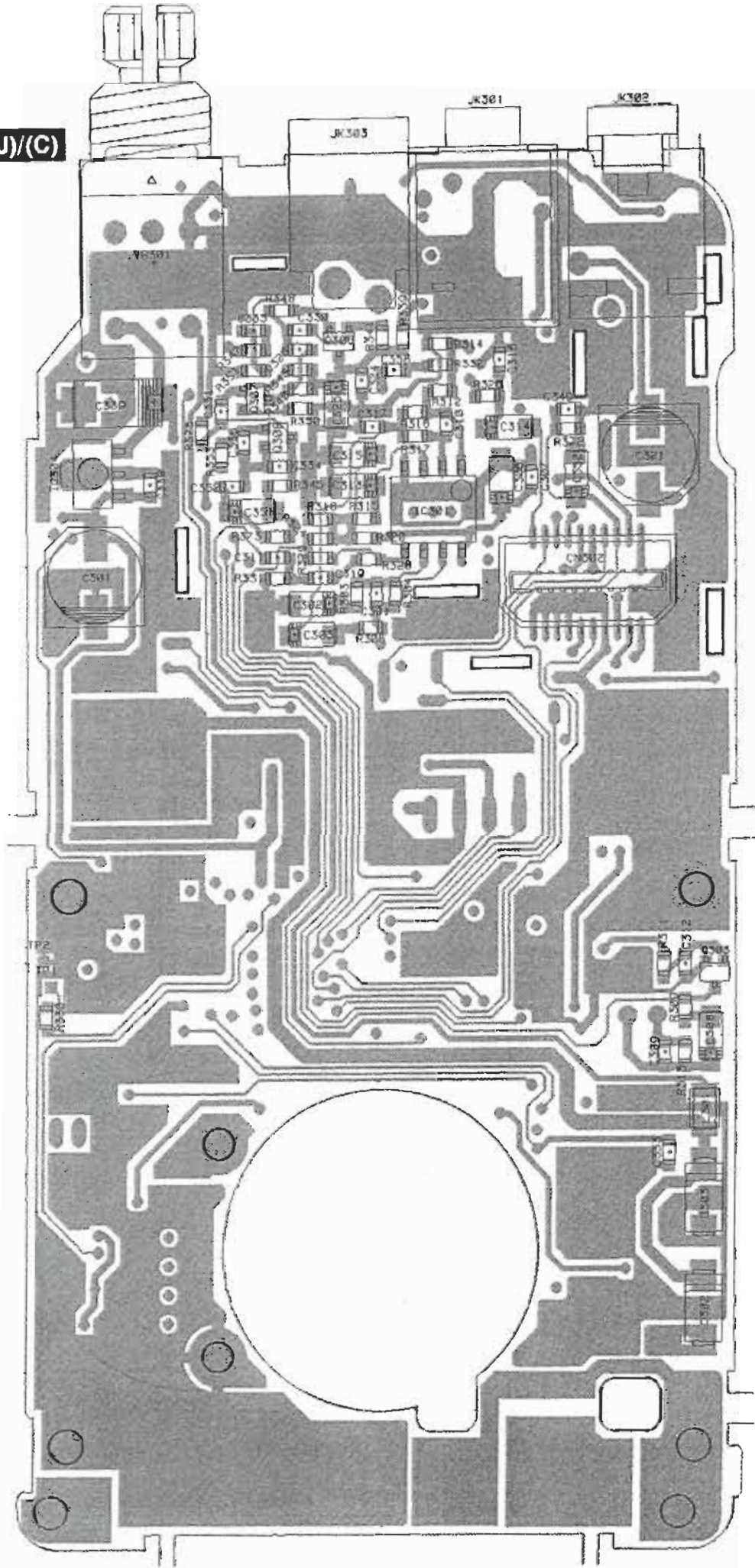


* Installing R383 will make C41 rechargeable thru the DC jack (max. 6V DC).

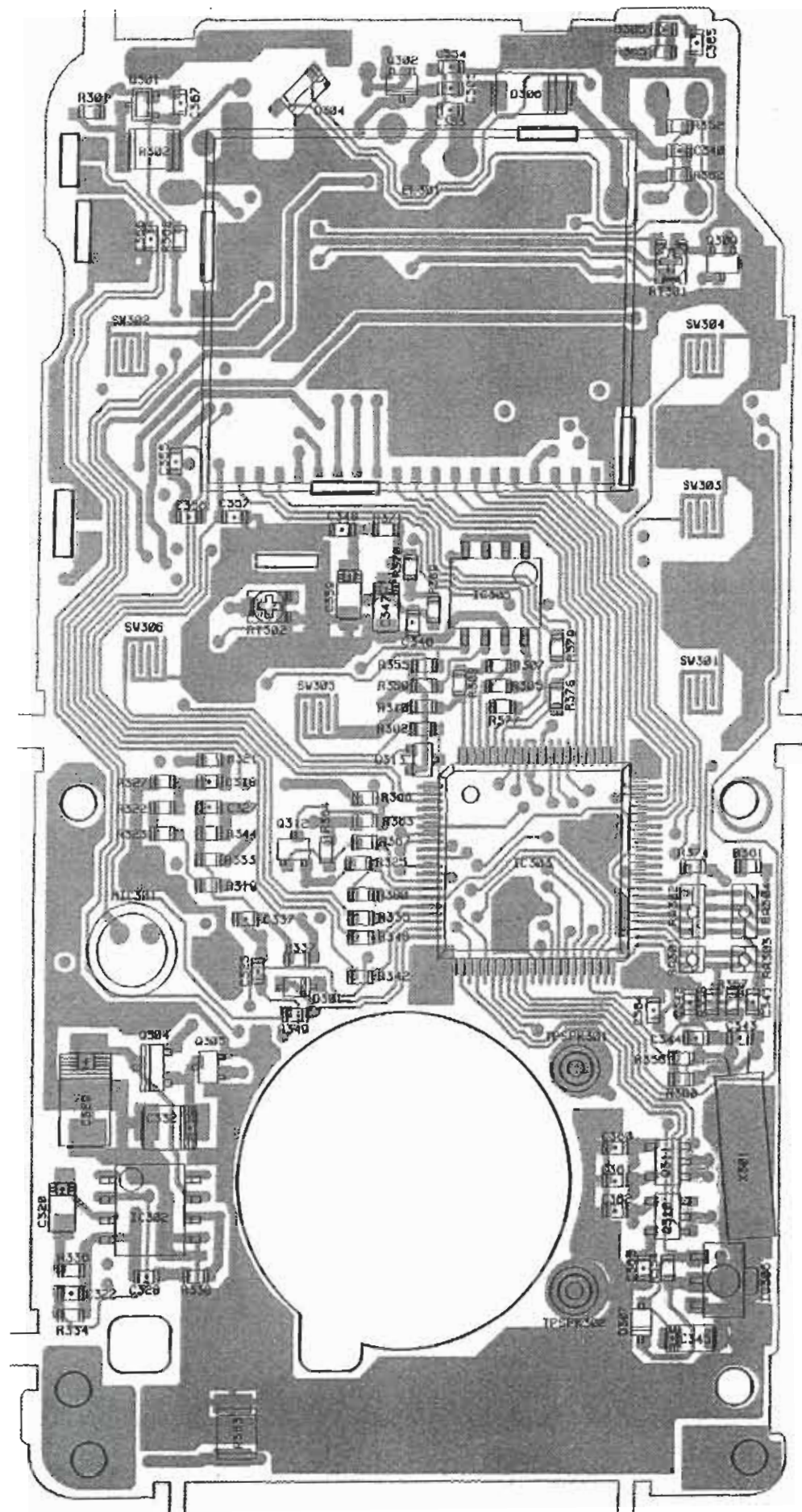
Solder side

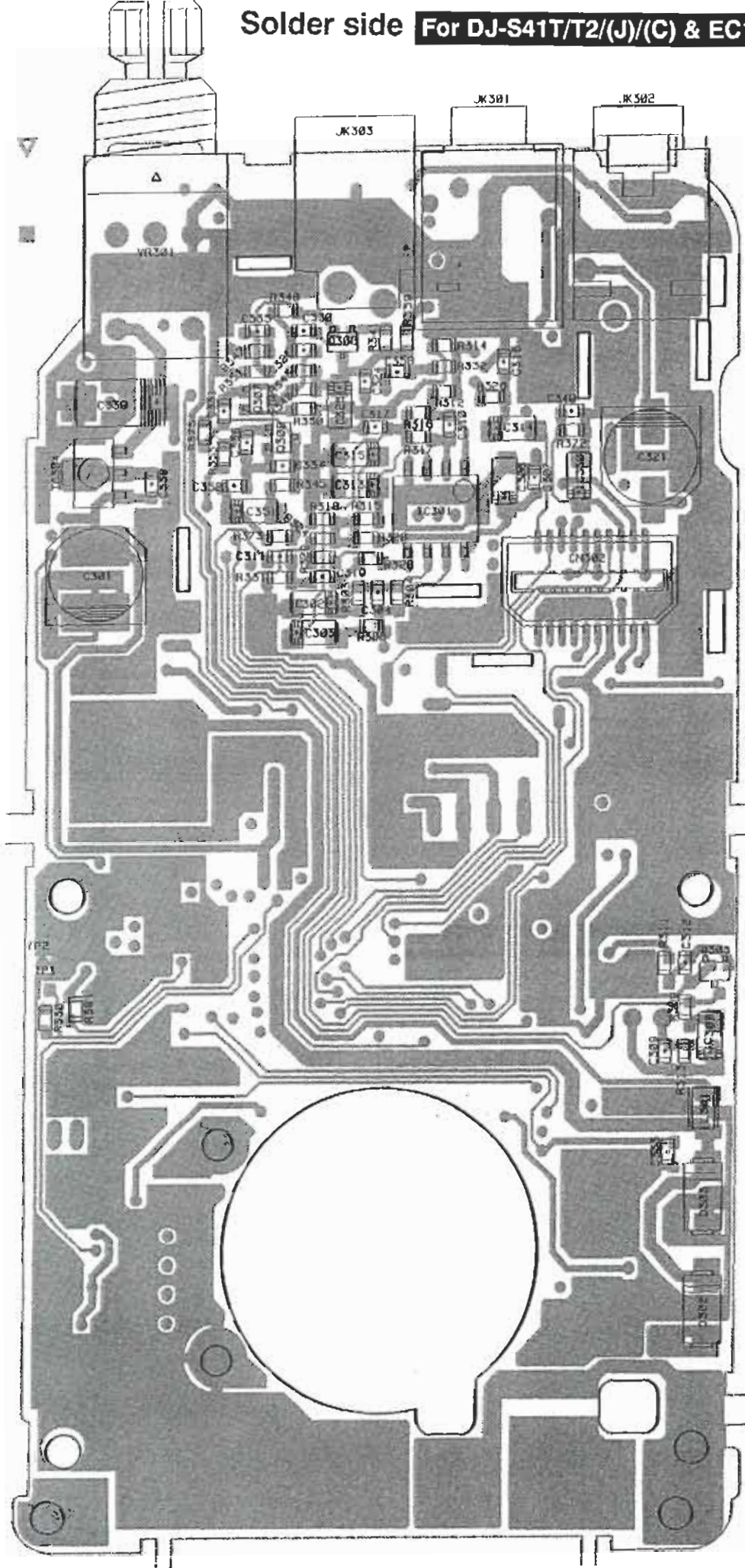
For DJ-S41T/T2/(J)/(C)

(Not for EC10)



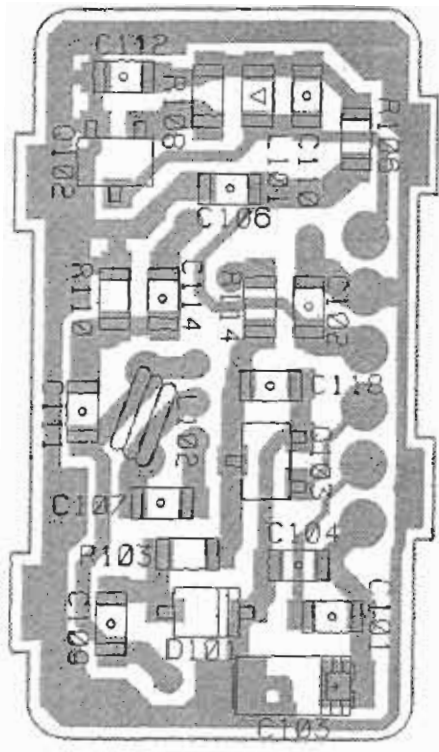
3) CPU Unit later version Component side For DJ-S41T/T2/(J)/(C) & EC10



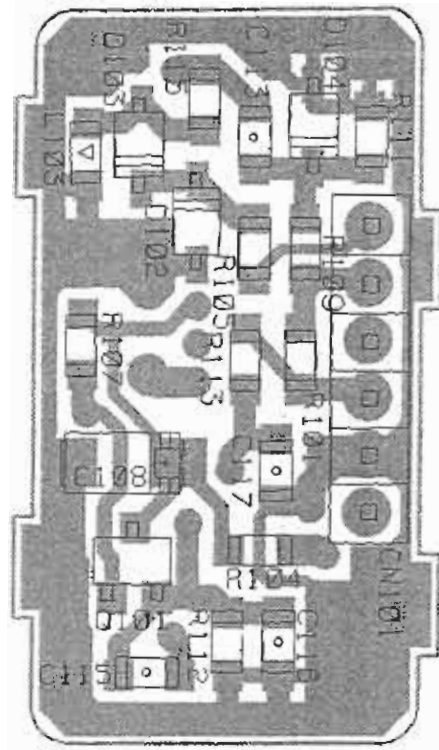


4) VCO Unit **For DJ-S41T/T2/(J)/(C) & EC10**

Component side

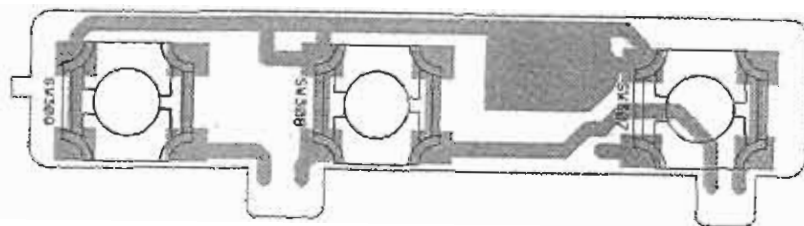


Solder side

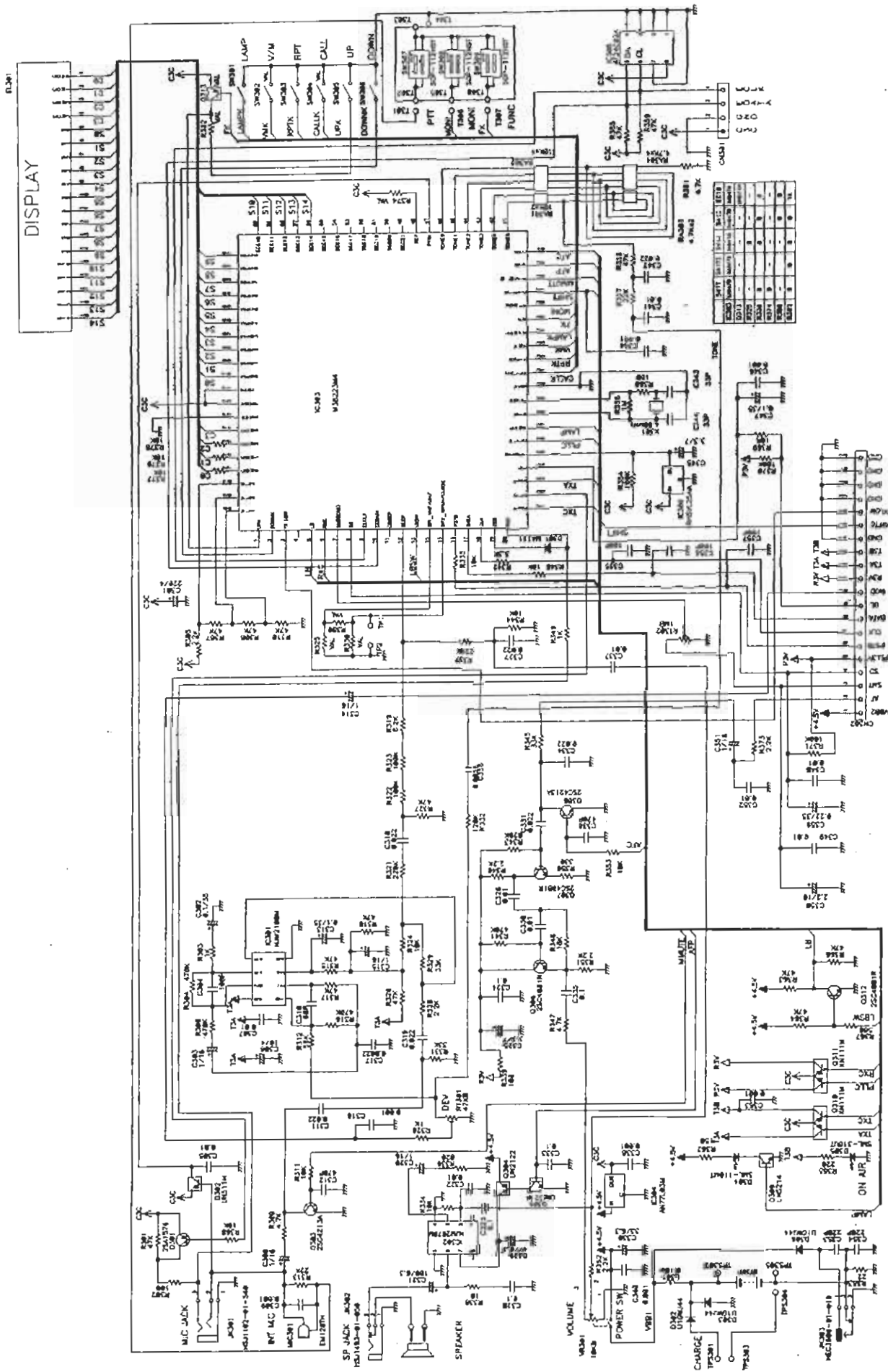


5) SW Unit **For DJ-S41T/T2/(J)/(C) & EC10**

Component side

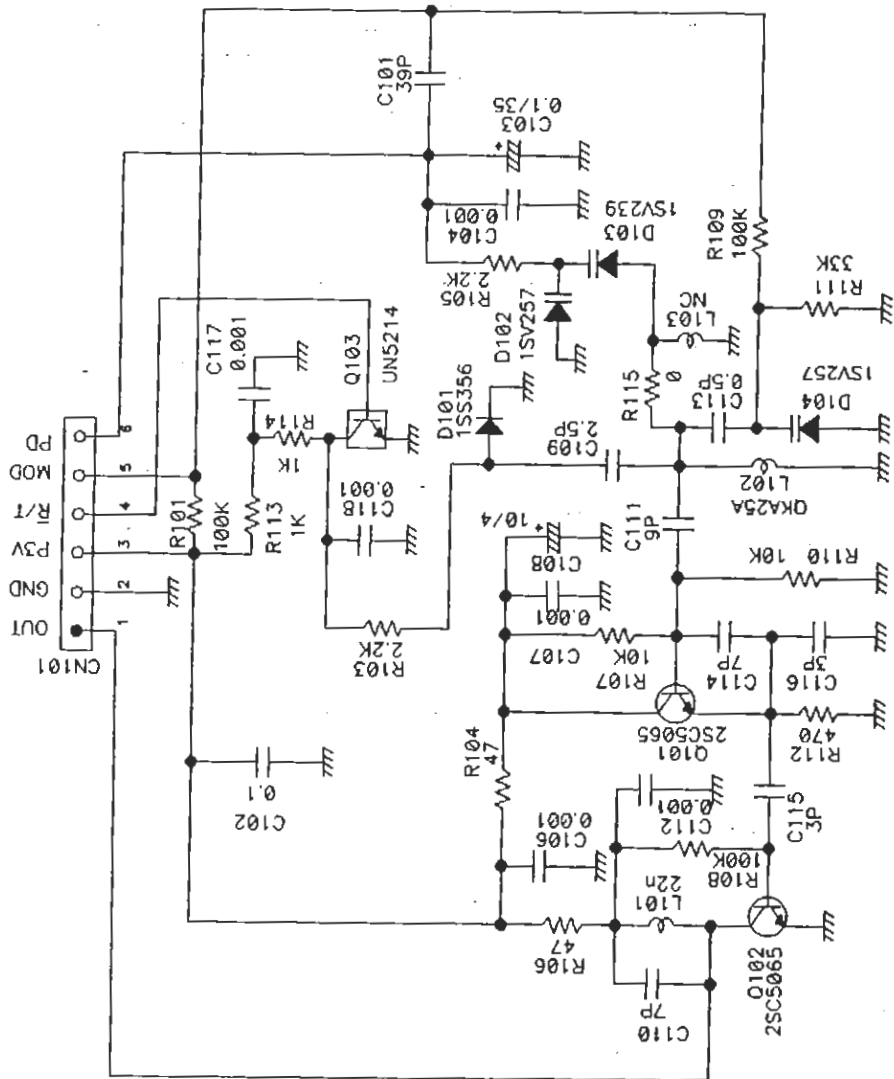


2) CPU UNIT For DJ-S41T/2(J)/(C) & EC10



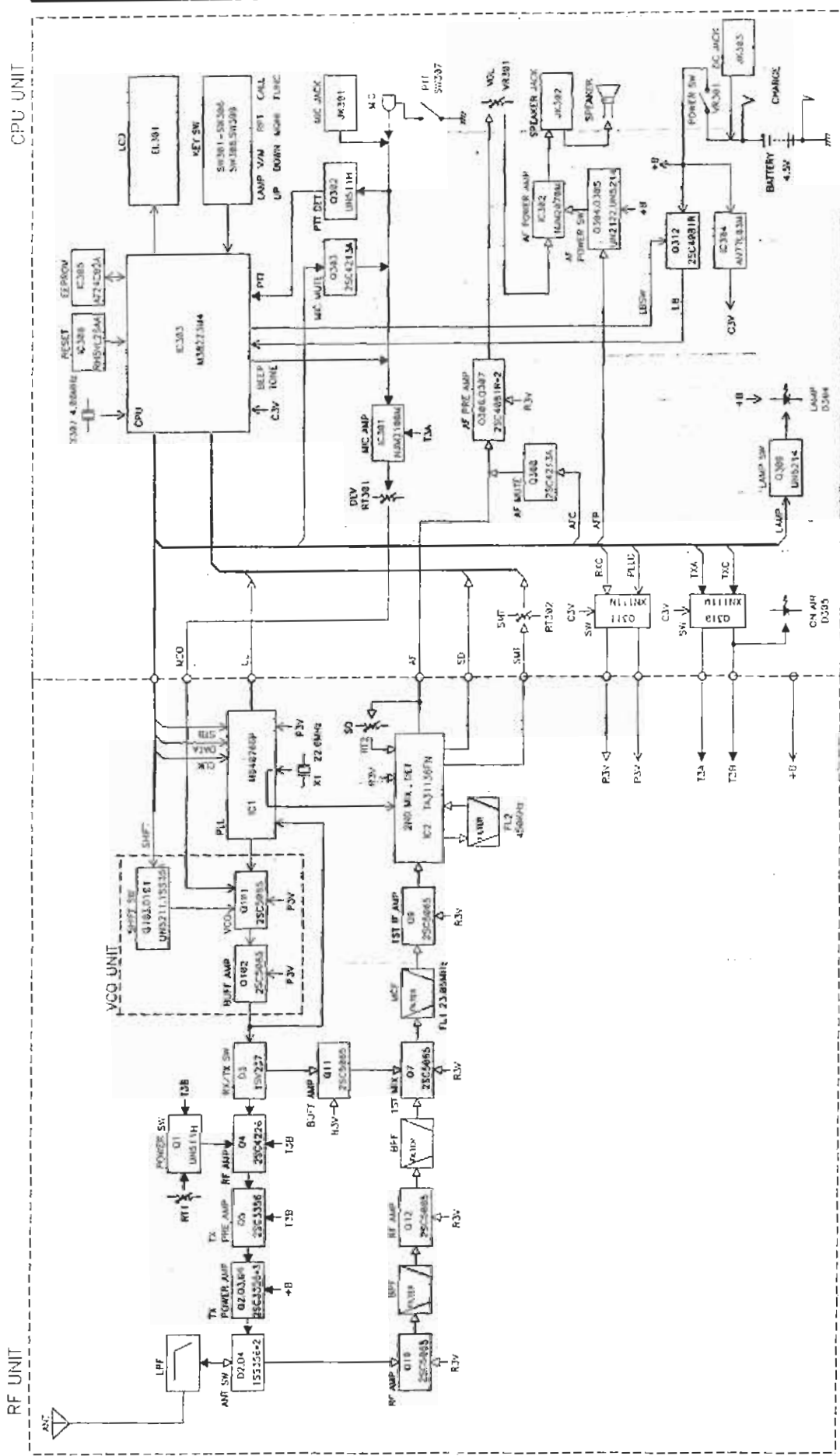
Installing R383 will make C41 rechargeable thru the DC Jack (max. 6V DC).

3) VCO Unit For DJ-S41T/T2/(J)/(C) & EC10



BLOCK DIAGRAM

For DJ-S41T/T2/(J)/(C) & EC10



PARTS LIST

For DJ-S11T/E

RF Unit				RF Unit					
Ref. No.	Parts No.	Description	Parts Name	Ver.	Ref. No.	Parts No.	Description	Parts Name	Ver.
C1	CU3005	Chip C.	C16063BH102KTA		R1	RK3026	Chip R.	ERJ6G5YJ04V	
C2	CU3005	Chip C.	C16063BH102KTA		R2	RK3022	Chip R.	ERJ6G5YJ07V	
C3	CU3005	Chip C.	C16063BH102KTA		R3	RK3026	Chip R.	ERJ6G5YJ011V	
C4	CU3005	Chip C.	C16063BH102KTA		R4	RK3030	Chip R.	ERJ6G5YJ021V	
C5	CU3005	Chip C.	C16063BH102KTA		R5	RK3062	Chip R.	ERJ6G5YJ04V	
C6	CU3005	Chip C.	C16063BH102KTA		R6	RK3054	Chip R.	ERJ6G5YJ07V	
C7	CU3005	Chip C.	C16063BH102KTA		R8	RK3066	Chip R.	ERJ6G5YJ054V	
C8	CU3005	Chip C.	C16063BH102KTA		R9	RK3038	Chip R.	ERJ6G5YJ02V	
C9	CU3005	Chip C.	C16063BH102KTA		R10	RK3048	Chip R.	ERJ6G5YJ04V	
C10	CU3005	Chip C.	C16063BH102KTA		R20	RK3062	Chip R.	ERJ6G5YJ04V	
C11	CU3005	Chip C.	C16063BH102KTA		R31	RK3069	Chip R.	ERJ6G5YJ054V	
C12	CU3005	Chip C.	C16063BH102KTA		R32	RK3032	Chip R.	ERJ6G5YJ031V	
C13	CU3005	Chip C.	C16063BH102KTA		R33	RK3061	Chip R.	ERJ6G5YJ080V	
C14	CU3005	Chip C.	C16063BH102KTA		R34	RK3041	Chip R.	ERJ6G5YJ030V	
C15	CU3005	Chip C.	C16063BH102KTA		R35	RK3008	Chip R.	ERJ6G5YJ02V	
C16	CU3005	Chip C.	C16063BH102KTA		R37	RK3005	Chip R.	ERJ6G5YJ011V	
C17	CU3005	Chip C.	C16063BH102KTA		R38	RK3036	Chip R.	ERJ6G5YJ011V	
C18	CU3005	Chip C.	C16063BH102KTA		R39	RK3054	Chip R.	ERJ6G5YJ023V	
C19	CU3005	Chip C.	C16063BH102KTA		R40	RK3044	Chip R.	ERJ6G5YJ032V	
C20	CU3005	Chip C.	C16063BH102KTA		R41	RK3064	Chip R.	ERJ6G5YJ054V	
C21	CU3005	Chip C.	C16063BH102KTA		R42	RK3066	Chip R.	ERJ6G5YJ054V	
C22	CU3005	Chip C.	C16063BH102KTA		R44	RK3033	Chip R.	ERJ6G5YJ03V	
C23	CU3005	Chip C.	C16063BH102KTA		R45	RK3026	Chip R.	ERJ6G5YJ02V	
C24	CU3005	Chip C.	C16063BH102KTA		R46	RK3040	Chip R.	ERJ6G5YJ052V	
C25	CU3005	Chip C.	C16063BH102KTA		R47	RK3030	Chip R.	ERJ6G5YJ030V	
C26	CU3005	Chip C.	C16063BH102KTA		R48	RK3039	Chip R.	ERJ6G5YJ022V	
C27	CU3005	Chip C.	C16063BH102KTA		R54	RK3044	Chip R.	ERJ6G5YJ054V	
C28	CU3005	Chip C.	C16063BH102KTA		R56	RK3062	Chip R.	ERJ6G5YJ04V	
C29	CU3005	Chip C.	C16063BH102KTA		R57	RK3034	Chip R.	ERJ6G5YJ071V	
C30	CU3005	Chip C.	C16063BH102KTA		R58	RK3005	Chip R.	ERJ6G5YJ080V	
C31	CU3005	Chip C.	C16063BH102KTA		R59	RK3001	Chip R.	ERJ6G5YJ080V	
C32	CU3005	Chip C.	C16063BH102KTA		R60	RK3001	Chip R.	ERJ6G5YJ071V	
C33	CU3005	Chip C.	C16063BH102KTA		R61	RK3001	Chip R.	ERJ6G5YJ080V	
C34	CU3005	Chip C.	C16063BH102KTA		R62	RK3001	Chip R.	ERJ6G5YJ080V	
C35	CU3005	Chip C.	C16063BH102KTA		R63	RK3001	Chip R.	ERJ6G5YJ080V	
C36	CU3005	Chip C.	C16063BH102KTA		R64	RK3001	Chip R.	ERJ6G5YJ080V	
C37	CU3005	Chip C.	C16063BH102KTA		R66	RK3001	Chip R.	ERJ6G5YJ080V	
C38	CU3005	Chip C.	C16063BH102KTA		R72	RH946	Trim. Pot	MV2225KBRM473	
C39	CU3005	Chip C.	C16063BH102KTA		TC2	CT0030	Trimmer	CT220CW	
C40	CU3005	Chip C.	C16063BH102KTA		TC4	CT0030	Trimmer	CT220CW	
C41	CU3005	Chip C.	C16063BH102KTA		TC5	CT0012	Trimmer	CT210AW	
C42	CU3005	Chip C.	C16063BH102KTA		TF1	UE0218A	Connector	CONTACT PIN DMS41	
C43	CU3005	Chip C.	C16063BH102KTA		X1	XQ0080	Crystal	38CTX 25.00MHZ	
C44	CU3005	Chip C.	C16063BH102KTA		X2	XK0064	Ceramic Disc	C08M45C294	
C45	CU3005	Chip C.	C16063BH102KTA						
C46	CU3005	Chip C.	C16063BH102KTA						
C47	CU3005	Chip C.	C16063BH102KTA						
C48	CU3005	Chip C.	C16063BH102KTA						
C49	CU3005	Chip C.	C16063BH102KTA						
C50	CU3005	Chip C.	C16063BH102KTA						
C51	CU3005	Chip C.	C16063BH102KTA						
C52	CU3005	Chip C.	C16063BH102KTA						
C53	CU3005	Chip C.	C16063BH102KTA						
C54	CU3005	Chip C.	C16063BH102KTA						
C55	CU3005	Chip C.	C16063BH102KTA						
C56	CU3005	Chip C.	C16063BH102KTA						
C57	CU3005	Chip C.	C16063BH102KTA						
C58	CU3005	Chip C.	C16063BH102KTA						
C59	CU3005	Chip C.	C16063BH102KTA						
C60	CU3005	Chip C.	C16063BH102KTA						
C61	CU3005	Chip C.	C16063BH102KTA						
C62	CU3005	Chip C.	C16063BH102KTA						
C63	CU3005	Chip C.	C16063BH102KTA						
C64	CU3005	Chip C.	C16063BH102KTA						
C65	CU3005	Chip C.	C16063BH102KTA						
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C73	CU3005	Chip C.	C16063BH102KTA						
C74	CU3005	Chip C.	C16063BH102KTA						
C75	CU3005	Chip C.	C16063BH102KTA						
C76	CU3005	Chip C.	C16063BH102KTA						
C77	CU3005	Chip C.	C16063BH102KTA						
C78	CU3005	Chip C.	C16063BH102KTA						
C79	CU3005	Chip C.	C16063BH102KTA						
C80	CU3005	Chip C.	C16063BH102KTA						
C81	CU3005	Chip C.	C16063BH102KTA						
C82	CU3005	Chip C.	C16063BH102KTA						
C83	CU3005	Chip C.	C16063BH102KTA						
C84	CU3005	Chip C.	C16063BH102KTA						
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C87	CU3005	Chip C.	C16063BH102KTA						
C88	CU3005	Chip C.	C16063BH102KTA						
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C90	CU3005	Chip C.	C16063BH102KTA						
C91	CU3005	Chip C.	C16063BH102KTA						
C92	CU3005	Chip C.	C16063BH102KTA						
C93	CU3005	Chip C.	C16063BH102KTA						
C94	CU3005	Chip C.	C16063BH102KTA						
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C102	CU3005	Chip C.	C16063BH102KTA						
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C136	CU3005	Chip C.	C16063BH102KTA						
C137	CU3005	Chip C.	C16063BH102KTA						
C138</									

ADJUSTMENT

For DJ-S11T/E

1) Required Test Equipment

1. Digital Multimeter

2. Regulated Power Supply

Supply voltage: 5.5VDC
Current: 1A or more

3. Oscilloscope

Measurable frequency: Audio Frequency

4. Spectrum Analyzer

Measuring range: Up to 2GHz or more

5. Power Meter

Measurable frequency: Up to 500MHz
Impedance: 50Ω
Power: 1W or more

6. Speaker

Impedance: 8Ω

7. SSG

Output frequency: Up to 1GHz
Output level: -20dB/0.1μV to 120dB/1V
Modulation: FM

8. Transceiver Tester

Up to 500MHz

a. Frequency Counter

b. Power Meter

Impedance: 50Ω
Measuring range: 1W or more

c. Audio Voltmeter

Measurable frequency: 50Hz ~ 10kHz
Sensitivity: 1mV ~ 10V

d. Distortion Meter

Measurable frequency: 1kHz
Input level: Up to 40dB
Distortion level: 1% ~ 100%

e. Audio Generator

Output frequency: 1kHz ~ 10kHz
Output impedance: 600Ω

f. Linear Detector

Note:

1. 5.5V of power voltage is supplied from DC jack.
2. The transmitter system should be adjusted or inspected in high power.

2) Adjustment For DJ-S11T/E

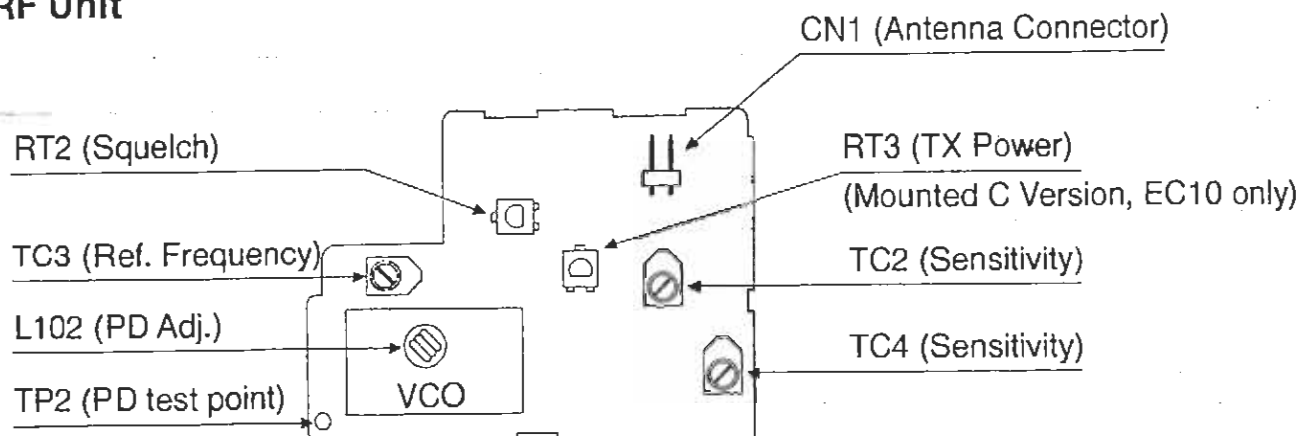
Item	Condition	Measurement			Adjustment			Specifications
		Equipment	Unit	Terminal	Unit	Parts	Method	
PLL VCO	f=146.00 RX	Digital Multimeter	RF	PD	VCO		See *1	0.9 ~ 1.1V
	f=145.95 TX						Check	3.0V or below
Reference Frequency	f=145.00 TX	Freq. Counter			RF	TC5	f=145.00	±100Hz
TX Power Hi	f=145.00 TX DC=5.5V	Poer Meter	RF	ANT	-	-	Check	340mW or more
TX Power Low	See *2.						Check	150mW or below
Diviation	f=145.00 TX AG: 1kHz 50mV(-30dBm)	Linear Det. Oscilloscope Power Meter AG	RF	ANT	CPU	RT301	4.5±0.1kHz	4.5±0.1kHz
Tone	f=145.00 TX							
Sensitivity	f=145.05 RX	SSG Distortion Meter Oscilloscope Level Meter	RF	ANT	RF	TC2,4	12dB SINAD max.	-8dBμ (EMF) or below
Squelch	f=145.05 RX Output:-12dBμ Mod: ON				RF	RT2	SQ Open	-15dBμ > Close -9dBμ < Open
S meter	f=145.05 RX Output:+12dBμ Mod: ON				CPU	RT302	All digits are lit up.	

*1:Extend the coil L102 so that the P.D. voltage becomes $1.0 \pm 0.1V$

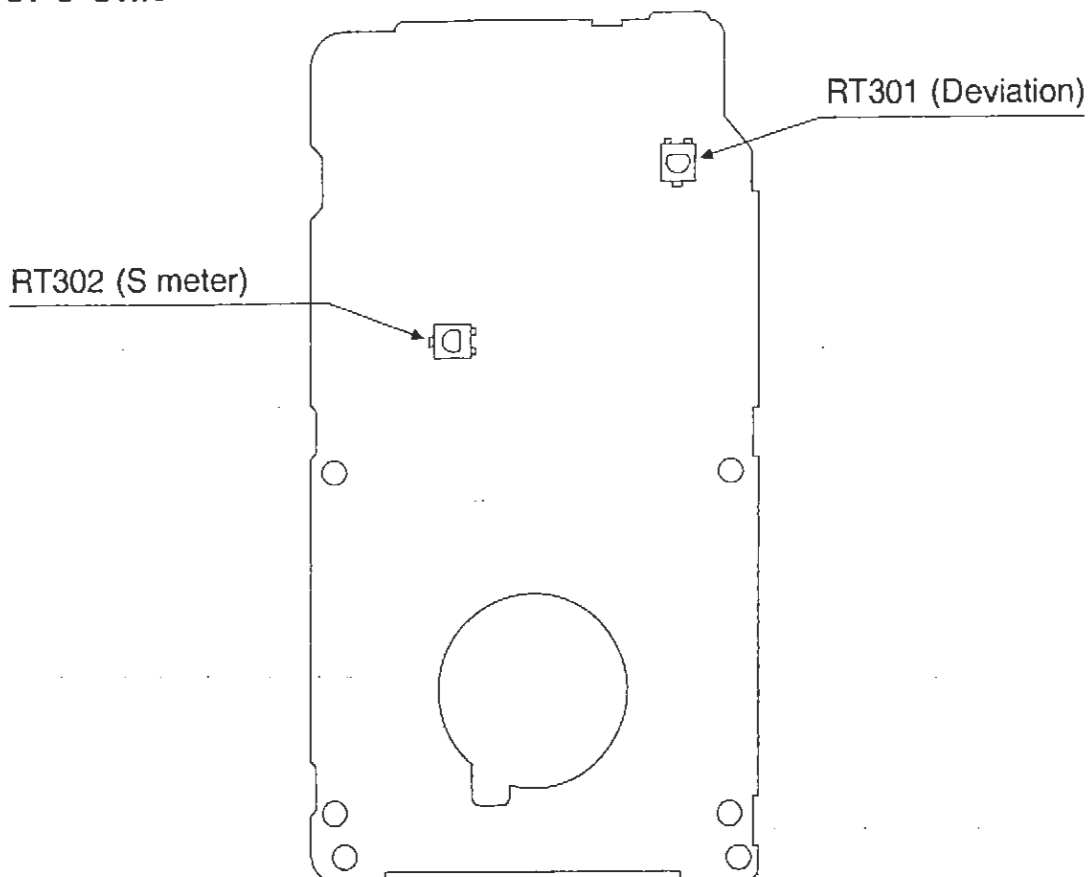
*2:Switching to Low power

3) Adjustment Points **For DJ-S11T/E**

RF Unit



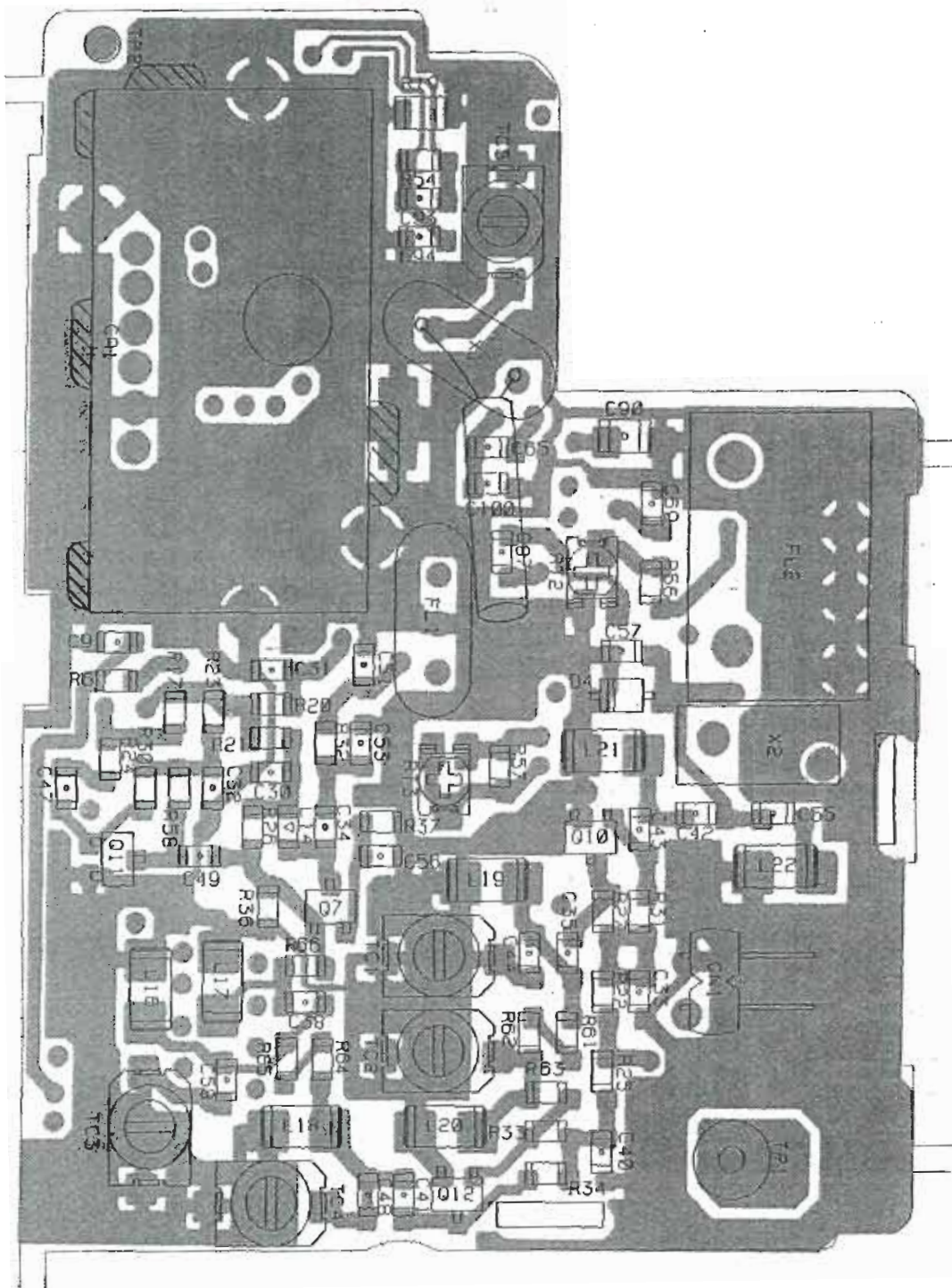
CPU Unit



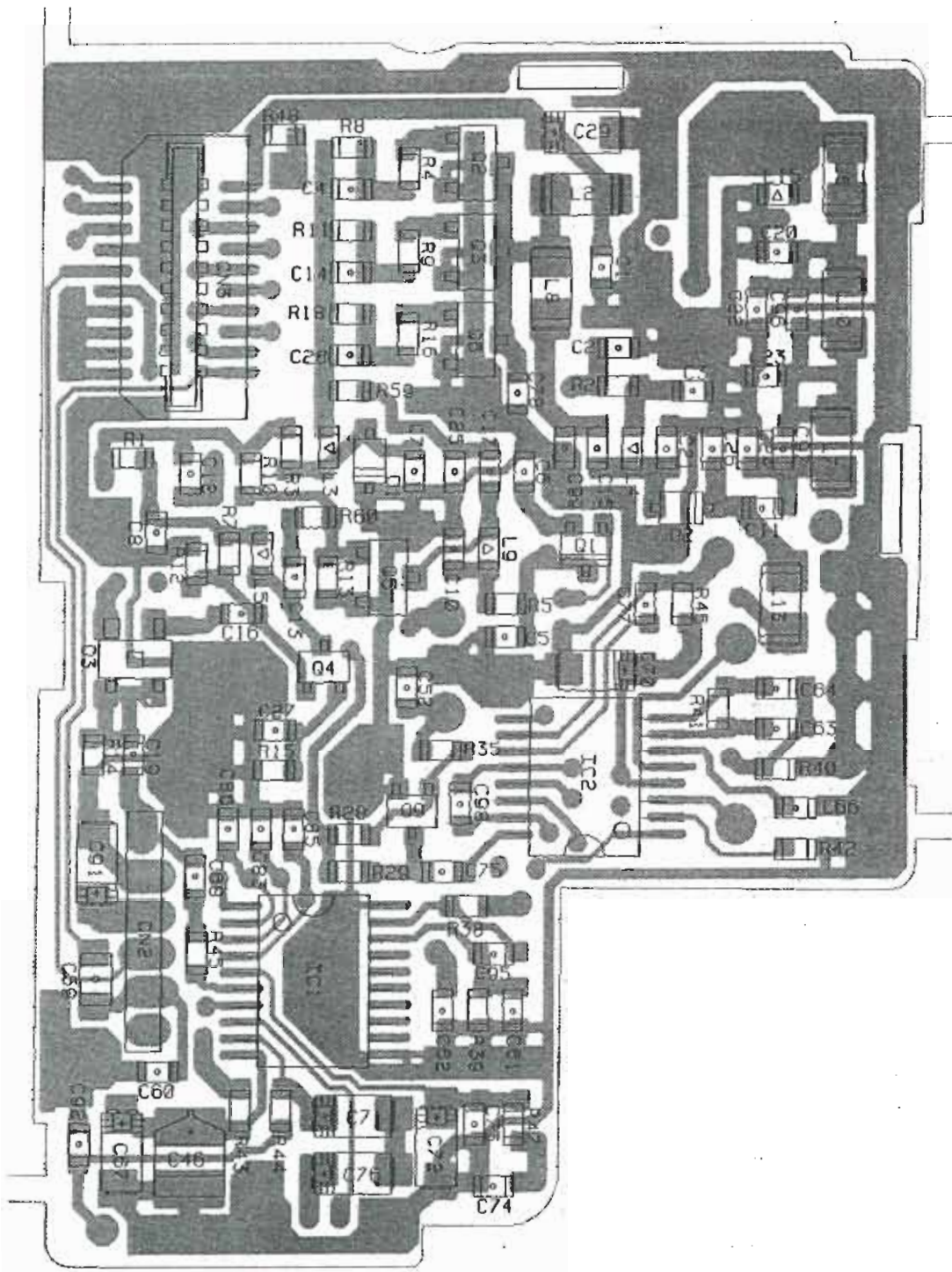
PC BOARD VIEW

1) RF Unit

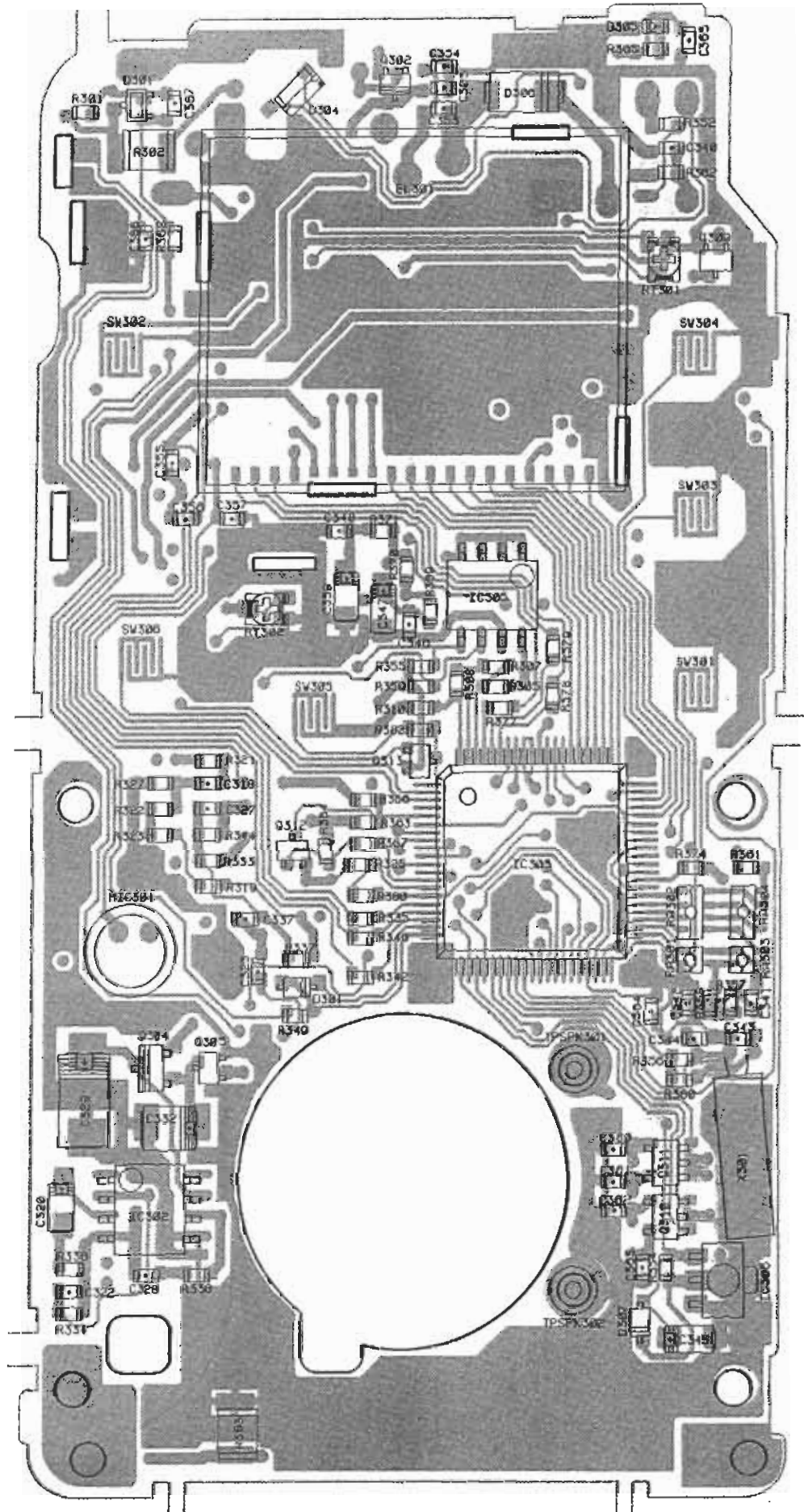
Component side **For DJ-S11T/E**



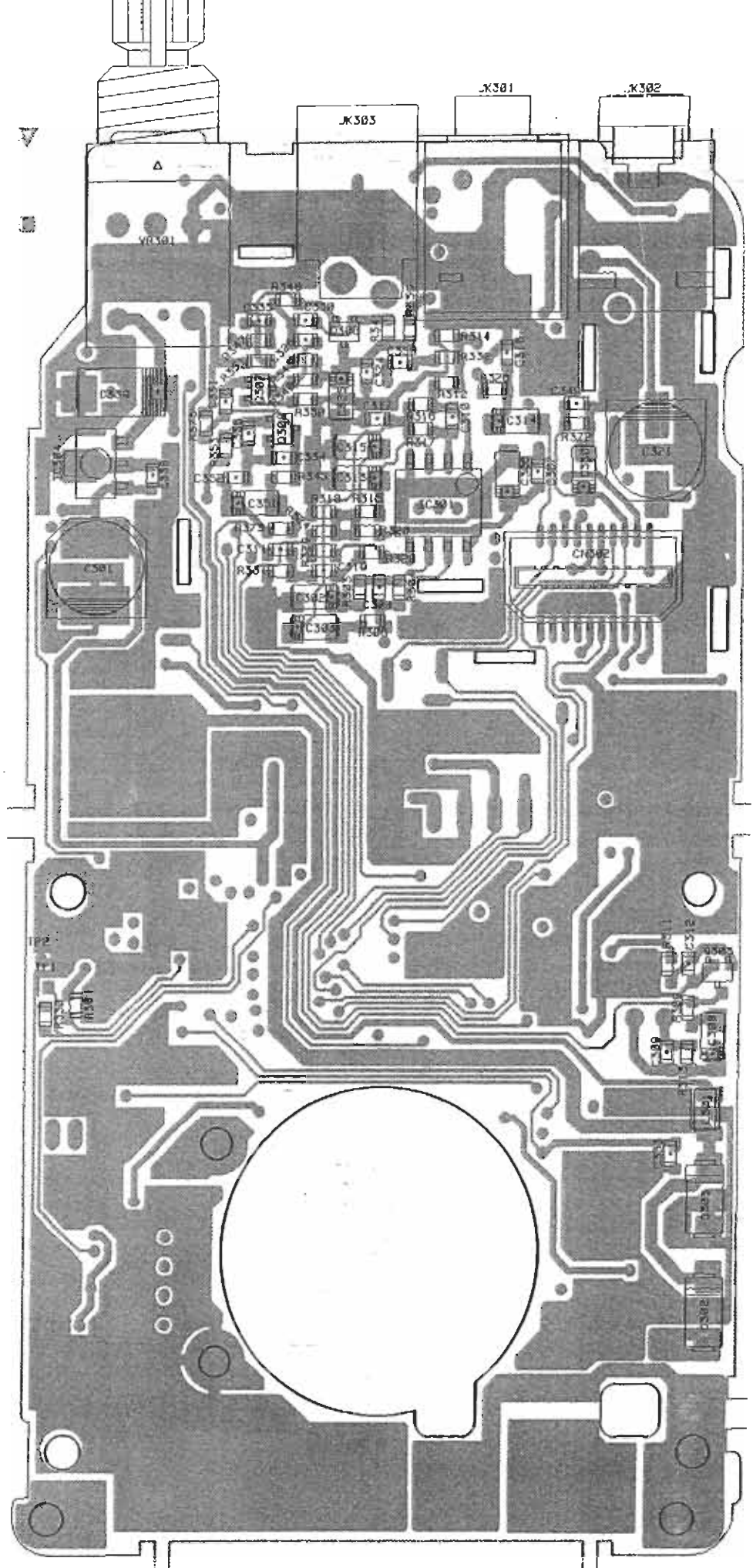
Solder side For DJ-S11T/E



2) CPU UNIT
Component side
For DJ-S11T/E

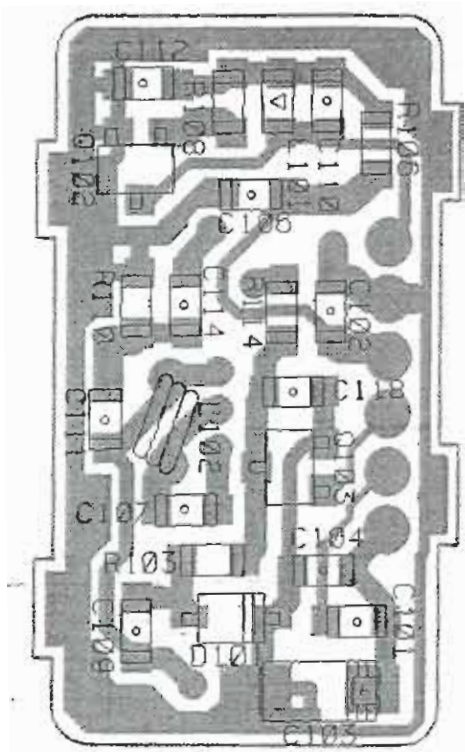


Solder side
For DJ-S11T/E

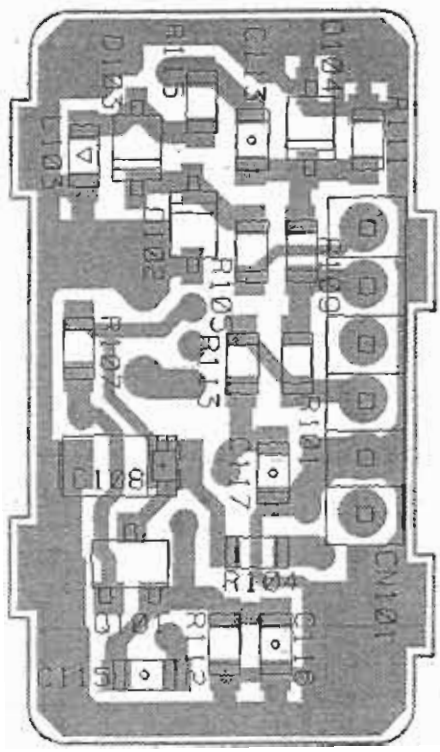


3) VCO Unit **For DJ-S11T/E**

Component side

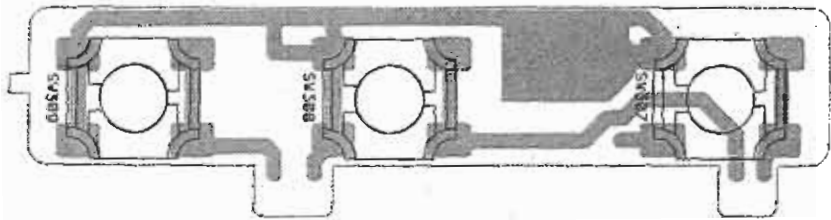


Solder side



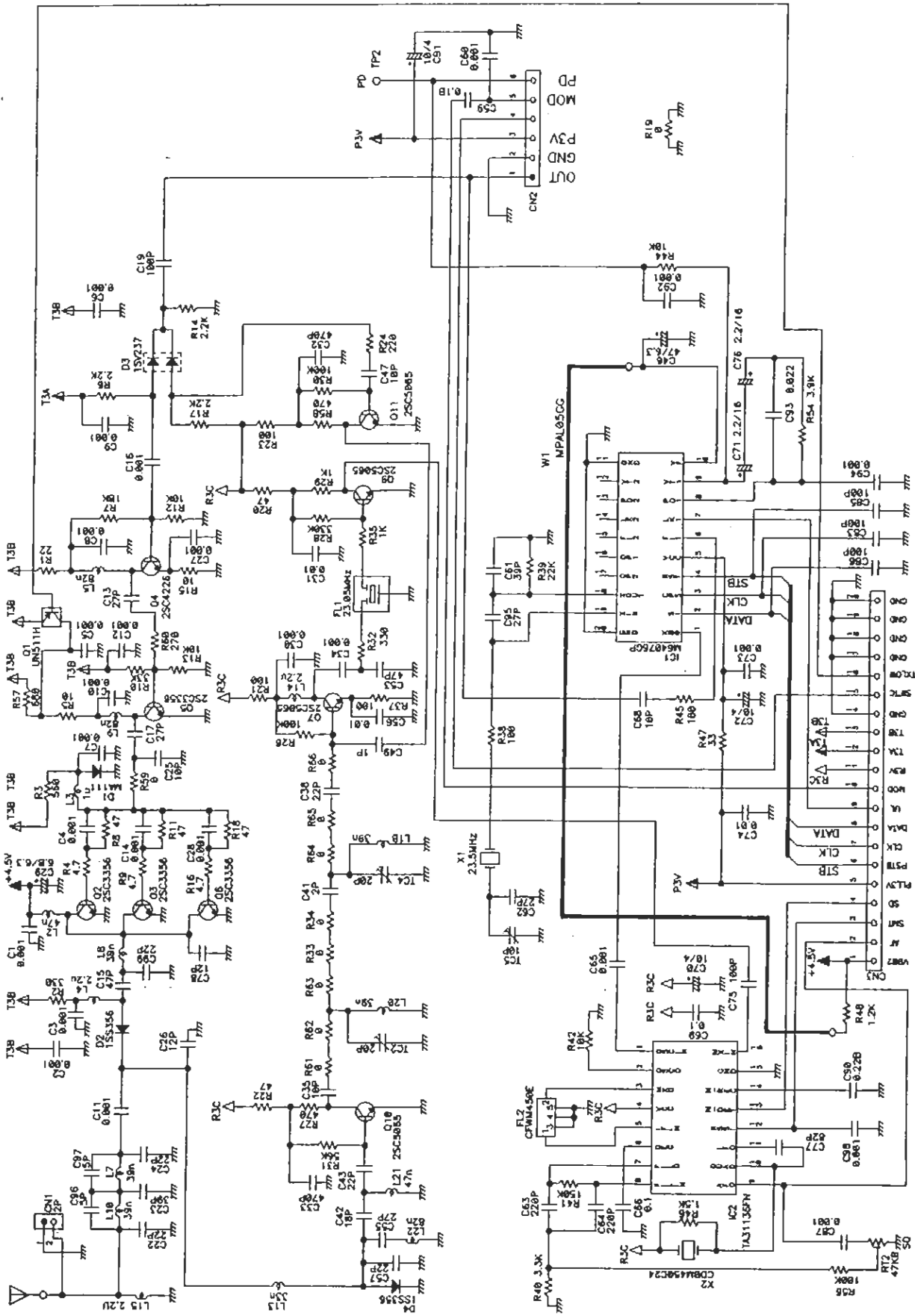
4) SW Unit **For DJ-S11T/E**

Component side

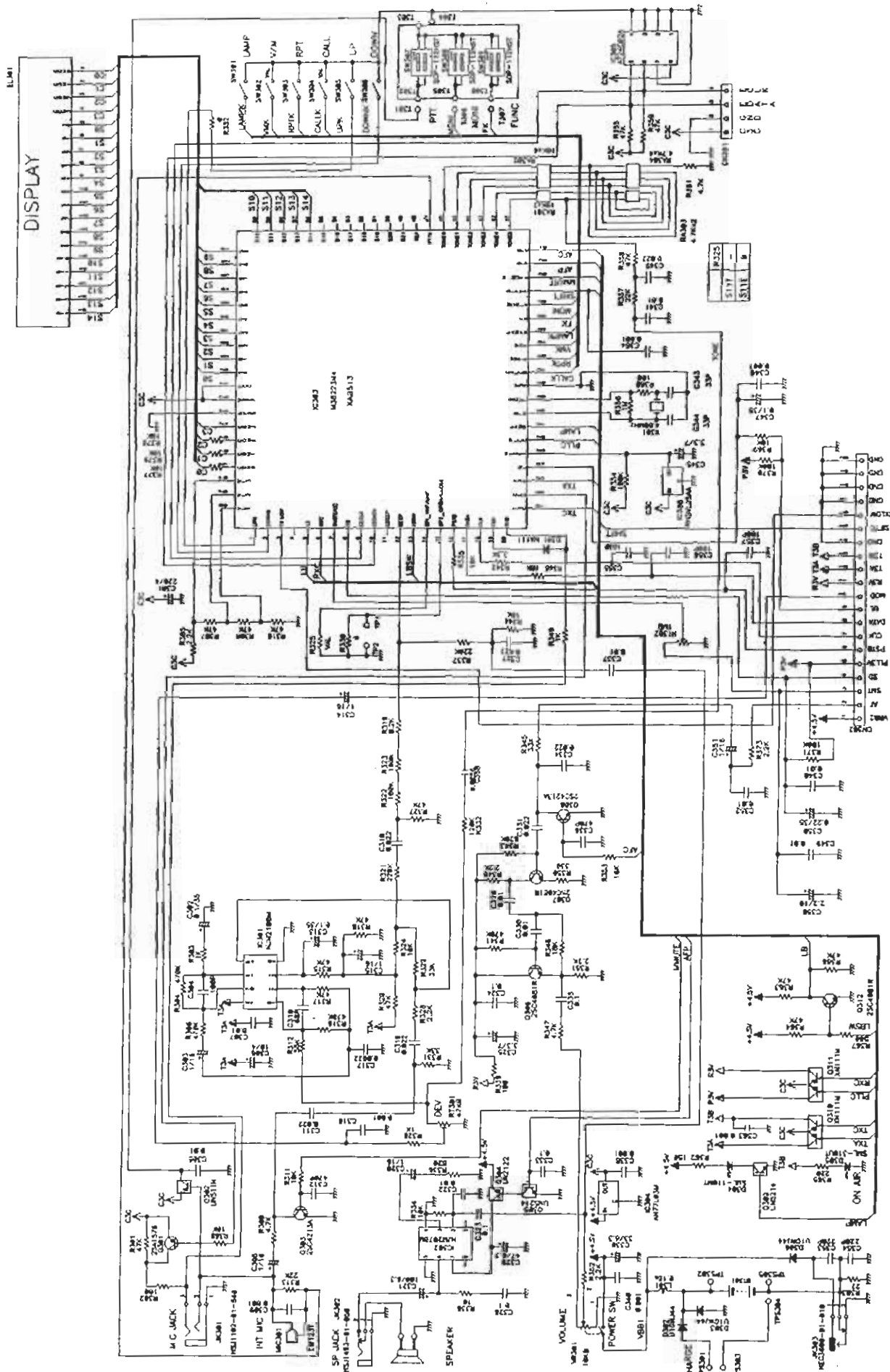


CURCUIT DIAGRAM

1) RF Unit For DJ-S11T/E



2) CPU UNIT For DJ-S11T/E



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