

DR-590T/E

Service Manual

● SPECIFICATIONS	1
● PARTS LIST	2
● CABINET PARTS LOCATION	9
● ADJUSTMENT	10
● BLOCK DIAGRAM	12
● OVERALL WIRING	13
● SCHEMATIC DIAGRAM OF VHF MAIN UNIT	14
● VHF MAIN PC BOARDS	15
● SCHEMATIC DIAGRAM OF UHF MAIN UNIT	16
● UHF MAIN PC BOARDS	17
● SCHEMATIC DIAGRAM OF VHF/UHF PA UNIT	18
● VHF PA PC BOARDS	19
● UHF PA PC BOARDS	20
● SCHEMATIC DIAGRAM OF FRONT CONTROL UNIT	21
● FRONT CONTROL PC BOARDS	22
● SCHEMATIC DIAGRAM OF SUB CONTROL UNIT	23
● SUB CONTROL PC BOARDS	24
● SCHEMATIC DIAGRAM OF VOL UNIT	25
● VOL PC BOARDS	25
● SCHEMATIC DIAGRAM OF VHF VCO UNIT	26
● VHF VCO PC BOARDS	26
● SCHEMATIC DIAGRAM OF UHF VCO UNIT	27
● UHF VCO PC BOARDS	27
● SCHEMATIC DIAGRAM OF VHF PLL UNIT	28
● VHF PLL PC BOARDS	28
● SCHEMATIC DIAGRAM OF UHF PLL UNIT	29
● UHF PLL PC BOARDS	29

■ SPECIFICATIONS

■ General

Frequency coverage	<ul style="list-style-type: none"> ● DR-590T (U.S. Version) 144.000–147.995MHz (TX), 137.000–173.995MHz (RX), 440.000–449.995MHz (TX), 410.000–469.995MHz (RX) ● DR-590E (Europe Version) 144.000–145.995MHz (TX & RX) 430.000–439.995MHz (TX & RX)
Frequency Resolution	5, 10 12.5, 15, 20, and 25kHz steps
Antenna Impedance	50 Ohms, unbalanced
Power Supply Requirement	13.8 Volts D.C.
Current Drain at 13.8V	Receiving Squelched: does not exceed 800mA Trans-mitting VHF High: 45W approx. 9.5A Middle: 10W approx. 4.5A Low: 5W approx. 3.5A UHF High: 35W approx. 10A Middle: 8W approx. 5A Low: 4W approx. 4A
Dimension	150mm(W) X 50mm(H) X 178mm(D) (5–9/10") (2") (7")
Weight	Approx. 1.5kgs (3.3lbs.)

■ Transmitter

Output Power	<ul style="list-style-type: none"> VHF High: Approx. 45W Middle: 10W Low: 5W UHF High: Approx. 35W Middle: 8W Low: 4W
Emission Mode	F3 (FM)
Modulation System	Variable Reactance F.M.
Max. Frequency Deviation	±5kHz
Spurious Emission	–60dB or under below carrier
Microphone	Electret Condenser Microphone
Operating Mode	Simplex Duplex : 5kHz and 12.5kHz steps between 0 and 10.995MHz from receive frequency at 144–147.995MHz and 440–449.995MHz
DTMF Encoder	Built-in (DR-590T only)

■ Receiver

Receiving System	Superheterodyne, Dual Conversion
Modulation Acceptance	F3 (FM)
Intermediate Frequency	1st 21.6MHz and 455kHz at VHF 1st 30.825MHz and 455kHz at UHF
Sensitivity	12dB SINAD –16dB μ
Selectivity	±6kHz or under at –6dB ±12kHz or under at –60dB
Audio Power Output	Approx. 2.5W
Speaker Impedance	8 Ohms

■ MODEL CHART

Type	DR-590T	DR-590E
Tone Burst	Not Available	1.750Hz
Subaudible Tone	Encode Included, Decode Optional	Optional
DTMF	Included (16 Buttons)	Optional

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

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
R124	RK0059	Chip R, MCR10EZJH333E	L3	QA0066	Coil, 144M S-10	C64	CU8016	Chip C, C2012B1H102K
R125	RK0073	Chip R, MCR10EZJH224E	L4	QA0066	Coil, 144M S-10	C65	CU0071	Chip C, C2012CH1H101J
TP1	UE0041	Pin Jack, TMP-J01X-V6	L5	QA0005	Coil, 40092	C66	CU0071	Chip C, C2012CH1H101J
TP2	UE0047	Round Pin, R9 X10	L6	QA0005	Coil, 40092	C67	CU0071	Chip C, C2012CH1H101J
TP3	UE0047	Round Pin, R9 X10	L7	QA0044	Coil, 455kHz	C68	CU8038	Chip C, CM316Y5V105Z25VA
TP4	UE0047	Round Pin, R9 X10	L8	QA0058	Coil	C69	CU8016	Chip C, C2012B1H102K
CN30	UE0043	Post With Base, PI22A02M	L9	QC0034	Chip Coil, NL322522T-R39M	C70	CU8016	Chip C, C2012B1H102K
CN31	UE0109	Connector, 52030-1810	L10	QC0065	Chip Coil, NL322522T-068M	C71	CU0004	Chip C, C2012CH1H030C
CN32	UE0113	Connector, 5512-03A	L11	QC0067	Chip Coil, NL322522T-R10M	C72	CU8016	Chip C, C2012B1H102K
CN33	UE0108	Connector, 6FE-BT	L12	QC0063	Chip Coil, NL322522T-047M	C73	CU0006	Chip C, C2012CH1H050C
CN34	UE0075	Pin Jack, TMP-J01X-A2	VR1	RH0036	VR, CVR-42A-102AD	C74	CU8016	Chip C, C2012B1H102K
CN35	UE0075	Pin Jack, TMP-J01X-A2	VR2	RH0031	VR, CVR-42A-103AD	C75	CU0051	Chip C, C2012CH1H471K
IC1	XA0070	IC, MC3361D	VR3	RH0038	VR, CVR-42A-473AD	C76	CU0051	Chip C, C2012CH1H471K
IC2	XA0033	IC, μ PC393G	TC1	CT0031	Trimmer, CTZ-05A	C77	CU0051	Chip C, C2012CH1H471K
IC3	XA0114	IC, μ PD6345GS	TC2	CT0030	Trimmer, CTZ-20C	C78	CU0051	Chip C, C2012CH1H471K
IC4	XA0116	IC, LA4445	TC3	CT0030	Trimmer, CTZ-20C	C79	CU0006	Chip C, C2012CH1H050C
IC5	XA0115	IC, TC4S66F	UHF MAIN Unit			C80	CU0051	Chip C, C2012CH1H471K
IC6	XA0115	IC, TC4S66F				C81	CU0051	Chip C, C2012CH1H471K
IC7	XA0087	IC, TC4S01F	C82	CU0063	Chip C, C2012CH1H180J			
D1	XD0112	Pin-D, 1SV128	C83	CU0004	Chip C, C2012CH1H030C			
D2	XD0100	Varicap, 1SV164	C84	CU0051	Chip C, C2012CH1H471K			
D3	XD0100	Varicap, 1SV164	C85	CU0062	Chip C, C2012CH1H150J			
D4	XD0100	Varicap, 1SV164	C86	CU0051	Chip C, C2012CH1H471K			
D5	XD0100	Varicap, 1SV164	C87	CU0051	Chip C, C2012CH1H471K			
D7	XD0100	Varicap, 1SV164	C88	CE0312	Chemical C, 16CV10B			
D8	XD0100	Varicap, 1SV164	C89	CE0312	Chemical C, 16CV10B			
D9	XD0118	Diode, MA716	C90	CU0051	Chip C, C2012CH1H471K			
D11	XD0118	Diode, MA716	C91	CU0051	Chip C, C2012CH1H471K			
D12	XD0120	Diode, MA704WK	C92	CU0051	Chip C, C2012CH1H471K			
D13	XD0097	Diode, 1SS268	C93	CU8016	Chip C, C2012B1H102K			
D14	XD0041	Diode, DAP202K	C94	CU8016	Chip C, C2012B1H102K			
D15	XD0041	Diode, DAP202K	C95	CU8016	Chip C, C2012B1H102K			
D16	XD0040	Diode, DAN202K	C96	CE0030	Chemical C, 16VMS7 10			
D17	XD0113	Zener Diode, 02CZ4. 3Y	C97	CU8028	Chip C, C2012CH1H103K			
D18	XD0104	Zener Diode, 02CZ6. 2Y	C98	CU8028	Chip C, C2012CH1H103K			
D20	XD0103	Diode, 1SS226	C99	CS0049	Chip Tantal, TMC1C105			
D21	XD0112	Pin-D, 1SV128	C100	CE0312	Chemical C, 16CV10B			
Q1	XE0013	FET, 3SK184S	C101	CS0049	Chip Tantal, TMC1C105			
Q2	XE0013	FET, 3SK184S	C102	CU8028	Chip C, C2012CH1H103K			
Q4	XT0081	Transistor, 2SC2714T	C103	CU8028	Chip C, C2012CH1H103K			
Q5	XT0037	Transistor, 2SC2412KR	C104	CE0312	Chemical C, 16CV10B			
Q6	XT0037	Transistor, 2SC2412KR	C105	CE0030	Chemical C, 16VMS7 10			
Q7	XT0037	Transistor, 2SC2412KR	C106	CE0312	Chemical C, 16CV10B			
Q8	XT0037	Transistor, 2SC2412KR	C107	CU0071	Chip C, C2012CH1H101J			
Q10	XT0037	Transistor, 2SC2412KR	C108	CU8032	Chip C, C2012B1E223K			
Q11	XT0037	Transistor, 2SC2412KR	C110	CU8016	Chip C, C2012B1H102K			
Q12	XT0077	Transistor, 2SC3326AL	C111	CU0051	Chip C, C2012CH1H471K			
Q13	XU0014	Digital Transistor, DTC144EK	C112	CU0067	Chip C, C2012CH1H390J			
Q14	XU0028	Digital Transistor, FMC2	C113	CE0312	Chemical C, 16CV10B			
Q15	XT0061	Transistor, 2SB1132Q	C114	CU8016	Chip C, C2012B1H102K			
Q16	XT0030	Transistor, 2SC3356BR25	C115	CU8016	Chip C, C2012B1H102K			
Q17	XT0030	Transistor, 2SC3356BR25	C116	CU8016	Chip C, C2012B1H102K			
Q18	XT0048	Transistor, 2SC3357RE	C117	CU8016	Chip C, C2012B1H102K			
Q19	XT0078	Transistor, 2SC3369	C118	CU8016	Chip C, C2012B1H102K			
Q20	XT0061	Transistor, 2SB1132Q	C119	CU0003	Chip C, C2012CH1H020C			
Q22	XU0019	Digital Transistor, DTA144YK	C120	CU8016	Chip C, C2012B1H102K			
Q23	XT0037	Transistor, 2SC2412KR	C121	CU8016	Chip C, C2012B1H102K			
Q24	XT0037	Transistor, 2SC2412KR	C122	CU8016	Chip C, C2012B1H102K			
Q27	XU0014	Digital Transistor, DTC144EK	C124	CS0049	Chip Tantal, TMC1C105			
Q31	XT0037	Transistor, 2SC2412KR	C125	CU8016	Chip C, C2012B1H102K			
FL1	XF0001	X' fil, DFM21615B1	C126	CU8016	Chip C, C2012B1H102K			
FL2	XC0001	Ceramic Filter, CFW455F	C127	CE0312	Chemical C, 16CV10B			
X1	XQ0023	Ceramic Filter, UM-1 22. 055MHz	C128	CU8016	Chip C, C2012B1H102K			
X2	XQ0038	Ceramic Filter, HC-49/U, 12. 8MHz	C129	CU8016	Chip C, C2012B1H102K			
TH1	XS0004	Thermistor, TD5A150D	C130	CU0060	Chip C, C2012CH1H470J			
L1	QA0057	Coil, Front End	C131	CE0124	Chemical C, 16VMS7 47			
L2	QA0066	Coil, 144M S-10	C132	CU0071	Chip C, C2012CH1H101J			
			C133	CU8016	Chip C, C2012B1H102K			
			C134	CU0071	Chip C, C2012CH1H101J			
			C135	CU0003	Chip C, C2012CH1H020C			
			R1	RK0059	Chip R, MCR10EZJH333E			
			R2	RK0069	Chip R, MCR10EZJH104E			
			R3	RK0018	Chip R, MCR10EZJH101E			
			R4	RK0018	Chip R, MCR10EZJH101E			
			R5	RK0005	Chip R, MCR10EZJH220E			
			R6	RK0018	Chip R, MCR10EZJH101E			
			R8	RK0056	Chip R, MCR10EZJH223E			
			R9	RK0035	Chip R, MCR10EZJH102E			
			R10	RK0038	Chip R, MCR10EZJH182E			
			R11	RK0052	Chip R, MCR10EZJH103E			

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
SW1	UU0011	Tact Switch, SKHMPU	C6	CE0310	Chemical C, 10CV33B	R14	RK0056	Chip R, MCR10EZHJ223E
SW2	UU0011	Tact Switch, SKHMPU	C7	CU8016	Chip C, C2012B1H102K	R15	RK0061	Chip R, MCR10EZHJ393E
SW3	UU0011	Tact Switch, SKHMPU	C8	CU0060	Chip C, C2012CH1H470J	R16	RK0067	Chip R, MCR10EZHJ823E
SW4	UU0011	Tact Switch, SKHMPU	C9	CU0060	Chip C, C2012CH1H470J	R17	RK0052	Chip R, MCR10EZHJ103E
SW5	UU0011	Tact Switch, SKHMPU	C10	CU0060	Chip C, C2012CH1H470J	R18	RK0056	Chip R, MCR10EZHJ223E
SW6	UU0011	Tact Switch, SKHMPU	C11	CU0060	Chip C, C2012CH1H470J	R19	RK0061	Chip R, MCR10EZHJ393E
SW7	UU0011	Tact Switch, SKHMPU	C12	CU0051	Chip C, C2012CH1H471K	R20	RK0067	Chip R, MCR10EZHJ823E
SW8	UU0011	Tact Switch, SKHMPU	C13	CS0051	Chip Tantal, TMC1C106	R21	RK0062	Chip R, MCR10EZHJ473E
SW9	UU0011	Tact Switch, SKHMPU	C14	CU8003	Chip C, C2012JF1E104Z	R22	RK0062	Chip R, MCR10EZHJ473E
SW10	UU0011	Tact Switch, SKHMPU	C15	CU8038	Chip C, CM316Y5V105Z25VAT	R23	RA0003	R. Ally, MNR14J392E
SW11	UU0011	Tact Switch, SKHMPU	C16	CE0310	Chemical C, 10CV33B	R24	RA0002	R. Ally, MNR12J473E
SW12	UU0011	Tact Switch, SKHMPU	C17	CU8016	Chip C, C2012B1H102K	R25	RA0004	R. Ally, MNR14J473E
SW13	UU0011	Tact Switch, SKHMPU	C18	CU0055	Chip C, C2012CH1H681K	R26	RK0038	Chip R, MCR10EZHJ182E
SW14	UQ0013	Switch, EVQ-QEC-04K	C19	CU8022	Chip C, C2012B1H332K	R27	RK0038	Chip R, MCR10EZHJ182E
SW15	UQ0013	Switch, EVQ-QEC-04K	C20	CU0070	Chip C, C2012CH1H820J	R28	RK0035	Chip R, MCR10EZHJ102E
SW16	UU0011	Tact Switch, SKHMPU	C21	CU8016	Chip C, C2012B1H102K	R30	RK0035	Chip R, MCR10EZHJ102E
SW17	UU0011	Tact Switch, SKHMPU	C22	CS0221	Chip Tantal, TMC1C475MTR	R31	RK0035	Chip R, MCR10EZHJ102E
SW18	UQ0011	Switch, ESB-64801	C23	CU8038	Chip C, CM316Y5V105Z25VAT	R32	RK0045	Chip R, MCR10EZHJ473E
SW19	UR0002	Switch, EVQWGF1542B	C24	CU8028	Chip C, C2012B1H103K	R33	RK0062	Chip R, MCR10EZHJ473E
	ED0006	Lithium Battery, BR2032-1F2	C25	CU8028	Chip C, C2012B1H103K	R34	RK0107	Chip R, MCR10EZHJ000E
	TZ0024	Insulating Paper	C26	CU8016	Chip C, C2012B1H102K	R35	RK0018	Chip R, MCR10EZHJ102E
LCD	EL0014	LCD Unit, DR590T	C27	CU8016	Chip C, C2012B1H102K	R36	RK0052	Chip R, MCR10EZHJ103E
D1	XD0040	Diode, DAN202K	C29	CS0051	Chip Tantal, TMC1C106	R37	RK0056	Chip R, MCR10EZHJ223E
D2	XD0041	Diode, 1SS226	C30	CU8003	Chip C, C2012JF1E104Z	R38	RK0061	Chip R, MCR10EZHJ393E
D4	XD0040	Diode, DAN202K	C31	CE0124	Chemical C, 16MV47SWB	R39	RK0067	Chip R, MCR10EZHJ823E
D5	XD0040	Diode, DAN202K	C32	CU8028	Chip C, C2012B1H103K	R40	RK0044	Chip R, MCR10EZHJ392E
D6	XD0040	Diode, DAN202K	C33	CU8034	Chip C, C2012X7R1E333K	R41	RK0044	Chip R, MCR10EZHJ392E
D11	XL0023	Chip LED, SLM125MWS	C34	CU8028	Chip C, C2012B1H103K	R42	RK0044	Chip R, MCR10EZHJ392E
D12	XL0023	Chip LED, SLM125MWS	C35	CU8016	Chip C, C2012B1H102K	R43	RK0044	Chip R, MCR10EZHJ392E
D13	XL0023	Chip LED, SLM125MWS	C36	CU8034	Chip C, C2012X7R1E333K	R45	RK0045	Chip R, MCR10EZHJ472E
D14	XL0023	Chip LED, SLM125MWS	C37	CU8028	Chip C, C2012B1H103K	R46	RK0052	Chip R, MCR10EZHJ392E
D15	XL0023	Chip LED, SLM125MWS	C39	CU8028	Chip C, C2012B1H103K	R47	RK0056	Chip R, MCR10EZHJ223E
D16	XL0023	Chip LED, SLM125MWS	C40	CU8028	Chip C, C2012B1H103K	R48	RK0061	Chip R, MCR10EZHJ393E
D17	XL0023	Chip LED, SLM125MWS	C42	CU8034	Chip C, C2012X7R1E333K	R49	RK0067	Chip R, MCR10EZHJ823E
D18	XL0023	Chip LED, SLM125MWS	C43	CU8034	Chip C, C2012X7R1E333K	R51	RK0044	Chip R, MCR10EZHJ392E
D19	XL0023	Chip LED, SLM125MWS	C44	CU8038	Chip C, CM316Y5V105Z25VAT	R52	RK0044	Chip R, MCR10EZHJ392E
D20	XL0023	Chip LED, SLM125MWS	C45	CU8038	Chip C, CM316Y5V105Z25VAT	R53	RK0044	Chip R, MCR10EZHJ392E
D21	XL0023	Chip LED, SLM125MWS	C46	CS0221	Chip Tantal, TMC1C475MTR	R54	RK0044	Chip R, MCR10EZHJ392E
D22	XL0023	Chip LED, SLM125MWS	C47	CU8028	Chip C, C2012B1H103K	R55	RK0038	Chip R, MCR10EZHJ182E
D23	XL0023	Chip LED, SLM125MWS	C48	CS0051	Chip Tantal, TMC1C106	R56	RK0052	Chip R, MCR10EZHJ103E
D24	XL0023	Chip LED, SLM125MWS	C49	CU8038	Chip C, CM316Y5V105Z25VAT	R57	RK0045	Chip R, MCR10EZHJ472E
D25	XL0023	Chip LED, SLM125MWS	C50	CE0315	Chemical C, 16CV47B	R58	RK0062	Chip R, MCR10EZHJ473E
D26	XL0023	Chip LED, SLM125MWS	C51	CU8028	Chip C, C2012B1H103K	R60	RK0062	Chip R, MCR10EZHJ473E
IC1	XA0140	IC, μ PD75116GF16-3BE	C52	CU8038	Chip C, CM316Y5V105Z25VAT	R61	RK0045	Chip R, MCR10EZHJ472E
IC2	XA0105	IC, MC145436DWR	C53	CU8003	Chip C, C2012JF1E104Z	R63	RK0005	Chip R, MCR10EZHJ220E
IC3	XA0117	IC, S-2510A	C54	CS0051	Chip Tantal, TMC1C106	R64	RK0052	Chip R, MCR10EZHJ103E
IC4	XA0118	IC, S-8054ALR-LN	C55	CU8028	Chip C, C2012B1H103K	R65	RK0062	Chip R, MCR10EZHJ473E
IC5	XA0075	IC, NJM78L08UA	C56	CU8028	Chip C, C2012B1H103K	R66	RK0072	Chip R, MCR10EZHJ184E
IC6	XA0068	IC, M5218FP-T01-1	C57	CU8028	Chip C, C2012B1H103K	R67	RK0076	Chip R, MCR10EZHJ334E
IC7	XA0089	IC, NJM78L06UA	C58	CU8028	Chip C, C2012B1H103K	R68	RK0072	Chip R, MCR10EZHJ184E
IC8	XA0087	IC, TC4S01F	C59	CU8028	Chip C, C2012B1H103K	R69	RK0073	Chip R, MCR10EZHJ224E
Q1	XT0037	Transistor, 2SC2412KR	C60	CU8028	Chip C, C2012B1H103K	R70	RK0047	Chip R, MCR10EZHJ562E
Q2	XU0028	Digital Transistor, FMC2	C61	CU8028	Chip C, C2012B1H103K	R71	RK0047	Chip R, MCR10EZHJ562E
Q3	XU0012	Digital Transistor, DTC114EK	C62	CS0057	Chip Tantal, TMC0J225M	R72	RK0067	Chip R, MCR10EZHJ823E
Q4	XU0012	Digital Transistor, DTC114EK	C63	CS0057	Chip Tantal, TMC0J225M	R73	RK0070	Chip R, MCR10EZHJ124E
Q5	XT0037	Transistor, 2SC2412KR	C64	CU3023	Chip C, CM105CH101K	R74	RK0070	Chip R, MCR10EZHJ124E
Q6	XT0118	Transistor, 2SB744Q	C65	CU3023	Chip C, CM105CH101K	R75	RK0069	Chip R, MCR10EZHJ104E
Q7	XU0014	Digital Transistor, DTC144EK	C66	CU3023	Chip C, CM105CH101K	R76	RK0056	Chip R, MCR10EZHJ223E
Q8	XU0014	Digital Transistor, DTC144EK	C67	CU3023	Chip C, CM105CH101K	R77	RK0001	Chip R, MCR10EZHJ100E
Q9	XU0014	Digital Transistor, DTC144EK	C68	CU3023	Chip C, CM105CH101K	R78	RK0039	Chip R, MCR10EZHJ222E
Q10	XT0037	Transistor, 2SC2412KR	C69	CU3023	Chip C, CM105CH101K	R79	RK0081	Chip R, MCR10EZHJ564E
X1	XQ0021	DSMAT3.58MHz	CN21	UE0120	Connector, P-DR590	R80	RK0035	Chip R, MCR10EZHJ102E
SUB CONTROL Unit			CN22	UE0100	Connector, 52030-1610	R81	RK0045	Chip R, MCR10EZHJ472E
C1	CU8016	Chip C, C2012B1H102K	CN23	UE0110	Connector, 52030-1210	R82	RK0062	Chip R, MCR10EZHJ473E
C2	CE0124	Chemical C, 16MV47SWB	CN24	UE0109	Connector, 52030-1810	R83	RK0052	Chip R, MCR10EZHJ103E
C3	CU8016	Chip C, C2012B1H102K	CN25	UE0109	Connector, 52030-1810	R84	RK0045	Chip R, MCR10EZHJ473E
C4	CE0313	Chemical C, 16CV22B	R1	RA0003	R. Ally, MNR14E0AJ102E	R85	RK0039	Chip R, MCR10EZHJ222E
C5	CS0052	Chip Tantal, TMC1A336	R2	RA0003	R. Ally, MNR14E0AJ102E	R86	RK0045	Chip R, MCR10EZHJ472E
			R3	RA0003	R. Ally, MNR14E0AJ102E	R87	RK0001	Chip R, MCR10EZHJ100E
			R4	RA0003	R. Ally, MNR14E0AJ102E	R88	RK0035	Chip R, MCR10EZHJ102E
			R5	RA0003	R. Ally, MNR14E0AJ102E	R89	RK0081	Chip R, MCR10EZHJ564E
			R6	RA0003	R. Ally, MNR14E0AJ102E	R90	RK0018	Chip R, MCR10EZHJ101E
			R7	RK0035	Chip R, MCR10EZHJ102E	R91	RK0039	Chip R, MCR10EZHJ222E
			R8	RK0035	Chip R, MCR10EZHJ102E	R92	RK0045	Chip R, MCR10EZHJ472E
			R9	RK0035	Chip R, MCR10EZHJ102E	R93	RK0062	Chip R, MCR10EZHJ473E
			R10	RK0035	Chip R, MCR10EZHJ102E	R94	RK0045	Chip R, MCR10EZHJ472E
			R11	RK0035	Chip R, MCR10EZHJ102E	R95	RK0001	Chip R, MCR10EZHJ100E
			R12	RA0004	R. Ally, MNR14J473E	R96	RK0035	Chip R, MCR10EZHJ102E
			R13	RK0052	Chip R, MCR10EZHJ103E	R97	RK0081	Chip R, MCR10EZHJ564E
						R99	RK0070	Chip R, MCR10EZHJ124E
						R100	RK0070	Chip R, MCR10EZHJ124E

Ref. No.	Part Code	Part Name and Number
R102	RK0052	Chip R, MCR10EZHJ103E
R103	RK0052	Chip R, MCR10EZHJ103E
R104	RK0045	Chip R, MCR10EZHJ472E
R105	RK0045	Chip R, MCR10EZHJ472E
R106	RK0018	Chip R, MCR10EZHJ101E
R107	RK0027	Chip R, MCR10EZHJ391E
R108	RK0027	Chip R, MCR10EZHJ391E
R111	RK0052	Chip R, MCR10EZHJ103E
R112	RK0052	Chip R, MCR10EZHJ103E
R113	RK0052	Chip R, MCR10EZHJ103E
R114	RK0052	Chip R, MCR10EZHJ103E
R115	RK0045	Chip R, MCR10EZHJ472E
R116	RK0069	Chip R, MCR10EZHJ104E
R117	RK0052	Chip R, MCR10EZHJ103E
R118	RK0107	Chip R, MCR10EZHJ000E
R119	RK0001	Chip R, MCR10EZHJ100E
R120	RK0069	Chip R, MCR10EZHJ104E
R121	RK0069	Chip R, MCR10EZHJ104E
R122	RK0073	Chip R, MCR10EZHJ224E
R123	RK0107	Chip R, MCR10EZHJ000E
X1	XB0004	FAR, C4CA04194000K01
L1	QC0104	Chip L, LER105T1R5M
L2	QC0104	Chip L, LER105T1R5M
IC1	XA0120	IC, μ PD75108GFK30-3BE
IC2	XA0118	IC, S-8054ALR-LN
IC3	XA0098	IC, NJM78L05UA
IC4	XA0082	IC, MC7808CT
IC5	XA0068	IC, M5218FP-T01-1
IC6	XA0120	IC, M51132L
IC7	XA0087	IC, TC4S01F
IC8	XA0087	IC, TC4S01F
IC9	XA0115	IC, TC4S66F
IC10	XA0115	IC, TC4S66F
Q1	XT0037	Transistor, 2SC2412KR
Q2	XT0037	Transistor, 2SC2412KR
Q3	XT0037	Transistor, 2SC2412KR
Q4	XU0015	Digital Transistor, DTC144TK
Q5	XU0015	Digital Transistor, DTC144TK
Q6	XU0014	Digital Transistor, DTC144EK
Q7	XU0012	Digital Transistor, DTC114EK
Q8	XT0091	Transistor, 2SB1412QF5T200
Q9	XU0019	Digital Transistor, DTA114YK
Q10	XU0014	Digital Transistor, DTC144EXT146
VOL Unit		
VR1	RV0016	VR, RK0972210L2550KB×2
VR2	RV0016	VR, RK0972210L2550KB×2
VHF VCO Unit		
C10	CU8016	Chip C, C2012B1H102K
C11	CU8028	Chip C, C2012B1H103K
C12	CU0059	Chip C, C2012CH1H1R5C
C13	CU0051	Chip C, C2012CH1H471K
C14	CU8028	Chip C, C2012B1H103K
C15	CU0059	Chip C, C2012CH1H1R5C
C16	CU0064	Chip C, C2012CH1H220J
C17	CU8016	Chip C, C2012B1H102K
C18	CU8016	Chip C, C2012B1H102K
C19	CS0063	Chip Tantal, TMC1V104
C20	CU8028	Chip C, C2012B1H103K
C21	CU8028	Chip C, C2012B1H103K
C22	CU0059	Chip C, C2012CH1H1R5C
C23	CU0064	Chip C, C2012CH1H220J
C24	CU8028	Chip C, C2012B1H103K
C25	CU0071	Chip C, C2012CH1H101J
C26	CU0066	Chip C, C2012CH1H330J
C27	CE0033	Chemical C, 10MV10UWA

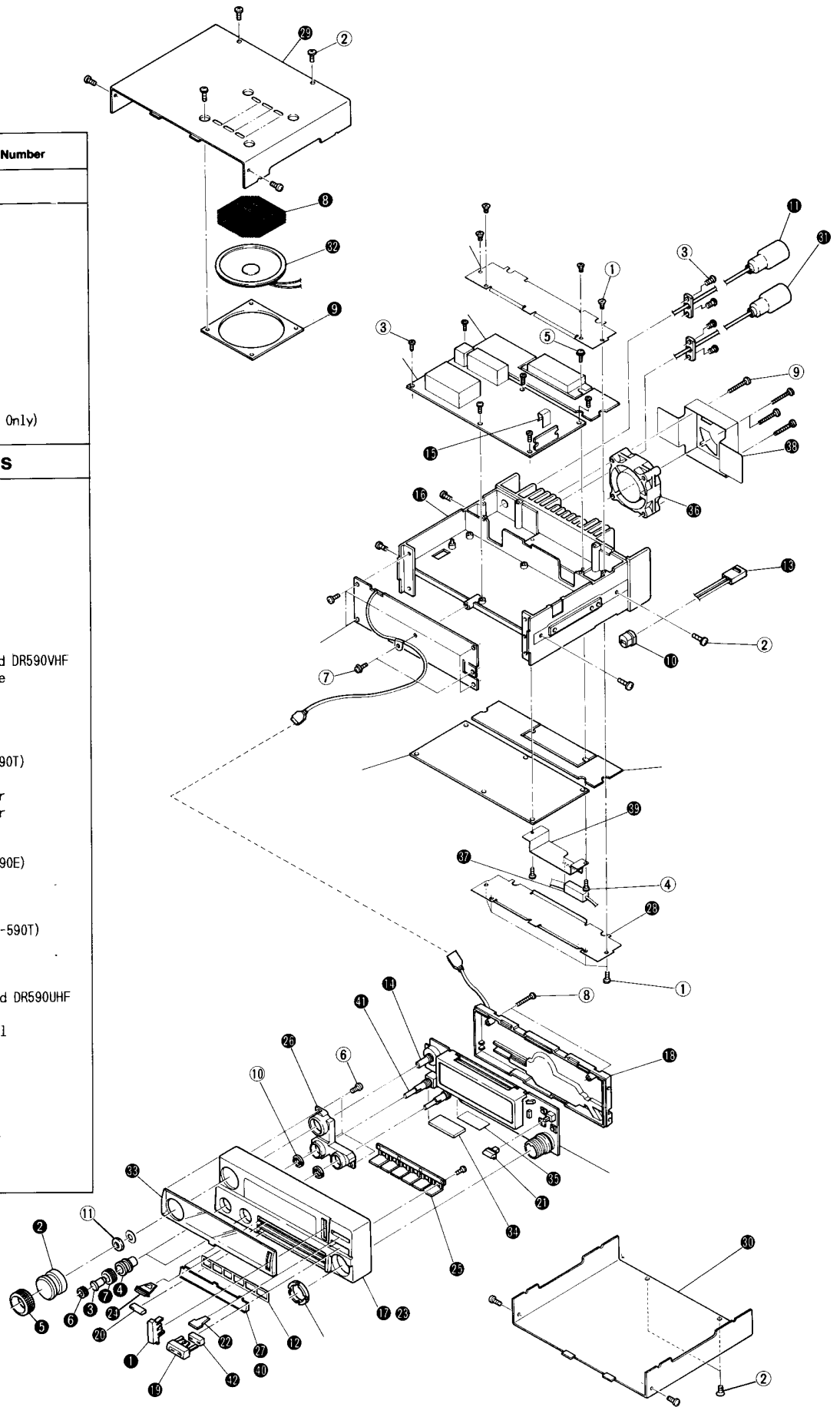
Ref. No.	Part Code	Part Name and Number
C31	CE0033	Chemical C, 10MV10UWA
CN3D	UE0076	Pin Header, SB4P-HVQ-CA
CN36	UE0097	Pin Header, SB3P-HVQ-CA
Q5	XU0012	Digital Transistor, DTC114EK
Q6	XE0010	FET, 2SK508K52T1
Q7	XT0081	Transistor, 2SC2714Y
Q8	XE0010	FET, 2SK508K52T1
Q9	XT0081	Transistor, 2SC2714Y
Q10	XU0012	Digital Transistor, DTC114EK
D4	XD0077	Varicap, 1SV161
D6	XD0077	Varicap, 1SV161
L3	QA0067	Coil, 100MOSC-2
L4	QC0110	Chip L, LER015T4R7K
L6	QC0104	Chip L, LER015T1R5M
L7	QC0104	Chip L, LER015T1R5M
L9	QC0110	Chip L, LER015T4R7K
L10	QA0067	Coil, 100MOSC-2
R16	RK0048	Chip R, MCR10EZHJ682E
R17	RK0018	Chip R, MCR10EZHJ101E
R18	RK0021	Chip R, MCR10EZHJ181E
R19	RK0028	Chip R, MCR10EZHJ471E
R20	RK0045	Chip R, MCR10EZHJ472E
R21	RK0028	Chip R, MCR10EZHJ471E
R22	RK0039	Chip R, MCR10EZHJ222E
R23	RK0018	Chip R, MCR10EZHJ101E
R24	RK0018	Chip R, MCR10EZHJ101E
R25	RK0018	Chip R, MCR10EZHJ101E
R26	RK0045	Chip R, MCR10EZHJ472E
R27	RK0028	Chip R, MCR10EZHJ471E
R28	RK0039	Chip R, MCR10EZHJ222E
R29	RK0021	Chip R, MCR10EZHJ181E
R32	RK0039	Chip R, MCR10EZHJ222E
UHF VCO Unit		
C10	CU8016	Chip C, C2012B1H102K
C11	CU0003	Chip C, C2012CH1H020C
C12	CU0003	Chip C, C2012CH1H020C
C13	CU8016	Chip C, C2012B1H102K
C14	CU0010	Chip C, C2012CH1H090D
C15	CU8016	Chip C, C2012B1H102K
C16	CS0063	Chip Tantal, TMC1V104
C17	CU0060	Chip C, C2012CH1H470J
C18	CU0005	Chip C, C2012CH1H040C
C19	CU0061	Chip C, C2012CH1H120J
C20	CU0001	Chip C, C2012CH1H0R5C
C21	CU0009	Chip C, C2012CH1H080D
C22	CU0006	Chip C, C2012CH1H050C
C23	CU0006	Chip C, C2012CH1H050C
C28	CE0033	Chip C, C201210MV10UWA
C29	CU0064	Chip C, C2012CH1H220J
CN56	UE0097	Pin Header, SB3P-HVQ-CA
CN5C	UE0076	Pin Header, SB4P-HVQ-CA
Q5	XE0002	FET, 2SK125
Q6	XT0030	Transistor, 2SC3356BR25
D4	XD0100	Varicap, 1SV164
D5	XD0077	Varicap, 1SV161
D6	XD0077	Varicap, 1SV161
L3	QC0101	Chip L, LER015TR82M
L4	QK0086	Coil, 0R5-2R2-3R5TRS
L5	QC0099	Chip L, LER015TR56M
L6	QC0062	Chip L, NL322522T-039M
L7	QC0096	Chip L, LER015TR33M
L8	QC0101	Chip L, LER015TR82M
R16	RK0035	Chip R, MCR10EZHJ102E
R17	RK0065	Chip R, MCR10EZHJ683E
R18	RK0018	Chip R, MCR10EZHJ101E
R19	RK0011	Chip R, MCR10EZHJ470E
R20	RK0052	Chip R, MCR10EZHJ103E

Ref. No.	Part Code	Part Name and Number
R21	RK0018	Chip R, MCR10EZHJ101E
R22	RK0044	Chip R, MCR10EZHJ392E
R23	RK0013	Chip R, MCR10EZHJ560E
R26	RK0107	Chip R, MCR10EZHJ000E
R29	RK0018	Chip R, MCR10EZHJ101E
VHF PLL Unit		
C1	CS0221	Chip Tantal, TMC-MIC475
C2	CS0063	Chip Tantal, TMC1V104
C3	CU0071	Chip C, C2012CH1H101J
C4	CU8016	Chip C, C2012B1H102K
C5	CS0061	Chip Tantal, TMC1V224
C6	CS0057	Chip Tantal, TMC0J225
C8	CU0011	Chip C, C2012CH1H100D
C9	CU8016	Chip C, C2012B1H102K
C28	CU0071	Chip C, C2012CH1H101J
C29	CU0071	Chip C, C2012CH1H101J
R1	RK0052	Chip R, MCR10EZHJ103E
R2	RK0052	Chip R, MCR10EZHJ103E
R3	RK0052	Chip R, MCR10EZHJ103E
R4	RK0052	Chip R, MCR10EZHJ103E
R5	RK0018	Chip R, MCR10EZHJ101E
R6	RK0039	Chip R, MCR10EZHJ222E
R7	RK0035	Chip R, MCR10EZHJ102E
R8	RK0052	Chip R, MCR10EZHJ103E
R9	RK0039	Chip R, MCR10EZHJ222E
R10	RK0018	Chip R, MCR10EZHJ101E
R11	RK0107	Chip R, MCR10EZHJ000E
R12	RK0056	Chip R, MCR10EZHJ223E
R13	RK0052	Chip R, MCR10EZHJ103E
R14	RK0056	Chip R, MCR10EZHJ223E
R15	RK0022	Chip R, MCR10EZHJ221E
R30	RK0035	Chip R, MCR10EZHJ102E
R31	RK0107	Chip R, MCR10EZHJ000E
CN37	UE0117	Pin Header, SB7P-HVQ-27
IC1	XA0149	IC, MB15101L1PF
Q1	XT0038	Transistor, 2SA1037KR
Q2	XT0077	Transistor, 2SC3326A
Q3	XU0017	Digital Transistor, DTA144EK
Q4	XT0081	Transistor, 2SC2714Y
D1	XD0104	Diode, 02CZ6. 2Y
D2	XD0103	Diode, 1SS226
L2	QC0108	Chip L, LER015T3R3K
UHF PLL Unit		
C1	CU8016	Chip C, C2012B1H102K
C2	CS0057	Chip Tantal, TMC0J225
C3	CS0063	Chip Tantal, TMC1V104
C4	CS0221	Chip Tantal, TMC-MIC475
C5	CU0071	Chip C, C2012CH1H101J
C7	CU0011	Chip C, C2012CH1H100D
C8	CS0061	Chip Tantal, TMC1V224
C9	CU8016	Chip C, C2012B1H102K
C25	CU8016	Chip C, C2012B1H102K
C26	CU0060	Chip C, C2012CH1H470J
C27	CU0060	Chip C, C2012CH1H470J
CN57	UE0117	Pin Header, SB7P-HVQ-27
IC1	XA0149	IC, MB1501L1PFG8NDTF
Q1	XT0038	Transistor, 2SA1037KR
Q2	XT0077	Transistor, 2SC3326A
Q3	XT0038	Transistor, 2SA1037KR
Q4	XT0030	Transistor, 2SC3356BR25
D1	XD0104	Zenner, 02CZ6. 2Y
D2	XD0103	Diode, 1SS226
L2	QC0062	Chip L, NL322522T-039M

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
R1	RK0052	Chip R, MCR10EZJ103E						
R2	RK0018	Chip R, MCR10EZJ101E						
R3	RK0052	Chip R, MCR10EZJ103E						
R4	RK0052	Chip R, MCR10EZJ103E						
R5	RK0039	Chip R, MCR10EZJ222E						
R6	RK0035	Chip R, MCR10EZJ102E						
R7	RK0052	Chip R, MCR10EZJ103E						
R8	RK0039	Chip R, MCR10EZJ222E						
R9	RK0052	Chip R, MCR10EZJ103E						
R10	RK0018	Chip R, MCR10EZJ101E						
R11	RK0107	Chip R, MCR10EZJ000E						
R12	RK0062	Chip R, MCR10EZJ473E						
R13	RK0045	Chip R, MCR10EZJ472E						
R14	RK0039	Chip R, MCR10EZJ222E						
R15	RK0045	Chip R, MCR10EZJ472E						
R25	RK0022	Chip R, MCR10EZJ221E						
R27	RK0018	Chip R, MCR10EZJ101E						
R28	RK0018	Chip R, MCR10EZJ101E						
R30	RK0107	Chip R, MCR10EZJ000E						

CABINET PARTS LOCATION

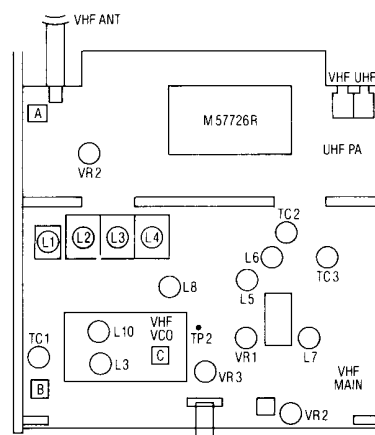
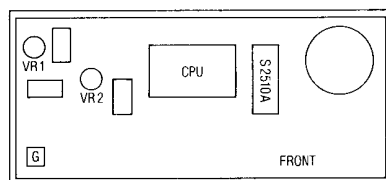
Ref. No.	Part Code	Part Name and Number
Screws		
①	AF0014	M2.6 × 3.5
②	AA0031	M2.6 × 5
③	AJ0017	M2.6 × 6
④		M3 × 8
⑤		M3 × 8
⑥	AP0006	M2 × 6
⑦		M2.6 × 6
⑧		M2.6 × 16
⑨		M3 × 25
⑩	AN0012	Nut M7 Nut M8 (Supplied with Rotary Encoder Only)
Mechanical Parts		
①	NB0024	UD Knob
②	NK0011	Dial Knob (L)
③	NK0013	Volume Knob
④	NW0003	Squelch Knob
⑤	ND0009	Dial Rubber (L)
⑥	ND0011	Volume Rubber
⑦	ND0012	Squelch Rubber
⑧	FF0013	SP sheet
⑨	ST0009	SP Metal Crasp
⑩	FB0002	Cord Bush
⑪	UE0122	MR M Antenna Cord DR590VHF
⑫	YZ0067	Display Paneltape
⑬	UA0002	DC Power Cable
⑭	UR0002	Rotary Encoder
⑮	SH0044	IC Fixing Metal
⑯	SS0047	Main Chassis
⑰	KM0061	Front Panel (DR-590T)
⑱	KB0032	Button Panel
⑲	NB0031	Band Switch Cover
⑳	NB0028	Key Button Cover
㉑	NP0040	Power Button
㉒	NB0032	HL Button
㉓	KM0074	Front Panel (DR-590E)
㉔	NB0030	Push Button
㉕	FP0041	Key Button
㉖	DG0010	Encoder Light
㉗	DK0101	Display Sheet (DR-590T)
㉘	TS0035	Shield Lid
㉙	KU0064	Upper Case
㉚	KS0034	Lower Case
㉛	UE0124	MR M Antenna Cord DR590UHF
㉜	ES0001	Speaker 57S38-1
㉝	DP0049	Transparent Panel
㉞	TZ0034	Insulate Sheet
㉟	TL0004	Shield Film
㊱	ET0001	Fan Motor
㊲	UL0009	Thermal Relay
㊳	ST0024	Fan Cover
㊴	ST0025	Thermal Relayfix
㊵	DK0105	Display Sheet
㊶	RV0016	Volume
㊷	ND0013	Band SW Light



ADJUSTMENT

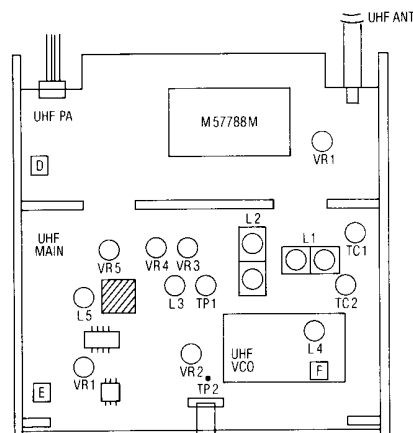
1. VHF Unit

ITEM	ADJUSTMENT POINT (S)	ADJUSTMENT METHOD
VCO VOLTAGE	Ⓒ L3, L10 (VCO BOX)	At 145.00MHz, adjust L3 so that the voltage of TP2 on B substrate is 3.0V. At 145.00MHz, pressing the PTT button, adjust L10 so that the voltage of TP2 on B substrate is 3.4V.
BASIC FREQUENCY	Ⓑ TC1	Pressing PTT button, adjust TC1 so that f-counter indicates 145.950 ± 0.1 kHz (T) or 144.950 ± 0.1kHz (E) MHz.
TX POWER	Ⓑ TC2, 3	On "HI" position, pressing the PTT button, adjust TC2 and TC3 so that the power is maximum at 145.95MHz (T) or 144.95MHz (E).
POWER OUTPUT	Ⓐ VR2 (HI) Ⓔ VR3 (MID) Ⓔ VR4 (LO)	On "HI" position, turn VR2 for 45W output at 145.95MHz (T) or 144.95MHz (E). Verify the lightning of the entire RF meter. On "MID" position, turn VR3 for 10W output at 145.95MHz (T) or 144.95MHz (E). On "LO" position, turn VR4 for 5W output at 145.95MHz (T) or 144.95MHz (E).
DEVIATION	Ⓑ VR3	Enter the AF level of 0dBm, then pressing the PTT button, adjust VR3 so that you obtain 4.8kHz/Dev at 145.95MHz (T) or 144.95MHz (E) and AF 1kHz.
MIC GAIN	Ⓒ VR1	Enter the AF level of -46dBm, then pressing the PTT button, adjust VR1 so that you obtain 4.0kHz/Dev at 444.95MHz (T) or 434.95MHz (E) and AF 1kHz.
SUBAUDIBLE TONE DEVIATION (DR-590T)	Ⓒ VR2	Pressing the tone button at 145.95MHz, verify 0.6-0.8kHz/Dev at tone frequency of 88.5Hz.
1750Hz TONE DEVIATION (DR-590E)	Ⓒ VR2	Pressing the tone button, verify that the tone frequency is 1750Hz and the deviation is 3.5kHz ± 0.2kHz.
DISCRIMINATOR	Ⓑ L5, 6, 7	At 146.03MHz (T) or 145.03MHz (E) and 60 dBμ input, adjust L5, 6, 7 so that the distortion is minimum at 50mW.
SENSITIVITY	Ⓑ L1, 2, L3, 4, 8	Adjust L1, 2, 3, 4, 8 so that 12dB SINAD sensitivity is the highest at 146.03MHz (T) or 145.03MHz (E).
SQUELCH	Ⓑ VR2	At 146.03MHz (T) or 145.03MHz (E) and cut SG output. Adjust squelch knob point by VR2.
S-METER	Ⓑ VR1	At 145.03MHz (T) and 3-dBμ [EMF], adjust VR1 so that 2 in the S-meter begins to light.

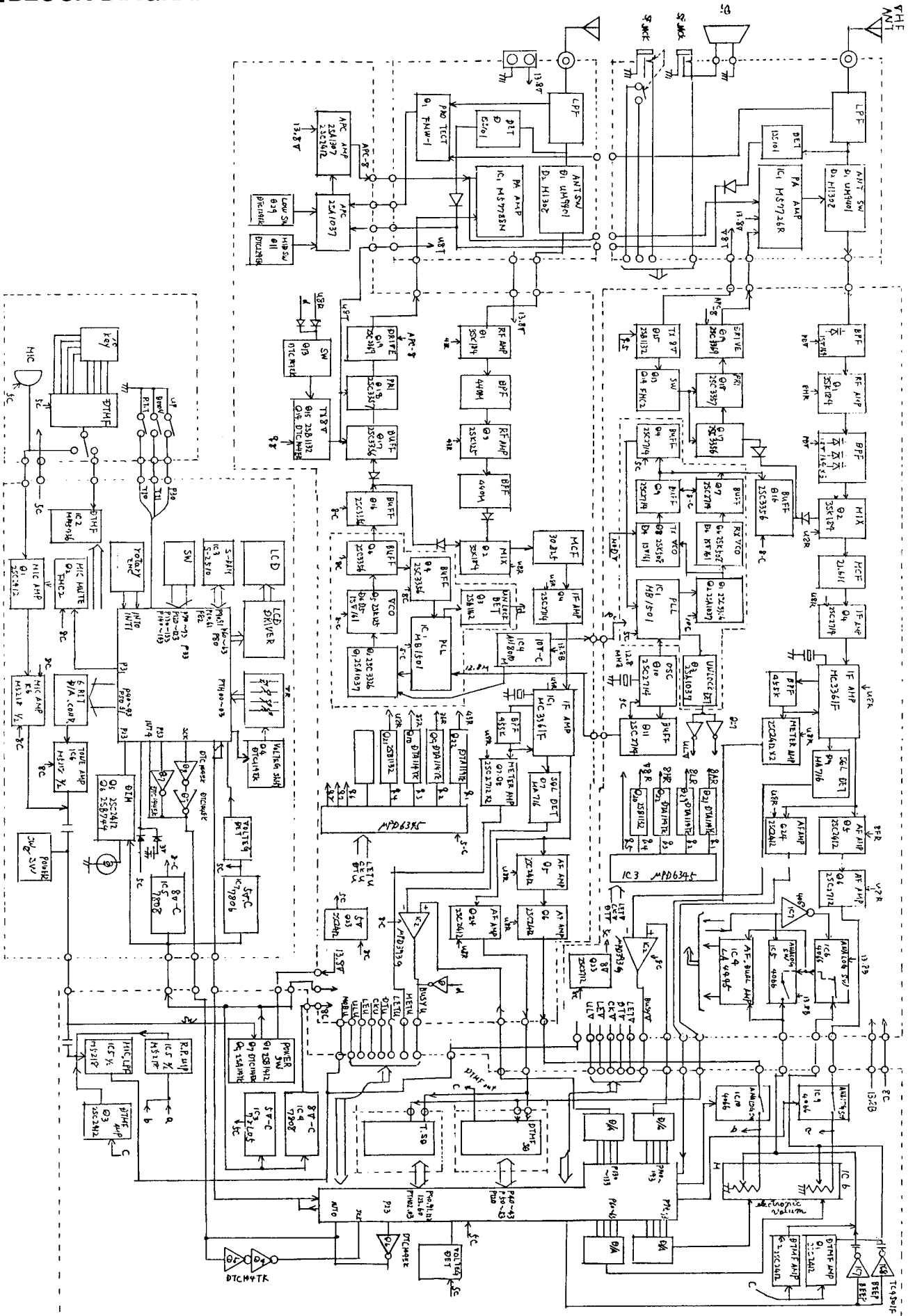


2. UHF Unit

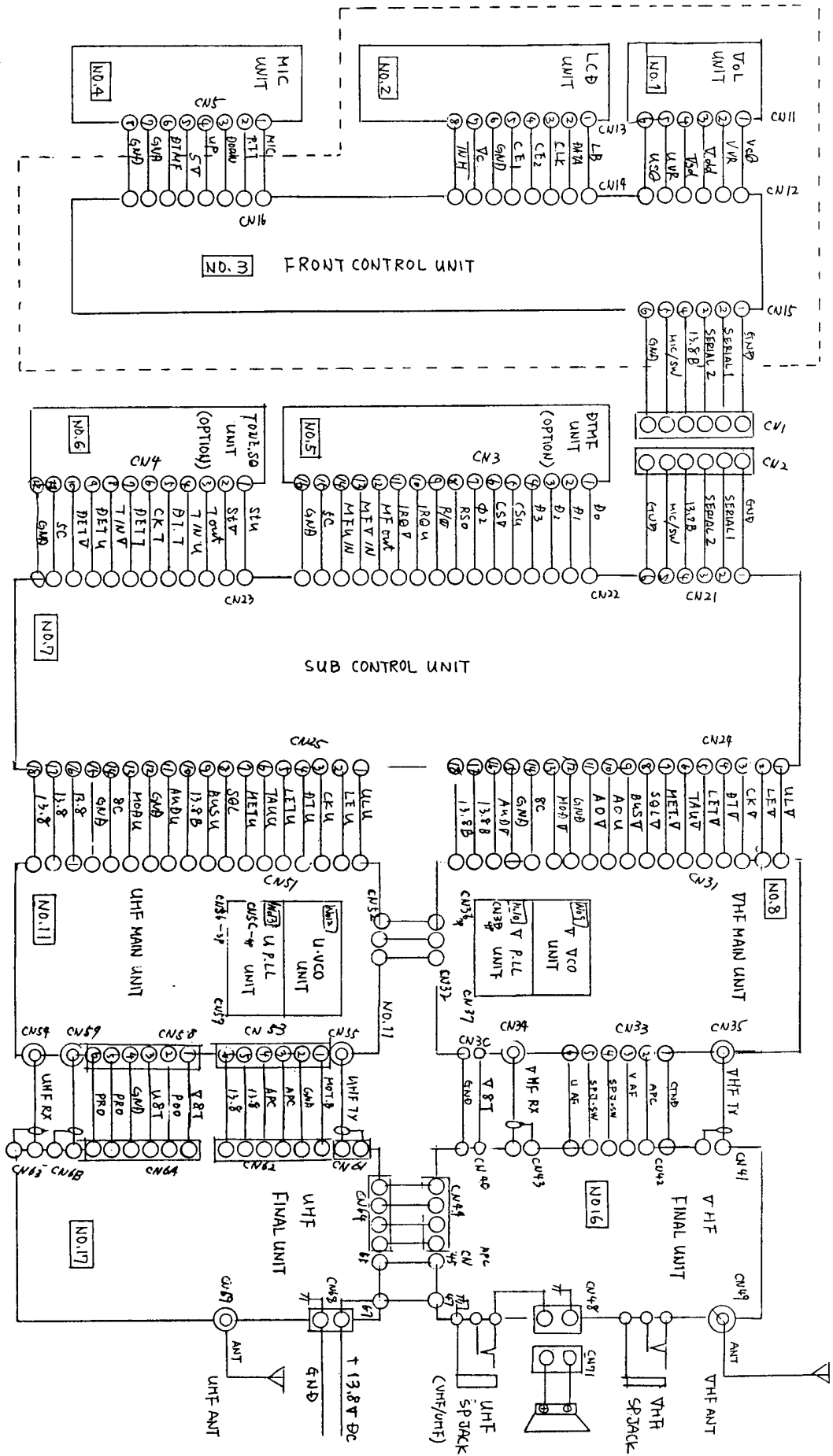
ITEM	ADJUSTMENT POINT (S)	ADJUSTMENT METHOD
VCO VOLTAGE	Ⓕ L4 (VCO BOX)	At 445.00MHz (T) or 435.00MHz (E), adjust L4 so that the voltage of TP2 on E substrate is 4.0V (T) or 3.2V (E).
POWER OUTPUT	Ⓓ VR1 (HI) Ⓔ VR3 (MID) Ⓕ VR4 (LO)	On "HI" position, turn VR1 for 35W output at 444.95MHz (T) at 434.95MHz (E). Verify the lighting of the entire RF meter. On "MID" position, turn VR3 for 8W output at 444.95MHz (T) or 434.95MHz (E). On "LO" position, turn VR4 for 4W output at 444.95MHz (T) or 434.95MHz (E).
DEVIATION	Ⓔ VR2	Enter the AF level of 0dBm, then pressing the PTT button, adjust VR2 so that you obtain 4.8kHz/Dev at 444.95MHz (T) or 434.95MHz (E) and AF 1kHz.
MIC GAIN	Ⓕ VR1	Enter the AF level of -46dBm, then pressing the PTT button, adjust VR1 so that you obtain 4.0kHz/Dev at 444.95MHz (T) or 434.95MHz (E) and AF 1kHz.
SUBAUDIBLE TONE DEVIATION (DR-590T)	Ⓕ VR2	Pressing the tone button at 444.95MHz, verify 0.6-0.8kHz/Dev at tone frequency of 88.5Hz. Adjust VR2.
1750Hz TONE DEVIATION (DR-590E)	Ⓕ VR2	Pressing the tone button, verify that the tone frequency is 1750Hz and the deviation is 3.5kHz ± 0.2kHz. Adjust VR2.
HELICAL FILTER	Ⓕ TC1, TC2 L1, L2	Connect the output of a tracking generator to the antenna and spectrum analyzer to TP1 the adjust TC1, 2 and L1, 2 so that the sensitivity is at its peak between 440 and 450MHz at maximum gain. (570E : 430-440MHz)
DISCRIMINATOR	Ⓕ L3, L5	At 445.03MHz (T) or 435.03MHz (E) and 60 dB μ input, adjust L3, L5 so that the distortion is minimum at 50mW.
SQUELCH	Ⓕ VR1	At 445.03MHz (T) or 435.03MHz (E) and cut the SG output power. Adjust squelch knob point by VR1.
S-METER	Ⓕ VR5	At 445.03MHz (T) or 435.03MHz (E) and 3-dB μ [EMF], adjust VR5 so that 2 in the S-meter begins to light.



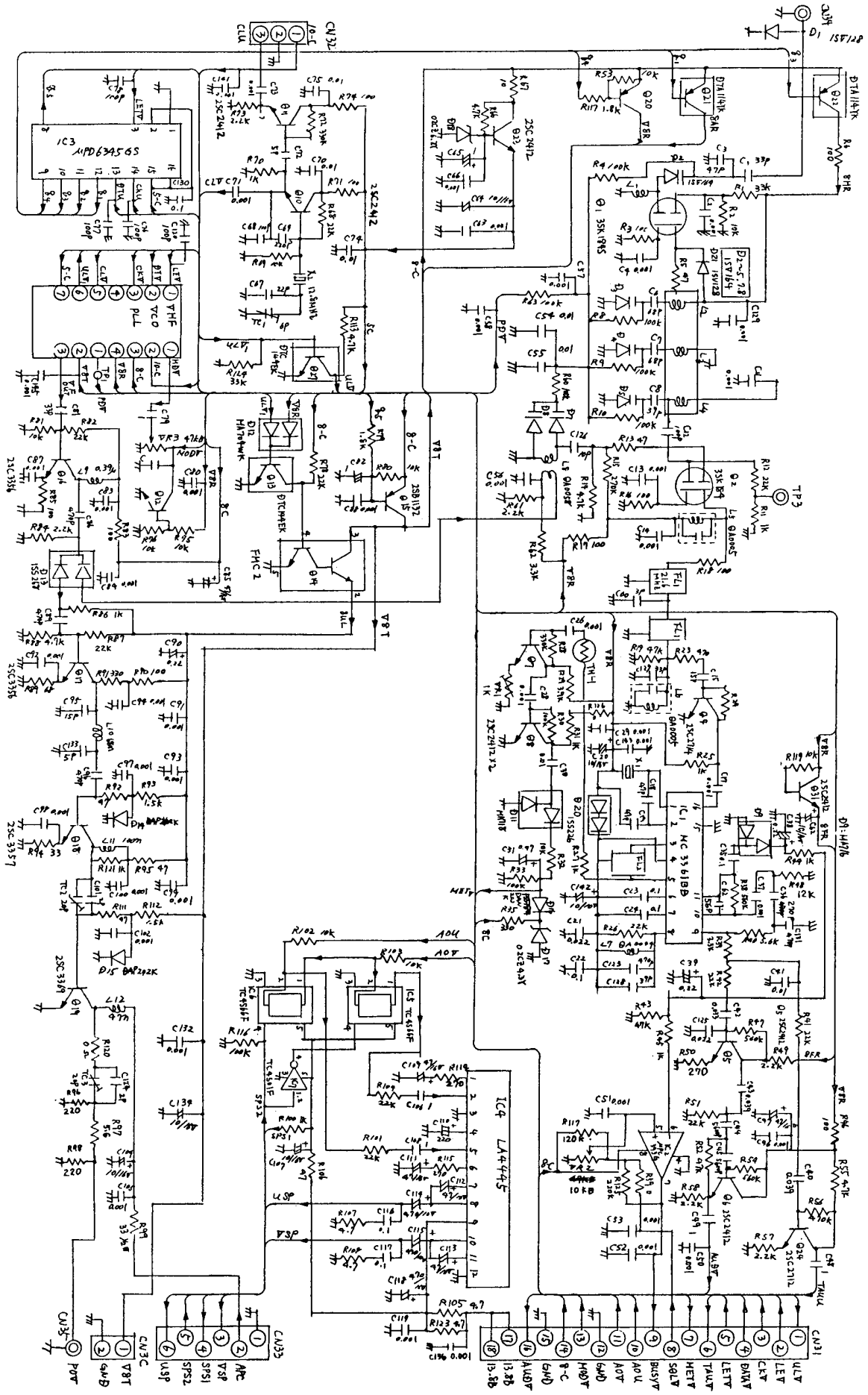
BLOCK DIAGRAM



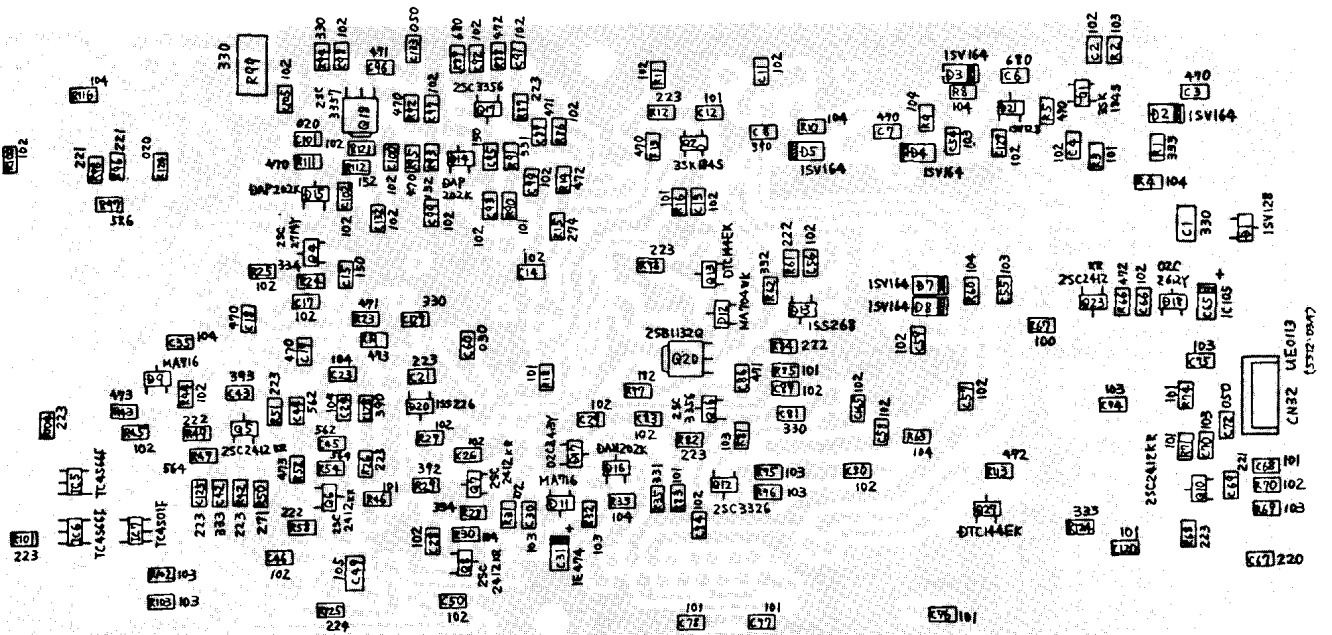
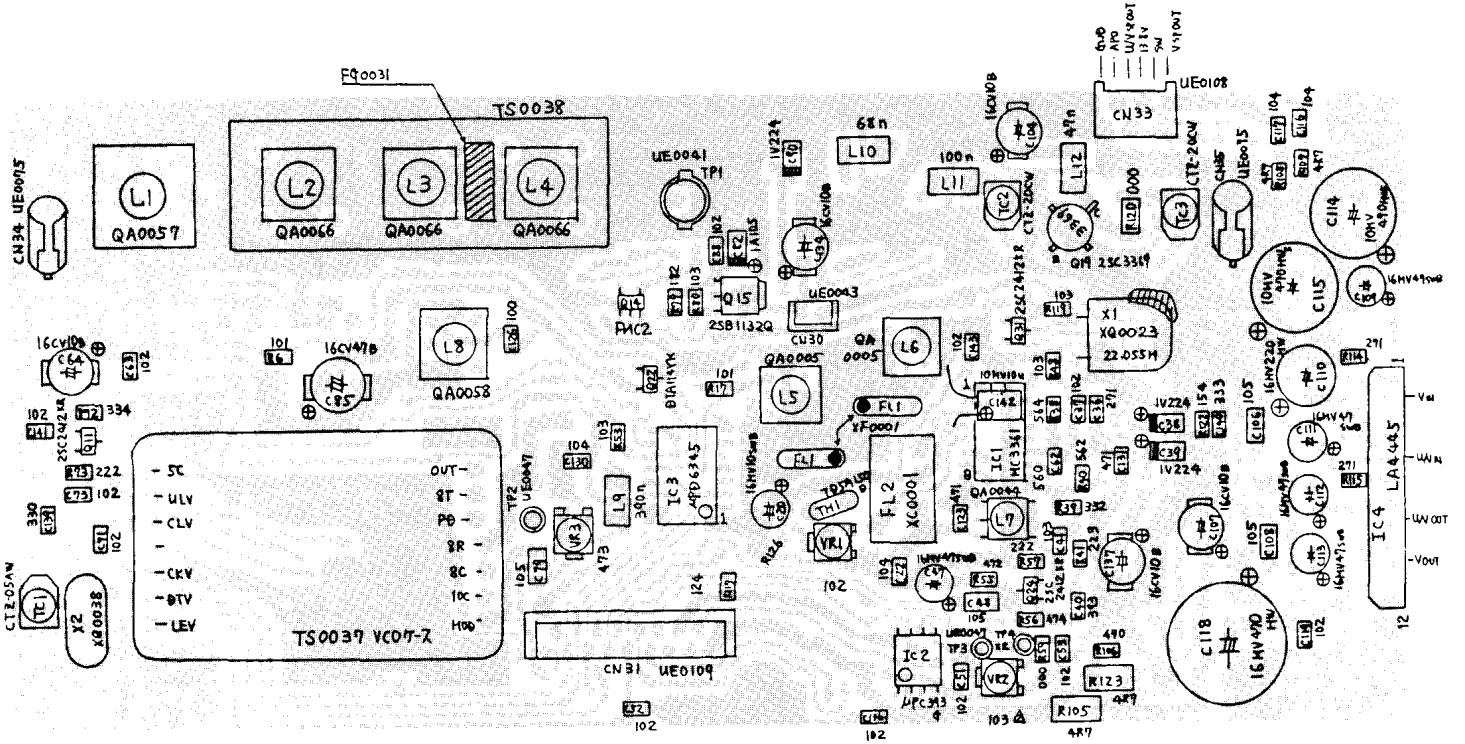
OVERALL WIRING



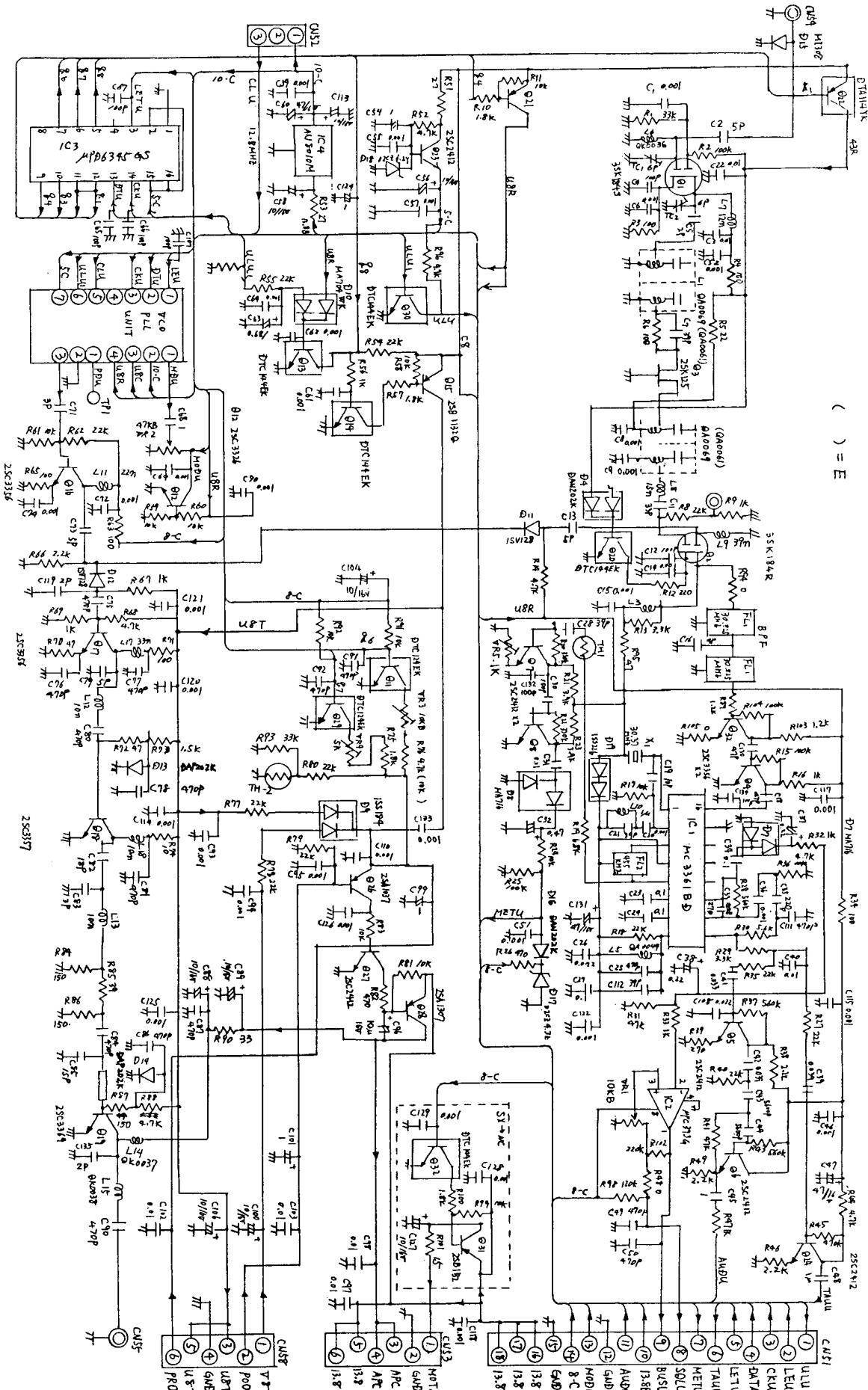
SCHEMATIC DIAGRAM OF VHF MAIN UNIT



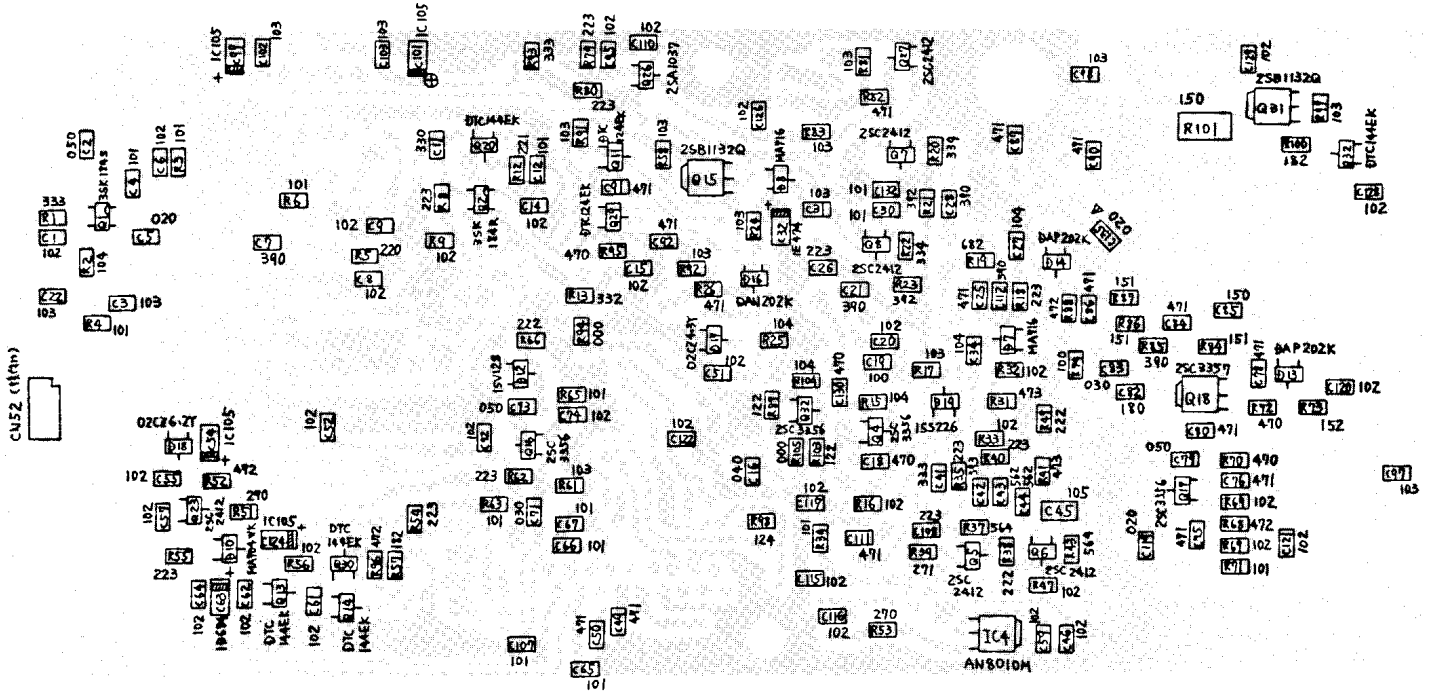
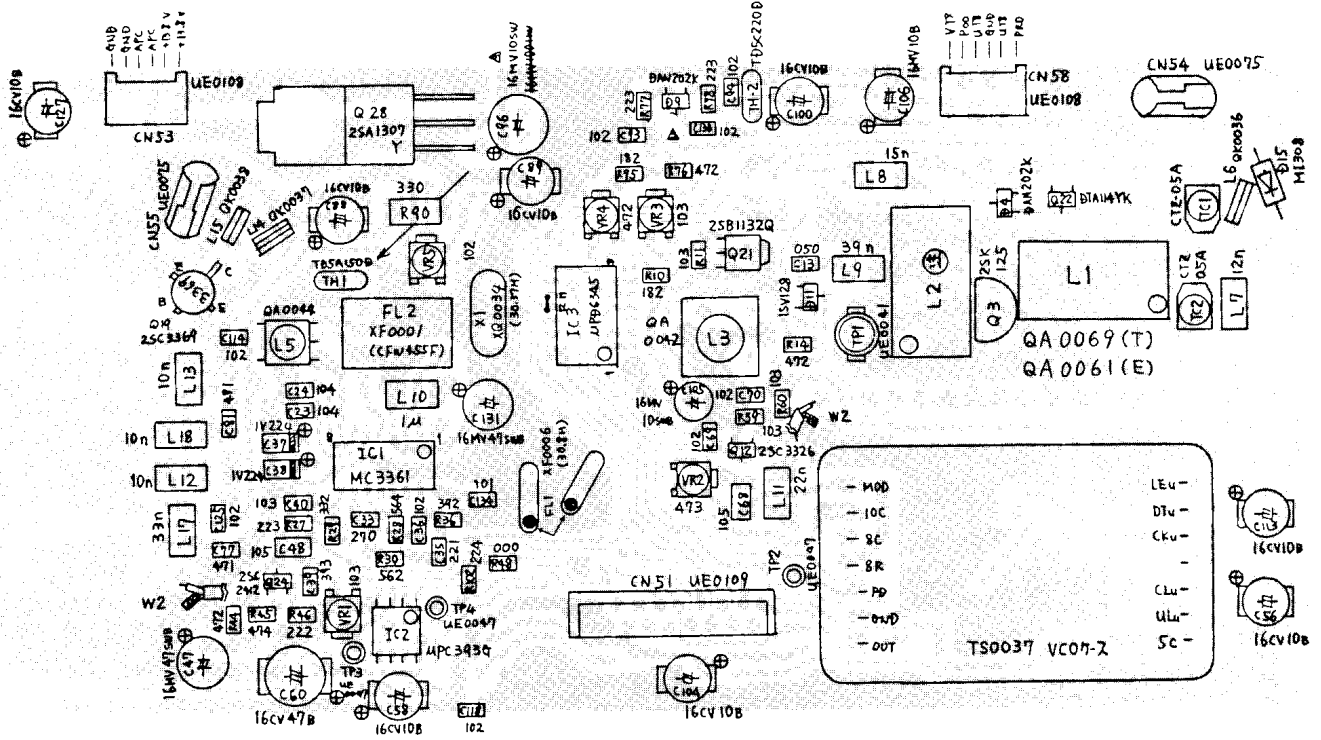
VHF MAIN PC BOARDS



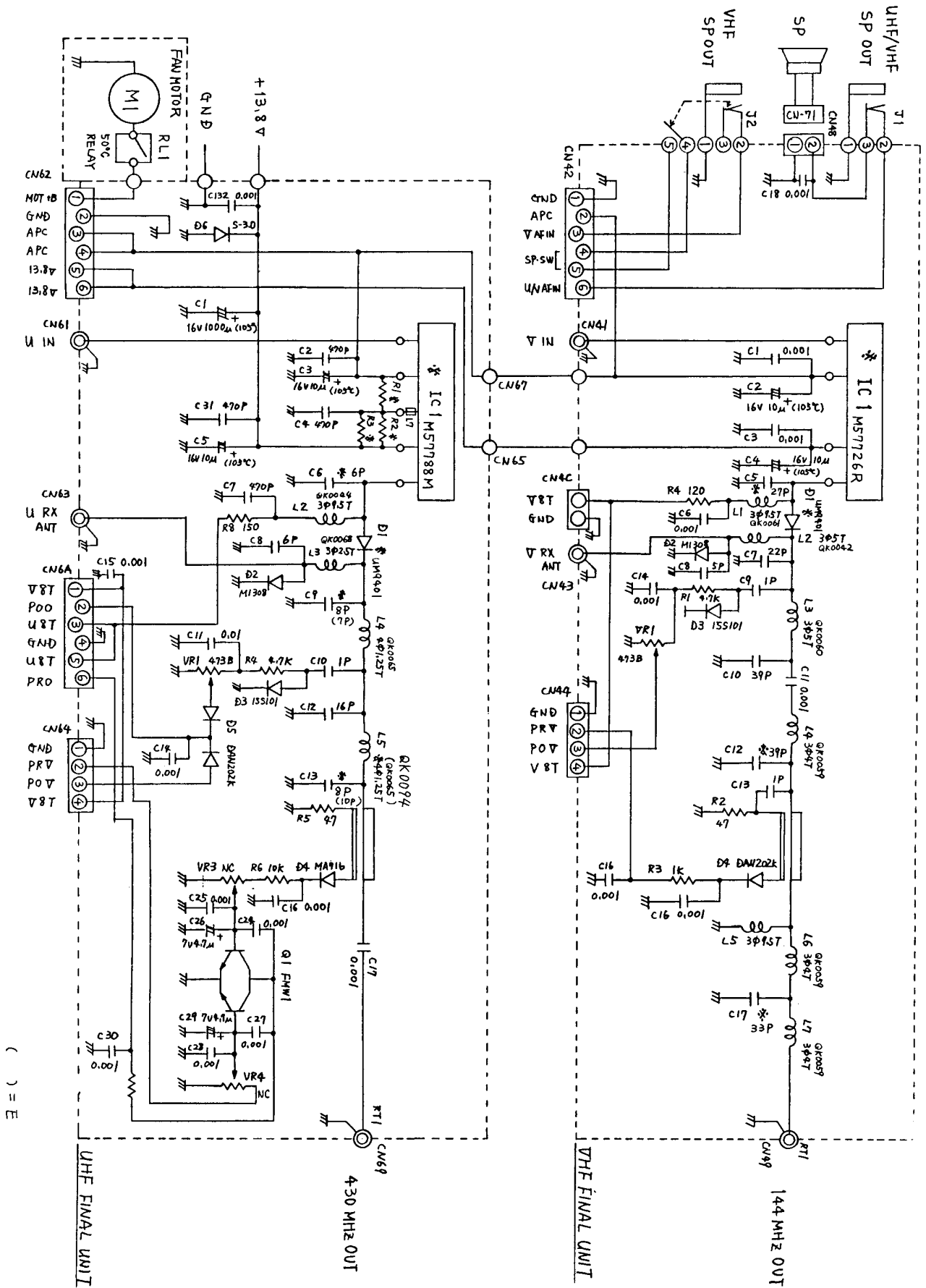
SCHEMATIC DIAGRAM OF UHF MAIN UNIT



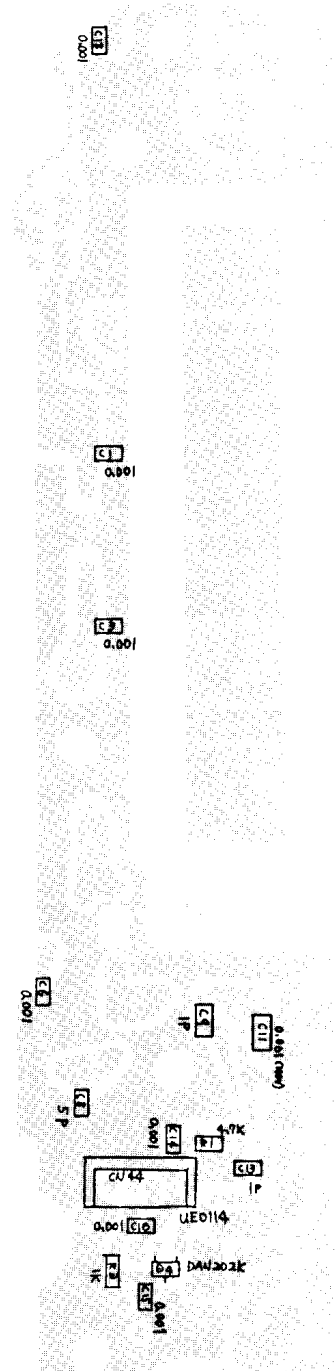
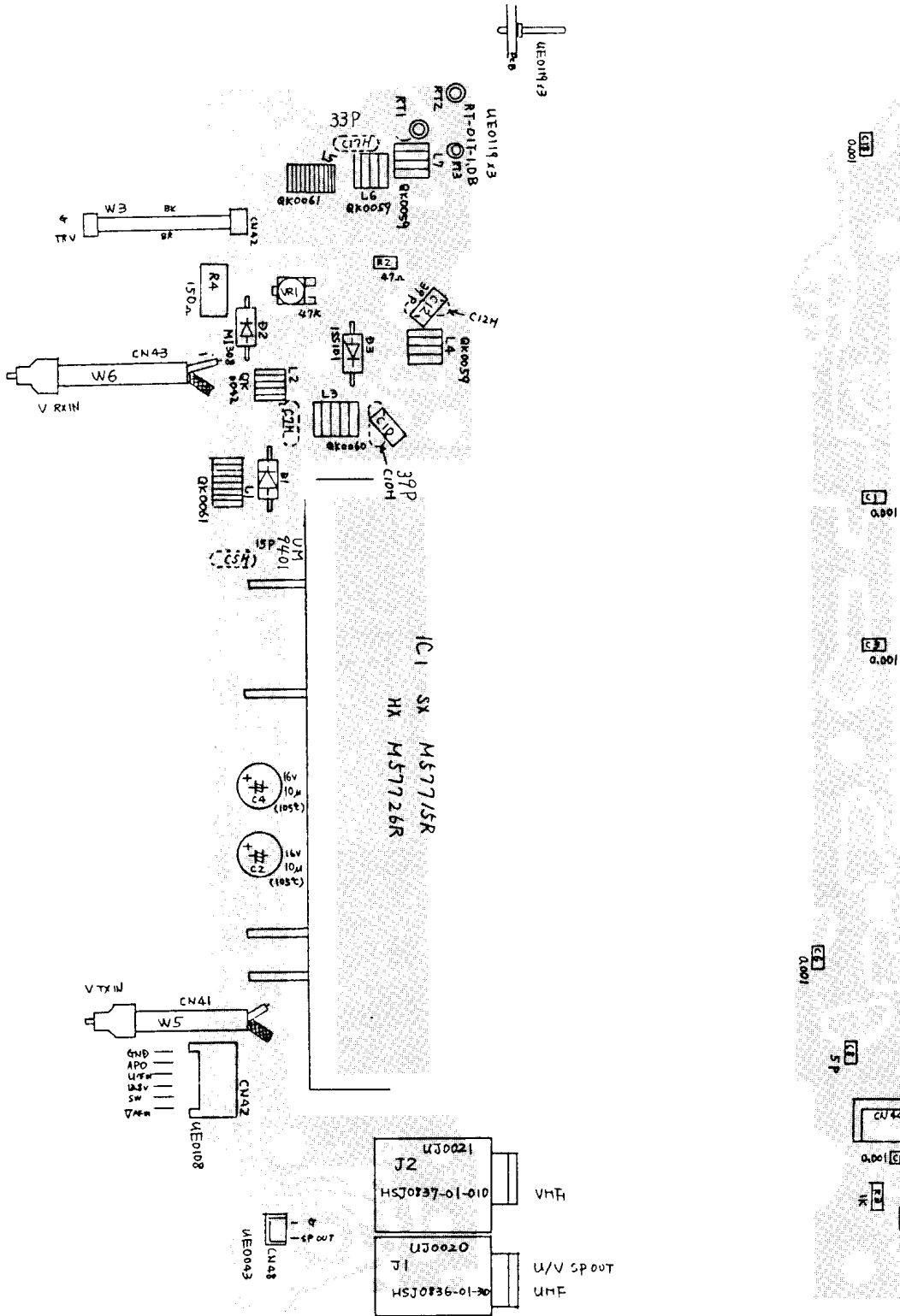
UHF MAIN PC BOARDS



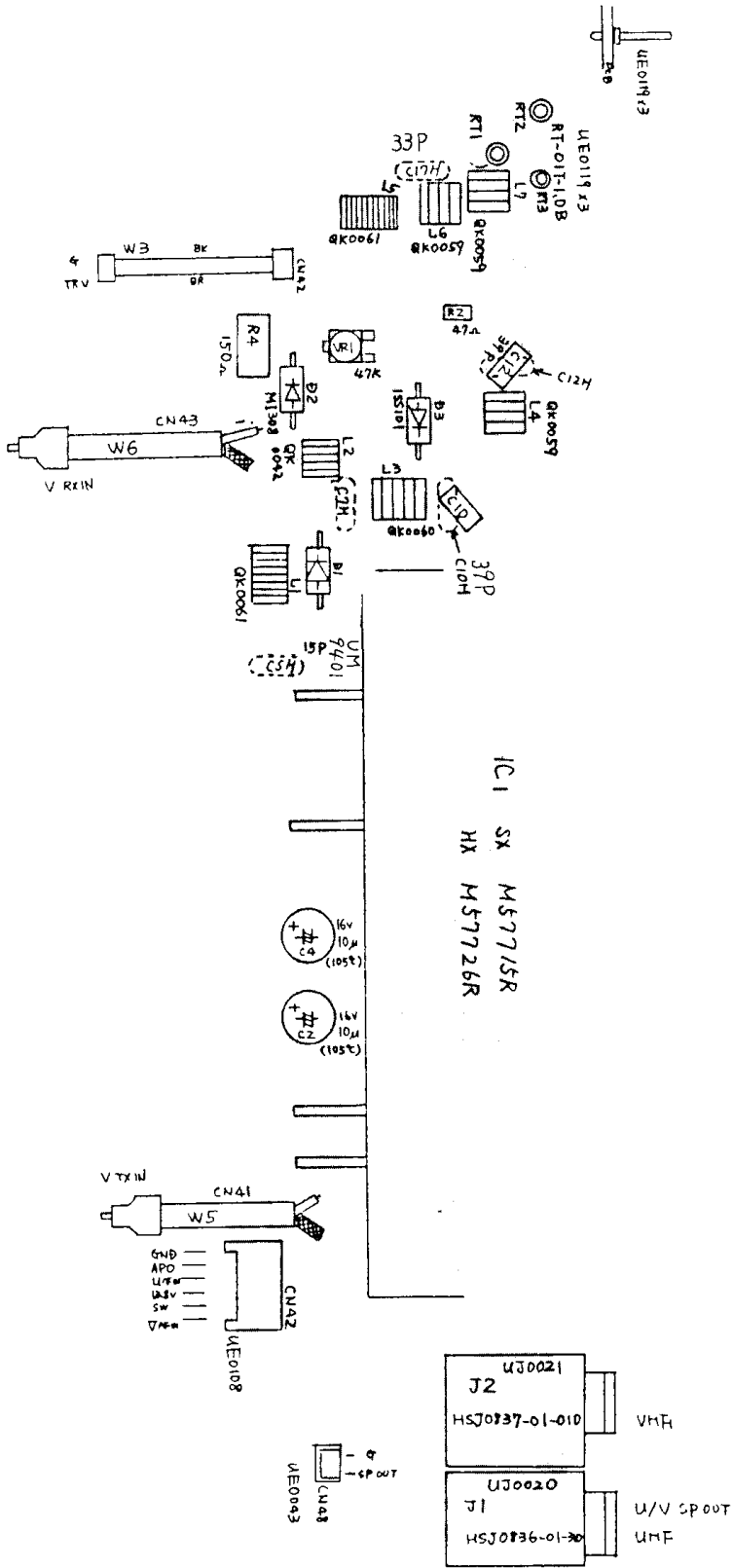
SCHEMATIC DIAGRAM OF VHF/UHF PA UNIT



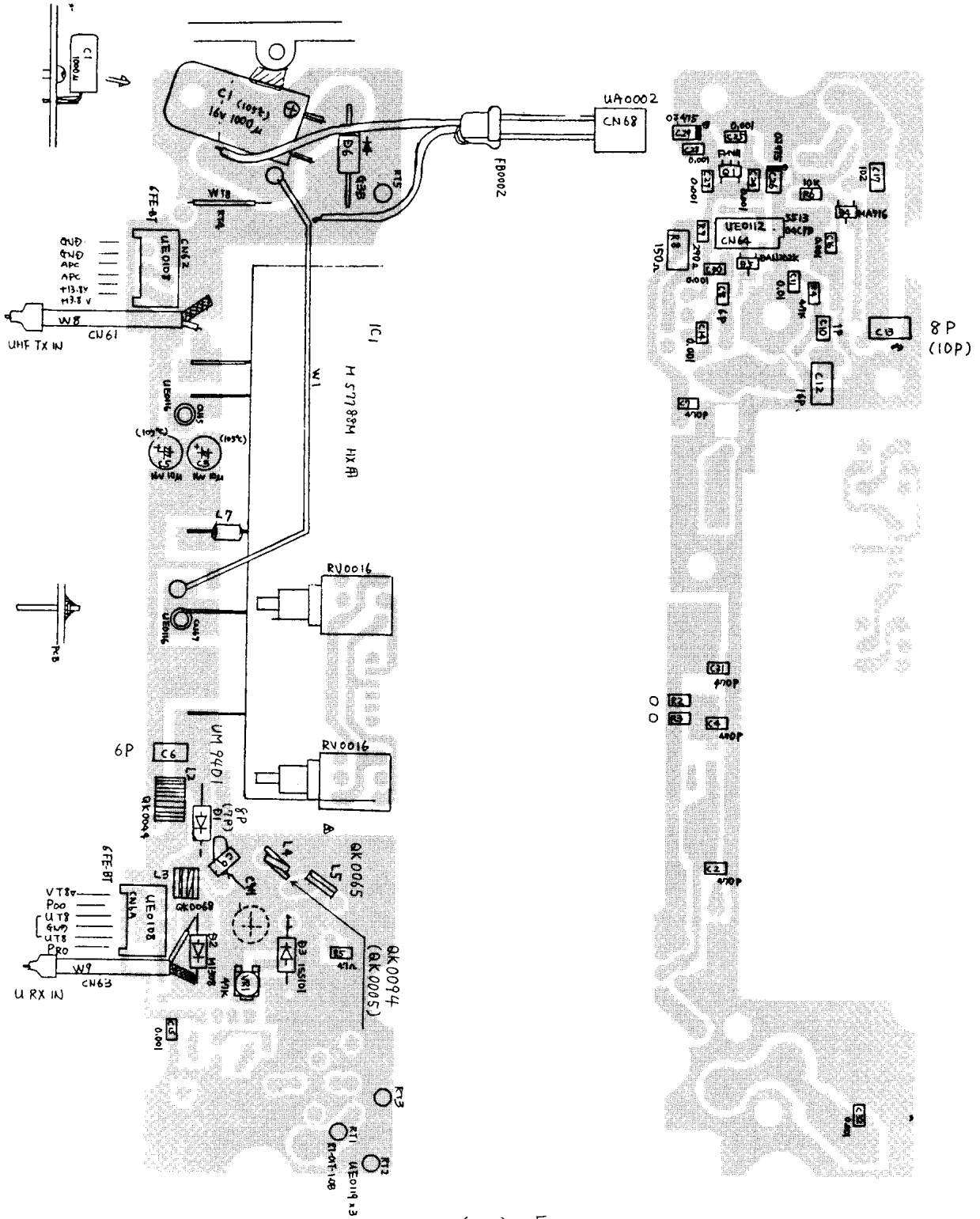
VHF PA PC BOARDS



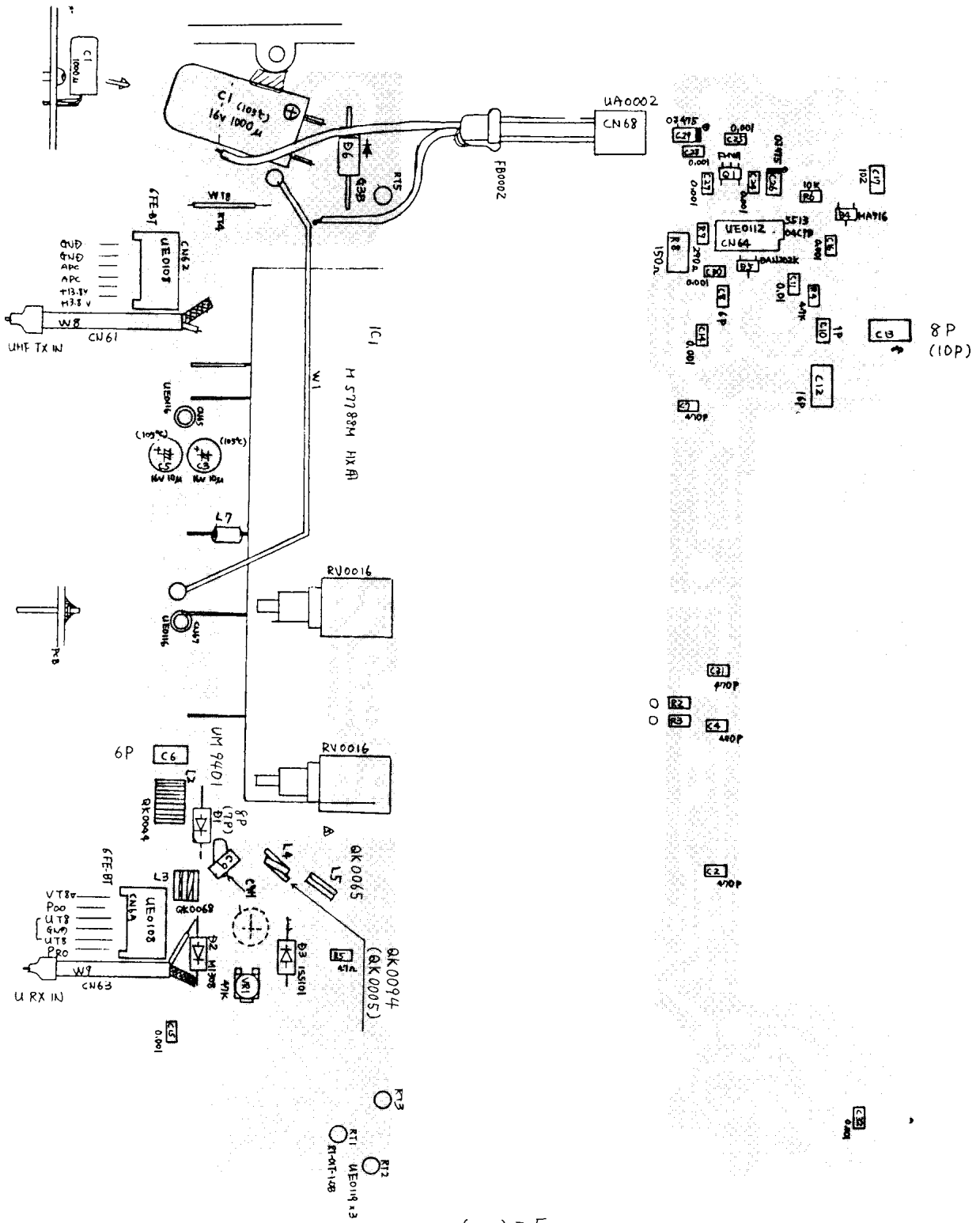
VHF PA PC BOARDS



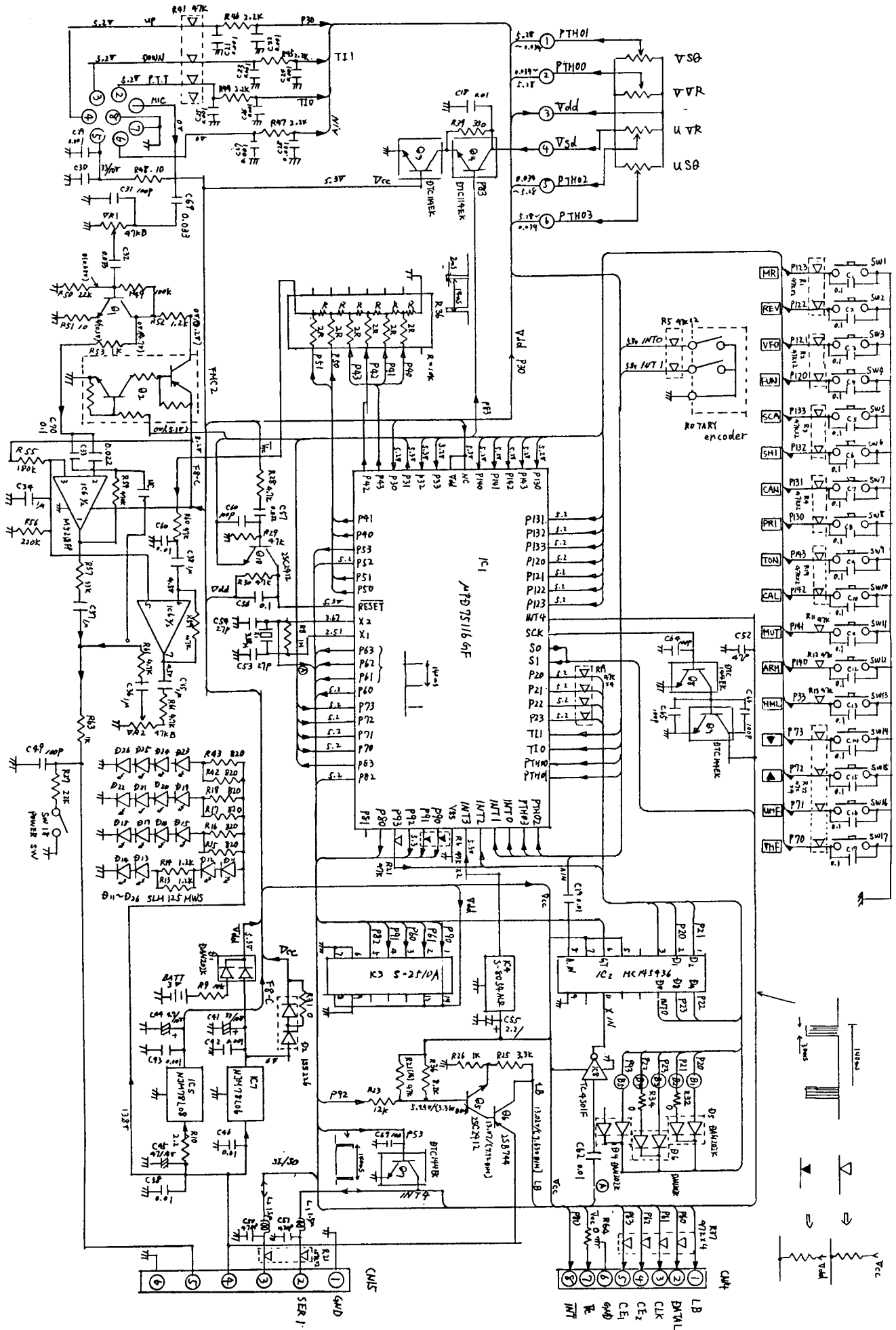
UHF PA PC BOARDS



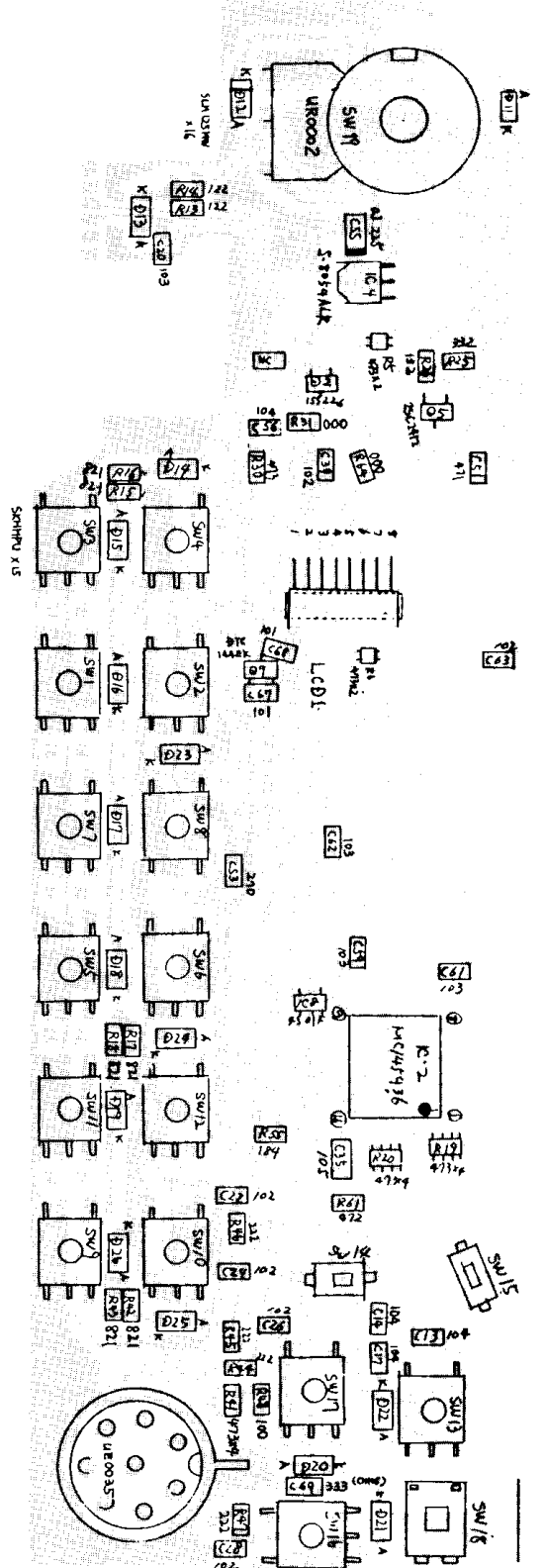
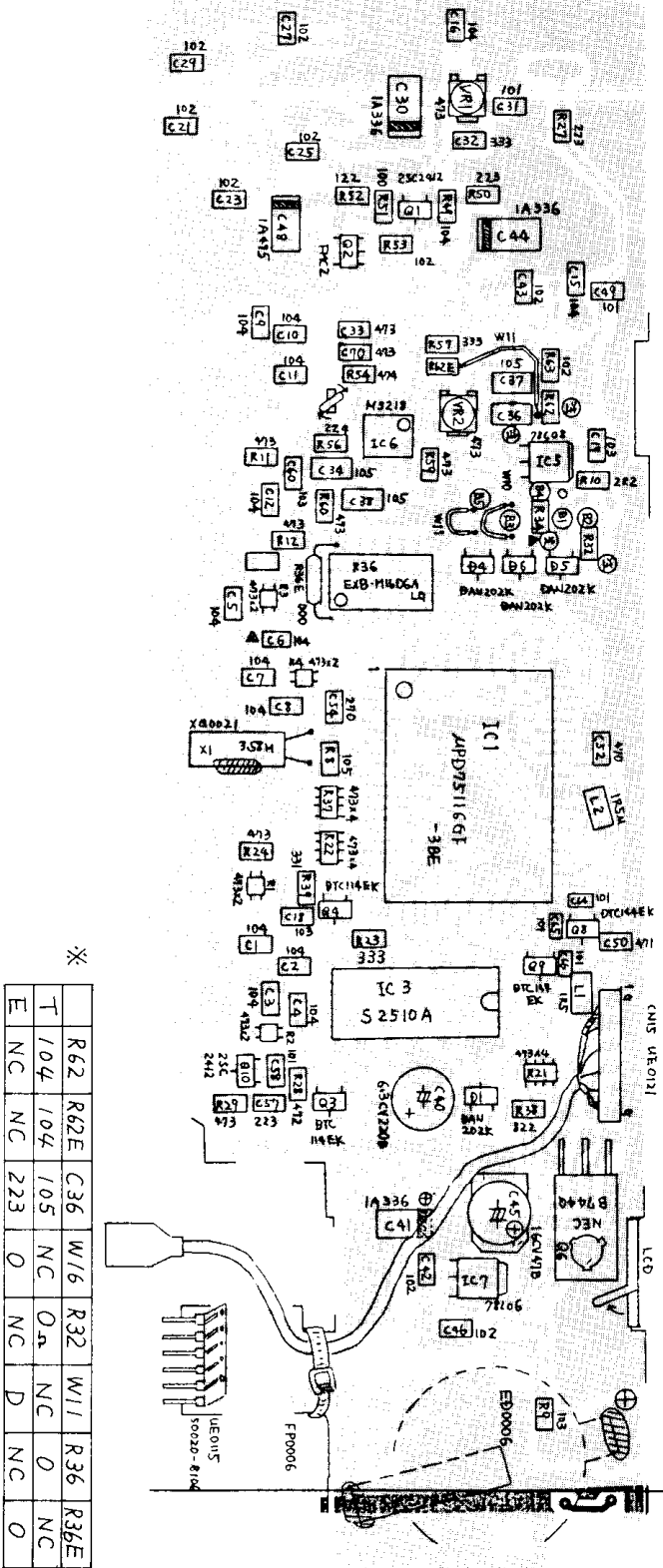
UHF PA PC BOARDS



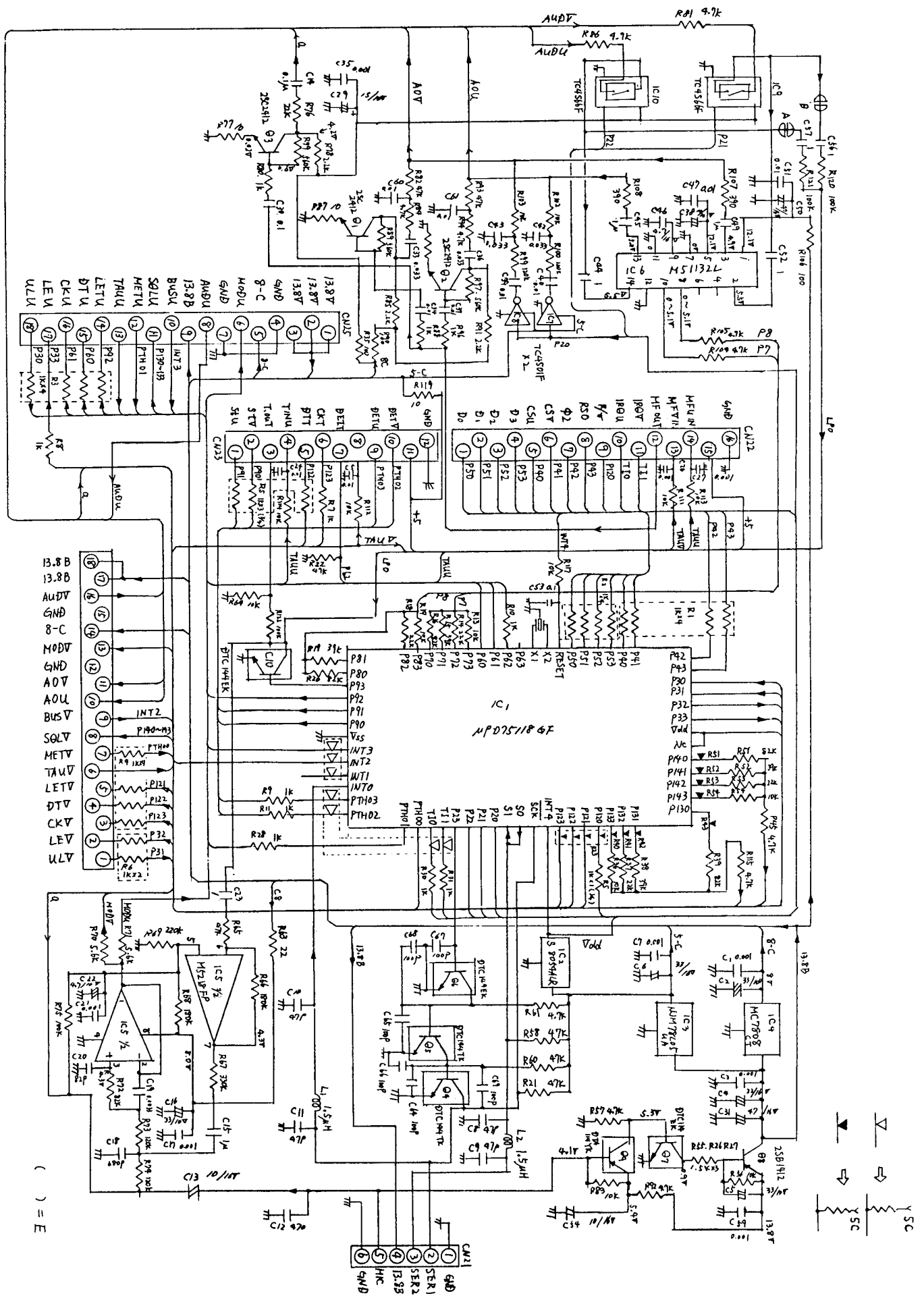
SCHEMATIC DIAGRAM OF FRONT CONTROL UNIT



FRONT CONTROL PC BOARDS

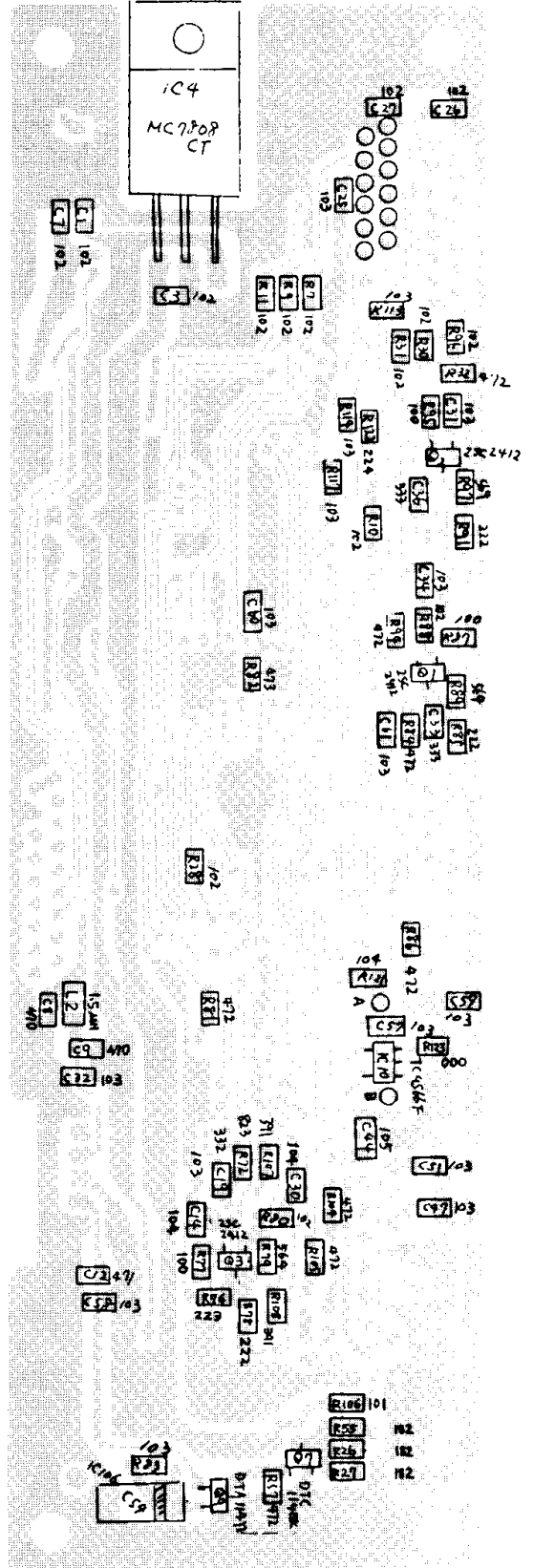
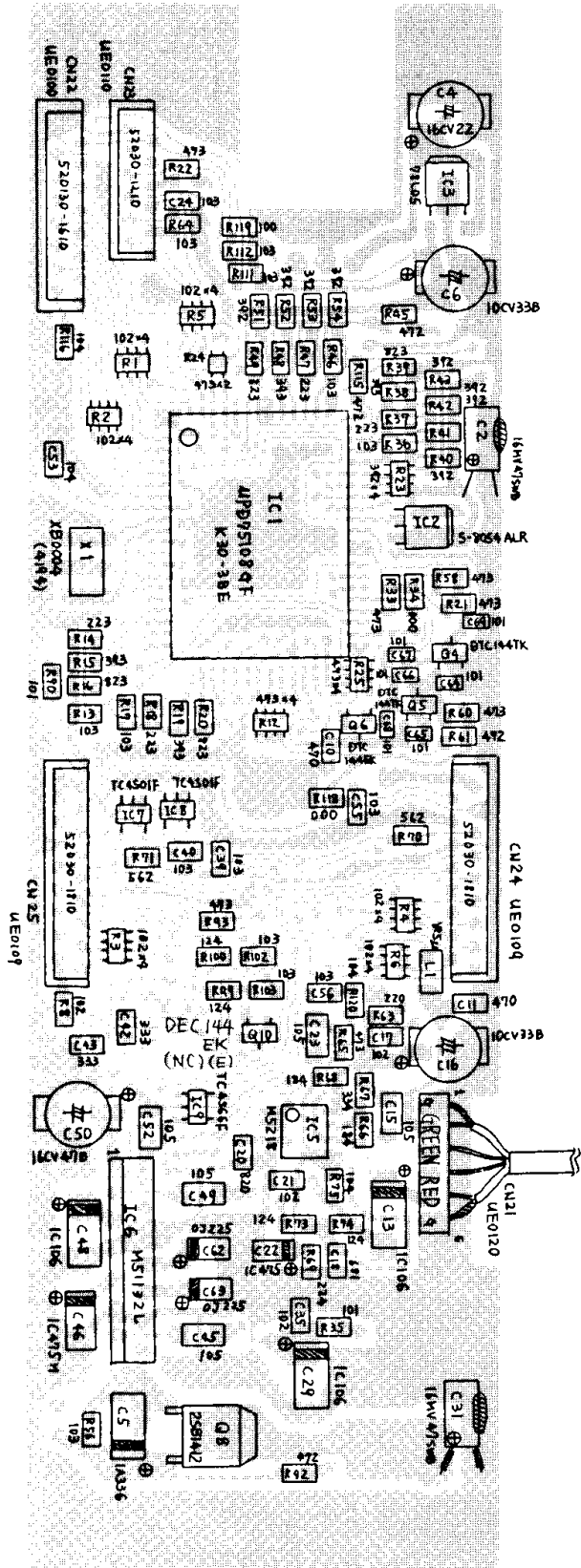


SCHEMATIC DIAGRAM OF SUB CONTROL UNIT

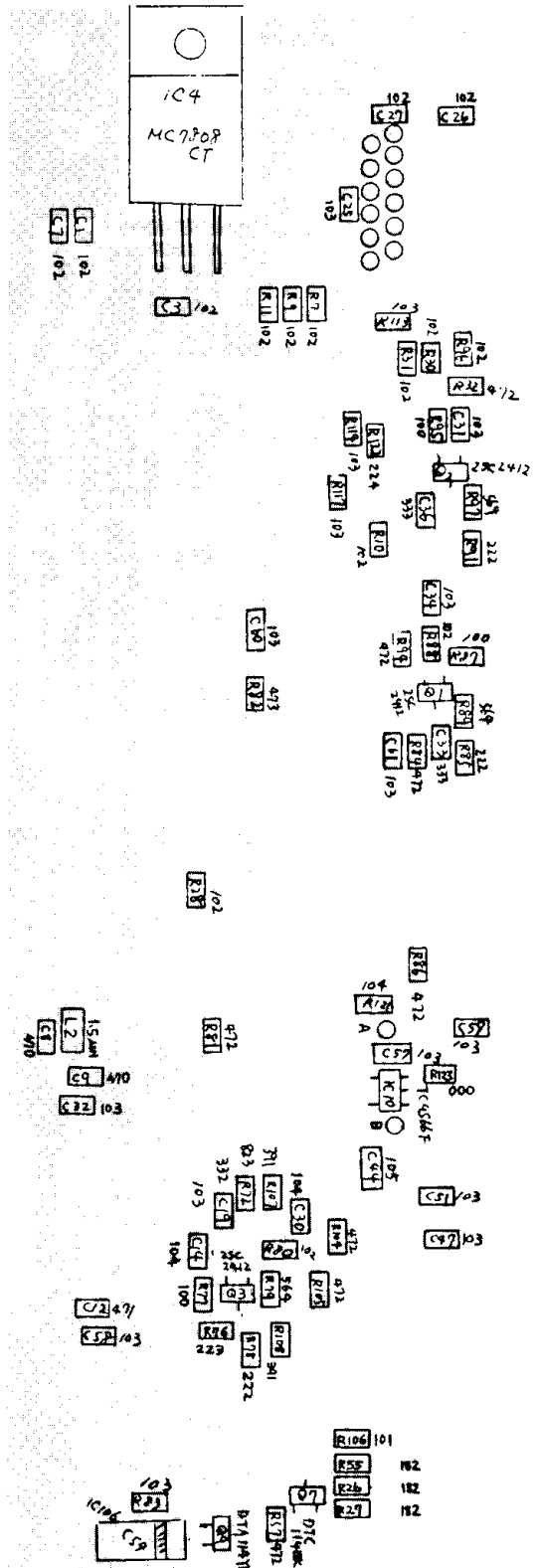
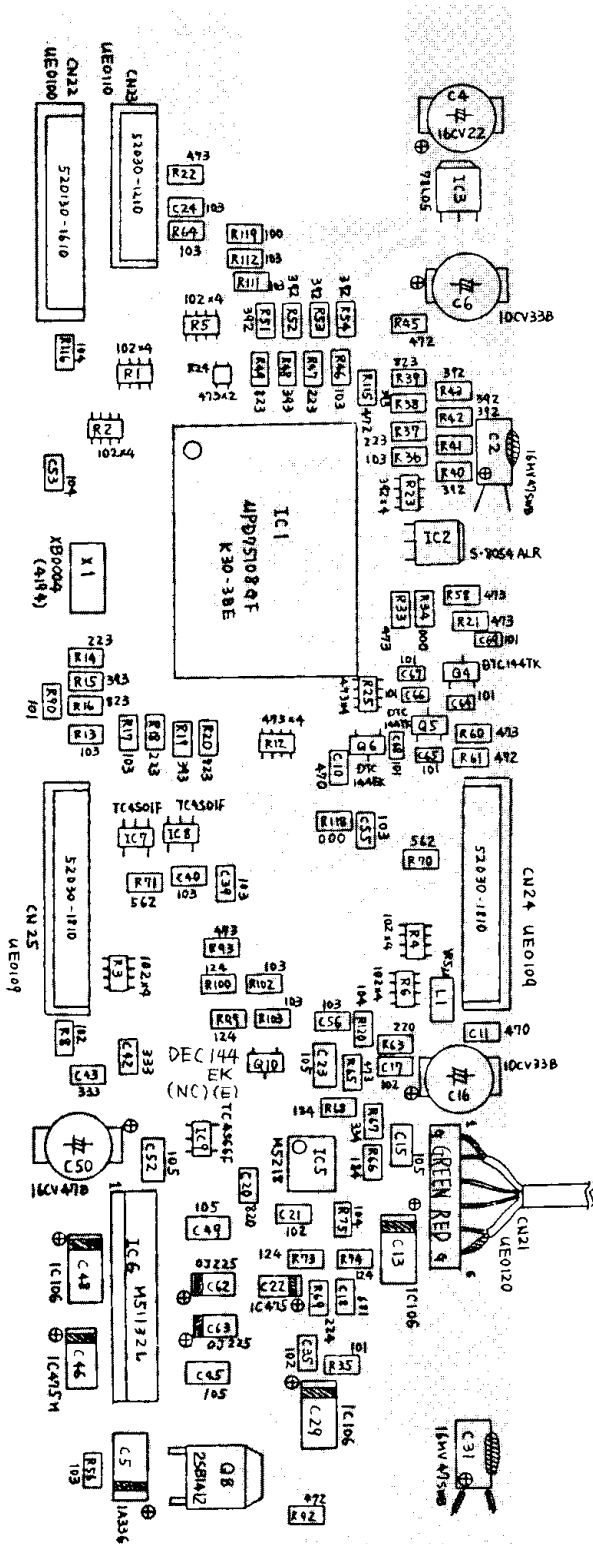


() = E

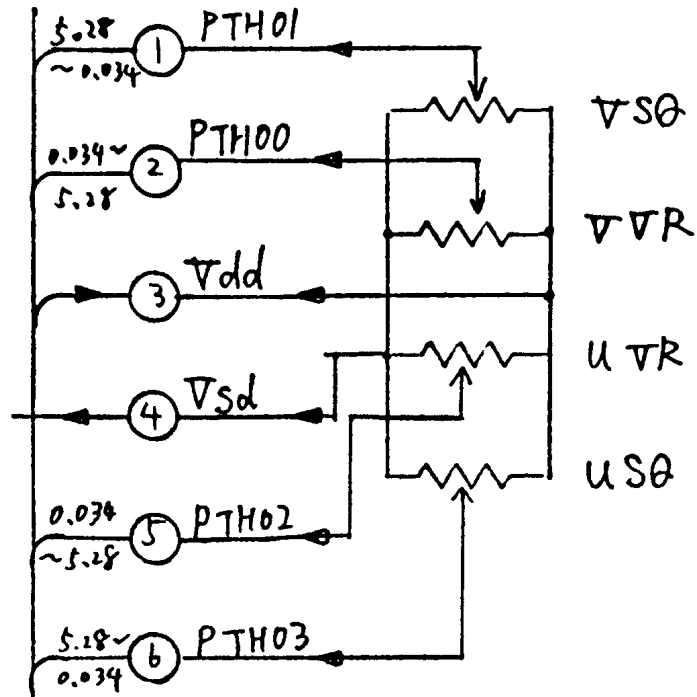
SUB CONTROL PC BOARDS



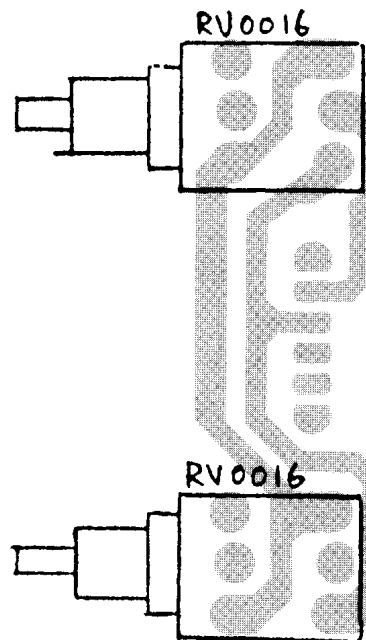
SUB CONTROL PC BOARDS



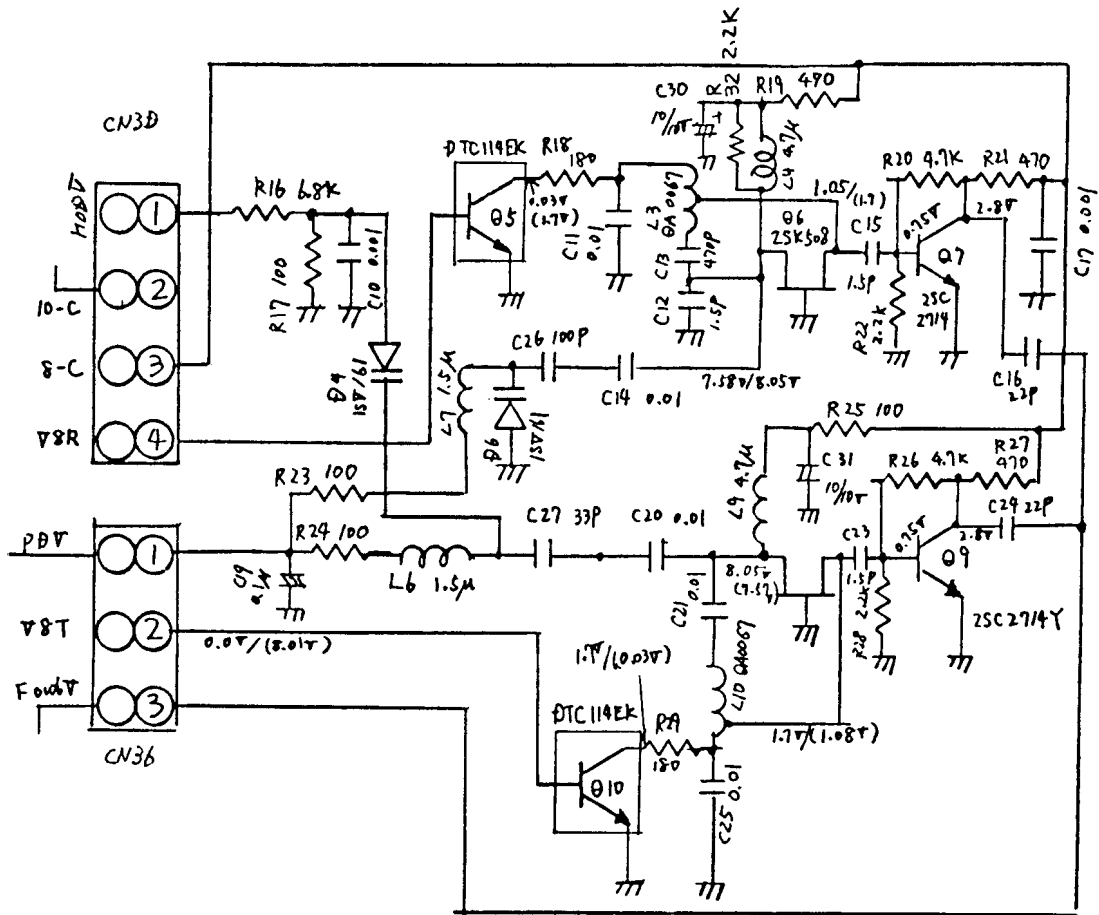
■ SCHEMATIC DIAGRAM OF VOL UNIT



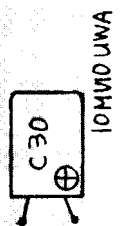
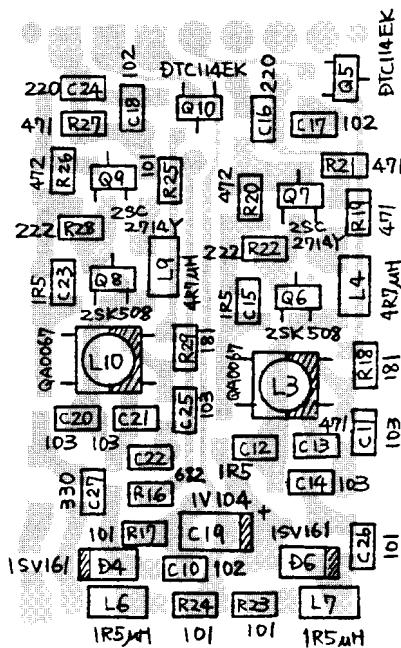
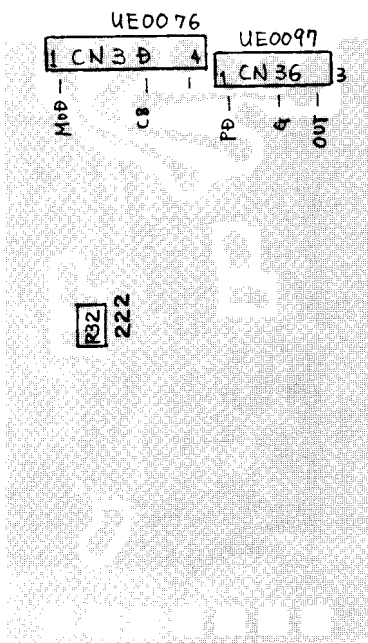
■ VOL PC BOARDS



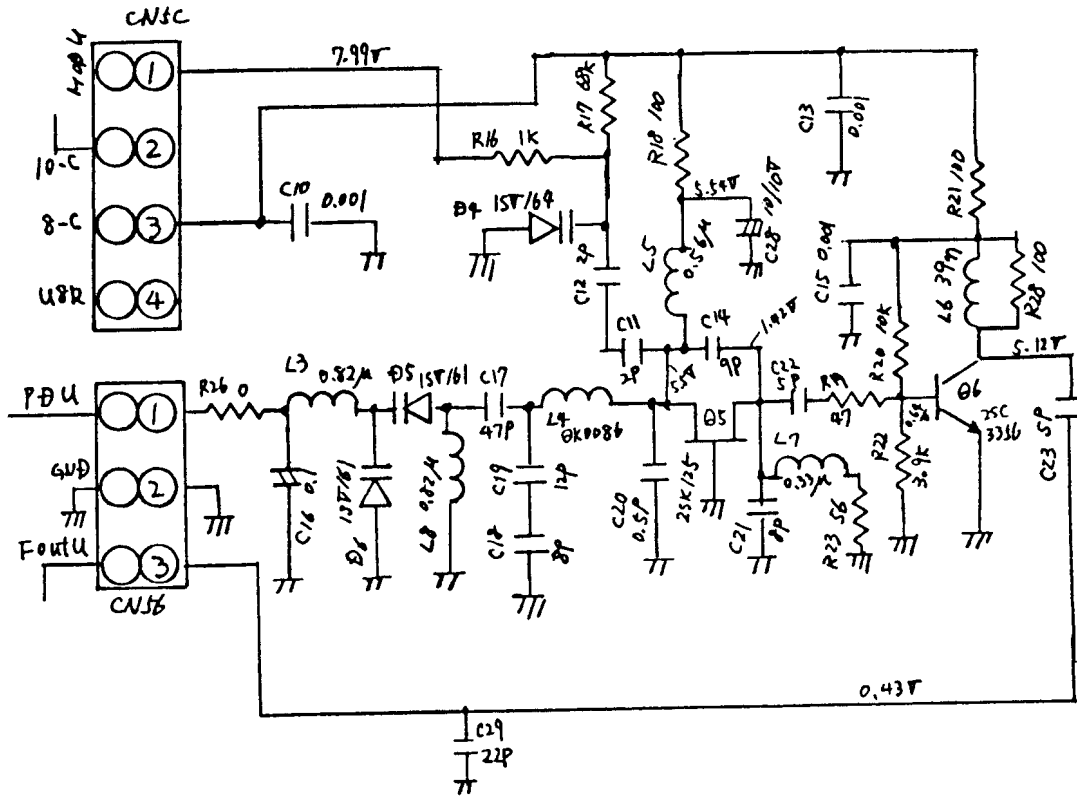
■ SCHEMATIC DIAGRAM OF VHF VCO UNIT



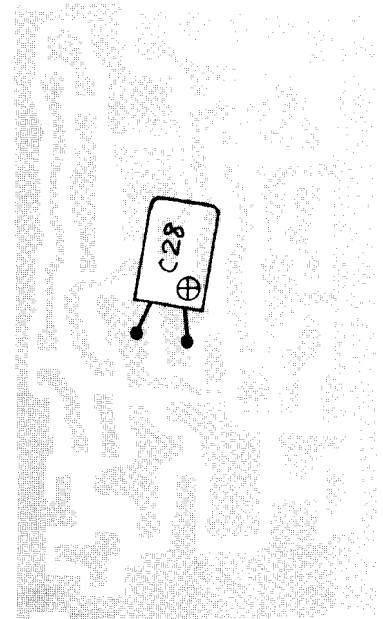
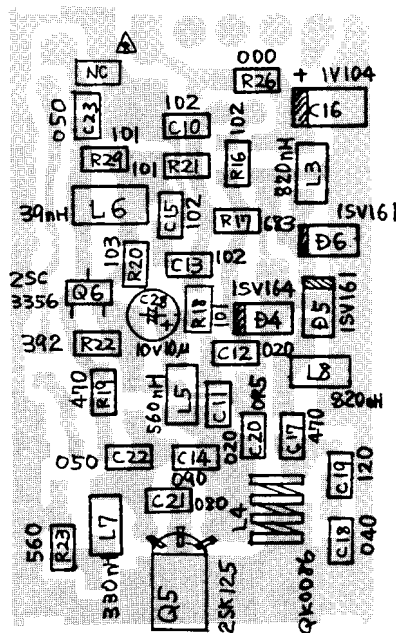
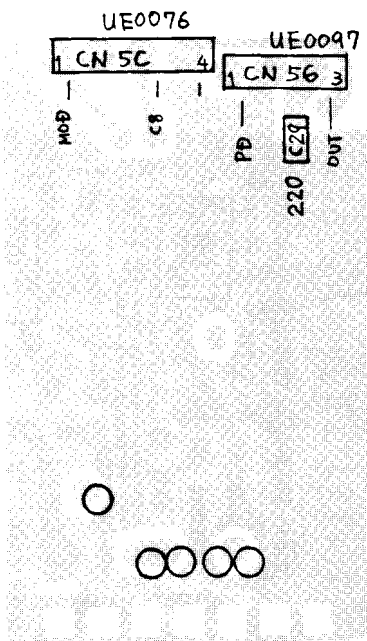
■ VHF VCO PC BOARDS



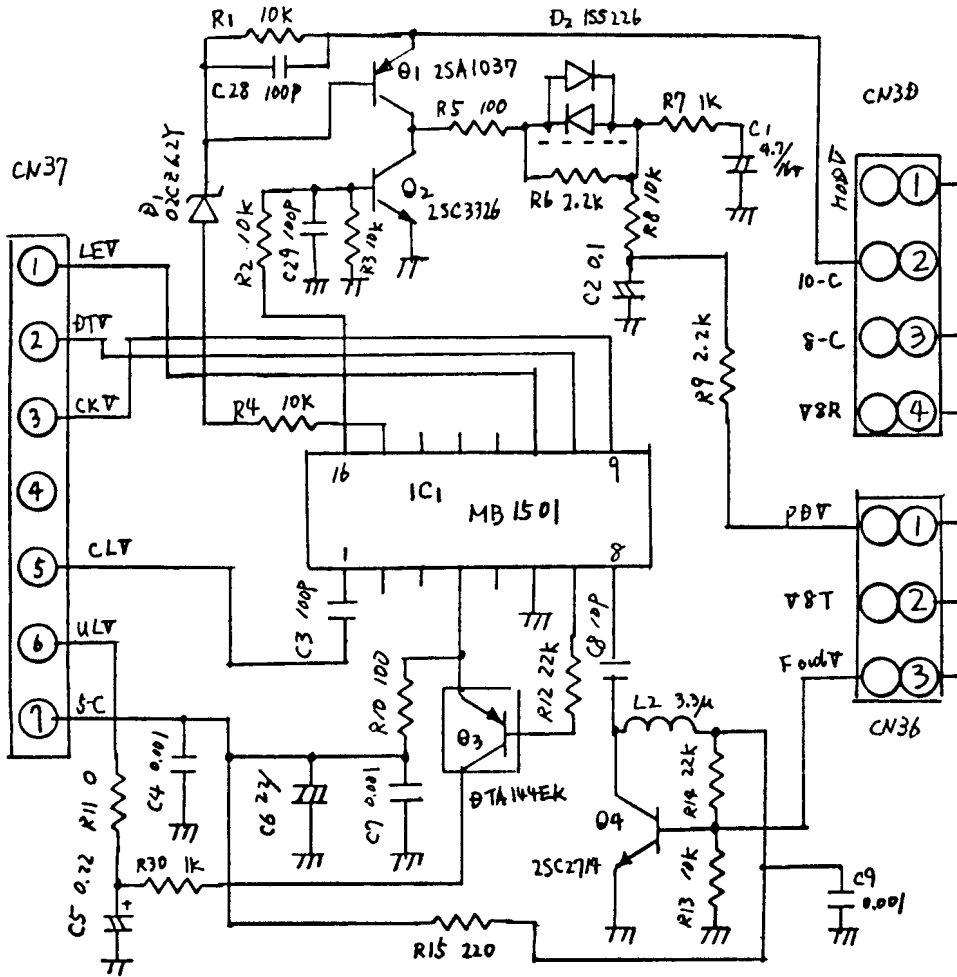
■ SCHEMATIC DIAGRAM OF UHF VCO UNIT



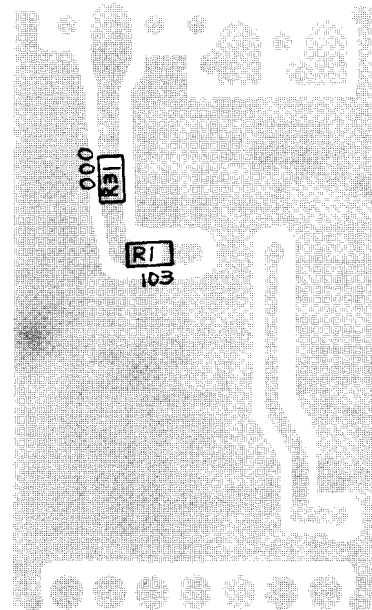
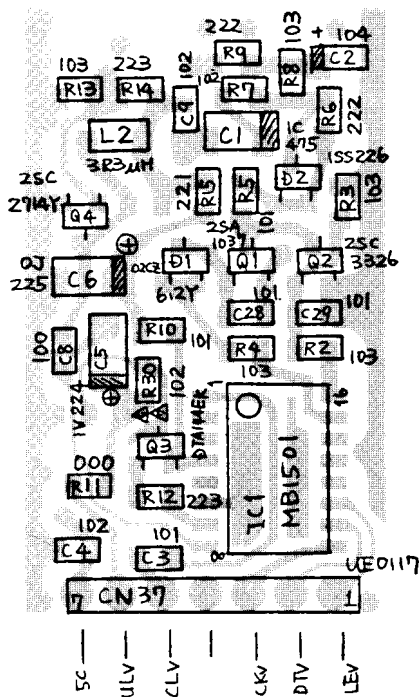
■ UHF VCO PC BOARDS



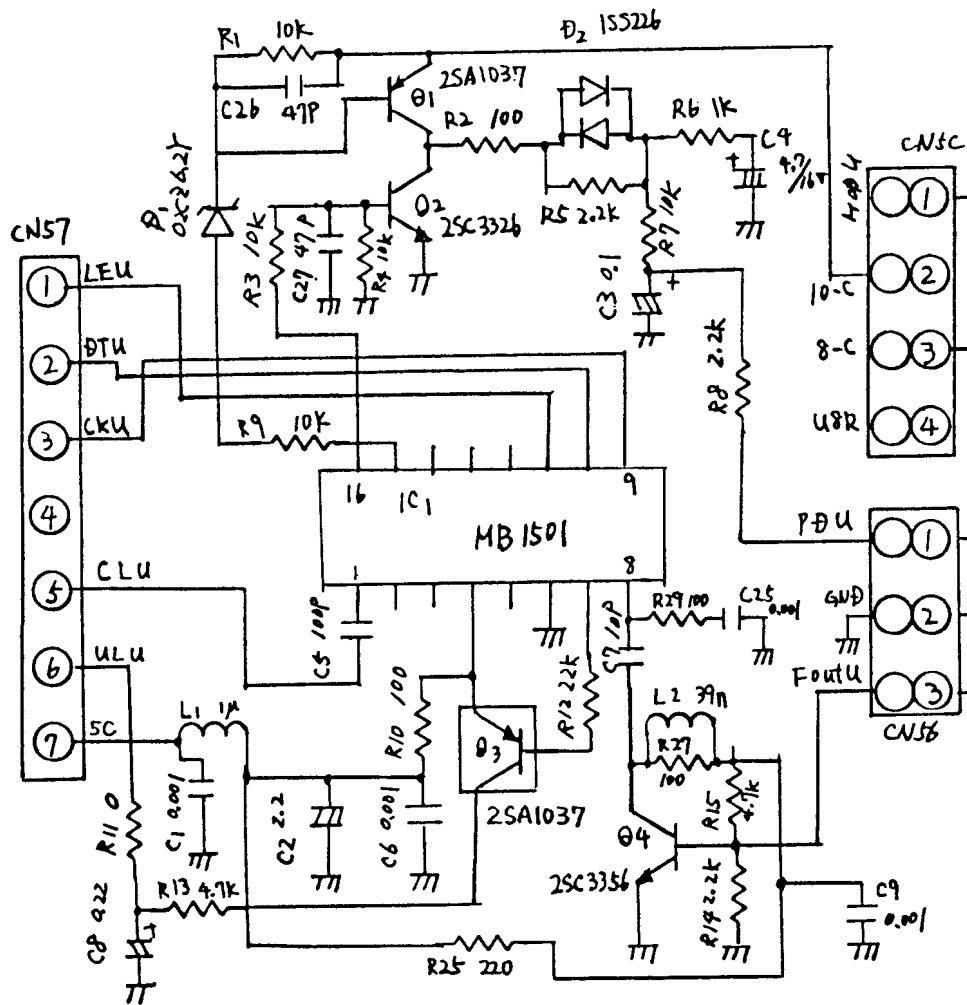
■ SCHEMATIC DIAGRAM OF VHF PLL UNIT



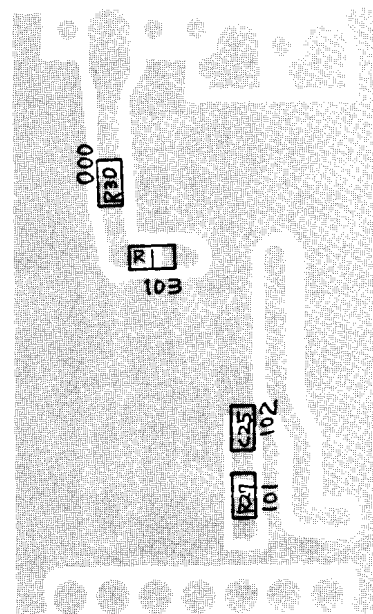
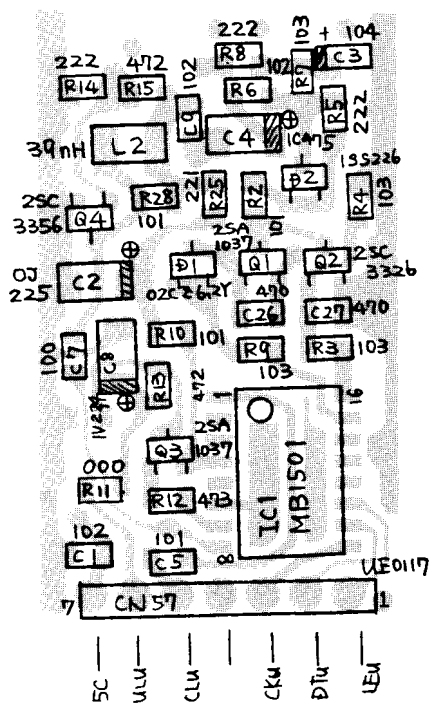
■ VHF PLL PC BOARDS



■ SCHEMATIC DIAGRAM OF UHF PLL UNIT



■ UHF PLL PC BOARDS



ALINCO ELECTRONICS INC.

Head Office : "TWIN 21" MID Tower Building 23F

1-61, 2-Chome, Shiromi, Chuo-ku, Osaka No.540, Japan

Factory : 1-1-1, Mishimae, Takatsuki, Osaka No.569, Japan