



SERVICE MANUAL

COMMUNICATIONS RECEIVER

IC-R5

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Icom Inc.

INTRODUCTION

This service manual describes the latest service information for the **IC-R5 COMMUNICATIONS RECEIVER** at the time of publication.

MODEL	Version	SYMBOL	AC ADAPTER
IC-R5	Europe	EUR	BC-149D
	U.K.	UK	—
	Italy	ITA	—
	U.S.A.	USA	BC-149A
	France	FRA	BC-149D
	Spain	ESP	BC-149D
	Export-01	EXP-01	BC-136A
	Export-02	EXP-02	BC-136D
	Canada	CAN	BC-149A

To upgrade quality, all electrical or mechanical parts and internal circuits are subject to change without notice or obligation.

DANGER

NEVER connect the receiver to an AC outlet or to a DC power supply that uses more than 6.5 V. Such a connection could cause a fire hazard and/or electric.

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

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

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

8930058920 LCD contact IC-R5 LOGIC UNIT 5 pieces
8810009560 Screw PH BO M2x6 ZK IC-R5 CHASSIS 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 receiver.
2. **DO NOT** open the receiver until the receiver 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 turning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the receiver is defective.
6. **READ** the instructions of test equipment thoroughly before connecting equipment to the receiver.

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SECTION 1 SPECIFICATIONS

■ GENERAL

- Frequency range :

Version	Receive Frequencies (MHz)
EUR, U.K., ITA, ESP, CAN EXP-01, EXP-02	0.495 – 1309.995
U.S.A.	0.150–823.995, 849.000–868.995, 894.000–1309.995
FRA	0.150–29.995, 50.200–51.200, 87.500–108.000, 144.000–146.000 430.000–440.000, 1240.000–1300.000

- Mode : FM, WFM, AM
- No. of memory channel : 1250 channel
(incl. scan edge and auto memory right ch.)
- Frequency stability : ± 6 ppm max.
(-10°C to $+60^{\circ}$)
- Tuning steps : 5, 6.25, 10, 12.5, 15, 20,
25, 30, 50, and 100 kHz
- Antenna Impedance : 50 Ω
- Power supply requirement : 2 \times AA(R6) Ni-Cd, alkaline
cells or external power
supply (BC-136, CP-17)
- Polarity : Negative ground
- Frequency resolution : 5 kHz, 6.25 kHz
- Current drain (at 3.0 V) :
Rated audio 170 mA typical
Standby 100 mA typical
Power saved 41 mA typical
(Power save ratio is 1 : 4)
- Usable temperature range : -10°C to $+60^{\circ}\text{C}$
(-14°F to $+140^{\circ}\text{F}$)
- Dimensions : 58(W) \times 86(H) \times 27(D) mm;
(projections not included) $2\frac{3}{32}$ (W) \times $3\frac{3}{8}$ (H) \times $1\frac{1}{16}$ (D) in
- Weight (with antenna and battery) : 185 (g); 6.5 (oz)
- External SP connector : 3-conductor 3.5(d) mm
($\frac{1}{8}$ ") / 8 Ω

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■ RECEIVER

- Receiver system : Triple super heterodyne
- Intermediate frequency : 1st 266.7 MHz
2nd 19.65 MHz
3rd 450 kHz
- Sensitivity* : (except spurious points)

Frequency (MHz)	FM	WFM	AM
0.495 – 1.625	—	—	1.3 μV
1.625 – 4.995	0.32 μV		0.71 μV
5.000 – 29.995	0.2 μV	—	—
30.000 – 75.995			
76.000 – 108.000		0.89 μV	—
108.000 – 117.995		—	0.56 μV
118.000 – 136.000	0.18 μV	—	—
136.000 – 175.000			
175.000 – 221.995		0.71 μV	—
222.000 – 246.995	0.2 μV	—	0.56 μV
247.000 – 329.995			0.61 μV
330.000 – 469.995	0.18 μV	1.0 μV	—
470.000 – 770.000	0.28 μV		
770.000 – 999.995		—	—
1000.000 – 1309.995	0.35 μV	—	—

* FM and WFM are measured at 12 dB SINAD; AM is measured at 10 dB S/N.

- Squelch Sensitivity :

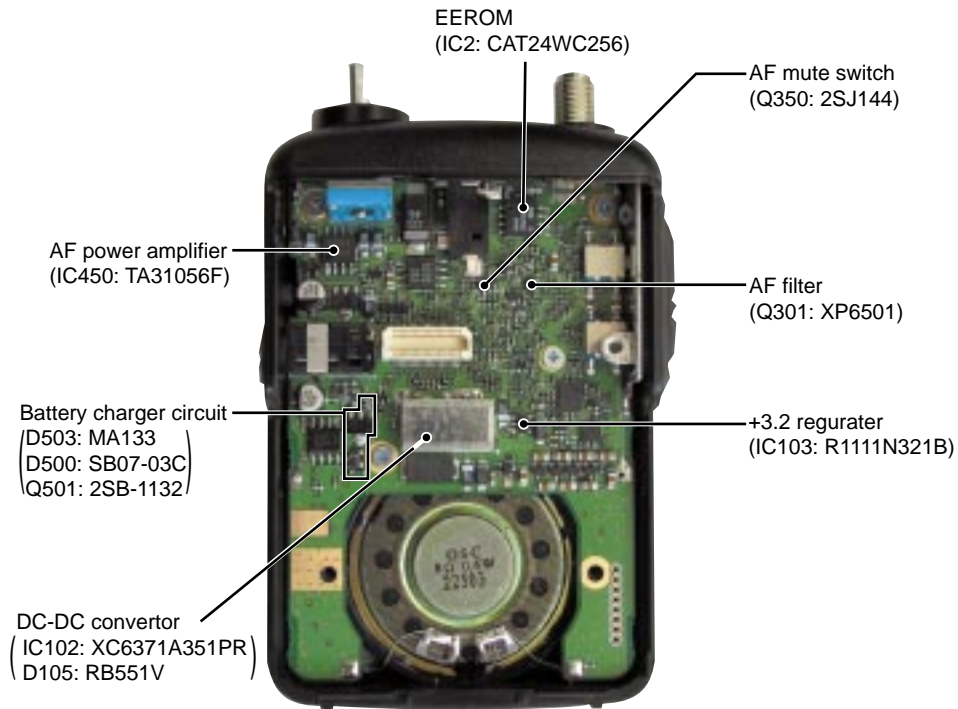
Frequency (MHz)	FM	WFM	AM	
0.495 – 1.625	—	—	2.5 μV	
1.625 – 5.0	0.56 μV		1.8 μV	
5.0 – 30.0	0.4 μV		5.6 μV	—
30.0 – 76.0		—		
76.0 – 108.0		—	1.8 μV	
108.0 – 118.0		—	—	
118.0 – 136.0		5.6 μV	—	
136.0 – 175.0		0.56 μV	—	1.8 μV
175.0 – 222.0				—
222.0 – 247.0	5.6 μV		—	
247.0 – 330.0	—		—	
330.0 – 470.0	0.79 μV	5.6 μV	—	
470.0 – 770.0			—	
770.0 – 833.0		—	—	
833.0 – 1309.995	—	—	—	

- Selectivity :
AM / FM : more than 15 kHz / -6 dB
less than 30 kHz / -60 dB
WFM : more than 150 kHz / -6 dB
- Audio output power : 100 mW typical at 10 %
distortion with an 8 Ω load

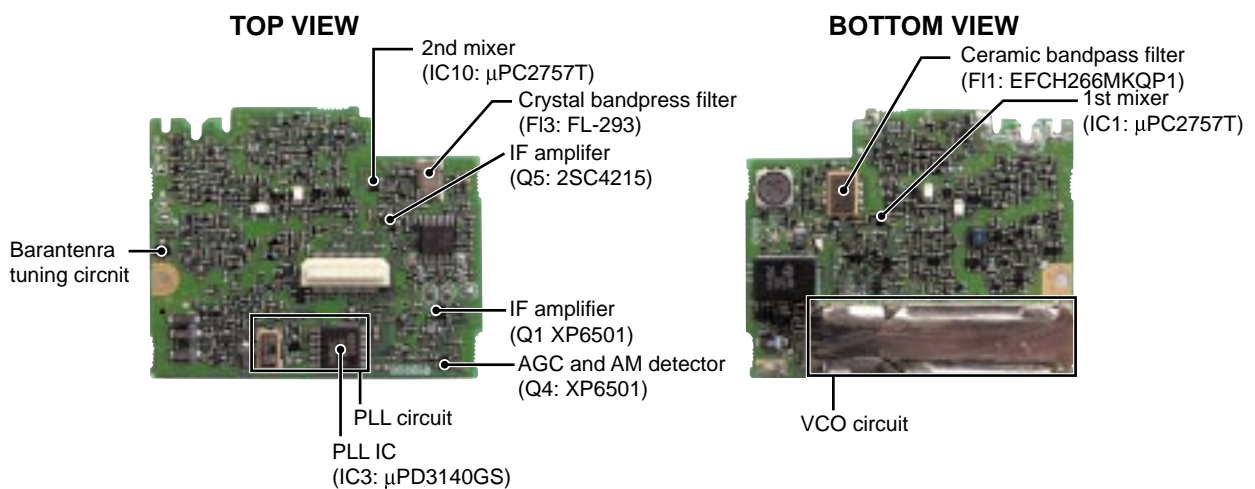
All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

• LOGIC UNIT



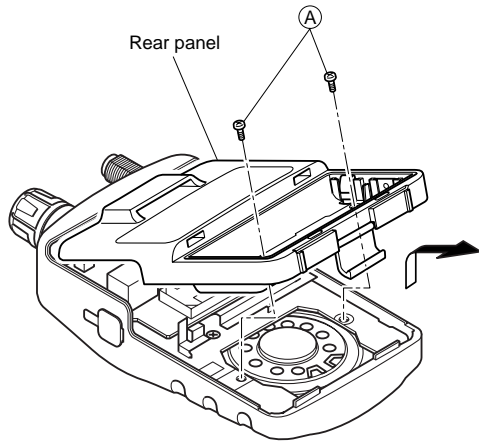
• RF UNIT



SECTION 3 DISASSEMBLY INSTRUCTIONS

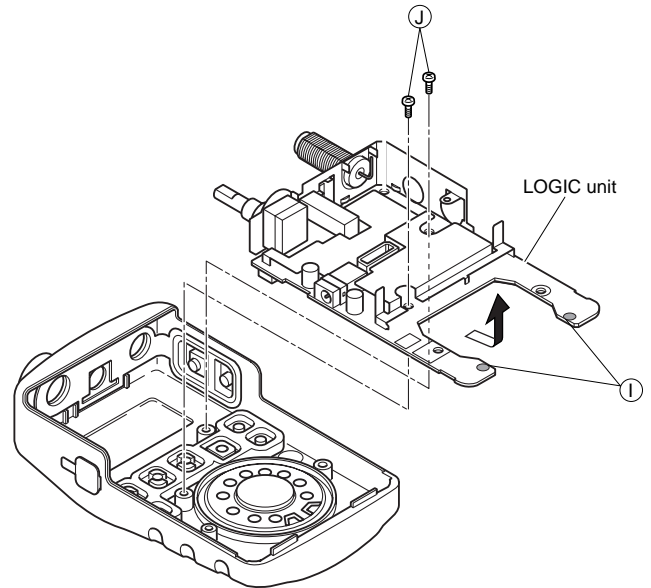
● REMOVING THE REAR PANEL

- ① Unscrew 2 screws, (A).
- ② Remove the rear panel in the direction of the arrow.



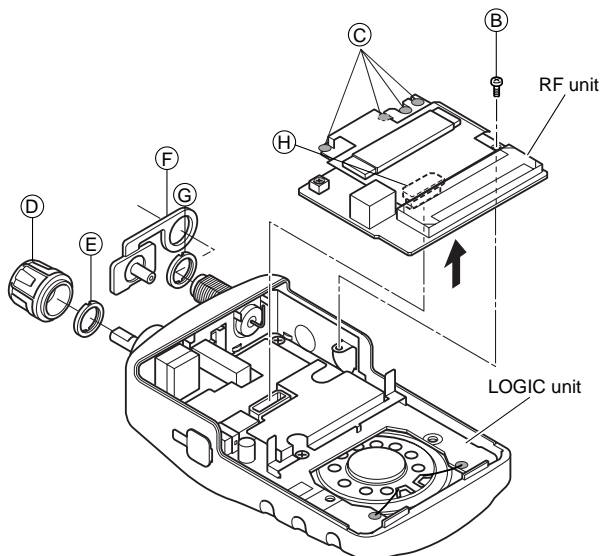
● REMOVING THE LOGIC UNIT

- ① Unsolder 2 points, (I).
- ② Unscrew 2 screws, (J), and then remove the LOGIC unit.
- ③ Remove the LOGIC unit in the direction of the arrow.



● REMOVING THE RF UNIT

- ① Unscrew 1 screw, (B).
- ② Unsolder 4 points, (C).
- ③ Remove 1 knob, and 1 cap (G).
Unscrew 2 nuts, (E) and (F).
- ④ Unplug, (H), to separate the LOGIC unit, and then remove the RF unit.



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

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

The RF signals from the antenna connector pass through the limiter (D68) and an attenuator (D69). The signals are then applied to the antenna switching circuit (D13, D31, D73, D75) which suppress out-of-band signals.

4-1-2 RF CIRCUIT (RF UNIT)

The RF circuit amplifies the received signals within the range of frequency coverage and filters out-of-band signals.

(1) 0.150 MHz–29.999 MHz

RF signals (0.150–29.999MHz) from an antenna switching circuit (D73) pass through a low-pass filter (C511–C515, L81, L82). The filtered signals are amplified at an RF amplifier (Q505) passing through each filters depending on the receiving frequency. The amplified signals are then applied to the 1st mixer circuit (IC1, pin 1) after being amplified at another RF amplifier (IC11) via the band switching diode (D71).

The signals below 1.9 MHz pass through a low-pass filter (C534, C535, C657, C658, L88, L89) via the band switching diode (D66), and are then applied to the RF amplifier circuit (Q505) via the band switching diode (D67).

The 1.9 MHz–14.995 MHz signals pass through the band switching diode (D65) and bandpass filter (C522–C531, L85–L87, L91), and are then applied to the RF amplifier circuit (Q505) via the band switching diode (D70).

The 15 MHz–29.995 MHz signals pass through the band switching diode (D63) and high-pass filter (C516–C520, L83, L84) and are then applied to the RF amplifier circuit (Q505) via the band switching diode (D64).

(2) 118 MHz–174.995 MHz, 330 MHz–832.995 MHz

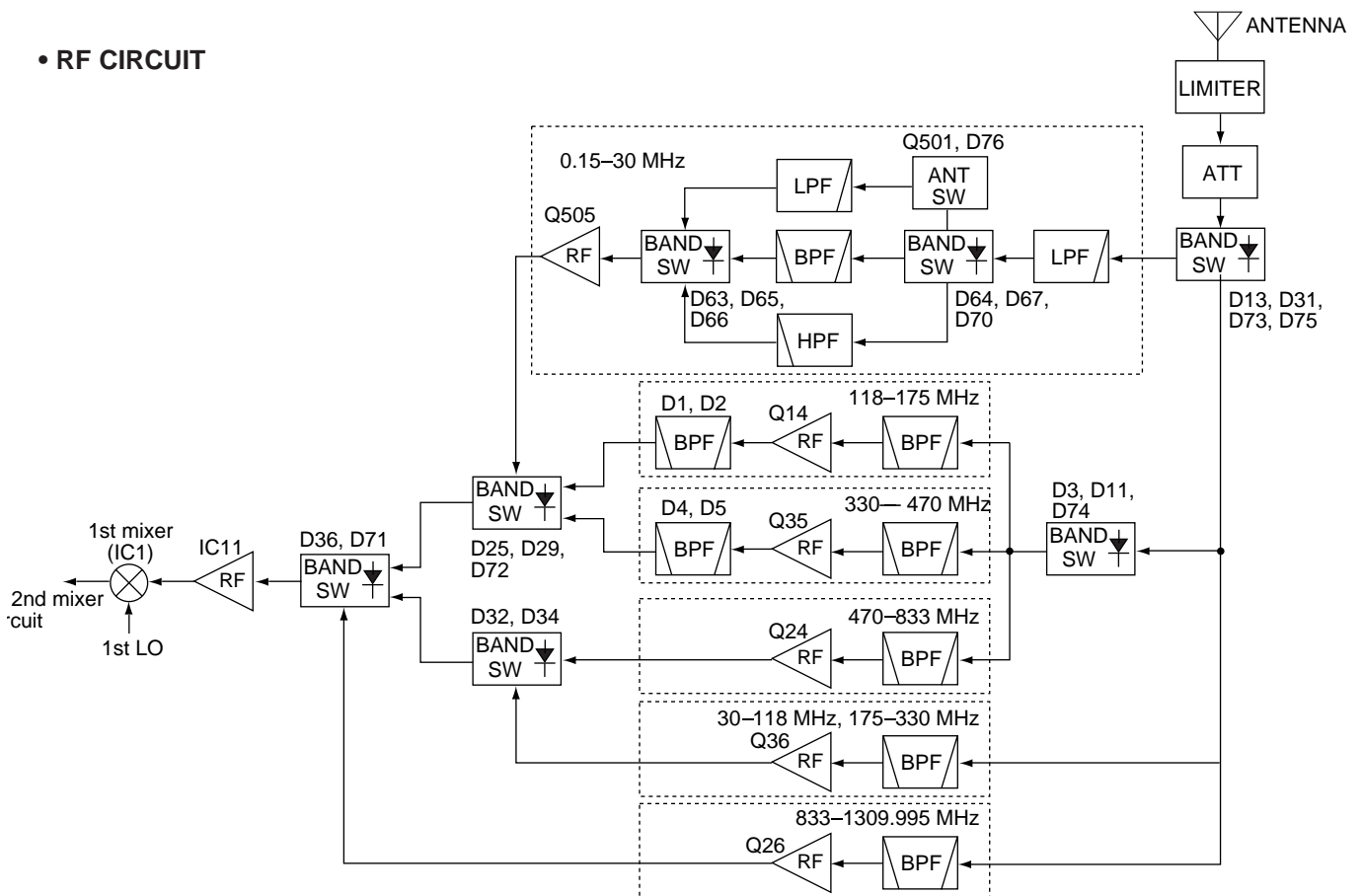
RF signals (118 MHz–174.995 MHz, 330 MHz–832.995 MHz) from an antenna switching diode (D75) are passed through each bandpass filter and RF amplifier, and are then applied to the 1st mixer circuit (IC1) via the band switching diode (D71) and RF amplifier (IC11).

The 118 MHz–174.995 MHz signals pass through the band switching diode (D74) and low-pass filter (C8–C13, C67, C416, L14, L57–L59, L70), and are then amplified at RF amplifier (Q14). The amplified signal passes through the tunable band-pass filters (D1, D2) and band switching diode (D25).

The 330 MHz–469.995 MHz signals are amplified at RF amplifier (Q35) via the band switching diode (D3) and band-pass filter (C19–C23, C216, L2–L5). The amplified signal passes through the tunable band-pass filters (D4, D5) and band switching diode (D29).

The 470 MHz–832.995 MHz signals are amplified at RF amplifier (Q24) via the band-pass filter (C32, C33, C35–C37, C39, C145), between the band switching diode (D11, D32).

• RF CIRCUIT



(3) 30–117.995 MHz, 175–329.995 MHz

The 30 MHz–117.95 MHz, 175 MHz–329.995 MHz signals pass through the band switching circuit and low-pass filter (C40–C43, C665, C666, L9, L10, L92), and are then applied to the RF amplifier (Q36). The amplified signals are amplified at the RF amplifier (IC11, pin 1) via band switching diodes (D34, D71). The amplified signals are applied to the 1st mixer circuit (IC1, pin 1).

(4) 833 MHz–1309.995 MHz

The 833 MHz–1309.995 MHz signals pass through the band switching diode (D13) and bandpass filter (C5, C45–51, L11–L13, L43), and are then applied to the RF amplifier (Q26). The amplified signals are amplified at the RF amplifier (IC11, pin 1) via band switching diodes (D36). The amplified signals are applied to 1st mixer circuit (IC1, pin 1).

4-1-3 1ST MIXER CIRCUIT (RF UNIT)

The 1st mixer circuit converts the received RF signals to a fixed frequency of the 1st IF signal with a PLL output frequency. By changing the PLL frequency, only the desired frequency will pass through the bandpass filters at the next stage of the 1st mixer.

The filtered RF signals are mixed with 1st LO signals at the 1st mixer circuit (IC1) to produce a 266.7 MHz 1st IF signal. The 1st IF signal is output from pin 6, and passed through the bandpass filter (F11) to suppress unwanted harmonic components. The filtered 1st IF signal is applied to the 2nd mixer circuit.

The 1st LO signals are generated at the 1st VCO (Q28, Q30, D54) and are applied to the 1st mixer (IC1, pin 3) directly or passing through the doubler circuit (Q31) after being amplified at the buffer amplifiers (IC4, Q40).

4-1-4 1ST IF AND 2ND MIXER CIRCUITS (RF UNIT)

The 2nd mixer circuit converts the 1st IF signal to a 2nd IF signal.

The filtered 266.7 MHz 1st IF signal from the bandpass filter is mixed with the 2nd LO signal at the 2nd mixer circuit (IC10, pin 1) to produce a 19.65 MHz 2nd IF signal. The 2nd IF signal pass through (except WFM mode) or bypass (WFM mode) the bandpass filter (F13), and is then amplified at the 2nd IF amplifier (Q5). The amplified signal is applied to the demodulator circuit.

4-1-5 DEMODULATOR CIRCUITS (RF UNIT)

The demodulator circuit converts the 2nd IF signal into AF signals.

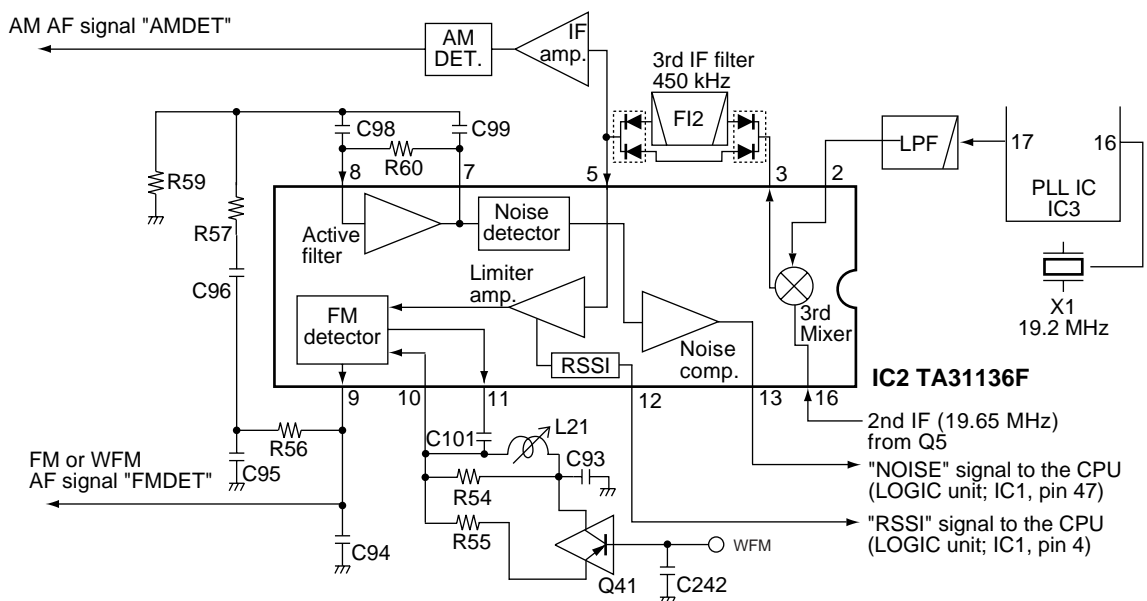
The 19.65 MHz 2nd IF signal from the 2nd IF amplifier (Q5) is applied to the 3rd mixer section of the FM IF IC (IC2, pin 16) and is then mixed with the 3rd LO signal for conversion into a 450 kHz 3rd IF signal.

IC2 contains the 3rd mixer, limiter amplifier, quadrature detector and S-meter detector, etc. A frequency from the PLL reference oscillator is used for the 3rd LO signal (19.20 MHz).

(1) FM mode

The 3rd IF signal is output from the FM IF IC (IC2, pin 3) and passes through the ceramic bandpass filter (F12). The filtered signal is fed back and amplified at the limiter amplifier section (pin 5), then demodulated AF signals at the quadrature detector section (pins 10, 11) and detector coil (L21). The demodulated AF signals are output from pin 9 and are applied to the AF circuit (LOGIC unit) via the "FMDET" signal.

• DEMODULATOR CIRCUIT



(2) WFM mode

The 3rd IF signal from the 3rd mixer bypasses the ceramic filter (FI2) and fed back to the limiter amplifier section (pin 5). The amplified signal is demodulated at the quadrature detector section (pins 10, 11) and detector coil (L21). The AF signals are output from pin 9 and are applied to the AF circuit (LOGIC unit) via the "FMDET" signal.

By connecting R55 to R54 in parallel, the output characteristics of pin 12, "RSSI", change gradually. Therefore, the FM IF IC can detect WFM components.

(3) AM mode

The filtered 3rd IF signal from the bandpass filter (FI2) is amplified at the 3rd IF amplifier (Q1). The amplified IF signal is applied to the AM detector circuit (Q4) to converted into AF signals, and the signals are applied to the AF circuit (LOGIC unit) via the "AMDET" signal.

4-1-6 AF AMPLIFIER CIRCUIT (LOGIC UNIT)

The AF amplifier circuit amplifies the demodulated AF signals to drive a speaker.

While in FM mode, AF signals from the demodulator circuit (RF unit) are passed through the de-emphasis circuit (R323, C316, C318) with frequency characteristics of -6 dB/octave, and are then applied to the pre-amplifier (Q300) via the high-pass filter (Q301).

While in AM mode, AF signals are pass through the high-pass filter (Q301) and are then applied to the pre-amplifier (Q300).

While in WFM mode, AF signals are applied to the pre-amplifier (Q300) directly via the mode switch (Q302).

The pre-amplified AF signals pass through the AF mute circuit (Q350) and are then applied to the electronic volume control circuit (IC400, pin 6). The level controlled AF signals are output from pin 7 and applied to the AF power amplifier (Q452 and IC450, pin 1) via the buffer amplifier (Q400). The power amplified AF signals are applied to the internal speaker via the [EXT SP] jack.

The electronic volume control circuit controls AF gain, therefore, the AF output level is according to the [VOL] setting and also the squelch conditions.

4-1-7 SQUELCH CIRCUIT (LOGIC AND RF UNITS)

• NOISE SQUELCH

The noise squelch circuit cuts out AF signals when no RF signals are received. By detecting noise components in the AF signals, the squelch circuit switches the AF mute switch.

A portion of the "NOISE" signals from the FM IF IC (RF unit; IC2, pin 13) are applied to the CPU (LOGIC unit; IC1, pin 47). The CPU analyzes the noise condition and outputs the "AMUTE" signal (from pin 50) to the AF mute switch (LOGIC unit; Q350).

• TONE SQUELCH

The tone squelch circuit detects AF signals and opens the squelch only when receiving a signal containing a matching subaudible tone (CTCSS). When tone squelch is in use, and a signal with a mismatched or no subaudible tone is received, the tone squelch circuit mutes the AF signals even when noise squelch is open.

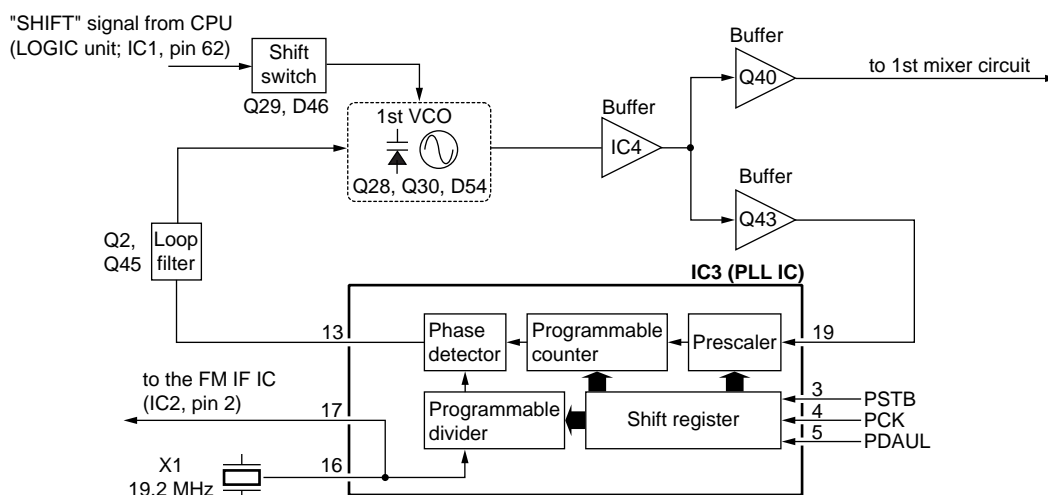
A portion of the AF signals from the FM IF IC (IC2, pin 9) passes through the low-pass filter (LOGIC unit; IC200, pin 5) via the "FMDET" line to remove AF (voice) signals and is applied to the CTCSS decoder inside the CPU (LOGIC unit; IC1, pin 7) via the "RTONE" line to control the AF mute switch.

4-2 PLL CIRCUITS

4-2-1 PLL CIRCUIT (RF UNIT)

A PLL circuit provides stable oscillation of the receive 1st/2nd LO frequencies. The PLL circuit compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by the divided ratio (N-data) of a programmable divider.

• PLL CIRCUIT



An oscillated signal from the 1st VCO passes through the buffer amplifiers (IC4, Q43) is applied to the PLL IC (IC3, pin 19) and is prescaled in the PLL IC based on the divided ratio (N-data). The PLL IC detects the out-of-step phase using the reference frequency and outputs it from pin 13. The output signal is passed through the loop filter (Q2, Q45) and is then applied to the 1ST VCO circuit as the lock voltage.

4-2-2 REFERENCE OSCILLATOR CIRCUIT (RF UNIT)

The reference oscillator circuit (X1, D18) generates a 19.2 MHz reference frequency which is stabilized within the temperature range -10°C ($+14^{\circ}\text{F}$) to $+60^{\circ}\text{C}$ ($+140^{\circ}\text{F}$). The reference frequency is applied to the PLL IC (IC3, pin 16) and the signal is output from the pin 17, and is then applied to the FM IF IC (IC2, pin 2) via the low-pass filter.

4-2-3 1ST VCO CIRCUIT (RF UNIT)

The oscillated signal is applied to the buffer amplifiers (IC4, Q40). The amplified signal is applied to the 1st mixer circuit (IC1) via the RX LO switch circuit (D42–D44) and doubler circuit (Q31).

The 1st VCO circuit (Q28, Q30, D54) oscillates 266.85 MHz–380 MHz (normal) and 380 MHz–550 MHz (shifted) by switching the SHIFT switch (Q29, D46) “High” and “Low” respectively.

A portion of the signal from IC4 is amplified at the buffer amplifier (Q43) and is then fed back to the PLL IC (IC3, pin 19) as the comparison signal.

4-2-4 DOUBLER CIRCUIT (RF UNIT)

The doubler circuit composes doubler1, doubler2 and bypass circuits.

• DOUBLER1 CIRCUIT

The oscillated signal at the VCO circuit is amplified at the buffer amplifier (IC4), and then applied to the other buffer amplifier (Q40). The amplified 266.85–400 MHz signal passes through the LO switch (D43), and is then applied to the doubler circuit (Q31, pin 5). The signal is applied to the 1st mixer circuit (IC1, pin 3) via the LO switch (D50).

• DOUBLER2 CIRCUIT

The oscillated signal at the VCO circuit is amplified at the buffer amplifier (IC4), and then applied to the other buffer amplifier (Q40). The amplified 380.45–549.85 MHz signal passes through the LO switch (D44), and is then applied to the doubler circuit (Q31, pin 6). The signal is applied to the 1st mixer circuit (IC1, pin 3) via the LO switch (D47).

• BYPASS CIRCUIT

The oscillated signal at the VCO circuit is amplified at the buffer amplifier (IC4), and then applied to the other buffer amplifier (Q40). The amplified 266.85–550 MHz signal bypasses doubler circuit via the LO switch (D42, D52), and is then applied to the 1st mixer circuit (IC1, pin 3).

4-2-5 2ND VCO CIRCUIT (RF UNIT)

The 2nd LO circuit generates the 2nd LO frequencies, and the signals are applied to the 2nd mixer circuit.

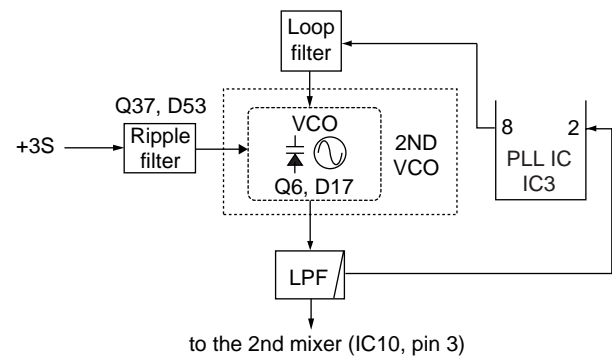
The 2nd VCO circuit (Q6, D17, L45, C80, C207, C208) oscillates 247.05 MHz and 286.35 MHz. The oscillated signal is applied to the 2nd mixer (IC10, pin 3), and is then mixed with the 1st IF signal.

An oscillated signal from the 2nd VCO passes through the low-pass filter (C154, C250–C252, L69), and is applied to the PLL IC (IC3, pin 2), and is then output from pin 8.

4-2-6 3RD LO CIRCUIT (RF UNIT)

The PLL IC (IC3) and X1 oscillate the 19.2 MHz LO signal. The signal is applied to the PLL IC (pin 16), and is then applied to the buffer amplifier section of the IC. The amplified signal is output from pin 17, and is then applied to the 3rd mixer section of the FM IF IC (IC2, pin 2) as 3rd LO signal.

• 2ND VCO CIRCUIT



4-3 OTHER CIRCUITS

4-3-1 BATTERY CHARGER CIRCUIT (LOGIC UNIT)

When the battery charger function is switched ON, the battery charger control signal becomes high, and is then output from the CPU (IC1, pin 48) as “CHGC” signal. The signal is applied to the battery charger controller (Q502), and its output controls the battery charger circuit (Q501, D500, D503) to output 120 mA charging current.

4-3-2 BAR ANTENNA TUNING CIRCUIT (LOGIC AND RF UNITS)

When switching to the AM bar antenna while AM band receiving, the AM bar antenna switching signal is output from the CPU (LOGIC unit; IC1, pin 44) as “ANTSW” signal. The signal is applied to the antenna switching circuit (Q510, D76), and then switches to the AM bar antenna.

The CPU (LOGIC unit; IC1) outputs the “TRAC” bar antenna control signal from pin 141. The signal is applied to the level convertor (RF unit Q513), and is then applied to the AM bar antenna tune circuit (D100). The circuit tunes to the desire frequency to change the D100’s capacity.



**4-3-3 EAR PHONE ANTENNA CIRCUIT
(LOGIC AND RF UNITS)**

When switching to the ear phone antenna while WFM band receiving, the received RF signal passes through the external speaker jack (LOGIC unit; J2). The signal is applied to the D101's anode side (RF unit), and is then applied to the RF circuit.

4-3-4 RESET CIRCUIT (LOGIC UNIT)

When power switch is ON, +3CPU signal from the +3.2 regulator (IC103) is applied to the reset IC (IC3, pin 2). The IC outputs reset signal via the "RESET" line, and the signal is applied to the CPU (IC1, pin 19) to reset it.

4-3-5 LCD BACK LIGHT CIRCUIT (LOGIC UNIT)

When the LCD back lights ON, the LCD back light control signal becomes high, and is output from the CPU (IC1, pin 69) as "LIGHT" signal. The signal is applied to the light switch (Q5), and is then applied to the LCD light LED (EP3).

**4-4 POWER SUPPLY CIRCUITS
VOLTAGE LINE**

LINE	DESCRIPTION
HV	The voltage from the external power supply or attached battery.
VCC	The same voltage as the "HV" line (external power supply or battery pack).
VP	Common 14 V converted from the clock signal (LOGIC unit; IC1, pin 40) by the DC-DC converters (LOGIC unit; IC100, D100-D103). The output voltage is applied to the PLL circuit, etc (RF unit).
+3CPU	Common 3 V converted from the "VCC" line by the +3.2 regulator IC (LOGIC unit; IC103). The output voltage is supplied to the CPU, reset IC (LOGIC unit; IC3), EEPROM (LOGIC unit; IC2), etc.
+3V	Common 3 V converted by the +3 controller (LOGIC unit; Q103) using the "PCON" signal from the CPU. The output voltage is supplied to the PLL IC (RF unit; IC3), etc.
+3S	Common 3 V converted by the +3S controller (LOGIC unit; Q101, Q102) using the "PCON" and "+3SC" signals from the CPU. The output voltage is supplied to the ripple filter (RF unit, Q37), etc.
R3V	Common 3 V converted by the R3V controller (LOGIC unit; Q104) using the "+3SC" signal from the CPU. The output voltage is supplied to the buffer amplifier (LOGIC unit, Q400), AM detector (RF unit; Q4), etc.

4-5 PORT ALLOCATIONS

4-5-1 CPU (LOGIC UNIT; IC1)

Pin number	Port name	Description
2	K2	Input port for the [▲], [▼] switches.
3	K1	Input port for the [BAND], [V/M], [MODE] switches.
4	RSSI	Input port for the RSSI signal from the FM IF IC (RF unit; IC2, pin 12) to detect receiving signal strength.
5	VIN	Input port for the power supply voltage.
6	CTONE	<ul style="list-style-type: none"> • Input port for the antenna canceller signal. • Input port for the WX alert signal.
7	RTONE	Input port for the CTCSS decode signal (67–254.1 Hz).
14	ESIO	I/O port for the data signals from/to the EEPROM (LOGIC unit; IC2, pin 5).
15	ECK	Outputs clock signal to the EEPROM IC (LOGIC unit; IC2, pin 6).
19	RESET	Outputs reset signal to the CPU (LOGIC unit; IC1, pin 19). High: The CPU is reset.
25	POWER	Input port for the [POWER] switch. Low: [POWER] switch is pushed.
26	HVDET	Input port for the external power supply detecting signal. Low: While external power supply is connected.
28	CLS	Outputs clock shift control signal. High: While clock is shifting.
30	CLIN	Input port for the cloning data.
31	CLOUT	Outputs the cloning data.
32	PDAUL	Outputs data signal to the PLL IC.
33	PSTB	Outputs strobe signals to the PLL IC (RF unit; IC3, pin 3).
34	PCK	Outputs clock signal to the PLL IC (RF unit; IC3, pin 4).
43	UHFC	Outputs control signal for the UHF band receiving. Low: While receiving UHF band.
44	ANTSW	Outputs the AM bar antenna control signal. High: The AM bar ant. is selected.
45	WFM	Outputs control signal for the WFM circuit. Low: While receiving WFM mode.
46	AM	Outputs control signal for the AM circuit. Low: While receiving AM mode.
47	NOISE	Input port for the SQL detection noise signal.

Pin number	Port name	Description
48	CHGC	Outputs the battery charger circuit control signal. High: While the battery is charging.
49	TCON	Outputs control signal for the CTCSS regulator circuit. Low: While CTCSS is ON.
50	AMUTE	Outputs control signal for the AF mute circuit. High: While muting.
51	VHFC	Outputs control signal for the VHF band receiving. Low: While receiving VHF band.
52	PCON	Outputs the power switch control signal. Low: IC-R5 is power ON.
53	+3SC	Outputs control signal for +3S and R3V regulator circuits. Low: Receiving.
54	B3C	Outputs control signal for the 15–30 MHz receiving. Low: While receiving 15–30 MHz band.
55	BEEP	Outputs beep audio signals.
58	B2C	Outputs control signal for the 1.9–15 MHz receiving. Low: While receiving 1.9–15 MHz band.
59 60	DBL2 DBL1	Outputs control signal for the LO doubler circuits.
61	ATT	Outputs the attenuator control signal. Low: While attenuator is ON.
62	SHIFT	Outputs control signal for the VCO shift circuit.
63	HFC	Outputs control signal for the 1.9–30 MHz receiving. Low: While receiving 1.9–30 MHz band.
64	B1C	Outputs control signal for the 0.5–1.9 MHz receiving. Low: While receiving 0.5–1.9 MHz band.
65	800MC	Outputs control signal for the 800 MHz receiving. Low: While receiving 800 MHz band.
66	300MC	Outputs control signal for the 300 MHz receiving. Low: While receiving 300 MHz band.
67	GC	Outputs control signal for the 1200 MHz receiving. Low: While receiving 1200 MHz band.
68	AFON	Outputs control signal for the AF amplifier regulator.

CPU (Continued)

Pin number	Port name	Description
69	LIGHT	Outputs LCD back light control signal. High: Lights ON.
73	DCK	Input port for the clock signal from the [DIAL].
74	DUD	Input port for the up, down signals from the [DIAL].
75	SQL	Input port for the [SQL] switch. Low: [SQL] switch is pushed.
76	FUNC	Input port for the [FUNC] switch. Low: [FUNC] switch is pushed.
77	MODE	Input port for the [MODE] switch. Low: [MODE] switch is pushed.
80–85	RXF1, RXF0, B3–B0	Input port for the band matrix.
88–90, 92, 94–96	SEC37–35, SEG34, SEC33–31	Outputs LCD segment data.
97 98	CONT1 CONT0	Outputs LCD contrast control signal.
99–127	SEG28–0	Outputs LCD segment data.
138	VRC	Outputs audio volume level control signal.
139	FSET	Outputs frequency control signal.
141	TRAC	<ul style="list-style-type: none">• Outputs vari-cap tuning control signal.• Outputs bar antenna tuning control signal.

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION

Some adjustments must be adjusted on the adjustment mode. When entering the adjustment mode, the 68 kΩ terminator is required.

■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 3.0 V DC Current capacity : 1 A or more	Frequency counter	Frequency range : 0.1–1000 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better
DC voltmeter	Input impedance : 50 kΩ/V DC or better		Standard signal generator (SSG)
Digital multimeter	Input impedance : 10 kΩ/V DC or better		

■ ENTERING THE ADJUSTMENT MODE

- ① Connect a 68 kΩ terminator to the [SP] jack.
- ② Push and hold the [FUNC] key, and then turn power ON.

NOTE: Entering adjustment mode, keep on entering adjustment mode until dis-connect the 68 kΩ terminator and turn power OFF.

■ OPERATION ON THE ADJUSTMENT MODE

- Change the adjustment channel or item [UP] : [BAND] key
- Change the adjustment channel or item [DOWN] : [TS] key
- Change the adjustment value : [DIAL]
- Verify the adjustment value : Push and hold [FUNC] key, and then push [BAND] key.

When entering adjustment mode, some adjustments need to push [V/M] or [FUNC] and [V/M] keys to write the adjustment value to the CPU.

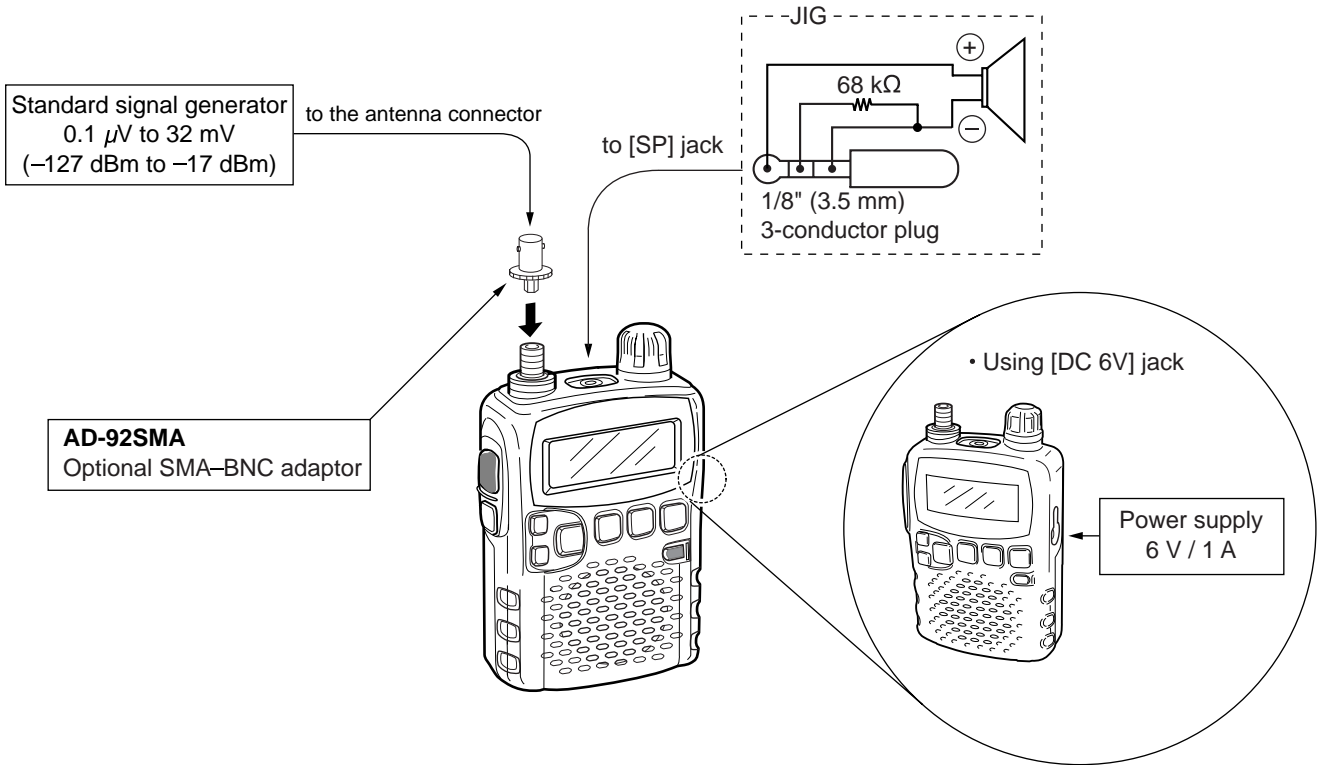
Pushing key	Operation
[V/M]	Start VHF and UHF SENSITIVITY ADJUSTMENTS automatically.
	Set the REFERENCE FREQUENCY ADJUSTMENT value.
	Set the S-METER ADJUSTMENT value.

Pushing key	Operation
Push and hold the [FUNC] key, and then push the [V/M] key.	Set the VHF and UHF SENSITIVITY ADJUSTMENTS value when manual adjustment.

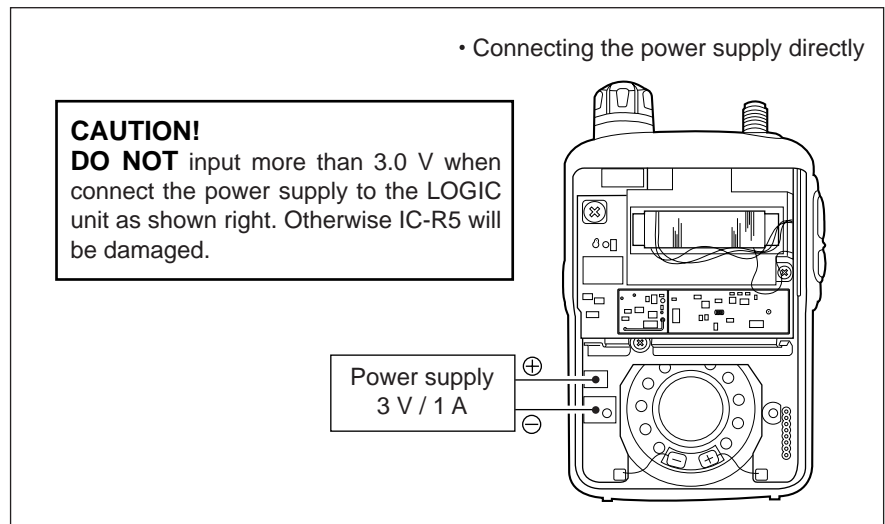
■ CONVENIENT!–AUTOMATICALLY ADJUSTMENT

BAR ANTENNA, VHF SENSITIVITY and UHF SENSITIVITY ADJUSTMENTS can be adjusted automatically. The detail shows at page 5-8.

• CONNECTION



POWER SUPPLY CONNECTION
(IC-R5 has two pattern.)



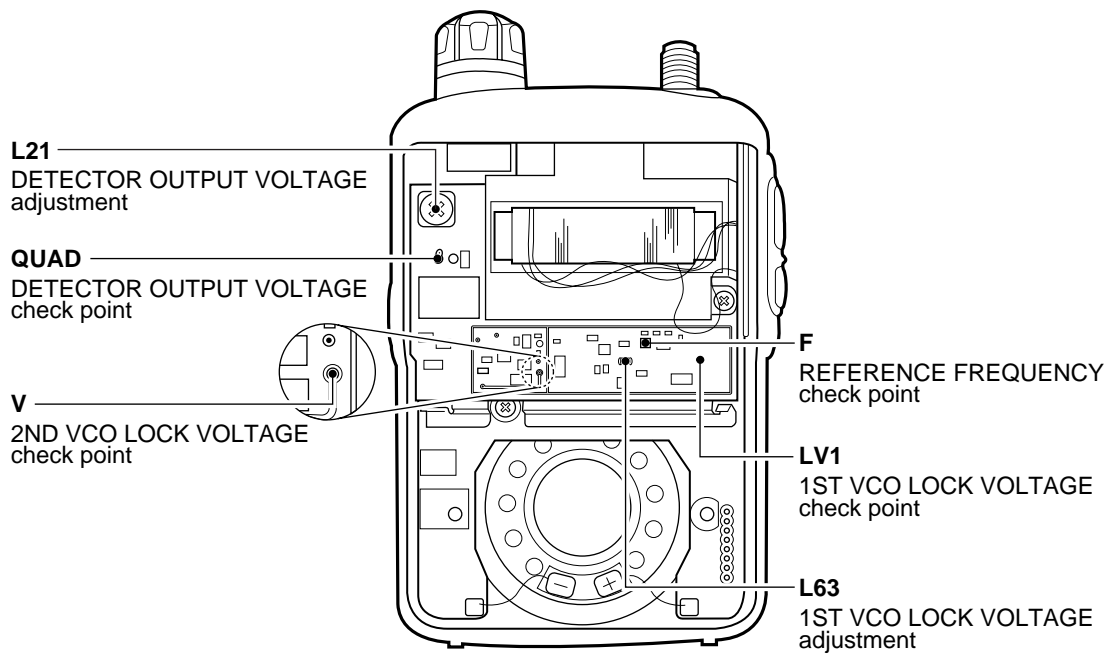
5-2 PLL ADJUSTMENT

“REFERENCE FREQUENCY” adjustment must be performed at “ADJUSTMENT MODE”.

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
1ST VCO LOCK VOLTAGE	1 • Displayed frequency : 493.300 MHz • Receiving	RF	Connect the digital multi-meter to the check point LV1.	1.8 V – 2.8 V	RF	L63
	2 • Displayed frequency : 493.300 MHz • Receiving			1.8 V – 2.8 V		Verify
	3 • Displayed frequency : 282.900 MHz • Receiving			less than 12 V		Verify
	4 • Displayed frequency : 0.150 MHz • Receiving			1.4 V – 2.4 V		Verify
	5 • Displayed frequency : 493.295 MHz • Receiving			less than 12 V		Verify
2ND VCO LOCK VOLTAGE	1 • Displayed frequency : 430.000 MHz • Receiving	RF	Connect the digital multi-meter to the check point V.	0.4 V – 1.0 V		Verify
	2 • Displayed frequency : 493.300 MHz • Receiving			less than 2.6 V		
REFERENCE FREQUENCY	1 • Displayed frequency : (Fr ch) 439.800 MHz • Receiving	RF	Connect the frequency counter to the check point F.	706.4999 MHz – 706.5001 MHz	LOGIC	[DIAL]
DETECTOR OUTPUT VOLTAGE	1 • Displayed frequency : 145.600 MHz • Connect an SSG to the antenna connector and set as: Level : 1 mV* (–47 dBm) Modulation : OFF • Receiving	RF	Connect the digital multi-meter to check point QUAD.	1.0 V	RF	L21

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

• RF UNIT



Bottom view

5-3 ADJUSTMENT MODE ADJUSTMENTS

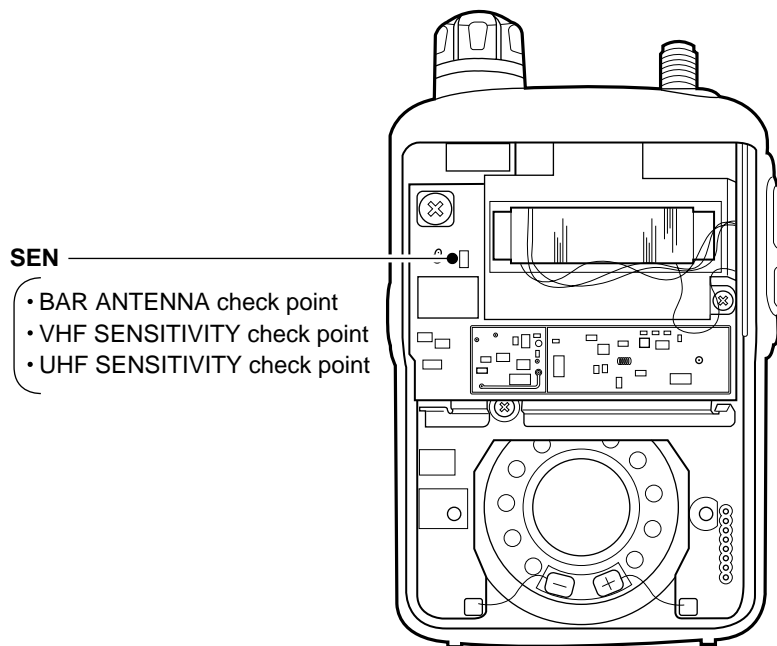
- The following adjustments must be performed at “ADJUSTMENT MODE”.
- The following adjustments can be adjusted automatically. The detail shows “AUTOMATICALLY ADJUSTMENT” (at page 5-8).

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT POINT		
		UNIT	LOCATION		UNIT	ADJUST	
BAR ANTENNA	1	<ul style="list-style-type: none"> • Displayed frequency : (trL ch) 0.495 MHz • Connect an SSG to the antenna connector and set as: Level : 40 mV* (-15 dBm) Modulation : OFF • Receiving 	RF	Connect DC voltmeter to the check point SEN.	Maximum voltage	LOGIC	[DIAL]
	2	• Push and hold the [FUNC] key, and then push the [V/M] key.					
	3	<ul style="list-style-type: none"> • Displayed frequency : (trH ch) 1.620 MHz • Set the SSG as Level : 50 mV* (-13 dBm) • Receiving 	RF	Connect DC voltmeter to the check point SEN.	Maximum voltage	LOGIC	[DIAL]
	4	• Push and hold the [FUNC] key, and then push the [V/M] key.					
VHF SENSITIVITY	1	<ul style="list-style-type: none"> • Displayed frequency : (trL ch) 118.100 MHz • Connect an SSG to the antenna connector and set as: Level : 1 μV* (-107dBm) Modulation : OFF • Receiving 	RF	Connect the digital multi-meter to the check point SEN.	Maximum voltage	LOGIC	[DIAL]
	2	• Push and hold the [FUNC] key, and then push the [V/M] key.					
	3	<ul style="list-style-type: none"> • Displayed frequency : (trH ch) 174.900 MHz • Receiving 	RF	Connect DC voltmeter to the check point SEN.	Maximum voltage	LOGIC	[DIAL]
	4	• Push and hold the [FUNC] key, and then push the [V/M] key.					
UHF SENSITIVITY	1	<ul style="list-style-type: none"> • Displayed frequency : (trL ch) 330.100 MHz • Connect an SSG to the antenna connector and set as: Level : 1 μV* (-107dBm) Modulation : OFF • Receiving 	RF	Connect the digital multi-meter to the check point SEN.	Maximum voltage	LOGIC	[DIAL]
	2	• Push and hold the [FUNC] key, and then push the [V/M] key.					
	3	<ul style="list-style-type: none"> • Displayed frequency : (trH ch) 469.900 MHz • Receiving 	RF	Connect DC voltmeter to the check point SEN.	Maximum voltage	LOGIC	[DIAL]
	4	• Push and hold the [FUNC] key, and then push the [V/M] key.					

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



• RF UNIT



Bottom view

ADJUSTMENT MODE ADJUSTMENTS (Continued)

- The following adjustments must be performed at "ADJUSTMENT MODE".

ADJUSTMENT	ADJUSTMENT CONDITION	OPERATION
S-METER	1 <ul style="list-style-type: none"> • Displayed frequency : (SM ch) 14.100 MHz • Connect the SSG to the antenna connector and set as : <ul style="list-style-type: none"> Level : 0.5 μV* (-113 dBm) Modulation : OFF • Mode : FM • Receiving 	Push and hold the [MOD] key. <ul style="list-style-type: none"> • Verify that S-Meter shows S4 (3dots).
	2 <ul style="list-style-type: none"> • Set the SSG as :Level: 1.6 μV* (-103 dBm) • Mode : WFM • Receiving 	
	3 <ul style="list-style-type: none"> • Displayed frequency : (SM ch) 145.100 MHz • Set the SSG level : 0.5 μV* (-113 dBm) • Mode : FM • Receiving 	
	4 <ul style="list-style-type: none"> • Set the SSG level : 1.6 μV* (-103 dBm) • Mode : WFM • Receiving 	
	5 <ul style="list-style-type: none"> • Displayed frequency : (SM ch) 200.100 MHz • Set the SSG level : 0.5 μV* (-113 dBm) • Mode : FM • Receiving 	
	6 <ul style="list-style-type: none"> • Set the SSG level : 1.6 μV* (-103 dBm) • Mode : WFM • Receiving 	
	7 <ul style="list-style-type: none"> • Displayed frequency : (SM ch) 435.100 MHz • Set the SSG level : 0.5 μV* (-113 dBm) • Mode : FM • Receiving 	
	8 <ul style="list-style-type: none"> • Set the SSG level : 1.6 μV* (-103 dBm) • Mode : WFM • Receiving 	
	9 <ul style="list-style-type: none"> • Displayed frequency : (SM ch) 650.100 MHz • Set the SSG Level : 0.5 μV* (-113 dBm) • Receiving 	
	10 <ul style="list-style-type: none"> • Set the SSG level : 1.6 μV* (-103 dBm) • Mode : WFM • Receiving 	
	11 <ul style="list-style-type: none"> • Displayed frequency : (SM ch) 1100.100 MHz • Set the SSG level : 1 μV* (-107 dBμ) • Receiving 	
	12 <ul style="list-style-type: none"> • Set the SSG level : 3.2 μV* (-97 dBm) • Mode : WFM • Receiving 	

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

5-4 AUTOMATICALLY ADJUSTMENTS

- The following adjustments must be performed at "ADJUSTMENT MODE".
- The following adjustments can be adjusted automatically.
- In case of be finished to adjust "BAR ANTENNA", "VHF SENSITIVITY" and "UHF SENSITIVITY" ADJUSTMENTS already, **DO NOT** need to perform the following adjustment.

ADJUSTMENT		ADJUSTMENT CONDITION	OPERATION
BAR ANTENNA	1	<ul style="list-style-type: none"> • Displayed frequency : (trL ch) 0.495 MHz • Connect the SSG to the antenna connector and set as : Level : 40 mV* (-15 dBm) Modulation : OFF • Receiving 	Push the [V/M] key.
	2	<ul style="list-style-type: none"> • Displayed frequency : (trH ch) 1.620 MHz • Set the SSG level : 50 mV* (-13 dBm) • Receiving 	Push the [V/M] key.
VHF SENSITIVITY	1	<ul style="list-style-type: none"> • Displayed frequency : (trL ch) 118.100 MHz • Set the SSG level : 1.0 μV* (-107 dBm) • Receiving 	Push the [V/M] key.
	2	<ul style="list-style-type: none"> • Displayed frequency : (trH ch) 174.900 MHz • Receiving 	Push the [V/M] key.
UHF SENSITIVITY	1	<ul style="list-style-type: none"> • Displayed frequency : (trL ch) 330.100 MHz • Set the SSG level : 1.0 μV* (-107 dBm) • Receiving 	Push the [V/M] key.
	2	<ul style="list-style-type: none"> • Displayed frequency : (trH ch) 469.900 MHz • Receiving 	Push the [V/M] key.

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

SECTION 6 PARTS LIST

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
IC1	1140010860	S.IC	M30220MA-121RP [USA]
	1140010870	S.IC	M30220MA-120RP except [USA]
IC2	1130011140	S.IC	CAT24WC256K1.8
IC3	1110005820	S.IC	R3112N281A-TR
IC100	1130007110	S.IC	TC7W04FU (TE12L)
IC102	1110004790	S.IC	XC6371A351PR
IC103	1180002370	S.REG	R1111N321B-TR
IC104	1180002370	S.REG	R1111N321B-TR
IC200	1110003800	S.IC	NJM2904V-TE1
IC400	1110004520	S.IC	M5222FP 600C
IC450	1190000710	S.IC	TA31056F (TP1)
Q1	1590001940	S.TRANSISTOR	DTC144EE TL
Q2	1590002150	S.TRANSISTOR	DTC144TE TL
Q4	1590001940	S.TRANSISTOR	DTC144EE TL
Q5	1530002280	S.TRANSISTOR	2SC4081 T106 S
Q100	1530002280	S.TRANSISTOR	2SC4081 T106 S
Q101	1590001190	S.TRANSISTOR	XP6501-(TX) .AB
Q102	1510000670	S.TRANSISTOR	2SA1588-GR (TE85R)
Q103	1510000670	S.TRANSISTOR	2SA1588-GR (TE85R)
Q104	1510000670	S.TRANSISTOR	2SA1588-GR (TE85R)
Q105	1590002430	S.TRANSISTOR	DTA144EE TL
Q200	1590002430	S.TRANSISTOR	DTA144EE TL
Q300	1530002280	S.TRANSISTOR	2SC4081 T106 S
Q301	1590001190	S.TRANSISTOR	XP6501-(TX) .AB
Q302	1590001390	S.FET	2SJ144-Y (TE85R)
Q303	1590002430	S.TRANSISTOR	DTA144EE TL
Q350	1590001390	S.FET	2SJ144-Y (TE85R)
Q400	1530002280	S.TRANSISTOR	2SC4081 T106 S
Q450	1590001170	S.TRANSISTOR	XP1501-(TX) .AB
Q451	1520000460	S.TRANSISTOR	2SB1132 T100 R
Q452	1510000670	S.TRANSISTOR	2SA1588-GR (TE85R)
Q500	1590002950	S.FET	HAT1023R-EL
Q501	1520000460	S.TRANSISTOR	2SB1132 T100 R
Q502	1590001940	S.TRANSISTOR	DTC144EE TL
D1	1790001250	S.DIODE	MA2S111-(TX)
D2	1790001250	S.DIODE	MA2S111-(TX)
D3	1730002510	S.ZENER	MA8027-H (TX)
D100	1790001560	S.DIODE	1SS372 (TE85R)
D101	1790001560	S.DIODE	1SS372 (TE85R)
D102	1790001560	S.DIODE	1SS372 (TE85R)
D103	1790001560	S.DIODE	1SS372 (TE85R)
D105	1750000880	S.DIODE	RB551V-30TE-17
D300	1790001250	S.DIODE	MA2S111-(TX)
D301	1790000850	S.DIODE	MA132WK (TX)
D500	1790000670	S.DIODE	SB07-03C-TB
D501	1790001240	S.DIODE	MA2S728-(TX)
D502	1750000880	S.DIODE	RB551V-30TE-17
D503	1790000860	S.DIODE	MA133 (TX)
X1	6060000800	S.CERAMIC	CSTCR6M75G53
L100	6190001570	S.COIL	CDRH5D28-101NC
R1	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R2	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)
R3	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)
R4	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R5	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R6	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R7	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R8	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R9	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R10	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R11	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R12	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R13	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R14	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R15	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R16	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
R17	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R18	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R19	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R20	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R21	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R22	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R23	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R24	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R25	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R26	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R27	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R28	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R29	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R30	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R31	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R32	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R33	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R34	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R35	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R36	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R37	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R38	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R39	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R40	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R41	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R42	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R43	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R44	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R45	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R46	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R47	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R48	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R49	7030006610	S.RESISTOR	ERJ2GEJ 394 X (390 kΩ)
R50	7030005100	S.RESISTOR	ERJ2GEJ 154 X (150 kΩ)
R51	7030005230	S.RESISTOR	ERJ2GEJ 334 X (330 kΩ)
R52	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)
R53	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)
R54	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R55	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R56	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R57	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R58	7030005240	S.RESISTOR	ERJ2GEJ 473 X (4.7 kΩ)
R59	7030005580	S.RESISTOR	ERJ2GEJ 560 X (56 Ω)
R61	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R62	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R63	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)
R64	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R65	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R100	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R101	7030007300	S.RESISTOR	ERJ2GEJ 332 X (3.3 kΩ)
R102	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R103	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R104	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R105	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)
R106	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R107	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R108	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R109	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R110	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)
R111	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)
R200	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)
R201	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)
R202	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)
R203	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)
R204	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)
R205	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R206	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R207	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R208	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)
R209	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)
R300	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)
R301	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R302	7030009280	S.RESISTOR	ERJ2GE
R303	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)
R304	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)
R305	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)

S.=Surface mount

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
R306	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R307	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R308	7030008290	S.RESISTOR	ERJ2GEJ 183 X (18 kΩ)
R309	7030008290	S.RESISTOR	ERJ2GEJ 183 X (18 kΩ)
R310	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)
R311	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R312	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R313	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)
R314	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)
R315	7030008300	S.RESISTOR	ERJ2GEJ 184 X (180 kΩ)
R316	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R317	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)
R318	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R319	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)
R320	7030007350	S.RESISTOR	ERJ2GEJ 393 X (39 kΩ)
R321	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R322	7030005720	S.RESISTOR	ERJ2GEJ 563 X (56 kΩ)
R323	7030007350	S.RESISTOR	ERJ2GEJ 393 X (39 kΩ)
R324	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R325	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R350	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R351	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)
R400	7030009290	S.RESISTOR	ERJ2GEJ 562 X (5.6 kΩ)
R401	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)
R402	7030005310	S.RESISTOR	ERJ2GEJ 124 X (120 kΩ)
R403	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)
R404	7030005210	S.RESISTOR	ERJ2GEJ 822 X (8.2 kΩ)
R405	7030005060	S.RESISTOR	ERJ2GEJ 333 X (33 kΩ)
R406	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R407	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R408	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)
R409	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R450	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R451	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)
R500	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R501	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R502	7030000090	S.RESISTOR	MCR10EZJH 3.9 Ω (3R9)
C1	4030017460	S.CERAMIC	ECJ0EB1E102K
C2	4030016930	S.CERAMIC	ECJ0EB1A104K
C3	4030017460	S.CERAMIC	ECJ0EB1E102K
C4	4030017460	S.CERAMIC	ECJ0EB1E102K
C5	4030017460	S.CERAMIC	ECJ0EB1E102K
C6	4030017460	S.CERAMIC	ECJ0EB1E102K
C7	4030017460	S.CERAMIC	ECJ0EB1E102K
C8	4030017460	S.CERAMIC	ECJ0EB1E102K
C9	4030017460	S.CERAMIC	ECJ0EB1E102K
C10	4030017460	S.CERAMIC	ECJ0EB1E102K
C11	4030017460	S.CERAMIC	ECJ0EB1E102K
C12	4030017390	S.CERAMIC	ECJ0EC1H180J
C13	4030017460	S.CERAMIC	ECJ0EB1E102K
C14	4030017460	S.CERAMIC	ECJ0EB1E102K
C17	4030017460	S.CERAMIC	ECJ0EB1E102K
C18	4030017460	S.CERAMIC	ECJ0EB1E102K
C20	4030017460	S.CERAMIC	ECJ0EB1E102K
C21	4030017460	S.CERAMIC	ECJ0EB1E102K
C22	4030017460	S.CERAMIC	ECJ0EB1E102K
C23	4030017460	S.CERAMIC	ECJ0EB1E102K
C24	4030017460	S.CERAMIC	ECJ0EB1E102K
C25	4030017460	S.CERAMIC	ECJ0EB1E102K
C26	4030017460	S.CERAMIC	ECJ0EB1E102K
C27	4030017460	S.CERAMIC	ECJ0EB1E102K
C28	4030017460	S.CERAMIC	ECJ0EB1E102K
C29	4030017460	S.CERAMIC	ECJ0EB1E102K
C30	4030017460	S.CERAMIC	ECJ0EB1E102K
C31	4030017460	S.CERAMIC	ECJ0EB1E102K
C32	4030017460	S.CERAMIC	ECJ0EB1E102K
C34	4030017460	S.CERAMIC	ECJ0EB1E102K
C35	4030017460	S.CERAMIC	ECJ0EB1E102K
C40	4030017460	S.CERAMIC	ECJ0EB1E102K
C43	4030016790	S.CERAMIC	ECJ0EB1C103K
C45	4030016930	S.CERAMIC	ECJ0EB1A104K
C46	4030017460	S.CERAMIC	ECJ0EB1E102K
C47	4030017460	S.CERAMIC	ECJ0EB1E102K
C48	4030017460	S.CERAMIC	ECJ0EB1E102K
C49	4030017460	S.CERAMIC	ECJ0EB1E102K
C51	4030017460	S.CERAMIC	ECJ0EB1E102K
C53	4030017680	S.CERAMIC	ECJ0EC1H820J
C100	4030017510	S.CERAMIC	ECJ0EC1H680J
C101	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C102	4030017460	S.CERAMIC	ECJ0EB1E102K

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
C103	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C104	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C105	4030017460	S.CERAMIC	ECJ0EB1E102K
C106	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C107	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C108	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C109	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C110	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C113	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C114	4550006840	S.TANTALUM	TEMSVA 1E 225M-8R
C115	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C116	4030016930	S.CERAMIC	ECJ0EB1A104K
C118	4550006320	S.TANTALUM	ECST0JY475R
C120	4030017460	S.CERAMIC	ECJ0EB1E102K
C121	4030017460	S.CERAMIC	ECJ0EB1E102K
C123	4030017460	S.CERAMIC	ECJ0EB1E102K
C126	4030017460	S.CERAMIC	ECJ0EB1E102K
C127	4030017460	S.CERAMIC	ECJ0EB1E102K
C128	4550006970	S.TANTALUM	TEMSVA 0G 476M8R
C129	4550006620	S.TANTALUM	ECST0JY226R
C130	4550006620	S.TANTALUM	ECST0JY226R
C131	4510007970	S.ELECTROLYTIC	ECEV1AA330WR
C132	4030017460	S.CERAMIC	ECJ0EB1E102K
C133	4550006620	S.TANTALUM	ECST0JY226R
C134	4550006250	S.TANTALUM	TEMSVA 1A 106M-8L
C135	4510008040	S.ELECTROLYTIC	EEFCD 0K 330R
C136	4030017460	S.CERAMIC	ECJ0EB1E102K
C200	4030017460	S.CERAMIC	ECJ0EB1E102K
C202	4030016930	S.CERAMIC	ECJ0EB1A104K
C203	4030017440	S.CERAMIC	ECJ0EC1H221J
C204	4030017460	S.CERAMIC	ECJ0EB1E102K
C205	4030017910	S.CERAMIC	ECJ0EB1H152K
C207	4030016970	S.CERAMIC	ECJ0EB1C223K
C208	4030016970	S.CERAMIC	ECJ0EB1C223K
C209	4030016790	S.CERAMIC	ECJ0EB1C103K
C210	4030017490	S.CERAMIC	C1608 JB 1A 105K-T
C301	4030016930	S.CERAMIC	ECJ0EB1A104K
C303	4030016930	S.CERAMIC	ECJ0EB1A104K
C304	4030016930	S.CERAMIC	ECJ0EB1A104K
C305	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C306	4030016930	S.CERAMIC	ECJ0EB1A104K
C307	4030017780	S.CERAMIC	ECJ0EB1E472K
C308	4030016930	S.CERAMIC	ECJ0EB1A104K
C309	4030017760	S.CERAMIC	ECJ0EB1H222K
C310	4030017790	S.CERAMIC	ECJ0EB1E682K
C311	4030017790	S.CERAMIC	ECJ0EB1E682K
C312	4030016930	S.CERAMIC	ECJ0EB1A104K
C313	4030016930	S.CERAMIC	ECJ0EB1A104K
C314	4030016960	S.CERAMIC	ECJ0EB1C183K
C315	4030016930	S.CERAMIC	ECJ0EB1A104K
C316	4030016960	S.CERAMIC	ECJ0EB1C183K
C317	4030016930	S.CERAMIC	ECJ0EB1A104K
C318	4030016930	S.CERAMIC	ECJ0EB1A104K
C319	4030016930	S.CERAMIC	ECJ0EB1A104K
C320	4030016930	S.CERAMIC	ECJ0EB1A104K
C321	4030016930	S.CERAMIC	ECJ0EB1A104K
C322	4030016930	S.CERAMIC	ECJ0EB1A104K
C351	4030016930	S.CERAMIC	ECJ0EB1A104K
C352	4030016930	S.CERAMIC	ECJ0EB1A104K
C400	4030016930	S.CERAMIC	ECJ0EB1A104K
C401	4030008680	S.CERAMIC	C2012 JF 1C 105Z-T
C402	4030016930	S.CERAMIC	ECJ0EB1A104K
C403	4030016930	S.CERAMIC	ECJ0EB1A104K
C404	4030016930	S.CERAMIC	ECJ0EB1A104K
C405	4030016930	S.CERAMIC	ECJ0EB1A104K
C406	4030017780	S.CERAMIC	ECJ0EB1E472K
C450	4550006140	S.TANTALUM	ECST1EY474R
C451	4550002950	S.TANTALUM	TESVA 0J 335M1-8L
C452	4550006550	S.TANTALUM	TEMSVD 0G 227M-12R
C453	4510007970	S.ELECTROLYTIC	ECEV1AA330WR
C454	4030016930	S.CERAMIC	ECJ0EB1A104K
C455	4030016930	S.CERAMIC	ECJ0EB1A104K
C456	4030017430	S.CERAMIC	ECJ0EC1H101J
C457	4550006320	S.TANTALUM	ECST0JY475R
C458	4550006320	S.TANTALUM	ECST0JY475R
C500	4030017460	S.CERAMIC	ECJ0EB1E102K
C501	4030017460	S.CERAMIC	ECJ0EB1E102K
C503	4030017460	S.CERAMIC	ECJ0EB1E102K
C504	4030017460	S.CERAMIC	ECJ0EB1E102K
C505	4030017780	S.CERAMIC	ECJ0EB1E472K

S.=Surface mount

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
J2	6450002010	S.CONNECTOR	HSJ1501-011010
J3	6510020560	S.CONNECTOR	AXK5S40340P
J500	6450002130	CONNECTOR	04-730A1-02BKA
DS1	5030001990	LCD	TTR5169 UPFDHW
S6	2250000390	ENCODER	TP90N00E20-16F-1995
S9	2230001070	S.SWITCH	JPM1990-2711R
S10	2230001070	S.SWITCH	JPM1990-2711R
W2	7030010040	S.JUMPER	ERJ2GE-JPW [EUR], [FRA] only
W3	7030010040	S.JUMPER	ERJ2GE-JPW [USA], [UK] only
W4	7030010040	S.JUMPER	ERJ2GE-JPW [USA], [FRA], [ESP] only
W5	7030010040	S.JUMPER	ERJ2GE-JPW except [EUR], [UK], [USA] [FRA] only
W7	7030010040	S.JUMPER	ERJ2GE-JPW
W14	7030010040	S.JUMPER	ERJ2GE-JPW
W16	7030003860	S.JUMPER	ERJ3GE JPW V
W17	7030010040	S.JUMPER	ERJ2GE-JPW
W200	7030010040	S.JUMPER	ERJ2GE-JPW
W600	9026050001	WIRE	71/98/036/X98/X98
EP1	6910012350	S.BEAD	MMZ1608Y 102BT
EP2	6910012350	S.BEAD	MMZ1608Y 102BT
EP3	6910014600	E.OTHER	CV1071 RX2605
EP4	8930058920	LCD CONTACT	SRCN-2605-SP-N-W
EP5	0910055724	PCB	B 5887D
EP9	6910013310	S.BEAD	MMZ1608D121B
EP10	6910014680	S.BEAD	MMZ1608Y 121BT
EP11	6910014680	S.BEAD	MMZ1608Y 121BT
EP12	6910014690	S.BEAD	MPZ1608S221A-T
EP13	6910014690	S.BEAD	MPZ1608S221A-T

[RF UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
IC1	1110005230	S.IC	µPC2757TB-E3
IC2	1110003200	S.IC	TA31136FN (EL)
IC3	1130007610	S.IC	µPD3140GS-E1 (DS8)
IC4	1110005180	S.IC	µPC2746TB-E3
IC10	1110005230	S.IC	µPC2757TB-E3
IC11	1110005180	S.IC	µPC2746TB-E3
Q1	1590001190	S.TRANSISTOR	XP6501-(TX) .AB
Q2	1560000540	S.FET	2SK880-Y (TE85R)
Q4	1590001190	S.TRANSISTOR	XP6501-(TX) .AB
Q5	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)
Q6	1530003610	S.TRANSISTOR	FH102-TL
Q14	1530003610	S.TRANSISTOR	FH102-TL
Q24	1530003590	S.TRANSISTOR	2SC5277D2-TL
Q26	1530003590	S.TRANSISTOR	2SC5277D2-TL
Q28	1530003260	S.TRANSISTOR	2SC5006-T1
Q29	1590001940	S.TRANSISTOR	DTC144EE TL
Q30	1530003260	S.TRANSISTOR	2SC5006-T1
Q31	1530003610	S.TRANSISTOR	FH102-TL
Q33	1590001810	S.TRANSISTOR	XP1113 (TX)
Q35	1590002650	S.TRANSISTOR	UPA805T-T1
Q36	1530003580	S.TRANSISTOR	2SC5231C8-TL
Q37	1530003630	S.TRANSISTOR	2SC4617 TLS
Q40	1530003580	S.TRANSISTOR	2SC5231C8-TL
Q41	1590002430	S.TRANSISTOR	DTA144EE TL
Q43	1530003580	S.TRANSISTOR	2SC5231C8-TL
Q44	1590001660	S.TRANSISTOR	XP4312 (TX)
Q45	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
Q46	1590001660	S.TRANSISTOR	XP4312 (TX)
Q501	1590002430	S.TRANSISTOR	DTA144EE TL
Q502	1590001810	S.TRANSISTOR	XP1113 (TX)
Q503	1590001810	S.TRANSISTOR	XP1113 (TX)
Q504	1590001810	S.TRANSISTOR	XP1113 (TX)
Q505	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)

[RF UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
Q506	1590002430	S.TRANSISTOR	DTA144EE TL
Q507	1530003590	S.TRANSISTOR	2SC5277D2-TL
Q508	1590001660	S.TRANSISTOR	XP4312 (TX)
Q509	1590002430	S.TRANSISTOR	DTA144EE TL
Q510	1590001540	S.TRANSISTOR	UMD6N TR
Q513	1590001650	S.TRANSISTOR	XP4601 (TX)
Q514	1590001540	S.TRANSISTOR	UMD6N TR
Q515	1590001940	S.TRANSISTOR	DTC144EE TL
D1	1720000780	S.VARICAP	HVU350B TRF
D2	1720000780	S.VARICAP	HVU350B TRF
D3	1790001620	S.DIODE	1SV308 (TPL3)
D4	1720000780	S.VARICAP	HVU350B TRF
D5	1720000780	S.VARICAP	HVU350B TRF
D11	1790001620	S.DIODE	1SV308 (TPL3)
D13	1790001620	S.DIODE	1SV308 (TPL3)
D17	1720000700	S.VARICAP	1SV305 (TPL3)
D18	1720000780	S.VARICAP	HVU350B TRF
D20	1790001590	S.DIODE	MA6S718 (TX)
D21	1790001590	S.DIODE	MA6S718 (TX)
D25	1790001620	S.DIODE	1SV308 (TPL3)
D29	1790001620	S.DIODE	1SV308 (TPL3)
D31	1790000850	S.DIODE	MA132WK (TX)
D32	1790001620	S.DIODE	1SV308 (TPL3)
D34	1790001620	S.DIODE	1SV308 (TPL3)
D36	1790001620	S.DIODE	1SV308 (TPL3)
D42	1790001260	S.DIODE	MA2S077-(TX)
D43	1790001260	S.DIODE	MA2S077-(TX)
D44	1790001260	S.DIODE	MA2S077-(TX)
D46	1790001260	S.DIODE	MA2S077-(TX)
D47	1790001620	S.DIODE	1SV308 (TPL3)
D50	1790001620	S.DIODE	1SV308 (TPL3)
D52	1790001620	S.DIODE	1SV308 (TPL3)
D53	1790001250	S.DIODE	MA2S111-(TX)
D54	1720000650	S.VARICAP	1SV286 (TPH3)
D55	1790000850	S.DIODE	MA132WK (TX)
D56	1790000850	S.DIODE	MA132WK (TX)
D57	1790000660	S.DIODE	MA728 (TX)
D58	1790001260	S.DIODE	MA2S077-(TX)
D59	1790001260	S.DIODE	MA2S077-(TX)
D60	1790001260	S.DIODE	MA2S077-(TX)
D61	1790001260	S.DIODE	MA2S077-(TX)
D62	1790000660	S.DIODE	MA728 (TX)
D63	1790001260	S.DIODE	MA2S077-(TX)
D64	1790001260	S.DIODE	MA2S077-(TX)
D65	1790001260	S.DIODE	MA2S077-(TX)
D66	1790001260	S.DIODE	MA2S077-(TX)
D67	1790001260	S.DIODE	MA2S077-(TX)
D68	1720000240	S.DIODE	1SV172 (TE85R)
D69	1790001260	S.DIODE	MA2S077-(TX)
D70	1790001260	S.DIODE	MA2S077-(TX)
D71	1790001620	S.DIODE	1SV308 (TPL3)
D72	1790001620	S.DIODE	1SV308 (TPL3)
D73	1790001620	S.DIODE	1SV308 (TPL3)
D74	1790001620	S.DIODE	1SV308 (TPL3)
D75	1790001620	S.DIODE	1SV308 (TPL3)
D76	1790001260	S.DIODE	MA2S077-(TX)
D100	1720000820	S.VARICAP	SVC347S/T-TL
D101	1790001260	S.DIODE	MA2S077-(TX)
F11	2040001200	S.SAW	EFCH266MKQP1
F12	2020001270	CERAMIC	CFWLB450KE2A-B0 (CFWM450E)
F13	2010002280	S.MONOLITH	FL-293 (19.650 MHz)
X1	6050010210	S.XTAL	CR-593 (19.200 MHz)
L1	6200007740	S.COIL	LQW2BHN47NJ01L (LQN21A 47NJ04)
L2	6200005720	S.COIL	ELJRE 33NG-F
L3	6200005700	S.COIL	ELJRE 22NG-F
L4	6200005700	S.COIL	ELJRE 22NG-F
L5	6200005680	S.COIL	ELJRE 15NG-F
L7	6200005710	S.COIL	ELJRE 27NG-F
L8	6200005630	S.COIL	ELJRE 5N6Z-F
L9	6200005720	S.COIL	ELJRE 33NG-F
L10	6200005700	S.COIL	ELJRE 22NG-F
L11	6200005680	S.COIL	ELJRE 15NG-F
L12	6200005660	S.COIL	ELJRE 10NG-F
L13	6200005630	S.COIL	ELJRE 5N6Z-F

S.=Surface mount

[RF UNIT]

REF NO.	ORDER NO.		DESCRIPTION
L14	6200006990	S.COIL	ELJRE 56NG-F
L15	6200005740	S.COIL	ELJRE 47NG-F
L17	6200007170	S.COIL	MLF1608A 3R3K-T
L20	6200005740	S.COIL	ELJRE 47NG-F
L21	6150004840	S.COIL	LS-510
L28	6200008090	S.COIL	LQW2BHN68NJ01L (LQN21A 68NJ04)
L39	6200005730	S.COIL	ELJRE 39NG-F
L40	6200005650	S.COIL	ELJRE 8N2Z-F
L41	6200006980	S.COIL	ELJRE R10G-F
L42	6200005630	S.COIL	ELJRE 5N6Z-F
L43	6200005620	S.COIL	ELJRE 4N7Z-F
L44	6200005620	S.COIL	ELJRE 4N7Z-F
L45	6200007670	S.COIL	LQW2BHN10NJ01L (LQN21A 10NJ04)
L50	6200005710	S.COIL	ELJRE 27NG-F
L51	6200005690	S.COIL	ELJRE 18NG-F
L52	6200005690	S.COIL	ELJRE 18NG-F
L53	6200005670	S.COIL	ELJRE 12NG-F
L54	6200005670	S.COIL	ELJRE 12NG-F
L55	6200005660	S.COIL	ELJRE 10NG-F
L56	6200005640	S.COIL	ELJRE 6N8Z-F
L57	6200005740	S.COIL	ELJRE 47NG-F
L58	6200006990	S.COIL	ELJRE 56NG-F
L59	6200006990	S.COIL	ELJRE 56NG-F
L60	6200008570	S.COIL	LQW2BHN6N8D01L (LQN21A 6N8D04)
L61	6200008570	S.COIL	LQW2BHN6N8D01L (LQN21A 6N8D04)
L62	6200008510	S.COIL	0.30-0.9-4TR 10.5N
L63	6200008490	S.COIL	0.30-0.9-3TR 7.5N
L68	6910011690	S.COIL	ACB1608M-600-T
L69	6200005700	S.COIL	ELJRE 22NG-F
L70	6200004720	S.COIL	MLF1608D R10K-T
L73	6200006960	S.COIL	MLF1608A 2R7K-T
L74	6200005740	S.COIL	ELJRE 47NG-F
L77	6200005650	S.COIL	ELJRE 8N2Z-F
L80	6200005630	S.COIL	ELJRE 5N6Z-F
L81	6200004940	S.COIL	MLF1608D R27K-T
L82	6200005140	S.COIL	MLF1608D R33K-T
L83	6200004790	S.COIL	MLF1608D R47K-T
L84	6200004790	S.COIL	MLF1608D R47K-T
L85	6200006970	S.COIL	MLF1608A 3R9K-T
L86	6200004790	S.COIL	MLF1608D R47K-T
L87	6200003630	S.COIL	MLF1608D R68K-T
L88	6200007170	S.COIL	MLF1608A 3R3K-T
L89	6200007170	S.COIL	MLF1608A 3R3K-T
L90	6200002040	S.COIL	NL 252018T-101J
L91	6200006970	S.COIL	MLF1608A 3R9K-T
L92	6200005180	S.COIL	MLF1608D R39K-T
R1	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R4	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R5	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R6	7030005710	S.RESISTOR	ERJ2GEJ 121 X (120 Ω)
R8	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R9	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R10	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R11	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R13	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R14	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R15	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R16	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R18	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R19	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R20	7030005710	S.RESISTOR	ERJ2GEJ 121 X (120 Ω)
R26	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R27	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R28	7030005160	S.RESISTOR	ERJ2GEJ 105 X (1 MΩ)
R29	7030005170	S.RESISTOR	ERJ2GEJ 474 X (470 kΩ)
R30	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)
R31	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R34	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R35	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R36	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R37	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)
R38	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R39	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R40	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R41	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R42	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R43	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R46	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R49	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R50	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)

[RF UNIT]

REF NO.	ORDER NO.		DESCRIPTION
R54	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R55	7030007300	S.RESISTOR	ERJ2GEJ 332 X (3.3 kΩ)
R56	7030005000	S.RESISTOR	ERJ2GEJ 471 X (470 Ω)
R57	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R58	7030005010	S.RESISTOR	ERJ2GEJ 681 X (680 Ω)
R59	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)
R60	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R61	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R62	7030005570	S.RESISTOR	ERJ2GEJ 820 X (82 kΩ)
R64	7030009280	S.RESISTOR	ERJ2GE
R65	7030009290	S.RESISTOR	ERJ2GEJ 562 X (5.6 kΩ)
R66	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R67	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R68	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R78	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R79	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R81	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R88	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R89	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R91	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R93	7030005710	S.RESISTOR	ERJ2GEJ 121 X (120 Ω)
R95	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R98	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R99	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R100	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)
R101	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R102	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R103	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R104	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R105	7030005590	S.RESISTOR	ERJ2GEJ 680 X (68 Ω)
R106	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R108	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R110	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)
R112	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R116	7030005100	S.RESISTOR	ERJ2GEJ 154 X (150 kΩ)
R120	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R121	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R123	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R124	7030005710	S.RESISTOR	ERJ2GEJ 121 X (120 Ω)
R125	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R128	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R129	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R130	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R131	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R132	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R133	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R134	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R135	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R136	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R147	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R151	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R152	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R154	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R156	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)
R159	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R160	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)
R162	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R163	7030005710	S.RESISTOR	ERJ2GEJ 121 X (120 Ω)
R169	7030007270	S.RESISTOR	ERJ2GEJ 151 X (150 Ω)
R170	7030005080	S.RESISTOR	ERJ2GEJ 823 X (82 kΩ)
R171	7030004990	S.RESISTOR	ERJ2GEJ 221 X (220 Ω)
R172	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R174	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R177	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R179	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R187	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)
R188	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R196	7030007270	S.RESISTOR	ERJ2GEJ 151 X (150 Ω)
R197	7030004990	S.RESISTOR	ERJ2GEJ 221 X (220 Ω)
R198	7030005720	S.RESISTOR	ERJ2GEJ 563 X (56 kΩ)
R199	7030008010	S.RESISTOR	ERJ2GEJ 123 X (12 kΩ)
R200	7030008250	S.RESISTOR	RR0510P-562-D (5.6 kΩ)
R201	7030005820	S.RESISTOR	RR0510P-103-D (10 kΩ)
R202	7030004990	S.RESISTOR	ERJ2GEJ 221 X (220 Ω)
R203	7030005580	S.RESISTOR	ERJ2GEJ 560 X (56 Ω)
R204	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R205	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R207	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R208	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R209	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)
R210	7030007260	S.RESISTOR	ERJ2GEJ 330 X (33 Ω)
R215	7030007260	S.RESISTOR	ERJ2GEJ 330 X (33 Ω)

S.=Surface mount

[RF UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
R216	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R220	7030005300	S.RESISTOR	ERJ2GEJ 150 X (15 Ω)
R221	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R222	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R223	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R224	7030007300	S.RESISTOR	ERJ2GEJ 332 X (3.3 kΩ)
R225	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R226	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R228	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R229	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
R230	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R231	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R232	7030007280	S.RESISTOR	ERJ2GEJ 331 X (330 Ω)
R233	7030005570	S.RESISTOR	ERJ2GEJ 820 X (82 Ω)
R234	7030005570	S.RESISTOR	ERJ2GEJ 820 X (82 Ω)
R235	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)
R236	7030005050	S.RESISTOR	ERJ2GEJ 103 X (10 kΩ)
R237	7030009140	S.RESISTOR	ERJ2GEJ 272 X (2.7 kΩ)
R238	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R239	7030007290	S.RESISTOR	ERJ2GEJ 222 X (2.2 kΩ)
R240	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R241	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R243	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R245	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R246	7030005290	S.RESISTOR	ERJ2GEJ 682 X (6.8 kΩ)
R247	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R319	7030005300	S.RESISTOR	ERJ2GEJ 150 X (15 Ω)
R320	7030005300	S.RESISTOR	ERJ2GEJ 150 X (15 Ω)
R321	7030007260	S.RESISTOR	ERJ2GEJ 330 X (33 Ω)
R323	7030005710	S.RESISTOR	ERJ2GEJ 121 X (120 Ω)
R324	7030005570	S.RESISTOR	ERJ2GEJ 820 X (82 Ω)
R325	7030004980	S.RESISTOR	ERJ2GEJ 101 X (100 Ω)
R326	7030005570	S.RESISTOR	ERJ2GEJ 820 X (82 Ω)
R327	7030005030	S.RESISTOR	ERJ2GEJ 152 X (1.5 kΩ)
R329	7030005090	S.RESISTOR	ERJ2GEJ 104 X (100 kΩ)
R330	7030007340	S.RESISTOR	ERJ2GEJ 153 X (15 kΩ)
R331	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R332	7030005120	S.RESISTOR	ERJ2GEJ 102 X (1 kΩ)
R334	7030005220	S.RESISTOR	ERJ2GEJ 223 X (22 kΩ)
R335	7030005240	S.RESISTOR	ERJ2GEJ 473 X (47 kΩ)
C1	4030017670	S.CERAMIC	ECJ0EC1H390J
C2	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C5	4030017730	S.CERAMIC	ECJ0EB1E471K
C8	4030017390	S.CERAMIC	ECJ0EC1H180J
C9	4030017560	S.CERAMIC	ECJ0EC1H2R5B
C10	4030017550	S.CERAMIC	ECJ0EC1H1R5B
C11	4030017400	S.CERAMIC	ECJ0EC1H220J
C12	4030017420	S.CERAMIC	ECJ0EC1H470J
C13	4030017650	S.CERAMIC	ECJ0EC1H270J
C14	4030017460	S.CERAMIC	ECJ0EB1E102K
C15	4030017340	S.CERAMIC	ECJ0EC1H010B
C16	4030017460	S.CERAMIC	ECJ0EB1E102K
C18	4030016790	S.CERAMIC	ECJ0EB1C103K
C19	4030017630	S.CERAMIC	ECJ0EC1H120J
C20	4030017660	S.CERAMIC	ECJ0EC1H330J
C21	4030017360	S.CERAMIC	ECJ0EC1H030B
C22	4030017590	S.CERAMIC	ECJ0EC1H070C
C23	4030017380	S.CERAMIC	ECJ0EC1H050B
C27	4030017460	S.CERAMIC	ECJ0EB1E102K
C28	4030017460	S.CERAMIC	ECJ0EB1E102K
C30	4030017460	S.CERAMIC	ECJ0EB1E102K
C32	4030017460	S.CERAMIC	ECJ0EB1E102K
C33	4030017660	S.CERAMIC	ECJ0EC1H330J
C35	4030017620	S.CERAMIC	ECJ0EC1H100C
C36	4030017620	S.CERAMIC	ECJ0EC1H100C
C37	4030017560	S.CERAMIC	ECJ0EC1H2R5B
C39	4030017570	S.CERAMIC	ECJ0EC1H040B
C40	4030017640	S.CERAMIC	ECJ0EC1H150J
C41	4030017380	S.CERAMIC	ECJ0EC1H050B
C42	4030017370	S.CERAMIC	ECJ0EC1H3R5B
C43	4030017430	S.CERAMIC	ECJ0EC1H101J
C44	4030016790	S.CERAMIC	ECJ0EB1C103K
C45	4030016790	S.CERAMIC	ECJ0EB1C103K
C46	4030017360	S.CERAMIC	ECJ0EC1H030B
C47	4030017580	S.CERAMIC	ECJ0EC1H060C
C48	4030017580	S.CERAMIC	ECJ0EC1H060C
C49	4030017360	S.CERAMIC	ECJ0EC1H030B
C50	4030017340	S.CERAMIC	ECJ0EC1H010B
C51	4030017360	S.CERAMIC	ECJ0EC1H030B
C52	4030017730	S.CERAMIC	ECJ0EB1E471K

[RF UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
C54	4030017460	S.CERAMIC	ECJ0EB1E102K
C55	4030017460	S.CERAMIC	ECJ0EB1E102K
C58	4030017460	S.CERAMIC	ECJ0EB1E102K
C59	4030017350	S.CERAMIC	ECJ0EC1H020B
C60	4030016790	S.CERAMIC	ECJ0EB1C103K
C61	4030017460	S.CERAMIC	ECJ0EB1E102K
C62	4550006200	S.TANTALUM	ECST0JY106R
C63	4030017700	S.CERAMIC	ECJ0EC1H151J
C64	4030017640	S.CERAMIC	ECJ0EC1H150J
C65	4030016790	S.CERAMIC	ECJ0EB1C103K
C66	4030016790	S.CERAMIC	ECJ0EB1C103K
C67	4030017660	S.CERAMIC	ECJ0EC1H330J
C69	4030017460	S.CERAMIC	ECJ0EB1E102K
C70	4030017460	S.CERAMIC	ECJ0EB1E102K
C71	4030017360	S.CERAMIC	ECJ0EC1H030B
C73	4030017460	S.CERAMIC	ECJ0EB1E102K
C74	4030017460	S.CERAMIC	ECJ0EB1E102K
C75	4030017460	S.CERAMIC	ECJ0EB1E102K
C78	4550006910	S.TANTALUM	TESVSP 1C 334M-8R
C79	4030017460	S.CERAMIC	ECJ0EB1E102K
C80	4030017420	S.CERAMIC	ECJ0EC1H470J
C81	4030017460	S.CERAMIC	ECJ0EB1E102K
C82	4550006200	S.TANTALUM	ECST0JY106R
C84	4030017460	S.CERAMIC	ECJ0EB1E102K
C85	4030017390	S.CERAMIC	ECJ0EC1H130J
C86	4030016790	S.CERAMIC	ECJ0EB1C103K
C87	4030017420	S.CERAMIC	ECJ0EC1H470J
C88	4030017420	S.CERAMIC	ECJ0EC1H470J
C89	4030017420	S.CERAMIC	ECJ0EC1H470J
C90	4030016790	S.CERAMIC	ECJ0EB1C103K
C92	4030016790	S.CERAMIC	ECJ0EB1C103K
C93	4030017460	S.CERAMIC	ECJ0EB1E102K
C94	4030017460	S.CERAMIC	ECJ0EB1E102K
C95	4030017460	S.CERAMIC	ECJ0EB1E102K
C96	4030016790	S.CERAMIC	ECJ0EB1C103K
C97	4030016790	S.CERAMIC	ECJ0EB1C103K
C98	4030017730	S.CERAMIC	ECJ0EB1E471K
C99	4030017730	S.CERAMIC	ECJ0EB1E471K
C100	4030016930	S.CERAMIC	ECJ0EB1A104K
C101	4030017620	S.CERAMIC	ECJ0EC1H100C
C102	4030017460	S.CERAMIC	ECJ0EB1E102K
C103	4030016790	S.CERAMIC	ECJ0EB1C103K
C104	4030016790	S.CERAMIC	ECJ0EB1C103K
C105	4550003220	S.TANTALUM	TEMSVA 1E 105M-8L
C106	4030016930	S.CERAMIC	ECJ0EB1A104K
C107	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C108	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C118	4030017460	S.CERAMIC	ECJ0EB1E102K
C119	4030017460	S.CERAMIC	ECJ0EB1E102K
C121	4030017460	S.CERAMIC	ECJ0EB1E102K
C134	4030017460	S.CERAMIC	ECJ0EB1E102K
C135	4030017460	S.CERAMIC	ECJ0EB1E102K
C136	4030017590	S.CERAMIC	ECJ0EC1H070C
C138	4030017730	S.CERAMIC	ECJ0EB1E471K
C139	4030017620	S.CERAMIC	ECJ0EC1H100C
C141	4030016790	S.CERAMIC	ECJ0EB1C103K
C142	4030017460	S.CERAMIC	ECJ0EB1E102K
C145	4030017730	S.CERAMIC	ECJ0EB1E471K
C147	4030017560	S.CERAMIC	ECJ0EC1H2R5B
C148	4030017730	S.CERAMIC	ECJ0EB1E471K
C150	4030017460	S.CERAMIC	ECJ0EB1E102K
C151	4030017570	S.CERAMIC	ECJ0EC1H040B
C153	4030016930	S.CERAMIC	ECJ0EB1A104K
C154	4030017620	S.CERAMIC	ECJ0EC1H100C
C155	4030017380	S.CERAMIC	ECJ0EC1H050B
C156	4030017550	S.CERAMIC	ECJ0EC1H1R5B
C158	4030017460	S.CERAMIC	ECJ0EB1E102K
C160	4030017460	S.CERAMIC	ECJ0EB1E102K
C162	4550006200	S.TANTALUM	ECST0JY106R
C163	4030017460	S.CERAMIC	ECJ0EB1E102K
C164	4030017460	S.CERAMIC	ECJ0EB1E102K
C165	4030017350	S.CERAMIC	ECJ0EC1H020B
C166	4030017460	S.CERAMIC	ECJ0EB1E102K
C167	4030017460	S.CERAMIC	ECJ0EB1E102K
C168	4030017460	S.CERAMIC	ECJ0EB1E102K
C169	4030017460	S.CERAMIC	ECJ0EB1E102K
C170	4030017460	S.CERAMIC	ECJ0EB1E102K
C171	4030017460	S.CERAMIC	ECJ0EB1E102K
C172	4030017460	S.CERAMIC	ECJ0EB1E102K
C173	4030017460	S.CERAMIC	ECJ0EB1E102K
C174	4030017420	S.CERAMIC	ECJ0EC1H470J
C175	4030017420	S.CERAMIC	ECJ0EC1H470J

S.=Surface mount

[RF UNIT]

REF NO.	ORDER NO.	DESCRIPTION	
C176	4030017420	S.CERAMIC	ECJ0EC1H470J
C178	4030017460	S.CERAMIC	ECJ0EB1E102K
C180	4030017460	S.CERAMIC	ECJ0EB1E102K
C182	4030017460	S.CERAMIC	ECJ0EB1E102K
C183	4030017550	S.CERAMIC	ECJ0EC1H1R5B
C186	4030017460	S.CERAMIC	ECJ0EB1E102K
C188	4030017460	S.CERAMIC	ECJ0EB1E102K
C190	4030017360	S.CERAMIC	ECJ0EC1H030B
C191	4030017570	S.CERAMIC	ECJ0EC1H040B
C192	4030017590	S.CERAMIC	ECJ0EC1H070C
C193	4030017630	S.CERAMIC	ECJ0EC1H120J
C194	4030017670	S.CERAMIC	ECJ0EC1H390J
C195	4030017550	S.CERAMIC	ECJ0EC1H1R5B
C196	4030017360	S.CERAMIC	ECJ0EC1H030B
C197	4030017380	S.CERAMIC	ECJ0EC1H050B
C198	4030017610	S.CERAMIC	ECJ0EC1H090C
C199	4030017650	S.CERAMIC	ECJ0EC1H270J
C200	4030016790	S.CERAMIC	ECJ0EB1C103K
C201	4030016930	S.CERAMIC	ECJ0EB1A104K
C202	4030016930	S.CERAMIC	ECJ0EB1A104K
C203	4030016930	S.CERAMIC	ECJ0EB1A104K
C206	4030017370	S.CERAMIC	ECJ0EC1H3R5B
C207	4030017660	S.CERAMIC	ECJ0EC1H330J
C208	4030017420	S.CERAMIC	ECJ0EC1H470J
C209	4030017460	S.CERAMIC	ECJ0EB1E102K
C210	4550000530	S.TANTALUM	TESVA 1V 104M1-8L
C211	4030017460	S.CERAMIC	ECJ0EB1E102K
C214	4030017460	S.CERAMIC	ECJ0EB1E102K
C216	4030017630	S.CERAMIC	ECJ0EC1H120J
C218	4030017340	S.CERAMIC	ECJ0EC1H010B
C221	4030016790	S.CERAMIC	ECJ0EB1C103K
C233	4030017460	S.CERAMIC	ECJ0EB1E102K
C234	4030017460	S.CERAMIC	ECJ0EB1E102K
C235	4030017460	S.CERAMIC	ECJ0EB1E102K
C236	4030017460	S.CERAMIC	ECJ0EB1E102K
C237	4030017460	S.CERAMIC	ECJ0EB1E102K
C239	4030016790	S.CERAMIC	ECJ0EB1C103K
C241	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C242	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C243	4030017390	S.CERAMIC	ECJ0EC1H180J
C244	4030017380	S.CERAMIC	ECJ0EC1H050B
C248	4550003220	S.TANTALUM	TEMSVA 1E 105M-8L
C249	4030016790	S.CERAMIC	ECJ0EB1C103K
C250	4030017600	S.CERAMIC	ECJ0EC1H080C
C251	4030017570	S.CERAMIC	ECJ0EC1H040B
C252	4030017600	S.CERAMIC	ECJ0EC1H080C
C256	4030017460	S.CERAMIC	ECJ0EB1E102K
C257	4030017460	S.CERAMIC	ECJ0EB1E102K
C258	4030017460	S.CERAMIC	ECJ0EB1E102K
C259	4030017430	S.CERAMIC	ECJ0EC1H101J
C264	4030017460	S.CERAMIC	ECJ0EB1E102K
C402	4030017460	S.CERAMIC	ECJ0EB1E102K
C410	4030017460	S.CERAMIC	ECJ0EB1E102K
C414	4030017460	S.CERAMIC	ECJ0EB1E102K
C416	4030017650	S.CERAMIC	ECJ0EC1H270J
C417	4030017420	S.CERAMIC	ECJ0EC1H470J
C423	4550003220	S.TANTALUM	TEMSVA 1E 105M-8L
C424	4030016790	S.CERAMIC	ECJ0EB1C103K
C427	4030017400	S.CERAMIC	ECJ0EC1H220J
C429	4030016790	S.CERAMIC	ECJ0EB1C103K
C430	4030016790	S.CERAMIC	ECJ0EB1C103K
C431	4030016790	S.CERAMIC	ECJ0EB1C103K
C432	4030017460	S.CERAMIC	ECJ0EB1E102K
C433	4030017460	S.CERAMIC	ECJ0EB1E102K
C434	4030016930	S.CERAMIC	ECJ0EB1A104K
C435	4030017460	S.CERAMIC	ECJ0EB1E102K
C436	4030017360	S.CERAMIC	ECJ0EC1H030B
C503	4030017460	S.CERAMIC	ECJ0EB1E102K
C504	4030017460	S.CERAMIC	ECJ0EB1E102K
C505	4030017460	S.CERAMIC	ECJ0EB1E102K
C507	4030017700	S.CERAMIC	ECJ0EC1H151J
C510	4030017350	S.CERAMIC	ECJ0EC1H020B
C511	4030017660	S.CERAMIC	ECJ0EC1H330J
C512	4030017660	S.CERAMIC	ECJ0EC1H330J
C513	4030017680	S.CERAMIC	ECJ0EC1H820J
C514	4030017700	S.CERAMIC	ECJ0EC1H151J
C515	4030017430	S.CERAMIC	ECJ0EC1H101J
C516	4030017440	S.CERAMIC	ECJ0EC1H221J
C517	4030017710	S.CERAMIC	ECJ0EC1H181J
C518	4030017460	S.CERAMIC	ECJ0EB1E102K
C519	4030017910	S.CERAMIC	ECJ0EB1H152K
C520	4030016790	S.CERAMIC	ECJ0EB1C103K

[RF UNIT]

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C522	4030016790	S.CERAMIC	ECJ0EB1C103K
C523	4030017910	S.CERAMIC	ECJ0EB1H152K
C524	4030016790	S.CERAMIC	ECJ0EB1C103K
C525	4030016790	S.CERAMIC	ECJ0EB1C103K
C526	4030016940	S.CERAMIC	ECJ0EB1A393K
C527	4030017680	S.CERAMIC	ECJ0EC1H820J
C528	4030017650	S.CERAMIC	ECJ0EC1H270J
C529	4030017700	S.CERAMIC	ECJ0EC1H151J
C530	4030017720	S.CERAMIC	ECJ0EB1H331K
C531	4030017710	S.CERAMIC	ECJ0EC1H181J
C532	4030016930	S.CERAMIC	ECJ0EB1A104K
C534	4030017720	S.CERAMIC	ECJ0EB1H331K
C535	4030017460	S.CERAMIC	ECJ0EB1E102K
C536	4030016930	S.CERAMIC	ECJ0EB1A104K
C537	4030016930	S.CERAMIC	ECJ0EB1A104K
C538	4030016930	S.CERAMIC	ECJ0EB1A104K
C539	4030016930	S.CERAMIC	ECJ0EB1A104K
C540	4030016930	S.CERAMIC	ECJ0EB1A104K
C541	4030016930	S.CERAMIC	ECJ0EB1A104K
C542	4030016930	S.CERAMIC	ECJ0EB1A104K
C543	4030017460	S.CERAMIC	ECJ0EB1E102K
C544	4030017460	S.CERAMIC	ECJ0EB1E102K
C545	4030016790	S.CERAMIC	ECJ0EB1C103K
C546	4030016930	S.CERAMIC	ECJ0EB1A104K
C548	4030017460	S.CERAMIC	ECJ0EB1E102K
C550	4030017600	S.CERAMIC	ECJ0EC1H080C
C554	4030017420	S.CERAMIC	ECJ0EC1H470J
C558	4030017460	S.CERAMIC	ECJ0EB1E102K
C560	4030017460	S.CERAMIC	ECJ0EB1E102K
C561	4030017460	S.CERAMIC	ECJ0EB1E102K
C562	4030017460	S.CERAMIC	ECJ0EB1E102K
C563	4030017460	S.CERAMIC	ECJ0EB1E102K
C566	4030016790	S.CERAMIC	ECJ0EB1C103K
C567	4030016930	S.CERAMIC	ECJ0EB1A104K
C568	4030017420	S.CERAMIC	ECJ0EC1H470J
C569	4030016930	S.CERAMIC	ECJ0EB1A104K
C570	4030017460	S.CERAMIC	ECJ0EB1E102K
C571	4030017460	S.CERAMIC	ECJ0EB1E102K
C654	4030011810	S.CERAMIC	C1608 JB 1A 224K-T
C655	4550000510	S.TANTALUM	TESVA 1V 473M1-8L
C656	4030017600	S.CERAMIC	ECJ0EC1H080C
C657	4030018100	S.CERAMIC	ECJ0EB1H681K
C658	4030017760	S.CERAMIC	ECJ0EB1H222K
C659	4550006200	S.TANTALUM	ECST0JY106R
C662	4030016930	S.CERAMIC	ECJ0EB1A104K
C663	4030016930	S.CERAMIC	ECJ0EB1A104K
C664	4030016930	S.CERAMIC	ECJ0EB1A104K
C665	4030017430	S.CERAMIC	ECJ0EC1H101J
C666	4030018140	S.CERAMIC	ECJ0EB1H391K
C667	4030016790	S.CERAMIC	ECJ0EB1C103K
C668	4030016790	S.CERAMIC	ECJ0EB1C103K
C669	4030017460	S.CERAMIC	ECJ0EB1E102K
C671	4030017460	S.CERAMIC	ECJ0EB1E102K
C672	4030017460	S.CERAMIC	ECJ0EB1E102K
C673	4030017460	S.CERAMIC	ECJ0EB1E102K
C674	4030017420	S.CERAMIC	ECJ0EC1H470J
C675	4030016930	S.CERAMIC	ECJ0EB1A104K
C676	4030017400	S.CERAMIC	ECJ0EC1H220J
J1	6510020120	S.CONNECTOR AXK6S40545P	
EP1	0910055732	PCB	B 5886B
EP2	3310003010	ANTENNA	KY-058-006-2 <KAI>

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S.=Surface mount

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

7-1 CABINET PARTS [CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510020951	Connector SMA-R226-1	1
SP1	2510000960	Speaker K036NA500-26A27	1
MP1	8210019070	2605 Front panel	1
MP2	8210019152	1995 Rear panel (A)-2	1
MP3	8110007841	1995 BATT cover (A)-1	1
MP4	8930058320	2605 7-key	1
MP5	8930058410	2605 PTT rubber	1
MP6	8930047610	2127 Jack cap	1
MP7	8310054250	2605 Window plate	1
MP8	8010019090	2605 Chassis	1
MP9	8930011900	Sheet SP net (A)	1
MP10	8830000570	Screw (A)	1
MP11	8830001090	Screw (D)	1
MP13	8110007851	1995 Lock cover (A)-1	1
MP14	8610010990	Knob N-284	1
MP15	8930044250	1995 BATT seal	1
MP17	8930044260	1995 A-terminal	1
MP18	8930044270	1995 B-terminal	1
MP19	8930044280	1995 C-terminal	1
MP20	8860001101	1995 ANT rug-1	1
MP22	8810008640	Screw FH B0 2X4 NI-ZU (BT)	3
MP23	8810009560	Screw PH B0 2X6 ZK (BT)	2
MP24	8930019791	891 T-rubber-1	2
MP26	8930058980	Sponge (GY)	1
MP28	8930058310	2605 DC cap	1

[LOGIC UNIT]

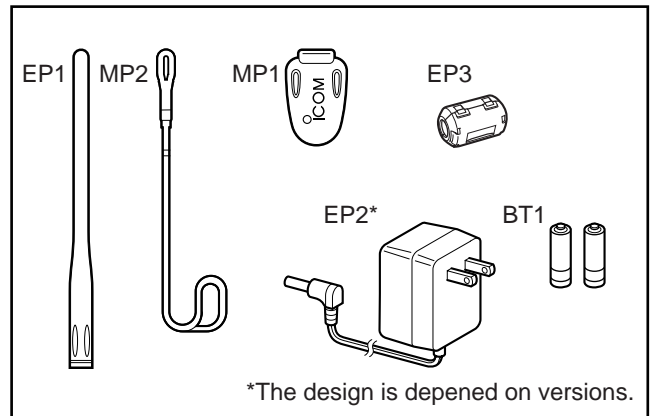
REF. NO.	ORDER NO.	DESCRIPTION	QTY.
DS1	5030001990	LCD TTR5169	1
EP3	6910014600	E.Other CV1071	1
EP4	8930058920	LCD contact	1
MP3	8930058400	2605 LCD holder	1
MP4	8810008640	Screw FH B0 2X4 NI-ZU (BT)	2
MP5	8510014970	2605 Logic shield	1

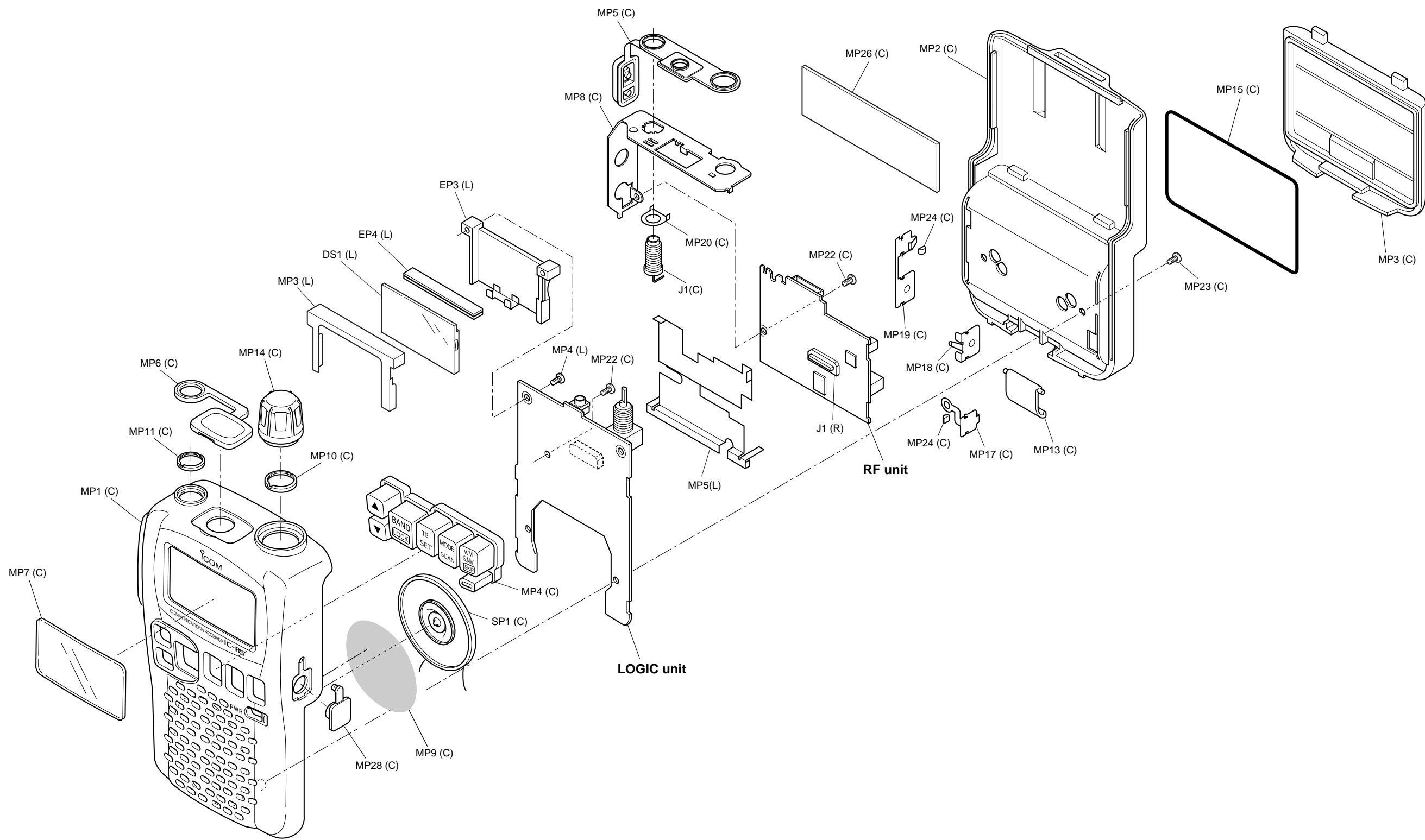
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REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510020120	S.Connector AXK6S40545P	1

Screw abbreviations A, B0, BT: Self-tapping
 PH: Pan head
 FH: Flat head
 ZK: Black
 NI-ZU: Nickel-Zinc

Optional products	Nicd cel P-3GPT/BA2	[EXP] only	2
Optional products	Nicd cel P-3GPA/BA2		2
Optional products	Nicd cel P-3GPA/BA2	[USA], [CAN]	2
Optional products	Nicd cel KRO.7AAUR SAFT		2
Optional products	Nicd cel KRO.7AAUR SAFT	[FRA], [ESP]	2
EP1	Optional products	Antenna FA-270C	1
EP2	Optional products	Charger BC-149A	[USA], [CAN] only
	Optional products	Charger BC-149D	[EUR], [FRA], [ESP] only
	Optional products	Charger BC-136A	[EXP-01] only
	Optional products	Charger BC-136D	[EXP-02] only
EP3	Optional products	Bead ZCAT2436-1330A-BK-M	1
MP1	8930044191	Clip 1995 BELT CLIP-1	1
MP2	8010011960	Handle Strap belt HK-005	1

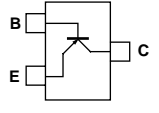
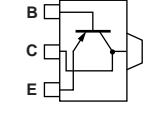
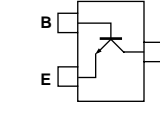
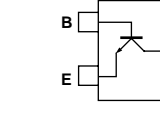
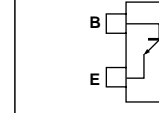
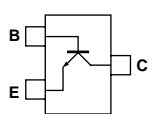
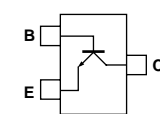
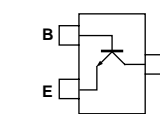
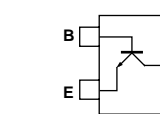
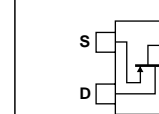
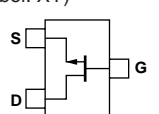
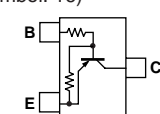
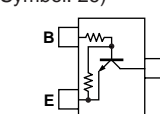
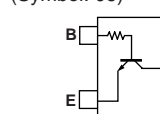
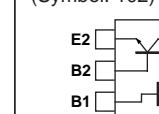
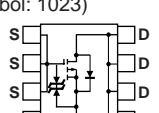
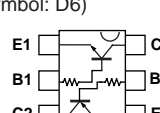
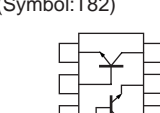
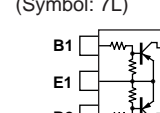
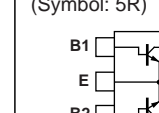
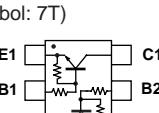
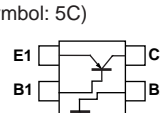
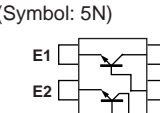




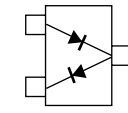
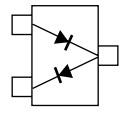
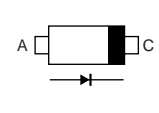
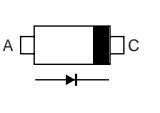
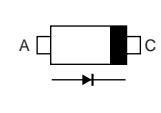
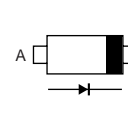
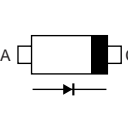
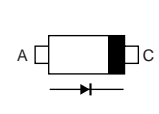
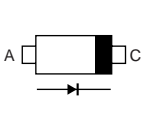
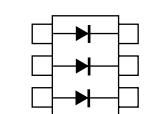
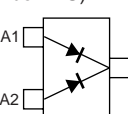
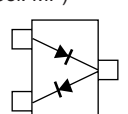
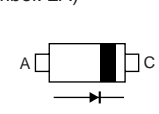
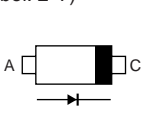
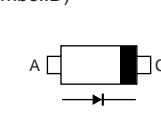
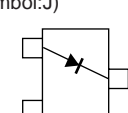
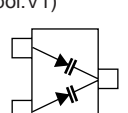
UNIT abbreviation (C): CHASSIS PARTS, (R): RF UNIT, (L): LOGIC UNIT

SECTION 8 SEMI-CONDUCTOR INFORMATION

TRANSISTOR AND FET'S

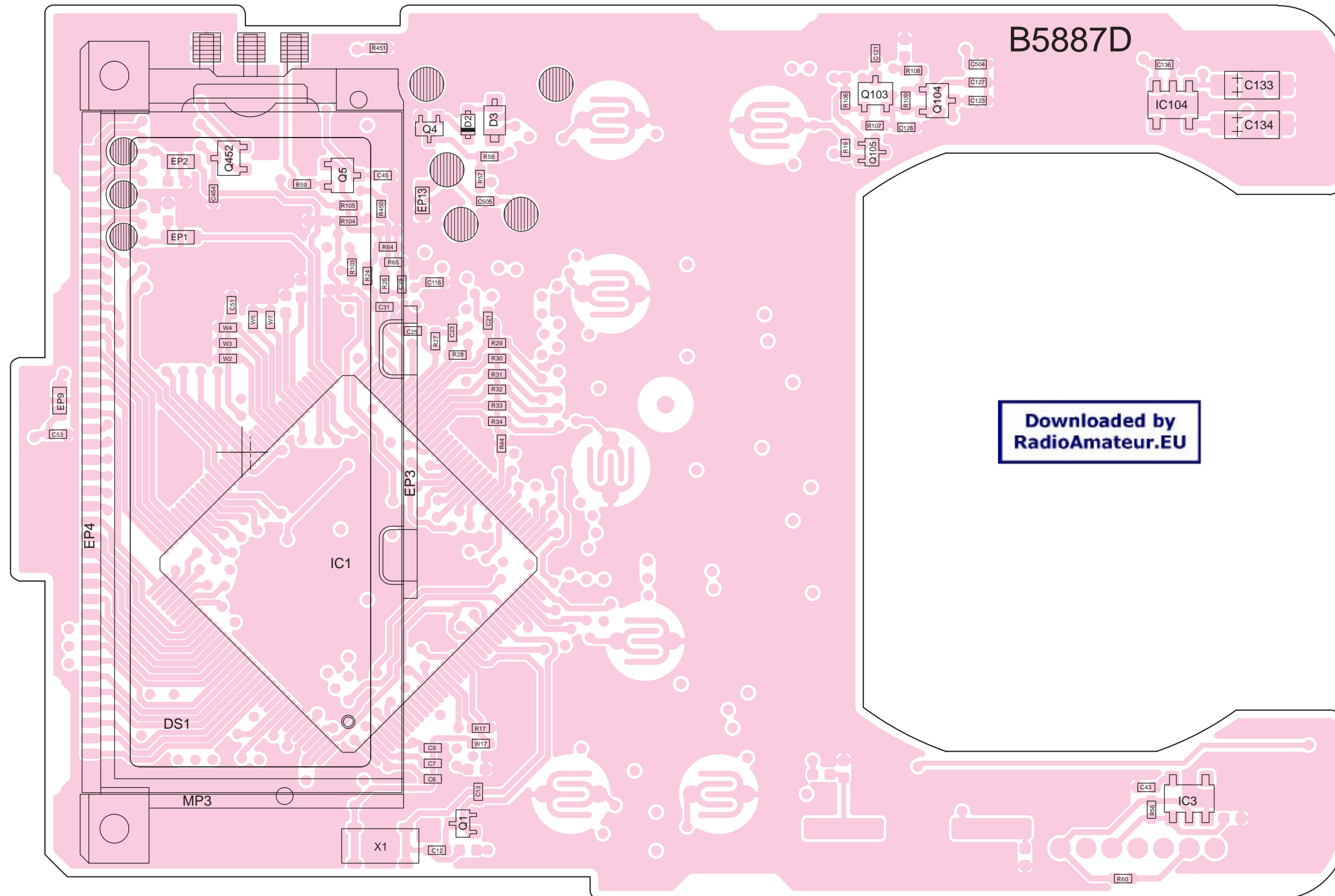
2SA1588 GR (Symbol: ZG) 	2SB1132 R (Symbol: BAR) 	2SC4081 S (Symbol: BS) 	2SC4117 GR (Symbol: DG) 	2SC4215 O (Symbol: QO) 
2SC4617 S (Symbol: BR) 	2SC5006 (Symbol: 24) 	2SC5231 C8 (Symbol: C8) 	2SC5277 D2 (Symbol: D2) 	2SJ144 Y (Symbol: VX) 
2SK880 Y (Symbol: XY) 	DTA144 EE (Symbol: 16) 	DTC144 EE (Symbol: 26) 	DTC144 TE (Symbol: 06) 	FH102 (Symbol: 102) 
HAT1023 R (Symbol: 1023) 	UMD6 (Symbol: D6) 	μ PA805T (Symbol: T82) 	XP1113 (Symbol: 7L) 	XP1501 AB (Symbol: 5R) 
XP4312 (Symbol: 7T) 	XP4601 (Symbol: 5C) 	XP6501 AB (Symbol: 5N) 		

• DIODES

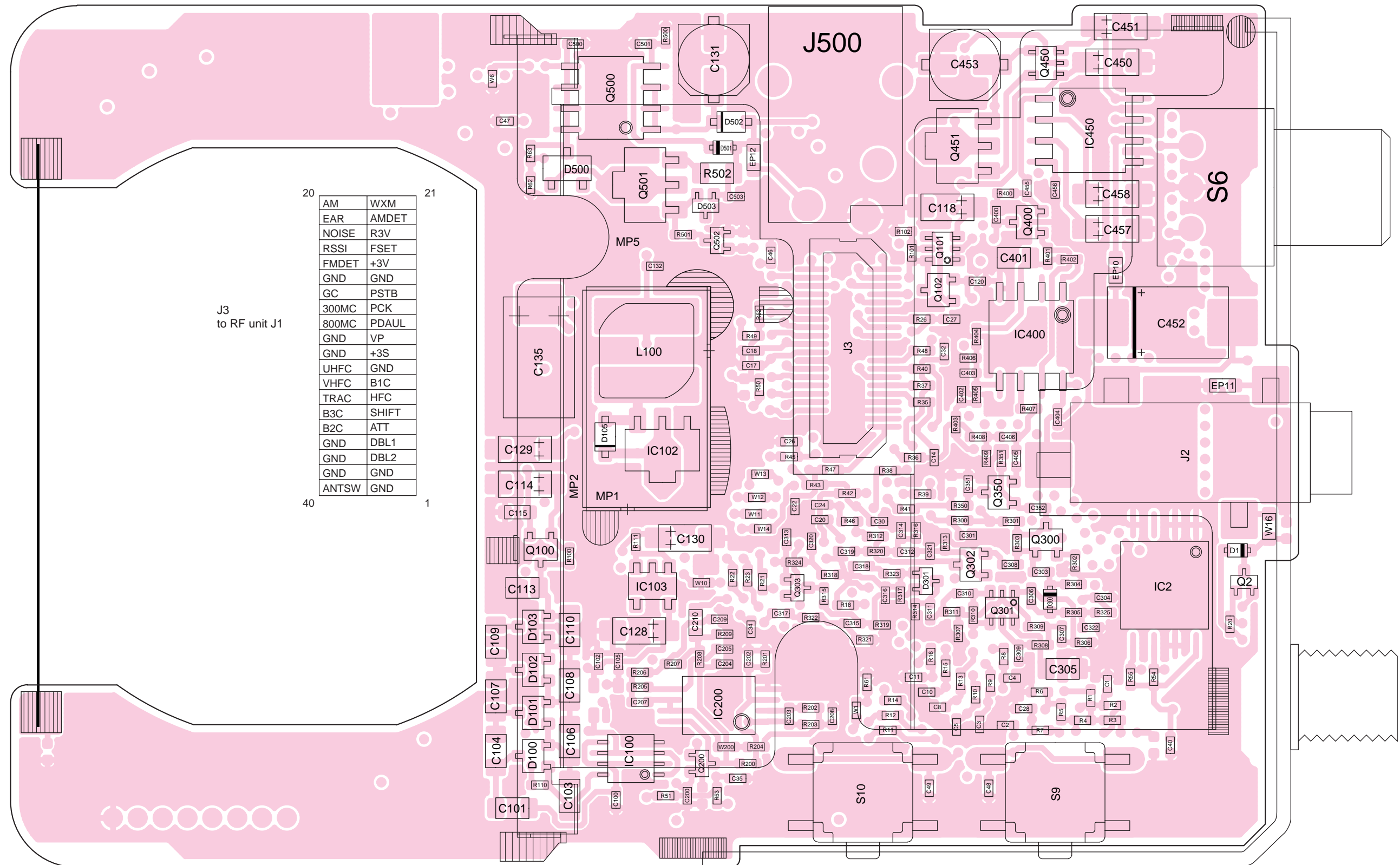
1SS372 (Symbol: N9) 	1SV172 (Symbol: BE) 	1SV286 (Symbol: T7) 	1SV305 (Symbol: TV) 	1SV308 (Symbol: TX) 
HVU350B (Symbol: BO) 	MA2S077 (Symbol: S) 	MA2S111 (Symbol: A) 	MA2S728 (Symbol: B) 	MA6S718 (Symbol: M2N) 
MA132WK (Symbol: MU) 	MA133 (Symbol: MP) 	MA728 (Symbol: 2A) 	MA8027 H (Symbol: 2^7) 	RB551V-30 (Symbol: D) 
SB07-03C (Symbol: J) 	SVC347 (Symbol: V1) 			

SECTION 9 BOARD LAYOUTS

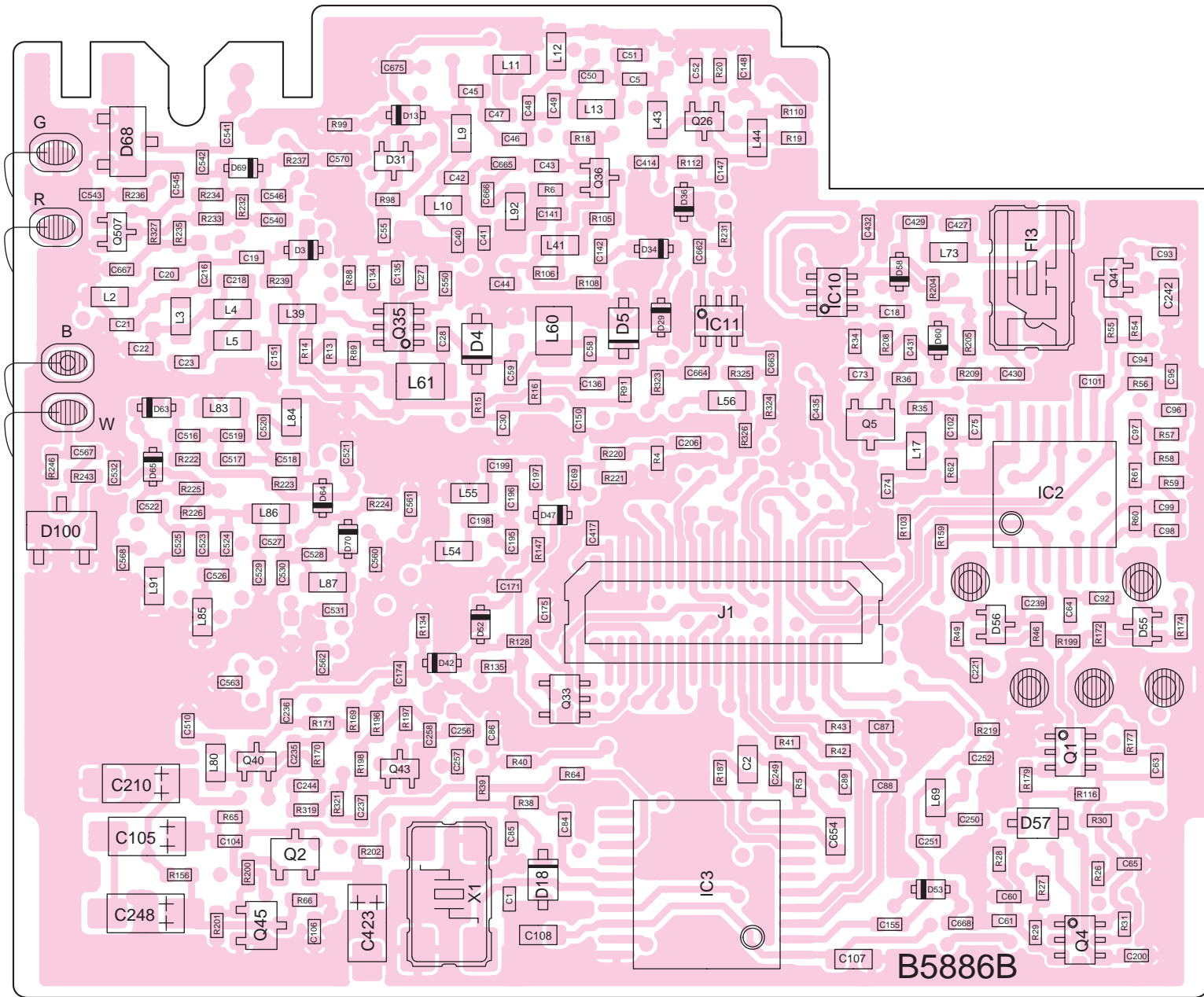
9 - 1 LOGIC UNIT • TOP VIEW



• BOTTOM VIEW



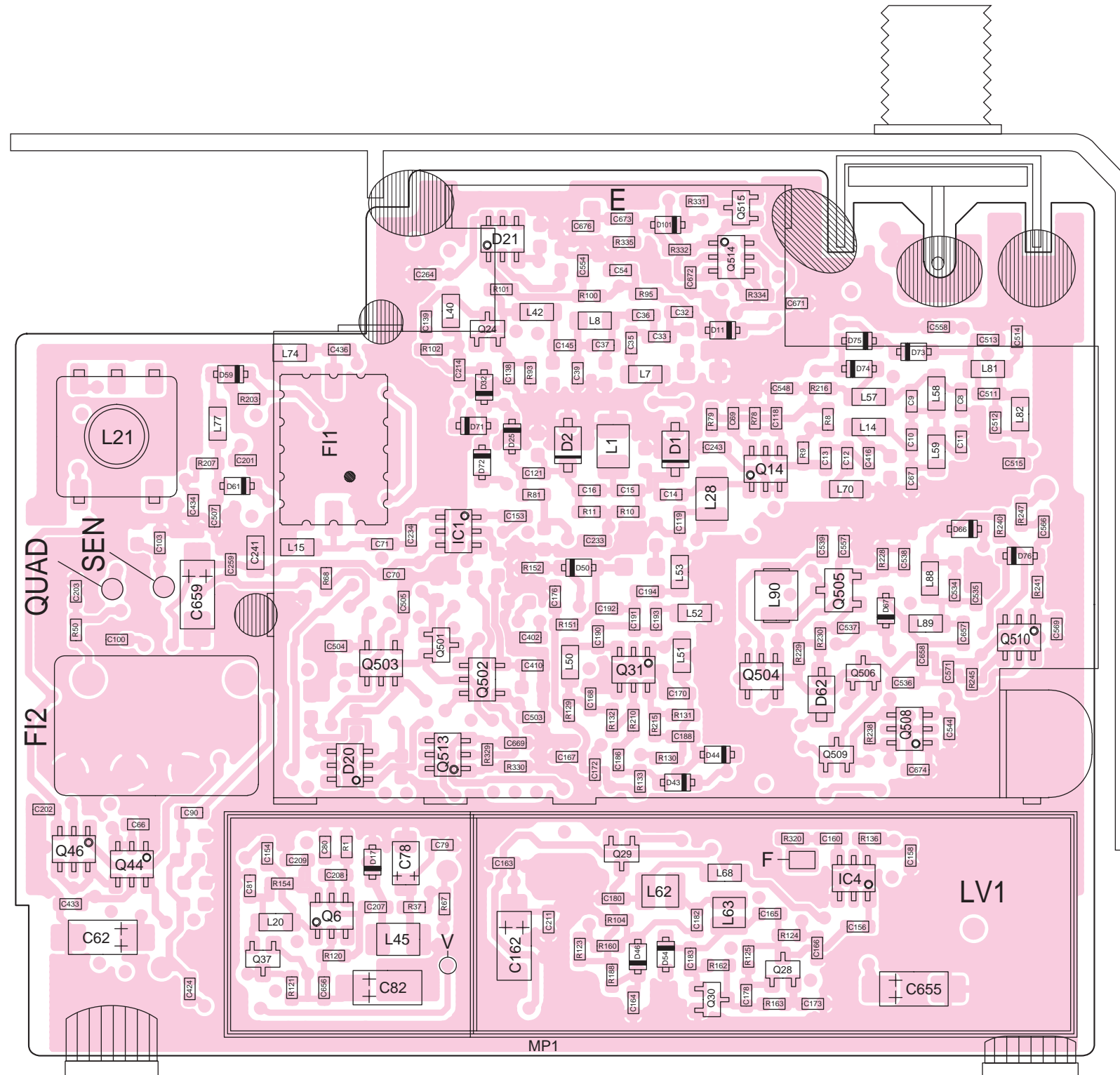
9 - 2 RF UNIT
• TOP VIEW



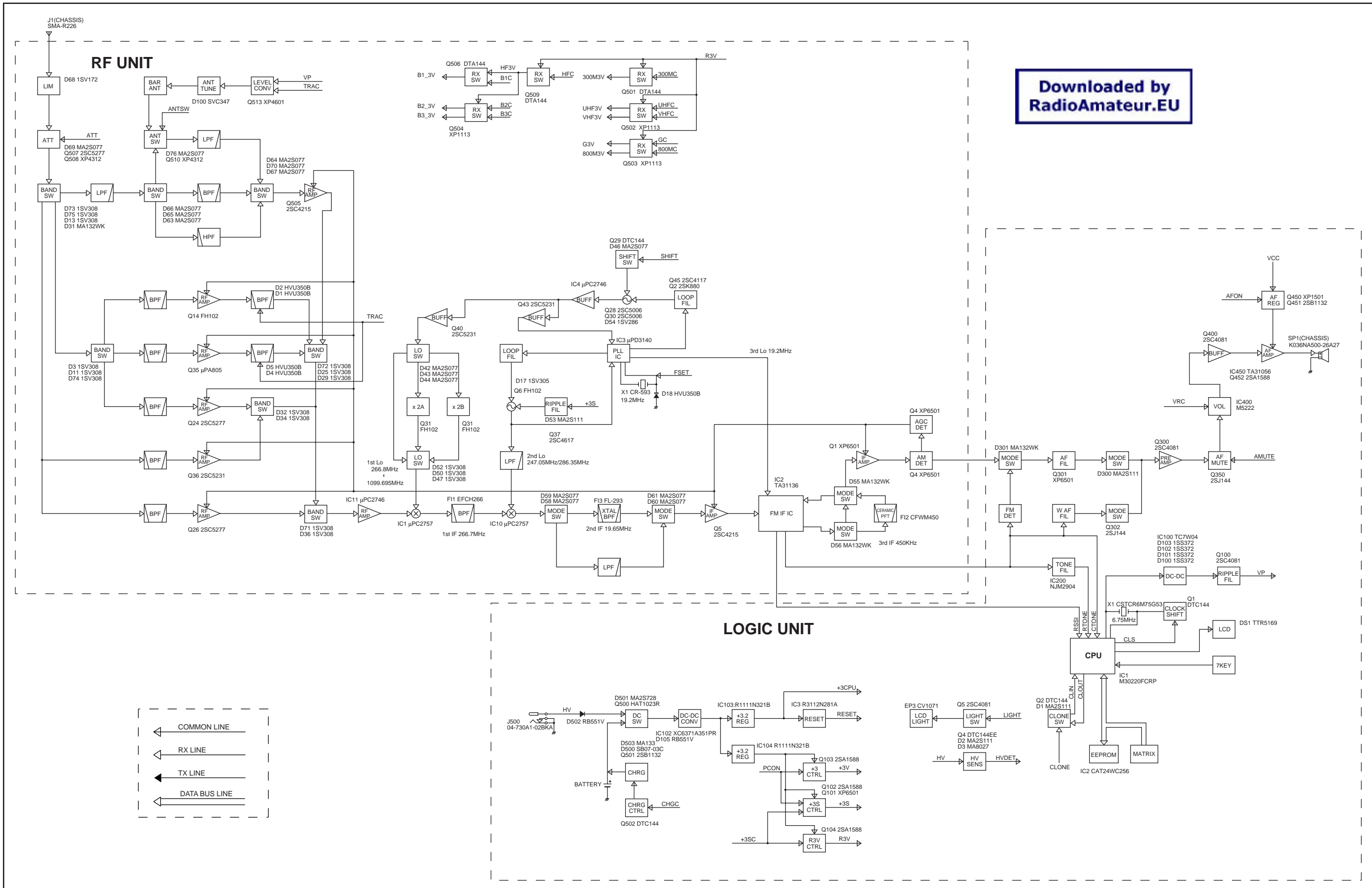
1	ANTSW	20
GND	GND	
GND	GND	
DBL2	GND	
DBL1	GND	
ATT	R2C	
SHIFT	R3C	
HFC	TRAC	
B1C	VHFC	
GND	UHFC	
+3S	GND	
VP	GND	
PDAUL	800MC	
PCK	300MC	
PSTB	GC	
GND	GND	
+3V	FMDDET	
FSET	RSSI	
R3V	NOISE	
AMDET	EAR	
WFM	AM	
40		21

J1
to Logic unit J3

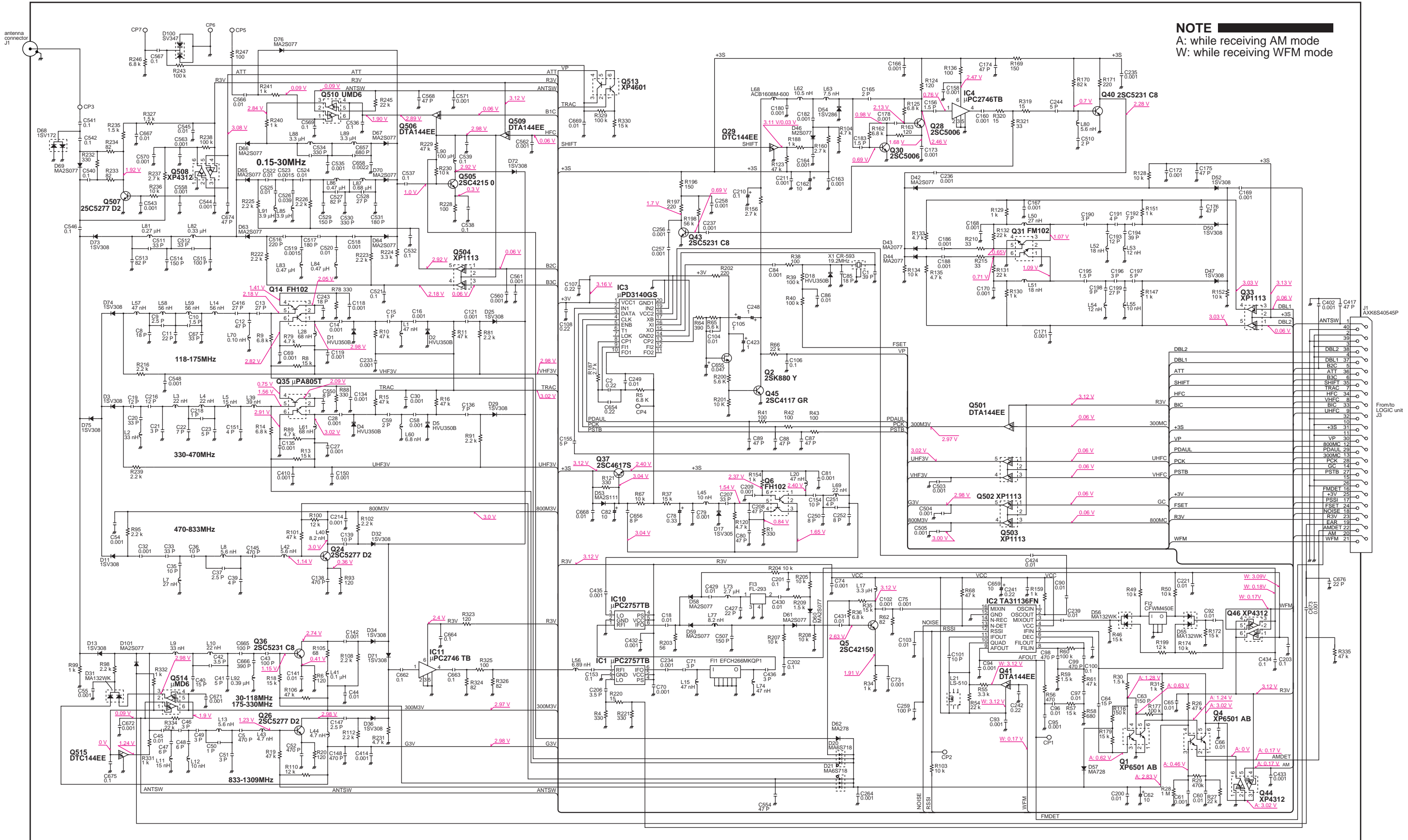
• BOTTOM VIEW



SECTION 10 BLOCK DIAGRAM



• RF UNIT



NOTE
A: while receiving AM mode
W: while receiving WFM mode

Count on us!

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1-1-32, Kamiminami, Hirano-ku, Osaka, 547-0003, Japan

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