



SERVICE MANUAL

COMMUNICATIONS RECEIVER

IC-R2

INTRODUCTION

This service manual describes the latest service information for the **IC-R2** at the time of publication.

| MODEL | VERSION | SYMBOL |
|-------|---------|--------------|
| IC-R2 | Europe | EUR |
| | Italy | ITA |
| | Taiwan | TPE |
| | U.S.A. | USA |
| | Canada | CAN |
| | Other | OTH OTH-1 |

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 3.5 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>

8930046581 LCD Contact IC-R2 LOGIC UNIT 5 pieces
8810009560 Screw PH BO M2x6 ZK IC-R2 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., CAN, OTH, OTH-1 | 0.495 – 1309.995 |
| U.S.A. | 0.495 – 823.995 849.000 – 868.995 894.000 – 1309.995 |

- Mode : FM, WFM, AM
- No. of memory channel : 450 channel
- 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 or alka-
line cell
- 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
- 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 $\frac{9}{32}$ (W) \times 3 $\frac{3}{8}$ (H) \times 1 $\frac{1}{16}$ (D) in
- Weight (with antenna and battery) : 170 (g); 6 (oz)
- External SP connector : 3-conductor 3.5(d) mm
($\frac{1}{8}$ ") / 8 Ω

■ 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 | — | — | 2.5 μV |
| 1.625 – 5.0 | 0.56 μV | | 1.8 μV |
| 5.0 – 30.0 | 0.4 μV | — | — |
| 30.0 – 76.0 | | | |
| 76.0 – 108.0 | | — | 1.8 μV |
| 108.0 – 118.0 | | — | — |
| 118.0 – 136.0 | | 1.8 μV | — |
| 136.0 – 175.0 | | — | 1.8 μV |
| 175.0 – 222.0 | 0.56 μV | — | — |
| 222.0 – 247.0 | | | |
| 247.0 – 330.0 | | — | 1.8 μV |
| 330.0 – 470.0 | | — | — |
| 470.0 – 770.0 | | — | — |
| 770.0 – 833.0 | | — | — |
| 833.0 – 1309.995 | 0.79 μV | — | — |

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

- Squelch Sensitivity :

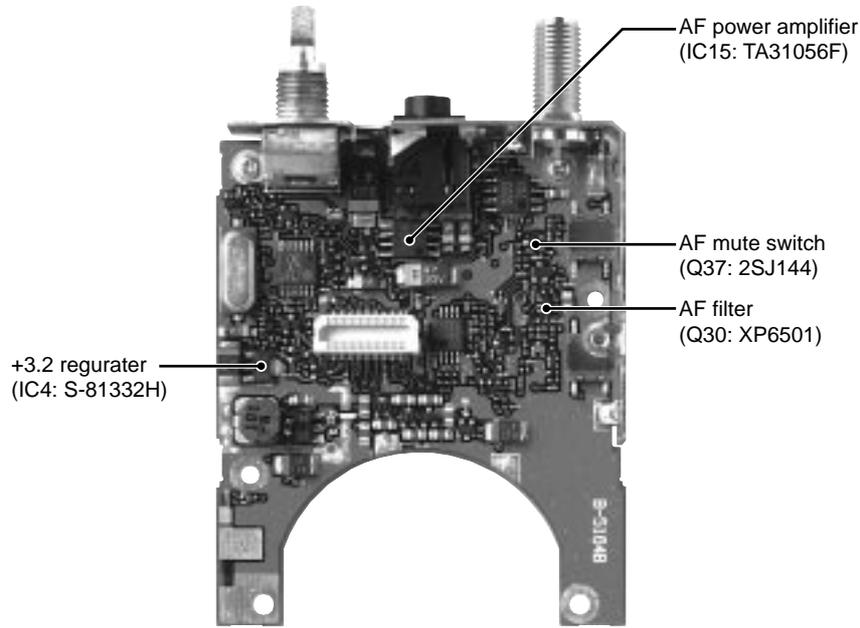
| Frequency (MHz) | FM | WFM | AM |
|------------------|--------------------|-------------------|-------------------|
| 0.495 – 1.625 | — | — | 2.5 μV |
| 1.625 – 5.0 | 0.56 μV | | 1.8 μV |
| 5.0 – 30.0 | 0.4 μV | — | — |
| 30.0 – 76.0 | | | |
| 76.0 – 108.0 | | — | 1.8 μV |
| 108.0 – 118.0 | | — | —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

- 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

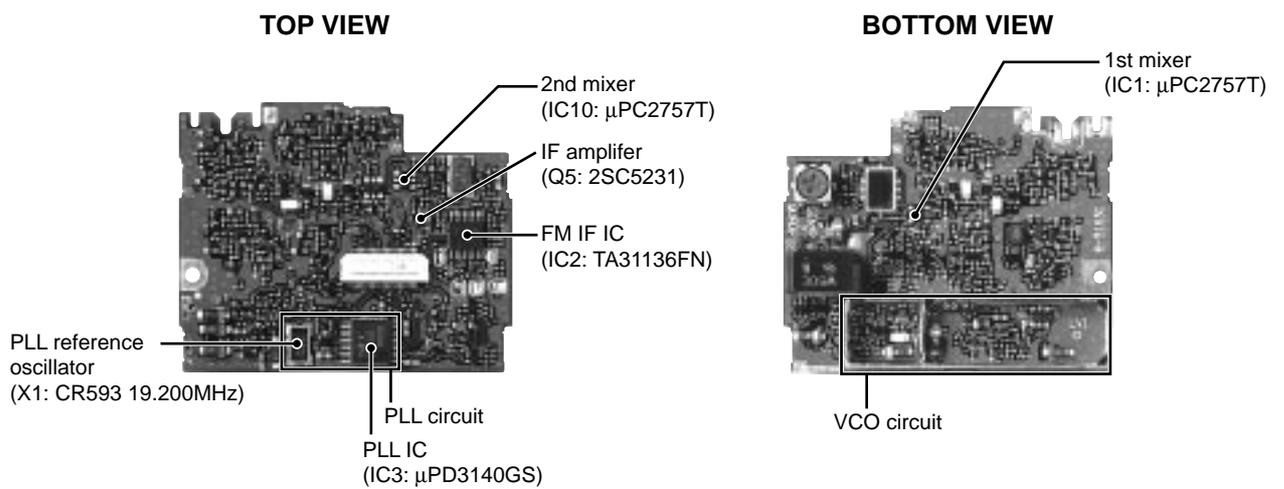
All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

• LOGIC UNIT



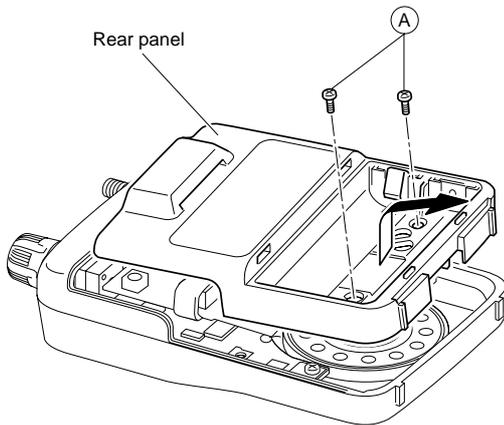
• RF UNIT



SECTION 3 DISASSEMBLY INSTRUCTIONS

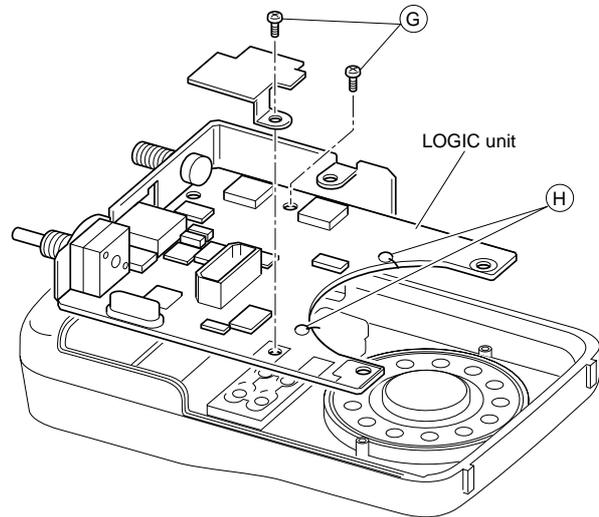
● REMOVING THE REAR PANEL

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



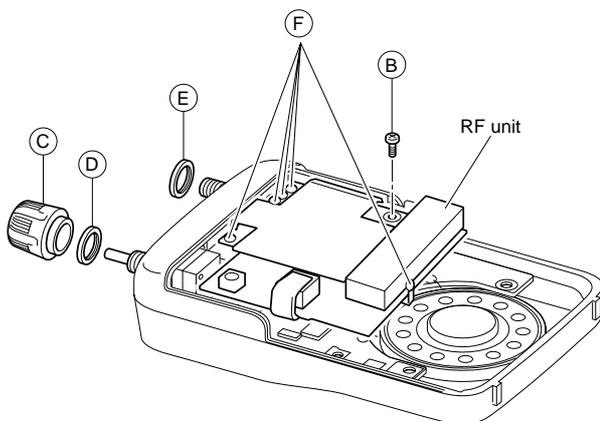
● REMOVING THE LOGIC UNIT

- ① Unscrew 2 screws, (G).
- ② Unsolder 2 points, (H), and then remove the LOGIC unit.



● REMOVING THE RF UNIT

- ① Unscrew 1 screw, (B).
- ② Remove 1 knob, (C).
Unscrew 2 nuts, (D) and (E).
- ③ Unsolder 5 points, (F), and then remove the RF unit.



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

4-1-1 ANTENNA 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 RF circuit the antenna switching circuit (D13, 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) 0.495 MHz–29.999 MHz

RF signals (0.495–29.999MHz) 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 band-pass filter depending on the receiving frequency. The amplified signals are then applied to the 1st mixer circuit (IC1) 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 band-pass 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 (D3, D4) 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, C144, C145), between the band switching diode (D11, D32).

(3) 30–117.995 MHz, 175–329.995 MHz

The 30 MHz–117.95 MHz, 175 MHz–329.995 MHz signals pass through the 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) via band switching diodes (D34, D71). The amplified signals are applied to the 1st mixer circuit (IC1).

(4) 833 MHz–1309.995 MHz

The 833 MHz–1309.995 MHz signals pass through the 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) via band switching diodes (D36). The amplified signals are applied to 1st mixer circuit (IC1).

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, D45) 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 FM IF IC (IC2, pin 3) and passes through the ceramic bandpass filter (FI2). 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).

(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).

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).

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 (R118, C66, C68) with frequency characteristics of -6 dB/octave, and are then applied to the pre-amplifier (Q31) via the band-pass filter (Q30).

While in AM mode, AF signals are pass through the band-pass filter and are then applied to the pre-amplifier (Q31).

While in WFM mode, AF signals are applied to the pre-amplifier (Q31) directly.

The pre-amplified AF signals pass through the AF mute circuit (Q37) and are then applied to the electronic volume control circuit (IC14, pin 6). The level controlled AF signals are output from pin 7 and applied to the AF power amplifier (IC15, pin 1) via the buffer amplifier (Q36). 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.

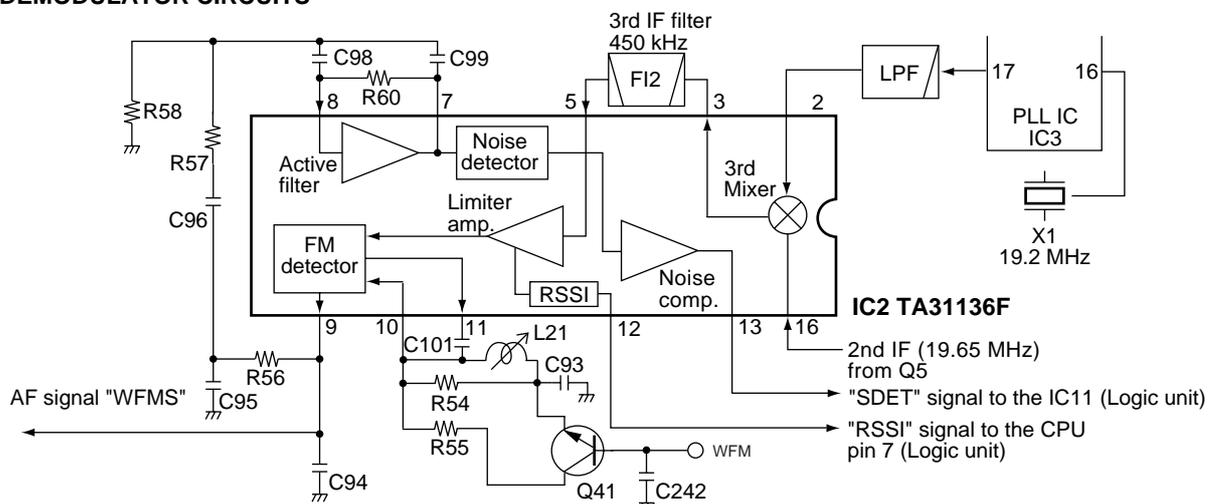
A portion of the AF signals from the FM IF IC (RF unit; IC2, pin 9) are applied to the active filter section (IC2, pin 8). The active filter section amplifies and filters noise components.

The filtered signals are applied to the noise detector section and output from IC2 (pin 13) as the "SDET" signal.

The "SDET" signal from IC2 (pin 13) passes through the noise detector (LOGIC unit; IC1), and is then applied to the CPU (LOGIC unit; IC11, pin 12) via the "SQL" line. The CPU analyzes the noise condition and outputs the "AMUTE" signal to the AF mute switch (Q37).

Even when the squelch id closed, the AF mute switch (Q37) opens at the moment of emitting beep tones.

•2nd IF AND DEMODULATOR CIRCUITS



• **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; IC9) via the "WFMS" line to remove AF (voice) signals and is applied to the CTCSS decoder inside the CPU (LOGIC unit; IC11, pin 8) via the "RTONE" line to control the AF mute switch.

4-2 PLL CIRCUITS

4-2-1 PLL CIRCUIT (RF UNIT)

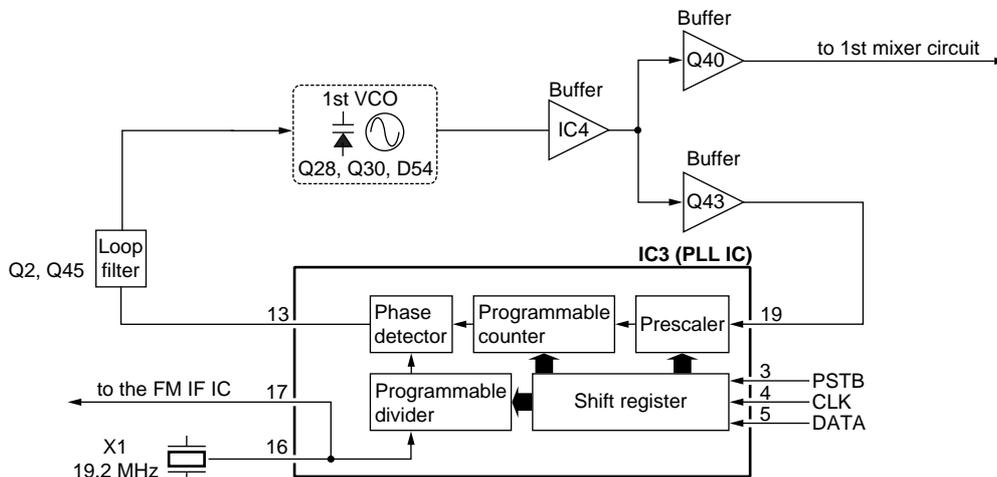
A PLL circuit provides stable oscillation of the receive 1st/2nd LO frequencies. The PLL circuit compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by the divided ratio (N-data) of a programmable divider.

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, IC3) 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.

• **PLL circuit**



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 267.2 MHz–380 MHz and 380 MHz–550 MHz by switching the SHIFT switch (Q29) "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 2) as the comparison signal.

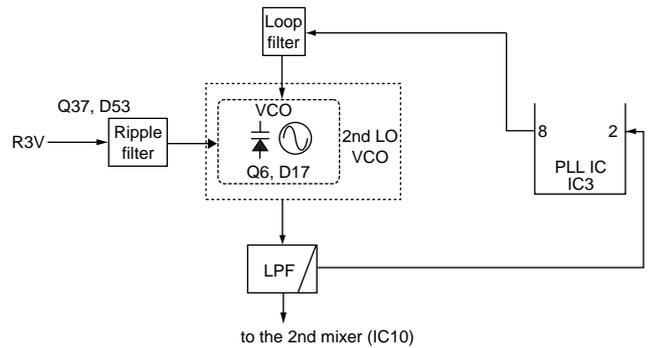
4-2-4 2nd VCO CIRCUIT (RF UNIT)

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

The 2nd VCO circuit (Q6, L45, C80, C207, C208) oscillates 260 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.

• **2nd LO VCO circuit**



4-3 POWER SUPPLY CIRCUITS VOLTAGE LINE

| LINE | DESCRIPTION |
|------|--|
| BATT | The voltage from the attached battery. |
| VP | Common 13 V converted from BATT line by the DC-DC convertors (IC10 and D3, D5, D15). The output voltage is applied to the PLL circuit (RF unit). |
| R3V | Receive 3V controlled by the R3V regulator circuit (Q4) using the "RX" signal from CPU (IC11). |
| +3S | Common 3V converted by the +3S regulator circuit (Q3, Q39) using the "+3SC" signal from CPU (IC11). |
| +3V | Common 3V converted by the +3V regulator circuit (Q6) using the "POWERC" signal from CPU (IC11). |

4-4 PORT ALLOCATIONS 4-4-1 CPU (LOGIC UNIT IC11)

| Pin number | Port name | Description |
|------------|-----------|--|
| 1 | ADJ | Output control signal for the adjustment mode. |
| 2 | ATT | Outputs RF attenuator control signal to attenuator switch. |
| 3 | K2 | Input port for [LOCK], [BAND], [V/M] switches. |
| 4 | K1 | Input port for [UP], [DOWN] switches. |
| 5 | AMUTE | Output AF mute switch (LOGIC unit; Q37) control signal. LOW : While squelched. |
| 6 | BATT | Input port for the Low battery detection. |
| 7 | RSSI | Input port for the RSSI signal from the FM IF IC (RF unit; IC2, pin12) to detect receiving signal strength. |
| 8 | RTONE | Input port for the receiving tone signal. |
| 9 | TRC | Outputs control signal for the tunable band-pass filter. |
| 10 | FSET | Outputs control signal for the RIT frequency. |
| 11 | CTON | Outputs control signal for the CTCSS regulator circuit. |
| 12 | SQL | Pulse signal input port for the squelch. |
| 13 | KFUNC | Input port for the [FUNC] switch. Low : While [FUNC] switch is pushed. |
| 14 | KTS | Input port for the [TS] switch. Low : While [TS] switch is pushed. |
| 15 | VRC | Outputs level control signal for AF volume. |
| 16 | DCK | Input port for the DOWN signal from the [DIAL]. |
| 17 | AM | Outputs AM mode select signals. Low : When AM is selected. |
| 18 | WFM | Outputs WFM mode select signals. Low : When WFM is selected. |
| 21 | BEEP | Outputs beep audio signals. |
| 22 | DUD | Input port for the UP signal from the [DIAL]. |
| 23 | POWER | Input for the [POWER] switch. Low : While [POWER] switch is pushed |
| 24 | AFON | Outputs control signal for the AF amplifier regulator circuit. High : Activates the AF amplifier circuit. |
| 25 | DBL1 | Outputs control signal for the 1st doubler circuit. Low : Activates the 1st doubler circuit. |

| Pin number | Port name | Description |
|------------|-----------|---|
| 26 | LIGHT | Output LCD backlight control signal. High : Lights ON |
| 27 | +3SC | Outputs +3S regulator control signal for the receiver circuit. Low : Receiving. |
| 28 | POWERC | Outputs +3V regulator control signals. |
| 29 | B3 | Outputs high-pass filter select signal. Low : When frequency 15 to 30 MHz are displayed. |
| 30 | B2 | Outputs band-pass filter select signal. Low : When frequency 1.9 to 15 MHz are displayed. |
| 31 | B1 | Outputs low-pass filter select signal. Low : When frequency 0.5 to 1.5 MHz are displayed. |
| 32 | KSQL | Input port for the [SQL] switch. High : While [SQL] switch is pushed. |
| 33 | RESET | Input port for the RESET signal. |
| 39 | EDA | Outputs data signals to the EEPROM IC (LOGIC unit; IC2). |
| 42 | PCK/IS | Outputs clock signal to both PLL IC (RF unit; IC3) and EEPROM IC (LOGIC unit; IC2). |
| 43 | ECK/I3 | Outputs clock signal to EEPROM IC. |
| 44, 45 | I2, I1 | Input ports for Initial matrix. |
| 46 | PSTB | Outputs strobe signals for the PLL IC. |
| 47 | PDA | Outputs data signals to the PLL IC. Input port for PLL unlock signal from PLL IC (RF unit; IC3). |
| 48 | DBL2 | Output control signal for the doubler circuit. Low : Activates the 2nd doubler circuit. |
| 50 | 300MC | Outputs low-pass filter select signal. Low : When frequencies 30 to 118 MHz or 175 to 330 MHz are displayed. |
| 51 | GC | Outputs band-pass filter select signal. Low : When frequencies 833 to 1309.995 MHz are displayed. |
| 52 | 800MC | Outputs band-pass filter select signal. Low : When frequencies 470 to 1027 MHz are displayed. |
| 53 | UHFC | Outputs band-pass filter select signal. Low : When frequencies 330 to 470 MHz are displayed. |
| 54 | VHFC | Outputs band-pass filter select signal. Low : When frequencies 118 to 175 MHz are displayed. |

| Pin number | Port name | Description |
|------------|-----------|---|
| 55 | SHIFT | Output port for 1st VCO SHIFT signals to the shift switch (RF unit; Q29). High : Shift ON (380 – 550 MHz). Low : Shift OFF (267.2 – 380 MHz). |
| 56 | HFC | Output control signal for the 0.5–30 MHz band RF amplifier. Low : Receiving 0.5–30 MHz bands. |

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION

The receiver (IC-R2) must be adjusted on the adjustment mode after programmed adjustment frequency data into memory channel. When you program adjustment frequency data into memory channel, optional CS-R2 PROGRAMMING SOFTWARE, OPC-478 CLONING CABLE are 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 : 0.1–600 MHz Frequency accuracy : ± 1 ppm or better Sensitivity : 100 mV or better |
| AC millivoltmeter | Measuring range : 10 mV–10 V | | |
| External speaker | Input impedance : 8 Ω Capacity : 1 W or more | Standard signal generator (SSG) | Frequency range : 0.1–1300 MHz Output level : 0.1 μ V–32 mV (–127 to –17 dBm) |

■ SOFTWARE INSTALLATION

NOTE: Before using the program, make a backup copy of the original disk. After making a backup copy, keep the original disk in a safe place.

- ① Boot up DOS.
- ② Insert the backup disk into the floppy drive A.
- ③ Type the following to install the adjustment program:
A:\>INSTALL A C:\CSR2 [Enter]

■ ADJUSTMENT FREQUENCY DATA

When program adjustment frequency data (at right) into memory channel, back up the original memory data using the optional CS-R2, OPC-478, and re-program it after adjustment.

CAUTION: When clone the adjustment frequency data to the receiver, the receiver's memory channel will be overwritten the data and deleted original memory data at same time.

■ ENTERING THE ADJUSTMENT MODE

- ① Connect a JIG (see illustration at CONNECTION) to the [SP] jack.
- ② Push and hold [FUNC], then turn power ON.
- ③ Disconnect the JIG and connect a PC with an OPC-478.
- ④ Boot up DOS.
- ⑤ Type the following to start up the adjustment program:
C:\>CD CSR2 [Enter]
C:\CSR2>CSR2 [Enter]
 - Main menu appears at the top side of the cloning program, select the sub-menu "Screen"–"Memory CH"–"Bank 1", then input adjustment frequency (at right).
- ⑥ Select "Write → Receiver" of the Clone on the top menu.
 - Application writes adjustment frequency data to the connected receiver.
- ⑦ Disconnect the cloning cable and turn power OFF, then turn power ON to start adjustment.

■ OPERATING ON THE ADJUSTMENT MODE

Change the value : [DIAL]
Change the channel [UP] : [BAND]
Change the channel [DOWN] : [BAND]

■ EXITING THE ADJUSTMENT MODE

When the adjustment is finished, the receiver must be cancelled adjustment mode to use normal operation, otherwise receiver does not work properly.

- ① Turn power OFF.
- ② Push and hold [FUNC] and [V/M], then turn power ON.

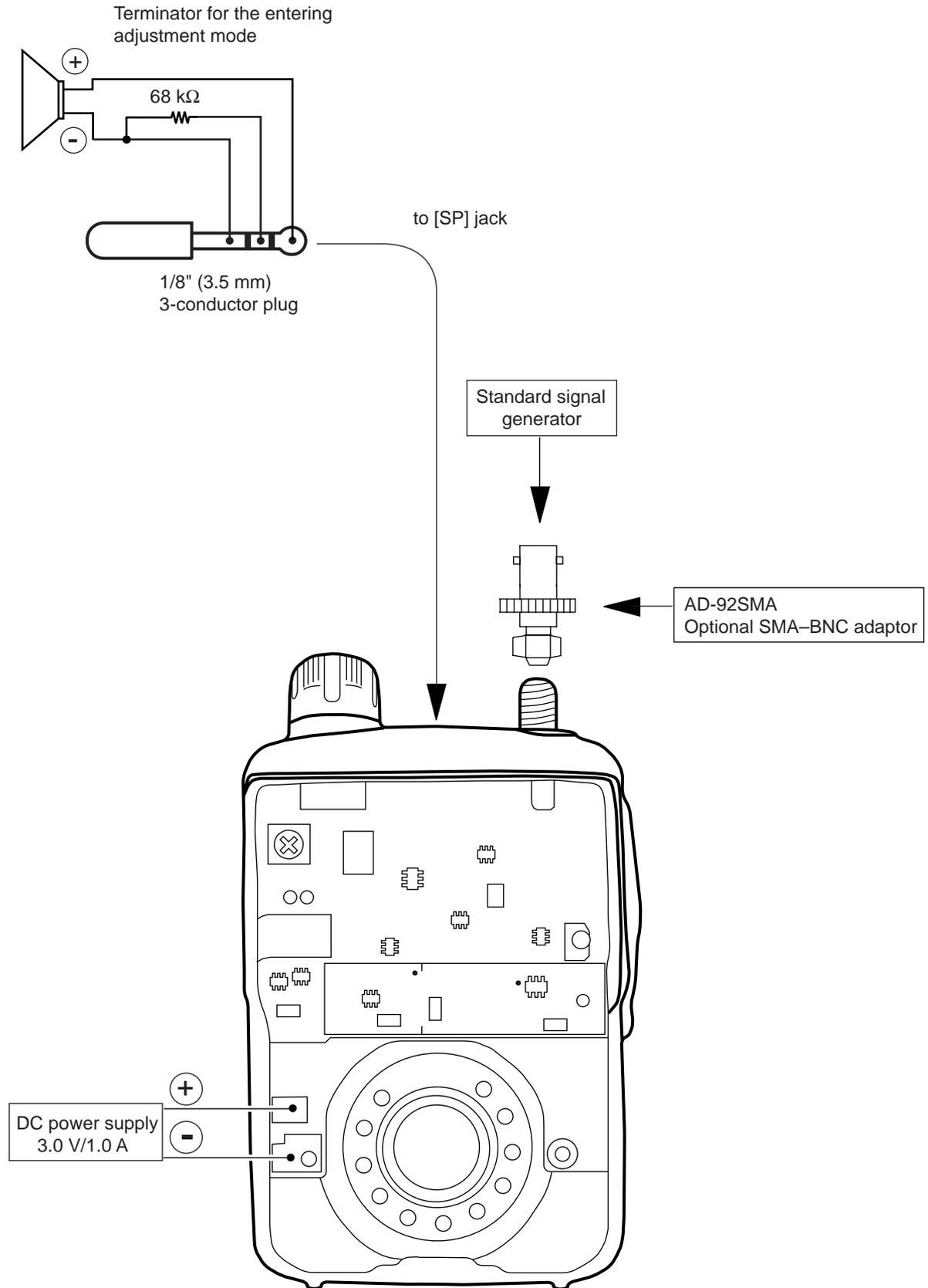
NOTE: All memory data except adjustment value will be cleared at this operation.

• ADJUSTMENT FREQUENCY

| Channel No. | Frequency [MHz] | Display ch. No. |
|-------------|-----------------|-----------------|
| 0 | 280.100 | FR |
| 1 | 145.600 | tk |
| 2 | 435.600 | tk |
| 3 | 14.100 | RS |
| 4 | 145.100 | RS |
| 5 | 200.100 | RS |
| 6 | 435.100 | RS |
| 7 | 650.100 | RS |
| 8 | 1100.100 | RS |

NOTE: Adjustment frequency data must be programmed into proper channels, don't turn the order of channels, otherwise adjustment value will be wrong.

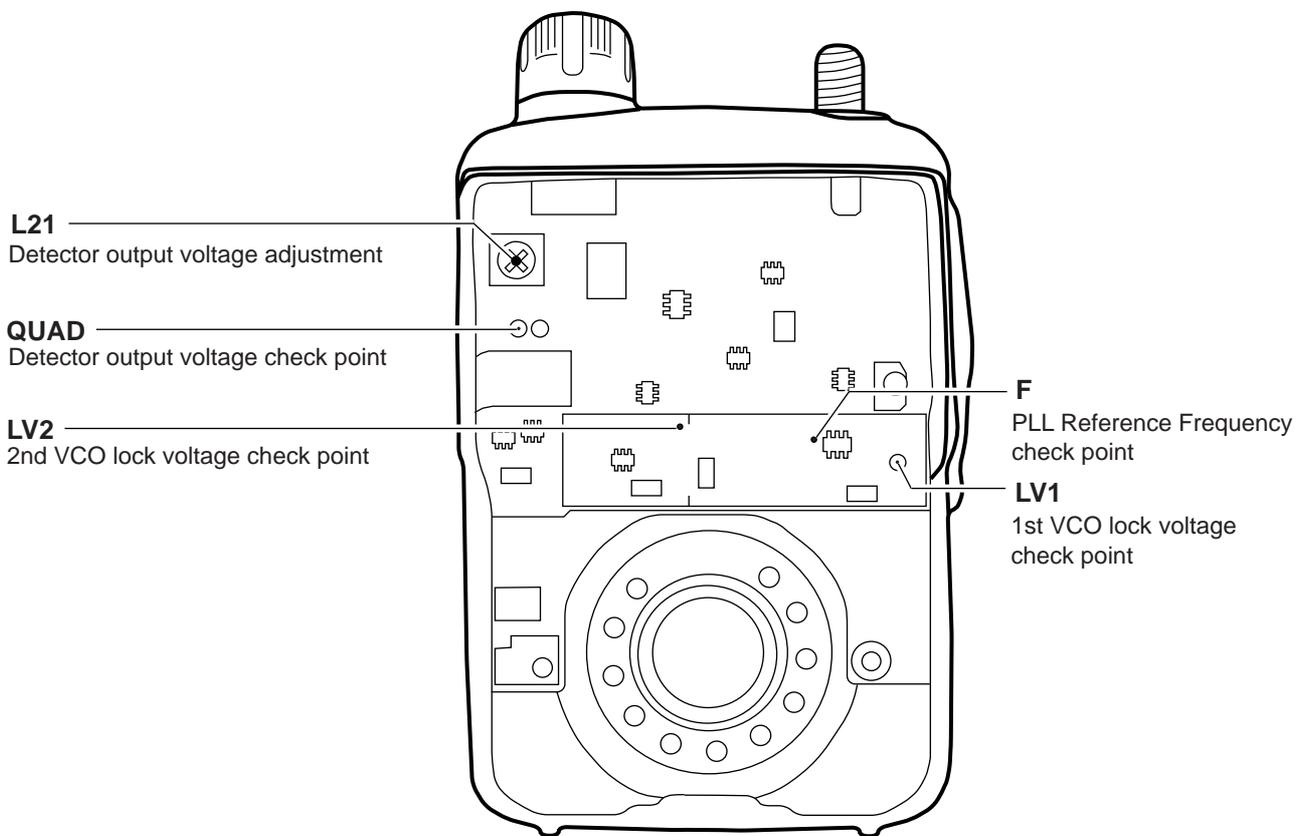
■ CONNECTION



5-2 PLL ADJUSTMENT

| ADJUSTMENT | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE | ADJUSTMENT POINT | | |
|---------------------------------|----------------------|--|----------|---|--------------------------------|--------|--------|
| | | UNIT | LOCATION | | UNIT | ADJUST | |
| 1ST VCO LOCK VOLTAGE (SHIFT ON) | 1 | • Displayed frequency : 493.300 MHz | RF | Connect the digital multi-meter to the check point LV1. | 1.9 V – 2.9 V | | Verify |
| | | • Receiving | | | | | |
| | 2 | • Displayed frequency : 282.900 MHz | | | less than 12 V | | |
| | | • Receiving | | | | | |
| (SHIFT OFF) | 1 | • Displayed frequency : 0.495 MHz | | | 1.4 V – 2.4 V | | |
| | | • Receiving | | | | | |
| | 2 | • Displayed frequency : 493.295 MHz | | | less than 12 V | | |
| | | • Receiving | | | | | |
| 2ND VCO LOCK VOLTAGE | 1 | • Displayed frequency : 430.000 MHz | RF | Connect the digital multi-meter to the check point LV2. | 0.4 V – 1.0 V | | |
| | | • Receiving | | | | | |
| | 2 | • Displayed frequency : 493.300 MHz | | | less than 2.5 V | | |
| | | • Receiving | | | | | |
| REFERENCE FREQUENCY | 1 | • Displayed frequency : (FR ch) 280.100 MHz | RF | Connect the frequency counter to the check point F. | 546.7999 MHz – 546.8001 MHz | LOGIC | [DIAL] |
| DETECTOR OUTPUT VOLTAGE | 1 | • Displayed frequency : (tk ch) 145.600 MHz | RF | Connect the digital multi-meter to check point QUAD. | 1.0 V | RF | L21 |
| | | • Connect an SSG to the antenna connector and set as: Level : 1 mV* (60 dB μ) Deviation : \pm 3.5 kHz Modulation : 1 kHz | | | | | |
| | | • Receiving | | | | | |

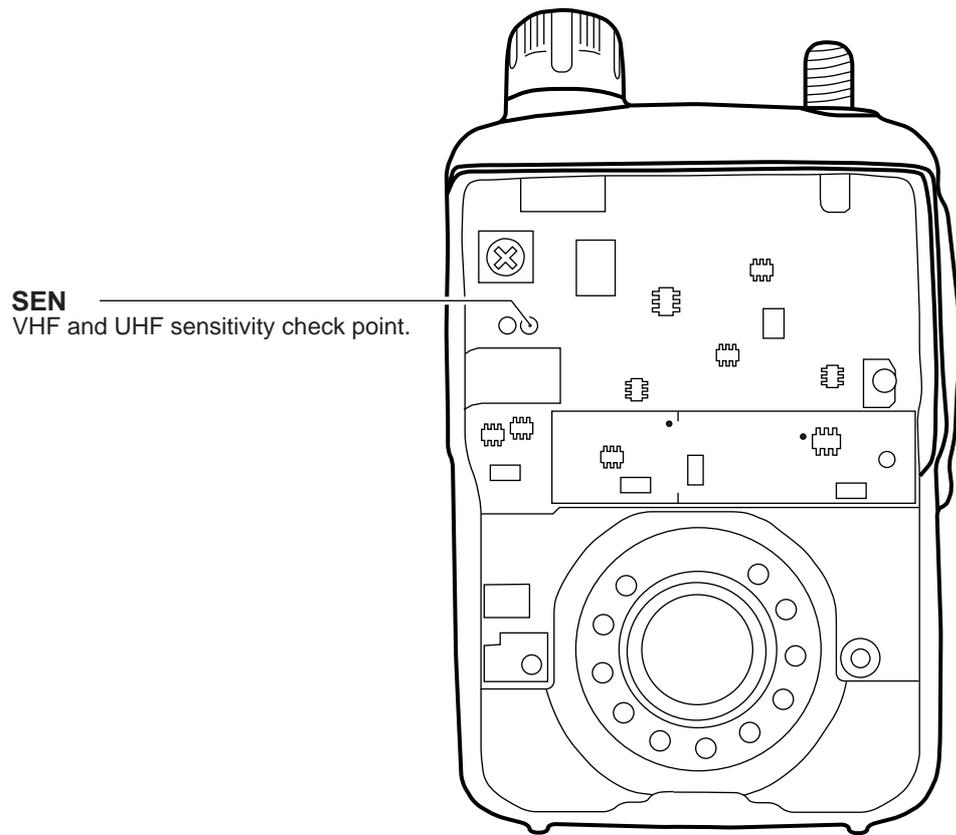
*This output level of the standard signal generator (SSG) is indicated as SSG's open circuit.



5-3 RECEIVER ADJUSTMENT

| ADJUSTMENT | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE | ADJUSTMENT POINT | |
|-----------------|---|-------------|--|---|------------------|--------|
| | | UNIT | LOCATION | | UNIT | ADJUST |
| VHF SENSITIVITY | 1 <ul style="list-style-type: none"> • Displayed frequency : (tk ch) 145.600 MHz • Connect an SSG to the antenna connector and set as : Level : 1 μV* (-107 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz • Receiving | RF | Connect the DC voltmeter to the check point SEN. | Maximum DC voltage | LOGIC | [DIAL] |
| UHF SENSITIVITY | 1 <ul style="list-style-type: none"> • Displayed frequency : (tk ch) 435.600 MHz • Connect an SSG to the antenna connector and set as: Level : 1 μV* (-107 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz • Receiving | RF | Connect the DC voltmeter to the check point SEN. | Maximum DC voltage | LOGIC | [DIAL] |
| S-METER | 1 <ul style="list-style-type: none"> • Displayed frequency : (RS ch) 14.100 MHz • Connect the SSG to the antenna connector and set as : Level : 0.5 μV* (-113 dBm) Modulation : 1 kHz Deviation : \pm 3.5 kHz • Receiving | | | Push and hold the [MOD] key. • Verify that S-Meter shows S4 (3dots). | | |
| | 2 <ul style="list-style-type: none"> • Displayed frequency : (RS ch) 145.100 MHz • Set the SSG as : Level : 0.5 μV* (-113 dBm) • Receiving | | | | | |
| | 3 <ul style="list-style-type: none"> • Displayed frequency : (RS ch) 200.100 MHz • Set the SSG as : Level : 0.5 μV* (-113 dBm) • Receiving | | | | | |
| | 4 <ul style="list-style-type: none"> • Displayed frequency : (RS ch) 435.100 MHz • Set the SSG as : Level : 0.5 μV* (-113 dBm) • Receiving | | | | | |
| | 5 <ul style="list-style-type: none"> • Displayed frequency : (RS ch) 650.100 MHz • Set the SSG as : Level : 0.5 μV* (-113 dBm) • Receiving | | | | | |
| | 6 <ul style="list-style-type: none"> • Displayed frequency : (RS ch) 1100.100 MHz • Set the SSG as : Level : 1 μV* (-107 dBμ) • Receiving | | | | | |

*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 | 1130008970 | S.IC | HD74LV00TELL |
| IC2 | 1130009020 | S.IC | X25650S8I-2.5T6 |
| IC3 | 1180001820 | S.IC | XC62FP3002MR |
| IC4 | 1180001720 | S.IC | S-81332HG-KC-T1 |
| IC5 | 1110004620 | S.IC | S-80725SL-AN-T1 |
| IC9 | 1110003800 | S.IC | NJM2904V-TE1 |
| IC10 | 1110004790 | S.IC | XC6371A351PR |
| IC11 | 1140007760 | S.IC | M38267M8L-218GP [USA] only |
| | 1140007720 | S.IC | M38267M8L-222GP other |
| IC14 | 1110004520 | S.IC | M5222FP 600C |
| IC15 | 1190000710 | S.IC | TA31056F (TP1) |
| Q3 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q4 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q6 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q8 | 1590002430 | S.TRANSISTOR | DTA144EE TL |
| Q11 | 1590001780 | S.TRANSISTOR | XP4213 (TX) |
| Q13 | 1590002310 | S.TRANSISTOR | DTC114EE TL |
| Q17 | 1590001390 | S.FET | 2SJ144-Y (TE85R) |
| Q18 | 1590002430 | S.TRANSISTOR | DTA144EE TL |
| Q23 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q24 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q26 | 1530002280 | S.TRANSISTOR | 2SC4081 T107 S |
| Q30 | 1590001190 | S.TRANSISTOR | XP6501-(TX).AB |
| Q31 | 1530002280 | S.TRANSISTOR | 2SC4081 T107 S |
| Q35 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q36 | 1530002280 | S.TRANSISTOR | 2SC4081 T107 S |
| Q37 | 1590001390 | S.FET | 2SJ144-Y (TE85R) |
| Q38 | 1530002280 | S.TRANSISTOR | 2SC4081 T107 S |
| Q39 | 1590001190 | S.TRANSISTOR | XP6501-(TX).AB |
| Q40 | 1510000670 | S.TRANSISTOR | 2SA1588-GR (TE85R) |
| Q41 | 1530003630 | S.TRANSISTOR | 2SC4617 TLS |
| D1 | 1790001250 | S.DIODE | MA2S111-(TX) |
| D3 | 1790001560 | S.DIODE | 1SS372 (TE85R) |
| D4 | 1790000970 | S.DIODE | MA729 (TX) |
| D5 | 1790001560 | S.DIODE | 1SS372 (TE85R) |
| D6 | 1790001250 | S.DIODE | MA2S111-(TX) [OTH-1] only |
| D7 | 1790001250 | S.DIODE | MA2S111-(TX) [USA], [CAN], [OTH] |
| D8 | 1790001250 | S.DIODE | MA2S111-(TX) [UK], [OTH], [OTH-1] |
| D9 | 1790001250 | S.DIODE | MA2S111-(TX) except [OTH-1] |
| D10 | 1790001250 | S.DIODE | MA2S111-(TX) [USA], [CAN] only |
| D13 | 1790001250 | S.DIODE | MA2S111-(TX) [USA] only |
| D14 | 1790001250 | S.DIODE | MA2S111-(TX) |
| D15 | 1790001560 | S.DIODE | 1SS372(TE85R) |
| D16 | 1790000850 | S.DIODE | MA132WK(TX) |
| D17 | 1790001250 | S.DIODE | MA2S111-(TX) |
| X1 | 6050010310 | S.XTAL | CR-613 (4.935 MHz) |
| L1 | 6200008630 | S.COIL | CD54-101KC |
| R1 | 7030005040 | S.RESISTOR | ERJ2GEJ 472 X (4.7 kΩ) |
| R3 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R5 | 7030005530 | S.RESISTOR | ERJ2GEJ 100 X (10 Ω) |
| R8 | 7030005060 | S.RESISTOR | ERJ2GEJ 333 X (33 kΩ) |
| R9 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R12 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R14 | 7030005310 | S.RESISTOR | ERJ2GEJ 124 X (120 kΩ) |
| R18 | 7030005110 | S.RESISTOR | ERJ2GEJ 224 X (220 kΩ) |
| R23 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R24 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R25 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R26 | 7030005060 | S.RESISTOR | ERJ2GEJ 333 X (33 kΩ) |
| R32 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R33 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R34 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R35 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R37 | 7030005000 | S.RESISTOR | ERJ2GEJ 471 X (470 Ω) |
| R38 | 7030005160 | S.RESISTOR | ERJ2GEJ 105 X (1 MΩ) |
| R39 | 7030005170 | S.RESISTOR | ERJ2GEJ 474 X (470 kΩ) |

[LOGIC UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|-------------|------------------------|
| R40 | 7030005080 | S.RESISTOR | ERJ2GEJ 823 X (82 kΩ) |
| R41 | 7030005080 | S.RESISTOR | ERJ2GEJ 823 X (82 kΩ) |
| R42 | 7030005080 | S.RESISTOR | ERJ2GEJ 823 X (82 kΩ) |
| R48 | 7030005310 | S.RESISTOR | ERJ2GEJ 124 X (120 kΩ) |
| R49 | 7030005230 | S.RESISTOR | ERJ2GEJ 334 X (330 kΩ) |
| R50 | 7030005310 | S.RESISTOR | ERJ2GEJ 124 X (120 kΩ) |
| R51 | 7030005310 | S.RESISTOR | ERJ2GEJ 124 X (120 kΩ) |
| R52 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R67 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R68 | 7030005040 | S.RESISTOR | ERJ2GEJ 472 X (4.7 kΩ) |
| R77 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R78 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R79 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R82 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R86 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R87 | 7030005110 | S.RESISTOR | ERJ2GEJ 224 X (220 kΩ) |
| R88 | 7030005160 | S.RESISTOR | ERJ2GEJ 105 X (1 MΩ) |
| R89 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R90 | 7030005160 | S.RESISTOR | ERJ2GEJ 105 X (1 MΩ) |
| R91 | 7030005170 | S.RESISTOR | ERJ2GEJ 474 X (470 kΩ) |
| R92 | 7030005170 | S.RESISTOR | ERJ2GEJ 474 X (470 kΩ) |
| R94 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R100 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R102 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R103 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R108 | 7030005160 | S.RESISTOR | ERJ2GEJ 105 X (1 MΩ) |
| R109 | 7030005160 | S.RESISTOR | ERJ2GEJ 105 X (1 MΩ) |
| R112 | 7030005060 | S.RESISTOR | ERJ2GEJ 333 X (33 kΩ) |
| R113 | 7030005080 | S.RESISTOR | ERJ2GEJ 823 X (82 kΩ) |
| R114 | 7030005040 | S.RESISTOR | ERJ2GEJ 472 X (4.7 kΩ) |
| R116 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R117 | 7030005170 | S.RESISTOR | ERJ2GEJ 474 X (470 kΩ) |
| R118 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R119 | 7030008300 | S.RESISTOR | ERJ2GEJ 184 X (180 kΩ) |
| R120 | 7030008300 | S.RESISTOR | ERJ2GEJ 184 X (180 kΩ) |
| R121 | 7030005170 | S.RESISTOR | ERJ2GEJ 474 X (470 kΩ) |
| R122 | 7030008300 | S.RESISTOR | ERJ2GEJ 184 X (180 kΩ) |
| R123 | 7030005310 | S.RESISTOR | ERJ2GEJ 124 X (120 kΩ) |
| R124 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R125 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R126 | 7030008290 | S.RESISTOR | ERJ2GEJ 183 X (18 kΩ) |
| R127 | 7030008290 | S.RESISTOR | ERJ2GEJ 183 X (18 kΩ) |
| R128 | 7030005530 | S.RESISTOR | ERJ2GEJ 100 X (10 Ω) |
| R129 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R130 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R132 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R133 | 7030008300 | S.RESISTOR | ERJ2GEJ 184 X (180 kΩ) |
| R136 | 7030005220 | S.RESISTOR | ERJ2GEJ 223 X (22 kΩ) |
| R137 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R138 | 7030009290 | S.RESISTOR | ERJ2GEJ 562 X (5.6 kΩ) |
| R140 | 7030008300 | S.RESISTOR | ERJ2GEJ 184 X (180 kΩ) |
| R141 | 7030008300 | S.RESISTOR | ERJ2GEJ 184 X (180 kΩ) |
| R149 | 7030007290 | S.RESISTOR | ERJ2GEJ 222 X (2.2 kΩ) |
| R150 | 7030009270 | S.RESISTOR | ERJ2GEJ 821 X (820 Ω) |
| R153 | 7030005240 | S.RESISTOR | ERJ2GEJ 473 X (47 kΩ) |
| R156 | 7030005060 | S.RESISTOR | ERJ2GEJ 333 X (33 kΩ) |
| R157 | 7030005310 | S.RESISTOR | ERJ2GEJ 124 X (120 kΩ) |
| R159 | 7030005060 | S.RESISTOR | ERJ2GEJ 333 X (33 kΩ) |
| R161 | 7030005210 | S.RESISTOR | ERJ2GEJ 822 X (8.2 kΩ) |
| R164 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R165 | 7030007340 | S.RESISTOR | ERJ2GEJ 153 X (15 kΩ) |
| R166 | 7030005110 | S.RESISTOR | ERJ2GEJ 224 X (220 kΩ) |
| R172 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R173 | 7030007290 | S.RESISTOR | ERJ2GEJ 222 X (2.2 kΩ) |
| R174 | 7030007300 | S.RESISTOR | ERJ2GEJ 332 X (3.3 kΩ) |
| R175 | 7030009290 | S.RESISTOR | ERJ2GEJ 562 X (5.6 kΩ) |
| R179 | 7030004990 | S.RESISTOR | ERJ2GEJ 221 X (220 Ω) |
| R180 | 7030005170 | S.RESISTOR | ERJ2GEJ 474 X (470 kΩ) |
| R181 | 7030008010 | S.RESISTOR | ERJ2GEJ 123X (12 kΩ) |
| R182 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R183 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R184 | 7030005120 | S.RESISTOR | ERJ2GEJ 102 X (1 kΩ) |
| R185 | 7030007300 | S.RESISTOR | ERJ2GEJ 332 X (3.3 kΩ) |
| R186 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |

S.=Surface mount

[LOGIC UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|----------------|----------------------|
| C1 | 4030014200 | S.CERAMIC | ECUE1H101JCCQ |
| C3 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C4 | 4550006760 | S.TANTALUM | TEMSVB2 1A 336M-8R |
| C5 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C6 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C8 | 4030014120 | S.CERAMIC | ECUE1H100CCQ |
| C9 | 4030014120 | S.CERAMIC | ECUE1H100CCQ |
| C11 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C12 | 4030013950 | S.CERAMIC | C1005 JB 1A 393K-T-N |
| C13 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C14 | 4030013890 | S.CERAMIC | C1005 JB 1H 152K-T-N |
| C15 | 4510007130 | S.ELECTROLYTIC | EEFCD0J470R |
| C15 | 4550006670 | S.TANTALUM | ECST1AD107R |
| C16 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C17 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C18 | 4550006920 | S.TANTALLUM | TEMSVB2 1E 335M-8R |
| C19 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C24 | 4550006200 | S.TANTALUM | ECST0JY106R |
| C33 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C35 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C36 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C37 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C39 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C40 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C41 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C42 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C43 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C44 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C48 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C51 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C52 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C53 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C57 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C58 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C60 | 4550006690 | S.TANTALUM | ECST1AC476R |
| C61 | 4550006550 | S.TANTALUM | TEMSVD 0G 227M-12R |
| C62 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C63 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C65 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C66 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C67 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C68 | 4030013930 | S.CERAMIC | C1005 JB 1C 183K-T-N |
| C69 | 4030013910 | S.CERAMIC | C1005 JB 1E 472K-T-N |
| C70 | 4030013910 | S.CERAMIC | C1005 JB 1E 472K-T-N |
| C71 | 4030013880 | S.CERAMIC | C1005 JB 1H 222K-T-N |
| C72 | 4030013910 | S.CERAMIC | C1005 JB 1E 472K-T-N |
| C73 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C74 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C76 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C77 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C78 | 4030013960 | S.CERAMIC | C1005 JB 1A 473K-T-N |
| C79 | 4030014200 | S.CERAMIC | ECUE1H101JCCQ |
| C80 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C81 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C82 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C86 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C87 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C88 | 4550006320 | S.TANTALUM | ECST0JY475R |
| C89 | 4550006320 | S.TANTALUM | ECST0JY475R |
| C90 | 4030013910 | S.CERAMIC | C1005 JB 1E 472K-T-N |
| C91 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C92 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C93 | 4030013930 | S.CERAMIC | C1005 JB 1C 183K-T-N |
| C94 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C96 | 4550006320 | S.TANTALUM | ECST0JY475R |
| C97 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C98 | 4550006760 | S.TANTALUM | TEMSVB2 1A 336M-8R |
| C100 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C101 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C102 | 4030014200 | S.CERAMIC | ECUE1H101JCCQ |
| C103 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C106 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C107 | 4030011810 | S.CERAMIC | C1608 JB 1A 224K-T-N |
| C108 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C114 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C116 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |
| C118 | 4550006140 | S.TANTALUM | ECST1EY474R |
| C119 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C120 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C121 | 4030008680 | S.CERAMIC | C2012 JF 1C 105Z-T-A |
| C123 | 4030013970 | S.CERAMIC | C1005 JB OJ 104K-T-N |

[LOGIC UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|-------------|---------------------|
| DS2 | 5040002230 | S.LED | CL-200YG-C-TS |
| DS8 | 5030001610 | LCD | DLC-7995YBGF |
| S8 | 2230000900 | S.SWITCH | JPM1990-2013R |
| S9 | 2250000390 | ENCODER | TP90N00E20-16F-1995 |
| S10 | 2230000900 | S.SWITCH | JPM1990-2013R |
| J1 | 6510020560 | S.CONNECTOR | AXK5S40340P |
| J2 | 6450001910 | CONNECTOR | HSJ1594-010050 |
| W2 | 7030003860 | S.JUMPER | ERJ3GE JPW V |
| W3 | 7030003860 | S.JUMPER | ERJ3GE JPW V |
| W5 | 7030003860 | S.JUMPER | ERJ3GE JPW V |
| EP1 | 0910050773 | PCB | B 5164C |
| EP2 | 8930046581 | LCD CONTACT | SRCN-1995-SP-N-W-1 |

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|--------------|--------------------|
| IC1 | 1110004020 | S.IC | μPC2757T-E3 |
| IC2 | 1110003200 | S.IC | TA31136FN (EL) |
| IC3 | 1130007610 | S.IC | μPD3140GS-E1 (DS8) |
| IC4 | 1110003470 | S.IC | μPC2746T-E3 |
| IC10 | 1110004020 | S.IC | μPC2757T-E3 |
| IC11 | 1110003470 | S.IC | μPC2746T-E3 |
| Q1 | 1590001190 | S.TRANSISTOR | XP6501-(TX).AB |
| Q2 | 1560000540 | S.FET | 2SK880-Y (TE85R) |
| Q4 | 1590001190 | S.TRANSISTOR | XP6501-(TX).AB |
| Q5 | 1530003580 | S.TRANSISTOR | 2SC5231C8-TL |
| 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 | DTA144EE 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) |
| Q506 | 1590002430 | S.TRANSISTOR | DTA144EE TL |
| Q507 | 1530003590 | S.TRANSISTOR | 2SC5277D2-TL |
| Q508 | 1590001660 | S.TRANSISTOR | XP4312 (TX) |
| Q509 | 1590002430 | S.TRANSISTOR | DTA144EE TL |
| D1 | 1720000370 | S.VARICAP | HVU350TRF |
| D2 | 1720000370 | S.VARICAP | HVU350TRF |
| D3 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D4 | 1720000370 | S.VARICAP | HVU350TRF |
| D5 | 1720000370 | S.VARICAP | HVU350TRF |
| D11 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D13 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D17 | 1720000700 | S.VARICAP | 1SV305 (TPL3) |
| D18 | 1720000370 | S.VARICAP | HVU350TRF |
| D20 | 1790001590 | S.DIODE | MA6S718 (TX) |
| D21 | 1790001590 | S.DIODE | MA6S718 (TX) |

S.=Surface mount

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|--------------|---------------------|
| D25 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D29 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D31 | 1790000850 | S.DIODE | MA132WK (TX) |
| D32 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D34 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D36 | 1790001620 | S.DIODE | ISV308 (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 | ISV308 (TPL3) |
| D50 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D52 | 1790001620 | S.DIODE | ISV308 (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 | ISV308 (TPL3) |
| D72 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D73 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D74 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| D75 | 1790001620 | S.DIODE | ISV308 (TPL3) |
| F11 | 2040001200 | S.SAW | EFCH266MKQP1 |
| F12 | 2020001270 | CERAMIC | CFWM450E |
| F13 | 2010002280 | S.MONOLITHIC | FL-293 (19.650 MHz) |
| X1 | 6050010210 | S.XTAL | CR-593 (19.200 MHz) |
| L1 | 6200007740 | S.COIL | 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 |
| L14 | 6200006990 | S.COIL | ELJRE 56NG-F |
| L15 | 6200005730 | S.COIL | ELJRE 39NG-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 | 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 | LQN21A 10NJ04 |
| L50 | 6200005700 | S.COIL | ELJRE 22NG-F |
| L51 | 6200005680 | S.COIL | ELJRE 15NG-F |
| L52 | 6200005700 | S.COIL | ELJRE 22NG-F |
| L53 | 6200005680 | S.COIL | ELJRE 15NG-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 | LQN21A 6N8D04 |

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|-------------|------------------------|
| L61 | 6200008570 | S.COIL | 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 | 6200004730 | S.COIL | MLF1608A 1R2K-T |
| L74 | 6200005730 | S.COIL | ELJRE 39NG-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) |
| 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 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R58 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R59 | 7030005030 | S.RESISTOR | ERJ2GEJ 152 X (1.5 kΩ) |
| R60 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) |
| R61 | 7030005230 | S.RESISTOR | ERJ2GEJ 334 X (330 kΩ) |
| R62 | 7030005570 | S.RESISTOR | ERJ2GEJ 820 X (82 Ω) |
| R64 | 7030009280 | S.RESISTOR | ERJ2GEJ 391 X (390 Ω) |
| 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) |
| 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 | 7030005040 | S.RESISTOR | ERJ2GEJ 472 X (4.7 kΩ) |
| R99 | 7030005120 | S.RESISTOR | ERJ2GEJ 102 X (1 kΩ) |

S.=Surface mount

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|-------------|------------------------|
| R100 | 7030008010 | S.RESISTOR | ERJ2GEJ 123X (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 123X (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 | 7030005040 | S.RESISTOR | ERJ2GEJ 472 X (4.7 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) |
| 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 | 7030008410 | S.RESISTOR | ERJ2GEJ 392 X (3.9 kΩ) |
| R159 | 7030005120 | S.RESISTOR | ERJ2GEJ 102 X (1 kΩ) |
| R160 | 7030009140 | S.RESISTOR | ERJ2GEJ 272 X (2.7 kΩ) |
| R162 | 7030005040 | S.RESISTOR | ERJ2GEJ 472 X (4.7 kΩ) |
| R163 | 7030005710 | S.RESISTOR | ERJ2GEJ 121 X (120 Ω) |
| R169 | 7030005000 | S.RESISTOR | ERJ2GEJ 471 X (470 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 | 7030007290 | S.RESISTOR | ERJ2GEJ 222 X (2.2 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 123X (12 kΩ) |
| R200 | 7030009290 | S.RESISTOR | ERJ2GEJ 562 X (5.6 kΩ) |
| R201 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| R202 | 7030004990 | S.RESISTOR | ERJ2GEJ 221 X (220 Ω) |
| R203 | 7030005050 | S.RESISTOR | ERJ2GEJ 103 X (10 kΩ) |
| 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) |
| R216 | 7030007290 | S.RESISTOR | ERJ2GEJ 222 X (2.2 kΩ) |
| R219 | 7030009530 | S.RESISTOR | ERJ2GEJ 270 X (27 Ω) |
| 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) |
| R227 | 7030005120 | S.RESISTOR | ERJ2GEJ 102 X (1 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) |
| R319 | 7030005530 | S.RESISTOR | ERJ2GEJ 100 X (10 Ω) |
| R323 | 7030005710 | S.RESISTOR | ERJ2GEJ 121 X (120 Ω) |
| R324 | 7030005570 | S.RESISTOR | ERJ2GEJ 820 X (82 Ω) |

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|-------------|------------------------|
| 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) |
| C1 | 4030014340 | S.CERAMIC | ECUE1H390JCQ |
| C2 | 4030011810 | S.CERAMIC | C1608 JB 1A 224K-T-N |
| C5 | 4030014220 | S.CERAMIC | ECUE1E471KBQ |
| C8 | 4030014240 | S.CERAMIC | ECUE1H180JCQ |
| C9 | 4030014030 | S.CERAMIC | ECUE1H2R5BCQ |
| C10 | 4030014000 | S.CERAMIC | ECUE1H1R5BCQ |
| C11 | 4030014150 | S.CERAMIC | ECUE1H220JCQ |
| C12 | 4030014180 | S.CERAMIC | ECUE1H470JCQ |
| C13 | 4030014160 | S.CERAMIC | ECUE1H270JCQ |
| C14 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C15 | 4030013980 | S.CERAMIC | ECUE1H010BCQ |
| C16 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C18 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C19 | 4030014130 | S.CERAMIC | ECUE1H120JCQ |
| C20 | 4030014170 | S.CERAMIC | ECUE1H330JCQ |
| C21 | 4030014050 | S.CERAMIC | ECUE1H030BCQ |
| C22 | 4030014100 | S.CERAMIC | ECUE1H070CCQ |
| C23 | 4030014080 | S.CERAMIC | ECUE1H050BCQ |
| C27 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C28 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C30 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C32 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C33 | 4030014170 | S.CERAMIC | ECUE1H330JCQ |
| C35 | 4030014120 | S.CERAMIC | ECUE1H100CCQ |
| C36 | 4030014120 | S.CERAMIC | ECUE1H100CCQ |
| C37 | 4030014030 | S.CERAMIC | ECUE1H2R5BCQ |
| C39 | 4030014070 | S.CERAMIC | ECUE1H040BCQ |
| C40 | 4030014140 | S.CERAMIC | ECUE1H150JCQ |
| C41 | 4030014080 | S.CERAMIC | ECUE1H050BCQ |
| C42 | 4030014060 | S.CERAMIC | ECUE1H3R5BCQ |
| C43 | 4030014200 | S.CERAMIC | ECUE1H101JCQ |
| C44 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C45 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C46 | 4030014050 | S.CERAMIC | ECUE1H030BCQ |
| C47 | 4030014090 | S.CERAMIC | ECUE1H060CCQ |
| C48 | 4030014090 | S.CERAMIC | ECUE1H060CCQ |
| C49 | 4030014050 | S.CERAMIC | ECUE1H030BCQ |
| C50 | 4030013980 | S.CERAMIC | ECUE1H010BCQ |
| C51 | 4030014050 | S.CERAMIC | ECUE1H030BCQ |
| C52 | 4030014220 | S.CERAMIC | ECUE1E471KBQ |
| C54 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C55 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C58 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C59 | 4030014020 | S.CERAMIC | ECUE1H020BCQ |
| C60 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C61 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C62 | 4550006200 | S.TANTALUM | ECST0JY106R |
| C63 | 4030014210 | S.CERAMIC | ECUE1H151JCQ |
| C64 | 4030014140 | S.CERAMIC | ECUE1H150JCQ |
| C65 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C66 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C67 | 4030014170 | S.CERAMIC | ECUE1H330JCQ |
| C69 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C70 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C71 | 4030014070 | S.CERAMIC | ECUE1H040BCQ |
| C73 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C74 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C75 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C78 | 4550006910 | S.TANTALUM | TESVSP 1C 334M-8R |
| C79 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C80 | 4030014180 | S.CERAMIC | ECUE1H470JCQ |
| C81 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C82 | 4550006200 | S.TANTALUM | ECST0JY106R |
| C84 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C85 | 4030014240 | S.CERAMIC | ECUE1H180JCQ |
| C86 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C87 | 4030014180 | S.CERAMIC | ECUE1H470JCQ |
| C88 | 4030014180 | S.CERAMIC | ECUE1H470JCQ |
| C89 | 4030014180 | S.CERAMIC | ECUE1H470JCQ |
| C90 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C92 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C93 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C94 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C95 | 4030013850 | S.CERAMIC | ECUE1E102KBQ |
| C96 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C97 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| C98 | 4030014230 | S.CERAMIC | ECUE1E681KBQ |

S.=Surface mount

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION |
|---------|------------|--------------------------------|
| C99 | 4030014230 | S.CERAMIC ECUE1E681KBQ |
| C100 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C101 | 4030014120 | S.CERAMIC ECUE1H100CCQ |
| C102 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C103 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C104 | 4030006900 | S.CERAMIC C1608 JB 1E 103K-T-A |
| C105 | 4550003220 | S.TANTALUM TEMSVA 1E 105M-8L |
| C106 | 4030011600 | S.CERAMIC C1608 JB 1C 104KT-N |
| C107 | 4030011810 | S.CERAMIC C1608 JB 1A 224K-T-N |
| C108 | 4030011810 | S.CERAMIC C1608 JB 1A 224K-T-N |
| C118 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C119 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C121 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C134 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C135 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C136 | 4030014100 | S.CERAMIC ECUE1H070CCQ |
| C138 | 4030014220 | S.CERAMIC ECUE1E471KBQ |
| C139 | 4030014120 | S.CERAMIC ECUE1H100CCQ |
| C141 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C142 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C145 | 4030014220 | S.CERAMIC ECUE1E471KBQ |
| C147 | 4030014030 | S.CERAMIC ECUE1H2R5BCQ |
| C148 | 4030014220 | S.CERAMIC ECUE1E471KBQ |
| C150 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C151 | 4030014070 | S.CERAMIC ECUE1H040BCQ |
| C153 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C154 | 4030014120 | S.CERAMIC ECUE1H100CCQ |
| C155 | 4030014080 | S.CERAMIC ECUE1H050BCQ |
| C156 | 4030014420 | S.CERAMIC ECUE1H0R5BCQ |
| C158 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C160 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C162 | 4550006200 | S.TANTALUM ECSTOJY106R |
| C163 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C164 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C165 | 4030014020 | S.CERAMIC ECUE1H020BCQ |
| C166 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C167 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C168 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C169 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C170 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C171 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C172 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C173 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C178 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C180 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C182 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C183 | 4030014000 | S.CERAMIC ECUE1H1R5BCQ |
| C186 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C188 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C190 | 4030014000 | S.CERAMIC ECUE1H1R5BCQ |
| C191 | 4030014020 | S.CERAMIC ECUE1H020BCQ |
| C192 | 4030014070 | S.CERAMIC ECUE1H040BCQ |
| C193 | 4030014110 | S.CERAMIC ECUE1H080CCQ |
| C194 | 4030014150 | S.CERAMIC ECUE1H220JCCQ |
| C195 | 4030014000 | S.CERAMIC ECUE1H1R5BCQ |
| C196 | 4030014020 | S.CERAMIC ECUE1H020BCQ |
| C197 | 4030014060 | S.CERAMIC ECUE1H3R5BCQ |
| C198 | 4030014090 | S.CERAMIC ECUE1H060CCQ |
| C199 | 4030014130 | S.CERAMIC ECUE1H120JCCQ |
| C200 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C206 | 4030014060 | S.CERAMIC ECUE1H3R5BCQ |
| C207 | 4030014170 | S.CERAMIC ECUE1H330JCCQ |
| C208 | 4030014180 | S.CERAMIC ECUE1H470JCCQ |
| C209 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C210 | 4550000530 | S.TANTALUM TESVA 1V 104M1-8L |
| C211 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C214 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C216 | 4030014130 | S.CERAMIC ECUE1H120JCCQ |
| C218 | 4030013980 | S.CERAMIC ECUE1H010BCQ |
| C233 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C234 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C235 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C236 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C237 | 4030014000 | S.CERAMIC ECUE1H1R5BCQ |
| C239 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C241 | 4030011810 | S.CERAMIC C1608 JB 1A 224K-T-N |
| C242 | 4030011810 | S.CERAMIC C1608 JB 1A 224K-T-N |
| C243 | 4030014240 | S.CERAMIC ECUE1H180JCCQ |
| C244 | 4030014080 | S.CERAMIC ECUE1H050BCQ |
| C247 | 4030014090 | S.CERAMIC ECUE1H060CCQ |
| C248 | 4550003220 | S.TANTALUM TEMSVA 1E 105M-8L |
| C249 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION |
|---------|------------|--------------------------------|
| C250 | 4030014110 | S.CERAMIC ECUE1H080CCQ |
| C251 | 4030014070 | S.CERAMIC ECUE1H040BCQ |
| C252 | 4030014110 | S.CERAMIC ECUE1H080CCQ |
| C256 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C257 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C258 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C259 | 4030014200 | S.CERAMIC ECUE1H101JCCQ |
| C264 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C402 | 4030014180 | S.CERAMIC ECUE1H470JCCQ |
| C410 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C414 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C416 | 4030014160 | S.CERAMIC ECUE1H270JCCQ |
| C423 | 4550003220 | S.TANTALUM TEMSVA 1E 105M-8L |
| C424 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C427 | 4030014350 | S.CERAMIC ECUE1H560JCCQ |
| C429 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C430 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C431 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C432 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C433 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C434 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C435 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C436 | 4030014070 | S.CERAMIC ECUE1H040BCQ |
| C503 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C504 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C505 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C507 | 4030014210 | S.CERAMIC ECUE1H151JCCQ |
| C510 | 4030014020 | S.CERAMIC ECUE1H020BCQ |
| C511 | 4030014170 | S.CERAMIC ECUE1H330JCCQ |
| C512 | 4030014130 | S.CERAMIC ECUE1H120JCCQ |
| C513 | 4030014440 | S.CERAMIC ECUE1H820JCCQ |
| C514 | 4030014210 | S.CERAMIC ECUE1H151JCCQ |
| C515 | 4030014200 | S.CERAMIC ECUE1H101JCCQ |
| C516 | 4030014330 | S.CERAMIC ECUE1H221JCCQ |
| C517 | 4030014320 | S.CERAMIC ECUE1H181JCCQ |
| C518 | 4030009810 | S.CERAMIC C1005 JB 1E 102K-T-A |
| C519 | 4030013890 | S.CERAMIC C1005 JB 1H 152K-T-N |
| C520 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C521 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C522 | 4030013880 | S.CERAMIC C1005 JB 1H 222K-T-N |
| C523 | 4030013890 | S.CERAMIC C1005 JB 1H 152K-T-N |
| C524 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C525 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C526 | 4030013950 | S.CERAMIC C1005 JB 1A 393K-T-N |
| C527 | 4030014440 | S.CERAMIC ECUE1H820JCCQ |
| C528 | 4030014160 | S.CERAMIC ECUE1H270JCCQ |
| C529 | 4030014210 | S.CERAMIC ECUE1H151JCCQ |
| C530 | 4030014490 | S.CERAMIC ECUE1E331KBQ |
| C531 | 4030014320 | S.CERAMIC ECUE1H181JCCQ |
| C532 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C533 | 4030013890 | S.CERAMIC C1005 JB 1H 152K-T-N |
| C534 | 4030014490 | S.CERAMIC ECUE1E331KBQ |
| C535 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C536 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C537 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C538 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C539 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C540 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C541 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C542 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C543 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C544 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C545 | 4030009820 | S.CERAMIC C1005 JB 1C 103K-T-A |
| C546 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C548 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C550 | 4030014110 | S.CERAMIC ECUE1H080CCQ |
| C553 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C557 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C558 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C560 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C561 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C562 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C563 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C654 | 4030011810 | S.CERAMIC C1608 JB 1A 224K-T-N |
| C655 | 4550000510 | S.TANTALUM TESVA 1V 473M1-8L |
| C656 | 4030014110 | S.CERAMIC ECUE1H080CCQ |
| C657 | 4030014230 | S.CERAMIC ECUE1E681KBQ |
| C658 | 4030013880 | S.CERAMIC C1005 JB 1H 222K-T-N |
| C659 | 4550006200 | S.TANTALUM ECSTOJY106R |
| C662 | 4030013850 | S.CERAMIC ECUE1E102KBQ |
| C663 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |
| C664 | 4030013970 | S.CERAMIC C1005 JB 0J 104K-T-N |

S.=Surface mount

[RF UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | |
|---------|------------|-------------|----------------------|
| C665 | 4030014200 | S.CERAMIC | ECUE1H101JCQ |
| C666 | 4030014470 | S.CERAMIC | ECUE1E391KBQ |
| C667 | 4030009820 | S.CERAMIC | C1005 JB 1C 103K-T-A |
| J1 | 6510020550 | S.CONNECTOR | AXK6S40445P |
| EP1 | 0910050763 | PCB | B 5163C |

S.=Surface mount

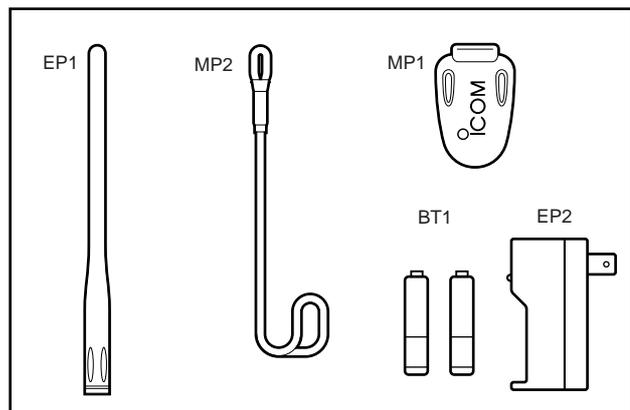
SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

7-1 CABINET PARTS [CHASSIS PARTS]

| REF. NO. | ODER NO. | DESCRIPTION | QTY. |
|----------|------------|-----------------------------|------|
| J1 | 6510020950 | Connector SMA-R226 | 1 |
| SP1 | 2510000960 | Speaker K036NA500-26A27 | 1 |
| MP1 | 8210015690 | 1995 Front panel (C) | 1 |
| MP2 | 8210014981 | 1995 Rear panel-1 | 1 |
| MP3 | 8110006280 | 1995 BATT cover | 1 |
| MP4 | 8930044211 | 1995 7-Key-1 | 1 |
| MP5 | 8930047620 | 2127 PTT rubber | 1 |
| MP6 | 8930047610 | 2127 Jack cap | 1 |
| MP7 | 8310044470 | 1995 Window plate (A) | 1 |
| MP8 | 8010017352 | 1995 Chassis-2 | 1 |
| MP9 | 8930011900 | Sheet SP net (A) | 1 |
| MP10 | 8830000570 | Screw (A) | 1 |
| MP11 | 8830001090 | Screw (D) | 1 |
| MP13 | 8110006290 | 1995 Lock cover | 1 |
| MP14 | 8610010520 | Knob N-262 | 1 |
| MP15 | 8930044250 | 1995 BATT seal | 1 |
| MP22 | 8810009790 | Screw PH B0 1.7X4NI-ZU (BT) | 3 |
| MP23 | 8810009560 | Screw PH B0 2X6ZK (BT) | 2 |
| MP26 | 8930047470 | 1995 Mic sheet | 1 |
| MP27 | 8930043440 | Sponge (EY) | 1 |

[ACCESSORIES]

| REF. NO. | ODER NO. | DESCRIPTION | QTY. |
|----------|------------|--------------------------------------|------|
| BT1 | 3030000420 | NICD CEL [EUR], [USA], [CAN] | 2 |
| | 3030000450 | NICD CEL [OTH] only | 2 |
| EP1 | 3310002150 | Antenna FA-S270C | 1 |
| EP2 | 0800005090 | Chager BC-127A ACC [USA], [CAN] only | 1 |
| | 0800005100 | Chager BC-127D ACC [EUR], [OTH] only | 1 |
| MP1 | 8930044191 | 1995 Belt clip-1 | 1 |
| MP2 | 8010011960 | Handstrap | 1 |



[LOGIC UNIT]

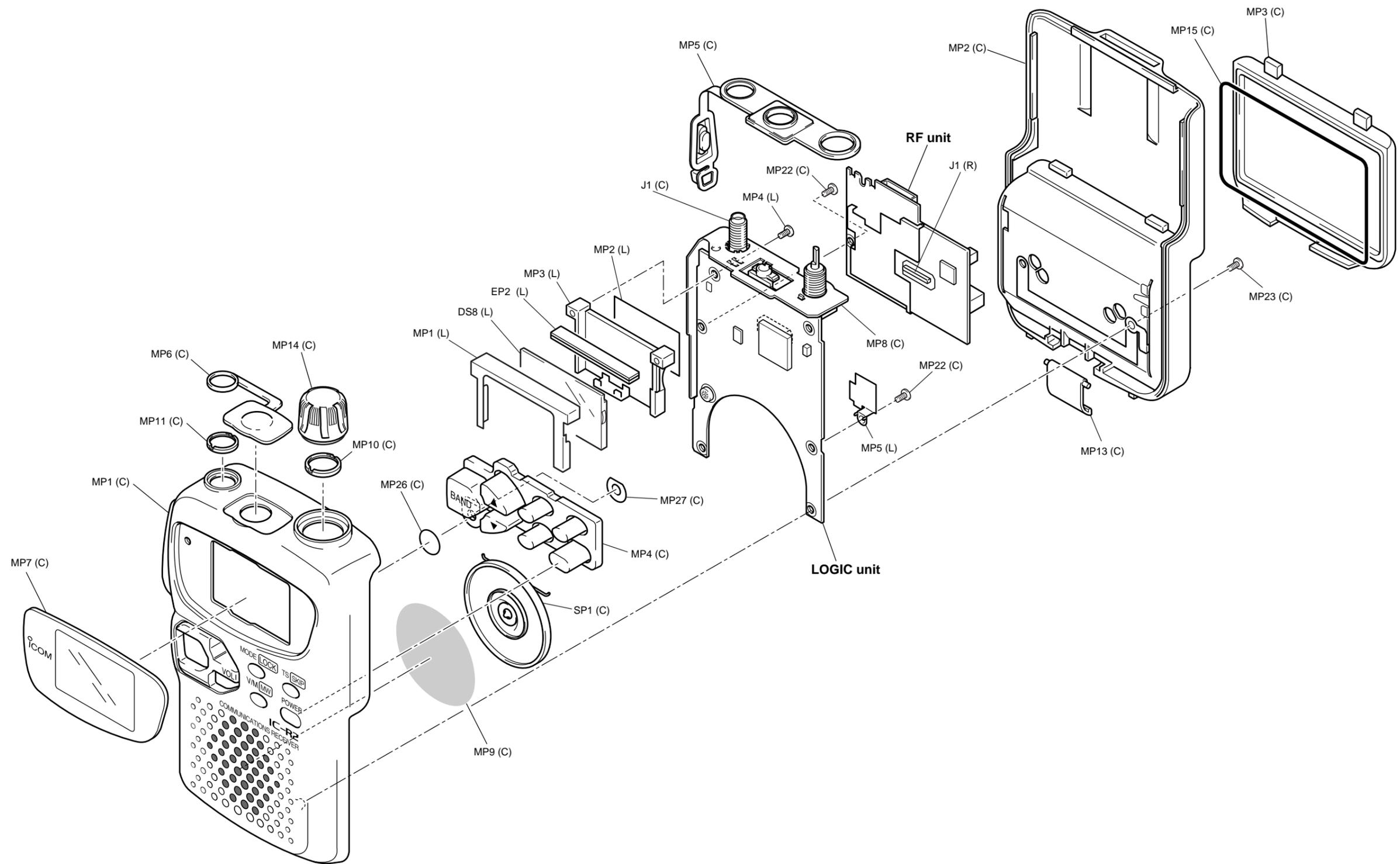
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|----------|------------|-----------------------------|------|
| DS8 | 5030001610 | LCD DLC-7995 | 1 |
| EP2 | 8930046581 | LCD contact | 1 |
| MP1 | 8930044290 | 1995 LCD holder | 1 |
| MP2 | 8930046400 | 1995 LCD sheet | 1 |
| MP3 | 8210015420 | 1995 Reflector | 1 |
| MP4 | 8810009790 | Screw PH B0 1.7X4NI-ZU (BT) | 2 |
| MP5 | 8510012030 | 2127 Shield case | 1 |

[RF UNIT]

| REF. NO. | ODER NO. | DESCRIPTION | QTY. |
|----------|------------|-------------------------|------|
| J1 | 6510020550 | S.Connector AXK6S40445P | 1 |

Screw abbreviations

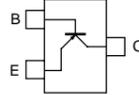
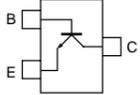
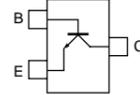
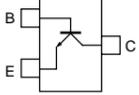
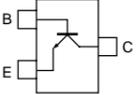
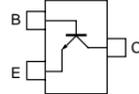
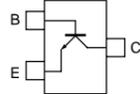
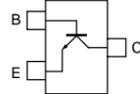
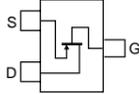
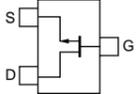
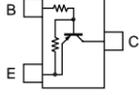
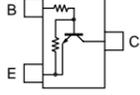
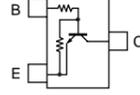
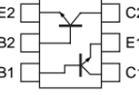
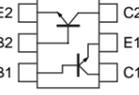
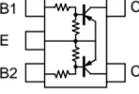
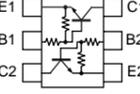
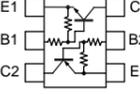
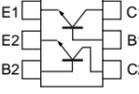
- A, B0, BT: Self-tapping
- PH: Pan head
- FH: Flat head
- BiH: Bind head
- NI: Nickel
- SUS: Stainless
- ZK: Black



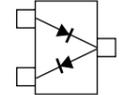
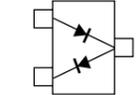
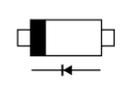
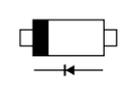
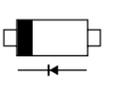
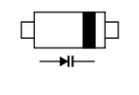
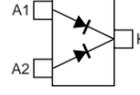
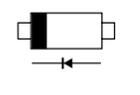
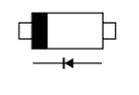
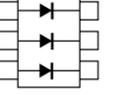
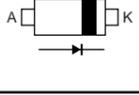
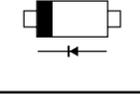
UNIT abbreviation (C): CHASSIS PARTS, (R): RF UNIT, (L): LOGIC UNIT

SECTION 8 SEMI-CONDUCTOR INFORMATION

• TRANSISTOR AND FET'S

| | | | | |
|--|--|--|---|---|
| 2SA1588 GR (Symbol: A6)  | 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)  |
| DTA144EE (Symbol: 16)  | DTC114EE (Symbol: 24)  | DTC144EE (Symbol: 26)  | FH102 (Symbol: 102)  | μPA805T (Symbol: T82)  |
| XP1113 (Symbol: 7L)  | XP4213 (Symbol: 8S)  | XP4312 (Symbol: 7T)  | XP6501 AB (Symbol: 5N)  | |

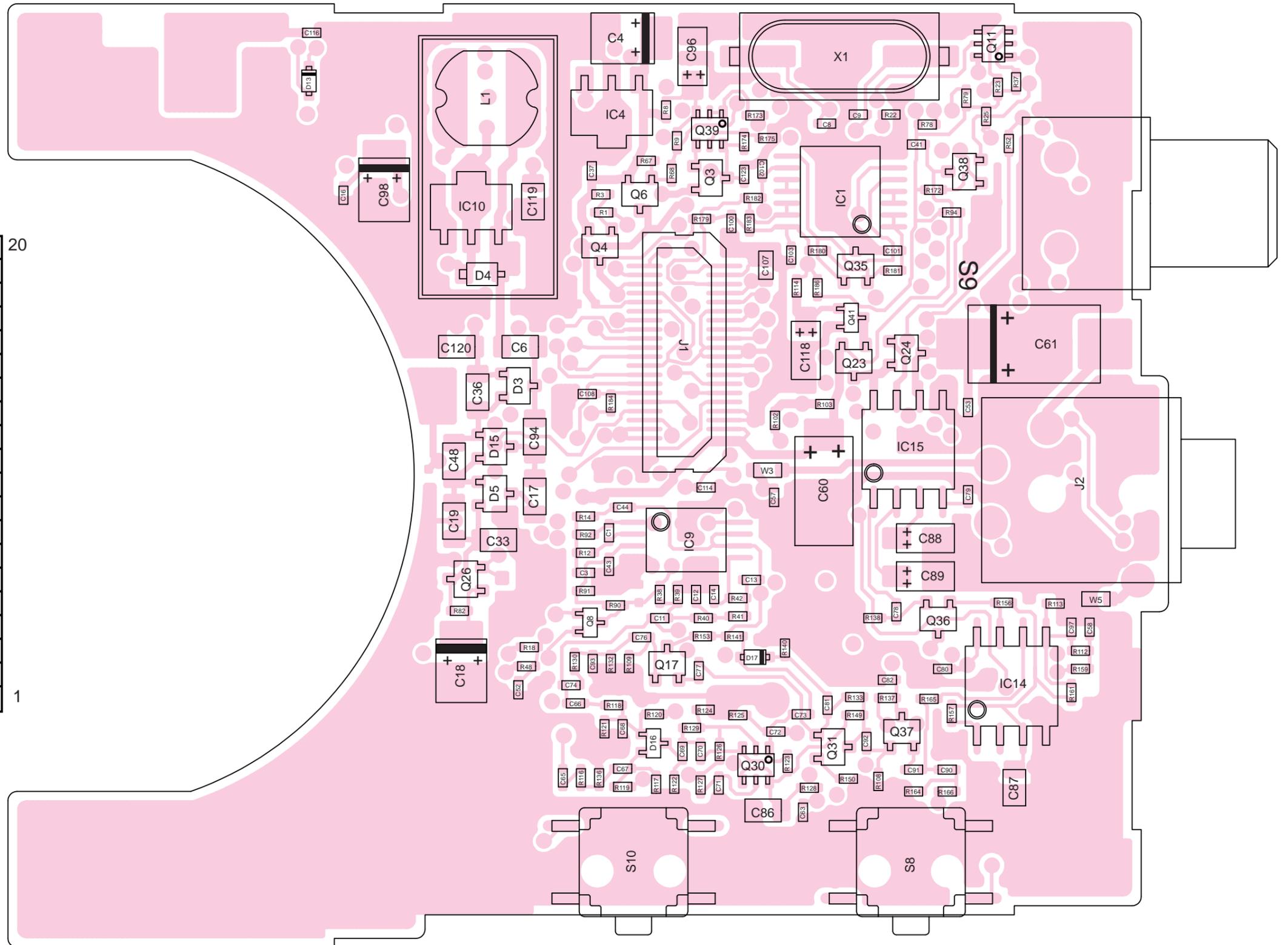
• DIODES

| | | | | |
|--|---|--|--|--|
| 1SS372 (Symbol: N9)  | 1SV172 (Symbol: BE)  | 1SV286 (Symbol: T7)  | 1SV305 (Symbol: TV)  | 1SV308 (Symbol: TX)  |
| HVU350 (Symbol: 4)  | MA132WK (Symbol: MU)  | MA2S077 (Symbol: S)  | MA2S111 (Symbol: A)  | MA6S718 (Symbol: M2N)  |
| MA728 (Symbol: 2A)  | MA729 (Symbol: 2B)  | | | |

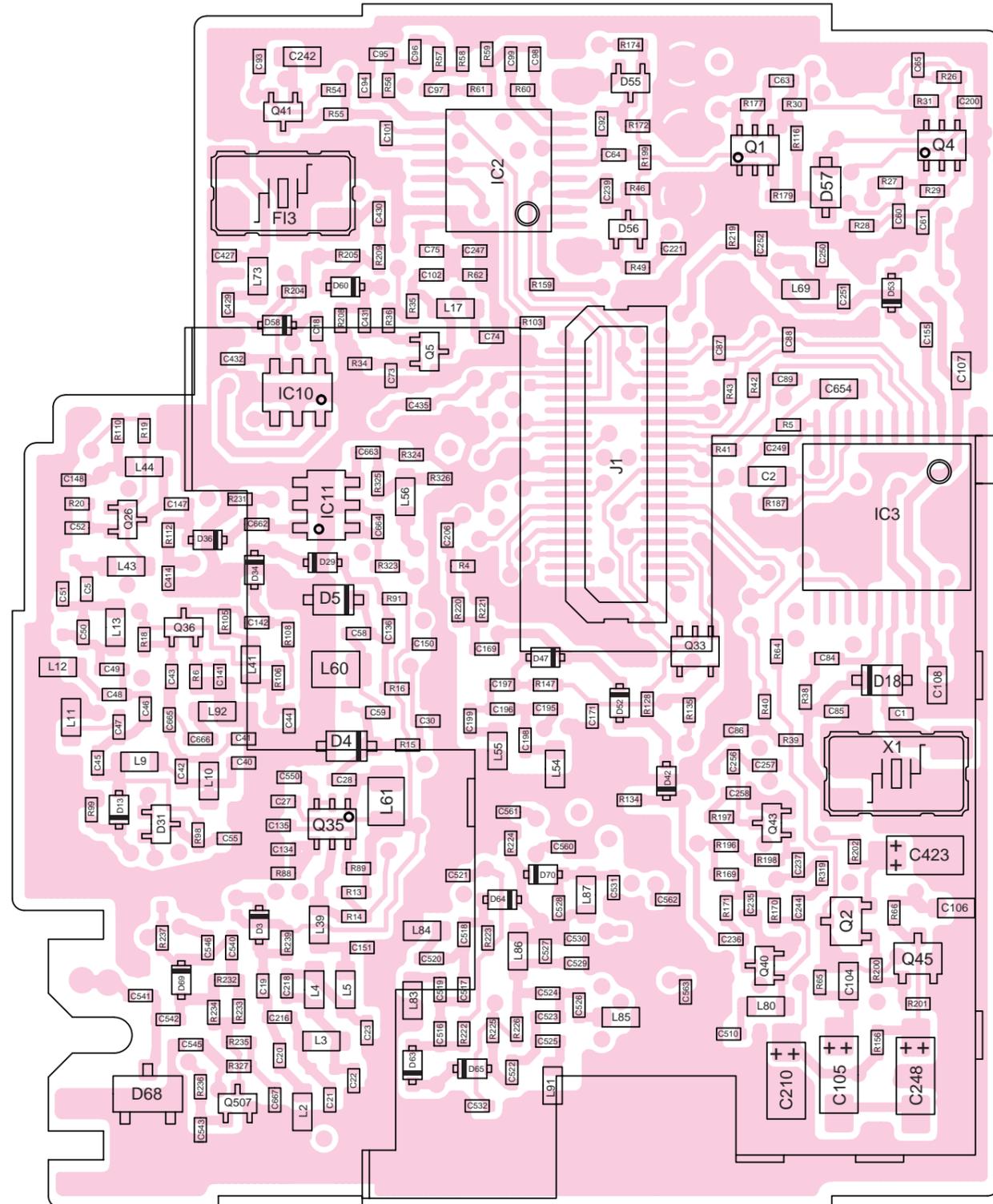
• BOTTOM VIEW

J1
to RF unit J1

| | | | |
|----|--------|-------|----|
| 21 | WFM | AM | 20 |
| | AMS | GND | |
| | R3V | SDET | |
| | FSET | RSSI | |
| | +3V | WFMS | |
| | GND | GND | |
| | PSTB | GC | |
| | PCK_IS | 300MC | |
| | PDAUL | 800MC | |
| | VP | GND | |
| | +3S | GND | |
| | GND | UHFC | |
| | B1 | VHFC | |
| | HFC | TRAC | |
| | SHIFT | B3 | |
| | ATT | B2 | |
| | DBL1 | GND | |
| | DBL2 | | |
| | GND | BATRY | |
| 40 | GND | BATRY | 1 |



9 - 2 RF UNIT
• TOP VIEW

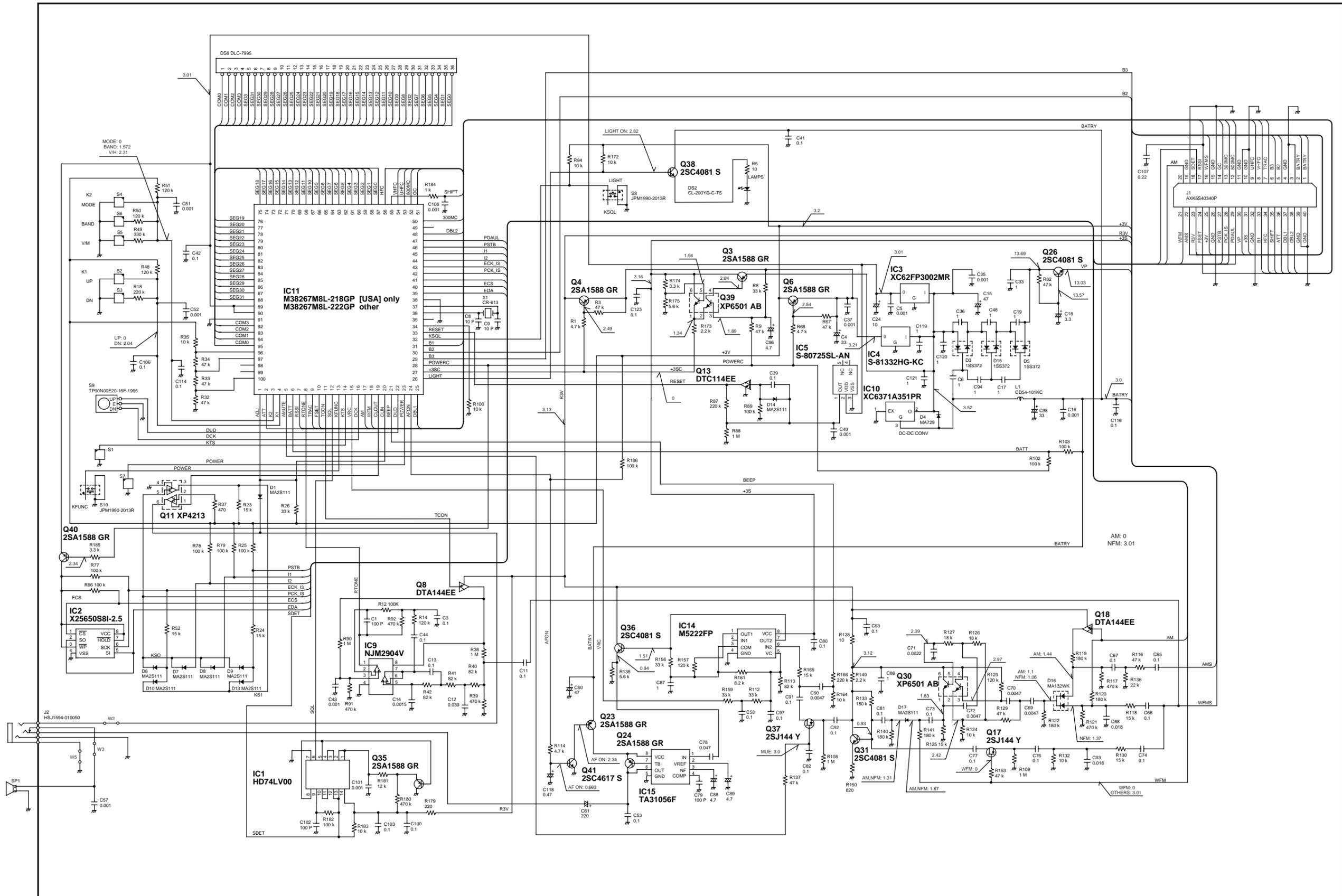


J1
to RF unit J1

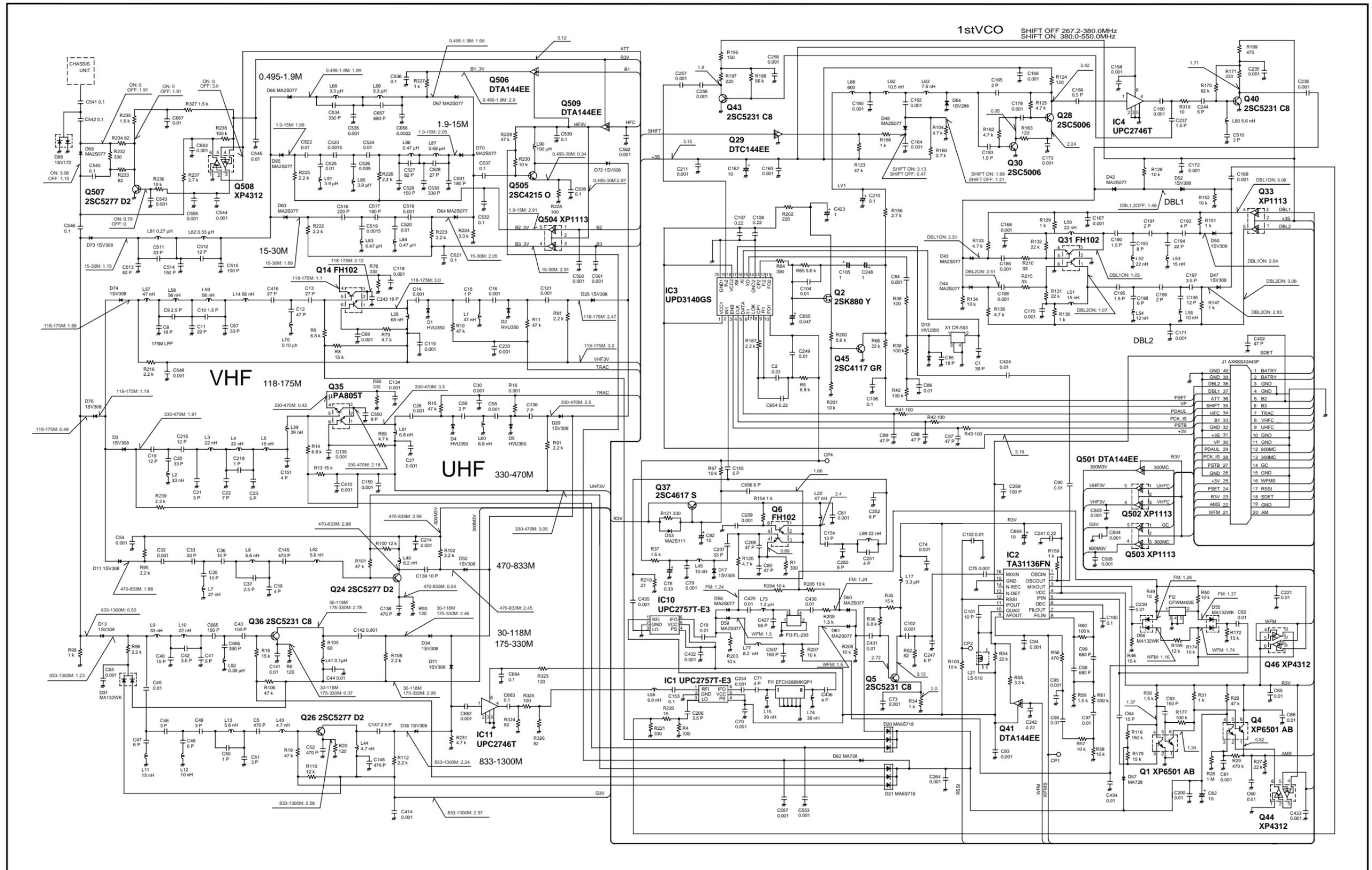
| | | | |
|----|-------|--------|----|
| 20 | AM | WFM | 21 |
| | GND | AMS | |
| | SDET | R3V | |
| | RSSI | FSET | |
| | WFMS | +3V | |
| | GND | GND | |
| | GC | PSTB | |
| | 300MC | PCK_IS | |
| | 800MC | PDAUL | |
| | GND | VP | |
| | GND | +3S | |
| | UHFC | GND | |
| | VHFC | B1 | |
| | TRAC | HFC | |
| | B3 | SHIFT | |
| | B2 | ATT | |
| | GND | DBL1 | |
| | GND | DBL2 | |
| 1 | BATRY | GND | 40 |
| | BATRY | GND | |

SECTION 11 VOLTAGE DIAGRAM

• LOGIC UNIT



• RF UNIT



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Fax : 06 6793 0013
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