ICOM

SERVICE MANUAL

UHF TRANSCEIVER

IC-U101

Icom Inc.

INTRODUCTION

This service manual describes the latest service information for the **IC-U101** UHF TRANSCEIVER at the time of publication.

If you require assistance or further information regarding the operation and capabilities of the **IC-U101,** contact your nearest authorized Icom Dealer or Icom Service Center.

VERSION

VERSION NUMBER	FREQUENCY COVERAGE	OUTPUT POWER	CHANNEL PITCH
#01	450~470 MHz	25 W	12.5 kHz
#02	450~470 MHz	10 W	12.5 kHz
#03	450~470 MHz	25 W	25 kHz
#04	450~470 MHz	10 W	25 kHz

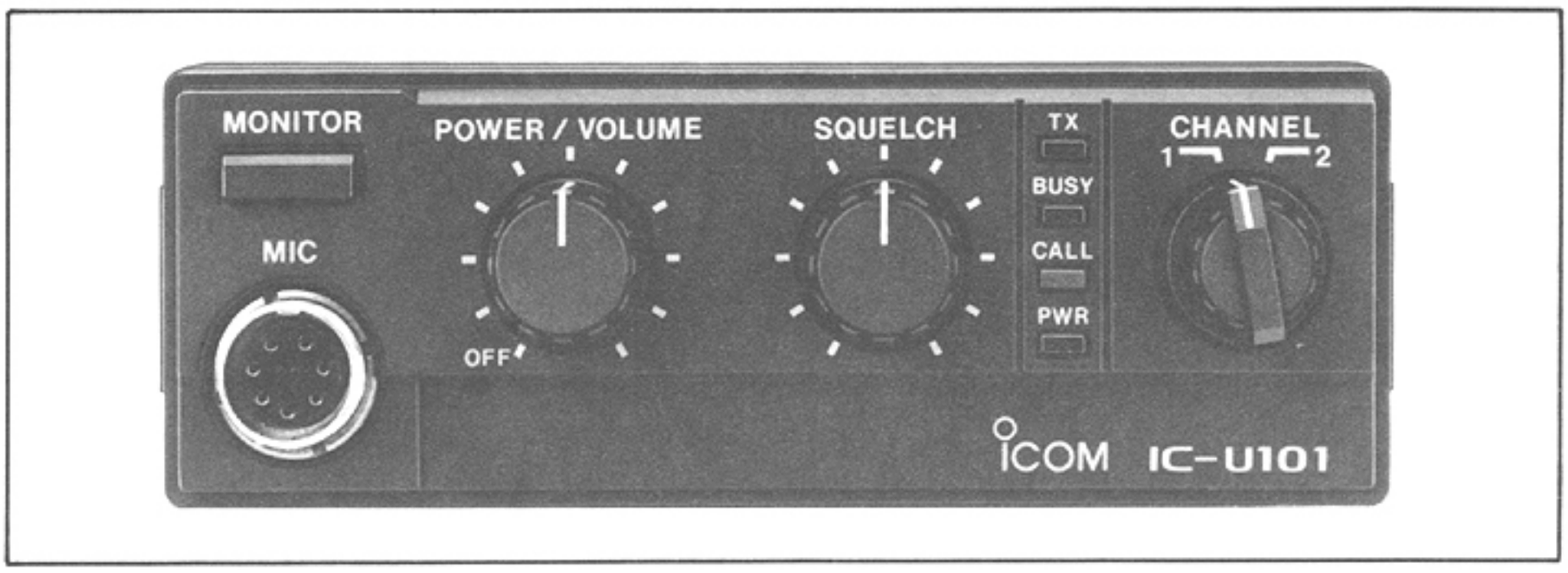
DANGER

NEVER connect the transceiver to an AC outlet or to a DC power supply that uses more than 16 V. This will ruin the transceiver.

DO NOT expose the transceiver to rain, snow or any liquids.

DO NOT reverse the polarities of the power supply when connecting the transceiver.

DO NOT apply an RF signal of more than 20 dBm(100 mW) to the antenna connector. This could damage the transceiver's front end.



ORDERING PARTS

Be sure to include the following four points when ordering replacement parts:

1. 10-digit order numbers
2. Component part number and name
3. Equipment model name and unit name
4. Quantity required

<SAMPLE ORDER>

1130000210	IC	μ PC2002H	IC-U101	LOGIC UNIT	5 pieces
8810002170	Screw	FH M3X6	IC-U101	CHASSIS UNIT	10 pieces

Addresses are provided on the inside back cover for your convenience.

REPAIR NOTE

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver has been disconnected from a power source.
3. **DO NOT** force any of the sophisticated components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated tuning tool MUST be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or sweep generator.
7. **ALWAYS** connect a 40 dB~50 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instruction of test equipment thoroughly before connecting equipment to the transceiver.

TABLE OF CONTENTS

SECTION 1 SPECIFICATIONS

■ GENERAL

Frequency coverage	:	450~470 MHz
Number of channels	:	2 (Transmit, receive and CTCSS frequencies are programmable)
Usable temperature range	:	–25 °C~+55 °C (–13 °F~+131 °F)
Channel spacing	:	12.5 kHz (#01, #02)
		25 kHz (#03, #04)
Antenna impedance	:	50 Ω (unbalanced)
Power supply requirement	:	13.8V DC (Negative ground)
Current drain	:	Receive standby 350 mA
		Receive max. audio 1 A
		Transmit 8.0 A (#01, #03)
		5.0 A (#02, #04)
Dimensions	:	140 (W) X 50 (H) X 179 (D) mm
		5.5 (W) X 2.0 (H) X 7.0 (D) in
		(Projections not included)
Weight	:	1.3 kg (2.9 lb)

■ RECEIVER

Receive system	:	Double-conversion superheterodyne
Intermediate frequency	:	1st: 30.85 MHz 2nd: 455 kHz
Sensitivity	:	0.35 μ V for 12 dB SINAD
Squelch threshold sensitivity	:	0.3 μV
Selectivity	:	–60 dB (#01, #02)
		–70 dB (#03, #04)
Spurious rejection	:	–70 dB
Image rejection	:	–70 dB
Intermodulation rejection	:	–70 dB
Audio output power	:	3 W with a 4Ω load at 10 % distortion
Audio output impedance	:	4 Ω
Frequency stability	:	±1.5 kHz

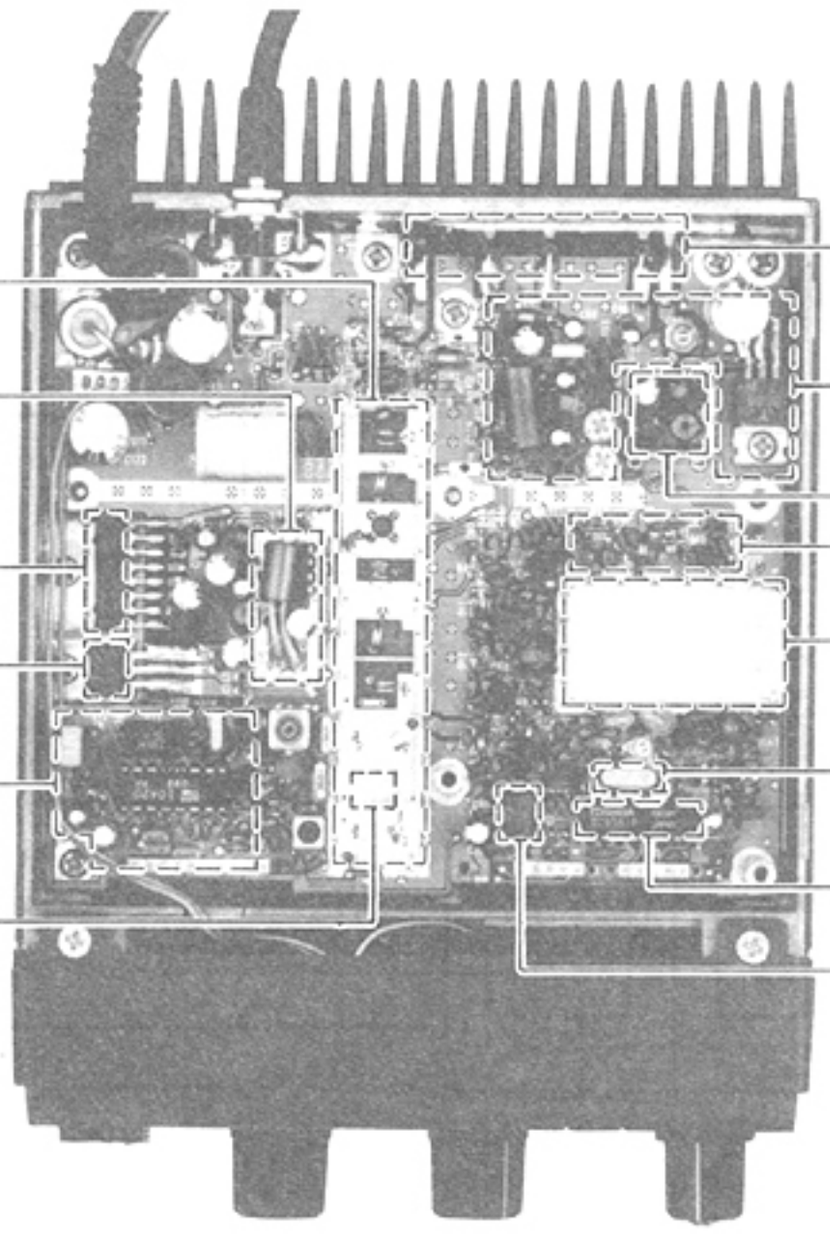
■ TRANSMITTER

RF output power	:	25 W (#01, #03)
		10 W (#02, #04)
Emission mode	:	8K50F3E (#01, #02)
		16K0F3E (#03, #04)
Modulation system	:	Variable reactance frequency modulation
Max. frequency deviation	:	±2.5 kHz (#01, #02)
		± 5 kHz (#03, #04)
Spurious emissions	:	0.25 μ W
Harmonic emissions	:	0.25 μ W
Frequency tolerance	:	±1.5 kHz
Adjacent channel power	:	–60 dB (#01, #02)
		–70 dB (#03, #04)
Audio frequency response	:	–3 dB~+1 dB in a 6 dB/octave range
		from 300 Hz to 2550 Hz (#01, #02)
		from 300 Hz to 3000 Hz (#03, #04)
Noise and hum	:	–35 dB (#01, #02)
		–40 dB (#03, #04)
Limiting of modulator	:	70~100 % of maximum deviation

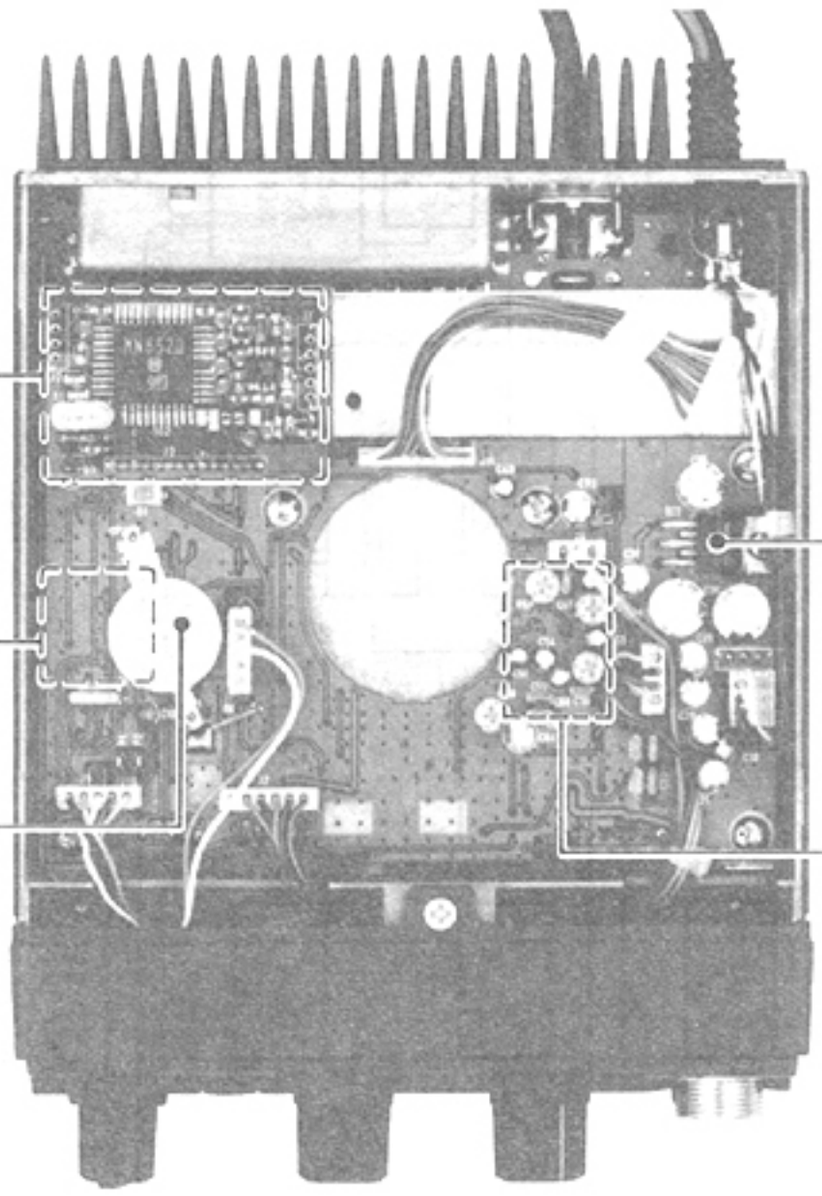
All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

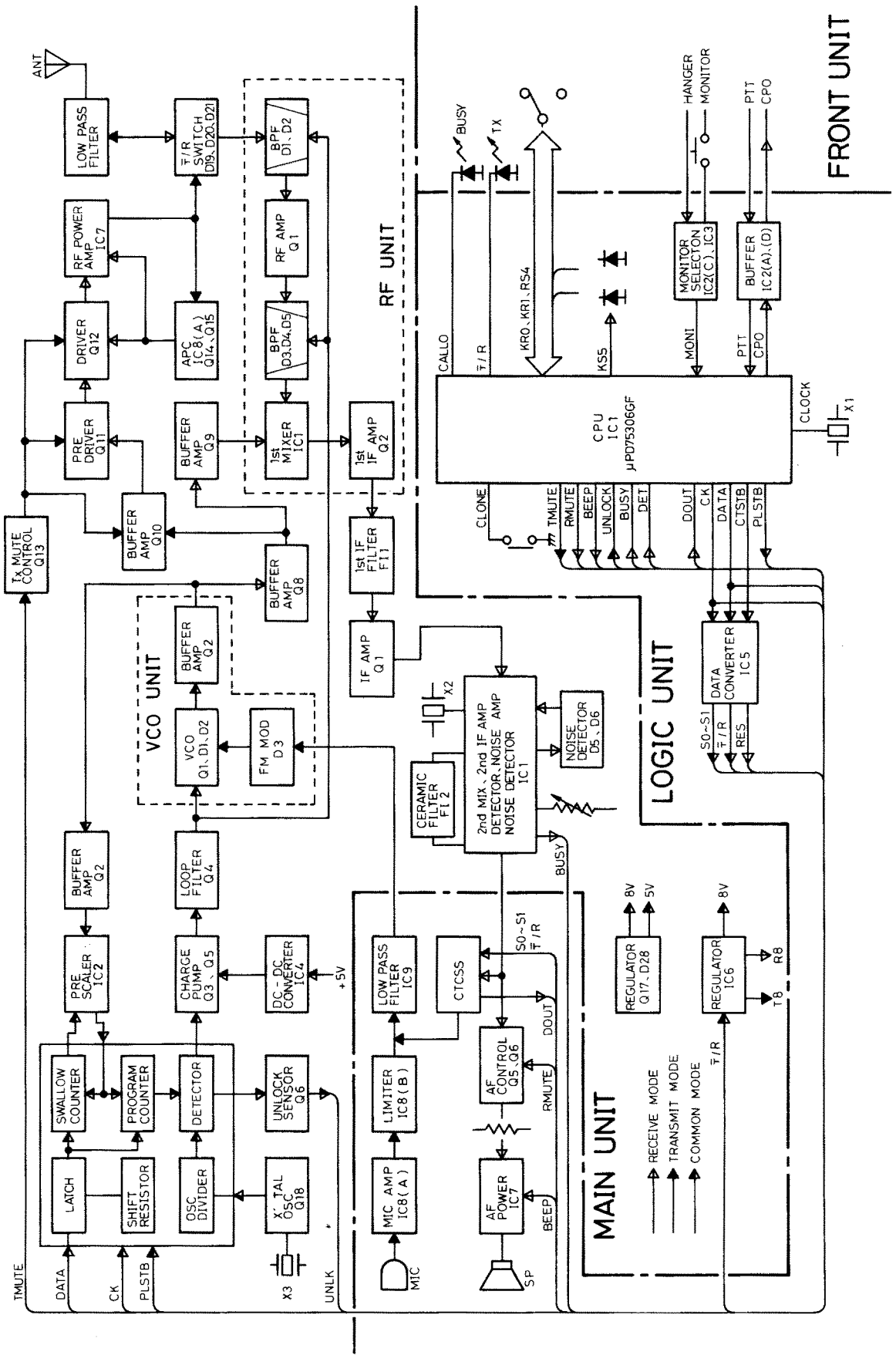
■ MAIN UNIT



■ LOGIC UNIT



SECTION 3 BLOCK DIAGRAM



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

4-1-1 ANTENNA SWITCHING CIRCUIT (RF UNIT)

An antenna switching circuit switches the transmit/receive circuit and functions as a low-pass filter while receiving and as a resonator circuit while transmitting.

Received signals enter the RF UNIT from the antenna connector through a low-pass filter consisting of L19~L21, C115, C117~C119 and C157. They are then applied to an antenna switching circuit consisting of D19, D20, D21 and other parts.

4-1-2 RF CIRCUIT (RF UNIT)

The RF circuit amplifies signals within the range of frequency coverage and filters out out-of-band signals. A 1st mixer circuit converts the received signal to a fixed frequency of the 1st IF signal using a PLL output frequency.

Signals from the antenna switching circuit pass through a 2-stage bandpass filter consisting of D1~D2, L1, L2, C2, and C6 and are amplified at Q1. Signals then pass through a 3-stage bandpass filter consisting of D3~D5, L3~L5, C17, C22 and C43. They are then applied to the 1st mixer circuit consisting of IC1, L6, L7 and other parts for conversion to a 30.85 MHz 1st IF signal. A local oscillator signal (generated at VCO circuit, Q2) is buffer amplified at Q1 on the VCO unit and Q8, and is applied to Q9.

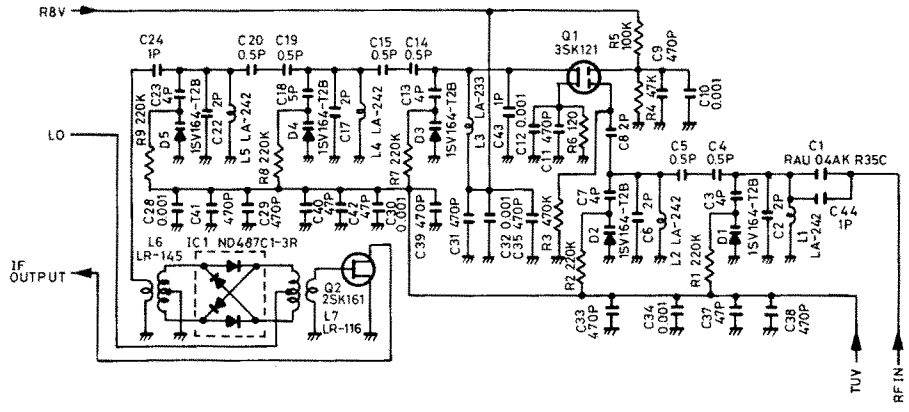


Fig. 4–1 RF circuit

4-1-3 IF CIRCUIT (MAIN UNIT)

A 1st IF circuit amplifies a signal which is converted in a 1st mixer circuit. Then, a 2nd mixer circuit converts the 1st IF signal. A double superheterodyne system (which converts a receive signal twice) improves the image rejection ratio and obtains stable receiver gain.

The 1st IF signal from L24 passes through a pair of crystal filters FI1 to suppress out-of-band signals and unwanted heterodyned frequency signals. After passing through the filter, the 1st IF signal is amplified at IF amplifier Q1, and is applied to IC1.

IC1 contains the 2nd LO circuit, 2nd mixer circuit, limiter amplifier circuit, squelch trigger circuit, and quadrature detector circuit. The 2nd LO circuit including X1, generates a 30.395 MHz 2nd LO signal which is used at the 2nd mixer section of IC1.

The 1st IF signal from Q1 is applied to IC1 (pin 16), and is mixed with the 2nd LO signal. These two signals are converted to a 455 kHz 2nd IF signal.

The 2nd IF signal is output from IC1 (pin 3) and passes through a high-quality ceramic filter (FI2) to suppress unwanted heterodyned frequency signals. The signal is amplified at the limiter amplifier section (IC1, pin 5) and applied to the quadrature detector circuit (IC1, pin 8 and ceramic resonator, X2) to demodulate the 2nd IF signal to AF signals.

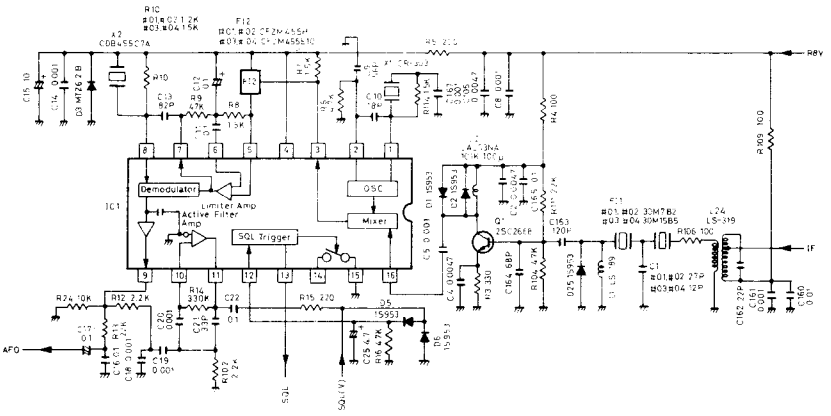


Fig. 4–2 IF circuit

4-1-4 AF CIRCUIT (LOGIC UNIT)

An AF circuit de-emphasizes demodulated signals with –6dB/oct. and power amplifies the signals to drive a speaker. The AF circuit includes a mute circuit to mute the signals with a noise squelch and a tone squelch.

AF signals are output from IC1 (pin 9) and pass through a de-emphasis circuit (R13, C16) and are applied to the high-pass filter (IC6A and IC6B). The de-emphasis circuit is an integrator circuit which has –6dB/oct. frequency characteristics. IC6B suppresses subaudible tone signals.

Output signals from IC6A (pin 1) are amplified at IC6B and pass through the [VOL] control and an audio switch Q6, and are then amplified at power amplifier IC7 to drive the speaker. IC6B is also used as a high-pass filter, and Q5 and Q6 are audio switches which mute audio signals when the R-MUTE signal appears or the squelch closes.

4-1-5 SQUELCH CIRCUIT (MAIN UNIT)

A squelch circuit cuts out AF signals when no RF signals are received. By detecting noise components in the AF signals, the squelch circuit switches the AF power amplifier.

A portion of signals from IC1 (pin 9) is applied to active filter IC1 (pin 10) where it collects noise components of 20 kHz or more. The noise components are then rectified by D5 and D6 for conversion to DC voltage and are applied to the squelch trigger circuit (IC1, pin 12). The [SQL] control is also connected to IC1 (pin 12) to adjust a voltage.

A "HIGH" or "LOW" squelch control signal is output from IC1 (pin 13) and is then applied to the CPU (IC1, pin 61) on the LOGIC UNIT.

The CPU (IC1, pin 52) becomes "HIGH" as the R-MUTE signal while both pin 61 (SQL) and 60 (DET) receive "LOW." The R-MUTE signal is applied to Q5 and Q6 to mute the audio signals.

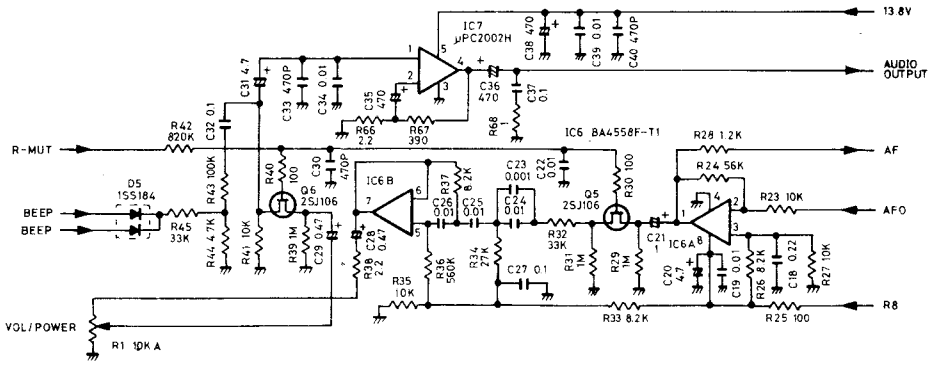


Fig. 4–3 Audio amplifier and Squelch circuit

4-2 TRANSMITTER CIRCUITS

4-2-1 MICROPHONE AMPLIFIER CIRCUIT (LOGIC UNIT)

A microphone amplifier circuit amplifies audio signals with 6 dB/oct. pre-emphasis from the microphone to a level needed at the modulation circuit.

AF signals from the microphone pass through the pre-emphasis circuit (C47 and R47) which has 6dB/oct. frequency characteristics in the 300 Hz~3 kHz frequency range. AF signals are then amplified at the low-noise amplifier (IC8A), pass through the mic gain pot (R51) and are amplified at the limiter amplifier (IC8B). R49 adjusts the symmetrical waveform of the limiter amplifier output.

A signal output from the limiter amplifier is similar to a rectangular waveform and includes harmonic components. Harmonic components are attenuated by the splatter filter (IC9) with cutting frequency.

AF signals from IC9 (pin 1) pass through the modulation adjusting trimmer pot (R55) and then are applied to a VCO circuit for performing frequency modulation.

4-2-2 MODULATION CIRCUIT (VCO UNIT)

A modulation circuit modulates the VCO oscillating signal (RF signals) using the AF signals.

The entered signals at the VCO change the reactance of diodes (D1 and D2) to modulate an oscillated signal at the VCO (Q1).

4-2-3 BUFFER AMPLIFIER CIRCUIT (MAIN UNIT)

The oscillated signal from the VCO circuit is buffer amplified at Q2, on the VCO unit, passes through isolator L3, and is buffer amplified at Q8 and then passes through transmit/receive switching circuit D11 and D12. The signal is then amplified at pre-drivers Q10 and Q11, and at driver Q12 thus obtaining wide-band 200 mW drive power.

4-2-4 POWER AMPLIFIER CIRCUIT (MAIN UNIT)

Power amplifier circuits amplify the VCO oscillating signal to an output power level.

An amplified signal at Q12 is power amplified at IC7 and obtain more than 25 W (or 10 W depending on versions) RF output power.

The output power from IC7 passes through an antenna switching circuit, a high-pass filter, and is then applied to the antenna connector.

4-2-5 APC CIRCUIT (MAIN UNIT)

An APC circuit stabilizes RF output power even when the supplied voltage is changing.

The output power level from IC7 is detected by D17 and D18 and is converted to DC voltage. It is then applied to inverting amplifier IC8A to control the input current of IC7 using Q14 and Q15.

Divided T8V is applied to IC8A (pin 3) as the reference voltage that determines RF output power with R71.

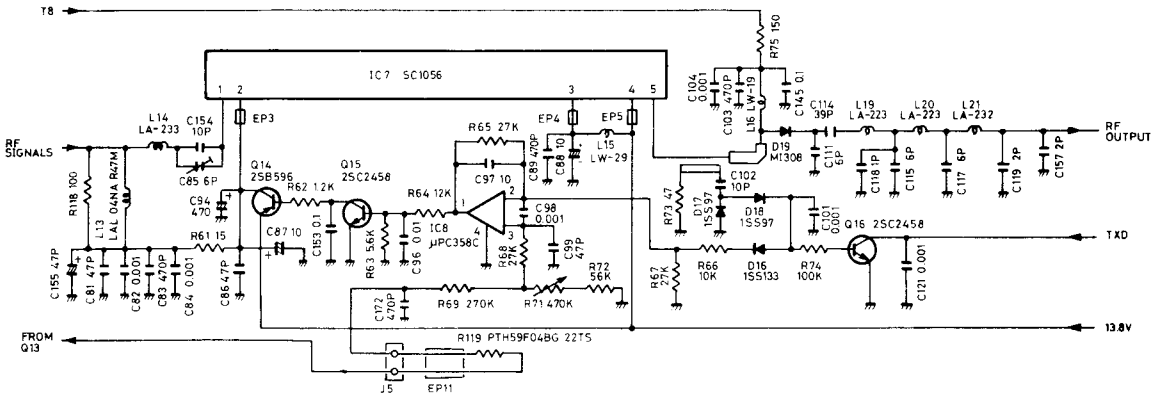


Fig. 4–4 Power amplifier and APC circuit

4-3 PLL CIRCUITS

4-3-1 GENERAL DESCRIPTION

A PLL circuit steadily oscillates the transmit frequency and the receive local frequency. The PLL output frequency is controlled by the divided ratio (N-data) of the programmable divider.

4-3-2 DUAL MODULUS PRESCALER (MAIN UNIT)

The dual modulus prescaler detects the phase of the divided VCO frequency and a reference frequency. The PLL circuits consist of the prescaler (IC2) and the PLL IC (IC3). The ratio of the divided frequency is determined with N-data from the CPU.

The reference frequency of 5 kHz or 12.5 kHz is acquired by X3 and Q18 are divided at the OSC divider inside IC3. A signal from the VCO is buffer amplified at Q2, applied to IC2, and divided N times at IC2 and IC3. The divided signal is applied to the phase detector in IC3. Phase detection results in lock voltages being output from IC3 (pins 14 and 15).

4-3-3 LOOP FILTER CIRCUIT (MAIN UNIT)

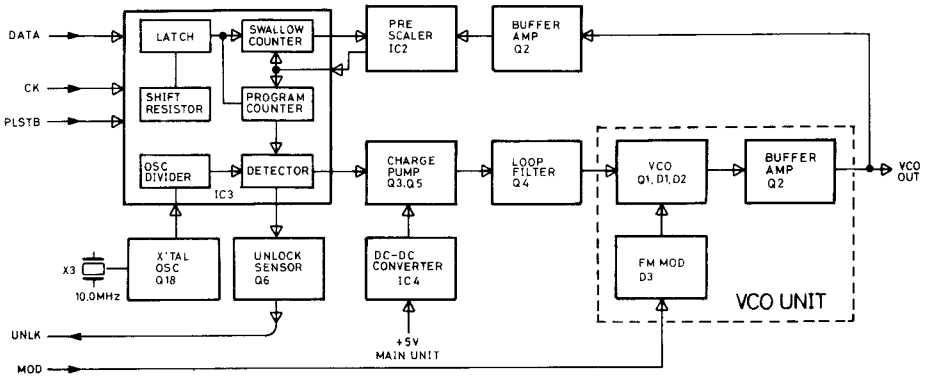
The output signal from IC3 (pins 14 and 15) is applied to a charge pump circuit consisting of Q3, Q4 and Q5, and applied to a lag-lead type loop filter consisting of R32, R33, C41, and C116. The signal passing through the loop filter is applied to varactor diodes D1 and D2 via an RF choke coil (L12) to control the VCO output frequency. D10 shortens the lockup time when changing from receive to transmit mode.

4-3-4 DC-DC CONVERTER (MAIN UNIT)

DC-DC converter IC4 produces a DC signal of approx. 20 V DC from 5 V DC. This obtains a voltage range of 1~20 V for the bandpass tuning ratio of the RF circuit.

4-3-5 UNLOCK CIRCUIT (MAIN UNIT)

When the PLL circuit is unlocked, IC3 (pin 13) is "LOW" and the "LOW" signal is applied to the CPU via the time constant circuit consisting of Q6, R27 and C37.



4-4 LOGIC CIRCUITS

The CPU (IC1) has two modes, user mode and clone mode. In user mode, the CPU operates as the transceiver. In clone mode, the CPU can program the operating frequency, CTCSS tone frequency and time-out timer via the DATA PROGRAMMER EX-704.

4-4-1 SERIAL-PARALLEL DATA CONVERTER (LOGIC UNIT)

Serial CTCSS data from CPU (IC1) is converted to parallel data at IC5 and applied to the TONE UNIT.

4-4-2 RESET AND POWER SUPPLY CIRCUITS

IC4 operates as a comparator when the 5 V line rises up or falls down. Then, Q4 activates the IC1 (pin 68) when the 5 V line is rising up.

When the power is turned OFF, a voltage from the lithium battery (BT1) is applied to back up the RAM data.

4-3-3 CPU PORT ALLOCATIONS

■ INPUT PORT

PIN	PORT	NAME	DESCRIPTION
38	P00	INT4	Inputs a standby mode of CPU. HIGH: Normal operation. LOW: Standby mode.
42	P10	PTT	LOW: PTT switch is pushed.
43	P11	CLONE	The CPU enters the cloning mode when the port is "LOW."
44	P12	MONI	The CPU turns the CTCSS OFF when the port is "LOW."
60	P60	DET	The CPU reads that the same tone frequency is received when the port is "HIGH."
61	P61	BUSY	The CPU reads that the squelch opens when the port is "HIGH."
62	P62	UNLOCK	The CPU reads that the PLL is unlocked when the port is "LOW."

■ OUTPUT PORT

PIN	PORT	NAME	DESCRIPTION
34	P50	KS4	Matrix signal output. (Matrix is used for CH selection.)
35	P51	KS5	Matrix signal output.
37	P53	TMUT	Transmit mute output.
39	P01	CK	Clock output for serial data.
40	P02	DATA	Serial data output.
46	P20	BEEPO	Output a 1 kHz pulse when a beep is emitted over the speaker.
47	P21	PLSTB	Strobe signal output for the PLL.
48	P22	CTSTB	Strobe signal output for the CTCSS tone encoder/decoder.
51	P31	T/R	Transmit/receive switching output. Becomes "LOW" when transmitting.
52	P32	RMUT	Receiver mute output. Becomes "HIGH" when receiver audio output is muted.
53	P33	CALLO	Busy signal output. Outputs a signal synchronized with the BUSY input. Directly drives the [BUSY] indicator.
63	P63	CPO	CLONE DATA output.

4-5 CTCSS TONE SQUELCH CIRCUIT

AF signals are applied to the TONE UNIT via the AF IN terminal. IC1A and IC1B function as low-pass filters to pass only subaudible tone frequencies. IC2 is tone encoder IC chip which produces a subaudible tone when transmitting and detects tones when receiving.

IC2 receives binary tone data from the CPU through the ports (S0~S5). When receiving the same subaudible tone as the tone data, the DET OUT port (IC2, pin 23) becomes "HIGH." When transmitting, the TX OUT port (IC2, pin 26) outputs the subaudible tone according to the specified tone data.

4-6 CTCSS ENCODER AND DECODER

Tone frequency can be selected from among 37 frequencies (67~250.3 Hz). In transmit mode, the specified tone is transmitted concurrently with voice. In receive mode, the detector outputs voice only when the specified tone is received, turning on the audio circuit.

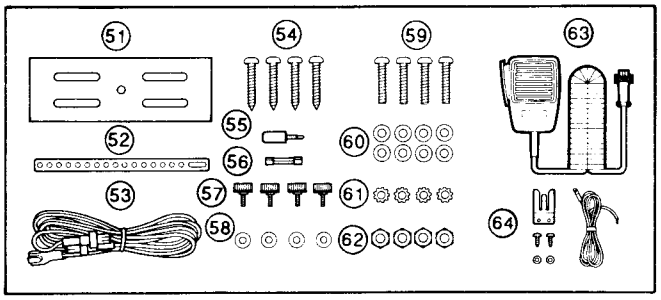
SECTION 5 MECHANICAL PARTS AND DISASSEMBLY

LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
①	8110003730	Top cover (G) (complete)	1
②	8810002960	Screw BiH M3 X 6 ZK SUS	4
③	8010009640	452 chassis (B)-1	1
④	8510005271	PA shield plate (B)-1	1
⑤	8510005260	MAIN shield case (A)	1
⑥	8810005000	Setscrew (G) M3 X 17	3
⑦	8810000210	Screw PH M3 X 4	2
⑧	8510000020	194 shield case	1
⑨	8510001000	334 VCO case	1
⑩	8510005290	622 VCO shield plate	1
⑪	8510000970	334 RF case	1
⑫	8510005190	MIX shield case	1
⑬	8510005180	MIX shield case (top)	1
⑭	8930017490	Cable holder	1
⑮	8810003140	Setscrew (A) M2.6 X 8	2
⑯	8930000100	Standoff (F)	2
⑰	8850000420	Spring washer M3 N1	2
⑱	8950000230	Insulating sheet TC45A (T=0.4)	1
⑲	6910000280	B17 insulating bush	1
⑳	8810003160	Setscrew (A) M3 X 6	10
㉑	8930019760	Posistor plate	1
㉒	8930006470	Module holder	1

LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
㉓	6950000040	M-type cap (black)	1
㉔	8900001050	Cable OPC-103 (complete)	1
㉕	6510005150	Pin SLM61T-2.0 (included- ㉘)	2
㉖	6510004780	Connector LR02-1V (included- ㉘)	1
㉗	6950000180	Connector cover (included- ㉘)	1
㉘	8900001600	Cable OPC-116A (complete)	1
㉙	8810003180	Setscrew (A) M3 X 10	2
㉚	8010009610	Chassis shield plate (A)-1	1
㉛	8930010230	Sponge (AV)	2
㉜	8810002170	Screw FH M3 X 6	5
㉝	6450000420	Speaker jack HSJ0780-01-010	1
㉞	8930006080	Halt thread spacer C	6
㉟	8810003760	Icom screw C10	6
㊱	8110003740	Bottom cover (D) (complete)	1
㊲	2510000200	Speaker 66F09N-7 (included- ㊱)	1
㊳	8210005470	334 front panel (E)	1
㊴	8610006450	Knob N109 (B)-1	1
㊵	8610006460	Knob N110 (A)	2
㊶	8610002410	Monitor button K75	1
㊷	8810001000	Screw PH B0 M2 X 6	6
㊸	2210000510	Channel select switch SRRM42021B	1

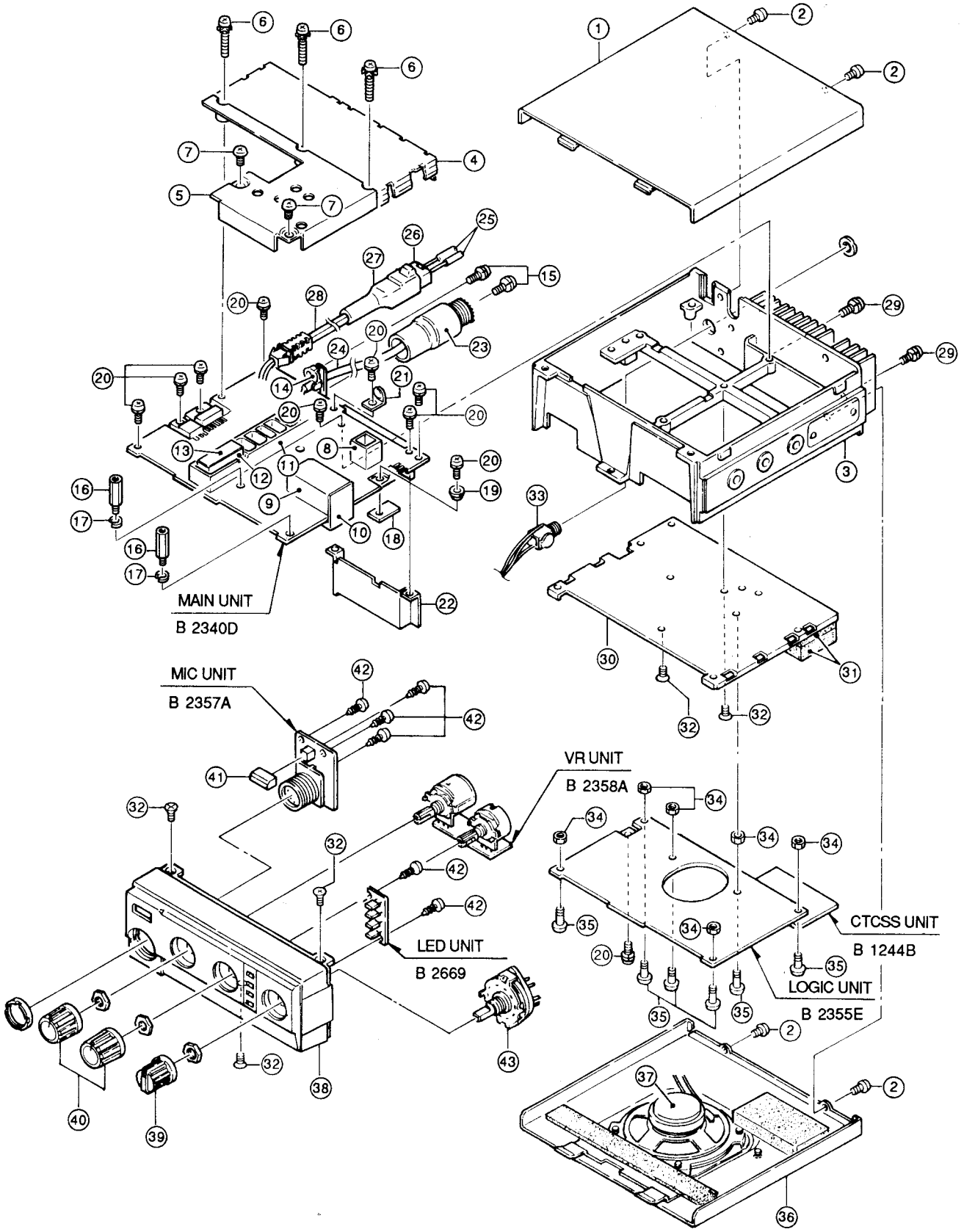
Screw abbreviations

PH : Pan head FH: Flat head
BiH: Binding head
B0 : Self-tapping screw
ZK : Black Ni: Nickel SUS: Stainless
BS : Brass



LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
㊶	Option	MOUNTING BRACKET	1
㊷	8010004060	Mounting support plate	1
㊸	8900000640	DC power cable OPC-044A	1
㊹	8810000950	Mounting screw A0 5 X 15 (included- ㊶)	4
㊺	6450000010	External speaker plug PJ-2240P	1
㊻	5210000070	Fuse 10A	1
㊼	8820000461	Mounting bracket knobs M4 X 8 (included- ㊶)	4

LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
㊽	8850000140	Flat washer M4 (included- ㊶)	4
㊾	8810003870	Mounting screw M5 X 20	4
㊿	8850000150	Flat washer M5 Ni BS	8
(61)	8850000590	Star washer M5	4
(62)	8830000120	Mounting nuts M5 (included- ㊶)	4
(63)	Optional	HM-33 HAND MICROPHONE	1
(64)	6910004210	Microphone hanger set	1 set


MAIN UNIT
B 2340D
MIC UNIT
B 2357A
VR UNIT
B 2358A
LED UNIT
B 2669
CTCSS UNIT
B 1244B
LOGIC UNIT
B 2355E

SECTION 6 PARTS LIST

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION		
IC1	1140000950	IC	μ PD75306GF-045-3B9	
IC2	1130000590	IC	μ PD4081BG-T1	
IC3	1130004500	IC	TC4S11F (TE85R)	
IC4	1110001550	IC	S-8054ALB-LM-T1	
IC5	1130000830	IC	μ PD4094BG-T1	
IC6	1110001220	IC	BA4558F T1	
IC7	1110000210	IC	μ PC2002H	
IC8	1110001220	IC	BA4558F T1	
IC9	1110001220	IC	BA4558F T1	
Q1	1530000980	Transistor	2SC3395-TA	
Q2	1530000980	Transistor	2SC3395-TA	
Q3	1510000580	Transistor	2SA1362-GR	(TE85R)
Q4	1530001940	Transistor	2SC2712-BL	(TE85R)
Q5	1590000380	FET	2SJ106-Y	(TE85R)
Q6	1590000380	FET	2SJ106-Y	(TE85R)
D1	1750000040	Diode	1SS190	(TE85R)
D2	1750000010	Diode	1SS181	(TE85R)
D3	1750000060	Diode	1SS196	(TE85R)
D4	1710000040	Diode	1S953	
D5	1750000020	Diode	1SS184	(TE85R)
D6	1750000060	Diode	1SS196	(TE85R)
D7	1750000030	Diode	1SS187	(TR85R)
D8	1750000120	Diode	DWA010-TE	
L1	6180000960	Coil	LAL 03NA 102K	
X1	6050004950	Crystal	CR-227	
R1	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R2	7030000580	Resistor	MCR10EZHJ 47kΩ	(573)
R3	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R4	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R5	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R6	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R7	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R8	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R10	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R11	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R12	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R13	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R14	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R15	7030000380	Resistor	MCR10EZHJ 1kΩ	(102)
R16	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
R18	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R19	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R20	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R21	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R22	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R23	7030000500	Resistor	MCR10EZHJ 10kΩ	(103)
R24	7030000590	Resistor	MCR10EZHJ 56kΩ	(563)
R25	7030000260	Resistor	MCR10EZHJ 100Ω	(101)
R26	7030000490	Resistor	MCR10EZHJ 8.2kΩ	(822)
R27	7030000500	Resistor	MCR10EZHJ 10kΩ	(103)
R28	7030000390	Resistor	MCR10EZHJ 1.2kΩ	(122)
R29	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R30	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
R31	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R32	7030000560	Resistor	MCR10EZHJ 33kΩ	(333)
R33	7030000490	Resistor	MCR10EZHJ 8.2kΩ	(822)
R34	7030000550	Resistor	MCR10EZHJ 27kΩ	(273)
R35	7030000500	Resistor	MCR10EZHJ 10kΩ	(103)
R36	7030000710	Resistor	MCR10EZHJ 560kΩ	(564)
R37	7030000490	Resistor	MCR10EZHJ 8.2kΩ	(822)
R38	7030000060	Resistor	MCR10EZHJ 2.2Ω	(2R2)
R39	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R40	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
R41	7030000500	Resistor	MCR10EZHJ 10kΩ	(103)

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION		
R42	7030000730	Resistor	MCR10EZHJ 820kΩ	(824)
R43	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
R44	7030000460	Resistor	MCR10EZHJ 4.7kΩ	(472)
R45	7030000560	Resistor	MCR10EZHJ 33kΩ	(333)
R46	7030000380	Resistor	MCR10EZHJ 1kΩ	(102)
R47	7030000460	Resistor	MCR10EZHJ 4.7kΩ	(472)
R48	7030000460	Resistor	MCR10EZHJ 4.7kΩ	(472)
R49	7310000750	Trimmer	RH0651C14J2WA	(103)
R50	7030000390	Resistor	MCR10EZHJ 1.2kΩ	(122)
R51	7310000810	Trimmer	RH0651CS5J10A	(474)
R52	7030000260	Resistor	MCR10EZHJ 100Ω	(101)
R53	7030000480	Resistor	MCR10EZHJ 6.8kΩ	(682)
R54	7030000700	Resistor	MCR10EZHJ 470kΩ	(474)
R55	7310000740	Trimmer	RH0651CS3J2KA	(472)
R56	7030000670	Resistor	MCR10EZHJ 270kΩ	(274)
R57	7030000630	Resistor	MCR10EZHJ 120kΩ	(124)
R58	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R59	7030000560	Resistor	MCT10EZHJ 33kΩ	(333)
R60	7310000820	Trimmer	RH0651C16J0RA	(105)
R61	7030000570	Resistor	MCR10EZHJ 39kΩ	(393)
R62	7030000570	Resistor	MCR10EZHJ 39kΩ	(393)
R63	7030000260	Resistor	MCR10EZHJ 100Ω	(101)
R64	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R65	7030000580	Resistor	MCR10EZHJ 47kΩ	(473)
R66	7030000060	Resistor	MCR10EZHJ 2.2Ω	(2R2)
R67	7030000330	Resistor	MCR10EZHJ 390Ω	(391)
R68	7030000020	Resistor	MCR10EZHJ 1Ω	(010)
R69	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
R70	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
R71	7030000740	Resistor	MCR10EZHJ 1MΩ	(105)
R72	7030000670	Resistor	MCR10EZHJ 270kΩ	(274)
R73	7030000620	Resistor	MCR10EZHJ 100kΩ	(104)
C1	4030000650	Ceramic	GRM40 SL 150J 50PT	
C2	4030000650	Ceramic	GRM40 SL 150J 50PT	
C3	4030000700	Ceramic	GRM40 SL 470J 50PT	
C4	4503001090	Ceramic	GRM40 B 471K 50PT	
C5	4030001090	Ceramic	GRM40 B 471K 50PT	
C6	4030001090	Ceramic	GRM40 B 471K 50PT	
C7	4030001090	Ceramic	GRM40 B 471K 50PT	
C8	4030001090	Ceramic	GRM40 B 471K 50PT	
C9	4030001090	Ceramic	GRM40 B 471K 50PT	
C10	4030000780	Ceramic	GRM40 SL 221J 50PT	
C11	4030000700	Ceramic	GRM40 SL 470J 50PT	
C12	4030001150	Ceramic	GRM40 F 104Z 25PT	
C13	4030001150	Ceramic	GRM40 F 104Z 25PT	
C14	4030003620	Ceramic	GRM40 B 103K 25PT	
C15	4550002040	Tantalum	DN 1A 330M	
C16	4030003620	Ceramic	GRM40 B 103K 25PT	
C17	4030001090	Ceramic	GRM40 B 471K 50PT	
C18	4510001140	Electrolytic	50 MS7 R22μF	
C19	4030003620	Ceramic	GRM40 B 103K 25PT	
C20	4510002970	Electrolytic	50 SS 4R7μF	
C21	4510002940	Electrolytic	50 SS 1μF	
C22	4030003620	Ceramic	GRM40 B 103K 25PT	
C23	4310000010	Mylar	F2D 50V 102K	
C24	4310000020	Mylar	F2D 50V 103K	
C25	4310000020	Mylar	F2D 50V 103K	
C26	4310000020	Mylar	F2D 50V 103K	
C27	4030001150	Ceramic	GRM40 F 104Z 25PT	
C28	4510002930	Electrolytic	50 SS R47μF	
C29	4510002930	Electrolytic	50 SS R47μF	
C30	4030001090	Ceramic	GRM40 B 471K 50PT	
C31	4510002830	Electrolytic	25 SS 4R7μF	
C32	4030001150	Ceramic	GRM40 F 104Z 25PT	
C33	4030001090	Ceramic	GRM40 B 471K 50PT	
C34	4030003620	Ceramic	GRM40 B 103K 25PT	
C35	4510002320	Electrolytic	6R3 SS 470μF	
C36	4510002380	Electrolytic	16 SS 470μF (10X12.5)	
C37	4030001150	Ceramic	GRM40 F 104Z 25PT	
C38	4510002380	Electrolytic	16 SS 470μF (10X12.5)	
C39	4030003620	Ceramic	GRM40 B 103K 25PT	
C40	4030001090	Ceramic	GRM40 B 471K 50PT	

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION		
C46	4030001090	Ceramic	GRM40 B 471K 50PT	
C47	4310000020	Mylar	F2D 50V 103K	
C48	4510001970	Electrolytic	50 MS7 0R1μF	
C49	4510001100	Electrolytic	16 MS7 10μF	
C50	4030003620	Ceramic	GRM40 B 103K 25PT	
C51	4510003100	Electrolytic	35 MS7 4R7μF	
C52	4030001090	Ceramic	GRM40 B 471K 50PT	
C53	4510001970	Electrolytic	50 MS7 0R1μF	
C54	4510001170	Electrolytic	50 MS7 2R2μF	
C55	4510003100	Electrolytic	35 MS7 4R7μF	
C56	4310000050	Mylar	F2D 50V 222K	
C57	4030001090	Ceramic	GRM40 B 471K 50PT	
C58	4030001100	Ceramic	GRM40 B 102K 50PT	
C59	4030001100	Ceramic	GRM40 B 102K 50PT	
C60	4310000010	Mylar	F2D 50V 102K	
C61	4310000020	Mylar	F2D 50V 103K	
C62	4030000760	Ceramic	GRM40 SL 151J 50PT	(#01)
	4030000760	Ceramic	GRM40 SL 151J 50PT	(#02)
	4030000740	Ceramic	GRM40 SL 101J 50PT	(#03)
	4030000740	Ceramic	GRM40 SL 101J 50PT	(#04)
C63	4030003620	Ceramic	GRM40 B 103K 25PT	
C64	4510002940	Electrolytic	50 SS 1μF	
C65	4030000700	Ceramic	GRM40 SL 470J 50PT	
C66	4030000700	Ceramic	GRM40 SL 470J 50PT	
C67	4030001090	Ceramic	GRM40 B 471K 50PT	
C68	4030001090	Ceramic	GRM40 B 471K 50PT	
C69	4030001090	Ceramic	GRM40 B 471K 50PT	
C70	4030001090	Ceramic	GRM40 B 471K 50PT	
C71	4030001090	Ceramic	GRM40 B 471K 50PT	
C72	4030001150	Ceramic	GRM40 F 104Z 25PT	
C73	4510002780	Electrolytic	16 SS 10μF	
C75	4030001090	Ceramic	GRM40 B 471K 50PT	
C76	4030001100	Ceramic	GRM40 B 102K 50PT	
S1	2260000390	Switch	SKHLAB064A	
BT1	3020000020	Lithium Battery	BR2032-1T2	
J1	6510003410	Connector	B05B-EH-S	
J2	6510003420	Connector	B06B-EH-S	
J3	6510003410	Connector	B05B-EH-S	
J4	6510003390	Connector	B03B-EH-S	
J5	6510003400	Connector	B04B-EH-S	
J6	6510005430	Connector	5512-14A	
J7	6510010070	Connector	HKP-5FDS2	
J8	6510010070	Connector	HKP-5FRS2	
J9	6510010080	Connector	HKP-10FDS2	
J10	6910003150	Connector	IMSA-9202B-2-04T	
J12	6510003390	Connector	B03B-EH-S	
J13	6510003390	Connector	B03B-EH-S	
P1	6910003120	Connector	IMSA-9206H-T	
P2	6910003120	Connector	IMSA-9206H-T	
CP1	6510003080	Check Point	RT01T-1.0B	
CP2	6510003080	Check Point	RT01T-1.0B	
EP1	0910024555	P.C. Board	B 2355E (LOGIC)	

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110000460	IC	TK-10420D
IC2	1110001560	IC	MB504LP-G
IC3	1130002960	IC	TC9181P
IC4	1110000900	IC	TL499ACP
IC5	1180000340	IC	TA78005AP
IC6	1110000390	IC	MB3756M-G
IC7	1150000490	IC	SC1056
IC8	1110000070	IC	μPC358C
Q1	1530000150	Transistor	2SC2668-O
Q2	1530002210	Transistor	2SC3776-D
Q3	1510000080	Transistor	2SA1048-GR
Q4	1510000080	Transistor	2SA1048-GR
Q5	1530000110	Transistor	2SC2458-GR
Q6	1530000110	Transistor	2SC2458-GR
Q7	1560000010	FET	2SK184-Y
Q8	1530002210	Transistor	2SC3776-D
Q9	1530002210	Transistor	2SC3776-D
Q10	1530002210	Transistor	2SC3776-D
Q11	1530000400	Transistor	2SC3358
Q12	1590000390	Transistor	MRF559
Q13	1520000070	Transistor	2SB561C
Q14	1520000030	Transistor	2SB596-Y(Z)
Q15	1530000110	Transistor	2SC2458-GR
Q16	1530000110	Transistor	2SC2458-GR
Q17	1540000070	Transistor	2SD468C
Q18	1530000110	Transistor	2SC2458-GR
D1	1710000040	Diode	1S953
D2	1710000040	Diode	1S953
D3	1730002190	Zener	MTZ6.2B
D5	1710000040	Diode	1S953
D6	1710000040	Diode	1S953
D7	1730002200	Zener	MTZ9.1C
D8	1730000270	Zener	RD16E B2
D10	1710000050	Diode	1SS53
D11	1710000580	Diode	1SS265
D12	1710000580	Diode	1SS265
D13	1710000600	Diode	1SS254
D14	1720000060	Varicap	1SV50(1)E
D15	1710000040	Diode	1S953
D16	1710000160	Diode	1SS133
D17	1790000250	Diode	1SS97
D18	1790000250	Diode	1SS97
D19	1710000290	Diode	MI308
D20	1710000290	Diode	MI308
D21	1710000290	Diode	MI308
D22	1730002180	Zener	MTZ4.7C
D23	1710000040	Diode	1S953
D24	1710000010	Diode	15CD11
D25	1710000040	Diode	1S953
D28	1730002200	Zener	MTZ9.1C
L1	6150001690	Coil	LS-189
L2	6180000900	Coil	LAL 03NA 101K
L3	6140000930	Coil	LR-116
L4	6110001520	Coil	LA-232
L5	6180001440	Coil	RFC S4 101K
L6	6180001120	Coil	FL 5H 101K
L7	6180000900	Coil	LAL 03NA 101K
L8	6110001520	Coil	LA-232
L9	6110001520	Coil	LA-232
L10	6110001520	Coil	LA-232
L11	6110001530	Coil	LA-233
L12	6110001520	Coil	LA-232
L13	6180002680	Coil	LAL 04NA R47M
L14	6110001530	Coil	LA-233
L15	6170000320	Coil	LW-29
L16	6170000180	Coil	LW-19
L17	6110001520	Coil	LA-232
L18	6110001520	Coil	LA-232
L19	6110001990	Coil	LA-223
L20	6110001990	Coil	LA-223
L21	6110001520	Coil	LA-232
L22	6170000150	Coil	LW-16
L23	6180000770	Coil	LAL 03NA 1R0M
L24	6150003210	Coil	LS-319

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION			
FI1	2010001150	Filter	30M7B2	(FL-139)	(#01)
	2010001150	Filter	30M7B2	(FL-139)	(#02)
	2010001140	Filter	30M15B5	(FL-138)	(#03)
	2010001140	Filter	30M15B5	(FL-138)	(#04)
FI2	2020000630	Filter	CFZM455H	(#01)	
	2020000630	Filter	CFZM455H	(#02)	
	2020000490	Filter	CFZM455E10	(#03)	
	2020000490	Filter	CFZM455E10	(#04)	
X1	6050006600	Crystal	CR-303		
X2	6070000010	Discriminator	CDB455C7A		
X3	6050004930	Crystal	CR-212		
R3	7010003340	Resistor	ELR20J	330 Ω	
R4	7010003280	Resistor	ELR20J	100 Ω	
R5	7010004110	Resistor	R20J	220 Ω	
R6	7010003480	Resistor	ELR20J	4.7k Ω	
R7	7010003420	Resistor	ELR20J	1.5k Ω	
R8	7010003420	Resistor	ELR20J	1.5k Ω	
R9	7010003620	Resistor	ELR20J	47k Ω	
R10	7010003410	Resistor	ELR20J	1.2k Ω	(#01)
	7010003410	Resistor	ELR20J	1.2k Ω	(#02)
	7010003420	Resistor	ELR20J	1.5k Ω	(#03)
	7010003420	Resistor	ELR20J	1.5k Ω	(#04)
R12	7010003440	Resistor	ELR20J	2.2k Ω	
R13	7010003580	Resistor	ELR20J	22k Ω	
R14	7010003720	Resistor	ELR20J	330k Ω	
R15	7010003320	Resistor	ELR20J	220 Ω	
R16	7010003620	Resistor	ELR20J	47k Ω	
R17	7010003300	Resistor	ELR20J	150 Ω	
R18	7010004010	Resistor	R20J	33 Ω	
R19	7010003300	Resistor	ELR20J	150 Ω	
R20	7010003510	Resistor	ELR20J	6.8k Ω	
R21	7010003430	Resistor	ELR20J	1.8k Ω	
R22	7010003340	Resistor	ELR20J	330 Ω	
R23	7010003400	Resistor	ELR20J	1k Ω	
R24	7010003530	Resistor	ELR20J	10k Ω	
R25	7010003640	Resistor	ELR20J	68k Ω	
R26	7010003600	Resistor	ELR20J	33k Ω	
R27	7010003700	Resistor	ELR20J	220k Ω	
R28	7010003540	Resistor	ELR20J	12k Ω	
R29	7010003540	Resistor	ELR20J	12k Ω	
R30	7010003640	Resistor	ELR20J	68k Ω	
R31	7010003540	Resistor	ELR20J	12k Ω	
R32	7010003470	Resistor	ELR20J	3.9k Ω	
R33	7010003400	Resistor	ELR20J	1k Ω	
R34	7010003530	Resistor	ELR20J	10k Ω	
R35	7010003180	Resistor	ELR20J	15 Ω	
R36	7010003340	Resistor	ELR20J	330 Ω	
R37	7010003200	Resistor	ELR20J	22 Ω	
R38	7010003340	Resistor	ELR20J	330 Ω	
R39	7010003440	Resistor	ELR20J	2.2k Ω	
R40	7010003460	Resistor	ELR20J	3.3k Ω	
R41	7010003320	Resistor	ELR20J	220 Ω	
R42	7010004070	Resistor	R20J	100 Ω	
R43	7010003440	Resistor	ELR20J	2.2k Ω	
R44	7010003440	Resistor	ELR20J	2.2k Ω	
R45	7010003460	Resistor	ELR20J	3.3k Ω	
R46	7010003280	Resistor	ELR20J	100 Ω	
R47	7010003320	Resistor	ELR20J	220 Ω	
R48	7010003400	Resistor	ELR20J	1k Ω	
R49	7010004230	Resistor	R20J	2.2k Ω	
R50	7010003440	Resistor	ELR20J	2.2k Ω	
R51	7010004250	Resistor	R20J	3.3k Ω	
R52	7010003320	Resistor	ELR20J	220 Ω	
R53	7010004070	Resistor	R20J	100 Ω	
R54	7010003440	Resistor	ELR20J	2.2k Ω	
R55	7010003550	Resistor	ELR20J	15k Ω	
R56	7010003280	Resistor	ELR20J	100 Ω	
R57	7010003400	Resistor	ELR20J	1k Ω	
R58	7010003280	Resistor	ELR20J	100 Ω	
R59	7010003400	Resistor	ELR20J	1k Ω	
R60	7010000140	Resistor	ELT25J	12 Ω	
R61	7010004660	Resistor	R50XJ	15 Ω	
R62	7010003410	Resistor	ELR20J	1.2k Ω	
R63	7010003490	Resistor	ELR20J	5.6k Ω	
R64	7010003540	Resistor	ELR20J	12k Ω	
R65	7010003590	Resistor	ELR20J	27k Ω	

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION			
R66	7010003530	Resistor	ELR20J	10k Ω	
R67	7010003590	Resistor	ELR20J	27k Ω	
R68	7010003550	Resistor	ELR20J	15k Ω	
R69	7010004500	Resistor	R20J	270k Ω	
R71	7310000810	Resistor	RH0651CS5J10A		(474)
R72	7010003630	Resistor	ELR20J	56k Ω	
R73	7010004030	Resistor	R20J	47 Ω	
R74	7010004450	Resistor	R20J	100k Ω	
R75	7010003300	Resistor	ELR20J	150 Ω	
R77	7010003530	Resistor	ELR20J	10k Ω	
R80	7010003440	Resistor	ELR20J	2.2k Ω	
R81	7010003660	Resistor	ELR20J	100k Ω	
R82	7010003660	Resistor	ELR20J	100k Ω	
R83	7010003530	Resistor	ELR20J	10k Ω	
R84	7510000090	Thermistor	ERT-D2FGL202S		
R85	7010003550	Resistor	ELR20J	15k Ω	
R86	7510000090	Thermistor	ERT-D2FGL202S		
R87	7010003440	Resistor	ELR20J	2.2K Ω	
R88	7010003510	Resistor	ELR20J	6.8k Ω	
R89	7010003280	Resistor	ELR20J	100 Ω	
R90	7010003530	Resistor	ELR20J	10k Ω	
R91	7010003400	Resistor	ELR20J	1k Ω	
R92	7010003620	Resistor	ELR20J	47k Ω	
R93	7010004320	Resistor	R20J	10k Ω	
R94	7010003620	Resistor	ELR20J	47k Ω	
R95	7310000780	Trimmer	RH0651CS4J25A		(473)
R96	7010003240	Resistor	ELR20J	47 Ω	
R97	7010003480	Resistor	ELR20J	4.7k Ω	
R98	7010003650	Resistor	ELR20J	82k Ω	
R99	7010004140	Resistor	R20J	390 Ω	
R100	7010004320	Resistor	R20J	10k Ω	
R102	7010003440	Resistor	ELR20J	2.2k Ω	
R103	7010003400	Resistor	ELR20J	1k Ω	
R104	7010003480	Resistor	ELR20J	4.7k Ω	
R105	7010003280	Resistor	ELR20J	100 Ω	
R106	7010004070	Resistor	R20J	100 Ω	
R109	7010003280	Resistor	ELR20J	100 Ω	
R111	7010003580	Resistor	ELR20J	22k Ω	
R113	7010003620	Resistor	ELR20J	47k Ω	(#01)
	7010003620	Resistor	ELR20J	47k Ω	(#02)
	7010003580	Resistor	ELR20J	22k Ω	(#03)
	7010003580	Resistor	ELR20J	22k Ω	(#04)
R114	7010003420	Resistor	ELR20J	1.5k Ω	
R116	7010003450	Resistor	ELR20J	2.7k Ω	
R117	7010003240	Resistor	ELR20J	47 Ω	
R118	7010004070	Resistor	R20J	100 Ω	
R119	7520000030	Posistor	PTH59F04BG 222 TS		
C1	4010000200	Ceramic	DD104 SL	270J 50V	(#01)
	4010000200	Ceramic	DD104 SL	270J 50V	(#02)
	4010000140	Ceramic	DD104 SL	120J 50V	(#03)
	4010000140	Ceramic	DD104 SL	120J 50V	(#04)
C2	4040000150	Barrier Layer	UAT 05X	472K	
C4	4040000150	Barrier Layer	UAT 05X	472K	
C5	4010000500	Ceramic	DD104 B	102K 50V	
C8	4010000500	Ceramic	DD104 B	102K 50V	
C9	4010000280	Ceramic	DD104 SL	560J 50V	
C10	4010000160	Ceramic	DD104 SL	180J 50V	
C11	4040000260	Barrier Layer	UZE 08X	104M	
C12	4550000320	Tantalum	DN 1V	0R1M	
C13	4010000320	Ceramic	DD104 SL	820J 50V	
C14	4010000500	Ceramic	DD104 B	102K 50V	
C15	4510001100	Electrolytic	16 MS7	10 μF	
C16	4560000020	Capacitor	D33Y5V 1E	104Z21	
C17	4510002690	Electrolytic	50 RBP	0.1 μF	
C18	4310000010	Mylar	F2D 50V	102K	
C19	4310000010	Mylar	F2D 50V	102K	
C20	4310000010	Mylar	F2D 50V	102K	
C21	4010000220	Ceramic	DD104 SL	330J 50V	
C22	4560000020	Capacitor	D33Y5V 1E	104Z21	
C25	4550002000	Tantalum	DN 1A	4R7M	
C26	4010000150	Ceramic	DD104 SL	150J 50V	
C27	4010000120	Ceramic	DD104 SL	100D 50V	
C28	4010000500	Ceramic	DD104 B	102K 50V	
C29	4040000190	Barrier Layer	UAT 05X	103K	
C30	4010000120	Ceramic	DD104 SL	100D 50V	
C31	4010000060	Ceramic	DD104 SL	040C 50V	
C32	4510001690	Electrolytic	6R3 MS7	47 μF	
C33	4010000500	Ceramic	DD104 B	102K 50V	

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C34	4010000500	Ceramic DD104 B 102K 50V
C35	4010000500	Ceramic DD104 B 102K 50V
C36	4040000190	Barrier Layer UAT 05X 103K
C37	4510001120	Electrolytic 25 MS7 4R7 μF
C38	4010000500	Ceramic DD104 B 102K 50V
C39	4040000260	Barrier Layer UZE 08X 104M
C40	4010000500	Ceramic DD104 B 102K 50V
C41	4550000260	Tantalum DN 1V 100M
C42	4550000390	Tantalum DN 1V R22M
C43	4010000460	Ceramic DD104 B 471K 50V
C44	4010000500	Ceramic DD104 B 102K 50V
C45	4610000780	Trimmer CV38D 2001
C46	4010000820	Ceramic DD105 CH 330J 50V
C47	4010000640	Ceramic DD104 CH 040C 50V
C48	4010000260	Ceramic DD104 SL 470J 50V
C49	4010000380	Ceramic DD107 SL 221J 50V
C50	4010000330	Ceramic DD105 SL 103K 50V
C51	4040000190	Barrier Layer UAT 05X 103K
C52	4010000460	Ceramic DD104 B 471K 50V
C53	4010000500	Ceramic DD104 B 102K 50V
C54	4010000120	Ceramic DD104 SL 100D 50V
C55	4010000460	Ceramic DD104 B 471K 50V
C56	4010000500	Ceramic DD104 B 102K 50V
C57	4010000460	Ceramic DD104 B 471K 50V
C58	4010000500	Ceramic DD104 B 102K 50V
C59	4010000100	Ceramic DD104 SL 080D 50V
C60	4010000060	Ceramic DD104 SL 040C 50V
C61	4010000460	Ceramic DD104 B 471K 50V
C62	4010000500	Ceramic DD104 B 102K 50V
C63	4010000460	Ceramic DD104 B 471K 50V
C64	4010000500	Ceramic DD104 B 102K 50V
C65	4010000080	Ceramic DD104 SL 060D 50V
C66	4010000040	Ceramic DD104 SL 020C 50V
C67	4010000500	Ceramic DD104 B 102K 50V
C68	4010000060	Ceramic DD104 SL 040C 50V
C69	4010000500	Ceramic DD104 B 102K 50V
C70	4010000460	Ceramic DD104 B 471K 50V
C71	4010000500	Ceramic DD104 B 102K 50V
C72	4010000460	Ceramic DD104 B 471K 50V
C73	4010000080	Ceramic DD104 SL 060D 50V
C74	4040000260	Barrier Layer UZE 08X 104M
C75	4010000500	Ceramic DD104 B 102K 50V
C76	4010000460	Ceramic DD104 B 471K 50V
C77	4010000040	Ceramic DD104 SL 020C 50V
C78	4010000040	Ceramic DD104 SL 020C 50V
C79	4010000460	Ceramic DD104 B 471K 50V
C80	4010000460	Ceramic DD104 B 471K 50V
C81	4010000260	Ceramic DD104 SL 470J 50V
C82	4010000500	Ceramic DD104 B 102K 50V
C83	4010000460	Ceramic DD104 B 471K 50V
C84	4010000500	Ceramic DD104 B 102K 50V
C85	4610000100	Trimmer CV05A0601
C86	4010000260	Ceramic DD104 SL 470J 50V
C87	4510001350	Electrolytic 16 MS5 10 μF
C88	4510001100	Electrolytic 16 MS7 10 μF
C89	4010000460	Ceramic DD104 B 471K 50V
C90	4510001100	Electrolytic 16 MS7 10 μF
C91	4010000460	Ceramic DD104 B 471K 50V
C92	4010000260	Ceramic DD104 SL 470J 50V
C94	4510002380	Electrolytic 16 SS 470 μF (10X12.5)
C95	4010000460	Ceramic DD104 B 471K 50V
C96	4040000190	Barrier Layer UAT 05X 103K
C97	4510001350	Electrolytic 16 MS5 10 μF
C98	4010000500	Ceramic DD104 B 102K 50V
C99	4010000260	Ceramic DD104 SL 470J 50V
C100	4010000260	Ceramic DD104 SL 470J 50V
C101	4010000500	Ceramic DD104 B 102K 50V
C102	4010000120	Ceramic DD104 SL 100D 50V
C103	4010000460	Ceramic DD104 B 471K 50V
C104	4010000500	Ceramic DD104 B 102K 50V
C105	4010000520	Ceramic DD108 B 472K 50V
C106	4010000500	Ceramic DD104 B 102K 50V
C107	4010000260	Ceramic DD104 SL 470J 50V
C108	4010000500	Ceramic DD104 B 102K 50V
C109	4010000260	Ceramic DD104 SL 470J 50V
C111	4010003830	Ceramic DD06 SL 060D 500V
C112	4010003870	Ceramic DD06 SL 120K 500V
C113	4010003820	Ceramic DD06 SL 050C 500V
C114	4010003960	Ceramic DD06 SL 390K 500V
C115	4010003830	Ceramic DD06 SL 060D 500V

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C116	4550000390	Tantalum DN 1V R22M
C117	4010003830	Ceramic DD06 SL 060D 500V
C118	4010003780	Ceramic DD06 SL 010C 500V
C119	4010003790	Ceramic DD06 SL 020C 500V
C120	4010000460	Ceramic DD104 B 471K 50V
C121	4010000500	Ceramic DD104 B 102K 50V
C122	4510002380	Electrolytic 16 SS 470 μF (10X12.5)
C123	4040000190	Barrier Layer UAT 05X 103K
C124	4510000310	Electrolytic 16 MS16 1000 μF (12.5X16)
C125	4010000500	Ceramic DD104 B 102K 50V
C126	4010000500	Ceramic DD104 B 102K 50V
C127	4040000190	Barrier Layer UAT 05X 103K
C128	4510002720	Electrolytic 10 SS 47 μF
C129	4510002780	Electrolytic 16 SS 10 μF
C130	4010000500	Ceramic DD104 B 102K 50V
C131	4510002710	Electrolytic 10 SS 33 μF
C132	4510001970	Electrolytic 50 MS7 0R1 μF
C133	4550000260	Tantalum DN 1V 100M
C134	4010000460	Ceramic DD104 B 471K 50V
C135	4510002980	Electrolytic 50 SS 10 μF
C136	4510001180	Electrolytic 50 MS7 3R3 μF
C137	4010000460	Ceramic DD104 B 471K 50V
C138	4550000320	Tantalum DN 1V 0R1M
C139	4010000500	Ceramic DD104 B 102K 50V
C140	4040000260	Barrier Layer UZE 08X 104M
C141	4010000500	Ceramic DD104 B 102K 50V
C142	4510002730	Electrolytic 10 SS 100 μF
C143	4010000500	Ceramic DD104 B 102K 50V
C144	4010000500	Ceramic DD104 B 102K 50V
C145	4560000020	Capacitor D33Y5V 1E 104Z21
C146	4040000190	Barrier Layer UAT 05X 103K
C147	4010000520	Ceramic DD108 B 472K 50V
C148	4010000500	Ceramic DD104 B 102K 50V
C149	4010000520	Ceramic DD108 B 472K 50V
C150	4010000500	Ceramic DD104 B 102K 50V
C151	4010000500	Ceramic DD104 B 102K 50V
C152	4010000460	Ceramic DD104 B 471K 50V
C153	4040000260	Barrier Layer UZE 08X 104M
C154	4010000120	Ceramic DD104 SL 100D 50V
C155	4510002810	Electrolytic 16 SS 47 μF
C156	4010000260	Ceramic DD104 SL 470J 50V
C157	4010003790	Ceramic DD06 SL 020C 500V
C158	4040000190	Barrier Layer UAT 05X 103K
C159	4550002030	Tantalum DN 1A 220M
C160	4040000190	Barrier Layer UAT 05X 103K
C161	4010000500	Ceramic DD104 B 102K 50V
C162	4010000180	Ceramic DD104 SL 220J 50V
C163	4010000340	Ceramic DD105 SL 121J 50V
C164	4010000300	Ceramic DD104 SL 680J 50V
C165	4560000020	Capacitor D33Y5V 1E 104Z21
C166	4510001100	Electrolytic 16 MS7 10 μF
C167	4010000500	Ceramic DD104 B 102K 50V
C168	4560000020	Capacitor D33Y5V 1E 104Z21
C169	4510002380	Electrolytic 16 SS 470 μF (10X12.5)
C170	4010000460	Ceramic DD104 B 471K 50V
C171	4010000460	Ceramic DD104 B 471K 50V
C172	4010000460	Ceramic DD104 B 471K 50V
W3	7120000010	Jumper JPW 02A
W4	7120000010	Jumper JPW 02A
W5	7120000010	Jumper JPW 02A
J1	6510003390	Connector B03B-EH-S
J2	6510010240	Connector SB10P-HVQ-22
J3	6510003140	Connector SB5P-HVQ-22
J4	6510003140	Connector SB5P-HVQ-22
EP1	0910024434	P.C. Board B 2340D (MAIN)
EP3	6910000970	Terminal DL 20P 2.6-3-1.2H
EP4	6910000970	Terminal DL 20P 2.6-3-1.2H
EP5	6910000970	Terminal DL 20P 2.6-3-1.2H
EP11	6910000630	Lead Core FS0H070RN

[RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
IC1	1790000050	IC ND487C1-3R
Q1	1580000050	FET 3SK121-Y
Q2	1560000450	FET 2SK161-GR
D1	1720000180	Varicap 1SV164-T2B
D2	1720000180	Varicap 1SV164-T2B
D3	1720000180	Varicap 1SV164-T2B
D4	1720000180	Varicap 1SV164-T2B
D5	1720000180	Varicap 1SV164-T2B
L1	6110001590	Coil LA-242
L2	6110001590	Coil LA-242
L3	6110001530	Coil LA-233
L4	6110001590	Coil LA-242
L5	6110001590	Coil LA-242
L6	6140001200	Coil LR-145
L7	6140000930	Coil LR-116
R1	7030000660	Resistor MCR10EZHJ 220k Ω (224)
R2	7030000660	Resistor MCR10EZHJ 220k Ω (224)
R3	7030000700	Resistor MCR10EZHJ 470k Ω (474)
R4	7030000580	Resistor MCR10EZHJ 47k Ω (473)
R5	7030000620	Resistor MCR10EZHJ 100k Ω (104)
R6	7030000270	Resistor MCR10EZHJ 120 Ω (121)
R7	7030000660	Resistor MCR10EZHJ 220k Ω (224)
R8	7030000660	Resistor MCR10EZHJ 220k Ω (224)
R9	7030000660	Resistor MCR10EZHJ 220k Ω (224)
C1	4040000470	Barrier Layer RAU 04AK R35C
C2	4030000560	Ceramic GRM40 SL 020C 50PT
C3	4030000580	Ceramic GRM40 SL 040C 50PT
C4	4030000540	Ceramic GRM40 SL 0R5C 50PT
C5	4030000540	Ceramic GRM49 SL 0R5C 50PT
C6	4030000560	Ceramic GRM40 SL 020C 50PT
C7	4030000580	Ceramic GRM40 SL 040C 50PT
C8	4030000560	Ceramic GRM40 SL 020C 50PT
C9	4030001090	Ceramic GRM40 B 471K 50PT
C10	4030001100	Ceramic GRM40 B 102K 50PT
C11	4030001090	Ceramic GRM40 B 471K 50PT
C12	4030001100	Ceramic GRM40 B 102K 50PT
C13	4030000580	Ceramic GRM40 SL 040C 50PT
C14	4030000540	Ceramic GRM40 SL 0R5C 50PT
C15	4030000540	Ceramic GRM40 SL 0R5C 50PT
C17	4030000560	Ceramic GRM40 SL 020C 50PT
C18	4030000590	Ceramic GRM40 SL 050C 50PT
C19	4030000540	Ceramic GRM40 SL 0R5C 50PT
C20	4030000540	Ceramic GRM40 SL 0R5C 50PT
C22	4030000560	Ceramic GRM40 SL 020C 50PT
C23	4030000580	Ceramic GRM40 SL 040C 50PT
C24	4030000550	Ceramic GRM40 SL 010C 50PT
C28	4030001100	Ceramic GRM40 B 102K 50PT
C29	4030001090	Ceramic GRM40 B 471K 50PT
C30	4030001100	Ceramic GRM40 B 102K 50PT
C31	4030001090	Ceramic GRM40 B 471K 50PT
C32	4030001100	Ceramic GRM40 B 102K 50PT
C33	4030001090	Ceramic GRM40 B 471K 50PT
C34	4030001100	Ceramic GRM40 B 102K 50PT
C35	4030001090	Ceramic GRM40 B 471K 50PT
C37	4030000700	Ceramic GRM40 SL 470K 50PT
C38	4030001090	Ceramic GRM40 B 471K 50PT
C39	4030001090	Ceramic GRM40 B 471K 50PT
C40	4030000700	Ceramic GRM40 SL 470J 50PT
C41	4030001090	Ceramic GRM40 B 471K 50PT
C42	4010000260	Ceramic DD104 SL 470J 50V
C43	4030000550	Ceramic GRM40 SL 010C 50PT
C44	4030000550	Ceramic GRM40 SL 010C 50PT
EP1	0910018641	P.C. Board B 1756A (RF)

[VCO UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
Q1	1560000140	FET 2SK125 (choice)
Q2	1530000370	Transistor 2SC3356-T2B
D1	1720000220	Varicap 1SV166-T2B
D2	1720000220	Varicap 1SV166-T2B
D3	1720000290	Varicap 1T32
L1	6180000770	Coil LAL 03NA 1R0M
L2	6180002410	Coil LAL 02NA R39K
L3	6180000720	Coil LAL 03NA R39M
L4	6180000700	Coil LAL 03NA R27M
L5	6110001530	Coil LA-233
R1	7030000630	Resistor MCR10EZHJ 120k Ω (124)
R2	7010004120	Resistor R20J 270 Ω
R3	7030000580	Resistor MCR10EZHJ 47k Ω (473)
R4	7030000140	Resistor MCR10EZHJ 10 Ω (100)
R6	7030000210	Resistor MCR10EZHJ 29 Ω (390)
R7	7030000180	Resistor MCR10EZHJ 22 Ω (220)
R8	7030000260	Resistor MCR10EZHJ 100 Ω (101)
R9	7030000440	Resistor MCR10EZHJ 3.3k Ω (332)
R10	7030000420	Resistor MCR10EZHJ 2.2k Ω (222)
R11	7030000300	Resistor MCR10EZHJ 220 Ω (221)
C1	4010000860	Ceramic DD106 CH 470J 50V
C2	4030000810	Ceramic GRM40 CK 0R5C 50PT
C5	4030001090	Ceramic GRM40 B 471K 50PT
C7	4030000880	Ceramic GRM40 CH 070D 50PT
C8	4030001090	Ceramic GRM40 B 471K 50PT
C9	4030001150	Ceramic GRM40 F 104Z 25PT
C10	4510001090	Electrolytic 10 MS7 100 μF
C11	4030001100	Ceramic GRM40 B 102K 50PT
C12	4030001090	Ceramic GRM40 B 471K 50PT
C13	4510001090	Electrolytic 10 MS7 100 μF
C14	4030001100	Ceramic GRM40 B 102K 50PT
C15	4030005150	Ceramic GRM40 CH 090D 50PT
C16	4030000540	Ceramic GRM40 SL 090D 50PT
C17	4030001090	Ceramic GRM40 B 0R5C 50PT
C18	4010000500	Ceramic DD104 B 471K 50V
C19	4030001100	Ceramic GRM40 B 102K 50PT
C20	4010000040	Ceramic DD104 SL 020C 50V
C21	4030000700	Ceramic GRM40 SL 470J 50PT
C22	4040000190	Barrier Layer UAT 05X 103K
C23	4030000840	Ceramic GRM40 CJ 030C 50PT
C24	4030000840	Ceramic GRM40 CJ 030C 50PT
EP1	0910018652	P.C. Board B 1758B (VCO)

[CTCSS UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110001220	IC	BA4558F T1
IC2	1130001830	IC	MN6520
Q3	1530000980	Transistor	2SC3395-TA
X1	6050003110	Crystal	RF-4A3 FAC NKD (4.194304M)
R1	7030000660	Resistor	MCR10EZHJ 220k Ω (224)
R2	7030000660	Resistor	MCR10EZHJ 220k Ω (224)
R3	7030000660	Resistor	MCR10EZHJ 220k Ω (224)
R4	7030000660	Resistor	MCR10EZHJ 220k Ω (224)
R5	7030000670	Resistor	MCR10EZHJ 270k Ω (274)
R6	7030000660	Resistor	MCR10EZHJ 220k Ω (224)
R7	7030000650	Resistor	MCR10EZHJ 180k Ω (184)
R8	7030000500	Resistor	MCR10EZHJ 10k Ω (103)
R9	7030000520	Resistor	MCR10EZHJ 15k Ω (153)
R11	7030000500	Resistor	MCR10EZHJ 10k Ω (103)
R12	7030000420	Resistor	MCR10EZHJ 2.2k Ω (222)
R13	7030000500	Resistor	MCR10EZHJ 10k Ω (103)
R14	7030000640	Resistor	MCR10EZHJ 150k Ω (154)
R15	7030000380	Resistor	MCR10EZHJ 1k Ω (102)
C1	4030001140	Ceramic	GRM40 F 103Z 50PT
C2	4030003330	Ceramic	GRM40 B 223K 50PT
C3	4030001090	Ceramic	GRM40 B 471K 50PT
C4	4030003320	Ceramic	GRM40 F 333Z 50PT
C5	4030003180	Ceramic	GRM40 SL 271J 50PT
C6	4550000920	Tantalum	TESVA 1D 474M1-8L
C7	4550002720	Tantalum	TESVD2 0J 476M-12L
C8	4030001150	Ceramic	GRM40 F 104Z 25PT
C9	4030000660	Ceramic	GRM40 SL 180J 50PT
C10	4030000660	Ceramic	GRM40 SL 180J 50PT
C11	4550000920	Tantalum	TESVA 1D 474M1-8L
C12	4030001150	Ceramic	GRM40 F 104Z 25PT
C13	4550000920	Tantalum	TESVA 1D 474M1-8L
J3	6510005810	Connector	5513-14CPB
EP1	0910014232	P.C. Board	B 1244B (CTCSS)

[OTHER UNITS]

REF. NO.	ORDER NO.	DESCRIPTION	
		[CHASSIS UNIT]	
C1	4010000520	Ceramic	DD108 B 472K 50V
W6	8900001050	OPC-Cable	OPC-103
W7	8900001600	OPC-Cable	OPCV-116 A
J1	6450000420	Connector	HSJ0780-01-010
SP1	2500000200	Speaker	60F09N-78
		[FRONT UNIT]	
S1	2210000510	Switch	SRRM42021B
		[LED UNIT]	
R1	7010004140	Resistor	R20J 390 Ω
R2	7010004110	Resistor	R20J 220 Ω
R3	7010004140	Resistor	R20J 390 Ω
R4	7010004140	Resistor	R20J 390 Ω
DS1	5040000420	LED	GL-9PR2
DS2	5040000430	LED	GL-9PG2
DS3	5040000850	LED	GL-9HY2
DS4	5040000420	LED	GL-9PR2
EP1	0910026420	P.C. Board	B 2669 (LED)
		[VR UNIT]	
R1	7210001160	Variable	RK1631111A72A
R2	7210001170	Variable	RK1631110RJPA
EP1	0910024591	P.C. Board	B 2358A (VR)
		[MIC UNIT]	
S1	2230000530	Switch	SPPH23078A
J2	6510004820	Connector	FM14RS-7SS
EP1	0910024581	P.C. Board	B 2357A (MIC)

SECTION 7 ADJUSTMENT PROCEDURES

7–1 PLL ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
PLL REFERENCE FREQUENCY	1	• Select any channel. • Connect a dummy load. • Transmitting	Antenna connector	Loosely couple the frequency counter to the antenna connector.	Same frequency as the programmed one. To check the programmed frequency, use the EX–704.	MAIN	C45
LOCK VOLTAGE		NOTE: This equipment has non-adjusting VCO. If you confirm the lock voltage, set the frequency with the EX–704.					
	1	• Operating frequency: 450.000 MHz • Receiving	MAIN	Connect the voltmeter to IC8 (Pin 5).	7.5 ~ 8.5 V	MAIN	Verify
	2	• Transmitting			10.5 ~11.5 V		Verify

7–2 RECEIVER ADJUSTMENT

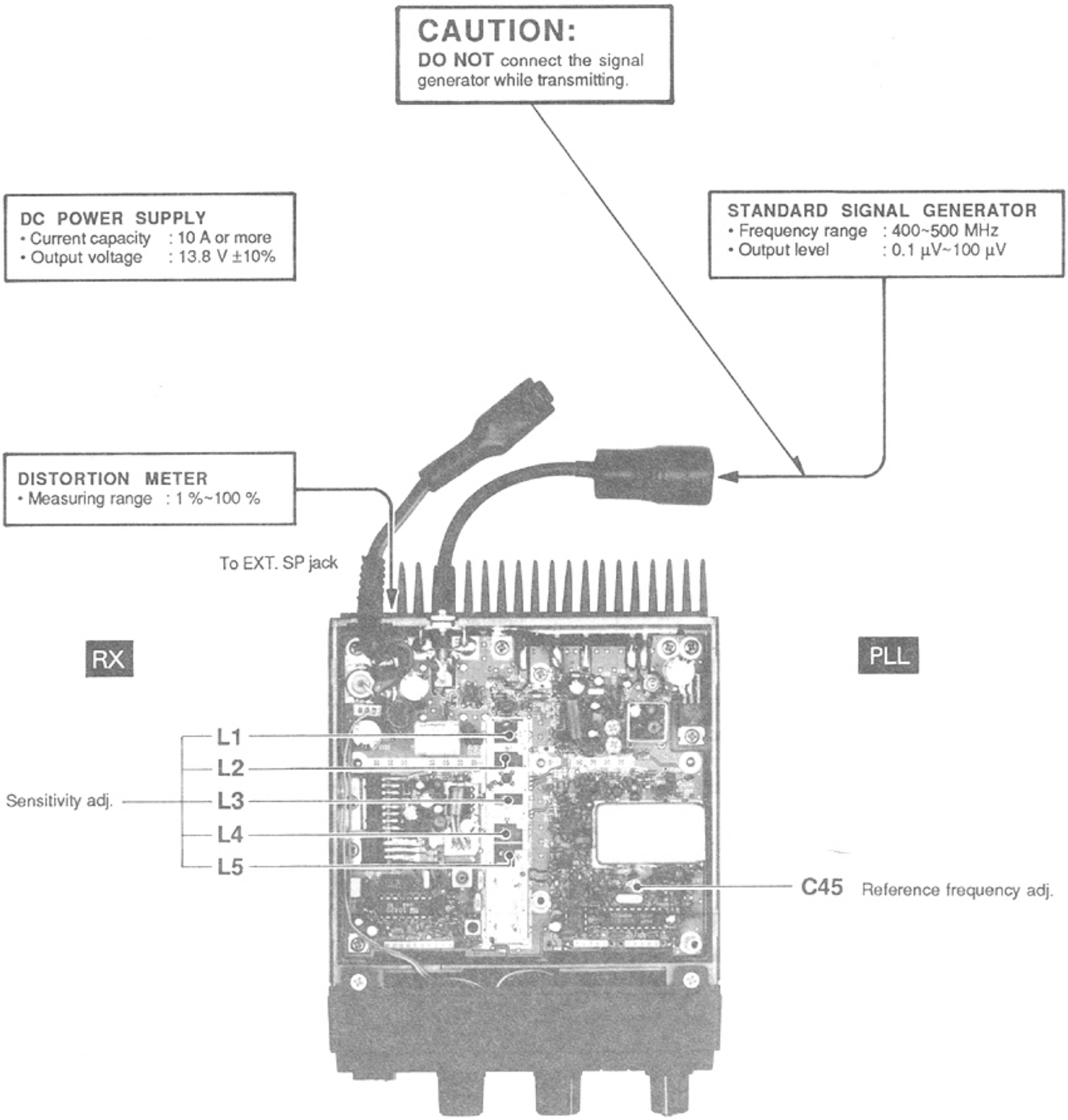
ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
SENSITIVITY		NOTE: When the sensitivity is less than 0.35 μV (12dB SINAD) on every channel, the following sensitivity adjustment is not necessary. Skip to 7–3 TRANSMITTER ADJUSTMENT.					
	1	•Select any channel. •Set the signal generator; Level : 0.35 μ V* (–116 dBm) Mod : 1 kHz Dev : ±1.5 kHz (narrow version) Dev : ±3.0 kHz (wide version) •[SQL] control : Max. CCW •[MONITOR] switch : ON •Receiving	REAR PANEL	Connect the distortion meter with a 4Ω load to the [EXP SP] jack.	Minimum distortion level.	RF	Adjust in sequence L5~L1.

CCW: Counterclockwise

* This output level of standard signal generator (SSG) is indicated as SSG's open circuit.

LOCATION AND CONNECTION

MAIN UNIT



7-3 TRANSMITTER ADJUSTMENT

ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
OUTPUT POWER	1	• Select any channel. • Transmitting	REAR PANEL	Connect the power meter to the antenna connector.	10 W (10 W version) 25 W (25 W version)	MAIN	R71
FREQUENCY DEVIATION	1	• Select any channel. • Set the audio generator to the [MIC] jack. 1 kHz/50 mV • Set the FM deviation meter; HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P–P)/2 • R51 (LOGIC) : Max. CW • Transmitting	REAR PANEL	Connect the FM deviation meter to the antenna connector via the attenuator.	±2.0 kHz (narrow version) ±4.2 kHz (wide version)	LOGIC	R55
	2			Connect the oscilloscope to the deviation meter.	Symmetrical waveform.		R49
	3	• Set the audio generator to the [MIC] jack. 1 kHz/5 mV		Connect the deviation meter to the antenna connector via an attenuator.	±1.5 kHz (narrow version) ±3.0 kHz (wide version)		R51
SUBAUDIBLE TONE FREQUENCY DEVIATION	1	• Select tone frequency programmed channel. • Apply no AF signal to the [MIC] jack. • Transmitting	REAR PANEL	Connect the FM deviation meter to the antenna connector via the attenuator.	±0.25 kHz (narrow version) ±0.5 kHz (wide version)	LOGIC	R60

CW: Clockwise

LOCATION AND CONNECTION

LOGIC UNIT

RF POWER METER
• Measuring range : 0.1~30 W

ATTENUATOR 40 dB or 50 dB

FM DEVIATION METER
• Frequency range : 100~500 MHz
• Measuring range : 0 ~±10 kHz

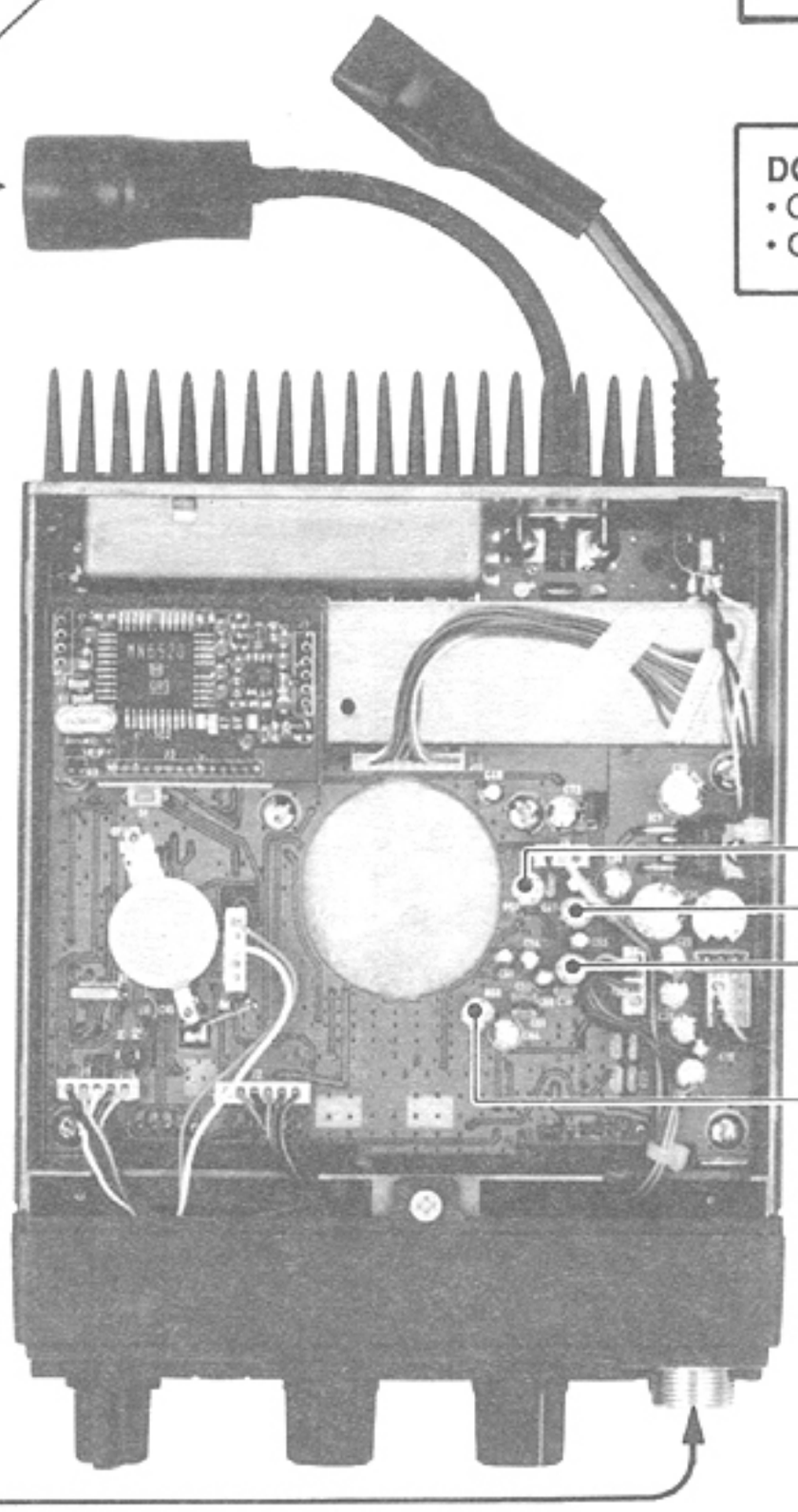
OSCILLOSCOPE
• Measuring range : DC ~20 MHz

AUDIO GENERATOR
• Frequency range : 300 ~3000 Hz
• Output level : 0 ~200 mW

Pin 7 (Ground)
Pin 1 (Microphone input)
Pin 6
PTT
Pin 5

CAUTION:
DO NOT connect the signal generator while transmitting.

DC POWER SUPPLY
• Current capacity : 10 A or more
• Output voltage : 13.8 V ±10 %



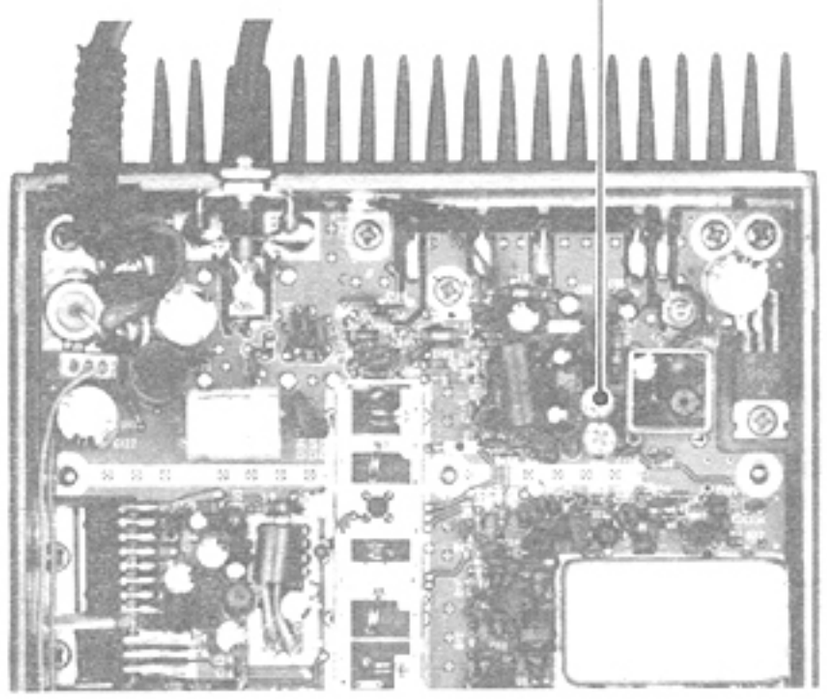
TX

R51
R49 — Deviation set
R55

R60 CTCSS deviation set

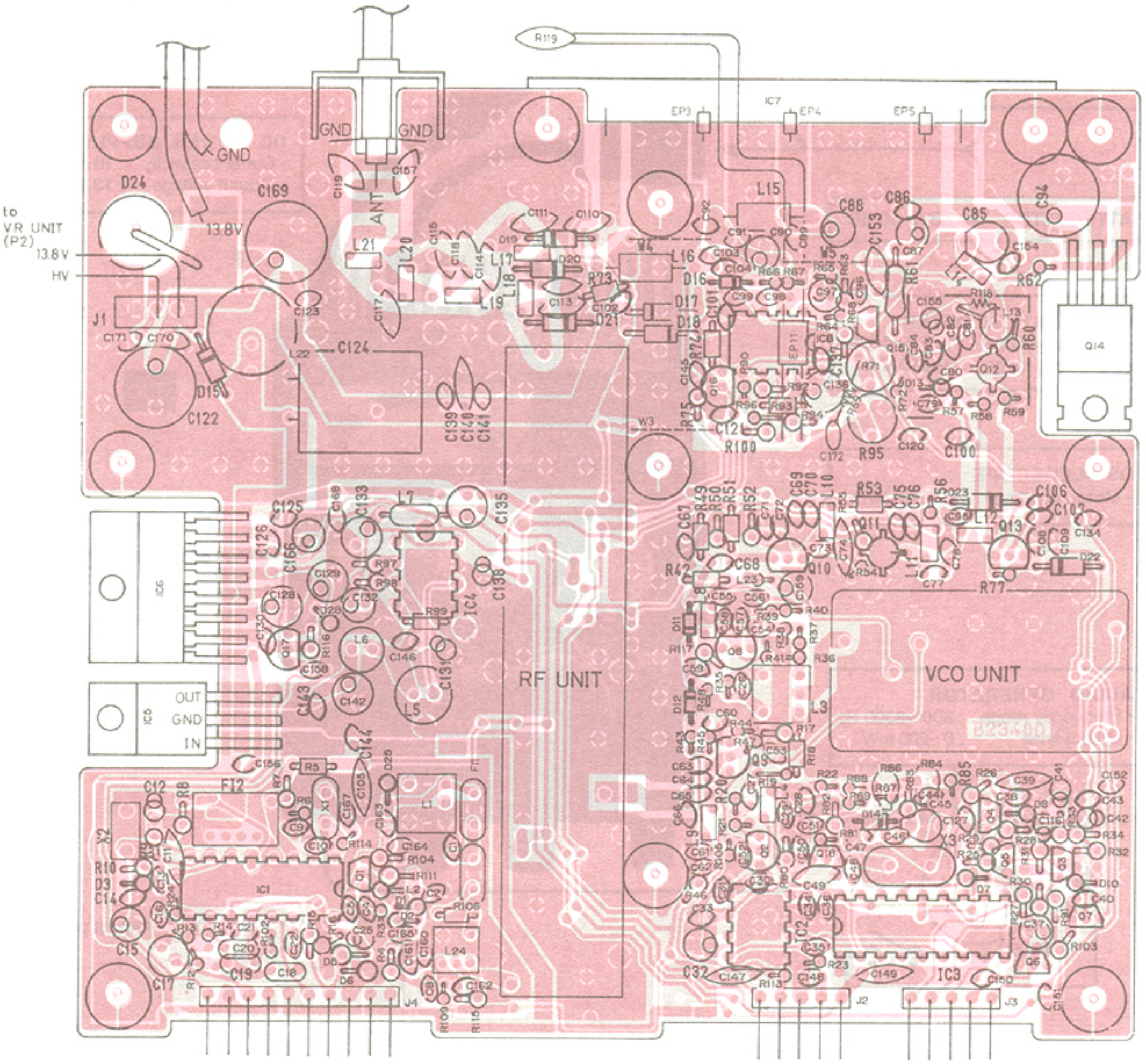
R71 Output power set

MAIN UNIT



SECTION 8 BOARD LAYOUTS

8–1 MAIN UNIT



2SA1048 GR
Q3, Q4

2SB561 C
Q13

2SB596 Y
Q14

2SC2458 GR
Q5, Q6, Q15, Q16, Q18

2SC2668 O
Q1

2SC3358
Q11

2SC3776 D
Q2, Q8, Q9, Q10

MRF559
Q12

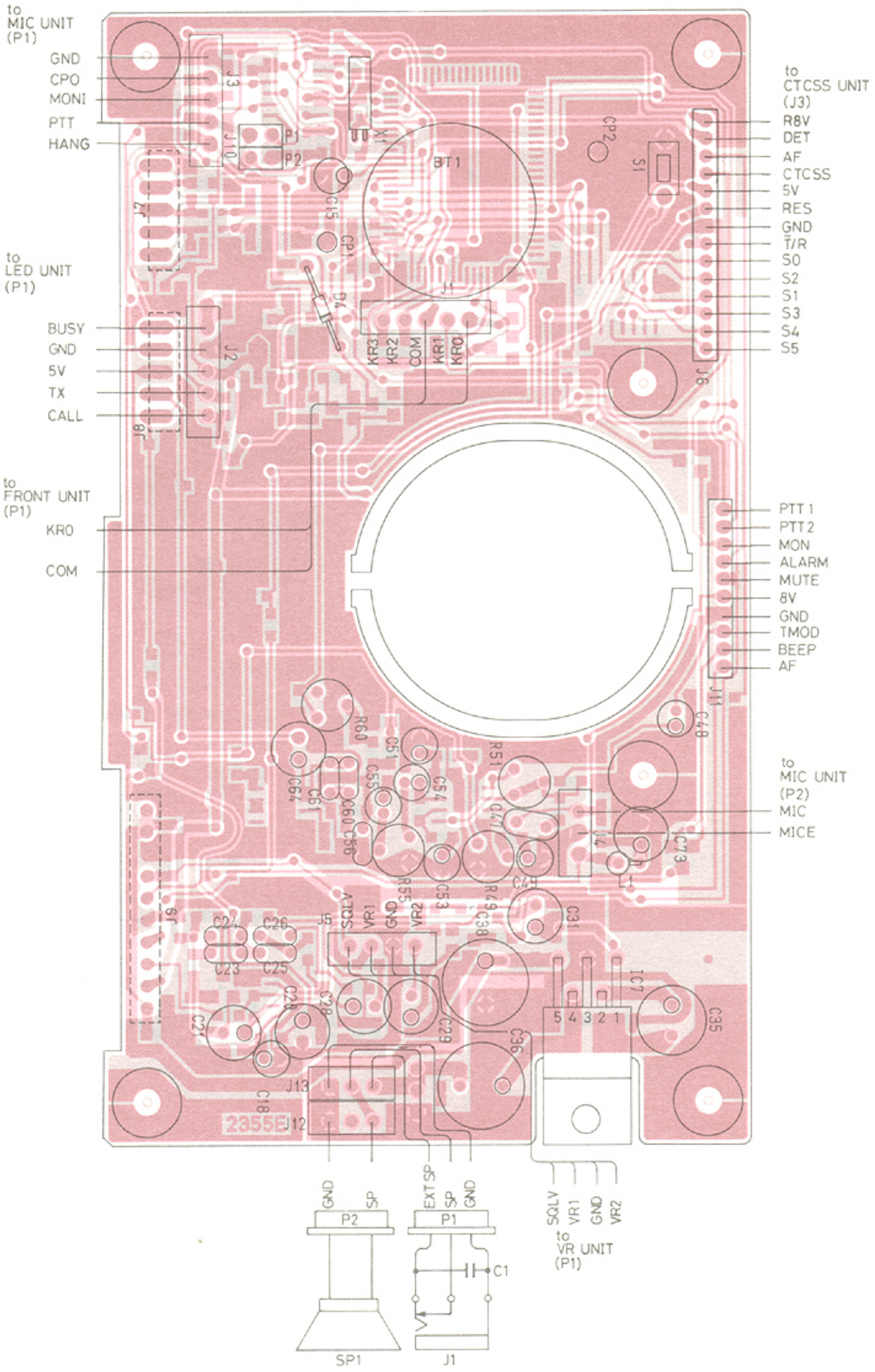
2SD468C
Q17

2SK184 Y
Q7

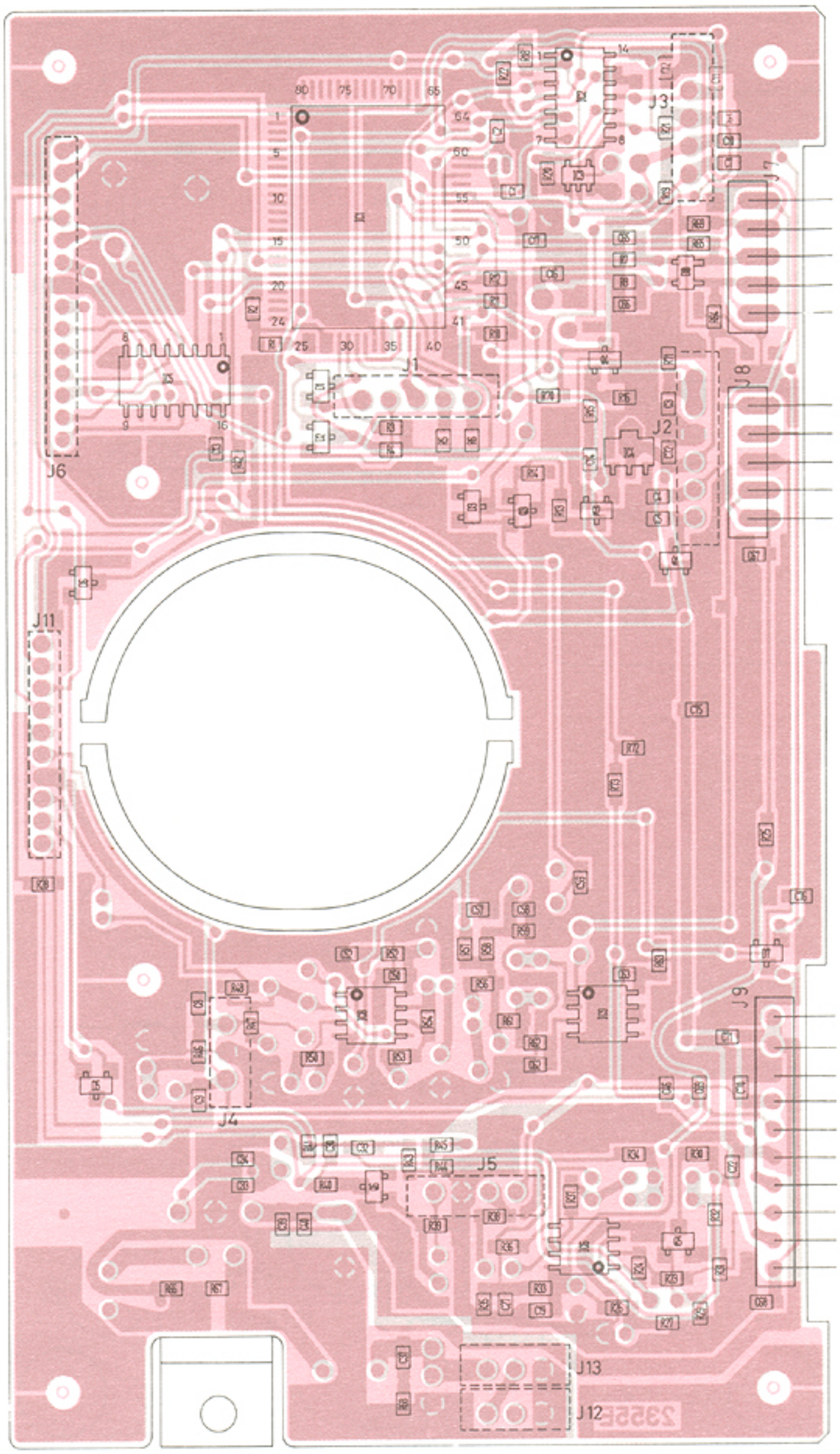
8–2 LOGIC UNIT

(Top View)

The combination of this page and the next page show the unit layout in the same configuration as the actual P.C. Board.



(Bottom View)



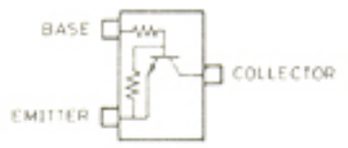
2SA1362 GR
Q3

Symbol : AEG

2SC2712 BL
Q4

Symbol : LL

2SC3395 TA
Q1, Q2



Symbol : BY

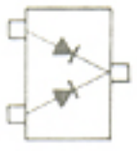
2SJ106 Y
Q5, Q6

Symbol : VY

1SS181
D2

Symbol : A3

1SS184
D5



Symbol : B3

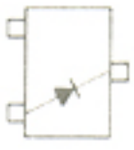
1SS187
D7

Symbol : D3

1SS190
D1

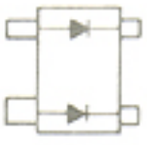
Symbol : E3

1SS196
D3, D6



Symbol : G3

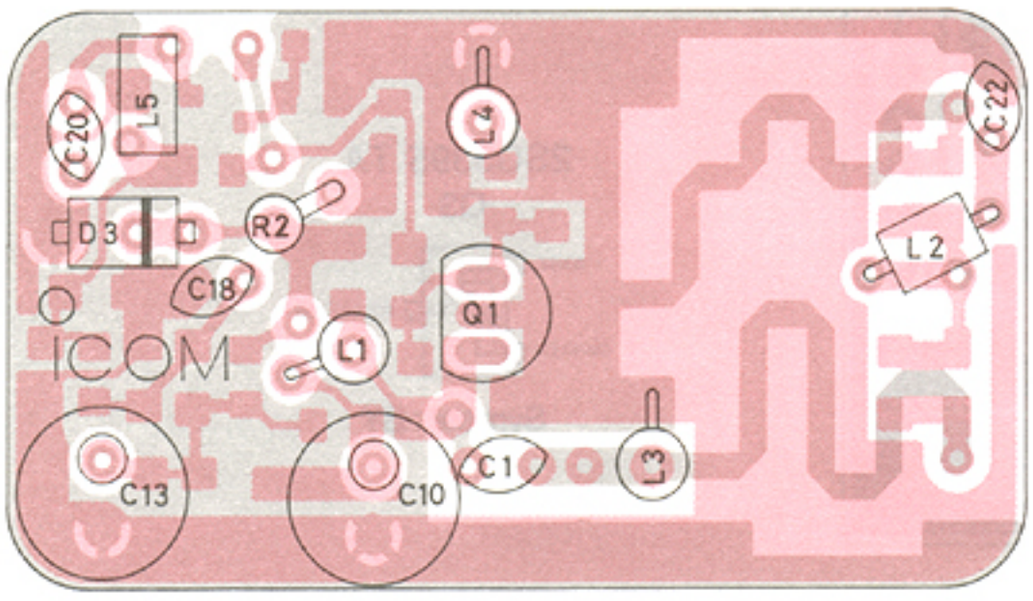
DWA010–TE
D8



Symbol : W8

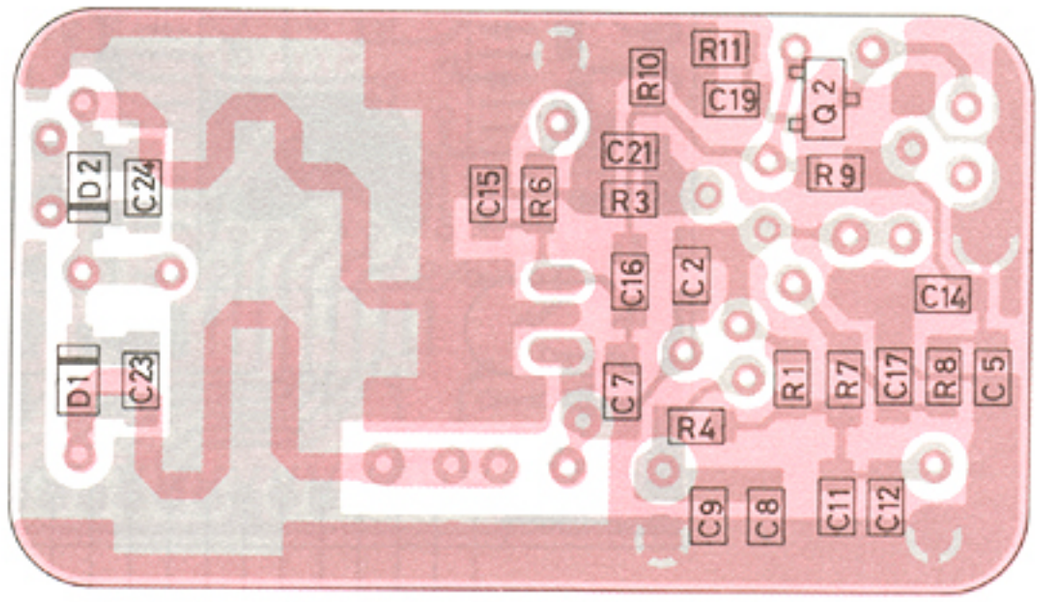
8–3 VCO AND RF UNITS

■ VCO UNIT



2SK125

Q1

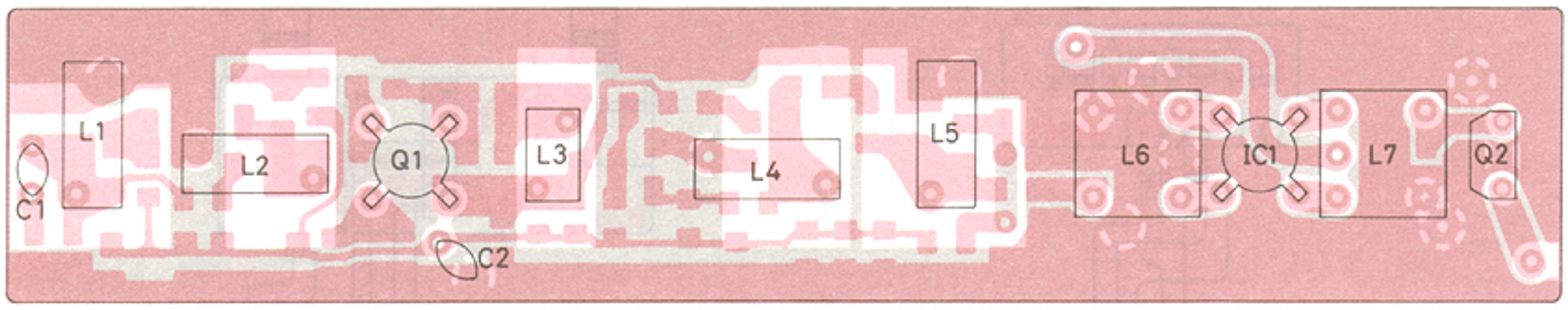


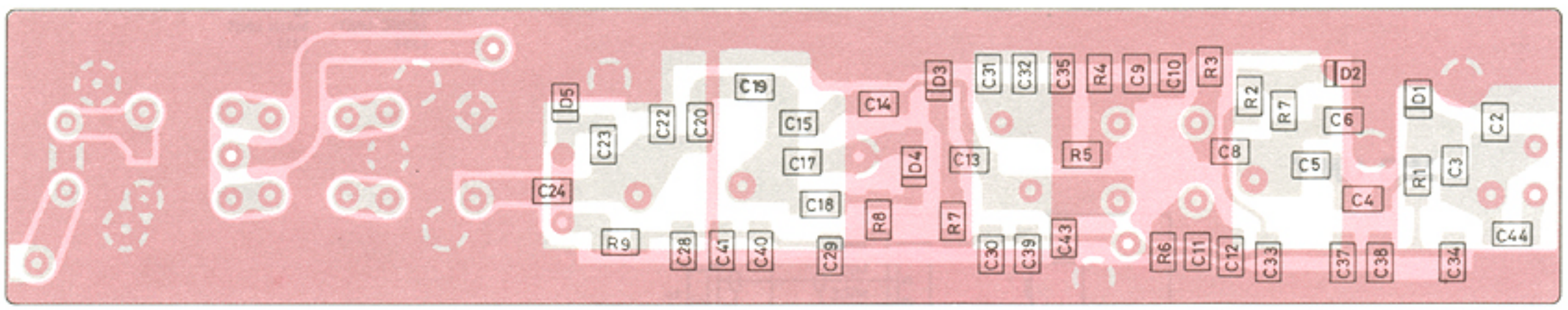
2SC3356

Q2

Symbol : R22

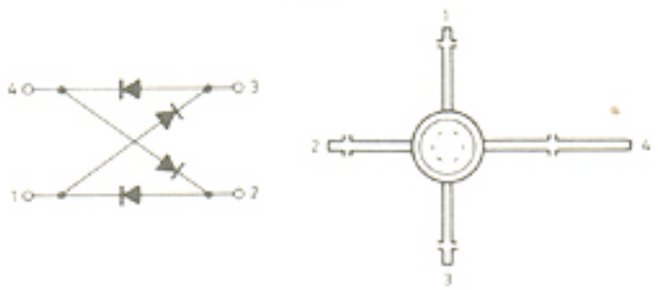
■ RF UNIT





ND487C1–3R

IC1



(SCHOTTKY BARRIER DIODE QUAD)

2SK161 GR

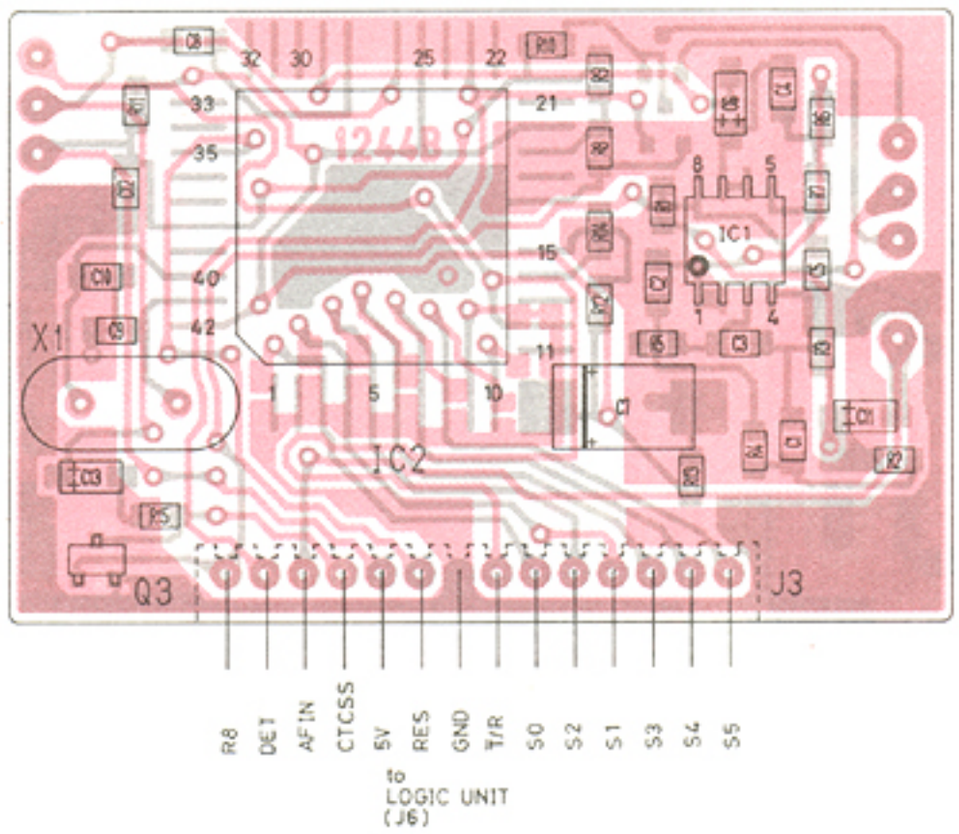
Q2

3SK121 Y

Q1

8–4 CTCSS AND FRONT UNITS

■ CTCSS UNIT

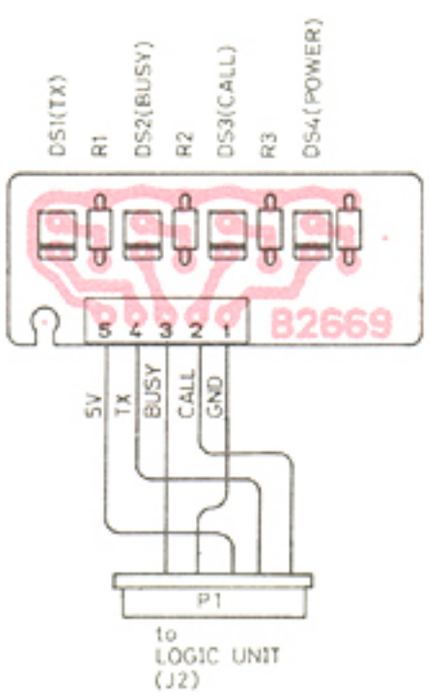


2SC3395 TA
Q3

Symbol : BY

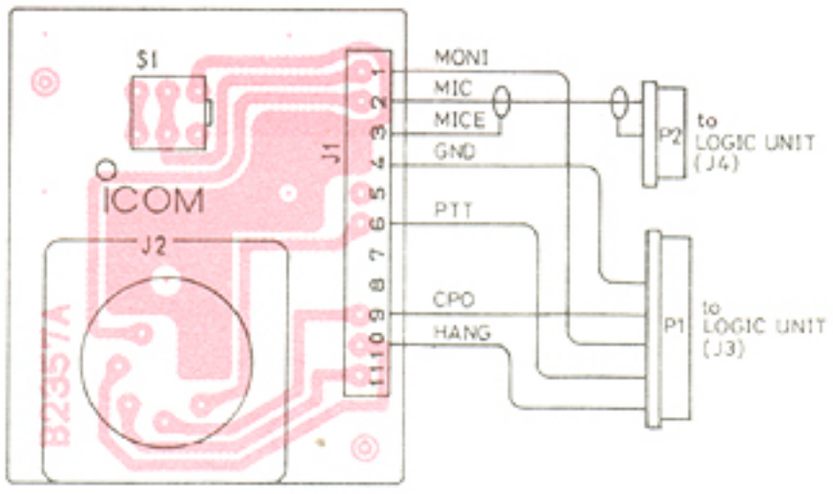
■ FRONT UNIT

• LED UNIT

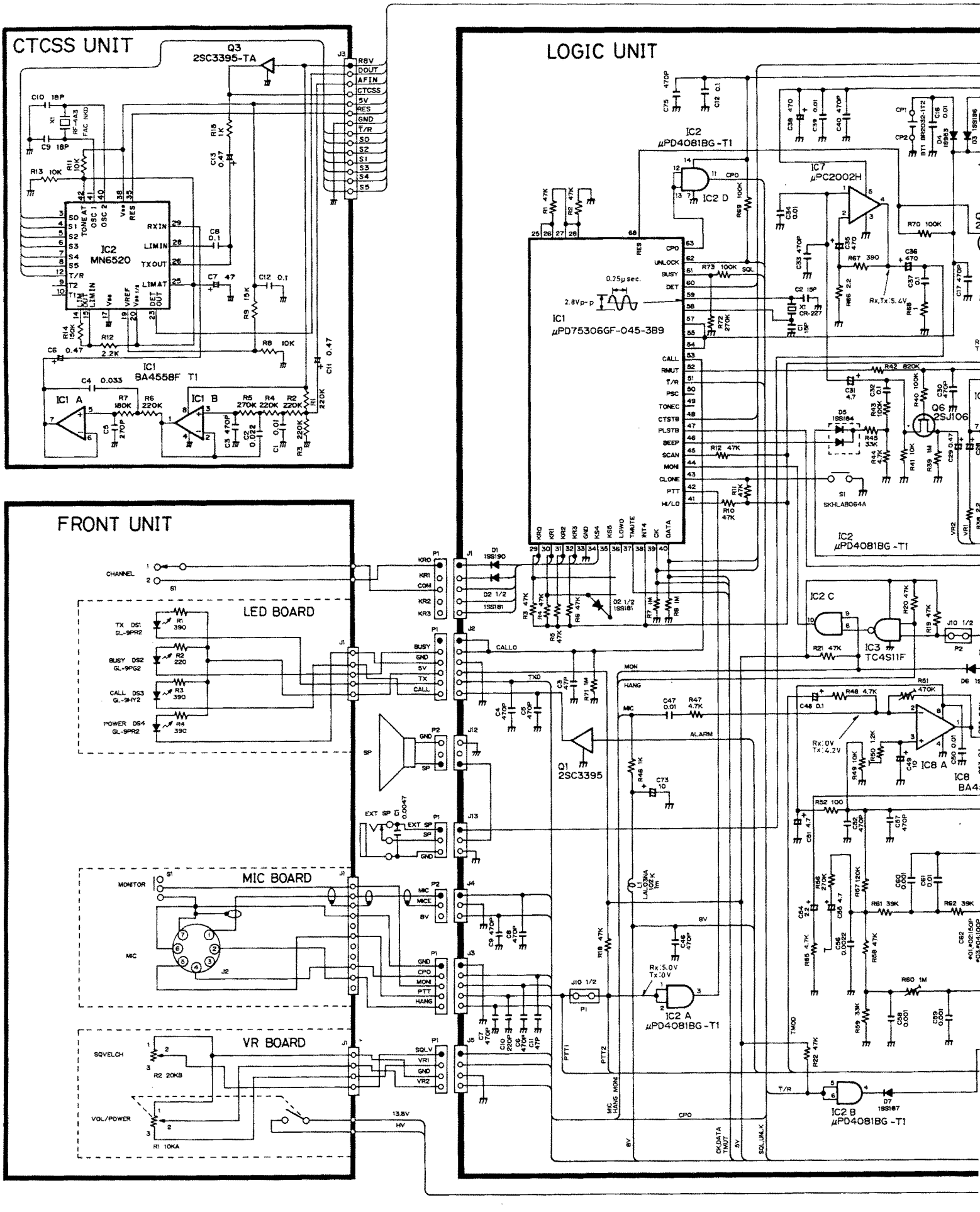


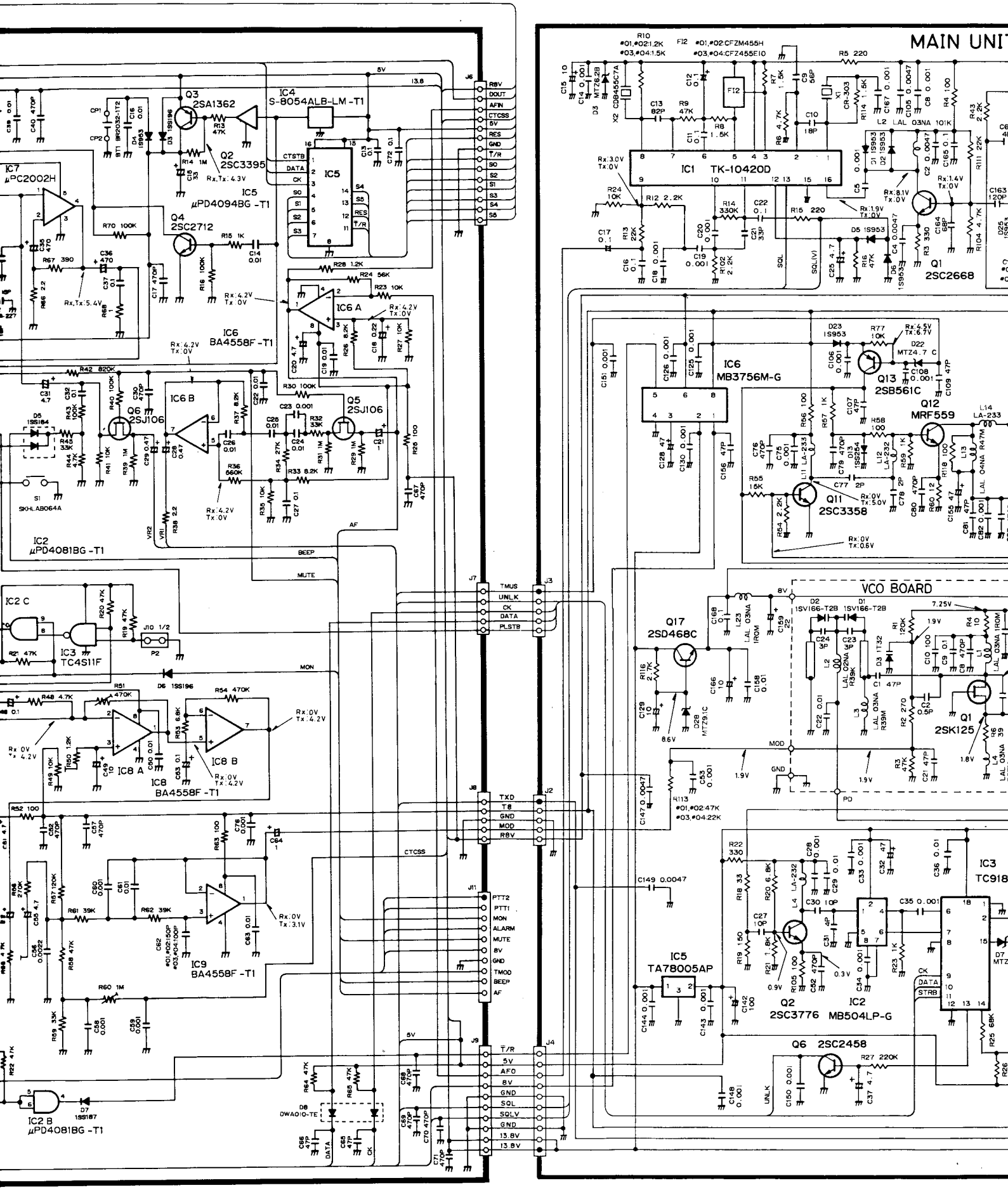
• VR UNIT

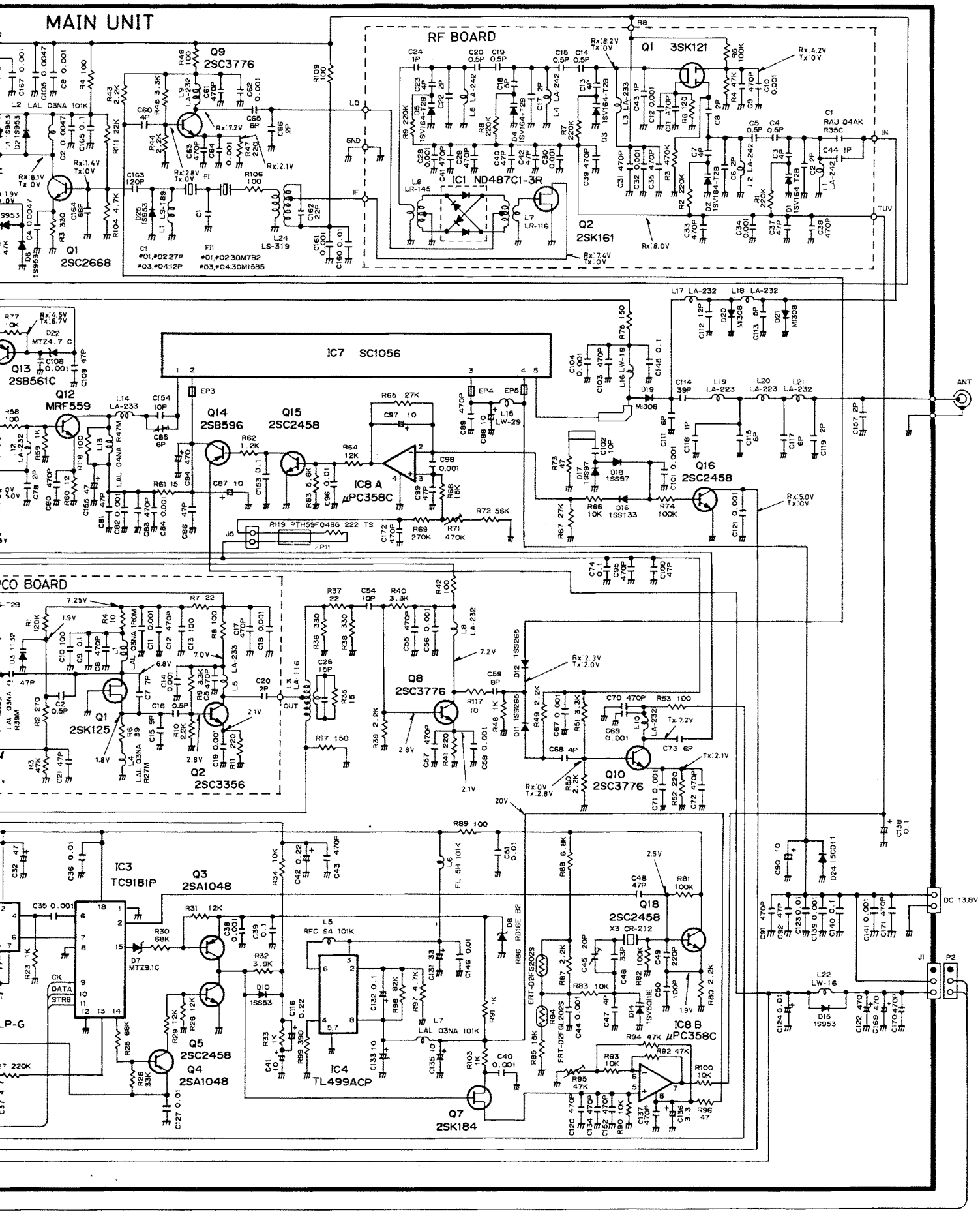
• MIC UNIT



SECTION 9 VOLTAGE DIAGRAM




MAIN UNI
IC1 TK-10420D
Q1 2SC2668
IC6 MB3756M-G
Q13 2SB561C
Q12 MRF559
Q11 2SC3358
VCO BOARD
Q17 2SD468C
Q1 2SK125
IC5 TA78005AP
Q2 2SC3776
IC2 MB504LP-G
IC3 TC918
Q6 2SC2458
IC4 S-8054ALB-LM-T1
IC5 μPD4094BG-T1
Q3 2SA1362
Q2 2SC3395
Q4 2SC2712
IC6 BA4558F-T1
IC2 μPD4081BG-T1
Q6 2SJ106
Q5 2SJ106
IC7 μPC2002H
IC2 C
IC3 TC4S11F
IC8 BA4558F-T1
IC9 BA4558F-T1
IC2 B μPD4081BG-T1
SKHLAB064A
J6
J7
J8
J9
J11
J3
J2
J4
RBV
DOUT
AFIN
CTCSS
5V
RES
GND
T/R
SO
S2
SI
S3
S4
S5
TMUS
UNLK
CK
DATA
PLSTB
TXD
T8
GND
MOD
R8V
PTT2
PTT1
MON
ALARM
MUTE
8V
GND
TMOD
BEEP
AF
T/R
5V
AFO
8V
GND
SQL
SQLV
GND
13.8V
13.8V
BEEP
MUTE
MON
CTCSS
AF
DATA
CK
UNLK
MOD
PD
SQL
SQL(V)
DATA
STRB
CK


MAIN UNIT
RF BOARD
Q1 3SK121
Q2 2SK161
IC1 ND487C1-3R
Q9 2SC3776
Q1 2SC2668
IC7 SC1056
Q13 2SB561C
Q12 MRF559
Q14 2SB596
Q15 2SC2458
IC8 A μPC358C
Q16 2SC2458
ANT
PCO BOARD
Q1 2SK125
Q2 2SC3356
Q8 2SC3776
Q10 2SC3776
IC3 TC9181P
Q3 2SA1048
Q5 2SC2458
Q4 2SA1048
IC4 TL499ACP
Q7 2SK184
Q18 2SC2458
IC8 B μPC358C
DC 13.8V
J1
P2
IN
TUV
OUT
CK
DATA
STRB

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