



# SERVICE MANUAL

UHF TRANSCEIVER

# IC-U21T

---

---

---

---

---

---

## INTRODUCTION

---

This service manual describes the latest service information for the **IC-U21T** UHF TRANSCEIVER at the time of publication.

---

## 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>

1150000540	IC	SC1055	IC-U21T	RF UNIT	5 pieces
8810004000	Screw	PH B0 M2 × 31.5 ZK	IC-U21T	Rear panel	10 pieces

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

---

## REPAIR NOTES

---

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable 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 a sweep generator.
7. **ALWAYS** connect a 40 dB to 50 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.



## TABLE OF CONTENTS

<b>SECTION 1</b>	<b>SPECIFICATIONS</b> .....	<b>1 - 1</b>
<b>SECTION 2</b>	<b>INSIDE VIEWS</b> .....	<b>2 - 1 to 2</b>
<b>SECTION 3</b>	<b>CIRCUIT DESCRIPTION</b> .....	<b>3 - 1 to 5</b>
	3 - 1 RECEIVER CIRCUITS .....	3 - 1
	3 - 2 TRANSMITTER CIRCUITS .....	3 - 3
	3 - 3 PLL CIRCUITS .....	3 - 4
	3 - 4 POWER SUPPLY CIRCUITS .....	3 - 5
	3 - 5 PORT ALLOCATIONS .....	3 - 5
<b>SECTION 4</b>	<b>ADJUSTMENT PROCEDURES</b> .....	<b>4 - 1 to 6</b>
	4 - 1 PREPARATION BEFORE SERVICING .....	4 - 1
	4 - 2 PLL ADJUSTMENT .....	4 - 2
	4 - 3 RECEIVER ADJUSTMENT .....	4 - 3
	4 - 4 TRANSMITTER ADJUSTMENT .....	4 - 5
<b>SECTION 5</b>	<b>PARTS LIST</b> .....	<b>5 - 1 to 14</b>
<b>SECTION 6</b>	<b>MECHANICAL PARTS AND DISASSEMBLY</b> .....	<b>6 - 1 to 2</b>
<b>SECTION 7</b>	<b>BOARD LAYOUTS</b> .....	<b>7 - 1 to 10</b>
	7 - 1 FRONT UNIT .....	7 - 1
	7 - 2 LOGIC UNIT .....	7 - 3
	7 - 3 MAIN UNIT .....	7 - 5
	7 - 4 TONE UNIT .....	7 - 7
	7 - 5 RF UNIT .....	7 - 9
<b>SECTION 8</b>	<b>BLOCK DIAGRAM</b> .....	<b>8 - 1</b>
<b>SECTION 9</b>	<b>VOLTAGE DIAGRAM</b> .....	<b>9 - 1 to 2</b>

## VERSIONS

VERSION NUMBER	VERSION	SYMBOL	FREQUENCY RANGE	CHANNEL SPACING	CHANNEL PITCH	VERSION NUMBER	VERSION	SYMBOL	FREQUENCY RANGE	CHANNEL SPACING	CHANNEL PITCH
#01	General	GEN	400-430 MHz	12.5 kHz	5/6.25 kHz	#10	United Kingdom	UK-1	400-430 MHz	12.5 kHz	5/6.25 kHz
#02	General	GEN-1	400-430 MHz	25 kHz	5/6.25 kHz	#11	Sweden	SWE	440-470 MHz	12.5 kHz	5/6.25 kHz
#03	General	GEN-2	440-470 MHz	12.5 kHz	5/6.25 kHz	#12	Greece	GRE	400-430 MHz	25 kHz	5/6.25 kHz
#04	General	GEN-3	440-470 MHz	25 kHz	5/6.25 kHz	#13	Greece	GRE-1	440-470 MHz	25 kHz	5/6.25 kHz
#05	Italy	ITA	440-470 MHz	25 kHz	5/6.25 kHz	#14	Australia	AUS-2	403-420 MHz	25 kHz	5/6.25 kHz
#06	France	FRA	440-470 MHz	12.5 kHz	5/6.25 kHz	#15	Australia	AUS-3	450-470 MHz	25 kHz	5/6.25 kHz
#07	Australia	AUS	470-500 MHz	25 kHz	5/6.25 kHz	#16	United Kingdom	UK-2	TX: 425-450 MHz RX: 440-450 MHz	12.5 kHz	5/6.25 kHz
#08	Australia	AUS-1	500-520 MHz	25 kHz	5/6.25 kHz	#17	United Kingdom	UK-3	400-425 MHz	12.5 kHz	5/6.25 kHz
#09	United Kingdom	UK	440-470 MHz	12.5 kHz	5/6.25 kHz	#18	Holland	HOL	406-430 MHz	12.5 kHz	5/6.25 kHz

## SECTION 1 SPECIFICATIONS

### GENERAL

- Frequency coverage : See VERSIONS on the right page of inside front cover.
- Mode : 16K0F3E (#02, #04, #05, #07, #08, #12, #13, #14, #15)  
8K50F3E (#01, #03, #06, #09, #10, #11, #16, #17, #18)
- Number of channels : Up to 100 operating channels  
Up to 30 5-Tone memory channels
- Channel spacing : 25 kHz (#02, #04, #05, #07, #08, #12, #13, #14, #15)  
12.5 kHz (#01, #03, #06, #09, #10, #11, #16, #17, #18)
- Usable battery pack : CM-72, CM-73 or CM-3G to CM-12G
- External power supply : 13.2 V negative ground
- Current drain (at 13.2 V) : Transmit High 2.0 A  
Low 1.2 A  
Receive Max. audio 350 mA  
Stand-by 150 mA
- Antenna impedance : 50  $\Omega$  (nominal)
- Usable temperature range :  $-25^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  ( $-13^{\circ}\text{F}$  to  $+131^{\circ}\text{F}$ )
- Frequency stability :  $\pm 1.5$  kHz ( $-25^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$ )
- Dimensions (with CM-72) : 65 (W)  $\times$  205 (H)  $\times$  35 (D) mm; 2.6 (W)  $\times$  8.1 (H)  $\times$  1.4 (D) in
- Weight (with CM-72) : 660 g (1.5 lbs)

### TRANSMITTER

- Output power : High 5 W (with CM-73)  
1.5 W (with CM-72)  
Low 1 W
- Spurious emissions :  $< 0.25$   $\mu\text{W}$
- FM noise and hum :  $> 40$  dB
- Microphone impedance : 1.2 k $\Omega$
- Audio response : +1 dB to  $-3$  dB of +6 dB/octave with 300 Hz to 3000 Hz input  
(#02, #04, #05, #07, #08, #12, #13, #14, #15)  
+1 dB to  $-3$  dB of +6 dB/octave with 300 Hz to 2550 Hz input  
(#01, #03, #06, #09, #10, #11, #16, #17, #18)

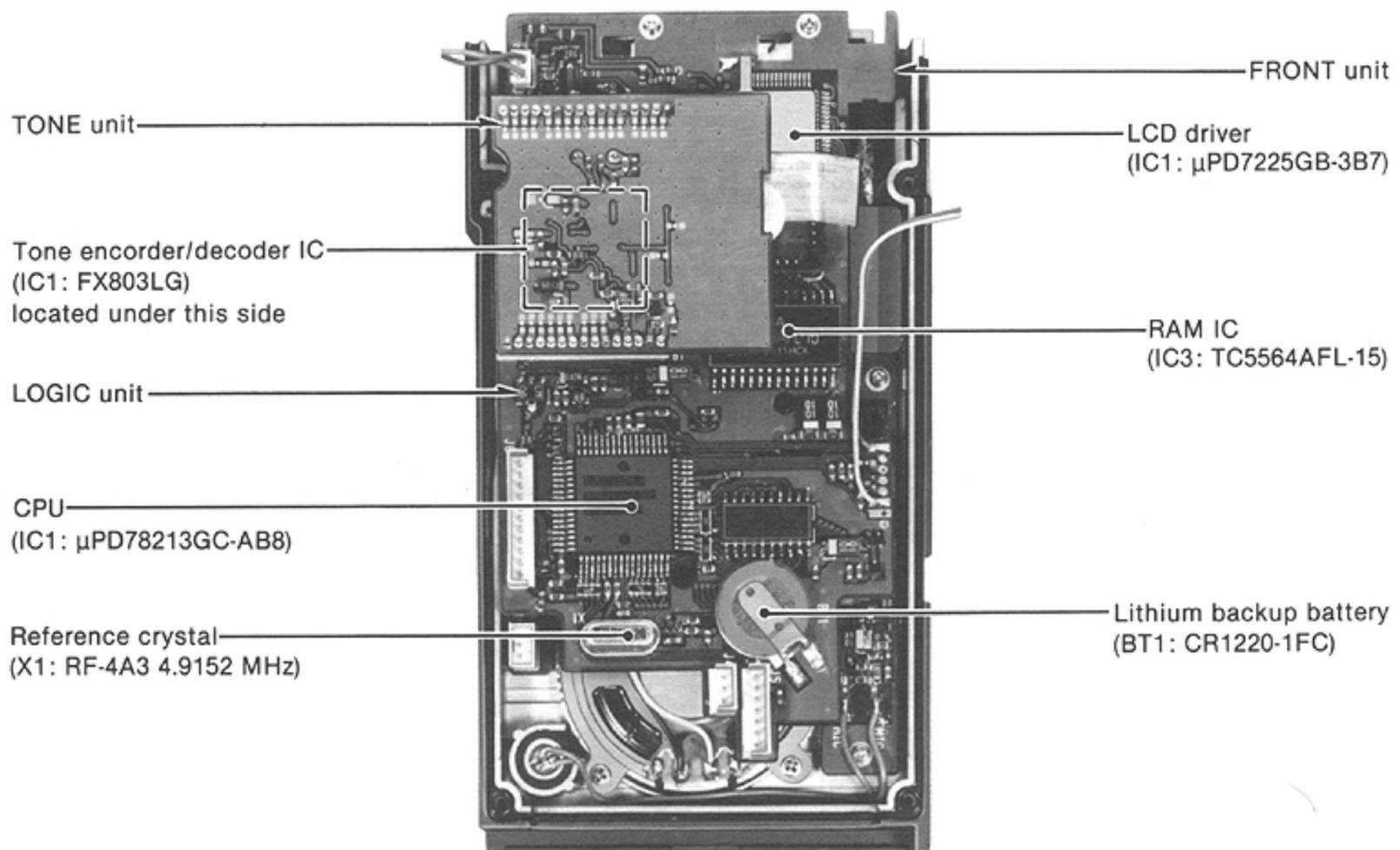
### RECEIVER

- Sensitivity : 0.35  $\mu\text{V}$  (PD) for 12 dB SINAD, signal input  
modulated by 1 kHz tone at 60% peak deviation
- Intermediate frequencies : 1st 30.875 MHz  
2nd 455 kHz
- Squelch sensitivity (threshold) : 0.35  $\mu\text{V}$
- Adjacent channel selectivity :  $> 70$  dB (#02, #04, #05, #07, #08, #12, #13, #14, #15)  
 $> 60$  dB (#01, #03, #06, #09, #10, #11, #16, #17, #18)
- Intermodulation rejection :  $> 70$  dB
- Spurious rejection :  $> 70$  dB
- Audio output power : 500 mW with an 8  $\Omega$  load
- Audio response : +1 dB to  $-3$  dB of  $-6$  dB/octave with 300 Hz to 3000 Hz modulation  
(#02, #04, #05, #07, #08, #12, #13, #14, #15)  
+1 dB to  $-3$  dB of  $-6$  dB/octave with 300 Hz to 2550 Hz modulation  
(#01, #03, #06, #09, #10, #11, #16, #17, #18)

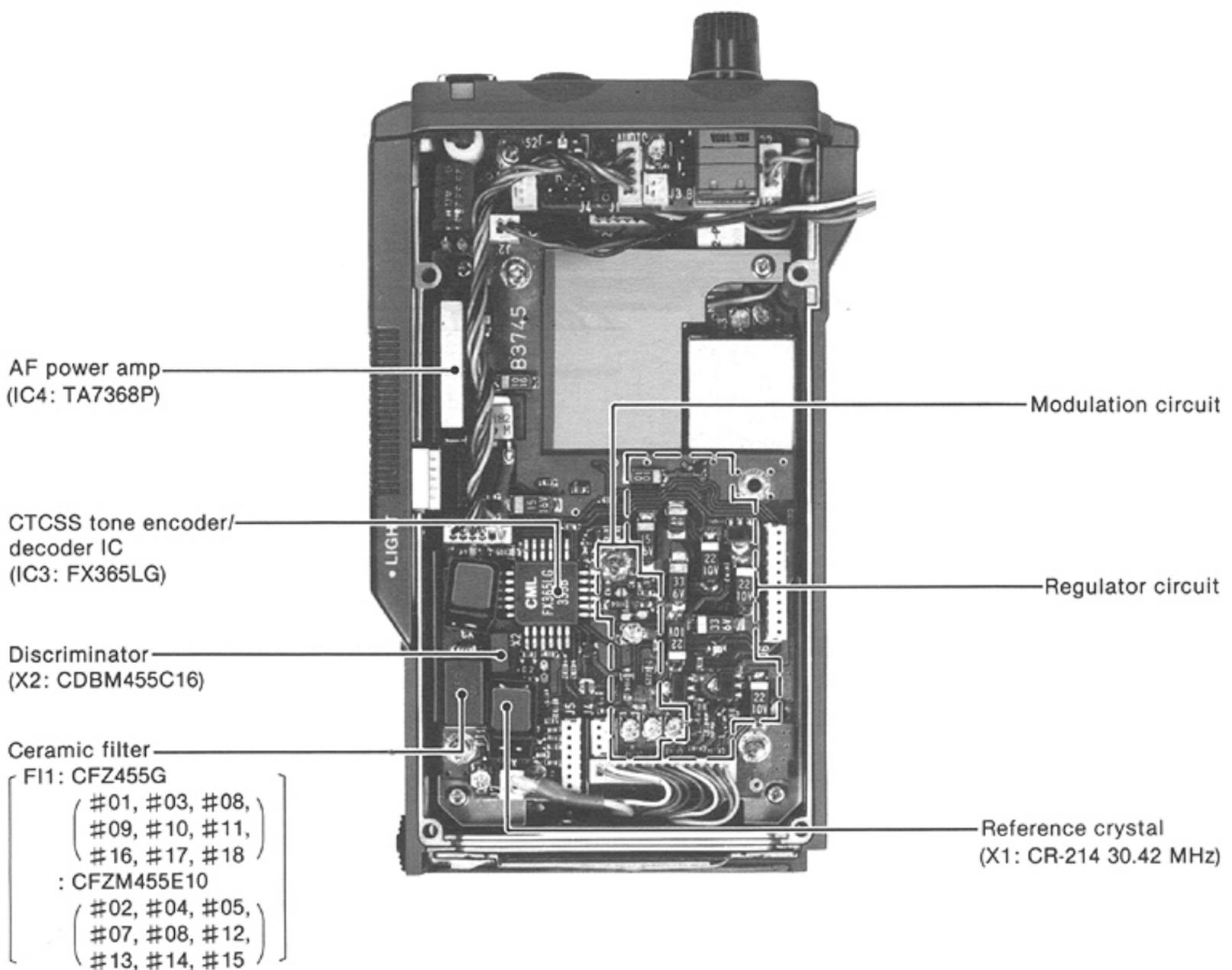
All stated specifications are subject to change without notice or obligation.

## SECTION 2 INSIDE VIEWS

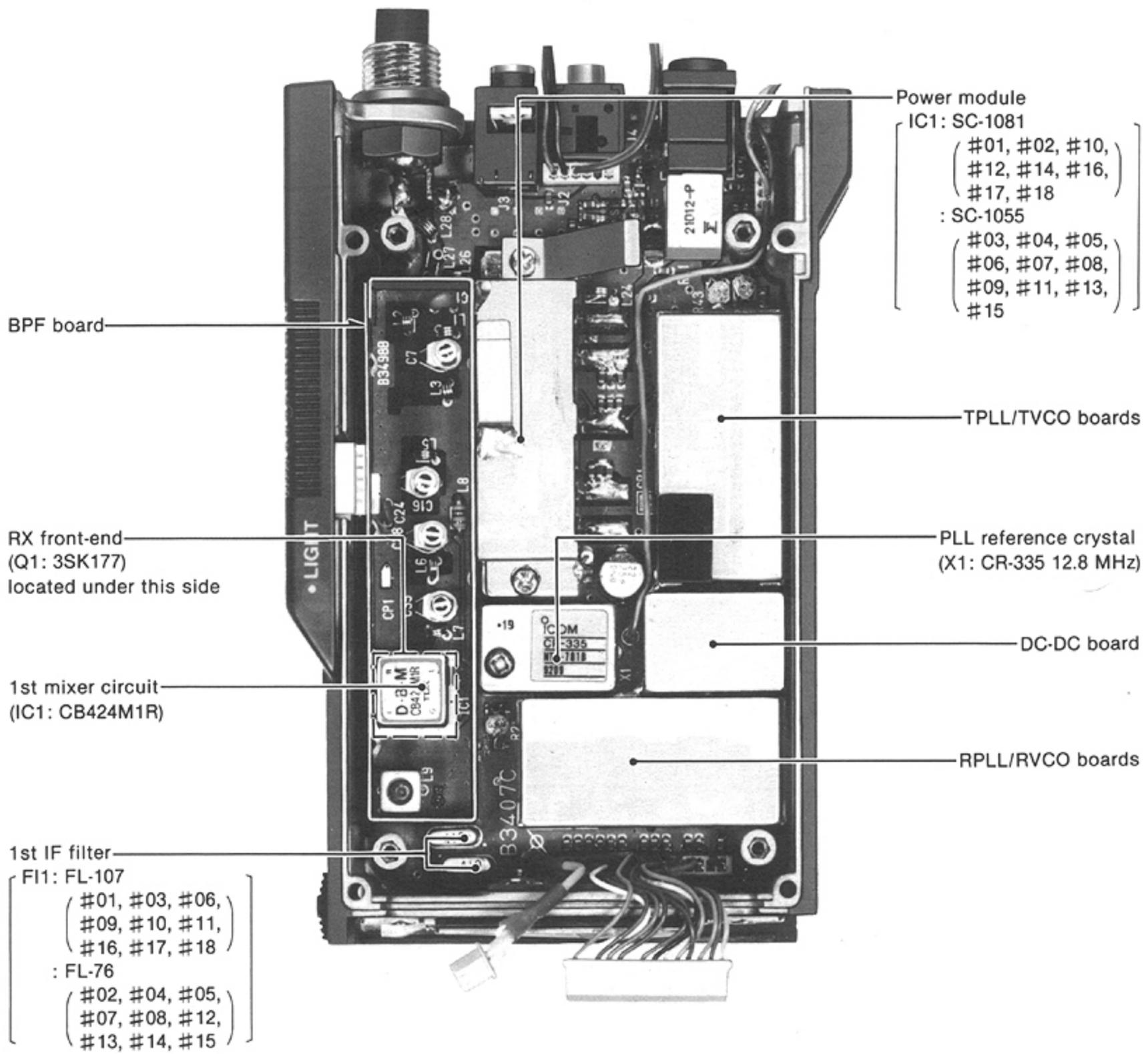
### • TONE, LOGIC AND FRONT UNITS



### • MAIN UNIT



• RF UNIT



## SECTION 3 CIRCUIT DESCRIPTION

### 3-1 RECEIVER CIRCUITS

#### 3-1-1 ANTENNA SWITCHING CIRCUITS (RF AND BPF BOARD)

The antenna switching circuit functions as a low-pass filter while receiving and a resonator circuit while transmitting. The circuit does not allow transmit signals to enter receiver circuits.

Received signals, after entering the antenna connector, pass through the low-pass filter (L28, C75, C76) and one or two-stage bandpass filters to suppress out-of-band signals. 440–470 MHz versions employ a one-stage BPF (L26, C72–C74) and other versions employ a two-stage BPF (L26, L27, C72–C74, C163).

The filtered signals are passed through the  $\lambda/4$  type antenna switching circuit (D1, L2, C2, C4) on the BPF board and are then applied to the RF amplifier (Q1).

#### 3-1-2 RF AND 1ST MIXER CIRCUITS (BPF BOARD)

The 1st mixer circuit converts the received signal to a fixed frequency of the 1st IF signal with a PLL output frequency. By changing the PLL frequency, only the desired frequency will be passed through a pair of crystal filters at the next stage of the 1st mixer.

The signals from the antenna switching circuit are amplified at the RF amplifier (Q1) and passed through the tunable bandpass filter (D3–D5, L6, L7, C28, C35) to suppress out-of-band signals.

The signals are then mixed at the double balanced mixer (IC1) with a 1st LO signal coming from the RVCO circuit to produce a 30.875 MHz 1st IF signal. The 1st IF signal is amplified at Q2 and enters the RF unit. The signal is then passed through a pair of crystal filters (RF unit, F11), amplified at Q3, and applied to the 2nd IF circuit in the MAIN unit.

#### 3-1-3 2ND IF AND DEMODULATOR CIRCUITS (MAIN UNIT)

The 2nd mixer circuit converts the 1st IF signal to a 2nd IF signal. A double superheterodyne system (which converts receive signals twice) improves the image rejection ratio and obtains stable receiver gain.

The 1st IF signal from the RF unit is applied to a 2nd mixer section of IC1 (pin 16) and is then mixed with a 2nd LO signal for conversion to a 455 kHz 2nd IF signal.

IC1 contains the 2nd mixer, local oscillator, limiter amplifier, quadrature detector and active filter. The local oscillator section generates 30.42 MHz using X1.

The 2nd IF signal from the 2nd mixer (IC1, pin 3) passes through a ceramic filter (F11) to remove unwanted heterodyned frequencies. It is then amplified at the limiter amplifier (IC1, pin 5) and applied to the quadrature detector (IC1, pin 8 and X2) to demodulate the 2nd IF signal into AF signals. The AF signals are output from pin 9.

#### FM DETECTOR AND SQUELCH CIRCUITS

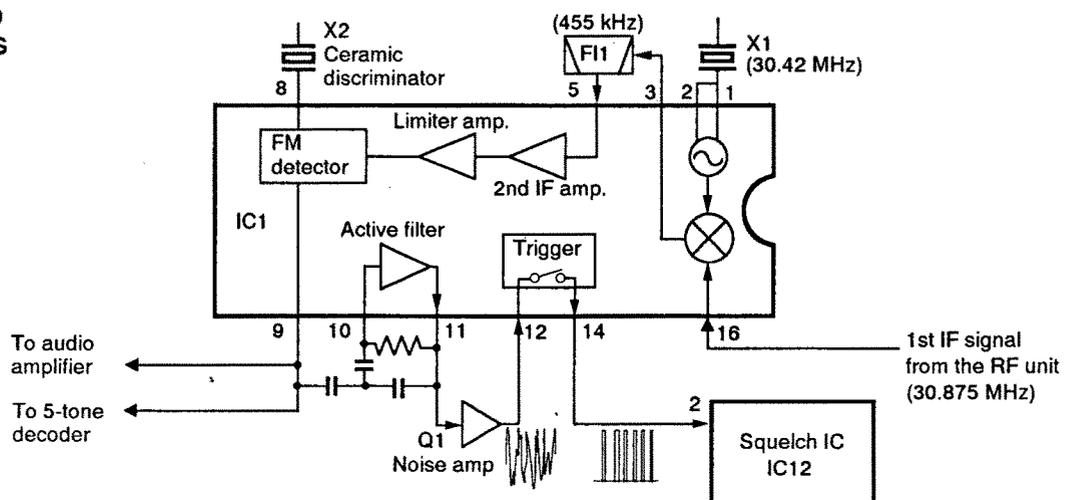


Fig. 3-1

### 3-1-4 AF CIRCUIT (MAIN UNIT)

The AF circuit de-emphasizes the demodulated signal with  $-6$  dB/octave and power amplifies the AF signal to drive a speaker. The AF circuit includes an AF mute switch for noise squelch and a 5-tone decoder.

The AF signal from IC1 (pin 9) is applied to IC2a where the signals are amplified and de-emphasized with  $-6$  dB/oct. The output signals are then applied to the CTCSS tone encoder/decoder (IC3, pin 23). When CTCSS is matched or not used, the signals pass through IC3 via pin 19.

The signals are passed through the audio mute switch (Q5), amplified at the preamplifier (IC2b), passed through the [VOL] control and then amplified at the AF power amplifier (IC4). The mute switch (Q5) functions when the noise squelch or 5-tone reset is closed.

### 3-1-5 NOISE SQUELCH CIRCUIT (MAIN UNIT)

The noise squelch circuit adopts the CPU pulse number control system to set customer requirements such as squelch sensitivity, hysteresis and open period delay.

Some noise components in the AF signal from IC1 (pin 9) are applied to an active filter section (IC1, pin 10) where frequencies of 20 kHz and above (noise components) are amplified.

The output from the active filter (IC1, pin 11) is amplified at Q1 and applied to a trigger section (IC1, pin 12) to convert the noise signals to pulse signals. The pulse signals output from pin 14 are applied to the squelch IC (IC12, pin 2).

While no RF signal is received, the number of pulses increases and the squelch IC outputs "HIGH" from pin 6. The signal (SQL) enters the CPU (LOGIC unit IC1, pin 33) and controls the squelch mute switch (Q5) via the RMUT port of the I/O expander IC (MAIN unit IC8). At this time, the regulator circuit of the AF power amplifier is deactivated to conserve battery power.

### 3-1-6 CTCSS DECODER CIRCUIT (MAIN UNIT)

The CTCSS (Continuous Tone Squelch System) circuit detects tone components superimposed on the audio signals and passes the signals only when the tone frequency is matched with the programmed one.

The decoder section of the tone encoder/decoder (IC3) has 2 input port, audio IN and tone IN. The audio signal, amplified at IC2a is applied to pin 23 and the tone signal, filtered at the low-pass filters (IC2c, IC2d) is applied to pin 24. When the tone signal is detected as matched with the programmed one, the detected signal appears on pin 15 and passes the audio input signal (pin 23) to pin 19.

### 3-1-7 5-TONE DECODER CIRCUIT (LOGIC UNIT)

A portion of the AF signals from the FM IF IC (MAIN unit IC1, pin 9) are applied to the 5-tone encoder/decoder IC in the TONE unit. These signals are converted to a serial signal by the digital noise filter and self-correlator inside the 5-tone encoder/decoder IC (IC1).

The serial signal is output via pin 3 and is applied to the CPU (LOGIC unit IC1, pin 53). Once the 5-tone data is decoded, a 5-tone mute signal is released and the AF mute switch (MAIN unit Q5) functions as a noise squelch only.

#### AF CIRCUIT

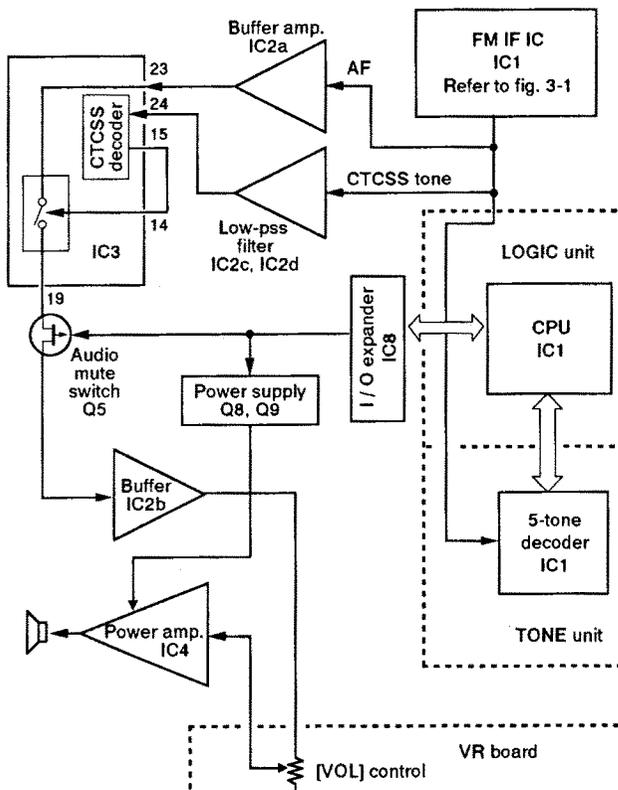


Fig. 3-2

### 3-2 TRANSMITTER CIRCUITS

#### 3-2-1 MICROPHONE AMPLIFIER CIRCUIT (MAIN UNIT)

The microphone amplifier circuit amplifies audio signals with +6 dB/octave pre-emphasis characteristics from the microphone to a level needed for the modulation circuit.

The AF signals from the microphone pass through the microphone mute switch (FRONT unit IC2) which is controlled by the "MMUT" and "SEND" signals from CPU. The passed signals are amplified at the limiter amplifier (IC9a) and IDC amplifier (IC9b). The limiter amplifier includes a pre-emphasis circuit.

The amplified signals are combined with a subaudible tone signal from IC3 and a 5-tone or DTMF signal from the TONE unit, and are then applied to the modulator circuit.

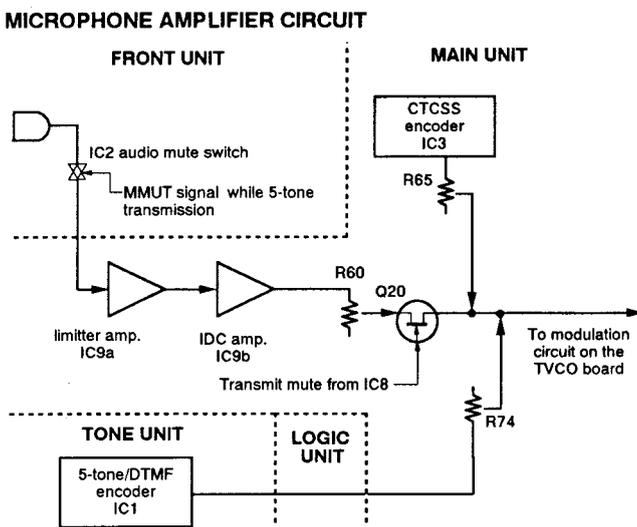


Fig. 3-3

#### 3-2-2 MODULATION CIRCUIT (TVCO AND PLL BOARDS)

The modulation circuit modulates the VCO oscillating signal (RF signal) using the microphone audio signals.

The audio signal (MOD) changes the reactance of D1 on the TVCO board to modulate the oscillated signal at the VCO (Q1). The oscillated signal is amplified at Q2 and Q3. The signal is divided by 2 at IC1 on the TPLL board and is then applied to the drive amplifiers in the RF unit.

#### 3-2-3 DRIVE/POWER AMPLIFIER CIRCUITS (RF UNIT)

The signal from the TVCO board is amplified at the predriver (Q7), driver (Q8) and power module (IC1) to obtain 5 W of RF power. The amplified signal is passed through the APC detector circuit, low-pass filter and is then applied to the antenna connector.

The corrector current of the driver (Q8) and bias voltage of the power module (IC1) are controlled by the APC circuit to protect the power module from a mismatched condition as well as to stabilize the output power.

#### 3-2-4 APC CIRCUIT (RF UNIT)

The APC circuit protects the power module (IC1) from a mismatched output load and selects HIGH or LOW output power.

The APC detector circuit (D7, D8, L24) detects forward signal and rectified signal at D7 and D8 respectively. The combined voltage is at a minimum level when the antenna is matched at 50 Ω and is increased when it is mismatched.

The detected voltage is applied to one of the differential amplifier inputs (Q13) and a power setting voltage is applied to the other input. When the antenna impedance is mismatched, the detected voltage exceeds the power setting voltage, causing Q13 to decrease the APC output current (Q9, Q10 collectors) via Q14 to decrease the output power.

Q12/R43 and Q18/R46 are used for high power and low power settings respectively.

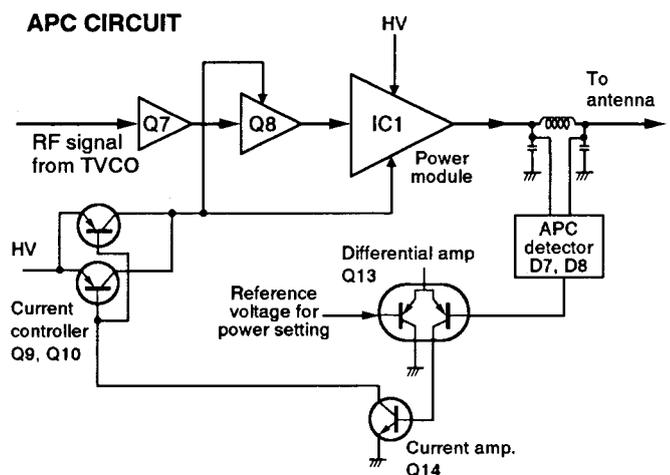


Fig. 3-4

### 3-3 PLL CIRCUITS

#### 3-3-1 GENERAL

This transceiver has independent PLL circuit for the receiver (RPLL) and transmitter (TPLL) circuits to facilitate high lock-up speeds for switching between transmit and receive. Both PLLs activate regardless of the transmit/receive condition, but their outputs are muted depending on the condition.

#### 3-3-2 RECEIVER PLL CIRCUIT (RPLL AND RVCO BOARDS)

The generated signal at the RVCO circuit (RVCO board Q1, D3, D4) is buffer amplified at Q2 and is then applied to the RPLL board.

The signal is applied to the PLL IC (PLL board IC2) where it is divided by the prescaler and programmable divider by the divided ratio from the CPU. The divided frequency is detected at the phase detector inside IC2 using the reference frequency from X1 on the RF unit.

The detected signal (pulse signal) output via IC2 (pins 15, 16) is converted to DC voltage (PLL lock voltage) at the charge pump (Q5) and active loop filter (Q2, Q3). The converted signal is then applied to the RVCO board to control the VCO frequency.

The VCO signal is amplified at Q2 and Q3 and is passed through the VCO output mute switch (D1, D2). It is then applied to the receiver 1st mixer in the BPF board.

The lock voltage is also used for the RF bandpass filter. The output of the loop filter (RPLL board Q2, Q3) is amplified at the buffer amplifier (Q1, IC1) and is then applied to the BPF board.

#### 3-3-3 TRANSMITTER VCO CIRCUIT (TPLL AND TVCO BOARDS)

The transmitter PLL activates even while receiving. Therefore, 2 times the frequency is oscillated at the transmitter VCO to prevent the receiver circuit from receiving the oscillating frequency directly.

The generated signal at the TVCO circuit (TVCO board Q1, D2-D5) is buffer amplified at Q2 and Q3 and is then applied to the TPLL board. The signal is applied to the PLL IC (TPLL board IC2) where it is divided by the prescaler and programmable divider by the divided ratio from the CPU. The divided frequency is detected at the phase detector inside IC2 using the reference frequency from X1 on the RF unit.

The detected signal (pulse signal) output via IC2 (pins 15, 16) is converted to DC voltage (PLL lock voltage) at the charge pump (Q2, Q3) and loop filter (R1, C1). The converted signal is then applied to the TVCO board to control the VCO frequency.

The VCO signal is amplified at Q2 and Q3, divided by 2 at the prescaler (TPLL board IC1) and is then applied to the transmitter circuit. While receiving, the prescaler does not function so that the PLL is activated but no PLL output is applied to the transmitter circuit.

#### PLL CIRCUIT BLOCK DIAGRAM

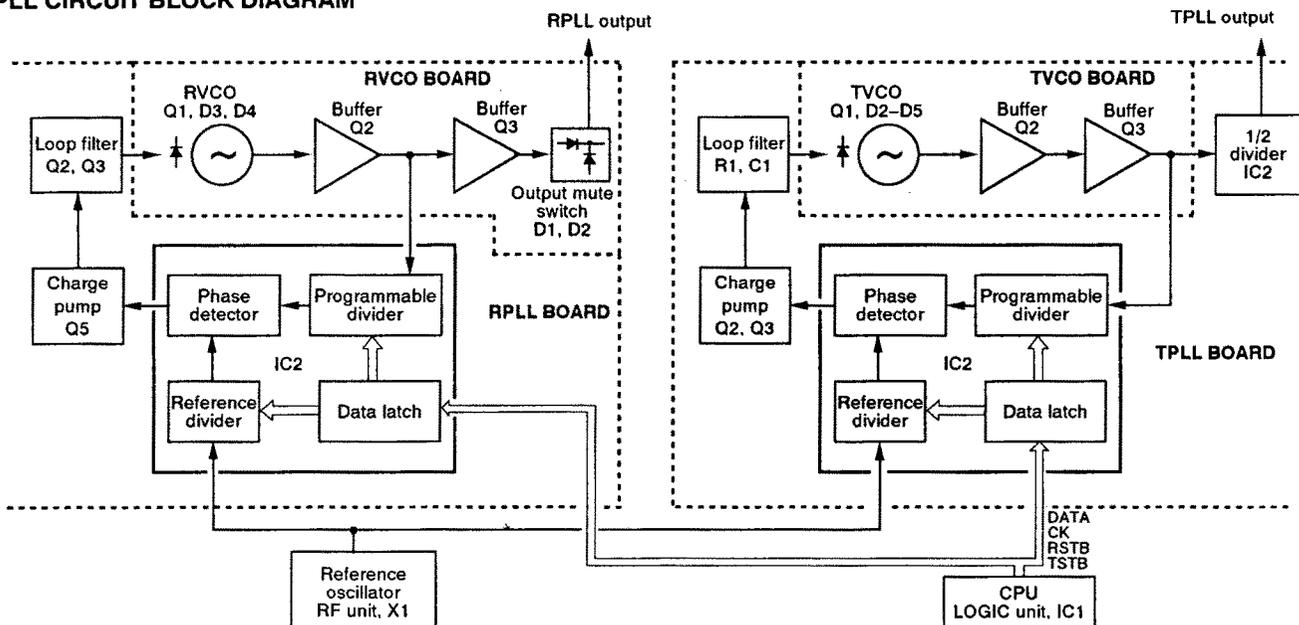


Fig. 3-5

### 3-4 POWER SUPPLY CIRCUITS (MAIN UNIT)

LINE	DESCRIPTION
HV	The external DC power from the DC power connector or the connected battery pack. The switching relay (RF unit RL1) connects either the [DC IN 13.8V] jack or the battery pack to the HV line when external DC is used or not used respectively.
VCC	The same voltage as the HV line which is controlled by the power switch ([VOL] control).
+5V	Common 5 V converted from the VCC line by the 5 V regulator circuit (Q10, Q11, D6) using the reference regulator (IC5) on the MAIN unit.
S5	Common 5 V controlled by the power saver function. The S5 regulator circuit (Q12, Q13, Q23, D7) produces 5 V from the VCC voltage using the power save controlled signal from IC11.
R5	5 V for receiver circuit controlled by S5 (including power saver function) and the T/R switching signal from the I/O expander IC (IC8, pin 14). The R5 regulator consists of Q14, Q15, and D8
T5	5 V for transmitter circuit controlled by the inverted TMUT signal from the I/O expander (IC8, pin 6). The T5 regulator circuit consists of Q16, Q17 Q24 and D9.

### 3-5 PORT ALLOCATIONS

#### 3-5-1 EXPANDER IC (MAIN UNIT IC8)

PIN No.	PORT NAME	DESCRIPTION
1	STB	Input port for a strobe signal from the CPU.
2	DATA	Input port for a data signal from the CPU.
3	CK	Input port for a clock signal from the CPU.
4	LOW	Outputs a transmit power control signal.
5	EXC	Outputs a transmit control signal while activating an answer back function.
6	TMUT	Outputs a transmit mute signal. "H" : muted
7	RMUT	Outputs a receive audio mute signal. "H" : muted

#### 3-5-3 CPU (LOGIC UNIT IC1)

PIN No.	PORT NAME	DESCRIPTION
1	$\overline{RD}$	Output a timing signal "data read" to the RAM IC (LOGIC unit, IC3).
2	$\overline{STB}$	Outputs a strobe signal to the expander IC (MAIN unit, IC8).
3	CSTB	Outputs a strobe signal to the CTCSS tone encoder/decder (MAIN unit, IC3).
4	TSTB	Outputs a strobe signal to the transmitter PLL IC (TPLL unit, IC2).
5	RSTB	Outputs a strobe signal to the receiver PLL IC (RPLL unit, IC2).
6	RESET	Input port for a reset signal to activate the CPU when turning power ON.
7	X1	Terminals of a CPU clock oscillator.
8	X2	
28	INT0	Interrupt input port for stand-by signal to store the data when turning power OFF.
29	INT1	Interrupt input port for 5-tone data. When receives "H," the CPU stands by for 5-tone data.
30	H/L	High/Low switch signal input port for transmitter power. High power: "H"
31	LIGHT	Input port for the [LIGHT] switch.
32	FUNC	Inpu port for the scan start/stop signal.
33	SQL	Input port for the noise squelch signal from the squelch IC (MAIN unit, IC12).
34	UNLK	Input port for the PLL unlock signal from the both RPLL and TPLL circuits.
35	BUSY	Input port for the busy signal from the LCD driver (FRONT unit, IC1).
36	SEND	Input port for the SEND (PTT switch) signal or cloning data.
37	MMUT	Outputs a microphone mute signal while activating a 5-tone encoder. Outputs a cloning data while cloning condition.
38	CK	Outputs a clock signal synchronized with a data output.
39	DATA	Outputs serial data to PLL circuits, CTCSS encoder/decoder, LCD driver, etc.
44	CALL	Input port for the [CALL] switch.
59	$\overline{C}/D$	Outputs a specify signal to the LCD driver (FRONT unit, IC1) for data and command.
61	PSV	Outputs a power save signal to control S5 volatge line.
62	DET	Input port a CTCSS decoder signal.
63	BEEP	Outputs a beep tone signal.
64	$\overline{WR}$	Outputs a timing signal "data write" to the RAM IC (LOGIC unit, IC3).

# SECTION 4 ADJUSTMENT PROCEDURES

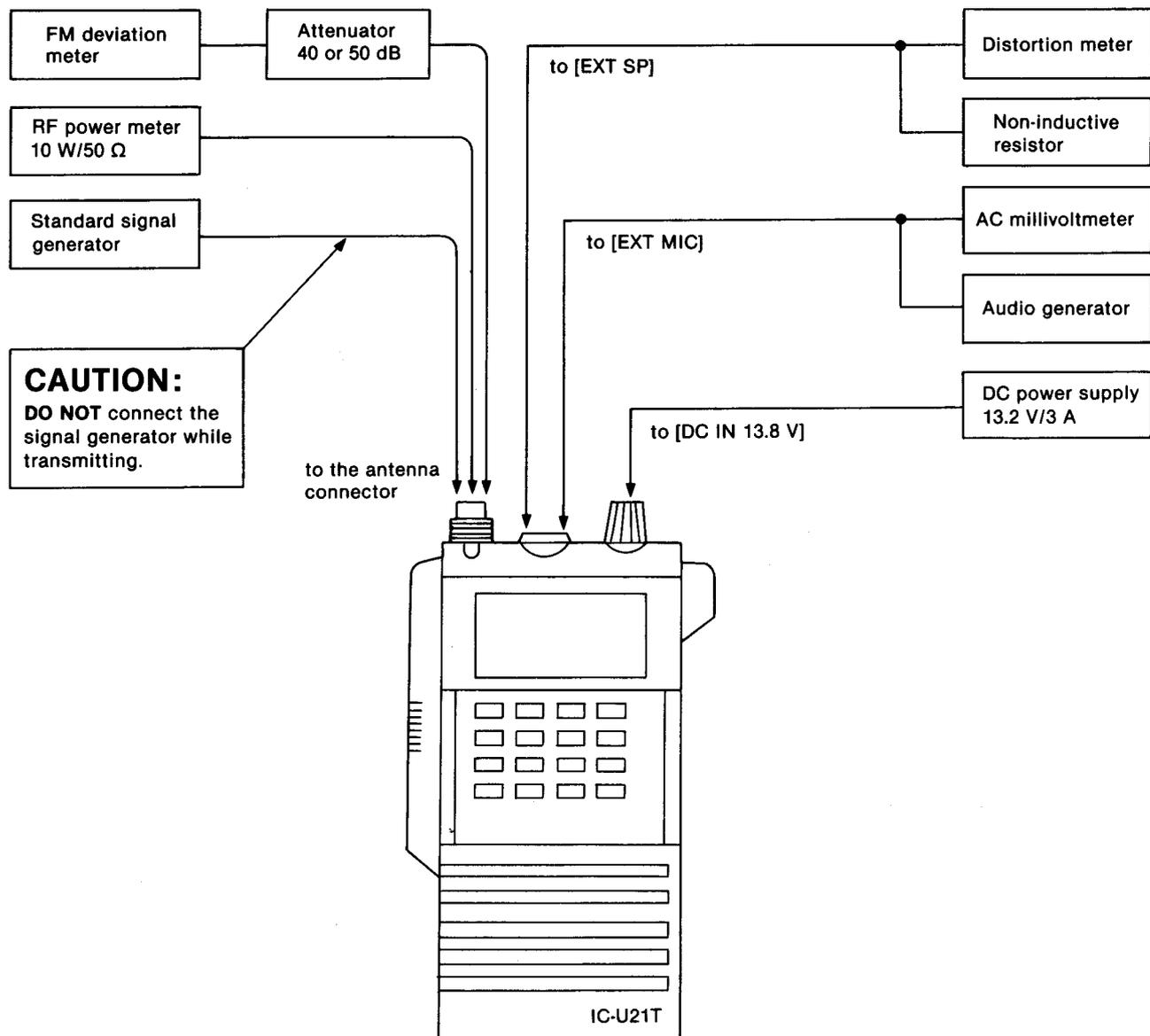
## 4-1 PREPARATION BEFORE SERVICING

### ■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 13.2 V DC Current capacity : 3 A or more	Audio generator	Frequency range : 300-3000 Hz Output level : 1-200 mV
RF power meter (terminated type)	Measuring range : 1-10 W Frequency range : 400-600 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Attenuator	Power attenuation : 40 or 50 dB Capacity : 10 W or more
		AC millivoltmeter	Measuring range : 2-200 mV
Frequency counter	Frequency range : 0.1-600 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better	Non-inductive resistor	Impedance : 8 Ω
		DC voltmeter	Input impedance : 50 kΩ/DC or better
Distortion meter	Frequency range : 1 kHz ± 10 Hz Measuring range : 1-100%	FM deviation meter	Frequency minimum : 600 MHz Measuring range : 0 to ±5 kHz
		Digital multimeter or oscilloscope	Input impedance : 1 MΩ/DC or better
Standard signal generator (SSG)	Frequency range : 400-600 MHz Output level : -127 to -17 dBm (0.1 μV to 32 mV)		

CW: clockwise CP: check point

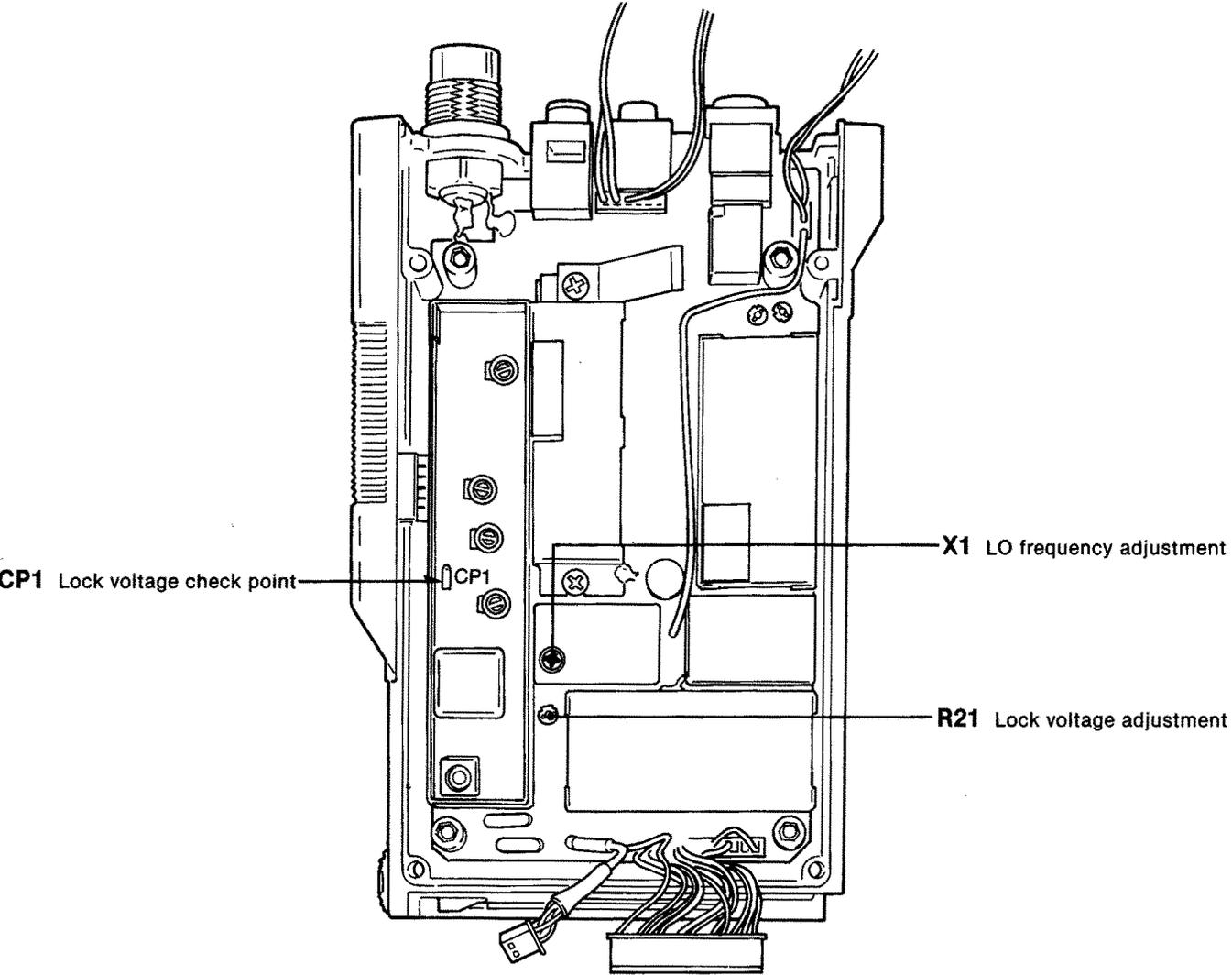
### ■ CONNECTION



4-2 PLL ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
LO FREQUENCY	1 <ul style="list-style-type: none"> <li>• Select any channel.</li> <li>• Connect the RF power meter or a 50 Ω dummy load to the antenna connector.</li> <li>• Transmitting</li> </ul>	Top panel	Loosely couple the frequency counter to the antenna connector.	Same frequency as the programmed one. To check the programmed frequency, use the EX-704.	RF	X1
LOCK VOLTAGE	NOTE: Lock voltage affects the C/N ratio. If you adjust the lock voltage, set the frequency with the EX-704.					
	1 <ul style="list-style-type: none"> <li>• Operating frequency: 400.000 MHz (#01, #02, #10, #12, #14, #17, #18)</li> <li>440.000 MHz (#03, #04, #05, #06, #09, #11, #13, #15, #16)</li> <li>470.000 MHz (#07)</li> <li>500.000 MHz (#08)</li> <li>• Receiving</li> </ul>	BPF	Connect the digital multimeter or oscilloscope to CP1.	3.0 V	RF	R21

• RF UNIT AND BPF BOARD

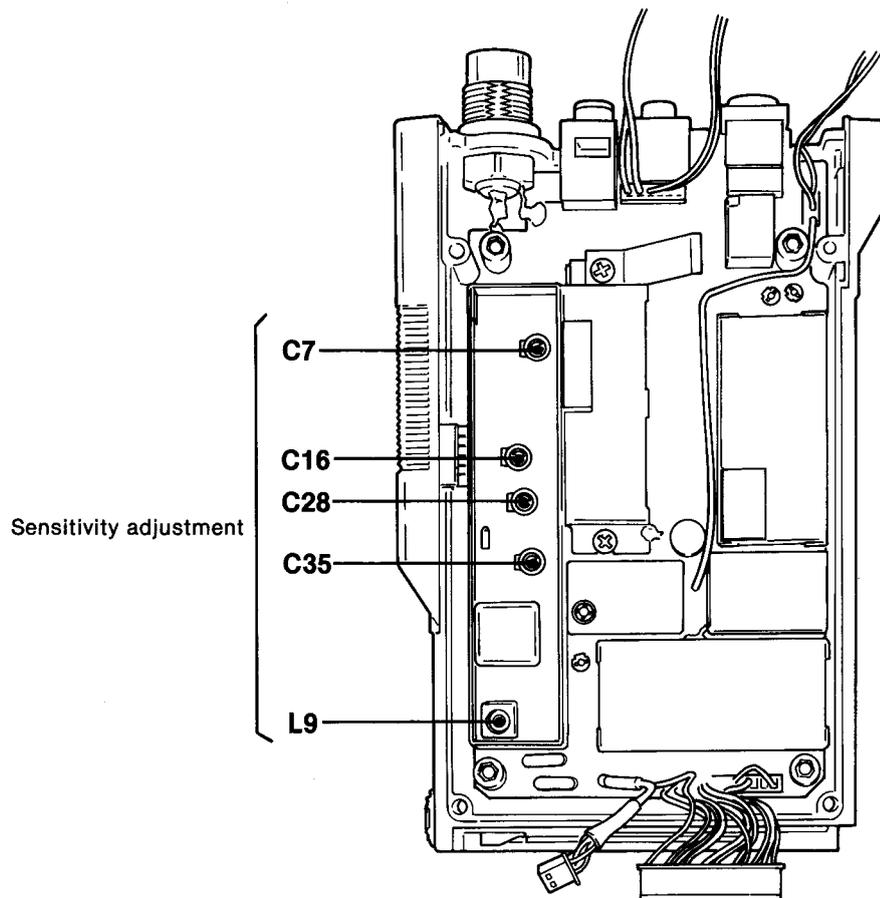


## 4-3 RECEIVER ADJUSTMENT

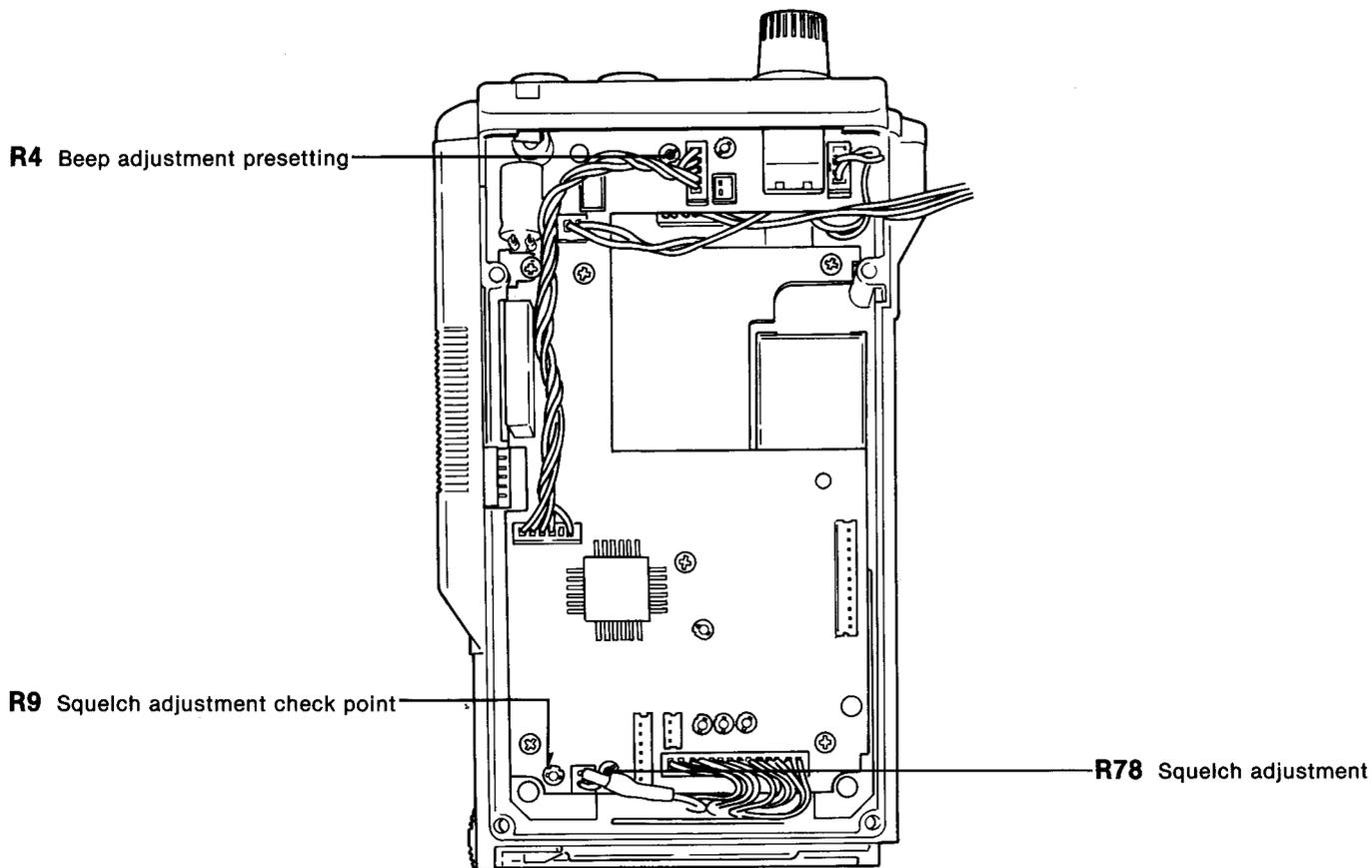
ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT		
		UNIT	LOCATION		UNIT	ADJUST	
SENSITIVITY	NOTE: When the sensitivity is less than 0.35 $\mu$ V (12 dB SINAD) on every channel, the following sensitivity adjustment is not necessary. Skip to squelch adjustment below.  This transceiver automatically transmits an answer back code when a 5-tone code is received. Be careful when connecting the SSG to the antenna connector.						
	1	<ul style="list-style-type: none"> <li>Operating frequency: The lowest frequency in the frequency coverage.</li> <li>Connect the SSG to the antenna connector and set as: Level : 0.35 <math>\mu</math>V* (-116 dBm) Modulation: 1 kHz Deviation : 3.5 kHz                ( #02, #04, #05, )                ( #07, #08, #12, )                #13, #14, #15                1.75 kHz                ( #01, #03, #06, )                ( #09, #10, #11, )                ( #16, #17, #18 )</li> <li>Receiving</li> </ul>	Top panel	Connect the distortion meter to the [EXT SP] jack with an 8 $\Omega$ load.	Minimum distortion level	BPF	Adjust in sequence L9, C7, C16, C28, C35
SQUELCH	1	<ul style="list-style-type: none"> <li>Operating frequency: The lowest frequency in the frequency coverage.</li> <li>Apply no signal to the antenna connector.</li> <li>Receiving</li> </ul>	MAIN	Connect the digital multimeter or oscilloscope to R9 terminal.	1.2 V	MAIN	R9
	2	<ul style="list-style-type: none"> <li>Connect the SSG to the antenna connector and set as: Level : 0.35 <math>\mu</math>V* (-116 dBm) Modulation: 1 kHz Deviation : 3.5 kHz                ( #02, #04, #05, )                ( #07, #08, #12, )                #13, #14, #15                1.75 kHz                ( #01, #03, #06, )                ( #09, #10, #11, )                ( #16, #17, #18 )</li> </ul>	Front panel	Speaker	Squelch just opens.		R78
BEEP	1	<ul style="list-style-type: none"> <li>Select any channel.</li> <li>[VOL] control : Center</li> <li>R4 (VR unit) : CW</li> <li>Receiving</li> </ul>	Front panel	Speaker	Verify that the level of the beep sound is adjustable.	Front panel	[VOL] control

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

• BPF BOARD



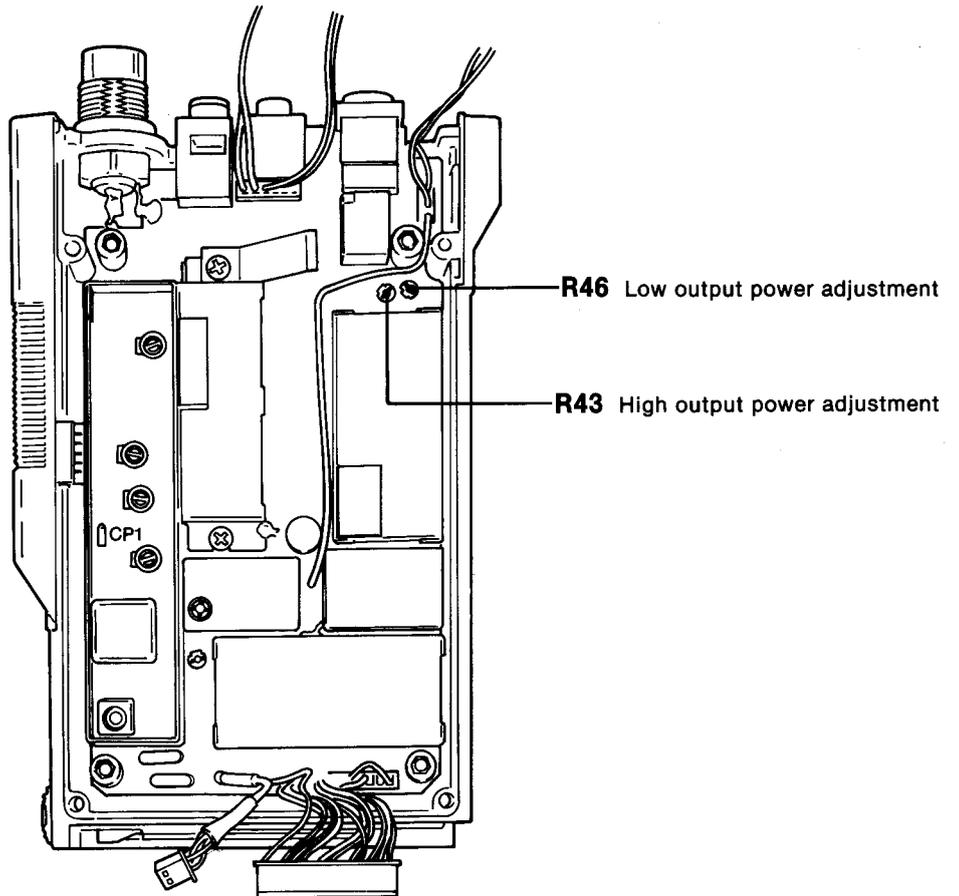
• VR AND MAIN UNITS



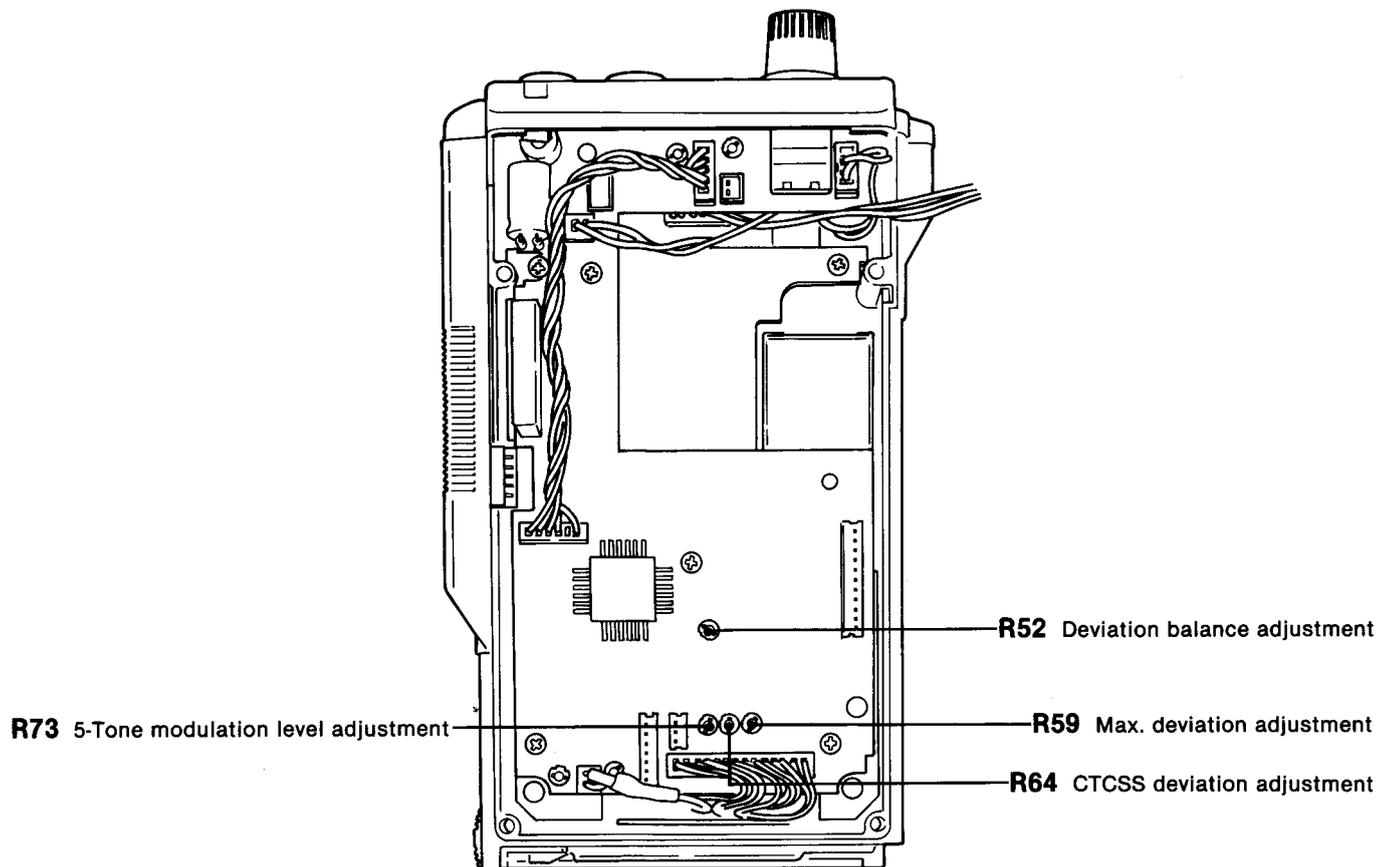
## 4-4 TRANSMITTER ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
OUTPUT POWER	1 <ul style="list-style-type: none"> <li>Operating frequency: Center of the frequency coverage</li> <li>Output power : HIGH</li> <li>Transmitting</li> </ul>	Top panel	Connect the RF power meter to the antenna connector.	5.0 W	RF	R43
	2 <ul style="list-style-type: none"> <li>Output power : LOW (if programmed)</li> </ul>			1.0 W		R46
DEVIATION	1 <ul style="list-style-type: none"> <li>Operating frequency: The highest frequency in the frequency coverage</li> <li>Connect the audio generator to the microphone connector with the AC millivoltmeter and set as: <ul style="list-style-type: none"> <li>Level : 120 mV</li> <li>Frequency : 1.0 kHz</li> </ul> </li> <li>Set the FM deviation meter as: <ul style="list-style-type: none"> <li>HPF : OFF</li> <li>LPF : 20 kHz</li> <li>De-emphasis: OFF</li> <li>Detector : (P-P)/2</li> </ul> </li> <li>R64 and R73 (MAIN unit): Center</li> <li>Transmitting</li> </ul>	Top panel	Connect the FM deviation meter to the antenna connector via the attenuator.	$\pm 4.1$ kHz (#02, #04, #05, #07, #08, #12, #13, #14, #15) $\pm 2.1$ kHz (#01, #03, #06, #09, #10, #11, #16, #17, #18)	MAIN	R59
	2 <ul style="list-style-type: none"> <li>Set the FM deviation meter as: <ul style="list-style-type: none"> <li>Detector : P and -P</li> </ul> </li> </ul>			Symmetrical deviation level		R52
CTCSS DEVIATION	1 <ul style="list-style-type: none"> <li>Select a CTCSS tone encoder programmed channel (67 Hz).</li> <li>Set the FM deviation meter as: <ul style="list-style-type: none"> <li>HPF : OFF</li> <li>LPF : 20 kHz</li> <li>De-emphasis: OFF</li> <li>Detector : (P-P)/2</li> </ul> </li> <li>Apply no signal to the [MIC] connector.</li> <li>Transmitting</li> </ul>	Top panel	Connect the FM deviation meter to the antenna connector via the attenuator.	$\pm 0.75$ kHz (#02, #04, #05, #07, #08, #12, #13, #14, #15) $\pm 0.3$ kHz (#01, #03, #06, #09, #10, #11, #16, #17, #18)	MAIN	R64
5-TONE DEVIATION (#01-#06, #09-#13)	1 <ul style="list-style-type: none"> <li>Select a 5-tone programmed channel. (The long-tone programmed channel is easy to adjust.)</li> <li>Set the FM deviation meter as: <ul style="list-style-type: none"> <li>HPF : OFF</li> <li>LPF : 20 kHz</li> <li>De-emphasis: OFF</li> <li>Detector : (P-P)/2</li> </ul> </li> <li>Apply no signal to the [MIC] connector.</li> <li>[CALL] switch : ON</li> <li>Transmitting</li> </ul>	Top panel	Connect the FM deviation meter to the antenna connector via the attenuator.	$\pm 3.5$ kHz (#02, #04, #05, #07, #08, #12, #13, #14, #15) $\pm 1.75$ kHz (#01, #03, #06, #09, #10, #11, #16, #17, #18)	MAIN	R73

• RF UNIT



• MAIN UNIT



## SECTION 5 PARTS LIST

## [PTT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
S1	2260001560	S. SWITCH	SW-131 (SKHMPU) [FUNC]
S2	2260001560	S. SWITCH	SW-131 (SKHMPU) [CALL]
S3	2260001560	S. SWITCH	SW-131 (SKHMPU) [PTT]
J1	6510007180	CONNECTOR	PI28A-05M
EP1	0910029082	PCB	B 2709B (PTT)

## [TANSHI UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C1	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C2	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040131	PCB	B 2708A (TANSHI)

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1150000540	IC	SC1055 (#03-#09, #11, #13, #15)
	1150000640	IC	SC1081 (#01, #02, #10, #12, #14, #16-#18)
IC3	1130003610	S. IC	TC4SU69F (TE85R)
Q3	1560000430	S. FET	2SK302-GR (TE85R)
Q5	1530002240	S. TRANSISTOR	2SC3775-3-TA
Q6	1510000510	S. TRANSISTOR	2SA1576 T107 R
Q7	1530002620	S. TRANSISTOR	2SC3585 R44-T2B
Q8	1530002680	S. TRANSISTOR	2SC3357-T2
Q9	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q10	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q12	1590000430	S. TRANSISTOR	DTC144EU T107
Q13	1590000620	S. TRANSISTOR	FMS1 T148
Q14	1530002850	S. TRANSISTOR	2SC4116-BL (TE85R)
Q15	1560000360	S. FET	2SK209-Y (TE85R)
Q16	1590000680	S. TRANSISTOR	DTC114EU T107
Q17	1510000510	S. TRANSISTOR	2SA1576 T107 R
Q18	1590000430	S. TRANSISTOR	DTC144EU T107
D6	1790000490	S. DIODE	HSM88AS-TR
D7	1750000090	S. DIODE	1SS154 (TE85R)
D8	1750000090	S. DIODE	1SS154 (TE85R)
D9	1750000080	S. DIODE	1SS153-T2
D11	1160000050	S. DIODE	DAP202U T107
D12	1750000070	S. DIODE	1SS226 (TE85R)

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
D15	1790000590	S. DIODE	MA110 (TW)
D16	1730001050	S. ZENER	RD20M-T2B1
D17	1730001050	S. ZENER	RD20M-T2B1
X1	6050007410	XTAL	CR-335
FI1	2010000230	MONOLITHIC	30M15B (FL-76) (#02, #04, #05, #07, #08, #12-#15)
	2010000940	FILTER	30M7B (FL-107) (#01, #03, #06, #09-#11, #16-#18)
L7	6200000140	S. COIL	LQH 3N 1R0M
L8	6200000240	S. COIL	LQH 3N R68M
L9	6200000140	S. COIL	LQH 3N 1R0M
L11	6200000090	S. COIL	LQN 2A 18NM
L12	6200000090	S. COIL	LQN 2A 18NM
L13	6200000090	S. COIL	LQN 2A 18NM
L14	6200001450	S. COIL	LQH 3N 221K
L16	6200000090	S. COIL	LQN 2A 18NM
L17	6200000090	S. COIL	LQN 2A 18NM
L19	6200000090	S. COIL	LQN 2A 18NM
L21	6200001450	S. COIL	LQH 3N 221K
L22	6200000140	S. COIL	LQH 3N 1R0M
L23	6200002880	S. COIL	NL 322522T-680J
L24	6110001520	COIL	LA-232
L25	6200000820	S. COIL	LQH 3N R82M
L26	6110001980	COIL	LA-222
L27	6110002110	COIL	LA-382 (#01, #02, #07, #08, #10, #12, #14-#18)
L28	6110001990	COIL	LA-223
L31	6200001820	S. COIL	LQH 3N 331K
L32	6110001980	COIL	LA-222 (#01, #02, #07, #08, #10, #12, #14-#18)
R15	7030003380	S. RESISTOR	ERJ3GEYJ 331 V (330 Ω) (#01, #03, #06, #09-#11, #16-#18)
	7030003430	S. RESISTOR	ERJ3GEYJ 821 V (820 Ω) (#02, #04, #05, #07, #08, #12-#15)
R16	7030003280	S. RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R21	7310002600	S. TRIMMER	RV-110 (RH03A3AS4X0AA) 473 (#03-#06, #09, #11, #13, #15, #16)
	7310002740	S. TRIMMER	RV-150 (RH03A3A14X0FC) 103 (#01, #02, #07, #08, #10, #12, #14, #17, #18)
R25	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R26	7030003430	S. RESISTOR	ERJ3GEYJ 821 V (820 Ω)
R27	7030004030	S. RESISTOR	ERJ3GEYJ 5R6 V (5.6 Ω)
R28	7030003430	S. RESISTOR	ERJ3GEYJ 821 V (820 Ω)
R29	7030003480	S. RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R30	7030003500	S. RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R31	7030000260	S. RESISTOR	MCR10EZHZJ 100 Ω (101)
R32	7030003540	S. RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R33	7030003580	S. RESISTOR	ERJ3GEYJ 153 V (15 kΩ)

S. = Surface mount

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R34	7030000400	S. RESISTOR MCR10EZHZ 1.5 kΩ (152)
R35	7030000400	S. RESISTOR MCR10EZHZ 1.5 kΩ (152)
R36	70300003580	S. RESISTOR ERJ3GEYJ 153 V (15 kΩ)
R37	7030000280	S. RESISTOR MCR10EZHZ 150 Ω (151)
R38	70300003670	S. RESISTOR ERJ3GEYJ 823 V (82 kΩ)
R39	70300003600	S. RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R40	70300003600	S. RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R41	70300003450	S. RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)
R42	70300003360	S. RESISTOR ERJ3GEYJ 221 V (220 Ω)
R43	7310002770	S. TRIMMER RV-153 (RH03A3AN4X02A) 333
R46	7310002740	S. TRIMMER RV-150 (RH03A3A14X0FC) 103
R49	70300003620	S. RESISTOR ERJ3GEYJ 333 V (33 kΩ)
R50	70300003460	S. RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)
R51	70300003560	S. RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R52	70300003240	S. RESISTOR ERJ3GEYJ 220 V (22 Ω)
R53	70300000280	S. RESISTOR MCR10EZHZ 150 Ω (151)
R54	7030000210	S. RESISTOR MCR10EZHZ 39 Ω (390)
R55	70300000280	S. RESISTOR MCR10EZHZ 150 Ω (151)
R56	70300003480	S. RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)
R57	70300003500	S. RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)
R58	70300003410	S. RESISTOR ERJ3GEYJ 561 V (560 kΩ)
R59	70300003640	S. RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R60	7030000220	S. RESISTOR MCR10EZHZ 47 Ω (470)
R61	70300003320	S. RESISTOR ERJ3GEYJ 101 V (100 Ω)
R62	70300003240	S. RESISTOR ERJ3GEYJ 220 V (22 Ω)
R63	70300003340	S. RESISTOR ERJ3GEYJ 151 V (150 Ω)
R64	7030000140	S. RESISTOR MCR10EZHZ 10 Ω (100)
R65	70300003600	S. RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R66	70300003580	S. RESISTOR ERJ3GEYJ 153 V (15 kΩ)
R67	70300003650	S. RESISTOR ERJ3GEYJ 563 V (56 kΩ)
R68	70300003600	S. RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R69	70300003460	S. RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)
R70	70300003770	S. RESISTOR ERJ3GEYJ 564 V (560 kΩ)
R71	70300003680	S. RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R72	70300003720	S. RESISTOR ERJ3GEYJ 224 V (220 kΩ)
R73	70300003640	S. RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R74	70300003440	S. RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R75	70300003440	S. RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R76	70300003530	S. RESISTOR ERJ3GEYJ 562 V (5.6 kΩ) (#07)
	70300003550	S. RESISTOR ERJ3GEYJ 822 V (8.2 kΩ) (#08)
	70300003560	S. RESISTOR ERJ3GEYJ 103 V (10 kΩ) (#01, #02, #10, #12, #14, #17, #18)
	70300003590	S. RESISTOR ERJ3GEYJ 183 V (18 kΩ) (#03-#06, #09, #11, #13, #15, #16)
R77	70300003450	S. RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)
R78	70300003530	S. RESISTOR ERJ3GEYJ 562 V (5.6 kΩ)
R79	70300003620	S. RESISTOR ERJ3GEYJ 333 V (33 kΩ)
R81	70300003390	S. RESISTOR ERJ3GEYJ 391 V (390 Ω) (#01, #03, #06, #09-#11, #16-#18)
	70300003430	S. RESISTOR ERJ3GEYJ 821 V (820 Ω) (#02, #04, #05, #07, #08, #12-#15)
R82	70300003560	S. RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R83	70300003300	S. RESISTOR ERJ3GEYJ 680 V (68 Ω)
C40	4030006620	S. CERAMIC C1608 SL 1H 120J-T-A (#02, #04, #05, #07, #08, #12-#15)
	4030006670	S. CERAMIC C1608 SL 1H 270J-T-A (#01, #03, #06, #09-#11, #16-#18)
C41	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C42	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C43	4030006630	S. CERAMIC C1608 SL 1H 150J-T-A
C44	4030007020	S. CERAMIC C1608 CH 1H 120J-T-A
C45	4030006890	S. CERAMIC C1608 JF 1H 103Z-T-A
C46	4030006880	S. CERAMIC C1608 JB 1H 472K-T-A
C47	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C52	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C53	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C54	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C55	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C56	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C57	4030006560	S. CERAMIC C1608 SL 1H 050C-T-A
C58	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C59	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C60	4030006590	S. CERAMIC C1608 SL 1H 080D-T-A
C61	4030006620	S. CERAMIC C1608 SL 1H 120J-T-A
C62	4030006590	S. CERAMIC C1608 SL 1H 080D-T-A
C63	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C64	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A
C65	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A
C66	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C67	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C71	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C72	4030006560	S. CERAMIC C1608 SL 1H 050C-T-A (#08)
	4030006580	S. CERAMIC C1608 SL 1H 070D-T-A (#07)
	4030006590	S. CERAMIC C1608 SL 1H 080D-T-A (#01, #02, #10, #12, #14-#18)
	4030006600	S. CERAMIC C1608 SL 1H 090D-T-A (#03-#06, #09, #11, #13)
C73	4030006530	S. CERAMIC C1608 SL 1H 020C-T-A (#01-#07, #09-#18)
C74	4030006600	S. CERAMIC C1608 SL 1H 090D-T-A (#08)
	4030006620	S. CERAMIC C1608 SL 1H 120J-T-A (#01, #02, #07, #10, #12, #14-#18)
C75	4030006620	S. CERAMIC C1608 SL 1H 120J-T-A
C76	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A (#07)
	4030006580	S. CERAMIC C1608 SL 1H 070D-T-A (#01-#06, #08-#18)
C77	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C78	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C79	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C80	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C81	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C82	4550000270	S. TANTALUM TESVA 1E 474M1-8L
C83	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C84	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C85	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C86	4550003180	S. TANTALUM TEMSVB2 1D 335M-8L
C87	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C88	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C89	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C90	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A
C91	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C92	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C93	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C94	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C95	4030006610	S. CERAMIC C1608 SL 1H 100D-T-A
C96	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C97	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C98	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C99	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C100	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C101	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C102	4030006620	S. CERAMIC C1608 SL 1H 120J-T-A
C103	4030007020	S. CERAMIC C1608 CH 1H 120J-T-A
C104	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A

S.=Surface mount

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C105	4030006620	S. CERAMIC C1608 SL 1H 120J-T-A
C106	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C107	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A
C108	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C109	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A
C111	4550003200	S. TANTALUM TEMSVC 1D 106M-12L
C112	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C113	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C114	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C115	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C116	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C117	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C118	4550003030	S. TANTALUM TEMSVA 0J 475M-8L
C119	4550003030	S. TANTALUM TEMSVA 0J 475M-8L
C120	4550003030	S. TANTALUM TEMSVA 0J 475M-8L
C121	4550003030	S. TANTALUM TEMSVA 0J 475M-8L
C122	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C123	4550003200	S. TANTALUM TEMSVC 1D 106M-12L
C124	4550003200	S. TANTALUM TEMSVC 1D 106M-12L
C125	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C126	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C127	4030006940	S. CERAMIC C1608 CH 1H 030C-T-A
C128	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C129	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C130	4550003080	S. TANTALUM TEMSVA 1A 335M-8L
C131	4550002980	S. TANTALUM TEMSVA 1C 225M-8L
C132	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C133	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C134	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C135	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C136	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C137	4550000530	S. TANTALUM TESVA 1V 104M1-8L
C148	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C149	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C150	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C151	4030008470	S. CERAMIC C1608 JB 1H 272K-T-A
C153	4030008630	S. CERAMIC C1608 JF 1C 104Z-T-A
C154	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C155	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C156	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C157	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C158	4510005750	S. ELECTROLYTIC ECEV1EA220P
C159	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C160	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C161	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C162	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C163	4030006910	S. CERAMIC C1608 CH 1H 0R5C-T-A (#01, #02, #07, #08, #10, #12, #14-#18)
C166	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C167	4550003240	S. TANTALUM TEMSVB 1E 335M-12L
C168	4030008630	S. CERAMIC C1608 JF 1C 104Z-T-A
C169	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C170	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C171	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C172	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C173	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C174	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C175	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C176	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C177	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C178	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C179	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C180	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C181	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C182	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C183	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C184	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C185	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C186	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C187	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A

## [RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C188	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C189	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C190	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C191	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C192	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C193	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C194	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C195	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C196	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C197	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C198	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C199	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C200	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C201	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C202	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C203	4030006660	S. CERAMIC C1608 SL 1H 220J-T-A
C204	4030006660	S. CERAMIC C1608 SL 1H 220J-T-A
C205	4030006660	S. CERAMIC C1608 SL 1H 220J-T-A
C206	4030006660	S. CERAMIC C1608 SL 1H 220J-T-A
C207	4030006660	S. CERAMIC C1608 SL 1H 220J-T-A
C208	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A (#01, #02, #07, #08, #10, #12, #14-#18)
C209	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A (#01, #02, #07, #08, #10, #12, #14-#18)
C210	4030006570	S. CERAMIC C1608 SL 1H 060D-T-A (#01, #02, #07, #08, #10, #12, #14-#18)
RL1	6330000070	RELAY FBR21D12-P
J3	6450000110	CONNECTOR HSJ0836-01-010 [EXT SP]
J4	6450000130	CONNECTOR HSJ1102-01-540 [MIC]
J5	6450001080	CONNECTOR HEC3800-01-010 [DC IN 13.8V]
J6	6510007120	CONNECTOR TNC-R106 [ANT]
W27	7120000380	JUMPER JPW 01 R-01
W28	7120000380	JUMPER JPW 01 R-01
W29	7120000380	JUMPER JPW 01 R-01
W30	7030003860	S. JUMPER ERJ3GE JPW V
W31	7030003860	S. JUMPER ERJ3GE JPW V (#03-#06, #09, #11, #13)
W32	7030003860	S. JUMPER ERJ3GE JPW V (#03-#06, #09, #11, #13)
W33	7120000380	JUMPER JPW 01 R-01 (#01, #02, #07, #08, #10, #12, #14-#18)
W34	7120000380	JUMPER JPW 01 R-01 (#01, #02, #07, #08, #10, #12, #14-#18)
EP1	0910034144	PCB B 3407D (RF)
EP2	6910000970	BEAD DL 2OP 2.6-3-1.2H (#01, #02, #07, #08, #10, #12, #14-#18)
EP3	6910000970	BEAD DL 2OP 2.6-3-1.2H (#01, #02, #07, #08, #10, #12, #14-#18)
EP4	6910000970	BEAD DL 2OP 2.6-3-1.2H (#01, #02, #07, #08, #10, #12, #14-#18)

S.=Surface mount

## [TVCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION
Q1	1530000371	S. TRANSISTOR 2SC3356 R25-T2B (#03-#09, #11, #13, #15, #16)
	1530002620	S. TRANSISTOR 2SC3585 R44-T2B (#01, #02, #10, #12, #14, #17, #18)
Q2	1530002620	S. TRANSISTOR 2SC3585 R44-T2B
Q3	1530002620	S. TRANSISTOR 2SC3585 R44-T2B
D1	1790000640	S. VARICAP MA363B (TX)
D2	1720000320	S. VARICAP 1T32-T8-V
D3	1720000320	S. VARICAP 1T32-T8-V
D4	1720000320	S. VARICAP 1T32-T8-V
D5	1720000320	S. VARICAP 1T32-T8-V
L1	6200000140	S. COIL LQH 3N 1R0M
L2	6200000140	S. COIL LQH 3N 1R0M
L3	6200000720	S. COIL LQN 2A 10NM
L4	6200000100	S. COIL LQN 2A 22NM
L5	6200000100	S. COIL LQN 2A 22NM
L6	6200001260	S. COIL MLF2012A 1R8M-T
L7	6200001260	S. COIL MLF2012A 1R8M-T
L8	6200000720	S. COIL LQN 2A 10NM
L9	6200001260	S. COIL MLF2012A 1R8M-T (#01, #02, #10, #12, #14, #17, #18)
R1	7030003680	S. RESISTOR ERJ3GEYJ 104 V (100 kΩ) (#01, #02, #10, #12, #14, #17, #18)
	7030003720	S. RESISTOR ERJ3GEYJ 224 V (220 kΩ) (#07)
	7030003770	S. RESISTOR ERJ3GEYJ 564 V (560 kΩ) (#08)
	7030003780	S. RESISTOR ERJ3GEYJ 684 V (680 kΩ) (#03-#06, #09, #11, #13, #15, #16)
R2	7030003720	S. RESISTOR ERJ3GEYJ 224 V (220 kΩ)
R4	7030003240	S. RESISTOR ERJ3GEYJ 220 V (22 Ω)
R5	7030003320	S. RESISTOR ERJ3GEYJ 101 V (100 Ω)
R6	7030003320	S. RESISTOR ERJ3GEYJ 101 V (100 Ω)
R8	7030003510	S. RESISTOR ERJ3GEYJ 392 V (3.9 kΩ)
R9	7030003510	S. RESISTOR ERJ3GEYJ 392 V (3.9 kΩ)
R10	7030003510	S. RESISTOR ERJ3GEYJ 392 V (3.9 kΩ)
R11	7030003250	S. RESISTOR ERJ3GEYJ 270 V (27 Ω) (#01, #02, #10, #12, #14, #17, #18)
	7030004040	S. RESISTOR ERJ3GEYJ 4R7 V (4.7 Ω) (#03-#09, #11, #13, #15, #16)
R12	7030003520	S. RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R13	7030003370	S. RESISTOR ERJ3GEYJ 271 V (270 Ω) (#01-#06, #09-#18)
	7030003380	S. RESISTOR ERJ3GEYJ 331 V (330 Ω) (#07, #08)
R14	7030003550	S. RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)
R15	7030003410	S. RESISTOR ERJ3GEYJ 561 V (560 Ω)
R16	7030003550	S. RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)
R17	7030003410	S. RESISTOR ERJ3GEYJ 561 V (560 Ω)
R18	7030003290	S. RESISTOR ERJ3GEYJ 560 V (56 Ω)
R19	7030003230	S. RESISTOR ERJ3GEYJ 180 V (18 Ω)
R20	7030003370	S. RESISTOR ERJ3GEYJ 271 V (270 Ω)
R21	7030003370	S. RESISTOR ERJ3GEYJ 271 V (270 Ω)
R22	7030003290	S. RESISTOR ERJ3GEYJ 560 V (56 Ω)
C1	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A

## [TVCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION
C2	4030006920	S. CERAMIC C1608 CH 1H 010C-T-A (#01, #02, #07, #10, #12, #14, #17, #18)
	4030006930	S. CERAMIC C1608 CH 1H 020C-T-A (#03-#06, #08, #09, #11, #13, #15, #16)
C3	4550003220	S. TANTALUM TEMSVA 1E 105M-8L
C4	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C5	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C6	4550003220	S. TANTALUM TEMSVA 1E 105M-8L
C7	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C8	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C9	4030006860	S. CERAMIC C2012 JF 1C 105Z-T-A
C10	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C11	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C12	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C13	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C14	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C16	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C17	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C18	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C19	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C20	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C21	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C22	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C23	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C24	4030007090	S. CERAMIC C1608 CH 1H 470J-T-A
C25	4030006960	S. CERAMIC C1608 CH 1H 050C-T-A
C26	4030006940	S. CERAMIC C1608 CH 1H 030C-T-A
C27	4030006920	S. CERAMIC C1608 CH 1H 010C-T-A
C28	4030009470	S. CERAMIC C1608 CH 1H R75C-T-A
C29	4030006930	S. CERAMIC C1608 CH 1H 020C-T-A
C30	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C31	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C32	4030006950	S. CERAMIC C1608 CH 1H 040C-T-A
C33	4030006850	S. CERAMIC C1608 JB 1H 471K-T-A
C34	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C35	4030006920	S. CERAMIC C1608 CH 1H 010C-T-A
C36	4030006920	S. CERAMIC C1608 CH 1H 010C-T-A
C37	4030006860	S. CERAMIC C1608 JB 1H 102K-T-A
C38	4030006940	S. CERAMIC C1608 CH 1H 030C-T-A
C39	4030007050	S. CERAMIC C1608 CH 1H 220J-T-A
C40	4030006710	S. CERAMIC C1608 SL 1H 470J-T-A
C42	4030006930	S. CERAMIC C1608 CH 1H 020C-T-A
C43	4030006920	S. CERAMIC C1608 CH 1H 010C-T-A (#03-#09, #11, #13, #15, #16)
	4030006930	S. CERAMIC C1608 CH 1H 020C-T-A (#01, #02, #10, #12, #14, #17, #18)
J1	6910006540	CONNECTOR IMSA-9230B-1-03Z030-T
J2	6910006530	CONNECTOR IMSA-9230B-1-02Z030-T
J3	6910006530	CONNECTOR IMSA-9230B-1-02Z030-T
J4	6910006530	CONNECTOR IMSA-9230B-1-02Z030-T
J5	6910006530	CONNECTOR IMSA-9230B-1-02Z030-T
W1	7030000010	S. JUMPER MCR10EZJH JPW (000) (#03-#09, #11, #13, #15, #16)
EP1	0910033993	PCB B 3406C (TVCO) (#01-#06, #09-#18)
	0910040143	PCB B 3406C (TVCO) (#07, #08)

S.=Surface mount

## [TPLL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002770	S. IC	UPB584G
IC2	1140001890	S. IC	MB1502PF-G-BND
Q1	1560000360	S. FET	2SK209-Y (TE85R) (#01, #02, #10, #12, #14, #17, #18)
Q2	1510000730	S. TRANSISTOR	2SA1037K WT T147 R
Q3	1530002820	S. TRANSISTOR	2SC2412K WT T147 R
D1	1750000070	S. DIODE	1SS226 (TE85R)
D2	1730001010	S. ZENER	RD16M-T2B3
L1	6200000140	S. COIL	LQH 3N 1R0M
R1	7030003540	S. RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R2	7030003460	S. RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R3	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ) (#01, #02, #10, #12, #14, #17, #18)
R4	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ) (#01, #02, #10, #12, #14, #17, #18)
R5	7030003760	S. RESISTOR	ERJ3GEYJ 474 V (470 kΩ) (#03-#09, #11, #13, #15, #16)
	7030003770	S. RESISTOR	ERJ3GEYJ 564 V (560 kΩ) (#01, #02, #10, #12, #14, #17, #18)
R6	7030003620	S. RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R8	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ) (#03-#09, #11, #13, #15, #16)
	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ) (#01, #02, #10, #12, #14, #17, #18)
R10	7030003550	S. RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R11	7030003550	S. RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R12	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R13	7030003600	S. RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R14	7030003240	S. RESISTOR	ERJ3GEYJ 220 V (22 Ω)
R15	7030003430	S. RESISTOR	ERJ3GEYJ 821 V (820 Ω)
R16	7030003580	S. RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R17	7030003760	S. RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
C1	4550000530	S. TANTALUM	TESVA 1V 104M1-8L
C2	40300008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C3	45500003230	S. TANTALUM	TEMSVB2 1E 225M-8L
C4	40300006860	S. CERAMIC	C1608 JB 1H 102K-T-A (#01, #02, #10, #12, #14, #17, #18)
C6	40300006870	S. CERAMIC	C1608 JB 1H 222K-T-A
C7	40300006870	S. CERAMIC	C1608 JB 1H 222K-T-A
C8	45500003100	S. TANTALUM	TEMSVB 1A 106M-12L
C9	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C10	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C11	40300006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C12	40300006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C13	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C14	40300006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C15	40300006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C16	40300006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C17	40300008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C18	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C19	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C20	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C21	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A

## [TPLL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C23	40300006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C24	40300006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C25	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C26	40300006710	S. CERAMIC	C1608 SL 1H 470J-T-A
J6	6910003810	CONNECTOR	IMSA-9230B-1-02Z003-T
J7	6910003890	CONNECTOR	IMSA-9230B-1-10Z003-T
W1	7030003860	S. JUMPER	ERJ3GE JPW V
W2	7030003860	S. JUMPER	ERJ3GE JPW V
W3	7030003860	S. JUMPER	ERJ3GE JPW V
W4	7030003860	S. JUMPER	ERJ3GE JPW V
W5	7030003860	S. JUMPER	ERJ3GE JPW V
W6	7030003860	S. JUMPER	ERJ3GE JPW V (#03-#09, #11, #13, #15, #16)
EP1	0910033933	PCB	B 3405C (TPLL)

## [RVCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	15300000371	S. TRANSISTOR	2SC3356 R25-T2B
Q2	15300000372	S. TRANSISTOR	2SC3356 R24-T2B
Q3	1530002620	S. TRANSISTOR	2SC3585 R44-T2B
D1	1720000310	S. VARICAP	1SV128 (TE85R)
D2	1720000310	S. VARICAP	1SV128 (TE85R)
D3	1790000540	S. VARICAP	MA338 (TX) (#01-#06, #09-#18)
D4	1790000460	S. DIODE	MA334B (TX) (#08)
	1790000540	S. VARICAP	MA338 (TX) (#01-#07, #09-#18)
L1	6200000090	S. COIL	LQN 2A 18NM
L2	6200000140	S. COIL	LQH 3N 1R0M
L3	6200000140	S. COIL	LQH 3N 1R0M
L4	6200000140	S. COIL	LQH 3N 1R0M
L5	6200001260	S. COIL	MLF2012A 1R8M-T
L6	6200001520	S. COIL	MLF2012D R82K-T
L7	6200000110	S. COIL	LQN 2A 33NM
L8	6200000110	S. COIL	LQN 2A 33NM
R1	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R2	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R4	7030003240	S. RESISTOR	ERJ3GEYJ 220 V (22 Ω) (#07)
	7030003280	S. RESISTOR	ERJ3GEYJ 470 V (47 Ω) (#08)
	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω) (#01-#06, #09-#18)
R5	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R7	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ) (#01-#06, #08-#18)
	7030003530	S. RESISTOR	ERJ3GEYJ 562 V (5.6 kΩ) (#07)

S.=Surface mount

## [RVCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R8	7030003350	S. RESISTOR	ERJ3GEYJ 181 V (180 Ω) (#07, #08)
	7030003370	S. RESISTOR	ERJ3GEYJ 271 V (270 Ω) (#01, #02, #10, #12, #14, #17, #18)
	7030003380	S. RESISTOR	ERJ3GEYJ 331 V (330 Ω) (#03-#06, #09, #11, #13, #15, #16)
R9	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R10	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R11	7030003550	S. RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R12	7030003430	S. RESISTOR	ERJ3GEYJ 821 V (820 Ω)
R13	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R14	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R15	7030003550	S. RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R16	7030003430	S. RESISTOR	ERJ3GEYJ 821 V (820 Ω)
R18	7030003290	S. RESISTOR	ERJ3GEYJ 560 V (56 Ω)
R19	7030003290	S. RESISTOR	ERJ3GEYJ 560 V (56 Ω)
R20	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R21	7030003480	S. RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
C1	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C2	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C3	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C4	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C5	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C6	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C7	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C8	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C9	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C10	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C11	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C12	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C13	4030007010	S. CERAMIC	C1608 CH 1H 100D-T-A (#07, #08)
	4030007020	S. CERAMIC	C1608 CH 1H 120J-T-A (#03-#06, #09, #11, #13, #15, #16)
	4030007030	S. CERAMIC	C1608 CH 1H 150J-T-A (#01, #02, #10, #12, #14, #17, #18)
C14	4030007030	S. CERAMIC	C1608 CH 1H 150J-T-A
C15	4030007130	S. CERAMIC	C1608 CH 1H 101J-T-A
C16	4030006940	S. CERAMIC	C1608 CH 1H 030C-T-A (#03-#06, #09, #11, #13, #15, #16)
	4030006970	S. CERAMIC	C1608 CH 1H 060D-T-A (#01, #02, #07, #08, #10, #12, #14, #17, #18)
C17	4030007040	S. CERAMIC	C1608 CH 1H 180J-T-A
C18	4030007030	S. CERAMIC	C1608 CH 1H 150J-T-A
C19	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C20	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C21	4550000460	S. TANTALUM	TESVA 1C 105M1-8L
C22	4030009540	S. CERAMIC	C1608 CH 1H 1R5B-T-A
C23	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C24	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C25	4030009540	S. CERAMIC	C1608 CH 1H 1R5B-T-A
C26	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C27	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C28	4550000460	S. TANTALUM	TESVA 1C 105M1-8L
C29	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C30	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C31	4030006970	S. CERAMIC	C1608 CH 1H 060D-T-A
C32	4030006580	S. CERAMIC	C1608 SL 1H 070D-T-A
C33	4030006580	S. CERAMIC	C1608 SL 1H 070D-T-A
C34	4030006920	S. CERAMIC	C1608 CH 1H 010C-T-A
C35	4030006520	S. CERAMIC	C1608 SL 1H 010C-T-A
C36	4030006980	S. CERAMIC	C1608 CH 1H 070D-T-A (#07, #08)

## [RVCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
J1	6910006530	CONNECTOR	IMSA-9230B-1-02Z030-T
J2	6910006540	CONNECTOR	IMSA-9230B-1-03Z030-T
J3	6910006530	CONNECTOR	IMSA-9230B-1-02Z030-T
J4	6910006530	CONNECTOR	IMSA-9230B-1-02Z030-T
W1	7030003860	S. JUMPER	ERJ3GE JPW V
EP1	0910033772	PCB	B 3404B (RVCO) (#01-#06, #09-#18)
	0910038071	PCB	B 3765A (RVCO) (#07, #08)

## [RPLL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110003010	S. IC	μPC4250G2-T
IC2	1140002540	S. IC	MB1505PF-G-BND
IC3	1130004200	S. IC	TC4S66F (TE85R)
Q1	1560000360	S. FET	2SK209-Y (TE85R)
Q2	1530002850	S. TRANSISTOR	2SC4116-BL (TE85R)
Q3	1560000360	S. FET	2SK209-Y (TE85R)
Q5	1590000910	S. TRANSISTOR	IMZ2 T108
L1	6200001260	S. COIL	MLF2012A 1R8M-T
L2	6200000140	S. COIL	LQH 3N 1R0M
R1	7030003280	S. RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R2	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R4	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R5	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R6	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R7	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R8	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R9	7030003450	S. RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R10	7030003410	S. RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R11	7030003690	S. RESISTOR	ERJ3GEYJ 124 V (120 kΩ) (#07, #08)
	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ) (#01-#06, #09-#18)
R12	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R14	7030003480	S. RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R15	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R16	7030003200	S. RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R17	7030003200	S. RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R18	7030003200	S. RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R19	7030003200	S. RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R20	7030003610	S. RESISTOR	ERJ3GEYJ 273 V (27 kΩ)
R21	7030003570	S. RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R22	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R23	7030003570	S. RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R24	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R25	7030003410	S. RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R27	7030003840	S. RESISTOR	ERJ3GEYJ 225 V (2.2 MΩ)

S. = Surface mount

[RPLL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R28	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R29	7030003540	S. RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
C1	4550000270	S. TANTALUM	TESVA 1E 474M1-8L
C2	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C3	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C4	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A
C5	4550000270	S. TANTALUM	TESVA 1E 474M1-8L
C6	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C8	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C9	4030008430	S. CERAMIC	C1608 JF 1H 223Z-T-A
C10	4550003220	S. TANTALUM	TEMSVA 1E 105M-8L
C11	4550003220	S. TANTALUM	TEMSVA 1E 105M-8L
C12	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C14	4550000540	S. TANTALUM	TESVA 1V 154M1-8L
C16	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C17	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C18	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C19	4030006750	S. CERAMIC	C1608 SL 1H 101J-T-A
C20	4030006750	S. CERAMIC	C1608 SL 1H 101J-T-A
C21	4030006750	S. CERAMIC	C1608 SL 1H 101J-T-A
C22	4030006750	S. CERAMIC	C1608 SL 1H 101J-T-A
C23	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C24	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C25	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C26	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C29	4030005090	S. CERAMIC	C2012 JB 1H 223K-T-A
C30	4550003030	S. TANTALUM	TEMSVA 0J 475M-8L
J1	6910003810	CONNECTOR	IMSA-9230B-1-02Z003-T
J2	6910003840	CONNECTOR	IMSA-9230B-1-05Z003-T
J3	6910003820	CONNECTOR	IMSA-9230B-1-03Z003-T
W2	7030003860	S. JUMPER	ERJ3GE JPW V
W3	7030003860	S. JUMPER	ERJ3GE JPW V
EP1	0910033813	PCB	B 3403C (RPLL)

[DC-DC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
J1	6910005800	CONNECTOR	IMSA-9210B-1-03T
EP1	0910035100	PCB	B 3508 (DC-DC)

[BPF BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	6910005740	IC	CB424M1R
Q1	1580000360	S. FET	3SK177-T2B U73
Q2	1560000670	S. FET	2SK1771 (TE85R)
D1	1790000450	S. DIODE	MA862 (TX)
D2	1720000180	S. VARICAP	1SV164-T2B
D3	1720000180	S. VARICAP	1SV164-T2B
D4	1720000180	S. VARICAP	1SV164-T2B
D5	1720000180	S. VARICAP	1SV164-T2B
L1	6110001990	COIL	LA-223
L2	6110001990	COIL	LA-223
L3	6110001980	COIL	LA-222 (#07, #08)
	6110001990	COIL	LA-223 (#01-#06, #09-#18)
L5	6110001980	COIL	LA-222 (#03-#09, #11, #13, #15, #16)
	6110001990	COIL	LA-223 (#01, #02, #10, #12, #14, #17, #18)
L6	6110001980	COIL	LA-222 (#03-#09, #11, #13, #15, #16)
	6110001990	COIL	LA-223 (#01, #02, #10, #12, #14, #17, #18)
L7	6110001980	COIL	LA-222 (#03-#09, #11, #13, #15, #16)
	6110001990	COIL	LA-223 (#01, #02, #10, #12, #14, #17, #18)
L8	6180001300	COIL	LAL 02NA 100K
L9	6150003150	COIL	LS-331
R1	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R2	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R3	7030003620	S. RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R4	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R5	7030003370	S. RESISTOR	ERJ3GEYJ 271 V (270 Ω)
R6	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R7	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R8	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R9	7030003340	S. RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R10	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω)

[DC-DC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002350	S. IC	BA6161F
D1	1750000040	S. DIODE	1SS190 (TE85R)
L1	6180001450	COIL	RFC S4 102K
R1	7030003450	S. RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
C1	4550000410	TANTALUM	DN 1V 4R7M
C2	4550000410	TANTALUM	DN 1V 4R7M

S.=Surface mount

## [BPF BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R11	7030003570	S. RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R12	7030003590	S. RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R13	7030003260	S. RESISTOR	ERJ3GEYJ 330 V (33 Ω)
R15	7030003240	S. RESISTOR	ERJ3GEYJ 220 V (22 Ω)
R16	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
C1	4010000060	CERAMIC	DD104 SL 040C 50V
C2	4030006620	S. CERAMIC	C1608 SL 1H 120J-T-A
C4	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A
C6	4030006920	S. CERAMIC	C1608 CH 1H 010C-T-A (#03-#09, #11, #13, #15, #16)
	4030006930	S. CERAMIC	C1608 CH 1H 020C-T-A (#01, #02, #10, #12, #14, #17, #18)
C7	4610001440	TRIMMER	CV38A 0301E
C8	4030006520	S. CERAMIC	C1608 SL 1H 010C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030006540	S. CERAMIC	C1608 SL 1H 030C-T-A (#07, #08)
C9	4030006540	S. CERAMIC	C1608 SL 1H 030C-T-A (#08)
	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#03-#06, #09, #11, #13, #15, #16)
C9	4030006560	S. CERAMIC	C1608 SL 1H 050C-T-A (#01, #02, #07, #10, #12, #14, #17, #18)
C10	4030006930	S. CERAMIC	C1608 CH 1H 020C-T-A (#08)
	4030009470	S. CERAMIC	C1608 CH 1H R75C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030009540	S. CERAMIC	C1608 CH 1H 1R5B-T-A (#03-#07, #09, #11, #13, #15, #16)
C11	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C12	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C13	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C14	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C15	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C16	4610001440	TRIMMER	CV38A 0301E
C17	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C18	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C19	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C20	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C21	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C22	4030006530	S. CERAMIC	C1608 SL 1H 020C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030006540	S. CERAMIC	C1608 SL 1H 030C-T-A (#07, #08)
	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#03-#06, #09, #11, #13, #15, #16)
C23	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C24	4010000500	CERAMIC	DD104 B 102K 50V
C25	4030006540	S. CERAMIC	C1608 SL 1H 030C-T-A (#08)
	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#01-#07, #09-#18)
C26	4030006910	S. CERAMIC	C1608 CH 1H 0R5C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030006920	S. CERAMIC	C1608 CH 1H 010C-T-A (#03-#06, #09, #11, #13, #15, #16)
	4030009470	S. CERAMIC	C1608 CH 1H R75C-T-A (#07, #08)

## [BPF BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C27	4030009570	S. CERAMIC	C1608 CH 1H 0R3B-T-A
C28	4610001440	TRIMMER	CV38A 0301E
C29	4030006530	S. CERAMIC	C1608 SL 1H 020C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#08)
	4030006560	S. CERAMIC	C1608 SL 1H 050C-T-A (#07)
	4030006570	S. CERAMIC	C1608 SL 1H 060D-T-A (#03-#06, #09, #11, #13, #15, #16)
C30	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C31	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C32	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#08)
	4030006560	S. CERAMIC	C1608 SL 1H 050C-T-A (#01, #02, #07, #10, #12, #14, #17, #18)
	4030006570	S. CERAMIC	C1608 SL 1H 060D-T-A (#03-#06, #09, #11, #13, #15, #16)
C33	4030006910	S. CERAMIC	C1608 CH 1H 0R5C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030009470	S. CERAMIC	C1608 CH 1H R75C-T-A (#08)
	4030009570	S. CERAMIC	C1608 CH 1H 0R3B-T-A (#03-#07, #09, #11, #13, #15, #16)
C34	4030006910	S. CERAMIC	C1608 CH 1H 0R5C-T-A (#03-#06, #09, #11, #13, #15, #16)
	4030006920	S. CERAMIC	C1608 CH 1H 010C-T-A (#07)
	4030009570	S. CERAMIC	C1608 CH 1H 0R3B-T-A (#01, #02, #08, #10, #12, #14, #17, #18)
C35	4610001440	TRIMMER	CV38A 0301E
C36	4030006530	S. CERAMIC	C1608 SL 1H 020C-T-A (#01, #02, #10, #12, #14, #17, #18)
	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#08)
	4030006560	S. CERAMIC	C1608 SL 1H 050C-T-A (#07)
	4030006570	S. CERAMIC	C1608 SL 1H 060D-T-A (#03-#06, #09, #11, #13, #15, #16)
C37	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C38	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C39	4030006550	S. CERAMIC	C1608 SL 1H 040C-T-A (#08)
	4030006560	S. CERAMIC	C1608 SL 1H 050C-T-A (#01, #02, #07, #10, #12, #14, #17, #18)
	4030006570	S. CERAMIC	C1608 SL 1H 060D-T-A (#03-#06, #09, #11, #13, #15, #16)
C40	4030006920	S. CERAMIC	C1608 CH 1H 010C-T-A (#03-#06, #09, #11, #13, #15, #16)
	4030009470	S. CERAMIC	C1608 CH 1H R75C-T-A (#01, #02, #07, #08, #10, #12, #14, #17, #18)
C41	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C42	4030006880	S. CERAMIC	C1608 JB 1H 472K-T-A
C44	4030007040	S. CERAMIC	C1608 CH 1H 180J-T-A
C45	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C46	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C48	4030006880	S. CERAMIC	C1608 JB 1H 472K-T-A

S.=Surface mount

[BPF BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C50	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C51	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
J1	6910003810	CONNECTOR	IMSA-9230B-1-02Z003-T
J2	6910003810	CONNECTOR	IMSA-9230B-1-02Z003-T
EP1	0910035083	PCB	B 3498C (BPF)

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
X1	6050005010	XTAL	CR-214
X2	6070000080	DISCRIMINATOR	CDBM455C16
X3	6050000130	XTAL	UM-1 1.0000M
FI1	2020000490	CERAMIC	CFZM455E10 (#02, #04, #05, #07, #08, #12, #13, #14, #15)
	2020000770	CERAMIC	CFZM455G (#01, #03, #06, #09-#11, #16-#18)
R1	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R2	7030003410	S. RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R3	7030003660	S. RESISTOR	ERJ3GEYJ 683 V (68 kΩ)
R4	7030003500	S. RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R6	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R7	7030003740	S. RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R8	7030003540	S. RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R9	7310002580	S. TRIMMER	RV-108 (RH03A3A15X05A) 104
R10	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R11	7030003460	S. RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R13	7030003650	S. RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R14	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R15	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R16	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R17	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R18	7030003760	S. RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R19	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R20	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R21	7030003730	S. RESISTOR	ERJ3GEYJ 274 V (270 kΩ)
R22	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R23	7030003710	S. RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R24	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R25	7030003800	S. RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R26	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R27	7030003800	S. RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R28	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R29	7030003610	S. RESISTOR	ERJ3GEYJ 273 V (27 kΩ)
R30	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R31	7030003340	S. RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R32	7030003200	S. RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R33	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R34	7030003460	S. RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R35	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R36	7030003530	S. RESISTOR	ERJ3GEYJ 562 V (5.6 kΩ)
R37	7030003670	S. RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R38	7030003800	S. RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R39	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R40	7030003820	S. RESISTOR	ERJ3GEYJ 155 V (1.5 MΩ)
R41	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R42	7030003420	S. RESISTOR	ERJ3GEYJ 681 V (680 Ω)
R43	7030003650	S. RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R44	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R45	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R46	7030003550	S. RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R47	7030003450	S. RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R48	7030003480	S. RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R49	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R50	7030003470	S. RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R51	7030003740	S. RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R52	7310002830	S. TRIMMER	RV-159 (RH03A3AW5) 684
R53	7030003360	S. RESISTOR	ERJ3GEYJ 221 V (220 Ω) (#02, #04, #05, #07, #08, #12-#15)
	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω) (#01, #03, #06, #09-#11, #16-#18)
R54	7030003750	S. RESISTOR	ERJ3GEYJ 394 V (390 kΩ)

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002200	S. IC	MC3372MR
IC2	1110002150	S. IC	BA10324F-T1
IC3	1130005100	S. IC	FX365LG
IC4	1110002330	IC	TA7368P
IC5	1180000800	S. IC	S-81350HG-KD-T1
IC6	1130003760	S. IC	TC4S81F (TE85R)
IC7	1130003610	S. IC	TC4SU69F (TE85R)
IC8	1130000830	S. IC	μPD4094BG-T1
IC9	1110001220	S. IC	BA4558F T1
IC10	1130003760	S. IC	TC4S81F (TE85R)
IC11	1130003760	S. IC	TC4S81F (TE85R)
IC12	1140001660	S. IC	μPD7554AG-511
Q1	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q2	1590000720	S. TRANSISTOR	DTA144EU T107
Q3	1590000720	S. TRANSISTOR	DTA144EU T107
Q4	1590000720	S. TRANSISTOR	DTA144EU T107
Q5	1590000380	S. FET	2SJ106-Y (TE85R)
Q6	1590001320	S. TRANSISTOR	DTC143ZU T107
Q7	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q8	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q9	1520000270	S. TRANSISTOR	2SB1182 TL Q
Q10	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q11	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q12	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q13	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q14	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q15	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q16	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q17	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q18	1590000430	S. TRANSISTOR	DTC144EU T107
Q20	1590000520	S. FET	2SJ106-GR (TE85R)
Q22	1590000910	S. TRANSISTOR	IMZ2 T108
Q23	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q24	1520000200	S. TRANSISTOR	2SB798-T2 DK
D1	1750000160	S. DIODE	DA114 T107
D2	1750000160	S. DIODE	DA114 T107
D3	1790000590	S. DIODE	MA110 (TW)
D4	1750000160	S. DIODE	DA114 T107
D5	1730000650	S. ZENER	RD4.3M-T2B2
D6	1750000160	S. DIODE	DA114 T107
D7	1750000160	S. DIODE	DA114 T107
D8	1750000160	S. DIODE	DA114 T107
D9	1750000160	S. DIODE	DA114 T107
D10	1750000050	S. DIODE	1S5193 (TE85R)
D11	1790000590	S. DIODE	MA110 (TW)
D14	1790000870	S. DIODE	MA1S121 (TX)
D15	1750000160	S. DIODE	DA114 T107

S. = Surface mount

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R55	7030003670	S. RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R56	7030003700	S. RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R57	7030003630	S. RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R58	7030003630	S. RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R59	7310002590	S. TRIMMER	RV-109 (RH03A3AJ3X0BA) 222
R60	7030003600	S. RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R61	7030003550	S. RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R62	7510000200	S. THERMISTOR	TN20-3U473LT
R63	7030003590	S. RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R64	7310002720	S. TRIMMER	RV-148 (RH03A3AS3X0DA) 472
R65	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ) (#03-#06, #09, #11, #13, #15, #16)
	7030003730	S. RESISTOR	ERJ3GEYJ 274 V (270 kΩ) (#01, #02, #07, #08, #10, #12, #14, #17, #18)
R66	7030003200	S. RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R67	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R68	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R69	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R70	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R71	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R72	7030003700	S. RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R73	7310002600	S. TRIMMER	RV-110 (RH03A3AS4X0AA) 473
R74	7030003710	S. RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R75	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R76	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R78	7310002600	S. TRIMMER	RV-110 (RH03A3AS4X0AA) 473
R81	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R82	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R83	7030003760	S. RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R84	7030003480	S. RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R85	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R87	7030003500	S. RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R88	7030003500	S. RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R89	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R92	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R93	7030003320	S. RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R95	7030003280	S. RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R98	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R103	7030003590	S. RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R104	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R105	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R106	7030003610	S. RESISTOR	ERJ3GEYJ 273 V (27 kΩ) (#01, #02, #07, #08, #10, #12, #14, #17, #18)
	7030003630	S. RESISTOR	ERJ3GEYJ 393 V (39 kΩ) (#03-#06, #09, #11, #13, #15, #16)
R107	7030003500	S. RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)
R110	7030003710	S. RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R111	7030003590	S. RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R112	7510000430	S. THERMISTOR	TN20-3K202LT
R113	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R114	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R115	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
C1	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C2	4030008770	S. CERAMIC	C1608 JB 1H 562K-T-A
C3	4030008770	S. CERAMIC	C1608 JB 1H 562K-T-A
C4	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C5	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C6	4030006870	S. CERAMIC	C1608 JB 1H 222K-T-A
C7	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C8	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A
C9	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C10	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C11	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C12	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C13	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C14	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A
C15	4030008430	S. CERAMIC	C1608 JF 1H 223Z-T-A
C16	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C17	4030008900	S. CERAMIC	C1608 JB 1C 333K-T-A
C18	4030006810	S. CERAMIC	C1608 SL 1H 271J-T-A
C19	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C20	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C23	4550003080	S. TANTALUM	TEMSVA 1A 335M-8L
C24	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C25	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C26	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C27	4550003080	S. TANTALUM	TEMSVA 1A 335M-8L
C28	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C29	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C30	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C31	4510005560	ELECTROLYTIC	10 MV 220 AG
C32	4030006720	S. CERAMIC	C1608 SL 1H 560J-T-A
C33	4030006660	S. CERAMIC	C1608 SL 1H 220J-T-A
C34	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C35	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C36	4030006690	S. CERAMIC	C1608 SL 1H 330J-T-A
C37	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C38	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C39	4550003080	S. TANTALUM	TEMSVA 1A 335M-8L
C40	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C41	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C42	4550003220	S. TANTALUM	TEMSVA 1E 105M-8L
C43	4550003040	S. TANTALUM	TEMSVB2 0J 106M-8L
C44	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C45	4030007070	S. CERAMIC	C1608 CH 1H 330J-T-A
C46	4030007110	S. CERAMIC	C1608 CH 1H 680J-T-A
C47	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C48	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C49	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C50	4550003110	S. TANTALUM	TEMSVC 1A 226M-12L
C51	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C54	4550002980	S. TANTALUM	TEMSVA 1C 225M-8L
C55	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C56	4550003150	S. TANTALUM	TEMSVC 1C 156M-12L
C57	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C58	4550003060	S. TANTALUM	TEMSVC 0J 336M-12L
C59	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C60	4550003060	S. TANTALUM	TEMSVC 0J 336M-12L
C61	4550003110	S. TANTALUM	TEMSVC 1A 226M-12L
C62	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C63	4550003110	S. TANTALUM	TEMSVC 1A 226M-12L
C64	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C65	4550003110	S. TANTALUM	TEMSVC 1A 226M-12L
C66	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C67	4550003110	S. TANTALUM	TEMSVC 1A 226M-12L
C68	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C69	4030006870	S. CERAMIC	C1608 JB 1H 222K-T-A
C70	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C71	4550000530	S. TANTALUM	TESVA 1V 104M1-8L
C72	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C73	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C74	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C75	4030006870	S. CERAMIC	C1608 JB 1H 222K-T-A
C76	4030008850	S. CERAMIC	C1608 JB 1C 123K-T-A
C77	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C78	4030007110	S. CERAMIC	C1608 CH 1H 680J-T-A (#02, #04, #05, #07, #08, #12-#15)
	4030007140	S. CERAMIC	C1608 CH 1H 121J-T-A (#01, #03, #06, #09-#11, #16-#18)
C79	4550002980	S. TANTALUM	TEMSVA 1C 225M-8L

S. = Surface mount

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C80	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C81	4550002980	S. TANTALUM	TEMSVA 1C 225M-8L
C82	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C83	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C84	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C85	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C86	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C87	4550003150	S. TANTALUM	TEMSVC 1C 156M-12L
C88	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C89	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C90	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C91	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C92	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A
C93	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C94	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C95	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C96	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C97	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C101	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C102	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C103	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C104	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C105	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C106	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C107	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C108	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C109	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C110	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C111	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C112	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C113	4030006870	S. CERAMIC	C1608 JB 1H 222K-T-A
C114	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C117	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C118	4550000530	S. TANTALUM	TESVA 1V 104M1-8L
C119	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C120	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C121	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C128	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C130	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C131	4550000560	S. TANTALUM	TESVA 1V 334M1-8L
C132	4550003040	S. TANTALUM	TEMSVB2 0J 106M-8L
C133	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A (#01, #03-#06, #08-#11, #13, #15-#18)
	4030008770	S. CERAMIC	C1608 JB 1H 562K-T-A (#02, #07, #12, #14)
C134	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C135	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C136	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C137	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C138	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C139	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C140	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C141	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C142	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C143	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C144	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C145	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C146	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C147	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C148	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C149	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C150	4550003220	S. TANTALUM	TEMSVA 1E 105M-8L
J2	6510007080	CONNECTOR	PI28A-02M
J4	6910004980	CONNECTOR	IMSA-9120S-03
J5	6910004910	CONNECTOR	IMSA-9120S-07
J6	6910004920	CONNECTOR	IMSA-9120S-11
J7	6510007080	CONNECTOR	PI28A-02M
J8	6510011180	CONNECTOR	PI28A-14M

## [MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
W7	7030003860	S. JUMPER	ERJ3GE JPW V
W8	7030003860	S. JUMPER	ERJ3GE JPW V
W10	7030003860	S. JUMPER	ERJ3GE JPW V
W11	7030003860	S. JUMPER	ERJ3GE JPW V
W12	7030003860	S. JUMPER	ERJ3GE JPW V
W13	7030003860	S. JUMPER	ERJ3GE JPW V
W14	7030003860	S. JUMPER	ERJ3GE JPW V
W15	7030003860	S. JUMPER	ERJ3GE JPW V
W16	7030003860	S. JUMPER	ERJ3GE JPW V
W17	7030003860	S. JUMPER	ERJ3GE JPW V
W18	7030003860	S. JUMPER	ERJ3GE JPW V
W19	7030003860	S. JUMPER	ERJ3GE JPW V
W20	7030003860	S. JUMPER	ERJ3GE JPW V
EP1	0910038093	PCB	B 3745C (MAIN)

## [LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1140001480	S. IC	$\mu$ PD78213GC-AB8
IC2	1130007230	IC	SC-1260 (#01-#06, #09-#13, #16-#18)
	1130007240	IC	SC-1261 (#07, #08, #14, #15)
IC3	1130004910	S. IC	TC5564AFL-15 (TP1)
IC4	1130006900	S. IC	MC74HC373AF
IC5	1130004830	S. IC	TC7SU04F (TE85R)
IC6	1130003610	S. IC	TC4SU69F (TE85R)
IC7	1130003610	S. IC	TC4SU69F (TE85R)
IC9	1110001550	S. IC	S-8054ALB-LM-T1
Q1	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q2	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q5	1590000430	S. TRANSISTOR	DTC144EU T107
Q6	1590000430	S. TRANSISTOR	DTC144EU T107
D1	1750000160	S. DIODE	DA114 T107
D2	1750000160	S. DIODE	DA114 T107
D3	1750000170	S. DIODE	DA115 T107
D5	1750000190	S. DIODE	1SS322 (TE85R)
D6	1160000060	S. DIODE	DAN202U T107
D7	1750000190	S. DIODE	1SS322 (TE85R)
D8	1160000060	S. DIODE	DAN202U T107
X1	6050007450	XTAL	RF-4A3 FAM NKD (4.9152M)
L1	6200001260	S. COIL	MLF2012A 1R8M-T
R1	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 k $\Omega$ )
R2	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 k $\Omega$ )
R3	7030003720	S. RESISTOR	ERJ3GEYJ 224 V (220 k $\Omega$ )
R4	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 k $\Omega$ )
R5	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 k $\Omega$ )
R6	7030003780	S. RESISTOR	ERJ3GEYJ 684 V (680 k $\Omega$ )
R8	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 k $\Omega$ )

S. = Surface mount

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R9	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R10	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R11	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R12	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R13	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R14	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R15	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R16	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R17	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R18	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R19	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R20	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R21	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R22	7410000940	S. ARRAY	EXB-V8V 471JV (470 Ω)
R24	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R26	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R27	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R28	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R30	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R31	7410000950	S. ARRAY	EXB-V8V 102JV
R32	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R34	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R35	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R36	7410000770	S. ARRAY	EXB-V4V 102JV (1 kΩ)
R38	7410000950	S. ARRAY	EXB-V8V 102JV
R42	7410000950	S. ARRAY	EXB-V8V 102JV
R45	7410000770	S. ARRAY	EXB-V4V 102JV (1 kΩ)
R50	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R51	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
C1	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C2	4550000270	S. TANTALUM	TESVA 1E 474M1-8L
C3	4030007060	S. CERAMIC	C1608 CH 1H 270J-T-A
C4	4030006960	S. CERAMIC	C1608 CH 1H 050C-T-A
C5	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C6	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C7	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C8	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C9	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C10	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C11	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C12	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C13	4550003100	S. TANTALUM	TEMSVB 1A 106M-12L
C14	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C15	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A
C16	4030006900	S. CERAMIC	C1608 JB 1E 103K-T-A
C18	4030007100	S. CERAMIC	C1608 CH 1H 560J-T-A
C19	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C20	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C29	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C30	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C31	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C32	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C34	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C35	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C36	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C37	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C38	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C40	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C41	4030006750	S. CERAMIC	C1608 SL 1H 101J-T-A
BT1	3020000190	LITHIUM	CR1220-1FC
J1	2610000320	CONNECTOR	IC61-0324-050
J4	6910004940	CONNECTOR	IMSA-9120B-03
J5	6910004950	CONNECTOR	IMSA-9120B-07
J6	6910004960	CONNECTOR	IMSA-9120B-11
J7	6910005530	CONNECTOR	IMSA-9120B-16

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
J8	6910004970	CONNECTOR	IMSA-9120B-15
EP1	0910039160	PCB	B 3882 (LOGIC)
EP2	0910030492	FPC	B 3101B

[FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130004930	S. IC	μPD7225GB-3B7
IC2	1130004200	S. IC	TC4S66F (TE85R)
IC3	1130003920	S. IC	TC4S69F (TE85R)
IC4	1130006440	S. IC	TC7S08F (TE85R)
Q1	1520000200	S. TRANSISTOR	2SB798-T2 DK
Q2	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q3	1590000720	S. TRANSISTOR	DTA144EU T107
Q4	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q5	1510000510	S. TRANSISTOR	2SA1576 T107 R
Q6	1510000510	S. TRANSISTOR	2SA1576 T107 R
Q7	1590000430	S. TRANSISTOR	DTC144EU T107
Q9	1530001940	S. TRANSISTOR	2SC2712-BL (TE85R)
Q10	1510000510	S. TRANSISTOR	2SA1576 T107 R
D1	1730000580	S. ZENER	RD3.0M-T2B1
D5	1750000160	S. DIODE	DA114 T107
D6	1750000120	S. DIODE	DWA010-TE
D7	1750000120	S. DIODE	DWA010-TE
L1	6200001110	S. COIL	MLF2012D R10M-T
L2	6200001110	S. COIL	MLF2012D R10M-T
R1	7030003450	S. RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R2	7030003310	S. RESISTOR	ERJ3GEYJ 820 V (82 Ω)
R3	7030003310	S. RESISTOR	ERJ3GEYJ 820 V (82 Ω)
R4	7030000980	S. RESISTOR	MCR50JZHJ 5.6 Ω (5R6)
R5	7030003710	S. RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R6	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R7	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R8	7030003250	S. RESISTOR	ERJ3GEYJ 270 V (27 Ω)
R9	7030003530	S. RESISTOR	ERJ3GEYJ 562 V (5.6 kΩ)
R10	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R11	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R12	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R13	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R14	7030003620	S. RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R15	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R16	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R17	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R18	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R19	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R20	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R21	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R22	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R23	7030003400	S. RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R24	7030003450	S. RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R25	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R26	7030003470	S. RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)

S. = Surface mount

## [FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R27	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R28	7510000370	S. THERMISTOR	TN20-3I152LT
R29	7030003510	S. RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R30	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R31	7030003260	S. RESISTOR	ERJ3GEYJ 330 V (33 Ω)
R32	7030003260	S. RESISTOR	ERJ3GEYJ 330 V (33 Ω)
R33	7030003260	S. RESISTOR	ERJ3GEYJ 330 V (33 Ω)
R34	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R35	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R36	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
C1	4550003030	S. TANTALUM	TEMSVA 0J 475M-8L
C2	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C3	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C4	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C6	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C7	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C8	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C9	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C12	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C13	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C14	4550003030	S. TANTALUM	TEMSVA 0J 475M-8L
C15	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C16	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C17	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C18	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C19	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C20	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C21	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C22	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C23	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C24	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C25	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C26	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C27	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C28	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C29	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C30	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C31	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C32	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C33	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C34	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C35	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C36	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C37	4030008650	S. CERAMIC	C1608 JB 1H 471K-T-A
C38	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C39	4030008660	S. CERAMIC	C1608 JB 1H 102K-T-A
C40	4030006890	S. CERAMIC	C1608 JF 1H 103Z-T-A
C41	4010000500	CERAMIC	DD104 B 102K 50V
C42	4550003040	S. TANTALUM	TEMSVB2 0J 106M-8L
C43	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C44	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C45	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C46	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C47	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C48	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
DS1	5030000590	LCD	LD-B5093J (E-5208) [FUNCTION DISPLAY]
DS2	5080000240	LAMP	HRS-3060A (without CAP)
DS3	5080000240	LAMP	HRS-3060A (without CAP)
DS4	5040000960	S. LED	SLM-13YWF T97F
DS5	5040000960	S. LED	SLM-13YWF T97F
DS6	5040000960	S. LED	SLM-13YWF T97F
DS7	5040000960	S. LED	SLM-13YWF T97F
MC1	7700000480	MICROPHONE	KUC2023-01-006

## [FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
SP1	2510000650	SPEAKER	EAS-3P127D
J1	6510007170	CONNECTOR	PI28A-03M
W7	7030000010	S. JUMPER	MCR10EZHZ JPW (000)
EP1	0910038081	PCB	B 3766A (FRONT)
EP2	8930012750	LCD CONTACT	SRCN-575
EP4	0910027442	FPC	B 2773B

## [VR UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R2	7210001440	VARIABLE	RK097111101NA (10KA) [VOL]
R3	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R4	7310002840	S. TRIMMER	RV-160 (RH03A3A16) 105
R5	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R6	7310002720	S. TRIMMER	RV-148 (RH03A3AS3X0DA) 472
R7	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R8	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
C1	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C2	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C3	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C4	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C6	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C7	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C9	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C10	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C11	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C12	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C13	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
DS1	5040001040	LED	TLR224 [TX]
S2	2230000840	SWITCH	EVQ-QBW 06T [S]
J1	6510007180	CONNECTOR	PI28A-05M
J2	6510007090	CONNECTOR	PI28A-04M
J3	6910004740	CONNECTOR	IMSA-9202B-1-03T
J4	6910004740	CONNECTOR	IMSA-9202B-1-03T
J6	6510007170	CONNECTOR	PI28A-03M
J7	6510007080	CONNECTOR	PI28A-02M
P1	6910003120	CONNECTOR	IMSA-9206H-T
P2	6910003120	CONNECTOR	IMSA-9206H-T
EP1	0910040184	PCB	B 2710D (VR)

S.=Surface mount

## [TONE UNIT] (#01-#06, #09-#13)

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130007150	S. IC	FX803LG
Q1	1530002060	S. TRANSISTOR	2SC4081 T107 R
Q2	1530002060	S. TRANSISTOR	2SC4081 T107 R
X1	6050008630	XTAL	CR-441 AT-49 4.000MHz
L1	6200001260	S. COIL	MLF2012A 1R8M-T
R1	7030003700	S. RESISTOR	ERJ3GEYJ 154 V (150 k $\Omega$ )
R2	7030003650	S. RESISTOR	ERJ3GEYJ 563 V (56 k $\Omega$ )
R3	7030003660	S. RESISTOR	ERJ3GEYJ 683 V (68 k $\Omega$ )
R4	7030003840	S. RESISTOR	ERJ3GEYJ 225 V (2.2 M $\Omega$ )
R5	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 k $\Omega$ )
R6	7030003640	S. RESISTOR	ERJ3GEYJ 473 V (47 k $\Omega$ )
R7	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 k $\Omega$ )
R8	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 k $\Omega$ )
R9	7030003800	S. RESISTOR	ERJ3GEYJ 105 V (1 M $\Omega$ )
R10	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 k $\Omega$ )
R11	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 k $\Omega$ )
R12	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 k $\Omega$ )
R13	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 k $\Omega$ )
R14	7030003680	S. RESISTOR	ERJ3GEYJ 104 V (100 k $\Omega$ )
R15	7030003560	S. RESISTOR	ERJ3GEYJ 103 V (10 k $\Omega$ )
R16	7030003440	S. RESISTOR	ERJ3GEYJ 102 V (1 k $\Omega$ )
R17	7030003420	S. RESISTOR	ERJ3GEYJ 681 V (680 $\Omega$ )
R18	7030003530	S. RESISTOR	ERJ3GEYJ 562 V (5.6 k $\Omega$ )
R19	7030003600	S. RESISTOR	ERJ3GEYJ 223 V (22 k $\Omega$ )
R20	7030003600	S. RESISTOR	ERJ3GEYJ 223 V (22 k $\Omega$ )
R21	7030003520	S. RESISTOR	ERJ3GEYJ 472 V (4.7 k $\Omega$ )
C1	4030006710	S. CERAMIC	C1608 SL 1H 470J-T-A
C2	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C3	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C4	4550003040	S. TANTALUM	TEMSVB2 0J 106M-8L
C5	4030006660	S. CERAMIC	C1608 SL 1H 220J-T-A
C6	4550000460	S. TANTALUM	TESVA 1C 105M1-8L
C7	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C9	4030008630	S. CERAMIC	C1608 JF 1C 104Z-T-A
C11	4030007030	S. CERAMIC	C1608 CH 1H 150J-T-A
C12	4030007030	S. CERAMIC	C1608 CH 1H 150J-T-A
C13	4030006860	S. CERAMIC	C1608 JB 1H 102K-T-A
C14	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
C15	4550000460	S. TANTALUM	TESVA 1C 105M1-8L
C16	4030007130	S. CERAMIC	C1608 CH 1H 101J-T-A
C17	4030006880	S. CERAMIC	C1608 JB 1H 472K-T-A
C18	4030006850	S. CERAMIC	C1608 JB 1H 471K-T-A
J1	6910005670	CONNECTOR	IMSA-9120S-16
J2	6910004930	CONNECTOR	IMSA-9120S-15
W1	7030003860	S. JUMPER	ERJ3GE JPW V
W2	7030003860	S. JUMPER	ERJ3GE JPW V
W3	7030003860	S. JUMPER	ERJ3GE JPW V
EP1	0910039172	PCB	B 3883B (TONE)

S.=Surface mount

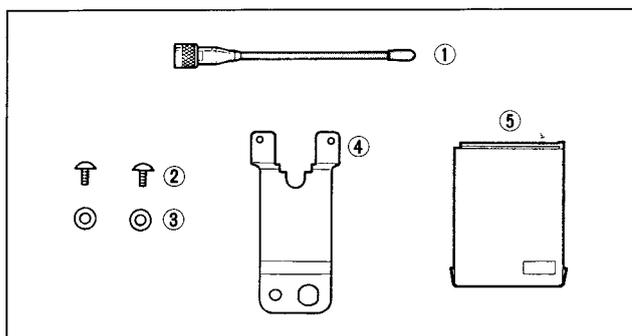
## SECTION 6 MECHANICAL PARTS AND DISASSEMBLY

### • CHASSIS PARTS

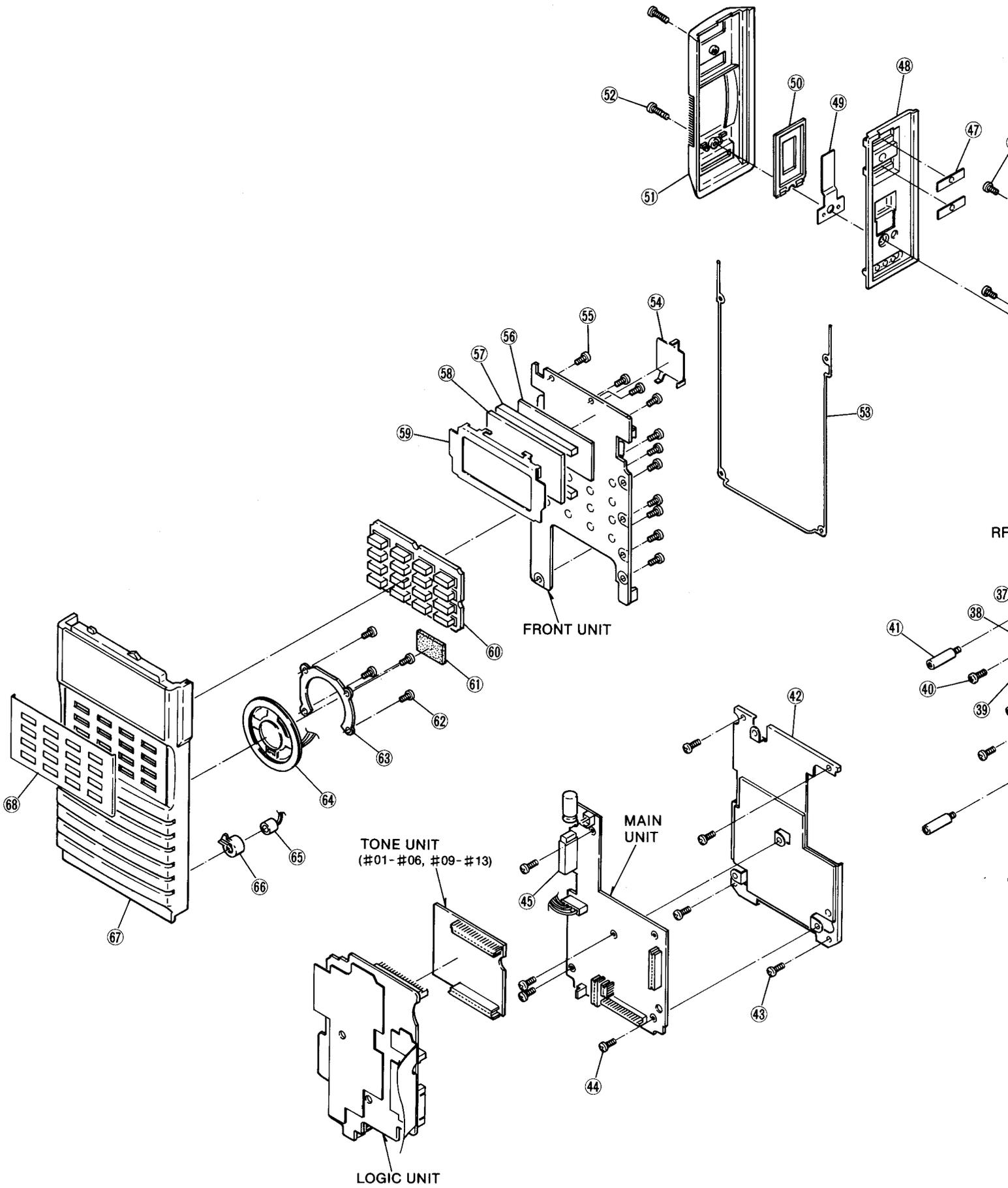
LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.	LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	8610004310	Knob N133 [VOL]	1	③④	8510006810	DC-DC case	1
②	8830000550	VR nut (E)	1	③⑤	8930001510	Sponge (V)	1
③	8930019531	859 connector seal -1	1	③⑥	8510007710	860 RF case	1
④	8930019880	DC rubber	1	③⑦	8930018830	778 module plate	1
⑤	8810004450	Screw PH M2 × 8 ZK	2	③⑧	8930001160	Ground spring	1
⑥	8810004860	Screw PH M2 × 6 ZK	1	③⑨	8930001170	Ground spring (A)	1
⑦	8210008861	859 top panel (B) -1 (#01-#10, #12-#18)	1	④⑩	8810001840	Screw PH M2.6 × 6 NI BS	2
	8210008871	859 top panel (C) -1 (#11)	1	④⑪	8930020720	573 stand-off (A) -3	4
⑧	8930019540	859 lens	1	④⑫	8930028770	860 MAIN shield	1
⑨	8930019190	Switch rubber	1	④⑬	8810000010	Screw PH M2 × 4	4
⑩	8930019521	859 top seal -1	1	④⑭	8810005860	Screw PH No. 0 M2 × 3 NI	4
⑪	8930019170	Switch plate	1	④⑮	8510000440	IC shield plate	1
⑫	8930019730	Insulate pipe (G)	1	④⑯	8810004870	Screw PH No. 0 M2 × 2.5	2
⑬	8810005320	Screw PH M2 × 4 NI FE	1	④⑰	8930011600	PTT plate	2
⑭	7210001440	Variable resistor RK097111101NA (10 KA) [VOL]	1	④⑱	8930018650	575 PTT rubber (A)	1
				④⑲	8930011611	PTT spring	1
⑮	6510007120	Antenna connector TNC-R106	1	④⑳	8930019510	PTT button (A)	1
⑯	8850001010	Icom washer (O)	1	④㉑	8930018640	575 PTT holder (A) -1	1
⑰	8010010480	575 rear panel (A)	1	④㉒	8810004890	Screw PH No. 0 M2 × 6 ZK	2
⑱	8810004000	Screw PH B0 M2 × 31.5 ZK	4	④㉓	8930021490	575 center seal (A)	1
⑲	8010007602	Bushing (A) -2	2	④㉔	8510006270	758 CPU shield plate	1
⑳	8860000010	Screw lug M2	2	④㉕	8810005900	Screw PH B0 No. 0-3 M1.4 × 3.5 NI	11
㉑	8930011880	Contact holder	1	④㉖	6910002060	Reflector ALF40X20X0.58	1
㉒	8930005980	Contact spring	1	④㉗	8930012750	LCD contact SRCN-575	2
㉓	8810002580	Screw BuH M2 × 6 NI BS	1	④㉘	5030000590	LCD LD-B5093J (E-5208) [FUNCTION DISPLAY]	1
㉔	8810005310	Screw PH M2 × 5 NI FE	1	④㉙	8930012190	LCD holder	1
㉕	8930008610	Release button (A)	1	④㉚	8010010190	562 keyboard (C) -1	1
㉖	8930013430	Lock plate (B)	1	④㉛	8930027680	Sponge (DB)	1
㉗	8310029840	859 plate	1	④㉜	8810004800	Screw PH B0 No. 0 M2 × 4	4
㉘	8010006990	Sliding plate	1	④㉝	8930012101	Speaker plate -1	1
㉙	8810002310	Screw FH M2 × 4 NI BS	4	④㉞	2510000650	Speaker EAS-3P127D	1
㉚	6450000110	Connector HSJ0836-01-010 [EXT SP]	1	④㉟	7700000480	Microphone KUC2023-01-006	1
㉛	6450000130	Connector HSJ1102-01-540 [MIC]	1	④㊱	8930011931	573 microphone holder -1	1
㉜	6450001080	Connector HEC3800-01-010 [DC IN 13.8V]	1	④㊲	8210008851	575 front panel (H) -1 (incl. window plate)	1
㉝	8510007700	860 PLL case	2	④㊳	8930019300	575 10-KEY panel (A)	1

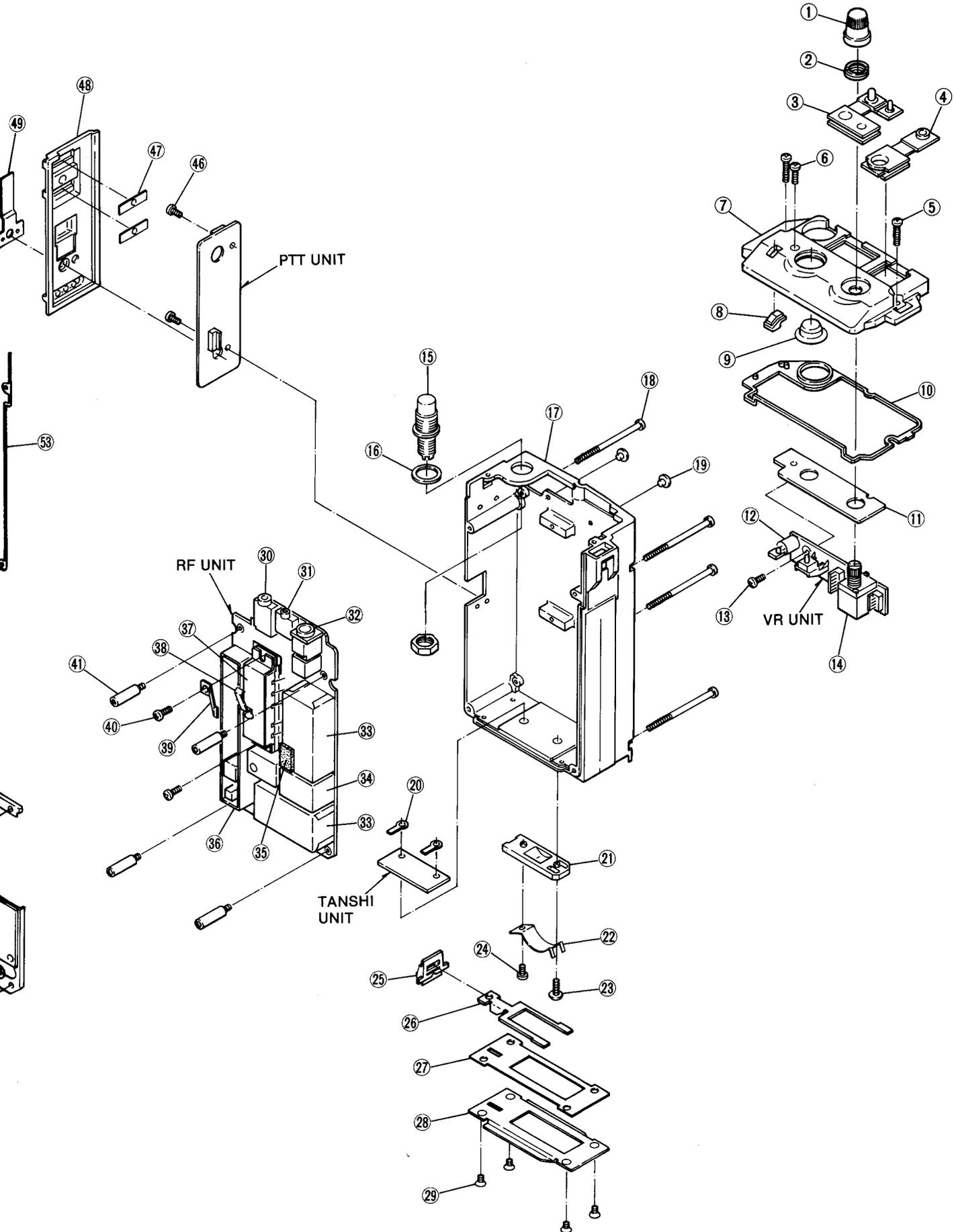
**Screw abbreviations** PH: Pan head FH: Flat head BuH: Button head B0: Self-tapping NI: Nickel BS: Brass  
ZK: Black

### • ACCESSORIES



LABEL NUMBER	ORDER NO.	DESCRIPTION	QTY.
①	Optional product	FA-400TA FLEXIBLE ANTENNA (#01, #02, #10, #12, #14, #16-#18)	1
	Optional product	FA-450TA FLEXIBLE ANTENNA (#03-#09, #11, #13, #15)	1
②	8810003650	Icom screw A 4	2
③	8850000640	Nylon washer B M3	2
④	8010005710	Belt clip	1
⑤	Optional product	CM-72 BATTERY PACK	1



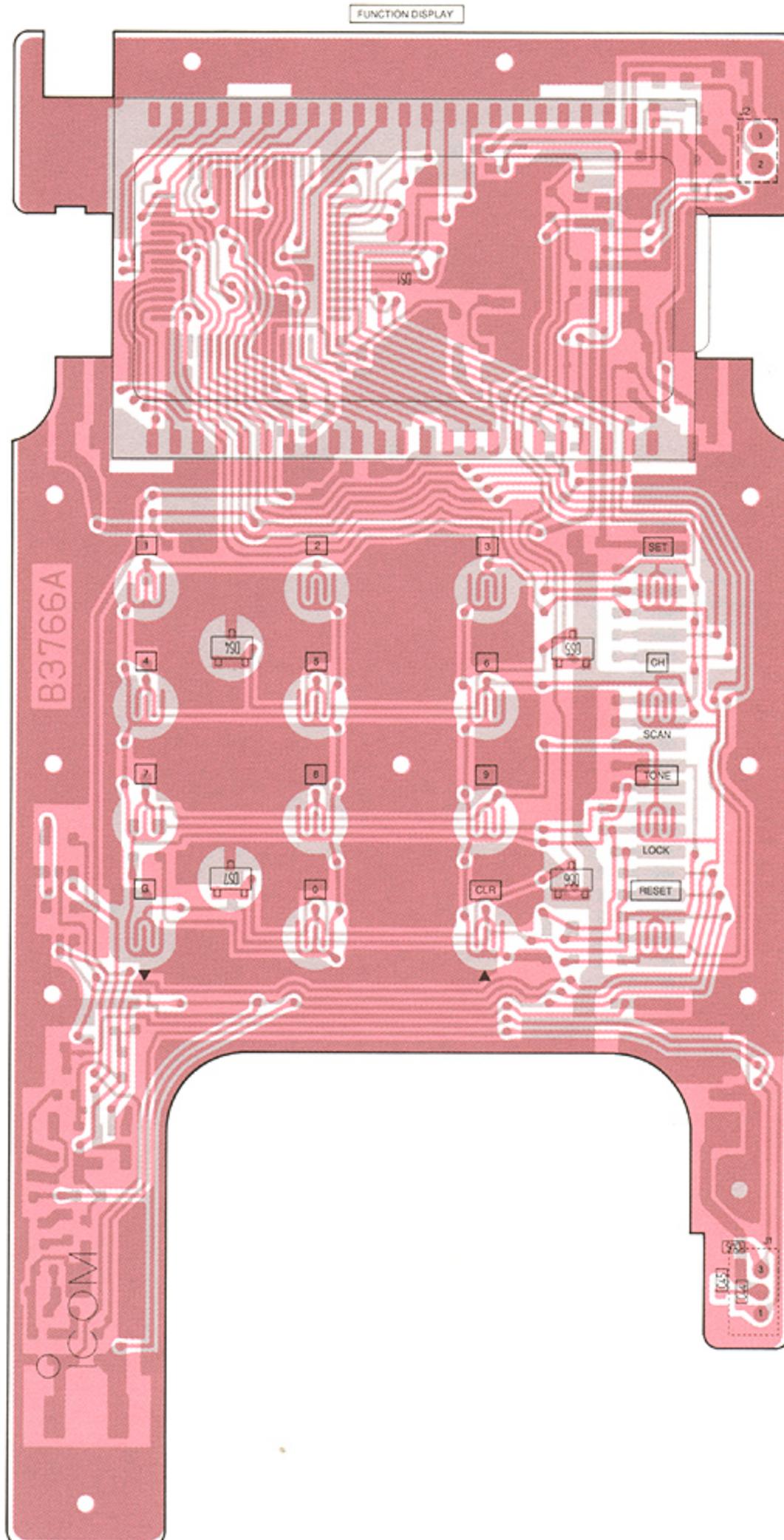


## SECTION 7 BOARD LAYOUTS

### 7-1 FRONT UNIT

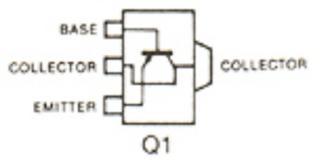
- FRONT UNIT

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

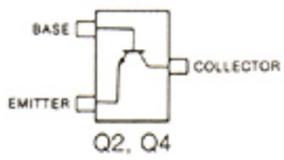


• FRONT UNIT

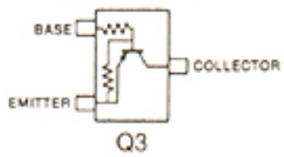
**2SB798 DK**  
(Symbol: DK)



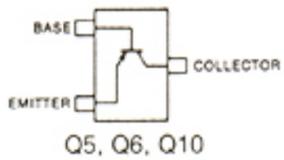
**2SC4081 R**  
(Symbol: BR)



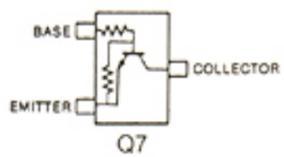
**DTA144EU**  
(Symbol: 16)



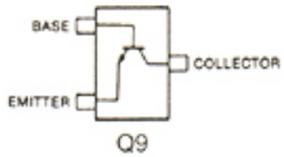
**2SA1576 R**  
(Symbol: FR)



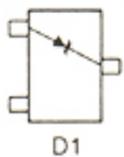
**DTC144EU**  
(Symbol: 26)



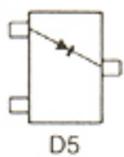
**2SC2712 BL**  
(Symbol: LL)



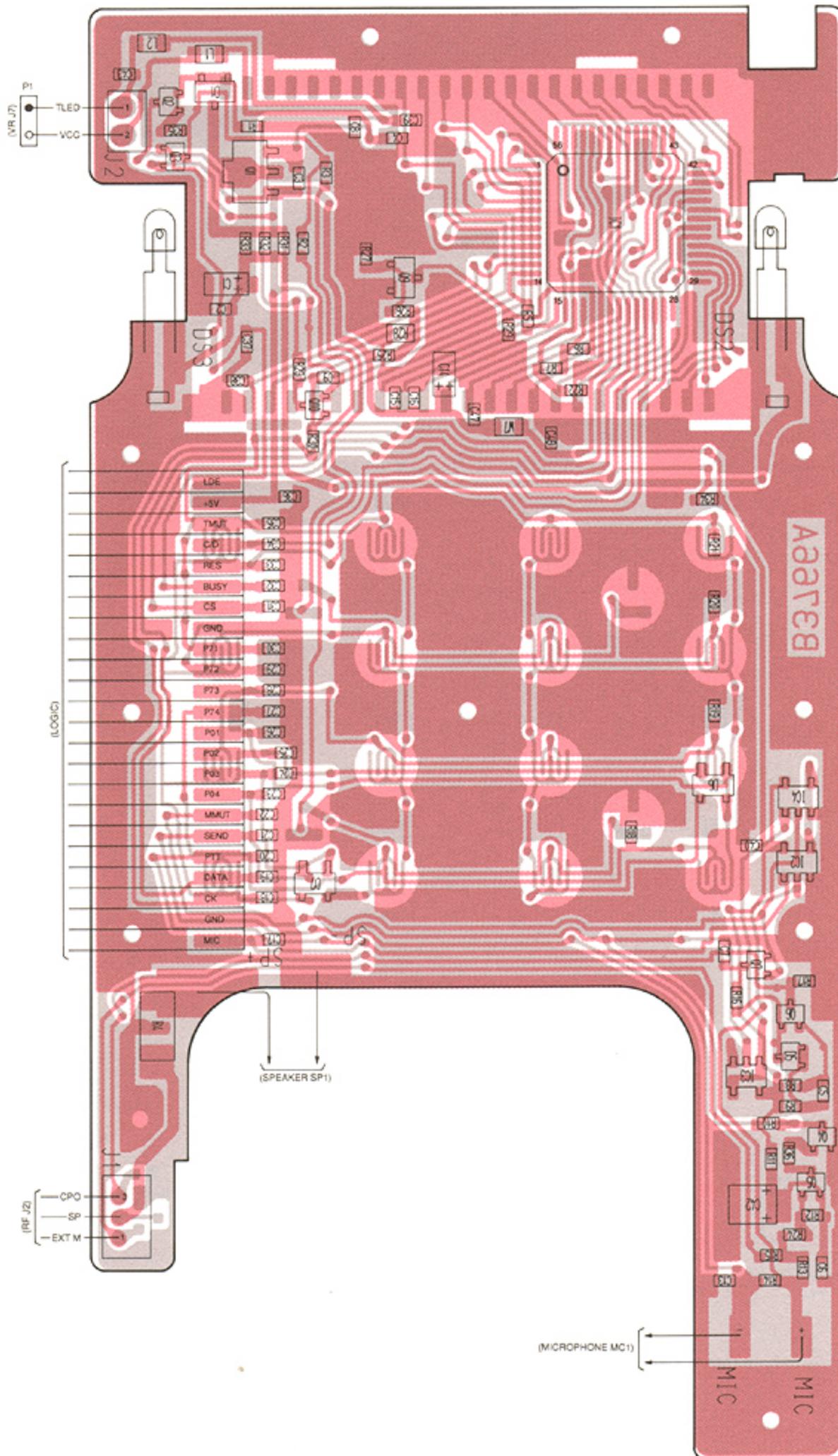
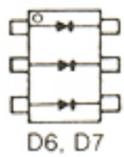
**RD3.0 B1**  
(Symbol: 301)



**DA114**  
(Symbol: AV)



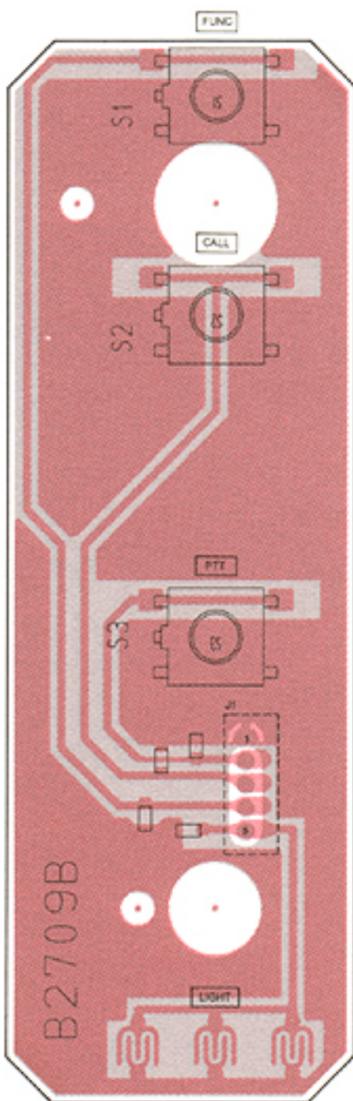
**DWA010**  
(Symbol: W8)



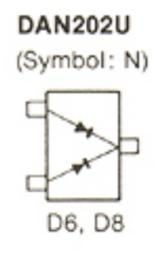
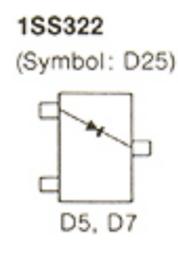
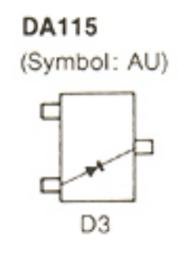
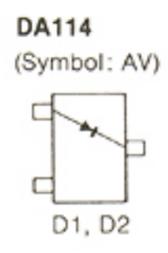
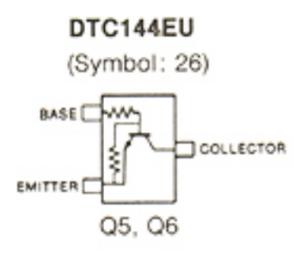
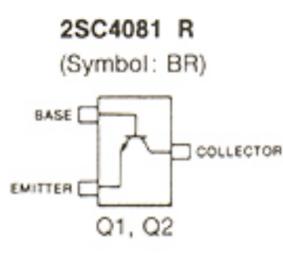
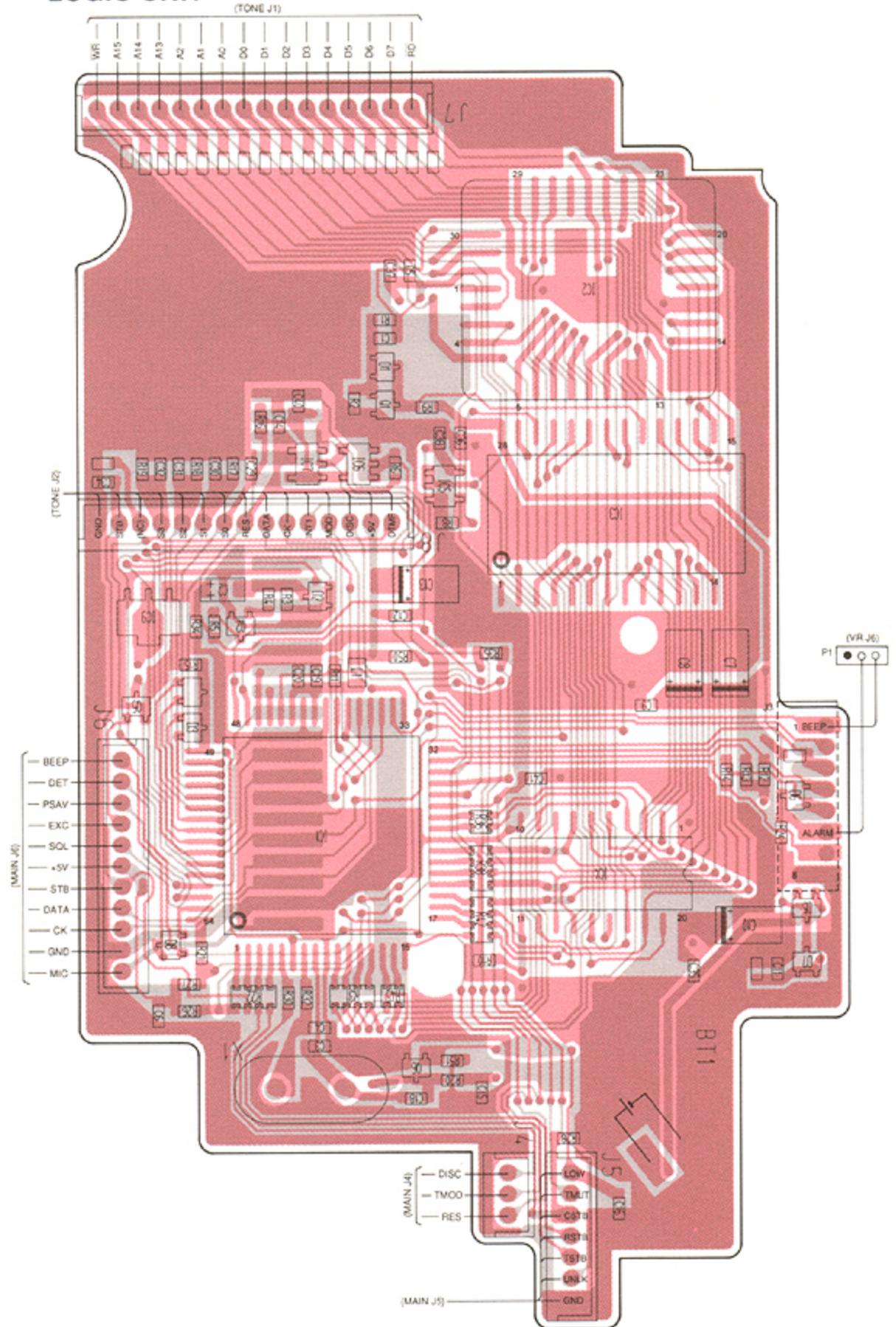
## 7-2 LOGIC UNIT

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

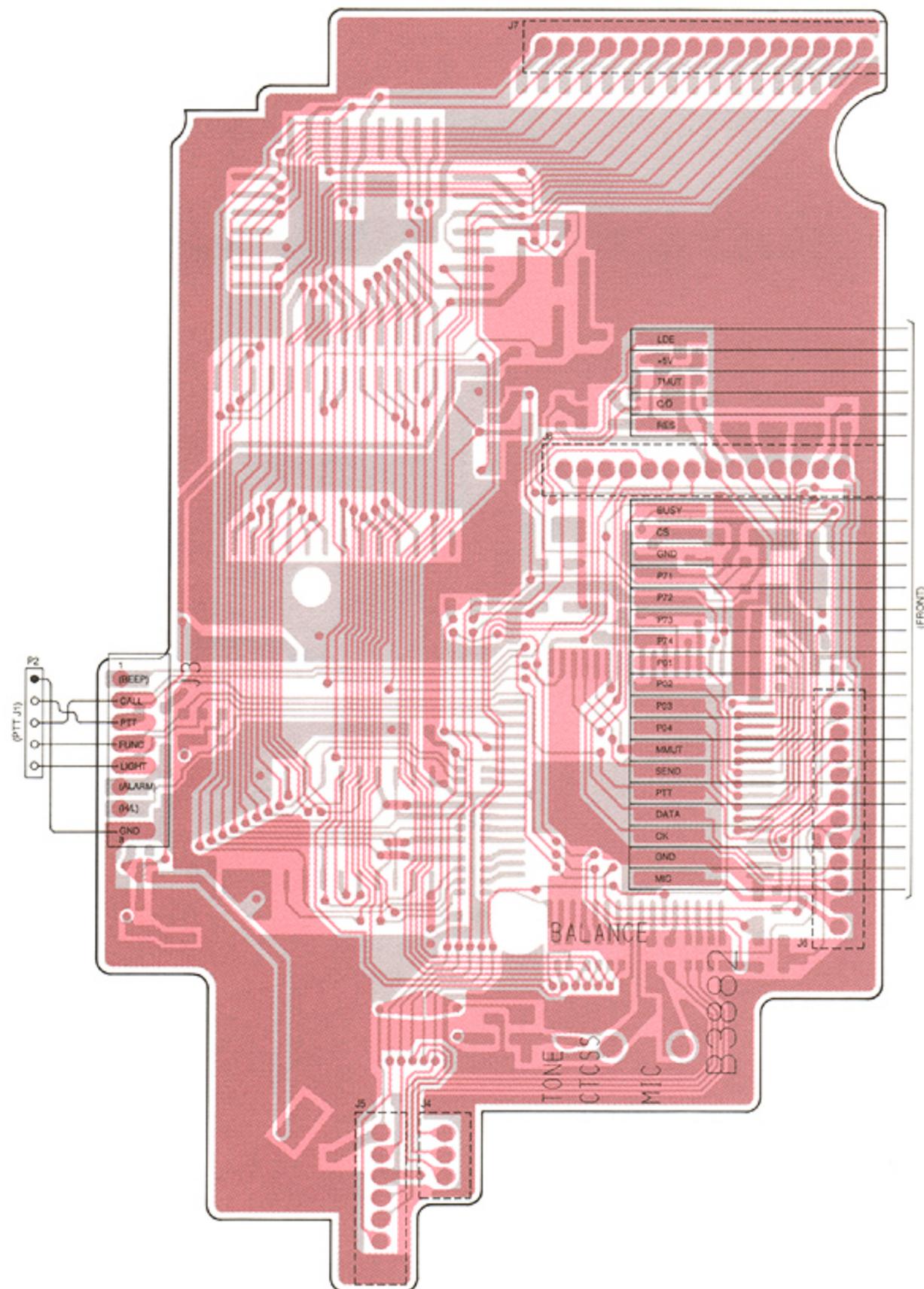
### • PTT UNIT



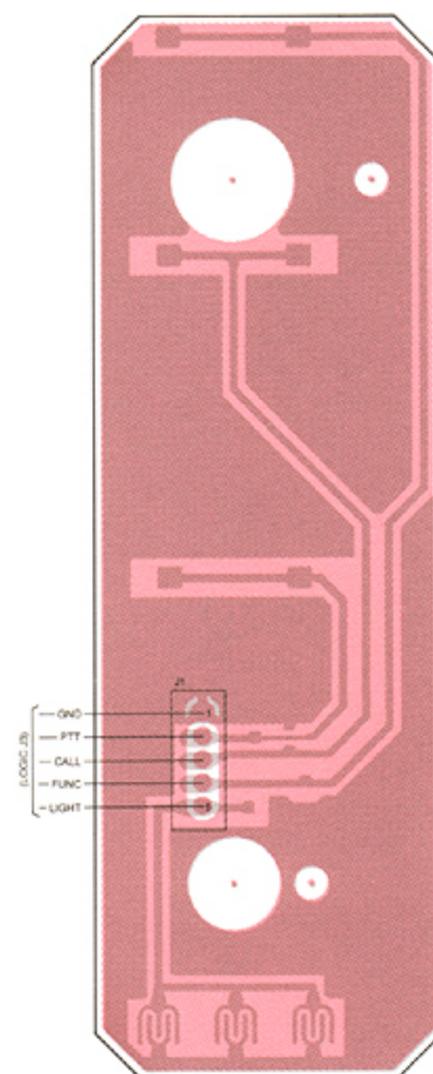
### • LOGIC UNIT



• LOGIC UNIT



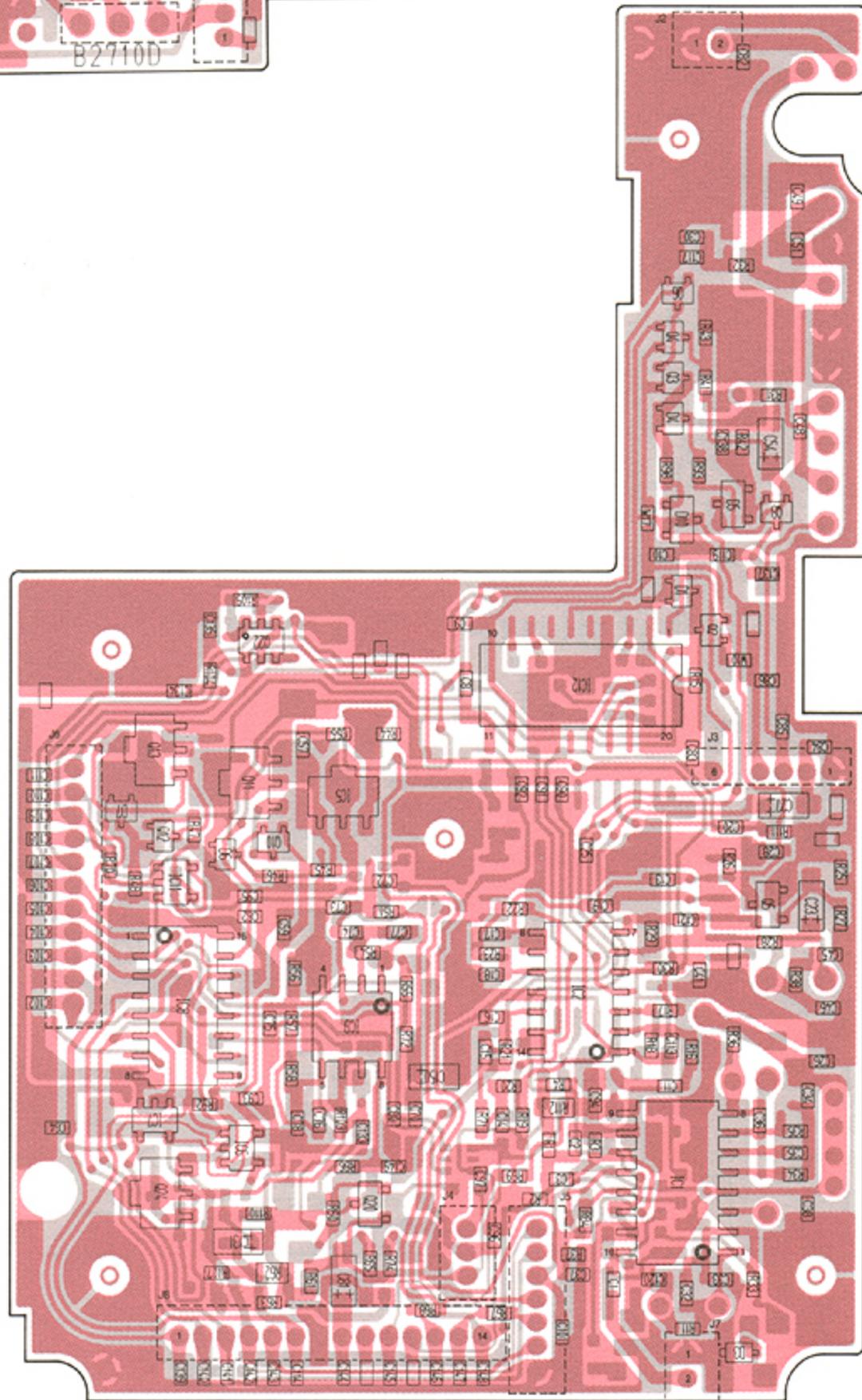
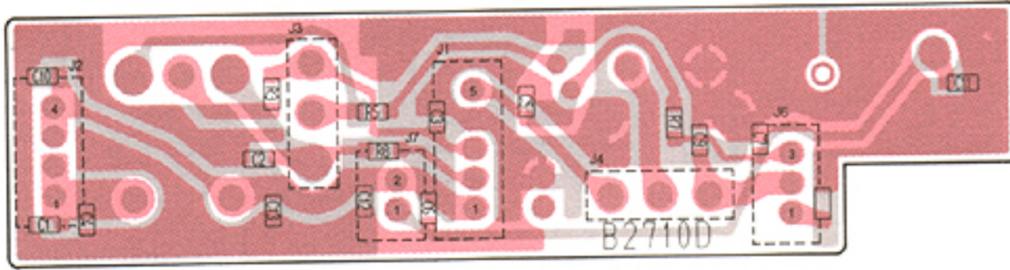
• PTT UNIT



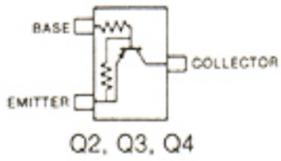


• VR UNIT

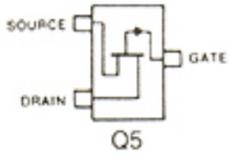
• MAIN UNIT



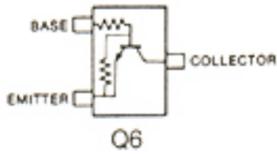
**DTA144EU**  
(Symbol: 16)



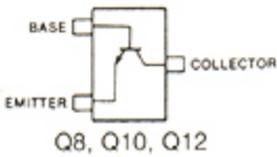
**2SJ106 Y**  
(Symbol: VY)



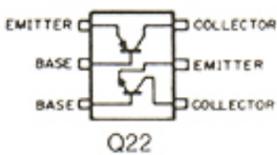
**DTC143ZU**  
(Symbol: 123)



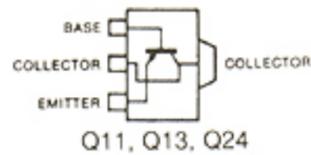
**2SC4081 R**  
(Symbol: BR)



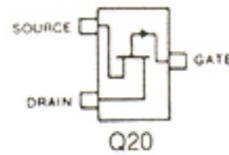
**IMZ2**  
(Symbol: Z2)



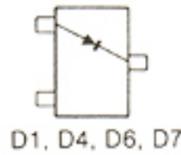
**2SB798 DK**  
(Symbol: DK)



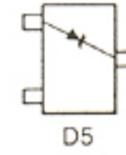
**2SJ106 GR**  
(Symbol: VG)



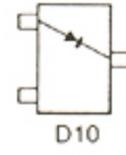
**AD114**  
(Symbol: AV)



**RD4.3M B2**  
(Symbol: 432)



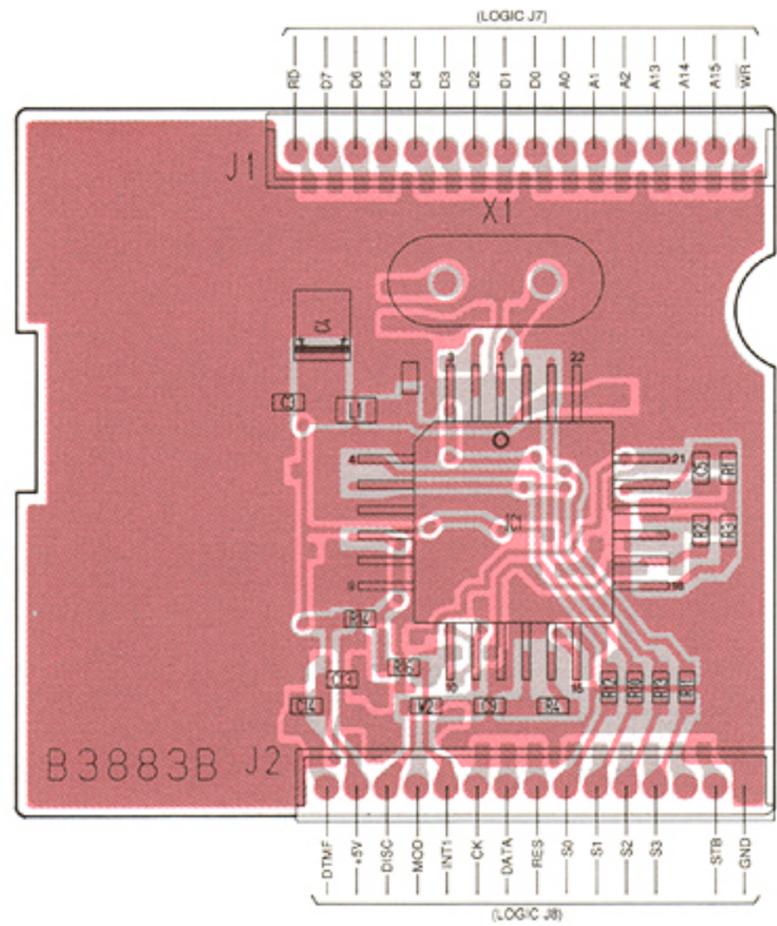
**1SS193**  
(Symbol: F3)



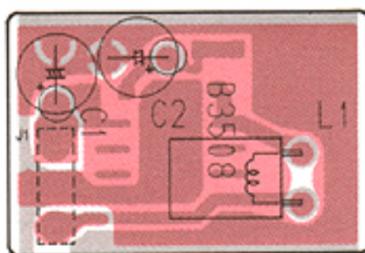
## 7-4 TONE UNIT

- TONE UNIT (#01-#06, #09-#13)

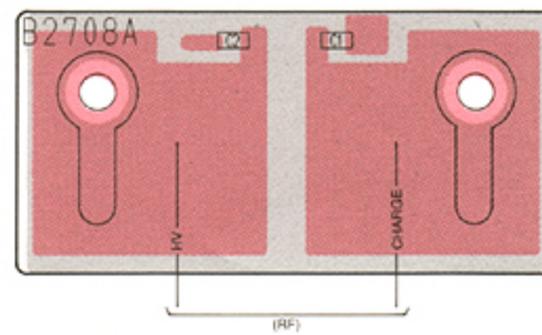
The combination of this page and the next page show the unit layout in the same configuration as the actual P.C. Board.



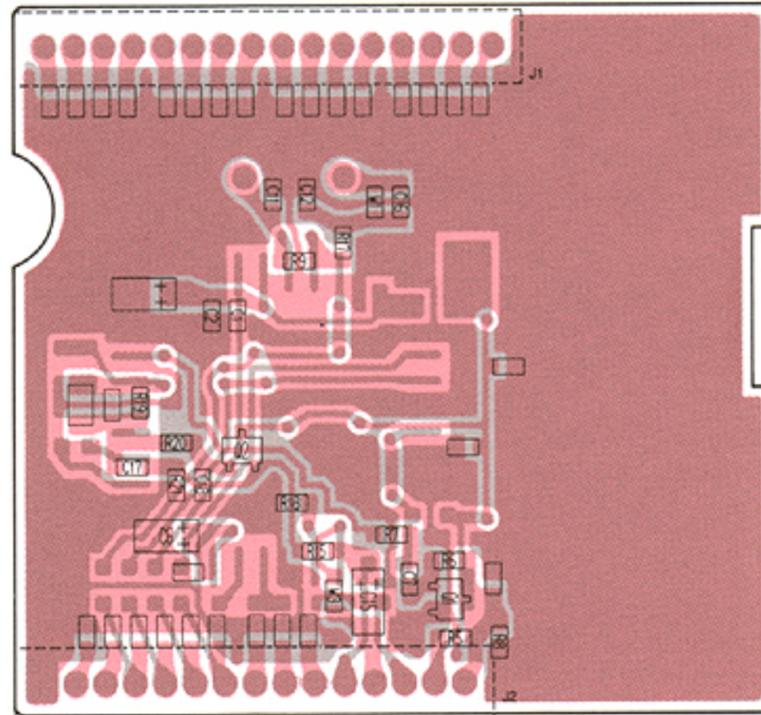
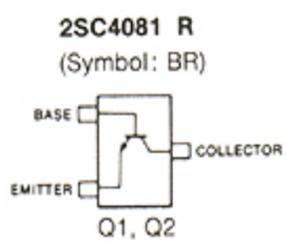
- DC-DC BOARD



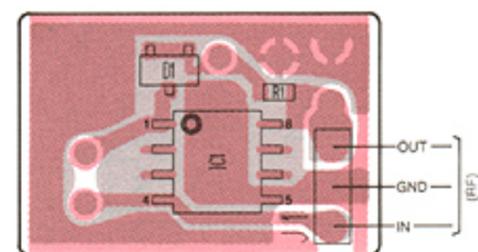
- TANSHI UNIT



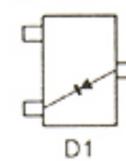
• TONE UNIT (#01-#06, #09-#13)



• DC-DC BOARD

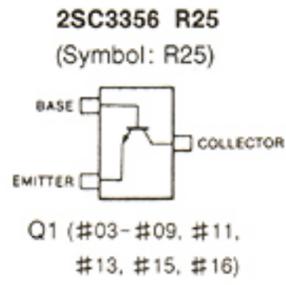
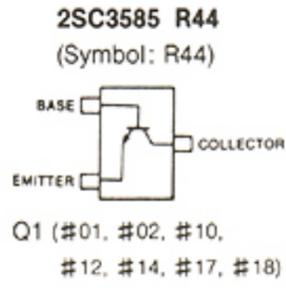
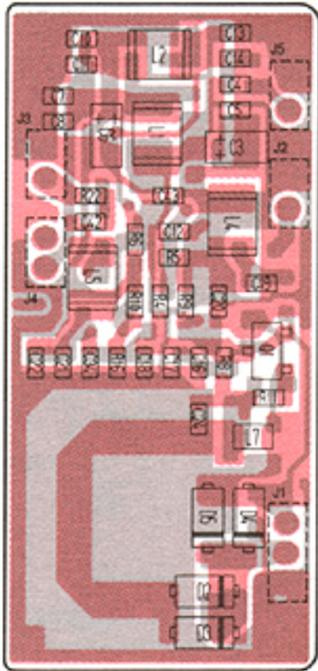


**1SS190**  
(Symbol: E3)

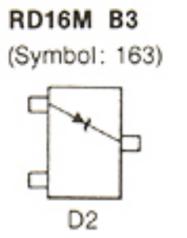
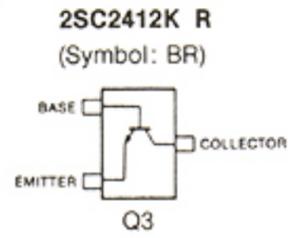
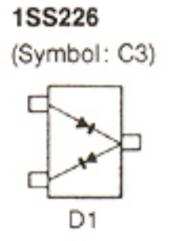
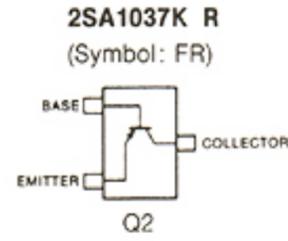
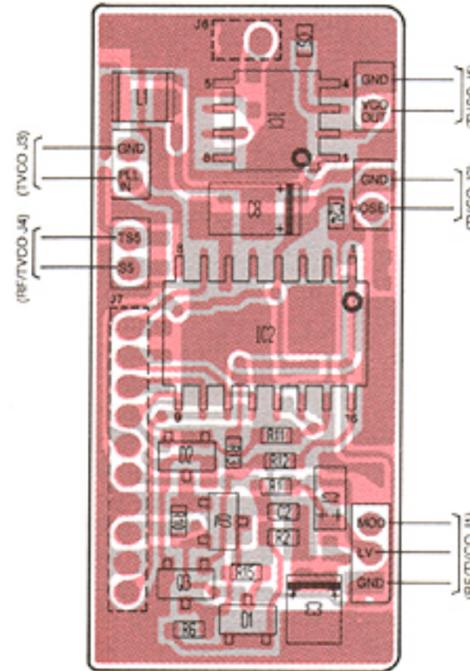




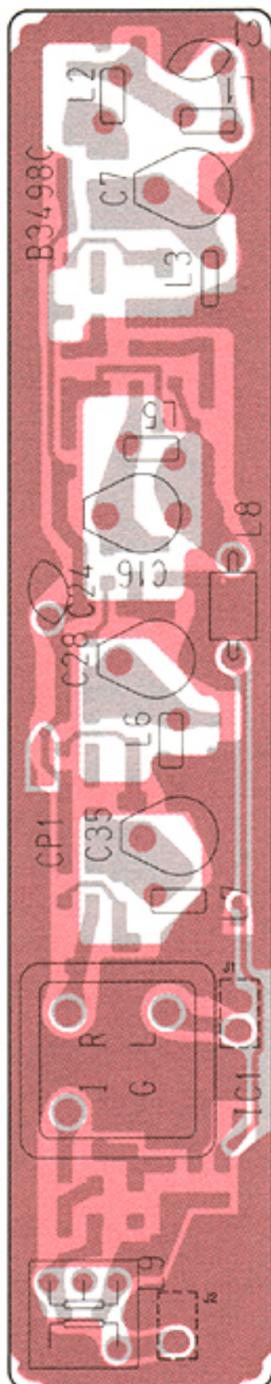
• TVCO BOARD



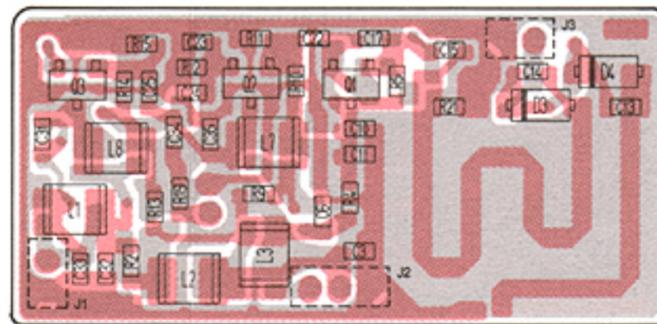
• TPLL BOARD



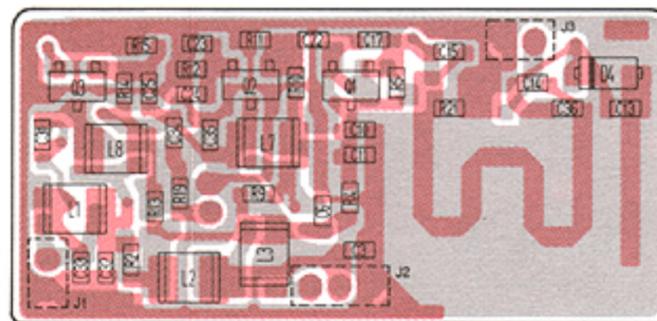
• BPF BOARD



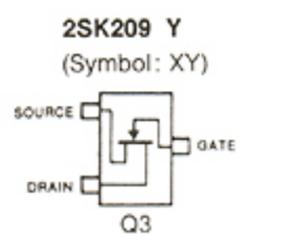
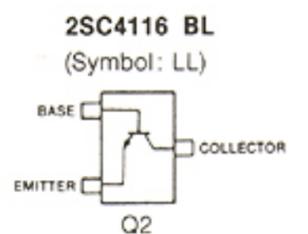
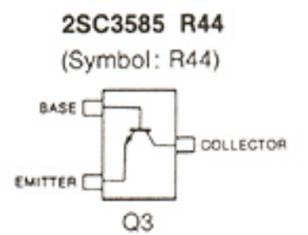
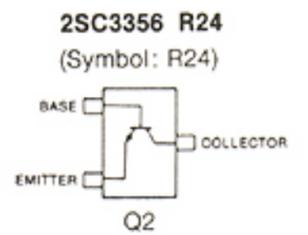
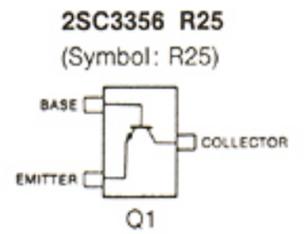
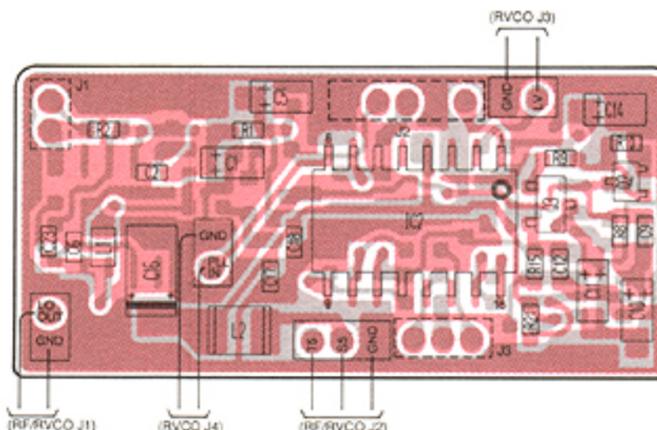
• RVCO BOARD (#01-#06, #09-#18)



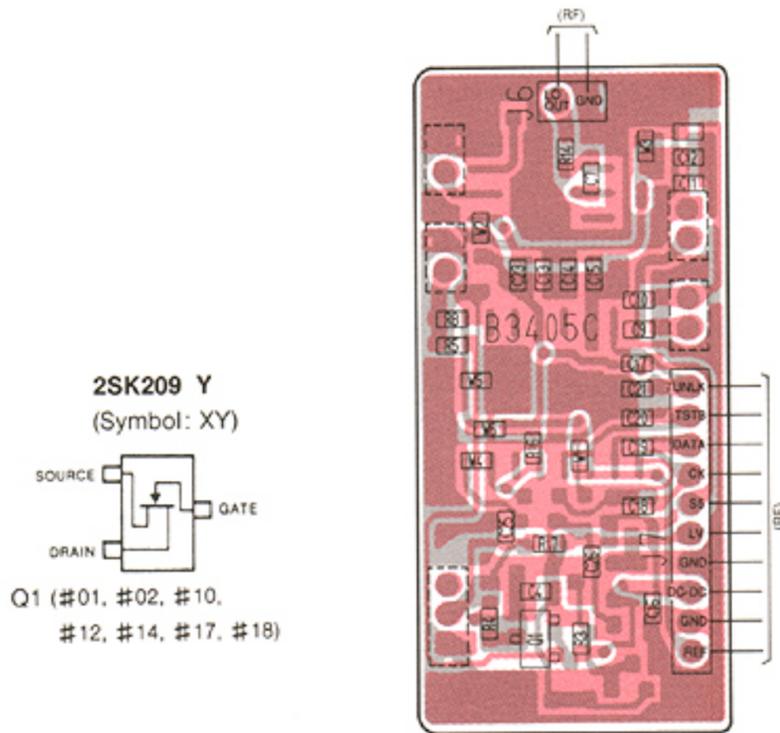
• RVCO BOARD (#07, #08)



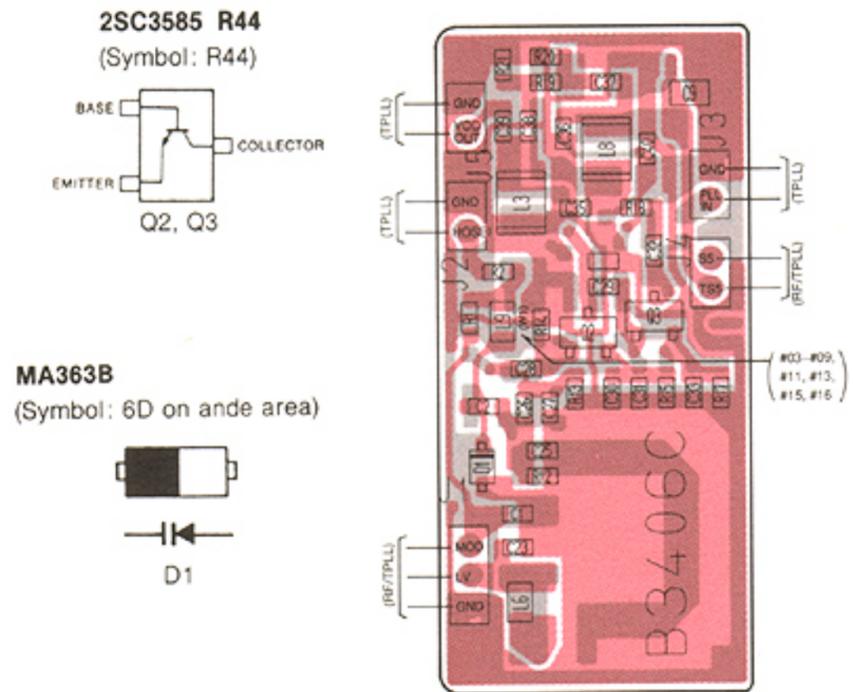
• RPLL BOARD



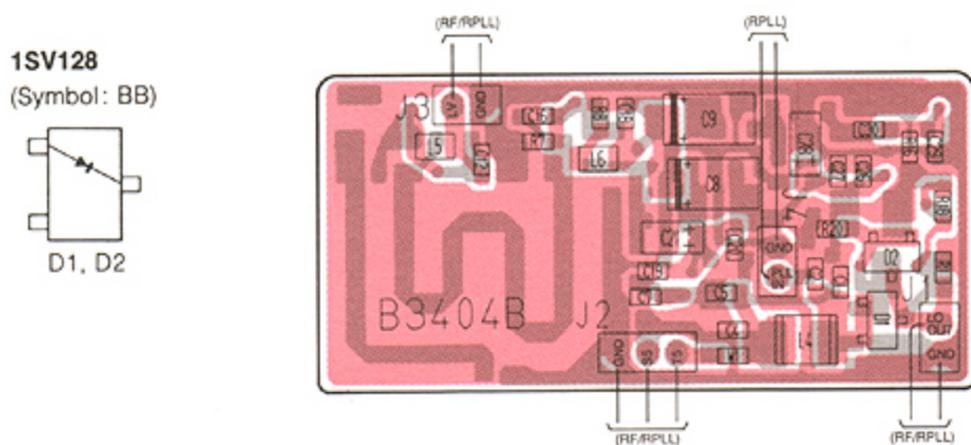
• TPLL BOARD



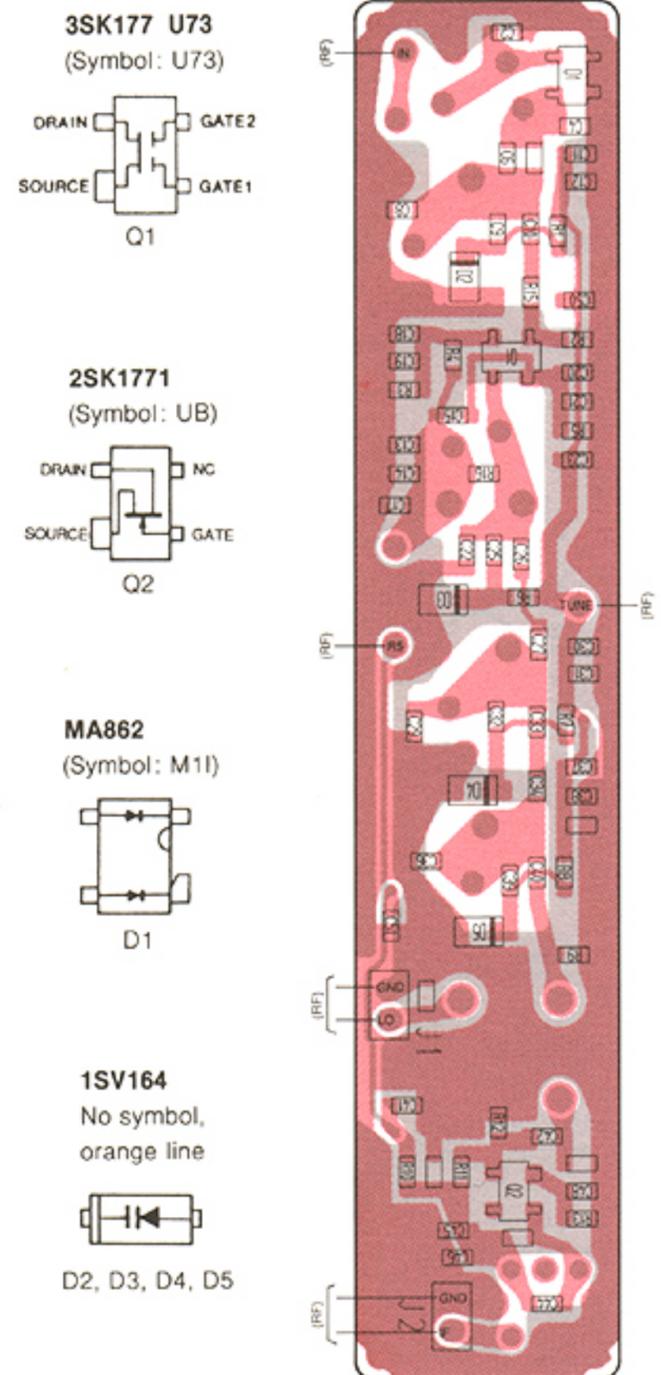
• TVCO BOARD



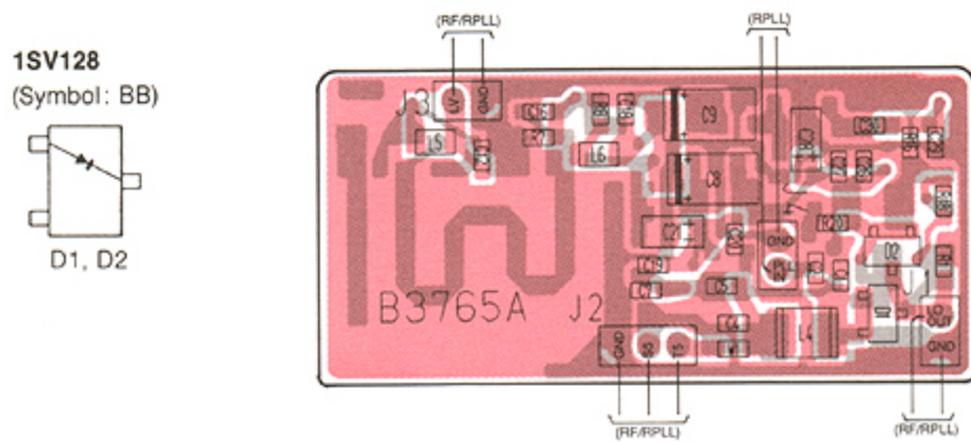
• RVCO BOARD (#01-#06, #09-#18)



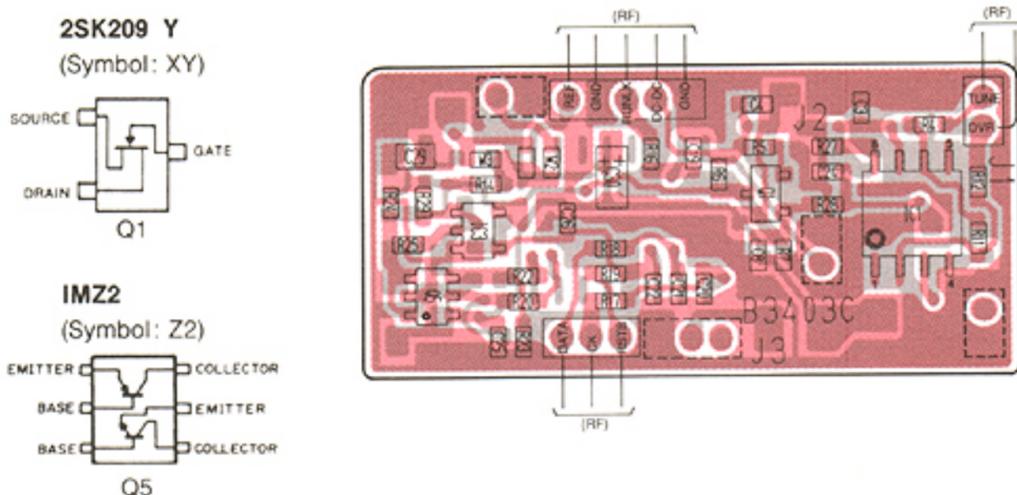
• BPF BOARD



• RVCO BOARD (#07, #08)

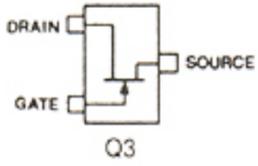


• RPLL BOARD

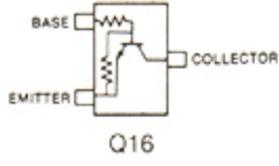


• RF UNIT

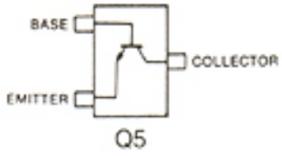
**2SK302 GR**  
(Symbol: TG)



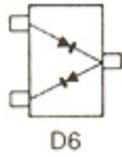
**DTC114EU**  
(Symbol: 24)



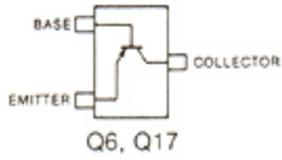
**2SC3775 3**  
(Symbol: 0Y3)



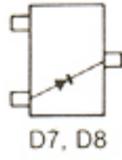
**HSM88AS**  
(Symbol: C1)



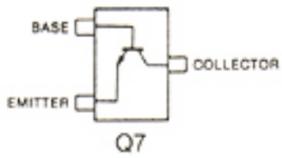
**2SA1576 R**  
(Symbol: FR)



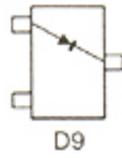
**1SS154**  
(Symbol: BA)



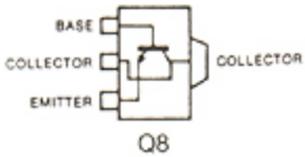
**2SC3585 R44**  
(Symbol: R44)



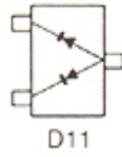
**1SS153**  
(Symbol: A9)



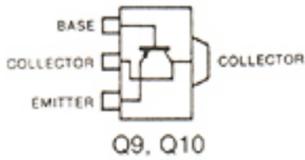
**2SC3357**  
(Symbol: RK)



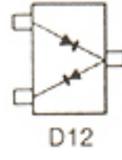
**DAP202U**  
(Symbol: P)



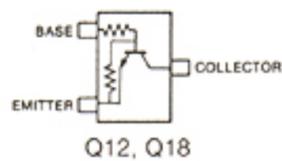
**2SB798 DK**  
(Symbol: DK)



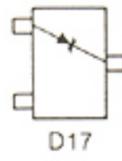
**1SS226**  
(Symbol: C3)



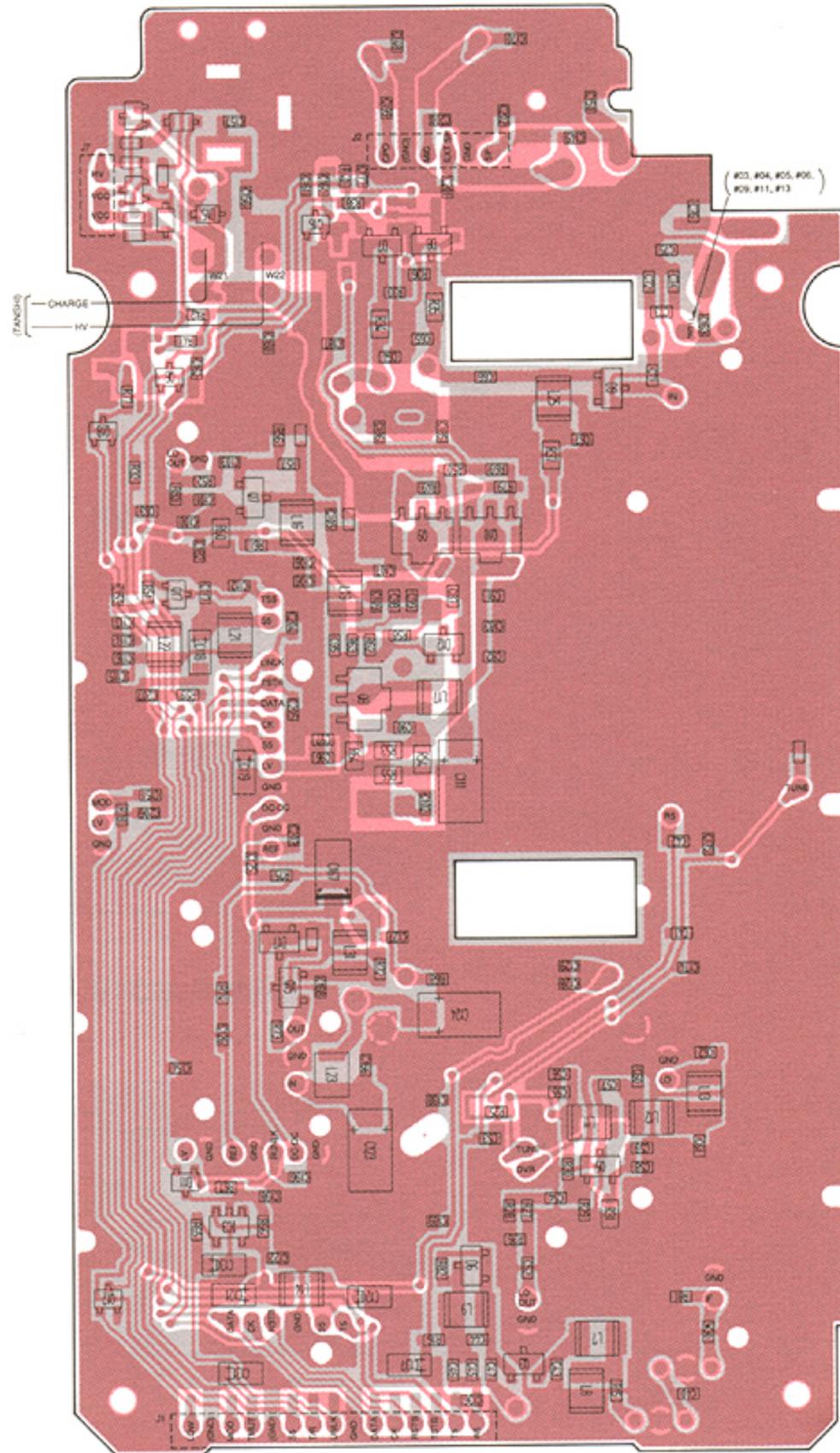
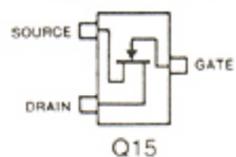
**DTC144EU**  
(Symbol: 26)



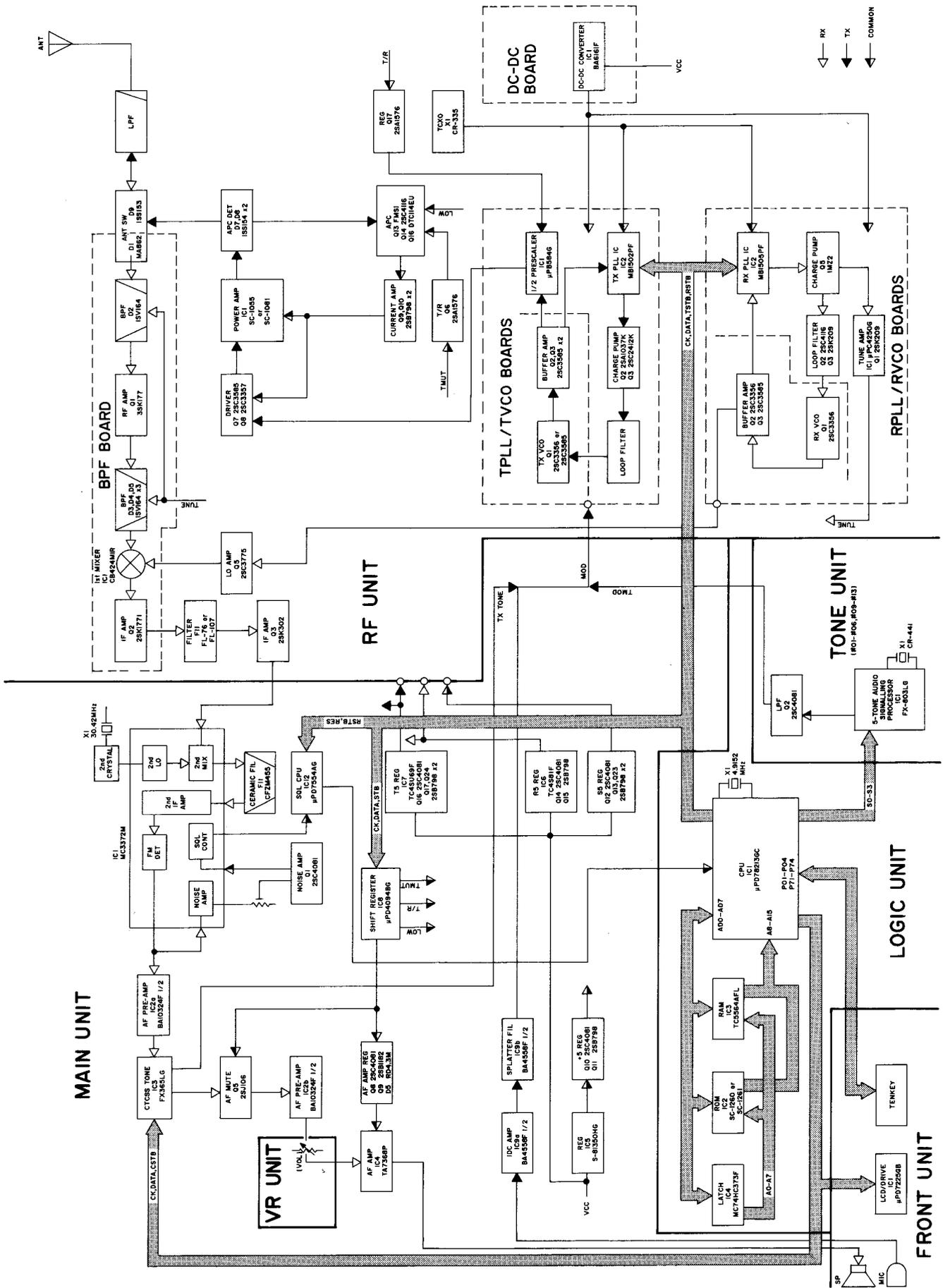
**RD20M B1**  
(Symbol: 201)



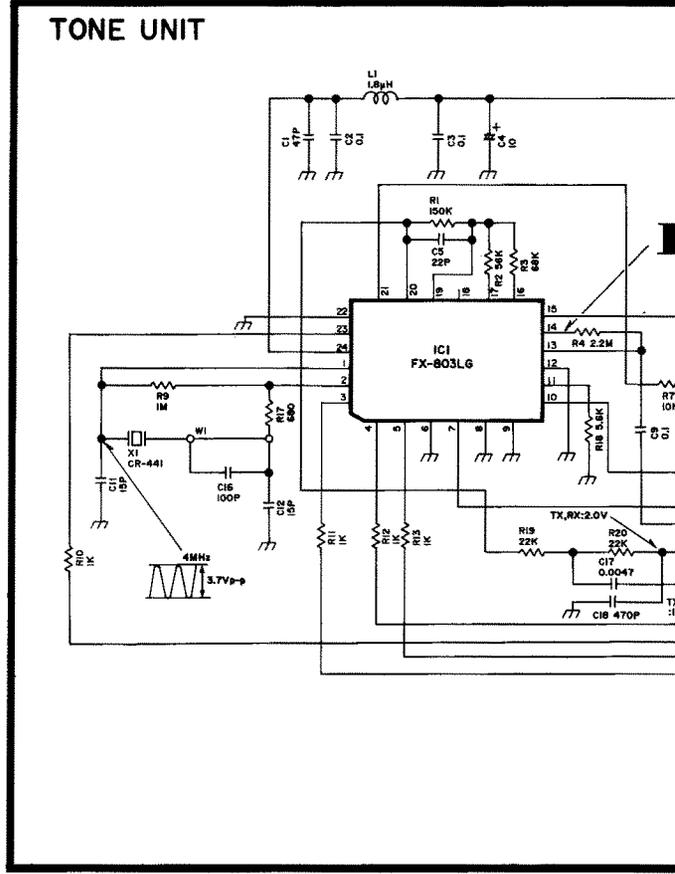
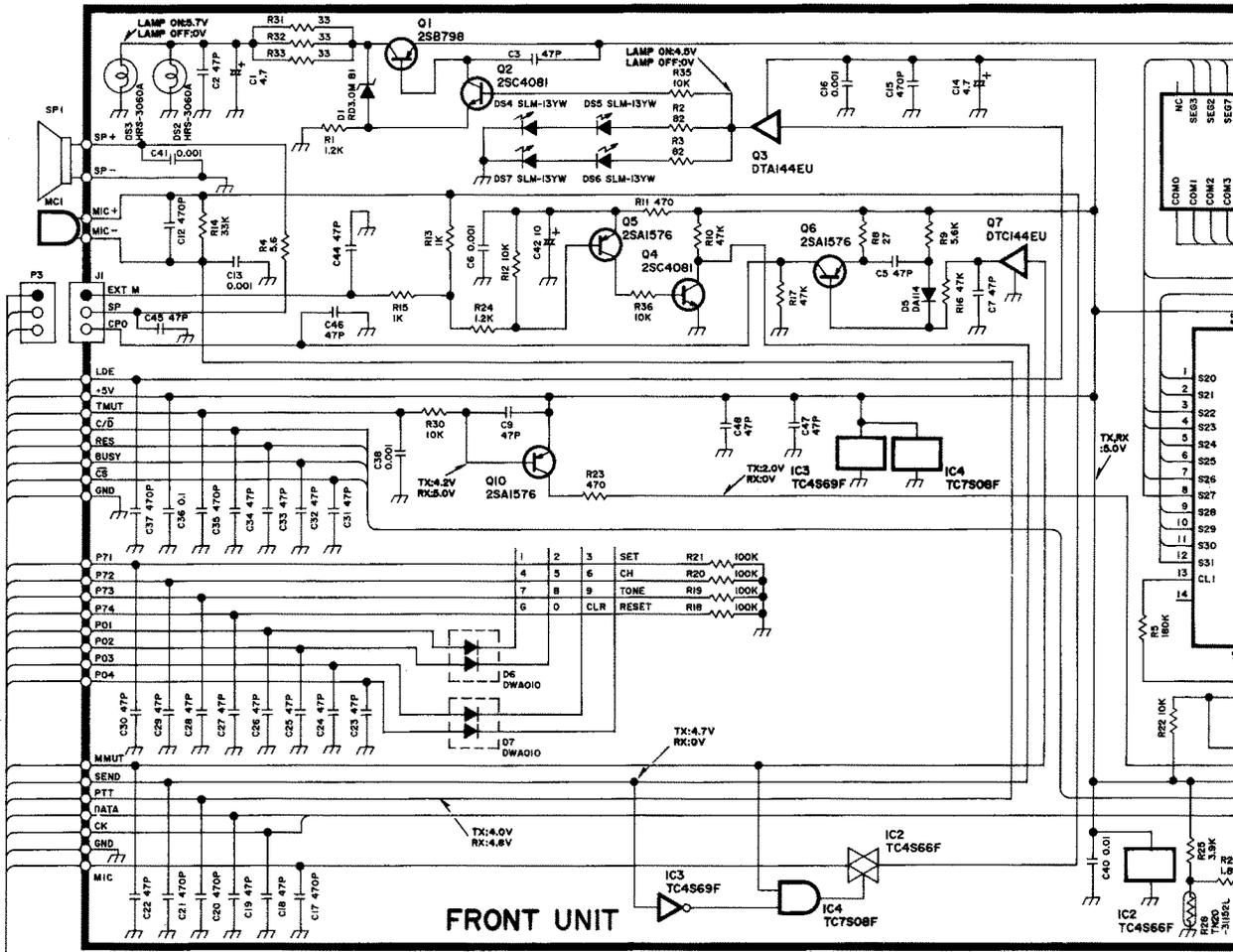
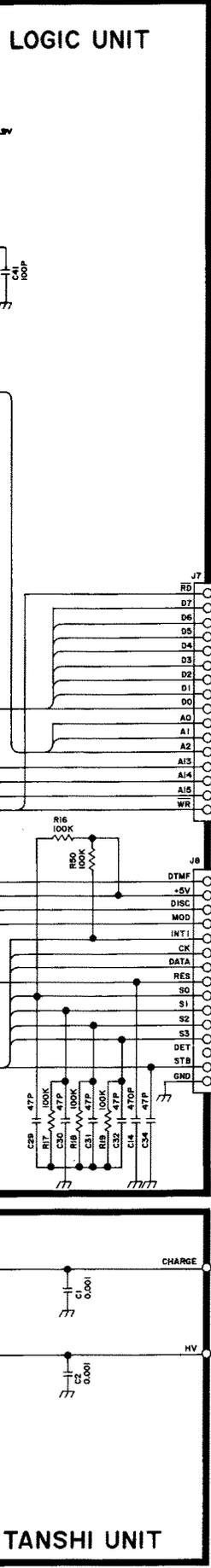
**2SK209 Y**  
(Symbol: XY)



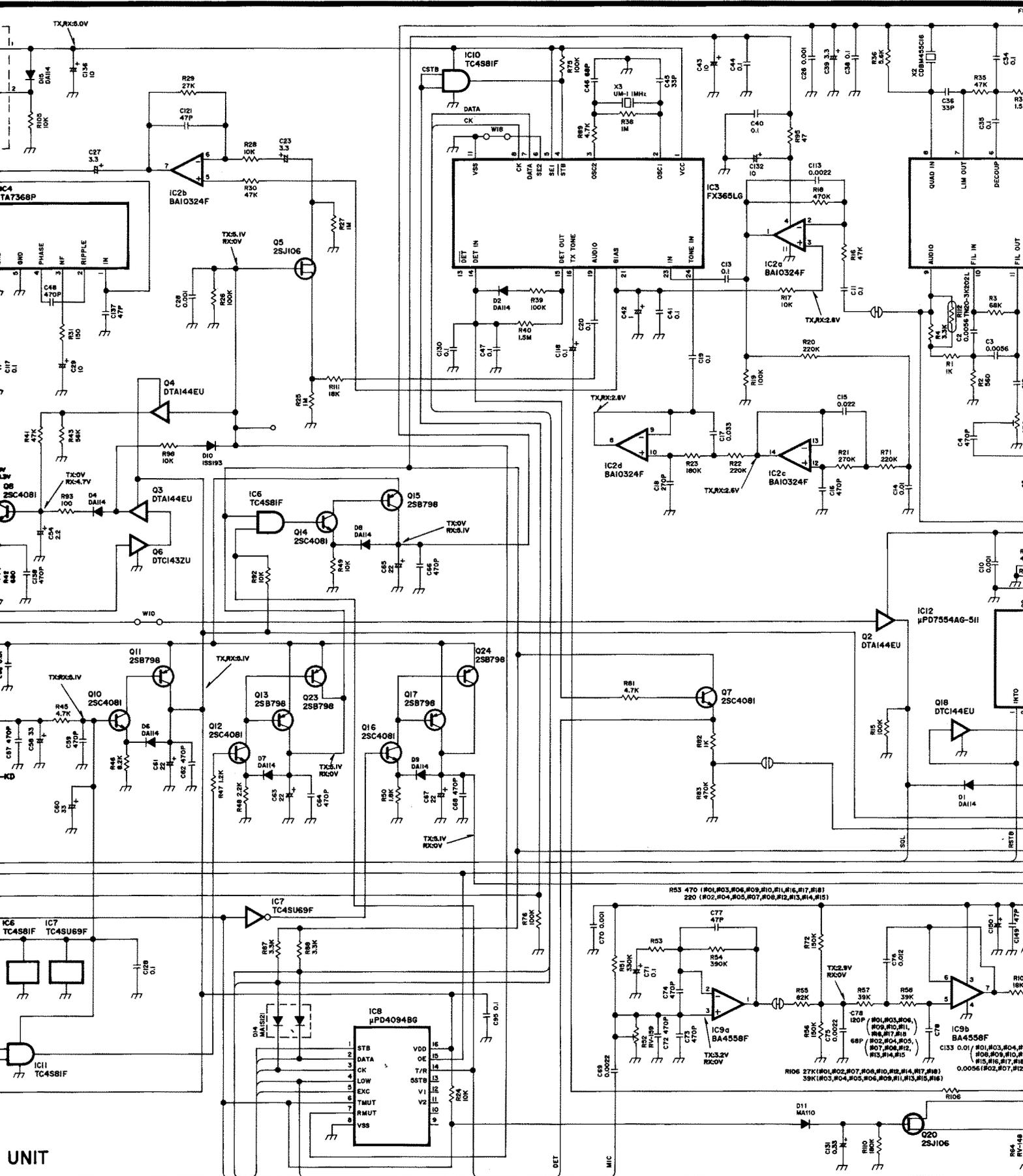
SECTION 8 BLOCK DIAGRAM











UNIT

DET

MIC

INTO

SOL

TX, RX 5.0V

TX, RX 2.8V

TX, RX 3.2V

TX, RX 3.0V

TX, RX 3.3V

TX, RX 3.6V

TX, RX 3.9V

TX, RX 4.2V

TX, RX 4.5V

TX, RX 4.8V

TX, RX 5.1V

TX, RX 5.4V

TX, RX 5.7V

TX, RX 6.0V

TX, RX 6.3V

TX, RX 6.6V

TX, RX 6.9V

TX, RX 7.2V

TX, RX 7.5V

TX, RX 7.8V

TX, RX 8.1V

TX, RX 8.4V

TX, RX 8.7V

TX, RX 9.0V

TX, RX 9.3V

TX, RX 9.6V

TX, RX 9.9V

TX, RX 10.2V

TX, RX 10.5V

TX, RX 10.8V

TX, RX 11.1V

TX, RX 11.4V

TX, RX 11.7V

TX, RX 12.0V

TX, RX 12.3V

TX, RX 12.6V

TX, RX 12.9V

TX, RX 13.2V

TX, RX 13.5V

TX, RX 13.8V

TX, RX 14.1V

TX, RX 14.4V

TX, RX 14.7V

TX, RX 15.0V

TX, RX 15.3V

TX, RX 15.6V

TX, RX 15.9V

TX, RX 16.2V

TX, RX 16.5V

TX, RX 16.8V

TX, RX 17.1V

TX, RX 17.4V

TX, RX 17.7V

TX, RX 18.0V

TX, RX 18.3V

TX, RX 18.6V

TX, RX 18.9V

TX, RX 19.2V

TX, RX 19.5V

TX, RX 19.8V

TX, RX 20.1V

TX, RX 20.4V

TX, RX 20.7V

TX, RX 21.0V

TX, RX 21.3V

TX, RX 21.6V

TX, RX 21.9V

TX, RX 22.2V

TX, RX 22.5V

TX, RX 22.8V

TX, RX 23.1V

TX, RX 23.4V

TX, RX 23.7V

TX, RX 24.0V

TX, RX 24.3V

TX, RX 24.6V

TX, RX 24.9V

TX, RX 25.2V

TX, RX 25.5V

TX, RX 25.8V

TX, RX 26.1V

TX, RX 26.4V

TX, RX 26.7V

TX, RX 27.0V

TX, RX 27.3V

TX, RX 27.6V

TX, RX 27.9V

TX, RX 28.2V

TX, RX 28.5V

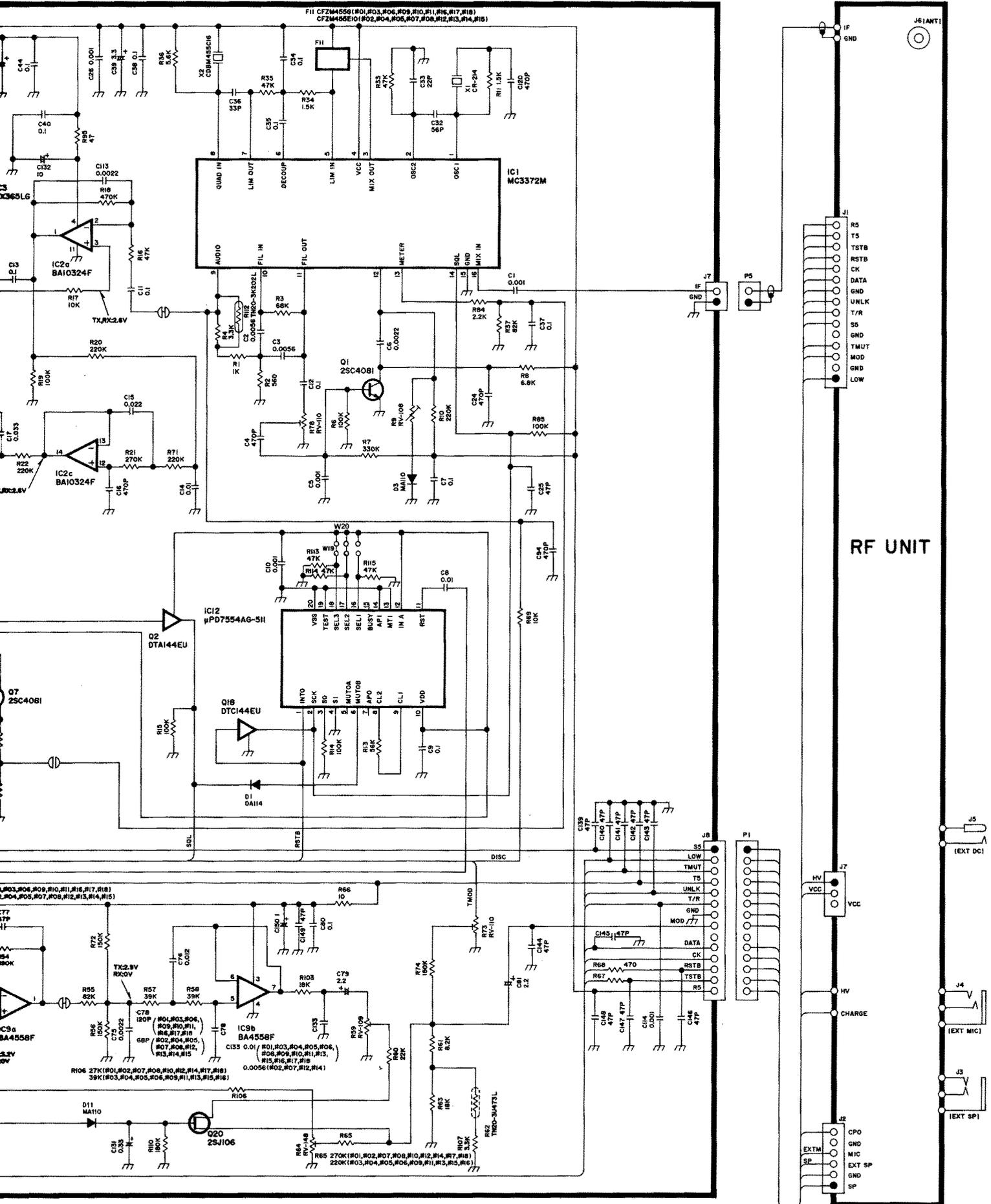
TX, RX 28.8V

TX, RX 29.1V

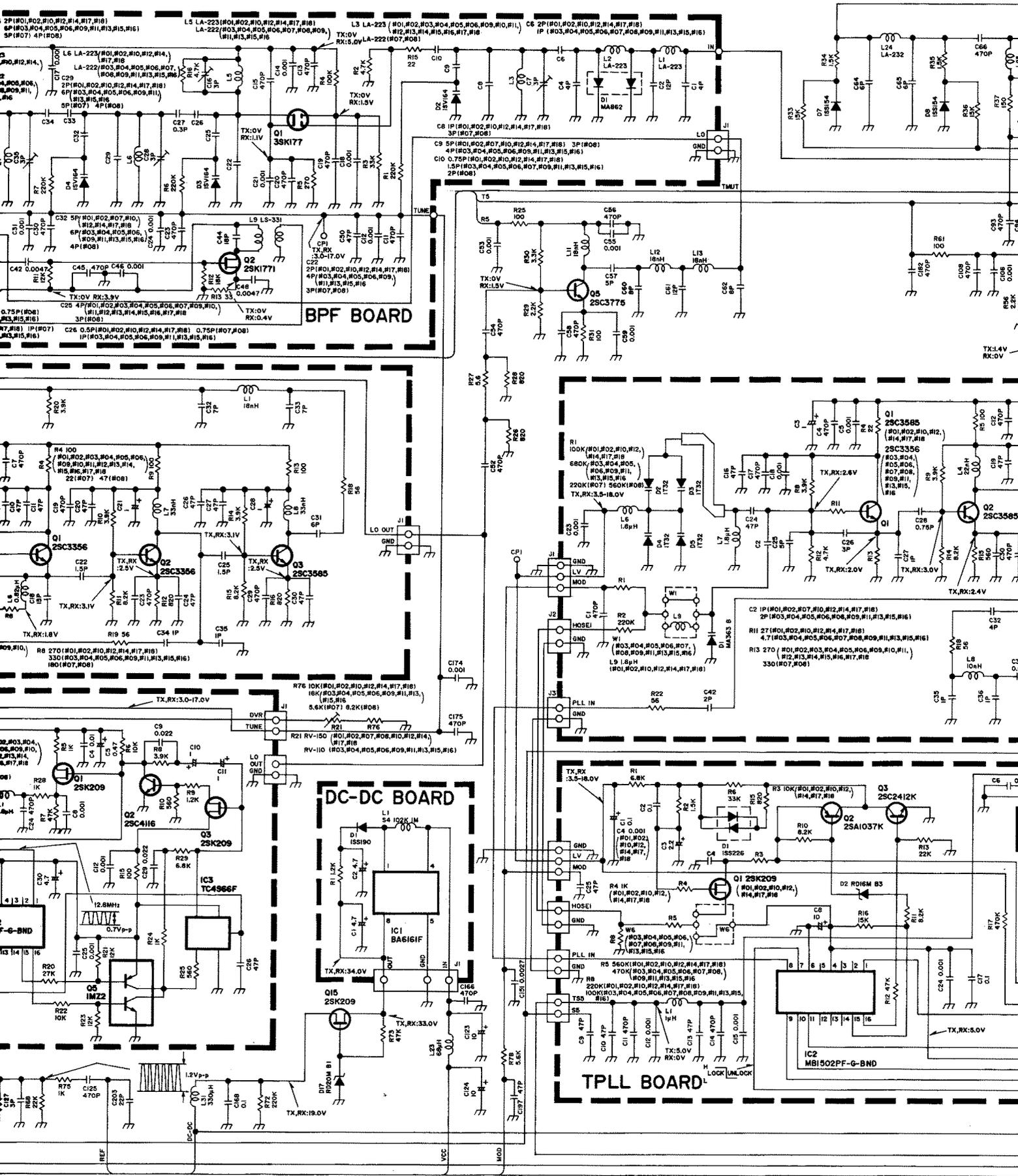
TX, RX 29.4V

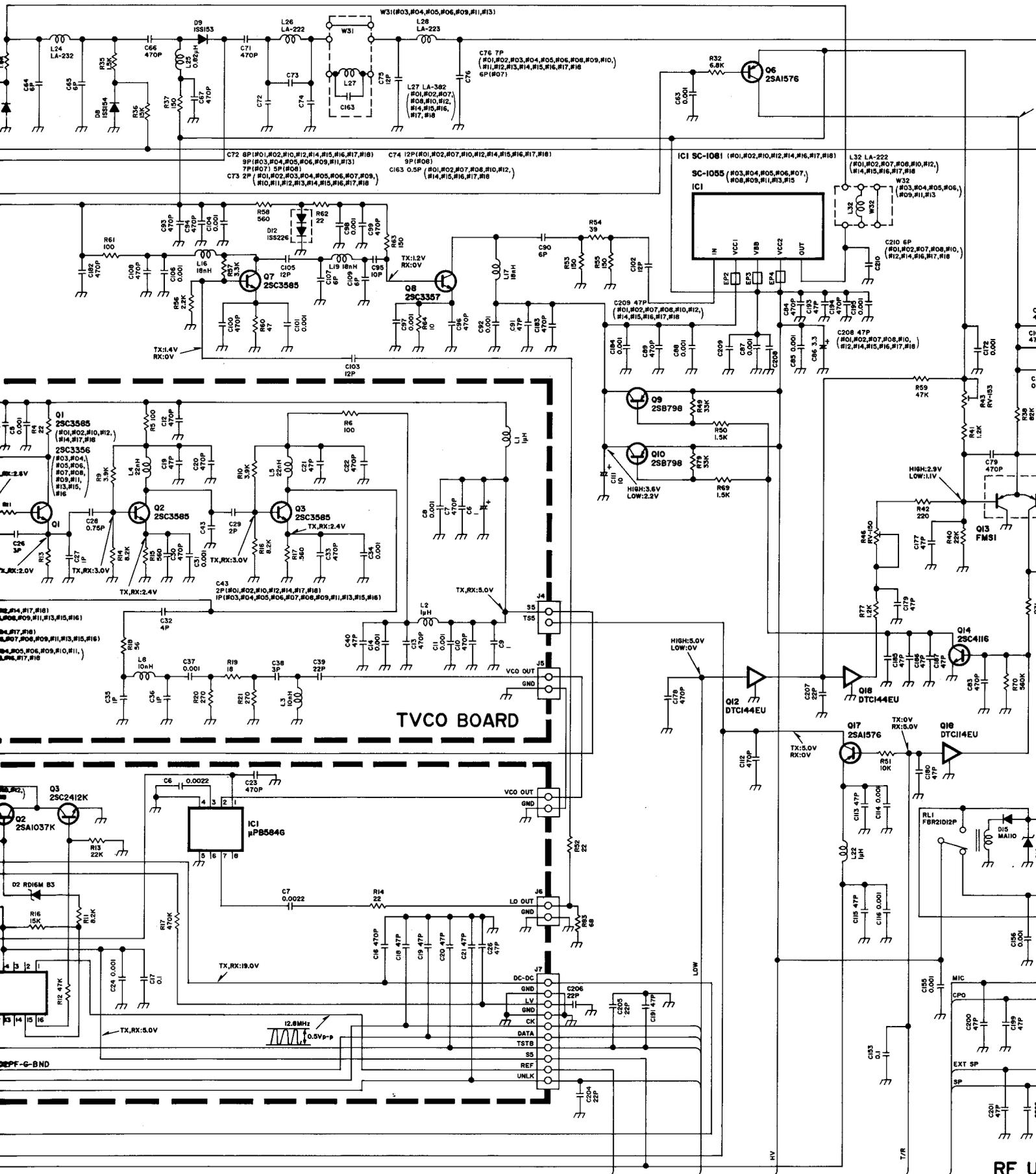
TX, RX 29.7V

TX, RX 30.0V

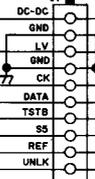




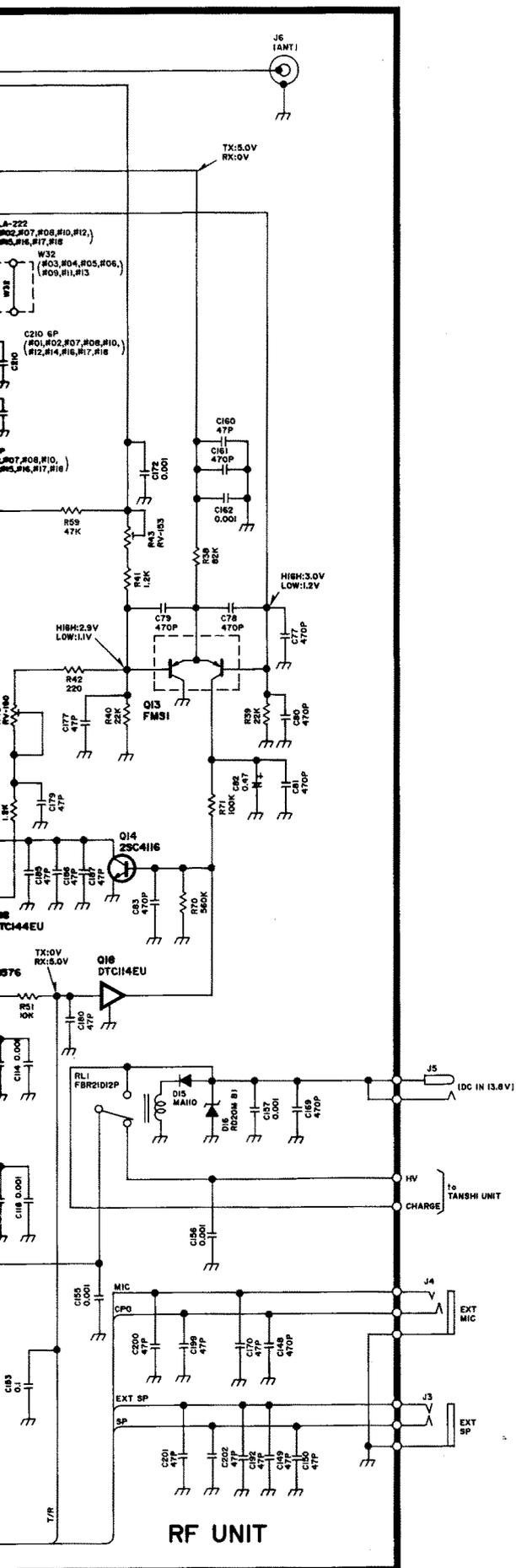




TVCO BOARD



RF U



RF UNIT

## Icom Inc.

6-9-16, Kamihigashi, Hirano-ku, Osaka 547, Japan  
Phone: 06 793 5302  
Fax : 06 793 0013  
Telex : 05277822 ICOMTR J

### Icom America Inc.

<Corporate Headquarters>  
2380 116th Avenue N.E., Bellevue, WA 98004, U.S.A.  
Phone : (206) 454-8155  
Fax : (206) 454-1509  
Telex : 152210 ICOM AMER BVUE

<Customer Service>  
Phone : (206) 454-7619

<Regional Customer Service Center>  
18102 Sky Park South, Suite 52-B, Irvine, CA 92714, U.S.A.  
Phone : (714) 852-8026  
Fax : (714) 852-8716

### Icom Canada

A Division of Icom America Inc.  
3071 #5 Road, Unit 9, Richmond, B.C., V6X 2T4, Canada  
Phone : (604) 273-7400  
Fax : (604) 273-1900

### Icom (Europe) GmbH

Communication Equipment  
Himmelgeister Str. 100, 40225 Düsseldorf 1, Germany  
Phone : 0211 346047  
Fax : 0211 333639

### Icom (Australia) Pty. Ltd.

A.C.N 006 092 575  
7 Duke Street, Windsor, Victoria, 3181, Australia  
Phone : 03 529 7582  
Fax : 03 529 8485

### Icom (UK) Ltd.

Unit 9, Sea St., Herne Bay, Kent, CT6 8LD, U.K.  
Phone : 0227 741741  
Fax : 0227 741742  
Telex : 965179 ICOM G

### Icom France S.a

Zac de la Plaine, Rue Brindejont des Moulinais  
BP 5804, 31505 Toulouse Cedex, France  
Phone : 61. 36. 03. 03  
Fax : 61. 34. 05. 91  
Telex : 521515 ICOM FRA

Count on us!

ManualsPlus.com