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SERVICE MANUAL

COMMUNICATIONS RECEIVER	
IC-R10	
	_

Icom Inc.

INTRODUCTION

This service manual describes the latest information for the IC-R10 at the time of publication.

MODEL	VERSION	SYMBOL
	U.S.A.	USA
10.040	France	FRA
IC-R10	U.K.	UK
	Europe	EUR

DANGER

NEVER connect the receiver to an AC outlet or to a DC power supply that uses more than 16 V. Such a connection could cause a fire hazard and/or electric shock.

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 (100 mW) 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>

1110001810 S.IC TA7368F IC-R10 MAIN UNIT 1 piece 8810009560 Screw FH M2 x 6 ZK (BT) IC-R10 CHASSIS 7 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.
- DO NOT open the receiver until the receiver is disconnected from its power source.
- DO NOT force any of the variable components. Turn them slowly and smoothly.
- DO NOT short any circuits or electronic parts. An insulated tuning tool MUST be used for all adjustments.
- DO NOT keep power ON for a long time when the receiver is defective.
- READ the instructions of test equipment thoroughly before connecting equipment to the receiver.



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SECTION	1	SPECIFICATIONS	
SECTION	2	INSIDE VIEWS	
SECTION	3	DISASSEMBLY INSTRUCTIONS	
SECTION		CIRCUIT DESCRIPTION RECEIVER CIRCUITS	4 – 4 4 – 5
SECTION	5 5 - 1	ADJUSTMENT PROCEDURES PLL AND BFO ADJUSTMENT	5 – 1
SECTION	6	PARTS LIST	
SECTION	7	MECHANICAL PARTS AND DISASSEMBLY	
SECTION	8	SEMI-CONDUCTOR INFORMATION	
SECTION	9	BOARD LAYOUTS	
SECTION	10	BLOCK DIAGRAM	
SECTION	11	VOLTAGE DIAGRAM	

SECTION 1 SPECIFICATIONS

■ GENERAL

· Frequency range

VERSION	FREQUENCY RANGE	
Europe, U.K.	500 kHz-1300 MHz	
France	500 kHz–87.5 MHz 108 MHz–1300 MHz	
U.S.A.	500 kHz–823.9999 MHz 849.0001–868.9999 MHz 894.0001–1300 MHz	

• Mode : FM, WFM, AM, USB, LSB, CW

• Tuning steps : 0.1, 0.5, 1, 5, 6.25, 8, 9, 10, 12.5, 15, 20, 25, 30, 50, 100 kHz or

user-programmable (0.1-999.9 kHz/0.1 kHz steps)

• Power supply requirement : 4.8 V DC (4 AA (R6) Ni-Cd cells); or, 4.8–16 V DC acceptable (negative ground)

Current drain (at 13.5 V DC)
 : Rated audio 180 mA typ.
 Standby 110 mA typ.

Power saved 38 mA typ.

• Usable temperature range : -10°C to +50°C; +14°F to +122°F

• Antenna connector : BNC (50 Ω)

• Scan speed : 16.7 ch/sec. (programmed scan), 6.25 ch/sec. (memory scan)

• CI-V connector : 3-conductor 3.5 (d) mm (1/8")

• Dimensions (projections not included): 58.5 (W) \times 130 (H) \times 31.3 (D) mm; 2.3 (W) \times 5.1 (H) \times 1.2 (D) in

• Weight : 310 g; 10.9 oz.

■ RECEIVER

Receive system : Triple-conversion superheterodyne

• Intermediate freq. : 1st 266.7 MHz (340.0000–999.9999 MHz)

429.1 MHz (except above freq.)

2nd 10.7 MHz 3rd 455 kHz

 Sensitivity (typical, except spurious points)

FREQUENCY (MHz)	FM	WFM	AM	SSB/CW
0.5 - 4.9999	0.50 μV	_	1.6 µV	0.40 μV
5.0 - 74.9999	0.32 μV	-	1.0 µV	0.25 μV
75.0 - 199.9999	Q.52 μV	1.0 µV] 1.0 μν	0.25 μν
200.0 - 339.9999	0.45 μV	2.2 µV	1.6 µV	0.40 µV
340.0 - 699.9999	0.35 μV	1.3 μV	1.4 µV	0.32 μV
700.0 - 799.9999	0.79 μV	2.0 μV	2.0 µV	0.63 μV
800.0 - 899.9999	0.50 μV	1.6 µV	1.6 µV	0.40 µV
900.0 -1300.0000] 0.50 pv]μν	υιο μ ν

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

· Squelch sensitivity (at threshold)

FREQUENCY (MHz)	FM	WFM	AM
0.5 – 4.9999	0.50 μV		1.6 µV
5.0 - 74.9999	0.32 μV		1.0 μV
75.0 - 199.9999	η 0.52 μ ν	1.0 μV	1.0 μν
200.0 - 339.9999	0.45 µV	2.2 μV	1.6 µV
340.0 - 699.9999	0.35 μV	1.3 µV	1.4 µV
700.0 - 799.9999	0.79 μV	2.0 μV	2.0 µV
800.0 - 899.9999	- 0.50 μV	1.6 µV	1.6 µV
900.0 -1300.0000	1 0.50 μν	_	1.0 μ ν

Selectivity : SSI

: SSB, CW

More than 4 kHz /6 dB

AM, FM WFM More than 15 kHz/6 dB More than 150 kHz/6 dB

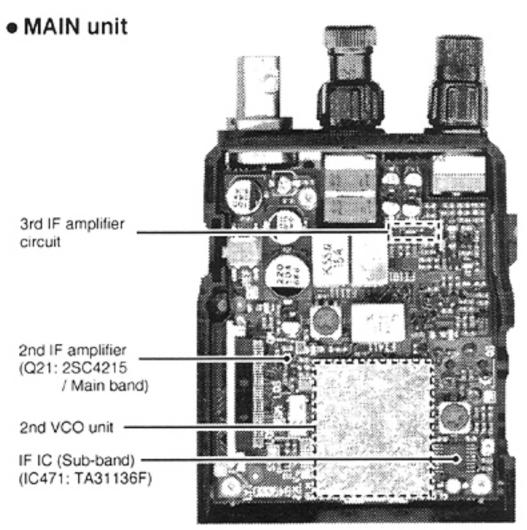
Audio output power (at 13.5 V DC)

: More than 120 mW at 10% distortion with an 8 Ω load

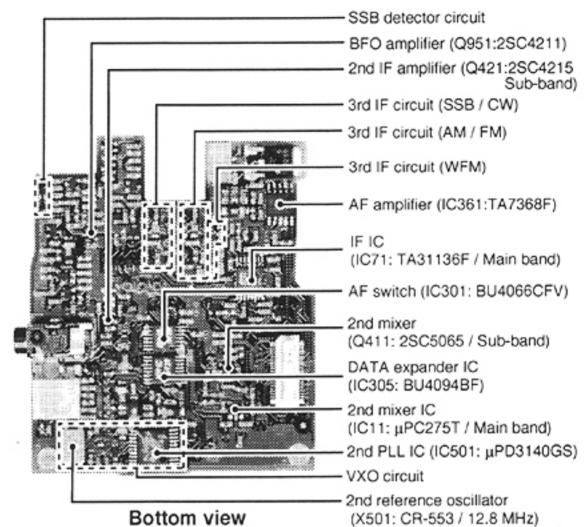
· External speaker connector

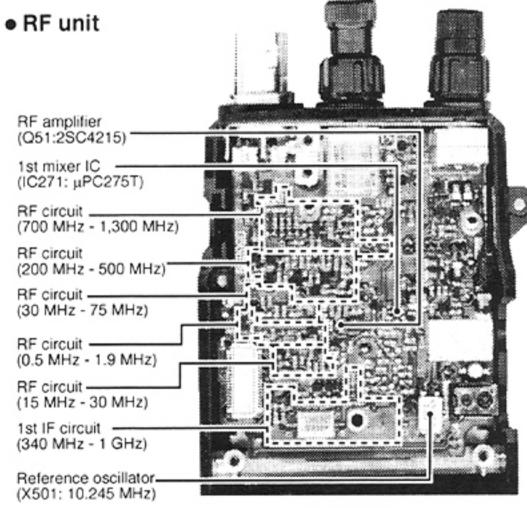
: 3-conductor 3.5 (d) mm ($\frac{1}{8}$ ")/8 Ω

SECTION 2 INSIDE VIEWS

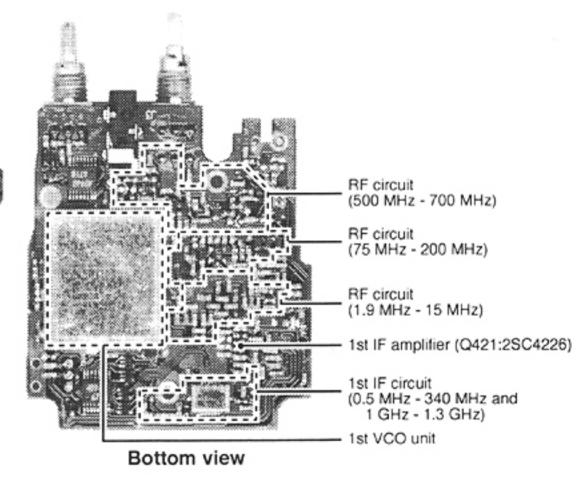


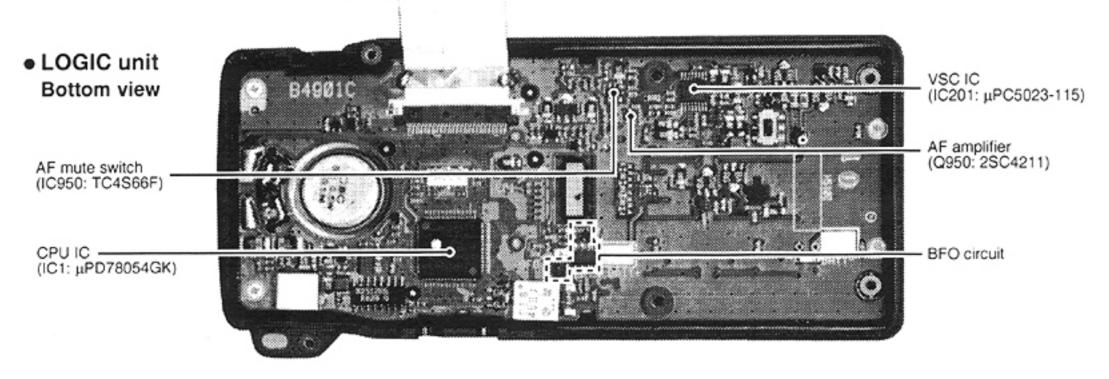






Top view

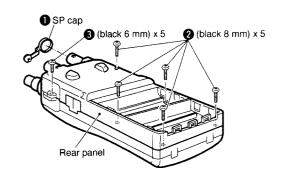




SECTION 3 DISASSEMBLY INSTRUCTIONS

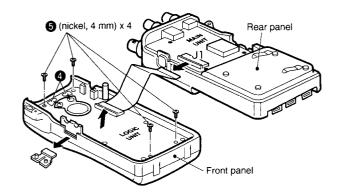
Opening the case

- ① Remove the SP cap, ①.
- ② Unscrew 6 screws, ② and ③ to open the case.



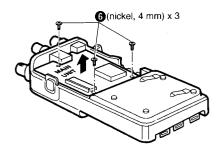
• Removing the LOGIC unit

- ① Unplug J1 to separate the front panel and rear panel.
- 2 Unsolder 2 points 4 and unscrew 4 screws 5.
- 3 Remove the LOGIC unit in the direction of the arrow.
- **Be careful when pulling, pull up, LCD components are on the opposite side.



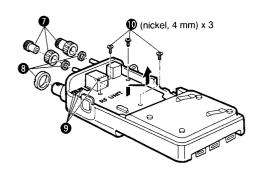
• Removing the MAIN unit

- 1) Unscrew 3 screws 6.
- 2) Remove the MAIN unit in the direction of the arrow.

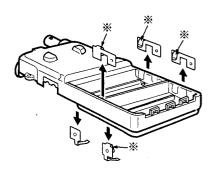


• Removing the RF unit

- 1) Remove 3 knobs 7 and unscrew 3 nuts 8.
- ② Unsolder 4 points **①** and unscrew 3 screws **①**.
- 3 Remove the RF unit in the direction of the arrow.



Note



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

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

Received signals enter the RF unit from the antenna connector (J1) and pass through a limiter (D1) and an attenuator circuit (D2). The signals are then applied to the RF circuit via the antenna switching circuit (D51, D151, D171, D211, D231) 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) 0.5 MHz-74.9999 MHz signals

RF signals (0.5 MHz-74.9999 MHz) from an antenna switching circuit (D51) pass through a low-pass filter (L51, L52). The filtered signals are amplified at an RF amplifier (Q51) through each bandpass filter depending on the receiving frequency. The amplified signals are then applied to the 1st mixer circuit (IC271) through the band switching diode (D253).

The signals below 1.9 MHz pass through a low-pass filter (L55, L56) via the band switching diode (D52), and are then applied to the RF amplifier circuit (Q51) via the band switching diode (D53).

The 1.9 MHz-29.9999 MHz signals pass through the band switching diode (D61) and low-pass filter (L61, L62). The 1.9 MHz-14.9999 MHz signals pass through the band switching diode (D81) and bandpass filter (L82, L83, L91, L92), and are then applied to the RF amplifier circuit (Q51) via the band switching diode (D82).

The 15.0 MHz–29.9999 MHz signals pass through the band switching diode (D101) and high-pass filter (L102, L103) and are then applied to the RF amplifier circuit (Q51) via the band switching diode (D102).

· RF filters

Receive frequency [MHz]	SW diodes	BPF select signal	Components
0.5 - 1.8999	D52, D53	B0	L55, L56
1.9 – 14.9999	D81, D82	B1	L82, L83, L91, L92
15.0 – 29.9999	D101, D102	B2	L102, L103
30.0 - 74.9999	D121, D122	В3	L122, L123

The 30.0 MHz-74.9999 MHz signals pass through the band switching diode (D121) and high-pass filter (L122, L123), and are then applied to the RF amplifier circuit (Q51) via the band switching diode (D122).

(2) 75.0 MHz-199.9999 MHz

The 75.0 MHz–199.9999 MHz signals pass through the tunable bandpass filter (D152, L152) via the band switching diode (D151), and are then amplified at the RF amplifier (Q151) and pass through another tunable bandpass filter (D153, L155). The filtered signals are applied to the 1st mixer circuit (IC271) via the band switching diode (D154).

(3) 200.0 MHz-499.9999 MHz

The 200.0 MHz-499.9999 MHz signals pass through the tunable bandpass filter (D172, L172) via the band switching diode (D171), and are then amplified at the RF amplifier (Q171) and pass through another tunable bandpass filter (D173, L175). The filtered signals are applied to the 1st mixer circuit (IC271) via the band switching diode (D174).

(4) 500.0 MHz-699.9999 MHz

The 500.0 MHz-699.9999 MHz signals pass through a tunable band pass filter (D213, L213, L214) via the band switching diode (D211), and are then amplified at an RF amplifier (Q211) and pass through another tunable bandpass filter (D214, L216, L217). The filtered signals are applied to the 1st mixer circuit (IC271) via the band switching diode (D154).

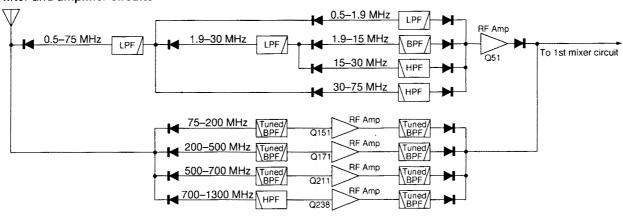
(5) 700.0 MHz-1300.0000 MHz

The 700.0 MHz–1300 MHz signals pass through a high-pass filter (L232, L233) via the band switching diode (D231), and are then amplified at the RF amplifier (Q231) and pass through a tunable bandpass filter (D238, L240). The filtered signals are applied to the 1st mixer circuit (IC271) via the band switching diode (D236).

· Tunable band pass filters and RF amplifiers

Receive frequency [MHz]	BPF select signal	Varactor diodes	RF amplifier
75.0 - 199.9999	B4	D152, D153	Q151
200.0 - 499.9999	B5	D172, D173	Q171
500.0 - 699.9999	B6	D213, D214	Q211
700.0 – 1300.0000	B7	D238	Q231

· RF filter and amplifier circuits



D152, D153, D172, D173, D213, D214 and D238 employ varactor diodes that are controlled by the CPU (LOGIC unit; IC1) to track the bandpass filter. These varactor diodes tune the center frequency of an RF passband for wide width receiving and good image response rejection.

4-1-3 1ST MIXER AND 1ST IF CIRCUITS (RF UNIT)

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

The amplified signals are mixed with 1st LO signals from the 1st VCO unit at a 1st mixer (IC271) to produce 1st IF signals (266.7 MHz; 340.0 MHz–999.9999 MHz, 429.1 MHz; 0.5 MHz–339.9999 MHz and 1.0 GHz–1.3 GHz).

The 1st IF signals are applied to each IF filter (FI401 for 266.7 MHz IF signal, FI411 for 429.1 MHz IF signal) to suppress out-of-band signals. The 1st IF signals are amplified at the 1st IF amplifier (Q421) and then applied to the 2nd mixer on the MAIN unit.

• 1st LO frequency and 1st IF frequency

Receive frequency [MHz]	1st LO frequency [MHz]	1st IF frequency [MHz]
0.5 - 339.9999	429.6 – 769.0999	429.1
340.0 - 609.9999	606.7 – 876.6999	266.7
610.0 - 999.9999	343.3 – 733.2999	266.7
1000.0 - 1300.0000	733.3 – 870.9000	429.1

4-1-4 2ND MIXER AND 2ND IF CIRCUIT (MAIN UNIT)

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

The 1st IF signals (266.7 MHz or 429.1 MHz) from the RF unit are applied to the 2nd mixer circuit (IC11) for mixing with the 2nd LO signals to be converted into a 10.7 MHz 2nd IF signal. The 2nd IF signal is applied to the IF filter (FI11) to suppress out-of-band signals, and is then amplified at the 2nd IF amplifier (Q21).

4-1-5 3RD IF AND DEMODULATOR CIRCUIT (MAIN UNIT)

The 3rd mixer circuit converts the 2nd IF signal to a 3rd IF signal.

IC71 contains the 3rd mixer, limiter amplifier, quadrature detector, s-meter detector and noise detector circuits.

The 2nd IF signal (10.7 MHz) from the 2nd IF amplifier (Q21) is applied to the 3rd mixer section of IF IC (IC71, pin 16) and is then mixed with a 10.245 MHz 3rd LO signal generated by X501 on the RF unit for conversion to a 455 kHz 3rd IF signal. The 3rd IF signal is demodulated at each demodulator circuit.

(1) FM

The 3rd IF signal from the 3rd mixer (IC71, pin 3) passes through the ceramic filter (FI111) to suppress unwanted heterodyned frequency signals. It is fed back to IC71, then amplified at the limiter amplifier section (pin 5) and applied to the quadrature detector section (pin 10) to demodulate the 3rd IF signal into AF signals. The AF signals are output from pin 9 and passed through the de-emphasis circuit (R79, C86) with frequency characteristics of -6 dB/octave, and then applied to the AF switch (IC301c, pin 4).

A portion of the AF signals from pin 9 (IC71) passes through the low-pass filter (R78, C84) and is applied to the CPU (LOGIC unit; IC1) as AFC control signals.

(2) WFM

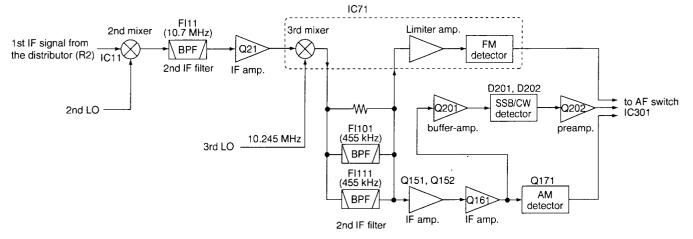
The signal from the 3rd mixer is applied to the limiter amplifier section (IC71, pin 5). The amplified signals are demodulated at the quadrature detector section (IC71, pin 5). The AF signals are output from pin 9 (IC71) and are applied to the AF switch (IC301c, pin 4) the same as in FM mode.

By connecting R81 to R72 in parallel, the output characteristics of pin 12, "RSSI", change gradually. Therefore, the FM IF IC can detect WFM components.

(3) AM

The signal from the 3rd mixer passes through the ceramic filter (FI111) and is amplified at the 3rd IF amplifiers (Q151, Q161). The amplified signal is demodulated at the AM detector (Q171). The demodulated AF signals are applied to the AF switch (IC301d, pin 8) via the ANL control circuit (Q172).

2nd IF, 3rd IF and demodulator circuit



(4) SSB/CW

The signal from the 3rd mixer passes through the ceramic filter (FI101) and is amplified at the 3rd IF amplifiers (Q151, Q161) and buffer amplifier (Q201). The amplified signals are applied to the SSB/CW detector (D201, D202) and mixed with BFO signals from the BFO circuit (LOGIC unit; X231) via the BFO amplifier (Q951) to demodulate AF signals. The demodulated AF signals are applied to the AF switch (IC301b, pin 11) after being pre-amplified at the AF pre-amplifier (Q202).

· Bandpass filter selection

Mode(s)	Bandpass filter(s)	Passband width
NFM / AM	FI111	15 kHz
SSB / CW	FI101	4 kHz
WFM		

4-1-6 SUB-BAND RECEIVER CIRCUIT (MAIN UNIT)

The sub-band receiver circuit is employed by the band scope and SIGNAVI functions.

A portion of the 1st IF signals from the RF unit is mixed with the sub 2nd LO signals at the 2nd mixer circuit (Q411) to be converted into 455 kHz sub 2nd IF signal. The 2nd IF signal is applied to the IF IC (IC471, pin 5) via the IF filter (FI411) and 2nd IF amplifier (Q421). The IF IC (IC471) outputs signals to lead the CPU (LOGIC unit; IC1) under conditions of RSSI or noise squelch.

4-1-7 AF AMPLIFIER CIRCUIT (MAIN UNIT)

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

The AF signals from the AF switch (IC301) are applied to the LOGIC unit through a "DETOM" line. The AF signals are amplified at the AF amplifier (LOGIC unit; Q950), and are then applied to the AF mute switch (LOGIC unit; IC950). The output signals from the AF mute switch (LOGIC unit; IC950) are applied to the [VOL] control (RF unit; R11), and are then power-amplified at the AF amplifier (MAIN unit; IC361, pin 4) to drive a speaker.

4-1-8 SQUELCH CIRCUIT (MAIN UNIT)

A noise squelch circuit cuts out AF signals when no RF signal is received. By detecting noise components in the AF signals, the CPU switches the AF mute switch.

Some of the noise components in the AF signals from IC71 (pin 9) are passed through the active filter (IC71, pins 8, 7), and then applied to the noise detector section. The squelch control pot (RF unit; R11) adjusts the input level of the active filter, and the level is used for the squelch threshold reference. The detected noise signals are applied to the CPU (LOGIC unit; IC1, pin 65) via the "SQL" line. The CPU then analyzes the noise condition and controls the "MUTE" port to cut off the AF signal using the AF mute switch (LOGIC unit; IC950).

4-1-9 VSC CIRCUIT (LOGIC UNIT)

The VSC (Voice Scan Control) detects AF signals and mutes undesired signals such as unmodulated, beat and noise component signals. When the VSC function is ON and an unmodulated signal is received, squelch functions the same as closed (no signal condition) even when it's open, or the scan function resumes for a short period on any scan setting during scanning.

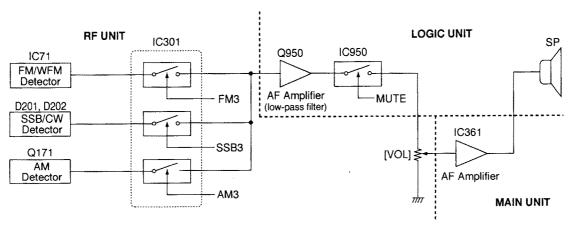
A portion of the AF signals from the low-pass filter (Q950) is applied to the VSC control circuit (IC201) to detect demodulated signals while the VSC function is ON. When audio component signals are included in the AF signals, the VSC IC (IC201) outputs a low level signal from pin 13 to the CPU (IC1, pin 1) to release the mute switch (IC950).

4-1-10 BFO CIRCUIT (LOGIC UNIT)

The BFO (Beat Frequency Oscillator) circuit consists of X231, IC231 and D231. The oscillator provides a beat frequency signal (USB; 456.5 kHz, LSB; 453.5 kHz) to the SSB/CW detector circuit (MAIN unit; D201, D202) for demodulating the 3rd IF signal into AF signals.

The oscillating frequency for each mode (LSB/USB/CW) is switched by changing the capacitance of a varactor diode (D231). When USB mode is selected, the CPU (IC1, pin 3) outputs "LOW" level voltage to D231 to change the BFO frequency to 456.5 kHz.

Squelch and AF amplifier circuits



4-1-11 AGC CIRCUIT (MAIN UNIT)

The AGC (Auto Gain Control) circuit reduces IF/RF amplifier gain to keep the audio output at a constant level. The receiver gain is determined by the voltage on the IF-AGC line (Q182 collector) and RF-AGC line (RF unit; Q901 collector).

The 3rd IF signals from the 3rd IF amplifier (Q161) are detected at the AM detector (Q171). A portion of the detected signals is applied to the AGC amplifiers (Q182 and RF unit; Q901) as the AGC control voltage. The AM detector (Q171) is used for the AGC detector in the AGC circuit.

When receiving strong signals, the detected voltage increases and the AGC voltage decreases via the AGC amplifiers (Q182 and RF unit; Q901). As the AGC voltage is used for the bias voltage of the IF/RF amplifiers, IF/RF amplifier gain is decreased.

4-1-12 NOISE BLANKER CIRCUIT (MAIN UNIT)

The noise blanker circuit detects pulse-type noise, and stops IF amplifier operation during detection.

A portion of the 2nd IF signals from the 2nd IF amplifier for the sub-band (Q421) is amplified at the noise amplifier circuit (Q801, Q802). The amplified signal is recified at the noise detector circuit (Q805) for conversion into DC voltage. The DC voltage is applied to the NB control circuit (Q806, Q807) to control the NB switch (Q810).

Some DC voltage is fed back to the noise amplifier circuit (Q801, Q802) via the DC amplifier (Q808). The DC amplifier functions as an AGC circuit to reduce averaged noise. Therefore, the noise blanker function shuts off pulse-type noise only.

4-2 PLL CIRCUITS 4-2-1 GENERAL

1ST/2ND LO PLL circuits (RF/MAIN units) provide stable oscillation of the receive LO frequencies. The PLL circuit consists of the PLL IC (IC501 on the RF/MAIN units), charge pump, loop filter and reference oscillator and employs a pulse swallow counter.

4-2-2 1ST LO PLL CIRCUIT (RF UNIT)

Signals from the 1ST VCO unit pass through the buffer amplifier (Q551) and are prescaled in the PLL IC (IC501, pin 10) 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 6. The output signal is passed through the charge pump (Q521, Q522) and is applied to the loop filter (R527, C527) to be converted into DC voltage as a PLL lock voltage. The PLL lock voltage is applied to the 1ST VCO unit via the V1L line.

A portion of the signal from the loop filter (R527, C527) is amplified at the buffer amplifier (Q502) and is then applied to the CPU (LOGIC unit; IC1) as the lock voltage information (LVI). The CPU (pin 6) outputs a "TUNE" signal based on the lock voltage; the voltage is amplified at the buffer amplifiers (LOGIC unit; Q181, Q182) and is then applied to the RF unit as the tunable bandpass filter control signal (VTUNE). This signal (VTUNE) is used for the RF tunable bandpass filters to match the filter's center frequency to the desired receive frequency.

4-2-3 REFERENCE OSCILLATOR CIRCUIT (RF UNIT)

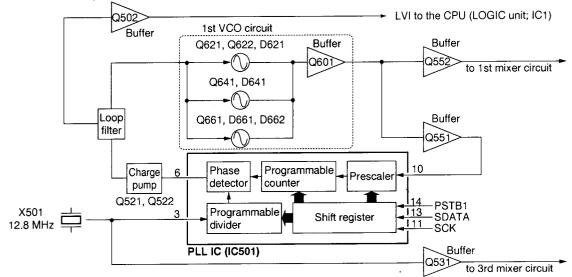
The reference oscillator circuit (X501, IC501) generates a 10.245 MHz reference frequency which is stabilized within the temperature range -10°C (+14°F) to +50°C (+122°F). The reference frequency is applied to the PLL IC and also applied to the MAIN unit as the 3rd LO signal via the buffer amplifier (Q531).

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

The 1ST VCO circuit contains three separate VCO circuits depending on the receive frequency. The oscillated signal at one of the three VCO circuits is applied to the buffer amplifier (Q601). The amplified signal is applied to the RF unit via the V1O line and is then applied to the 1st mixer circuit (RF unit; IC271, pin 3) as the 1st LO signal after being amplified at the buffer amplifier (RF unit; Q552).

A portion of the signal from the V1O terminal (1ST VCO unit; J601) is amplified at the buffer amplifier (Q551) and is then fed back to the PLL IC (IC501, pin 10) as the comparison signal.

• 1st LO PLL circuit (RF unit)



• 1st VCO

Receive frequency [MHz]	VCO select signal	VCO components	VCO frequency [MHz]
0.5 - 199.9999	V11	Q621, Q622, D621	429.6 - 629.0999
200.0 - 533.2999	V12	Q641, D641	629.1 – 799.9999
533.3 - 609.9999	V13	Q661, D661, D662	800.0 – 876.6999
610.0 - 895.7999	V11	Q621, Q622, D621	343.3 – 629.0999
895.8 - 999.9999	V12	Q641, D641	629.1 – 733.2999
1000.0 - 1058.1999	V11	Q621, Q622, D621	570.9 – 629.0999
1058.2 – 1229.0999	V12	Q641, D641	629.1 - 799.9999
1229.1 - 1300.0000	V13	Q661, D661, D662	800.0 - 870.9000

4-2-5 2ND LO PLL CIRCUIT (MAIN UNIT)

The 2ND LO PLL circuit generates the 2nd LO frequency for the main band (receive signal) and sub-band (band scope and SIGNAVI functions).

Signals from the 2ND VCO unit pass through the buffer amplifier (Q531 for main band, Q551 for the sub-band) and are applied to the PLL IC (IC501; pin 2 and pin 19 respectively) and 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 pins 8 and 13. The output signal from pin 8 is passed through the loop filter (R511, R512, R514, C511, C512), and is then applied to the 2ND VCO circuit for the main band (2ND VCO unit) via the 21LV terminal (2ND VCO unit; J601) as the lock voltage. The output signal from pin 13 is passed through the loop filter (R521–R523, C521, C522), and is then applied to the 2ND VCO circuit for the sub-band (2ND VCO unit) via the 22LV terminal (2ND VCO unit; J601) as the lock voltage.

4-2-6 VXO CIRCUIT (MAIN UNIT)

The VXO (Variable Crystal Oscillator) circuit (IC501, X501 and D501) generates a 12.8 MHz 2nd reference frequency. The 2nd reference frequency is stabilized within the temperature range -10°C (+14°F) to +50°C (+122°F). For tuning the 100 Hz frequency step, the VXO circuit changes the capacitance of a varactor diode (D501) via the voltage of the "VXO" line from the CPU (LOGIC unit; IC1), and controls the 2nd reference frequency.

4-2-7 2ND VCO CIRCUIT (2ND VCO UNIT)

The 2ND VCO unit contains two VCO circuits for the main band and sub-band. The VCO circuit for the main band consists of Q602, Q604 and D601, and the VCO circuit for the sub-band consists of Q702, Q704 and D701. The oscillated signal is amplified at the buffer amplifiers (Q603 for the main band, Q703 for the sub-band). Then the 2nd LO signal for the main band is applied to the 2nd mixer (IC11, pin 3) via the buffer amplifier (Q532), and the 2nd LO signal for the sub-band is input to the 2nd mixer for the sub-

band (Q411) after being amplified at the buffer amplifier (Q552). The switching transistors (Q601 and Q701) shift the oscillating frequencies via the "IFH" signal from the RF unit.

4-3 POWER SUPPLY CIRCUITS VOLTAGE LINE (LOGIC UNIT)

Line	Description
HV	The voltage coming from the external DC jack.
vcc	The same voltage as the installed battery cells or HV line passed through the charge control circuit (Q101, D104).
+3CPU	Common 3 V for the CPU (IC1) produced at the +3CPU regulator IC (IC81). The circuit outputs the voltage regardless of the power ON/OFF condition.
+3\$	Common 3 V converted from the VCC line by the +3S regulator circuit (Q121, Q122) using a control signal (+3SC) from the CPU.
+3C	Common 3 V converted from the VCC line by the +3C regulator circuit (Q111, Q112) using a control signal (3LCON) from the CPU.
+3L	Common 3 V converted from the VCC line by the +3L regulator circuit (Q91, Q92) using a control signal (3LCON) from the CPU.
+15	Common 15 V converted from the +3L line by the DC-DC convertor IC (IC151).

4-4 CPU PORT ALLOCATIONS

4-4-1 CPU (IC1 on the LOGIC unit)

4-4-1 CPU (IC1 on the LOGIC unit)					
Pin number	Port name	Description			
1	VSC	Input port for VSC detected signals. High: Unmodulated or beat signals are received. Low: Modulated signals are received.			
3	BFOS2	Output port for BFO control signal. Low: LSB/CW mode (453.5 kHz) High: USB mode (456.5 kHz)			
5	VXO	Output port for VXO frequency control voltage.			
6	TUNE	Outputs tunable band pass filter control voltage.			
8	CLIN	Input port for the cloning or CI-V control signals.			
9	CLOUT	Output port for the cloning or CI-V control signals.			
10	BFO3	Output port for BFO regulator control signal. Low: While SSB/CW mode is selected.			
12	SDATA	Outputs serial data signals to the PLL ICs, EEPROM (LOGIC unit, IC41) and I/O expander ICs, etc.			
13	SCK	Outputs serial clock signal to the PLL ICs, EEPROM (LOGIC unit, IC41) and I/O expander ICs, etc.			
14	ISTB	Outputs strobe signals for the I/O expander ICs.			
15	VSCS	Outputs VSC-time constant control signal. High: While unmodulated signal or no RF signal is received Low: While receiving modulated signals.			
16	ESO	Output port for serial data signals to the EEPROM IC (LOGIC unit, IC41).			
17	ESI	Input port for serial data signals from the EEPROM IC (LOGIC unit, IC41).			
18	ESCK	Output port for clock signal to the EEPROM IC (LOGIC unit, IC41).			
19–22	KS0-KS3	Output strobe signals to the key matrix.			
25, 26	PSTB1, PSTB2	Output strobe signals to the PLL ICs.			
27–31	K0-K4	Input ports for the key matrix.			
32, 34	M0, M1	Input ports for the initial matrix.			
44	3LCON	Outputs control signal for the +3C and +3L regulator circuits. High: While turning power ON.			
45	LAMP0	Outputs LCD and key backlight control signal. Low: While backlight is ON.			

CPU (IC1) — continued

Pin number	Port name	Description	
46	+3SC	Outputs control signal for the +3S regulator circuit. Low: During PLL unlock or power save.	
48	vscc	Outputs VSC control signals. Low: When the VSC function is ON.	
49	MUTE	Outputs AF mute switch (IC950) control signals. Low: While muted.	
50	BEEP	Output port for beep audio signals.	
51	AFONC	Outputs a control signal for AF amplifier regulator circuit. High: When squelch is open. (FM mode only)	
52-59	1/00-1/07	Ouput ports for the LCD control data.	
60	RESET	Input port for the reset signal.	
61	FUNC	Input port for the [FUNC] switch. Low: While [FUNC] switch is pushed.	
62	POWSW	Input port for the [PWR] switch. Low: While [PWR] switch is pushed.	
63	D-UD	Input port for the [DIAL].	
64	D-CK	input port for the (DIAL).	
65	SQL	Input port for the main band noise signals.	
66	S-SQL	Input port for the sub-band noise signals.	
73	UL	Input port for PLL unlock signal from the PLL ICs.	
76	RSSI	Input port for the main band receive signal strength level.	
77	CENT	Input port for the AFC control voltage.	
78	S-RSSI	Input port for the sub-band receive signal strength level.	
79	BATT	Input port for connected voltage low battery detection.	
80	LVI	Input port for the PLL lock voltage information.	

4-4-2 OUTPUT EXPANDER IC (1) MAIN UNIT, IC305

Pin number	Port name	Description
4	WFMC	Outputs WFM mode select signals. Low: When WFM is selected.
5	NFMC	Outputs NFM mode select signals. Low: When NFM is selected.
6	AMC	Outputs AM mode select signals. Low: When AM is selected.
7	SSBC	Outputs SSB mode select signals. Low: When SSB is selected.
11	NBC	Outputs NB control signals. Low: When NB function is ON. (SSB/CW mode only)
12	ANLC	Outputs ANL control signals. Low: When ANL function is ON. (AM mode only)
14	S-PWC	Outputs sub-band regulator control signals. Low: While the bandscope or SIGNAVI functionis activated.

(2) RF UNIT, IC1

Pin number	Port name	Description
4	B0C	Outputs low-pass filter select signal . Low : When frequencies below 1.9 MHz are displayed.
5	B1C	Outputs bandpass filter select signal. Low: When frequencies from 1.9 to 14.9999 MHz are displayed.
6	B2C	Outputs bandpass filter select signal. Low: When frequencies from 15.0 to 29.9999 MHz are displayed.
7	взс	Outputs bandpass filter select signal. Low: When frequencies from 30.0 to 74.9999 MHz are displayed.
11	В7С	Outputs bandpass filter select signal. Low: When frequencies from 700.0 to 1300.0000 MHz are displayed.
12	B6C	Outputs bandpass filter select signal. Low: When frequencies from 500.0 to 699.9999 MHz are displayed.
13	B5C	Outputs bandpass filter select signal. Low: When frequencies from 200.0 to 499.9999 MHz are displayed.
14	B4C	Outputs bandpass filter select signal. Low: When frequencies from 75.0 to 199.9999 MHz are displayed.

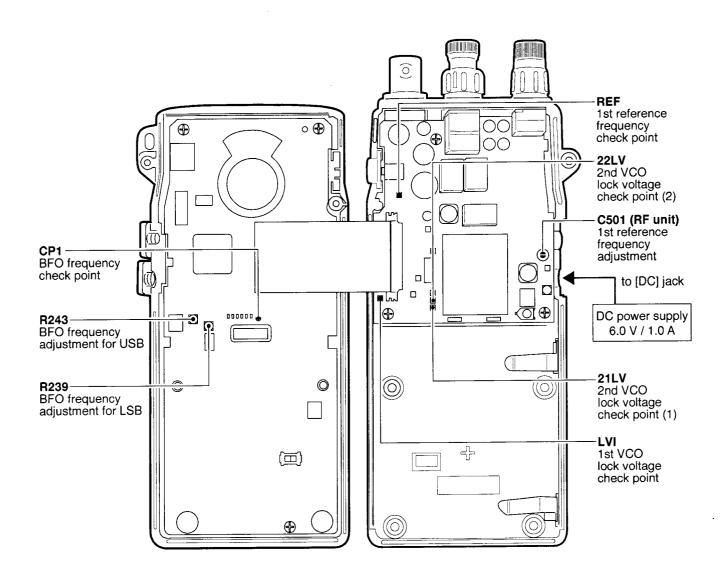
(3) RF UNIT, IC2

(0) 111 01111, 102				
Pin number	Port name	Description		
4	V11C	Outputs VCO1 select signals. Low: VCO1 (343.3–629.0999 MHz) is activated.		
5	V12C	Outputs VCO2 select signals. Low: VCO2 (629.1–799.9999 MHz) is activated.		
6	V13C	Outputs VCO3 select signals. Low: VCO3 (800.0–876.7 MHz) is activated.		
7	N1HC	Outputs 1st mixer input select signal Low: When frequencies from 0.5 to 75 MHz are displayed.		
11	SHIFT	Outputs 2nd VCO shift control signal for VCO1.		
12	ATTC	Outputs attenuator control signals. Low: Attenuator function is ON.		
14	IFHC	Outputs 1st IF select signals. High: When frequencies from 340.0 to 999.9999 MHz are displayed. Low: When frequencies from 0.5 to 339.9999 MHz or 1000.0 to 1300.0 MHz are displayed.		

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PLL AND BFO ADJUSTMENT

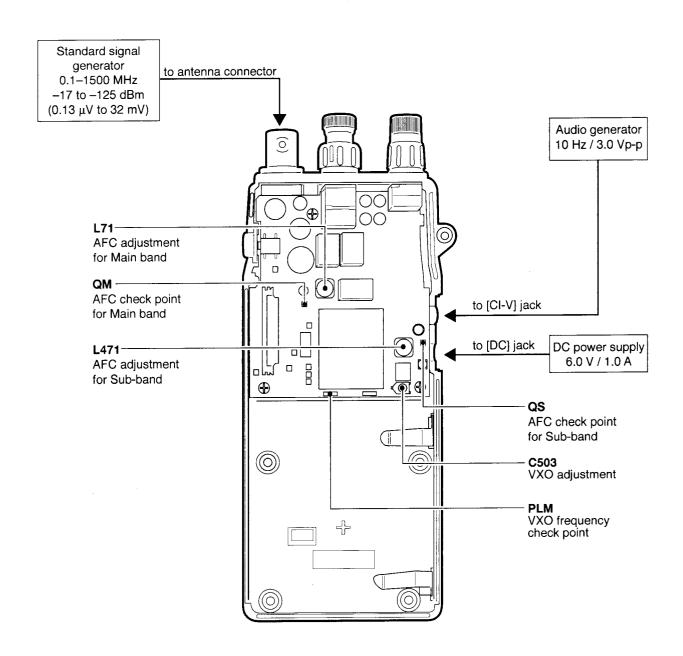
ADJUSTMENT		ADJUSTMENT CONDITIONS		MEASUREMENT	VALUE	ADJUSTMENT	
ADJUSTME	NI	ADJUSTMENT CONDITIONS		LOCATION	VALUE	UNIT	ADJUST
1ST VCO LOCK VOLTAGE	1	Displayed frequency: 200 MHz : 534 MHz : 610 MHz : 846 MHz Receiving	MAIN	Connect a voltmeter (1 $M\Omega$ impedance) to the check point LVI.	More than 0.2 V		Verify
	2	Displayed frequency: 533 MHz : 609 MHz : 845 MHz : 895 MHz Receiving			Less than 3.3 V	;	
2ND VCO LOCK VOLTAGE	1	Displayed frequency: 100 MHz Mode : SSB Noise Blanker : ON Receiving	MAIN	Connect a voltmeter (1 $M\Omega$ impedance) to the check point 21LV.	Less than 2.5 V		Verify
	2	Displayed frequency: 500 MHz Receiving			More than 0.6 V		
	3	Displayed frequency: 100 MHz Mode : SSB Noise Blanker : ON Receiving		Connect a voltmeter (1 $M\Omega$ impedance) to the check point 22LV.	Less than 2.5 V		
	4	Displayed frequency: 500 MHz Receiving			More than 0.6 V		
1ST REFERENCE FREQUENCY	1	Displayed frequency: Any Mode : Any Receiving	MAIN	Connect a frequency counter to the check point REF.	10.24500 MHz	RF	C501
BFO FREQUENCY	1	Displayed frequency: 144.0000 MHz Mode : LSB Receiving	LOGIC	Connect a frequency counter to the check point CP1.	453.500 kHz	LOGIC	R239
	2	Mode : USB Receiving			456.500 kHz		R243



5-2 COMMAND ADJUSTMENT (ADJUSTMENT SET MODE)

ADJUSTME	NT	ADJUSTMENT CONDITIONS	DISPLAY	OPERATION
ADJUSTMENT SET MODE	1	Apply square wave form signals (10 Hz, 3 V p-p) to the [CI-V] connector.	UXOfarta EDIT+-942	While pushing [EDIT], turn power ON.
VXO (2ND REFERENCE FREQUENCY)	1	Turn [DIAL] to select the VXO adjustment.	リドロチョウセイ EDITキーラオス	Push [EDIT] to enter the VXO adjustment.
	2	Connect a frequency counter via 0.001 µF capacitor to the check point PLM, Frequency: 512.0000 MHz	UXO-HC NUT 512.0 MHz	Adjust C503 on the MAIN unit to 512.00000 MHz.
	3	Push [EDIT] to select adjustment frequency. Frequency : 511.9950 MHz	UXO-LL 080 511.9950 MHz	Turn [DIAL] to set correction level closest to the display frequency, and then push [ENT] to program into memory.
	4	Push [EDIT] to select adjustment frequency. Frequency: 512.0050 MHz	UXO-LH 193 512.0050 MHz	Turn [DIAL] to set correction level closest to the display frequency, and then push [ENT] to program into memory.
	5	Push [EDIT] to select adjustment frequency. Frequency : 418.3975 MHz	UXO-HL 099 418.3975 MHz	Turn [DIAL] to set correction level closest to the display frequency, and then push [ENT] to program into memory.
	6	Push [EDIT] to select adjustment frequency. Frequency: 418.4025 MHz	VXO-LH 162 418.4025 MHz	Turn [DIAL] to set correction level closest to the display frequency, and then push [ENT] to program into memory.
:				Push [EDIT] to return to the same condition as that in step 1.
AFC	1	Turn [DIAL] to select the AFC adjustment.	AFC#adt/ EDIT#==	Push [EDIT] to enter the AFC adjustment.
	2	Connect an SSG to the antenna connector and set as: Frequency: 145.00000 MHz Level: 1 mV* (–47 dBm) Mode: FM Modulation: OFF Connect a voltmeter (100 kΩ impedance) to the check point QM on the MAIN unit. Receiving	145.0000 MHz	Adjust L71 on the MAIN unit to 1.0 V.
	3	 Connect a voltmeter (100 kΩ impedance) to the check point QS on the MAIN unit. Receiving 		Adjust L471 on the MAIN unit to 1.0 V.
	4	Push [ENT] to program into memory.	OK	Verify that "OK" appears on the display.
				Push [EDIT] to return to the same condition as that in step 1.

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



COMMAND ADJUSTMENT (CONTINUED)

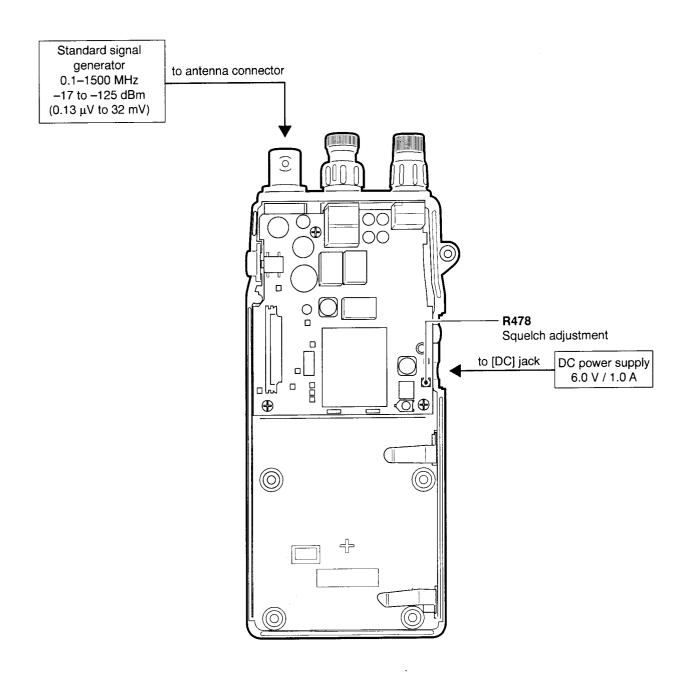
ADJUSTME	NT	ADJUSTMENT CONDITIONS	DISPLAY	OPERATION
BPF	1	Turn [DIAL] to select the BPF adjustment.	BPFfatt/ EDIT+-777	Push [EDIT] to enter the BPF adjustment.
	2	Connect an SSG to the antenna connector and set as: Frequency: 75.0100 MHz Level: 1 mV* (-77 dBm) or less Note: When the S-meter indicats more than 5 segments, reduce SSG's level. Mode: Any Modulation: OFF Receiving	- 75.0100 	Turn [DIAL] to set maximum S-meter level, and then push [ENT] to program into memory.
	3	 Push [EDIT] to select adjustment frequency, then repeat step 2 for frequencies below. Set an SSG as : Frequency : 120.0200 MHz, 149.9900 MHz 150.0100 MHz, 199.9900 MHz 200.0100 MHz, 339.9900 MHz 340.0100 MHz, 430.0100 MHz 499.9900 MHz, 500.0100 MHz 533.2900 MHz, 610.0100 MHz 509.9900 MHz, 699.9900 MHz 700.0100 MHz, 845.7900 MHz 845.8100 MHz, 895.7900 MHz 895.8100 MHz, 1008.1900 MHz 1008.2100 MHz, 1058.1900 MHz 1058.2100 MHz, 1229.0900 MHz 1229.1100 MHz, 1299.9900 MHz Receiving 	The display shows frequencies listed at left in sequence.	
S-METER/ SQUELCH	METER/ 1 • Turn [DIAL] to select the S-METER/ SQUELCH adjustment.		5x-9f=7t/ EDIT#-94Z	Push [EDIT] to enter the S-METER adjustment.
	2	Connect an SSG to the antenna connector and set as: Frequency: 14.5000 MHz Level: 0.5 µV* (-113 dBm) Mode: FM Modulation: 1 kHz Deviation: 3.5 kHz Receiving	14.5000 076 096	Push [ENT] to program into memory.
	3	Push [EDIT] to select adjustment frequency. Set an SSG as: Frequency: 144.5000 MHz Receiving	144.5000 061 081	Push [ENT] to program into memory.
	4	Push [EDIT] to select adjustment frequency. Set an SSG as: Frequency: 324.5000 MHz Receiving	324.5000 061 081	Push [ENT] to program into memory.
	5	Push [EDIT] to select adjustment frequency. Set an SSG as: Frequency: 679.9000 MHz Receiving	679.9000 061 081	Push [ENT] to program into memory.

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

COMMAND ADJUSTMENT (CONTINUED)

ADJUSTMENT		ADJUSTMENT CONDITIONS	DISPLAY	OPERATION
SQUELCH F		• Set an SSG as : Frequency : 1264.5000 MHz Level : 0.71 µV* (–110 dBm) • Receiving	1264.5000 061 081	Push [ENT] to program into memory.
	6	Push [EDIT] to enter the SQUELCH adjustment. Set an SSG as:	144.5000 SQL-CLOSE	Adjust R478 on the MAIN unit so that the display changes from "CLOSE" to "OPEN" and "OPEN"
	Frequency : 144.5000 MHz Level : 0.18 μV* (−122 dBm) • Receiving Stays on.	stays on.		
	7	Set an SSG as: Level: OFF Receiving	144.5000 SQL-CLOSE	Verify that the display returns to "CLOSE".
		- Necelving		Push [EDIT] to return to the same as that in step 1.

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



SECTION 6 PARTS LIST

[LOGIC UNIT]

REF NO.	ORDER NO.	DES	SCRIPTION
IC1 IC41 IC42 IC71	1140006510 1130008400 1130005720 1110003380	S.IC S.IC S.IC S.IC	µPD78054GK-532-BE9 X25128SI-2.7T6 TC7W04F (TE12L) S-80730SL-AT-T1
IC81 IC151 IC201 IC231 IC950	1180001240 1180001630 1140006210 1130004830 1130004200	S.IC S.IC S.IC S.IC S.IC	S-81335HG-KI-T1 TK11812MTL μPC5023GR-115-GJG-E1 TC7SU04F (TE85R) TC4S66F (TE85R)
Q71 Q91 Q92 Q101 Q111 Q112 Q122 Q131 Q132 Q141 Q142 Q181 Q182 Q201 Q202 Q203 Q204 Q243	1530003280 1520000460 1590001170 1520000460 1520000460 1590001170 1520000460 1590001170 1530003280 1510000880 1590000720 1540000550 1530003280 1510000880 1590001130 1590001130 1590001130	S.TRANSISTOR	2SC4211-6-TL 2SB1132 T100 R XP1501-(TX).AB 2SB1132 T100 R 2SB1132 T100 R XP1501-(TX).AB 2SB1132 T100 R XP1501-(TX).AB 2SB1132 T100 R XP1501-(TX).AB 2SC4211-6-TL 2SA1622-6-TL DTA144EU T107 2SD1664 T100Q 2SC4211-6-TL 2SA1622-6-TL DTA144EU T107 UN9110 (TX) UN9210 (TX) UN9110 (TX) UN9110 (TX) DTA144EU T107
Q950 D51 D52 D53 D54 D71 D72 D101 D103	1790001280 1790001280 1790001200 1160000050 1750000220 1750000240 1750000240 1790001280 1790000670 1790001280	S.TRANSISTOR S.DIODE S.DIODE S.DIODE S.DIODE S.DIODE S.DIODE S.DIODE S.ZENER S.DIODE S.DIODE S.ZENER S.DIODE	2SC4211-6-TL MA111 (TX) MA6S121 (TX) DAP202U T107 DA113W T107 DA112 T107 DA112 T107 MA111 (TX) MA8051-M (TX) SB07-03C-TB MA111 (TX)
D104 D131 D151 D231 D232	1750001280 17500001280 1790001280 1790000660 1720000600 1790001280	S.DIODE S.DIODE S.DIODE S.VARICAP S.DIODE	DA204U T107 MA111 (TX) MA728 (TW) HN2V02H-B (TE12R) MA111 (TX) [UK]
X1 X231	6060000610 6060000660	S.CERAMIC S.CERAMIC	EFOS4914E3 CSBF458J
L151 L152 L153	6200003620 6200006720 6200003550	S.COIL S.COIL S.COIL	LQH 3C 331K04 5CA-395KN-0369AQ=P3 MLF1608A 4R7K-T
R4 R5 R6 R7 R8 R11 R12 R13 R14 R24 R25 R41 R71 R72 R73 R74 R78	7030003640 7030003440 7030003440 7030003640 7030003640 7030003680 7030003640 7030003640 7030003820 7030003640 7030003640 7030003640 7030003640 7030003640 7030003640 7030003640 7030003640 7030003640 70300036520	S.RESISTOR S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ) ERJ3GEYJ 102 V (1 kΩ) ERJ3GEYJ 102 V (1 kΩ) ERJ3GEYJ 102 V (1 kΩ) ERJ3GEYJ 473 V (47 kΩ)

[LOGIC UNIT]

[CONIT		
REF NO.	ORDER NO.		DESCRIPTION
R79	7030005970	S.RESISTOR	RR0816R-683-D (68 kΩ)
R91	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R101	7030000180	S.RESISTOR	MCR10EZHJ 22 Ω (220)
R102	7030000180	S.RESISTOR	MCR10EZHJ 22 Ω (220)
R103 R111	7030003560 7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ) ERJ3GEYJ 103 V (10 kΩ)
R112	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R121	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R122	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R131 R132	7030003640 7030003600	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ) ERJ3GEYJ 223 V (22 kΩ)
R133	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R134	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R135	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R141 R142	7030003410 7030003410	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω) ERJ3GEYJ 561 V (560 Ω)
R143	7030003410	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R144	7030003410	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R145	7030003410	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω)
R146 R147	7030003410 7030003360	S.RESISTOR	ERJ3GEYJ 561 V (560 Ω) ERJ3GEYJ 221 V (220 Ω)
R147	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R149	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R150	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R151	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ) ERJ3GEYJ 223 V (22 kΩ)
R152 R153	7030003600 7030003810	S.RESISTOR S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ) ERJ3GEYJ 125 V (1.2 MΩ)
R154	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R155	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R156	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R181 R183	7030003600 7030003680	S.RESISTOR S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ) ERJ3GEYJ 104 V (100 kΩ)
R201	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R202	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R203	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R204 R205	7030003460 7030003710	S.RESISTOR S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 184 V (180 kΩ)
R206	7030003710	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R207	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R208	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ) ERJ3GEYJ 104 V (100 kΩ)
R211 R212	7030003680 7030003680	S.RESISTOR S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R231	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R234	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R235 R236	7030003800 7030003840	S.RESISTOR S.RESISTOR	ERJ3GEYJ 105 V (1 ΜΩ) ERJ3GEYJ 225 V (2.2 ΜΩ)
R237	7030003840	S.RESISTOR	ERJ3GEYJ 225 V (2.2 MΩ)
R238	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R239	7310003600	S.TRIMMER	EVM-1XSX50 B54 (503)
R240 R243	7030003580 7310003590	S.RESISTOR S.TRIMMER	ERJ3GEYJ 153 V (15 kΩ) EVM-1XSX50 B24 (203)
R950	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R951	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R952	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R953 R954	7030003740 7030003740	S.RESISTOR S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ) ERJ3GEYJ 334 V (330 kΩ)
R955	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)
R956	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R957	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ) ERJ3GEYJ 224 V (220 kΩ)
R958 R959	7030003720 7030003620	S.RESISTOR S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R961	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
C1	4030007010	S CEBANAIC	C1608 CH 1H 100D-T-A
C1 C2	4030007010 4030007010	S.CERAMIC S.CERAMIC	C1608 CH 1H 100D-1-A C1608 CH 1H 100D-T-A
C3	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C4	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C21	4550006300 4550006300	S.TANTALUM S.TANTALUM	ECST1AY475R ECST1AY475R
C22 C23	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C24	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C25	4030011600	S,CERAMIC	C1608 JB 1C 104KT-N
C26 C27	4030011600 4030011600	S.CERAMIC S.CERAMIC	C1608 JB 1C 104KT-N C1608 JB 1C 104KT-N
C41	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
		L	S – Surface mount

[LOGOC UNIT]

	CONTI				
REF NO.	ORDER NO.	DESCRIPTION			
C71	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C72	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C81	4550006830	S.TANTALUM	ECST1DY475R C1608 JB 1H 102K-T-A		
C82 C83	4030006860 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A		
C84	4550006320	S.TANTALUM	ECST0JY475R		
C91	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C92	4550006200	S.TANTALUM	ECSTOJY106R		
C101	4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1C 104KT-N		
C111 C112	4030011600 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A		
C113	4550006320	S.TANTALUM	ECST0JY475R		
C121	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		
C122	4030006860	S.CERAMIC S.TANTALUM	C1608 JB 1H 102K-T-A ECST0JY475R		
C123 C151	4550006320 4550006320	S.TANTALUM	ECST0JY475R		
C152	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C153	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C154	4550006200	S.TANTALUM S.CERAMIC	ECST0JY106R C1608 JB 1H 332K-T-A		
C155 C156	4030008650 4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-T-A		
C157	4550006820	S.TANTALUM	ECST1DX106R		
C158	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C159	4550006820	S.TANTALUM	ECST1DX106R		
C160 C201	4030006900 4030009000	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-T-A C2012 JB 1C 224K-T-A		
C201	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A		
C203	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A		
C204	4030007110	S.CERAMIC	C1608 CH 1H 680J-T-A ECST1EY474R		
C205	4550006140 4030008650	S.TANTALUM S.CERAMIC	C1608 JB 1H 332K-T-A		
C206 C207	4550006680	S.TANTALUM	ECST0JY156R		
C208	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		
C209	4550006130	S.TANTALUM	ECST1VY224R		
C210	4030011600 4550006320	S.CERAMIC S.TANTALUM	C1608 JB 1C 104KT-N ECST0JY475R		
C211 C212	4550006130	S.TANTALUM	ECST1VY224R		
C213	4550006320	S.TANTALUM	ECST0JY475R		
C214	4550006320	S.TANTALUM	ECST0JY475R		
C233 C234	4030011600 4030006850	S.CERAMIC S.CERAMIC	C1608 JB 1C 104KT-N C1608 JB 1H 471K-T-A		
C234	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C237	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C238	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C239 C245	4030006850 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 471K-T-A C1608 JB 1H 102K-T-A		
C245	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		
C950	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		
C951	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1E 103K-T-A		
C953 C954	4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A		
C955	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		
C956	4030007110	S.CERAMIC	C1608 CH 1H 680J-T-A		
C957	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N ECST1EY474R		
C958	4550006140	S.TANTALUM	E0311E1474N		
F1	5210000530	S.FUSE	TR3216FF3A		
	5000001:00	Lon	EDMCHOSEGO		
DS1	5030001490 5010000120	LCD S.LED	EDMCU06F00 LN1371G-(TR)		
DS141 DS142	5010000120	S.LED	LN1371G-(TR)		
DS142	5010000120	S.LED	LN1371G-(TR)		
DS144	5010000120	S.LED	LN1371G-(TR)		
DS145	5010000120	S.LED	LN1371G-(TR)		
DS146 DS147	5010000120 5040002230	S.LED S.LED	LN1371G-(TR) CL-200YG-C-TS		
DS147	5040002230	S.LED	CL-200YG-C-TS		
DS149	5040002230	S.LED	CL-200YG-C-TS		
DS150	5040002230	S.LED	CL-200YG-C-TS		
S101	2220000330	S.SWITCH	HSW0880-01-210		
 .	000000=====	CARLE	OBC 720		
W1 W3	8900007370 7030003860	CABLE S.JUMPER	OPC-720 ERJ3GE JPW V except [USA]		
W4	7030003860	S.JUMPER	ERJ3GE JPW V except [USA]		
W5	7030003860	S.JUMPER	ERJ3GE JPW V		
W7 W8	7120000470 7120000470	JUMPER JUMPER	ERDS2T0 [UK] ERDS2T0 [UK]		
VVO	/1200004/0	JOWII-EN	ZIIDOZIO [ON]		

[LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION				
W201	7030003860	S.JUMPER	ERJ3GE JPW V			
SP1	2510000960	SPEAKER	K036NA500-26			
EP1	0910048045	PCB	B 4901E			

[MAIN UNIT]

IMAIN					
REF NO.	ORDER NO.	DESCRIPTION			
REF	ORDER	S.IC S.IC S.IC S.IC S.IC S.IC S.IC S.IC	PC2757T-E3 TA31136FN (D,EL) BU4066BCFV-E1 BU4094BCFV-E1 TA7368F (TP1) TA31136FN (D,EL) μPD3140GS-E1 (DS8) 2SC4215-O (TE85R) DTA144EU T107 2SC4211-6-TL 2SC4211-6-TL 2SC4211-6-TL DTC144EU T107 2SC4211-6-TL DTA144EU T107 2SC4211-6-TL DTA144EU T107 2SC4211-6-TL DTA144EU T107 2SC4211-6-TL 2SC5065-O (TE85R) 2SC1685R) 2SC5065-O (TE85R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1685R) 2SC1665-O (TE85R)		
Q304 Q351 Q352 Q411 Q501 Q531 Q531 Q552 Q551 Q552 Q573 Q574 Q575 Q801 Q805 Q806 Q806 Q807 Q808 Q809 Q810 Q951	1590002010 1520000650 1530003280 1530003500 1590000430 1530003500 1530003500 1530003500 1530003500 1530003500 1530003500 1590001170 153000280 1590001170 1530003280 1590001280 1590001280 1790001280 1790001280 1790001280	S.TRANSISTOR S.TRA	XP1114 (TX) 2SB1201-S-TL 2SC4211-6-TL 2SC5065-O (TE85R) 2SC4215-O (TE85R) DTC144EU T107 2SC5065-O (TE85R)		
D121 D122 D171 D201 D202 D301 D302 D304 D305 D501 D571	1790001280 1790001280 1790001280 1750000370 1750000370 1160000140 1160000140 1160000140 1790001290 1720000360	S.DIODE S.VARICAP S.DIODE	MA111 (TX) MA111 (TX) MA111 (TX) DA221 TL DA221 TL DAP222 TL DAP222 TL DAP222 TL DAP222 TL MA304 (TX) HSU88TRF		

[MAIN UNIT]

ORDER REF DESCRIPTION NO. NO. S.CERAMIC SFECA10.7MA-5-A FI11 2020001140 KBF-455RS-4AS CERAMIC FI101 2020001370 KBF455RS-15A CERAMIC FI111 2020001360 KBF455RS-15A 2020001360 CERAMIC FI411 CR-553 (12,8000 MHz) X501 6050009930 S.XTAL LS-510 6150004840 S.COIL L71 L471 6150004840 S COIL LS-510 MLF1608A 1R0K-T L501 6200003960 S.COIL MLF1608A 1R0K-T L502 6200003960 S.COIL ELJRE 33NG-F L531 6200005720 S.COIL ELJRE 22NG-F L532 6200005700 S.COIL ELJRE 22NG-F L533 6200005700 S.COIL **ELJRE 33NG-F** L551 6200005720 S.COIL FLJRE 22NG-F L552 6200005700 S.COIL ELJRE 22NG-F L553 6200005700 S.COIL 7030003220 S.RESISTOR ERJ3GEYJ 150 V (15 Ω) R1 S.RESISTOR 7030003220 ERJ3GEYJ 150 V (15 Ω) R2 7030003220 S.RESISTOR ERJ3GEYJ 150 V (15 Ω) **R**3 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω) R11 7030003250 S.RESISTOR ERJ3GEYJ 270 V (27 Ω) R15 7030003370 S.RESISTOR ERJ3GEYJ 271 V (270 Ω) R16 S.RESISTOR ERJ3GEYJ 683 V (68 kΩ) 'R21 7030003660 R23 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω) S.RESISTOR ERJ3GEYJ 102 V (1 $k\Omega$) 7030003440 R24 R25 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω) ERJ3GEYJ 473 V (47 kΩ) R71 7030003640 S.RESISTOR 7030003600 S.RESISTOR ERJ3GEYJ 223 V (22 kΩ) R72 ERJ3GEYJ 562 V (5.6 kΩ) 7030003530 S.RESISTOR R73 ERJ3GEYJ 184 V (180 kΩ) 7030003710 S.RESISTOR **R74** ERJ3GEYJ 272 V (2.7 kΩ) 7030003490 S.RESISTOR R75 7030003720 S.RESISTOR ERJ3GEYJ 224 V (220 kΩ) **R76** ERJ3GEYJ 473 V (47 kΩ) 7030003640 S.RESISTOR R77 S.RESISTOR ERJ3GEYJ 103 V (10 kΩ) 7030003560 **R78** ERJ3GEYJ 472 V (4.7 kΩ) R79 7030003520 S.RESISTOR R80 7030003680 S.RESISTOR ERJ3GEYJ 104 V (100 kΩ) ERJ3GEYJ 182 V (1.8 kΩ) 7030003470 S RESISTOR R81 ERJ3GEYJ 472 V (4.7 kΩ) 7030003520 S.RESISTOR R101 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R102 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R103 ERJ3GEYJ 472 V (4.7 kΩ) S.RESISTOR 7030003520 R111 ERJ3GEYJ 472 V (4.7 kΩ) 7030003520 S.RESISTOR R112 ERJ3GEYJ 472 V (4.7 kΩ) S.RESISTOR 7030003520 R113 7030003480 S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ) R121 ERJ3GEYJ 472 V (4.7 kΩ) S.RESISTOR 7030003520 R122 ERJ3GEYJ 823 V (82 kΩ) 7030003670 S.RESISTOR R151 ERJ3GEYJ 683 V (68 kΩ) S.RESISTOR R152 7030003660 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω) R153 ERJ3GEYJ 102 V (1 kΩ) 7030003440 S.RESISTOR R154 ERJ3GEYJ 472 V (4.7 kΩ) 7030003520 S.RESISTOR R155 ERJ3GEYJ 154 V (150 kΩ) S.RESISTOR R161 7030003700 7030003440 S.RESISTOR ERJ3GEYJ 102 V (1 kΩ) R162 ERJ3GEYJ 473 V (47 kΩ) 7030003640 S.RESISTOR R171 ERJ3GEYJ 473 V (47 kΩ) 7030003640 S.RESISTOR R172 ERJ3GEYJ 472 V (4.7 kΩ) 7030003520 S.RESISTOR R173 ERJ3GEYJ 153 V (15 kΩ) R174 7030003580 S.RESISTOR ERJ3GEYJ 103 V (10 kΩ) 7030003560 S.RESISTOR R175 ERJ3GEYJ 103 V (10 kΩ) 7030003560 S.RESISTOR R176 ERJ3GEYJ 223 V (22 kΩ) S.RESISTOR R177 7030003600 ERJ3GEYJ 104 V (100 kΩ) 7030003680 S.RESISTOR R178 ERJ3GEYJ 472 V (4.7 kΩ) 7030003520 S.RESISTOR R179 ERJ3GEYJ 473 V (47 kΩ) S.RESISTOR 7030003640 R181 ERJ3GEYJ 393 V (39 kΩ) 7030003630 S.RESISTOR R185 S.RESISTOR ERJ3GEYJ 104 V (100 kΩ) 7030003680 R186 ERJ3GEYJ 332 V (3.3 kΩ) S.RESISTOR R187 7030003500 ERJ3GEYJ 332 V (3.3 kΩ) S.RESISTOR R189 7030003500 ERJ3GEYJ 223 V (22 kΩ) 7030003600 S.RESISTOR R201 7030003420 S.RESISTOR ERJ3GEYJ 681 V (680 Ω) R202 ERJ3GEYJ 681 V (680 Ω) 7030003420 S.RESISTOR R203 ERJ3GEYJ 102 V (1 kΩ) 7030003440 S.RESISTOR R204 ERJ3GEYJ 102 V (1 kΩ) S.RESISTOR 7030003440 R205 ERJ3GEYJ 102 V (1 kΩ) 7030003440 S.RESISTOR R206 7030003440 S.RESISTOR ERJ3GEYJ 102 V (1 kΩ) R207 ERJ3GEYJ 103 V (10 kΩ) R208 7030003560 S.RESISTOR ERJ3GEYJ 473 V (47 kΩ) 7030003640 S.RESISTOR R209 ERJ3GEYJ 152 V (1.5 kΩ) R211 7030003460 S.RESISTOR R212 7030003440 S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)

IMAIN UNIT

[MAIN UNIT]					
REF NO.	ORDER NO.		DESCRIPTION		
R214	7030003610	S.RESISTOR	ERJ3GEYJ 273 V (27 kΩ)		
R215	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ) ERJ3GEYJ 223 V (22 kΩ)		
R216 R301	7030003600 7030003560	S.RESISTOR S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)		
R302	7030003500	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)		
R303	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)		
R304	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)		
R321 R351	7030003680 7030003560	S.RESISTOR S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ) ERJ3GEYJ 103 V (10 kΩ)		
R352	7030003300	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)		
R353	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)		
R354	7030000250	S.RESISTOR S.RESISTOR	MCR10EZHJ 82 Ω (820) MCR10EZHJ 82 Ω (820)		
R355 R356	7030000250 7030000250	S.RESISTOR	MCR10EZHJ 82 Ω (820)		
R361	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)		
R362	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)		
R363	7030003200 7030003620	S.RESISTOR S.RESISTOR	ERJ3GEYJ 100 V (10 Ω) ERJ3GEYJ 333 V (33 kΩ)		
R411 R412	7030003520	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)		
R415	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)		
R416	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)		
R417	7030003460	S.RESISTOR S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 224 V (220 kΩ)		
R421 R424	7030003720 7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)		
R425	7030003330	S.RESISTOR	ERJ3GEYJ 121 V (120 Ω)		
R472	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ) ERJ3GEYJ 222 V (2.2 kΩ)		
R473 R474	7030003480 7030003710	S.RESISTOR S.RESISTOR	ERJ3GEYJ 222 V (2.2 KΩ) ERJ3GEYJ 184 V (180 kΩ)		
R475	7030003710	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)		
R476	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)		
R477	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)		
R478 R502	7310003610 7030003560	S.TRIMMER S.RESISTOR	EVM-1XSX50 B14 (103) ERJ3GEYJ 103 V (10 kΩ)		
R503	7030003290	S.RESISTOR	ERJ3GEYJ 560 V (56 Ω)		
R504	7030003290	S.RESISTOR	ERJ3GEYJ 560 V (56 Ω)		
R511	7030003500	S.RESISTOR S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ) ERJ3GEYJ 102 V (1 kΩ)		
R512 R513	7030003440 7030003680	S.RESISTOR	ERJ3GEYJ 102 V (1 κΩ)		
R514	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)		
R521	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ) ERJ3GEYJ 102 V (1 kΩ)		
R522 R523	7030003440 7030003360	S.RESISTOR S.RESISTOR	ERJ3GEYJ 102 V (1 N32) ERJ3GEYJ 221 V (220 Ω)		
R531	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)		
R532	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)		
R533 R534	7030003380 7030003640	S.RESISTOR S.RESISTOR	ERJ3GEYJ 331 V (330 Ω) ERJ3GEYJ 473 V (47 kΩ)		
R536	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)		
R537	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)		
R538 R539	7030003400 7030003400	S.RESISTOR S.RESISTOR	ERJ3GEYJ 471 V (470 Ω) ERJ3GEYJ 471 V (470 Ω)		
R551	7030003400	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)		
R552	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)		
R553	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω) ERJ3GEYJ 473 V (47 kΩ)		
R554 R556	7030003640 7030003400	S.RESISTOR S.RESISTOR	ERJ3GEYJ 471 V (47 κ22)		
R557	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)		
R558	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)		
R559 R571	7030003400 7030003560	S.RESISTOR S.RESISTOR	ERJ3GEYJ 471 V (470 Ω) ERJ3GEYJ 103 V (10 kΩ)		
R572	7030003500	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)		
R801	7030003610	S.RESISTOR	ERJ3GEYJ 273 V (27 kΩ)		
R803	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)		
R804 R807	7030003460 7030003360	S.RESISTOR S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 221 V (220 Ω)		
R808	7030003330	S.RESISTOR	ERJ3GEYJ 121 V (120 Ω)		
R811	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)		
R812	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 104 V (100 kΩ)		
R814 R815	7030003680 7030003440	S.RESISTOR S.RESISTOR	ERJ3GEYJ 104 V (100 K22) ERJ3GEYJ 102 V (1 kΩ)		
R816	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)		
R817	7030003680	S.RESISTOR	ERJ3GEY J 104 V (100 kΩ)		
R819 R820	7030003520 7030003610	S.RESISTOR S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ) ERJ3GEYJ 273 V (27 kΩ)		
R821	7030003610	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)		
R822	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)		
R825	7030003440 7030003560	S.RESISTOR S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ) ERJ3GEYJ 103 V (10 kΩ)		
R826 R827	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)		
R828	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)		
R829	7030003640	S.RESISTOR S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ) ERJ3GEYJ 223 V (22 kΩ)		
R830 R831	7030003600 7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)		
	1		C. Curface mount		

[MAIN UNIT]

ORDER DESCRIPTION NO. NO. 7030003720 S.RESISTOR ERJ3GEYJ 224 V (220 kΩ) R951 ERJ3GEYJ 471 V (470 Ω) 7030003400 S RESISTOR R953 ERJ3GEYJ 101 V (100 Ω) R954 7030003320 S.RESISTOR C1608 JB 1H 102K-T-A 4030006860 S.CERAMIC C1 C2 4030006860 S.CERAMIC C1608 JB 1H 102K-T-A 4030006860 S.CERAMIC C1608 JB 1H 102K-T-A C11 C1608 JB 1H 102K-T-A C12 4030006860 S.CERAMIC C1608 JB 1E 103K-T-A 4030006900 S.CERAMIC C13 C15 4030006900 S.CERAMIC C1608 JR 1F 103K-T-A C1608 JB 1E 103K-T-A C21 4030006900 S.CERAMIC C23 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C1608 JB 1E 103K-T-A C24 4030006900 S.CERAMIC C1608 JB 1F 103K-T-A C25 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C25 4030006900 S.CERAMIC C71 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C1608 JB 1E 103K-T-A C72 4030006900 S.CERAMIC C1608 CH 1H 330J-T-A C73 4030007070 S CERAMIC C1608 JB 1C 104KT-N C74 4030011600 S.CERAMIC C75 4030006860 S.CERAMIC C1608 JB 1H 102K-T-A 4030006860 S.CERAMIC C1608 JB 1H 102K-T-A C76 4030006860 S.CERAMIC C1608 JB 1H 102K-T-A C77 C78 4030006860 S.CERAMIC C1608 JB 1H 102K-T-A C79 4030011600 S.CERAMIC C1608 JB 1C 104KT-N 4030011600 S.CERAMIC C1608 JB 1C 104KT-N C80 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C81 S.CERAMIC C1608 JB 1E 103K-T-A C82 4030006900 C83 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A S.ELECTROLYTIC ECEV1ES4R7SR C84 4510006120 S.TANTALUM C85 4550006320 ECST0JY475R C1608 JB 1C 104KT-N C86 4030011600 S.CERAMIC S.CERAMIC C87 4030006900 C1608 JB 1E 103K-T-A S.CERAMIC C1608 JB 1E 103K-T-A 4030006900 C88 4030008920 S.CERAMIC C1608 JB 1C 473K-T-A C89 C1608 JB 1C 473K-T-A C90 4030008920 S.CERAMIC C91 4550006680 S.TANTALUM ECST0JY156R C1608 JB 1E 103K-T-A C101 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A 4030006900 S.CERAMIC C102 C1608 JB 1E 103K-T-A C103 4030006900 S.CERAMIC C104 4030011600 S.CERAMIC C1608 JB 1C 104KT-N C1608 JB 1E 103K-T-A C111 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A 4030006900 S.CERAMIC C112 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C113 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C114 C1608 JB 1C 104KT-N S.CERAMIC 4030011600 C121 4030011600 S.CERAMIC C1608 JB 1C 104KT-N C151 S.CERAMIC C1608 JB 1C 104KT-N C152 4030011600 S.CERAMIC C1608 JB 1C 104KT-N 4030011600 C153 C1608 JB 1E 103K-T-A S.CERAMIC C154 4030006900 S.CERAMIC C1608 CH 1H 101J-T-A 4030007130 C161 S.CERAMIC C1608 JB 1C 104KT-N C162 4030011600 4030011600 S.CERAMIC C1608 JB 1C 104KT-N C163 C1608 JB 1C 104KT-N S.CERAMIC 4030011600 C171 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C172 ECEV1ES4R7SR S.ELECTROLYTIC C173 4510006120 4030011600 S.CERAMIC C1608 JB 1C 104KT-N C174 S.TANTALUM ECST1VY224R 4550006130 C176 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C177 C1608 JB 1E 103K-T-A S.CERAMIC C178 4030006900 ECEV1ES4R7SR 4510006120 S.ELECTROLY C181 C1608 JB 1C 104KT-N C184 4030011600 S.CERAMIC ECEV1ES4R7SR 4510006120 S.ELECTROLYTIC C185 ECEV1ES4R7SR 4510006120 S.ELECTROLYTIC C186 C187 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C1608 JB 1E 103K-T-A C202 4030006900 S.CERAMIC 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C203 C1608 JB 1E 103K-T-A S.CERAMIC 4030006900 C204 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C205 C1608 JB 1H 102K-T-A S.CERAMIC 4030006860 C206 C1608 JB 1C 333K-T-A S.CERAMIC C207 4030008900 S CERAMIC C1608 JB 1E 103K-T-A C208 4030006900 C1608 JB 1E 103K-T-A S CERAMIC C209 4030006900 S.TANTALUM ECST0JY156R 4550006680 C210 C1608 JB 1H 471K-T-A 4030006850 S.CERAMIC C211 C1608 JB 1E 103K-T-A 4030006900 S.CERAMIC C302 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A C303 S.CERAMIC C1608 JB 1E 103K-T-A 4030006900 C304 C351 4510004650 S.ELECTROLYTIC ECEV1EA4R7SR S.CERAMIC C1608 JB 1E 103K-T-A C352 4030006900 C353 4510006220 S.ELECTROLY ECEV1CA101UP C354 4030006900 S.CERAMIC C1608 JB 1E 103K-T-A

[MAIN UNIT]

	UNII		
REF	ORDER	DES	CRIPTION
NO.	NO.		
C355	4510006220	S.ELECTROLYTIC	ECEV1CA101UP
C361	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A C1608 CH 1H 470J-T-A
C362 C363	4030007090 4550006320	S.CERAMIC S.TANTALUM	ECST0JY475R
C364	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C365	4510005370	S.ELECTROLYTIC	ECEV1AA221P
C411	4030007130	S.CERAMIC	C1608 CH 1H 101J-T-A
C412	4030009500	S.CERAMIC	C1608 CH 1H 0R5B-T-A C1608 JB 1C 104KT-N
C413 C414	4030011600 4030011600	S.CERAMIC S.CERAMIC	C1608 JB 1C 104KT-N
C416	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C421	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C423	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N C1608 JB 1C 104KT-N
C424 C471	4030011600 4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-T-A
C473	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C474	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C475	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C476 C477	4030006860 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A
C477	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C479	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C480	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C481	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C482 C483	4030006900 4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-T-A C1608 JB 1E 103K-T-A
C483	4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1C 104KT-N
C501	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A
C503	4610001890	S.TRIMMER	CTZ3E-20C-W1
C504	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A C1608 JB 1E 103K-T-A
C505 C506	4030006900 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-1-A
C507	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C509	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C510	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C511 C512	4550006150 4550006360	S.TANTALUM S.TANTALUM	ECST1CY105R ECST1VY104R
C512	4030009920	S.CERAMIC	C1608 CH 1H 050B-T-A
C521	4550006150	S.TANTALUM	ECST1CY105R
C522	4550006360	S.TANTALUM	ECST1VY104R
C523	4030006860 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A
C531 C532	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C533	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C534	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C536	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A
C537 C538	4030006860 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A
C539	4030009920	S.CERAMIC	C1608 CH 1H 050B-T-A
C540	4030006980	S.CERAMIC	C1608 CH 1H 070D-T-A
C551	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A C1608 CH 1H 050B-T-A
C552 C553	4030009920 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A
C554	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C556	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C557	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C558 C559	4030006860 4030006980	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A C1608 CH 1H 070D-T-A
C560	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C571	4550006200	S.TANTALUM	ECST0JY106R
C573	4550006200	S.TANTALUM	ECST0JY106R C1608 JB 1H 102K-T-A
C574 C801	4030006860 4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-T-A
C802	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C806	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C808	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A C1608 JB 1E 103K-T-A
C809 C810	4030006900 4030006900	S.CERAMIC S.CERAMIC	C1608 JB 1E 103K-T-A C1608 JB 1E 103K-T-A
C811	4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A
C812	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C813	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C814	4550006140 4030006900	S.TANTALUM S.CERAMIC	ECST1EY474R C1608 JB 1E 103K-T-A
C815 C816	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C817	4550006320	S.TANTALUM	ECST0JY475R
C901	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C902	4030007090	S.CERAMIC S.CERAMIC	C1608 CH 1H 470J-T-A C1608 CH 1H 470J-T-A
C903 C951	4030007090 4030011600	S.CERAMIC S.CERAMIC	C1608 CH 1H 4703-1-X
C952	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C953	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
	1	<u> </u>	C. Curface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DES	CRIPTION
S1	2230000900	S.SWITCH	JPM1990-2013R
J1 J2 J3	6510017680 6510020120 6450001690	S.CONNECTOR S.CONNECTOR CONNECTOR	IL-FPR-38S-HF-E3000 AXK6S40545P HSJ1456-01-220
W420 W421 W551 W801	7030003860 7030003860 7030003860 7030003860	S.JUMPER S.JUMPER S.JUMPER S.JUMPER	ERJ3GE JPW V ERJ3GE JPW V ERJ3GE JPW V ERJ3GE JPW V
EP1	0910048035	PCB	B 4900E

[2ND VCO UNIT]

REF NO.	ORDER NO.	DES	CRIPTION
Q601 Q602 Q603 Q604 Q701 Q702 Q703 Q704	159000430 1530002920 1530002920 1530002920 1590000430 1530002920 1530002920 1530002920	S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR	DTC144EU T107 2SC4226-T2 R25 2SC4226-T2 R25 2SC4226-T2 R25 DTC144EU T107 2SC4226-T2 R25 2SC4226-T2 R25 2SC4226-T2 R25
D601 D602 D701 D702	1720000370 1790000620 1720000370 1790000620	S.VARICAP S.DIODE S.VARICAP S.DIODE	HVU350TRF MA77 (TW) HVU350TRF MA77 (TW)
L601 L602 L603 L701 L702 L703	6200004480 6200002360 6200005720 6200004480 6200002360 6200005720	S.COIL S.COIL S.COIL S.COIL S.COIL	MLF1608D R82K-T LQN 1A 33NJ04 ELJRE 33NG-F MLF1608D R82K-T LQN 1A 33NJ04 ELJRE 33NG-F
R601 R602 R603 R604 R605 R606 R608 R611 R701 R702 R703 R704 R705 R706 R708 R710 R711	7030003360 7030003460 7030003540 7030003550 7030003550 7030003720 7030003720 7030003400 7030003460 703000350 703000350 703000350 703000350 7030003720 7030003720 7030003720 7030003720	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 682 V (6.8 kΩ) ERJ3GEYJ 820 V (82 Ω) ERJ3GEYJ 820 V (82 Ω) ERJ3GEYJ 181 V (180 Ω) ERJ3GEYJ 224 V (220 kΩ) ERJ3GEYJ 224 V (220 kΩ) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 152 V (6.8 kΩ) ERJ3GEYJ 820 V (82 Ω) ERJ3GEYJ 820 V (82 Ω) ERJ3GEYJ 820 V (82 Ω) ERJ3GEYJ 181 V (180 Ω) ERJ3GEYJ 181 V (180 Ω) ERJ3GEYJ 224 V (220 kΩ)
C601 C602 C603 C604 C605 C606 C607 C608 C609 C610 C612 C613 C614 C701	4030007040 4030007110 4030009520 4030006860 4030009520 4030009520 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860	S.CERAMIC	C1608 CH 1H 180J-T-A C1608 CH 1H 680J-T-A C1608 CH 1H 020B-T-A C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A C1608 CH 1H 020B-T-A C1608 CH 1H 020B-T-A C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A

[2ND VCO UNIT]

REF NO.	ORDER NO.	DE	SCRIPTION
C702	4030007110	S.CERAMIC	C1608 CH 1H 680J-T-A
C703	4030009520	S.CERAMIC	C1608 CH 1H 020B-T-A
C704	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C705	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C706	4030009520	S.CERAMIC	C1608 CH 1H 020B-T-A
C707	4030009520	S.CERAMIC	C1608 CH 1H 020B-T-A
C708	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C709	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C710	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C712	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C713	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C714	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
J601	6910010830	CONNECTOR	IMSA-9230B-1-08Z014-T
W601 W701	7030003860 7030003860	S.JUMPER S.JUMPER	ERJ3GE JPW V ERJ3GE JPW V
EP1	0910048062	РСВ	B 4903B

[RF UNIT]

REF NO.	ORDER NO.	DES	CRIPTION
IC1 IC2 IC271 IC501	1130007510 1130007510 1110004020 1130008390	S.IC S.IC S.IC S.IC	BU4094BCFV-E1 BU4094BCFV-E1 μPC2757T-E3 HD155001BTEL
Q1 Q2 Q3 Q4 Q5 Q8 Q14 Q51 Q171 Q211 Q231 Q411 Q412 Q421 Q522 Q521 Q522 Q531 Q541 Q542 Q541 Q552 Q543 Q544 Q551 Q552 Q901	1530003280 1590000720 1590001810 1590002010 1590002010 1590002010 1590002010 1590000430 1530002600 1580000690 1580000710 1580000710 1590000720 1590000430 1590000430 1590000430 1590000540 1560000540 1530002920 1560000540 1530003280 1590001170 1590001170 1590001170 1590001170 1590000720 1530002900 1530002900 1530002900	S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.TRANSISTOR S.FET S.FET S.FET S.FET S.TRANSISTOR	2SC4211-6-TL DTA144EU T107 XP1113 (TX) XP1114 (TX) XP1114 (TX) XP1114 (TX) DTC144EU T107 2SC4215-O (TE85R) 3SK291 (TE85R) 3SK291 (TE85R) 3SK274 (TE85R) 3SK274 (TE85R) DTA144EU T107 DTC144EU T107 DTC144EU T107 DTC144EU T107 DTC144EU T107 CSC4226-T2 R25 2SK80-Y (TE85R) 2SC4211-6-TL XP1501-(TX).AB XP1113 (TX) DTA144EU T107 2SA1622-6-TL 2SC4228-T2 R45 2SC4228-T2 R45 2SC4211-6-TL
D1 D2 D51 D52 D53 D61 D81 D82 D101 D102 D121 D122 D151 D152 D153	1720000240 1790000620 1750000530 1790000620 1790000620 1790000620 1790000620 1790000620 1790000620 1790000620 1790000620 1790000620 1750000530 1720000660	S.DIODE S.VARICAP	1SV172 (TE85R) MA77(TW) 1SV271 (TPH3) MA77(TW) SV271 (TPH3) 1SV288 (TPH2) 1SV288 (TPH2)

[RF UNIT]

REF **ORDER** DESCRIPTION NO. NO. 1SV271 (TPH3) D154 1750000530 S.DIODE D171 1750000530 S.DIODE 1SV271 (TPH3) S.VARICAP 1SV286 (TPH3) 1720000650 D172 S.VARICAP 1SV286 (TPH3) 1720000650 D173 1SV271 (TPH3) S.DIODE D174 1750000530 1SV271 (TPH3) D211 1750000530 S.DIODE 1SV245 (TPH3) 1720000400 SVARICAP D213 S.VARICAP 1SV245 (TPH3) 1720000400 D214 MA77 (TW) D216 1790000620 S.DIODE MA77 (TW) 1790000620 S.DIODE D231 MA77 (TW) D236 1790000620 SDIODE S.VARICAP 1SV239 (TPH3) 1720000470 D238 1750000530 S.DIODE 1SV271 (TPH3) D253 MA77 (TW) 1790000620 S.DIODE D401 S.DIODE MA77 (TW) D402 1790000620 MA77 (TW) S.DIODE D411 1790000620 S.DIODE MA77 (TW) D412 1790000620 1720000360 S.DIODE HSU88TRF D541 S.DIODE SB07-03C-TB D901 1790000670 EFCH266MKQP1 FI401 2040001200 S.SAW 2040001190 S.SAW EFCH429MKQP1 FI411 X501 6050009940 S.XTAL CR-555 (10.24500 MHz) MLF1608D R10K-T 151 6200004720 S.COIL 6200004470 MLF1608D R12K-T S.COIL L52 NL 252018T-101J 6200002040 S.COIL L54 MLF1608A 3R9K-T 155 6200006970 S.COIL MLF1608A 4R7K-T 6200003550 S.COIL L56 MLF1608D R27K-T 6200004940 S.COIL L61 MLF1608D R33K-T 6200005140 S.COIL 1.62 MLF1608A 4R7K-T 1.81 6200003550 S.COIL MLF1608A 3R9K-T 6200006970 S.COIL L82 MLF1608A 3R9K-T 6200006970 S.COIL 1.83 MLF1608D R47K-T 6200004790 S.COIL 191 MLF1608D R68K-T 6200003630 192 S.COIL MLF1608D R56K-T 6200005190 S COIL 1101 6200004790 MLF1608D R47K-T S.COIL L102 MLF1608D R47K-T 6200004790 L103 S.COIL MLF1608D R22K-T L122 6200003540 S COIL MLF1608D R27K-T 6200004940 L123 S.COIL ELJND 39NJ 6200007110 S.COIL L151 ELJND 39NJ 6200007110 L152 S.COIL ELJND 1R0J 1U L153 6200007120 S.COIL ELJND 39NJ 6200007110 L154 S.COIL ELJND 39NJ 6200007110 L155 S.COIL ELJND 27NKF 6200007050 L156 S.COIL ELJND 10NKF 6200007210 L171 S.COIL ELJND 8N2NKF 6200007100 S.COIL L172 ELJND 10NKF 6200007210 S.COIL 1174 ELJND 8N2NKF 6200007100 S.COIL 1175 ELJRE 4N7Z-F 6200005620 S.COIL L176 ELJRE 4N7Z-F L177 6200005620 S.COIL 6200004720 S.COIL MLF1608D R10K-T L211 L212 S.COIL ELJRE 6N8Z-F 6200005640 L213 6200005640 S.COIL ELJRE 6N8Z-F L214 6200005640 S.COIL ELJRE 6N8Z-F L215 6200007130 S.COIL ELJND R15J 0.15U ELJRE 6N8Z-F L216 6200005640 S.COIL ELJRE 6N8Z-F L217 6200005640 S.COIL L218 6200005640 S.COIL ELJRE 6N8Z-F 6200004720 S.COIL MLF1608D R10K-T L219 S.COIL ELJRE 12NG-F 6200005670 1232 ELJRE 8N2Z-F 6200005650 S.COIL L233 S.COIL ELJRE 18NG-F 1234 6200005690 ELJRE 2N7Z-F 6200005590 S.COIL L235 MLF1608D R10K-T 6200004720 S.COIL L239 ELJRE 2N7Z-F L240 6200005590 S.COIL S.COIL MLF1608D R15K-T 1252 6200004600 MLF1608D R15K-T 1.253 6200004600 S.COIL 6200003550 S.COIL MLF1608A 4R7K-T L401 L402 6200005700 S.COIL ELJRE 22NG-F L403 6200005730 S.COIL ELJRE 39NG-F L404 6200005740 S.COIL ELJRE 47NG-F MLF1608A 4R7K-T L411 6200003550 S.COIL 6200005640 S.COIL ELJRE 6N8Z-F L412 6200005680 ELJRE 15NG-F L413 S.COIL L415 6200005700 S.COIL ELJRE 22NG-F

[RF UNIT]

REF NO. DESCRIPTION	RF UNIT]					
L541 6200004600 S.COIL MLF1608A 4R7K-T C.142 620004600 S.COIL MLF1608D R15K-T C.142 C.142 C.142 C.142 C.144			DE	SCRIPTION		
L541 6200004600 S.COIL MLF1608D R15K-T	l					
R2						
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R251 7030003440 S.RESISTOR ERJ3GEYJ 102 V (1 kΩ) R259 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R277 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R279 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R411 7030003680 S.RESISTOR ERJ3GEYJ 104 V (100 kΩ) R412 7030003640 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R421 7030003640 S.RESISTOR ERJ3GEYJ 473 V (47 kΩ) R422 703000360 S.RESISTOR ERJ3GEYJ 473 V (47 kΩ) R423 703000360 S.RESISTOR ERJ3GEYJ 473 V (47 kΩ) R501 7030003400 S.RESISTOR ERJ3GEYJ 221 V (220 Ω) R503 7030003520 S.RESISTOR ERJ3GEYJ 471 V (470 Ω) R504 7030003520 S.RESISTOR ERJ3GEYJ 471 V (470 Ω) R505 7030003520 S.RESISTOR ERJ3GEYJ 102 V (4.7 kΩ) R506 7030003520 S.RESISTOR ERJ3GEYJ 103 V (10 kΩ) R521 7030003440 S.RESISTOR ERJ3GEYJ 102 V (1 kΩ) </td <td></td> <td></td> <td></td> <td></td>						
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R542 7030003240 S.RESISTOR ERJ3GEYJ 220 V (22 Ω) R545 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R551 7030003220 S.RESISTOR ERJ3GEYJ 150 V (15 Ω) R552 7030003380 S.RESISTOR ERJ3GEYJ 331 V (330 Ω) R553 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	R535	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)		
R545 7030003520 S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ) R551 7030003220 S.RESISTOR ERJ3GEYJ 150 V (15 Ω) R552 7030003380 S.RESISTOR ERJ3GEYJ 331 V (330 Ω) R553 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω)		ł i				
R551 7030003220 S.RESISTOR ERJ3GEYJ 150 V (15 Ω) R552 7030003380 S.RESISTOR ERJ3GEYJ 331 V (330 Ω) R553 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω)						
R553 7030003400 S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	R551	7030003220				
		1				

[RF UNIT]

[RF UNIT]

[RF U	RF UNIT]							
REF NO.	ORDER NO.	D	ESCRIPTION		REF NO.	ORDER NO.		DESCRIPTION
R556	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)	1 [C162	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
R557	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)		C171	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
R559	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)		C172	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
R901	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)		C173	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
R902	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	ll	C174	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
R903	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)	ll	C175	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
R904	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)	li	C176	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
11304	7 00000000	0.1120101011	2.10002.000.1 (000.1)	ll	C178	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
	•				C180	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C2	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C181	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C4	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C182	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C6	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C183	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C8	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N	1	C184	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C11	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A	ll	C211	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C12	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		C213	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C13	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A	1 1	C214	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C14	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A	1 1	C215	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C15	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A		C216	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C16	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A		C217	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C17	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A		C218	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C18	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A		C219	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C19	4030007050	S.CERAMIC	C1608 JB 1H 102K-T-A		C221	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C25	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A	1 1	C222	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C25	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A		C223	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C27	4030007090	S.CERAMIC	C1608 JB 1H 102K-T-A		C224	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C28	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C225	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C35	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C226	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C36	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A	ll	C231	4030009920	S.CERAMIC	C1608 CH 1H 050B-T-A
C37	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C232	4030007020	S.CERAMIC	C1608 CH 1H 120J-T-A
C51	4030007060	S.CERAMIC	C1608 CH 1H 270J-T-A		C234	4030009910	S.CERAMIC	C1608 CH 1H 040B-T-A
C52	4030007040	S.CERAMIC	C1608 CH 1H 180J-T-A		C235	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
	4030007040	S.CERAMIC	C1608 CH 1H 560J-T-A	1 1	C236	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C53 C54	4030007100	S.CERAMIC	C1608 CH 1H 060D-T-A		C237	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C55	4030000970	S.CERAMIC	C1608 CH 1H 390J-T-A	1	C238	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
	4030007080	S.CERAMIC	C1608 JB 1C 104KT-N		C242	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C56 C57	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C243	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C58	40300011000	S.CERAMIC	C1608 JB 1H 102K-T-A		C244	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C59	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C245	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C60	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C246	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C61	4030007120	S.CERAMIC	C1608 CH 1H 820J-T-A		C247	4030009530	S.CERAMIC	C1608 CH 1H 030B-T-A
C62	4030007120	S.CERAMIC	C1608 CH 1H 330J-T-A		C248	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C63	4030007070	S.CERAMIC	C1608 CH 1H 151J-T-A	li	C249	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C64	4030007100	S.CERAMIC	C1608 CH 1H 120J-T-A	1 1	C251	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C65	4030007130	S.CERAMIC	C1608 CH 1H 101J-T-A		C256	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C71	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A		C257	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C72	4030007160	S.CERAMIC	C1608 CH 1H 181J-T-A		C271	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C73	4030009980	S.CERAMIC	C1608 JB 1H 152K-T-A	i i	C275	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C81	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A		C276	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C82	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		C277	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C83	4030009980	S.CERAMIC	C1608 JB 1H 152K-T-A	1	C401	4030009910	S.CERAMIC	C1608 CH 1H 040B-T-A
C84	4030008860	S.CERAMIC	C1608 JB 1C 153K-T-A	l	C402	4030009910	S.CERAMIC	C1608 CH 1H 040B-T-A
C85	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A	1	C403	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C86	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N	l l	C404	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C91	4030007150	S.CERAMIC	C1608 CH 1H 151J-T-A	l l	C405	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A
C92	4030007120	S.CERAMIC	C1608 CH 1H 820J-T-A	l l	C411	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C93	4030010760	S.CERAMIC	C1608 CH 1H 331J-T-A	Ιl	C412	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C94	4030007060	S.CERAMIC	C1608 CH 1H 270J-T-A	Ιİ	C413	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C95	4030007160	S.CERAMIC	C1608 CH 1H 181J-T-A	l İ	C414	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C101	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A		C415	4030009520	S.CERAMIC	C1608 CH 1H 020B-T-A
C102	4030009980	S.CERAMIC	C1608 JB 1H 152K-T-A		C421	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C103	4030007160	S.CERAMIC	C1608 CH 1H 181J-T-A		C422	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C104	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		C423	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C105	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C424	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C106	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N		C425	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C121	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A		C501	4610001890	S.TRIMMER	CTZ3E-20C-W1
C122	4030009980	S.CERAMIC	C1608 JB 1H 152K-T-A	ΙÌ	C502	4030007040	S.CERAMIC	C1608 CH 1H 180J-T-A
C123	4030007110	S.CERAMIC	C1608 CH 1H 680J-T-A]	C503	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C124	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A	1	C504	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A ECST0JY475R
C125	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A	1 1	C505	4550006320	S.TANTALUM	
C126	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A]	C506	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1E 103K-T-A
C127	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		C508	4030006900	S.CERAMIC	C1608 JB 1H 102K-T-A
C151	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C509	4030006860	S.CERAMIC S.CERAMIC	C1606 JB 1H 102K-T-A
C152	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C510	4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1C 104KT-N
C153	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A	IJ	C521	4030011600 4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C154	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C522 C523	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C155	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C523	4550006820	S.TANTALUM	
C156	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A	Ιİ	C525	4550006450.	S.TANTALUM	
C157	4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A		C526	4550006450	S.TANTALUM	
C158	4030006860 4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A		C527	4550006810	S.TANTALUM	
C159 C160	4030006860	S.CERAMIC S.CERAMIC	C1608 JB 1H 102K-T-A		C528	4550006680	S.TANTALUM	
C160	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		C529	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
<u> </u>	.555555555	1		J			L	
								S.=Surface mount

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[RF UNIT]					
REF NO.	ORDER NO.	DES	SCRIPTION		
C531	4030009530	S.CERAMIC	C1608 CH 1H 030B-T-A		
C532	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C533	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A		
C541	4550006200	S.TANTALUM	ECST0JY106R		
C544	4550006200	S.TANTALUM	ECST0JY106R		
C545	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C546	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C551	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C552	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C553	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C554	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C555	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C556	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C557	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C901	4550006360	S.TANTALUM	ECST1VY104R		
C902	4550006680	S.TANTALUM	ECST0JY156R		
C904	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C905	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C906	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C907	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C908	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C909	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C910	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C911	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C912	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
C913	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A		
S11	7600000160	ENCODER	TP90N00E2014F		
"''	7000000100	2.1005211			
J3	6450001690	CONNECTOR	HSJ1456-01-220		
J4	6450000870	CONNECTOR	HEC2711-01-020		
J11	6510019870	S.CONNECTOR	AXK5S40045P		
"	0070070070	0.0012010			
W50	7030003860	S.JUMPER	ERJ3GE JPW V		
W241	7030003860	S.JUMPER	ERJ3GE JPW V		
W242	7030003860	S.JUMPER	ERJ3GE JPW V		
W270	7030003860	S.JUMPER	ERJ3GE JPW V		
W421	7030003860	S.JUMPER	ERJ3GE JPW V		
W541	7030003860	S.JUMPER	ERJ3GE JPW V		
W901	7030003860	S.JUMPER	ERJ3GE JPW V		
			B 4000		
EP1	0910048027	PCB	B 4899G		

[1ST VCO UNIT]

REF NO.	ORDER NO.	DESCRIPTION		
Q601	1530002900	S.TRANSISTOR	2SC4228-T2 R45	
Q621	1530002900	S.TRANSISTOR	2SC4228-T2 R45	
Q622	1530002900	S.TRANSISTOR	2SC4228-T2 R45	
Q623	1590000430	S.TRANSISTOR	DTC144EU T107	
Q641	1530002920	S.TRANSISTOR	2SC4226-T2 R25	
Q661	1530002900	S.TRANSISTOR	2SC4228-T2 R45	
D621	1720000500	S.VARICAP	1SV230(TPH3)	
D622	1790000620	S.DIODE	MA77(TW)	
D641	1720000400	S.VARICAP	1SV245 (TPH3)	
D661	1720000400	S.VARICAP	1SV245 (TPH3)	
D662	1720000400	S.VARICAP	1SV245 (TPH3)	
L601 L621 L622 L641 L642 L661 L662	6200005650 6200007190 6200007190 6200005100 6200004480 6200007180 6200004480	S.COIL S.COIL S.COIL S.COIL S.COIL S.COIL	ELJRE 8N2Z-F NLU201205T-3N3C NLU201205T-3N3C NLU201205T-18NG 18N MLF1608D R82K-T NLU201205T-22NG MLF1608D R82K-T	
R601	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)	
R602	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)	
R603	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)	

[1ST VCO UNIT]

[1ST V	CO UNIT]		
REF NO.	ORDER NO.	DE	SCRIPTION
R621 R622 R623 R624 R625 R626 R627 R641 R642 R643 R644 R645 R661 R662 R663 R664 R665 R666 R667	NO. 7030003540 7030003280 7030003540 7030003340 7030003460 7030003460 7030003460 703000350 703000350 703000350 703000350 703000350 703000350 703000350 703000350 7030003460 703000350 703000350 7030003460 703000350 703000350 703000350 703000350 703000350	S.RESISTOR S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ) ERJ3GEYJ 682 V (6.8 kΩ) ERJ3GEYJ 470 V (47 Ω) ERJ3GEYJ 101 V (100 Ω) ERJ3GEYJ 101 V (100 kΩ) ERJ3GEYJ 102 V (1.5 kΩ) ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 470 V (47 Ω) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 822 V (8.2 kΩ) ERJ3GEYJ 220 V (22 Ω) ERJ3GEYJ 472 V (4.7 kΩ) ERJ3GEYJ 470 V (47 Ω) ERJ3GEYJ 470 V (47 Ω) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 221 V (4.7 kΩ) ERJ3GEYJ 221 V (220 Ω) ERJ3GEYJ 322 V (8.2 kΩ) ERJ3GEYJ 472 V (4.7 kΩ) ERJ3GEYJ 472 V (4.7 kΩ) ERJ3GEYJ 472 V (4.7 kΩ) ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 152 V (1.5 kΩ) ERJ3GEYJ 152 V (1.5 kΩ)
C601 C602 C603 C621 C622 C623 C624 C625 C626 C627 C628 C629 C644 C645 C646 C647 C648 C649 C650 C651 C666 C667 C668 C669 C670 C671	4030009910 4030006860 4030006860 4030006860 4030006860 4030006860 4030009540 4030009510 4030006860 4030006860 4030006970 4030006970 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860 4030006860	S.CERAMIC S.CERAMIC	C1608 CH 1H 040B-T-A C1608 JB 1H 102K-T-A C1608 CH 1H 1R5B-T-A C1608 CH 1H 010B-T-A C1608 JB 1C 104KT-N C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A C1608 CH 1H 060D-T-A C1608 CH 1H 060D-T-A C1608 CH 1H 010B-T-A C1608 CH 1H 010B-T-A C1608 JB 1H 102K-T-A ECST0JY475R C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A C1608 JB 1H 102K-T-A C1608 CH 1H 020B-T-A C1608 CH 1H 020B-T-A C1608 CH 1H 020B-T-A C1608 CH 1H 020B-T-A C1608 JB 1H 102K-T-A
J601	6910010830	CONNECTOR	IMSA-9230B-1-08Z014-T
W641	7030003860	S.JUMPER	ERJ3GE JPW V
EP1	0910048055	РСВ	B 4902E
	<u> </u>		S.=Surface mount

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

7-1 CABINET PARTS

[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY
J 1	6510020210	BNC-R146	1
MP2	8210014041	1891 REAR PANEL-1	1
мР3	8110005950	1891 COVER	1
MP5	8930041470	1891 SP CAP	1
MP6	8930019790	891 Terminal rubber	4
MP7	8930026530	1349 A-TERMINAL	2
MP8	8930038010	1775 A-TERMINAL	1
MP9	8610009830	Knob N225(A)	1
MP10	8610010511	Knob N226(A)-1	1
MP11	8930041700	1891 A-terminal	1
MP12	8930041710	1891 B-terminal	1
MP13	8930041450	1891 FUNC button	1
MP14	8930041730	1891 FUNC Plate	1
MP15	8930042950	1891 Plate	1
MP18	8610010280	Knob N254	1
MP20	8830000570	Nut (A) FX643	2
MP21	8810008640	Screw FH B0 M2 x 4 NI-ZU (BT)	7
MP22	8810009560	Scerw FH M2 x 6 ZK (BT)	1
MP23	8810009220	Screw FH B0 M2 x 8 ZK (BT)	5
MP24	8810005700	Screw FH B0 M2 x 4 ZK	1
MP28	8830001270	Nut BNC-R146	1
MP29	8930043350	Rubber sheet (AH)	1
MP30	8930045090	Sponge (FK)	1

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION		
W 1	8900007370	Cable OPC-720	1	
DS1	5030001490	LCD EDMCU06F00	1	
SP1	2510000960	Speaker K036NA500-26	1	
MP1	8930041480	1891 10-Key	1	
MP2	8210014050	1891 Reflector	1	
MP3	8930042180	1891 Sheet	1	
MP4	8930042640	Isolating Sheet EV	1	
MP5	8510011090	1891 Coil case	1	
MP6	8210014031	1891 Front panel-1 R10	1	
MP7	8930041460	1891 Jack cap	1	
MP10	8810008640	Screw FH B0 M2 x 4 NI-ZU (BT)	4	
MP11	8310039170	1891 Window plate	1	
MP14	8860001070	1891 LOGIC rug	1	

[1ST VCO UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
MP1	8510010860	1891 VCO case	1
MP2	8930042920	Isolating sheet EW	1

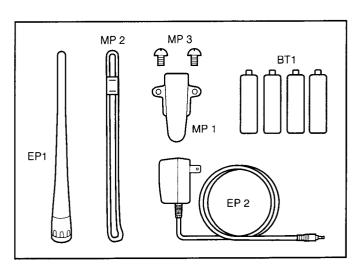
[2ND VCO UNIT]

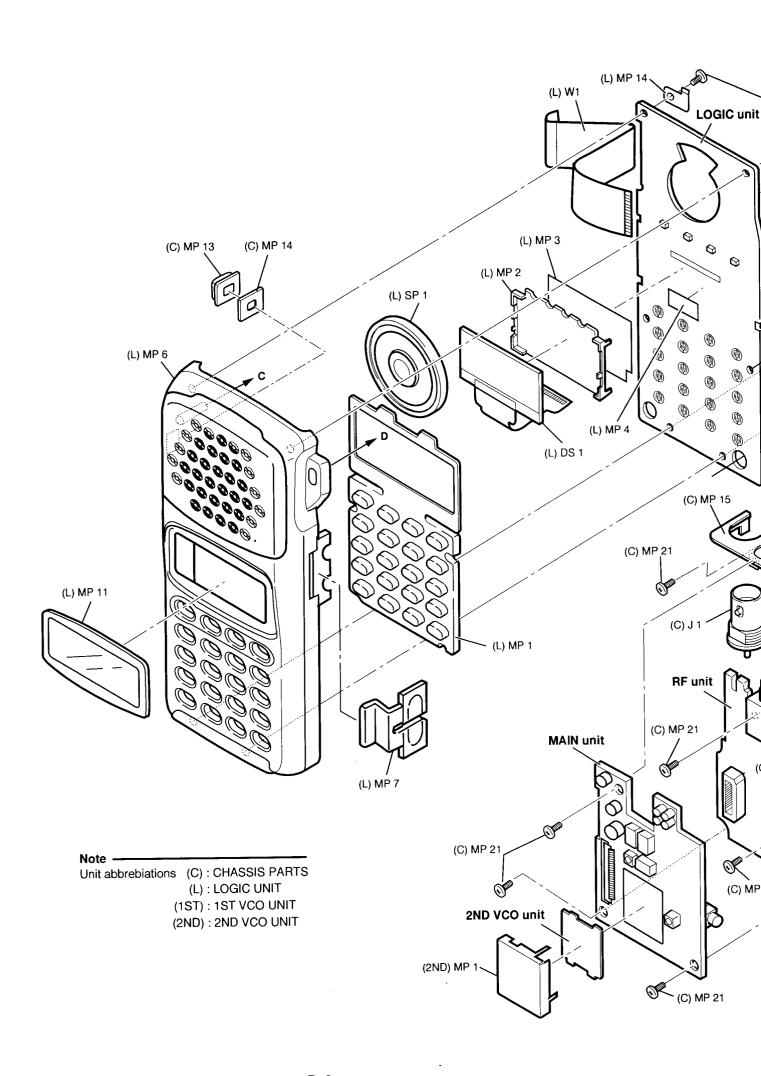
REF. NO.	ORDER NO.	DESCRIPTION	
MP1	8510010860	1891 VCO case	1

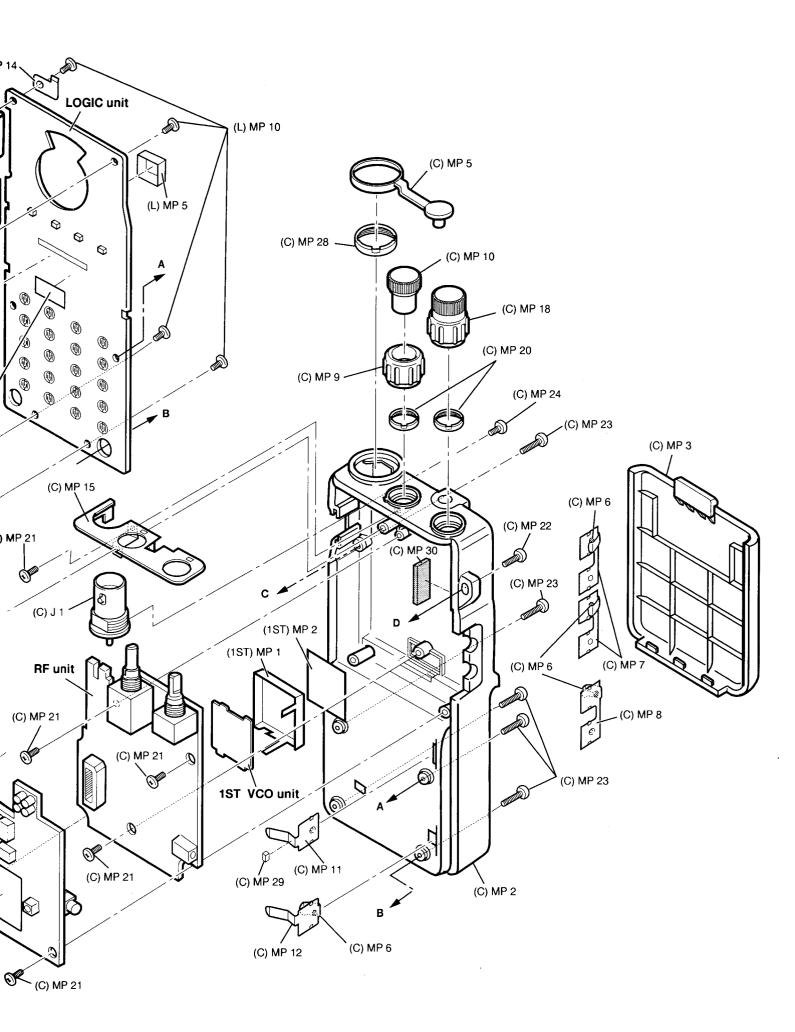
Screw abbreviations: FH: Flat head B0: self-tapping NI: Nickel ZK: Black

7-2 ACCESSORIES

QTY.	DESCRIPTION	REF. ORDER NO. NO.	
4	Battery NICD CEL KR0.7AAUR SAFT	BT 1 3030000420	BT 1
1	Antenna FA-B01RE	EP 1 Optional product	EP1
1	Charger BC-110A [USA]	EP2 Optional product	EP2
1	Charger BC-110D [EUR, FRA]	Optional product	
1	1757 Belt clip	MP1 8930039290	MP1
1	Strap belt HK-005	MP2 8010011960	MP2
2	Screw M3 X 4 SUS ZK	MP3 8810009270	мР3







SECTION 8 SEMICONDUCTOR INFORMATION

8-1 TRANSISTORS

NAME	SYMBOL	INSIDE VIEW
2SA1622-6	M6	C C C C C C C C C C C C C C C C C C C
2SB1132 - R	BAR	C B C E
2SB1201 - S	2M	C B E
2SC4211-6 2SC4215-O 2SC4226-R25 2SC4228(M)-R45 2SC5065-O 2SD1664-Q	L6 QO R25 R45 MAO DAQ	C B B E
2SK1069-4 2SK880-Y	FJ XY	G S D
3SK274 3SK291	UN UF	G2 G1
DTA144EU	16	C S B E

NAME	SYMBOL	INSIDE VIEW
DTC144EU	26	C
UN9110 UN911F	6L 6O	COLUMB
UN9210	8L	C B E
XP1113 XP1114	7L 7Q	C C B E B
XP1501 - AB	5R	C1 C2

8-2 DIDOES

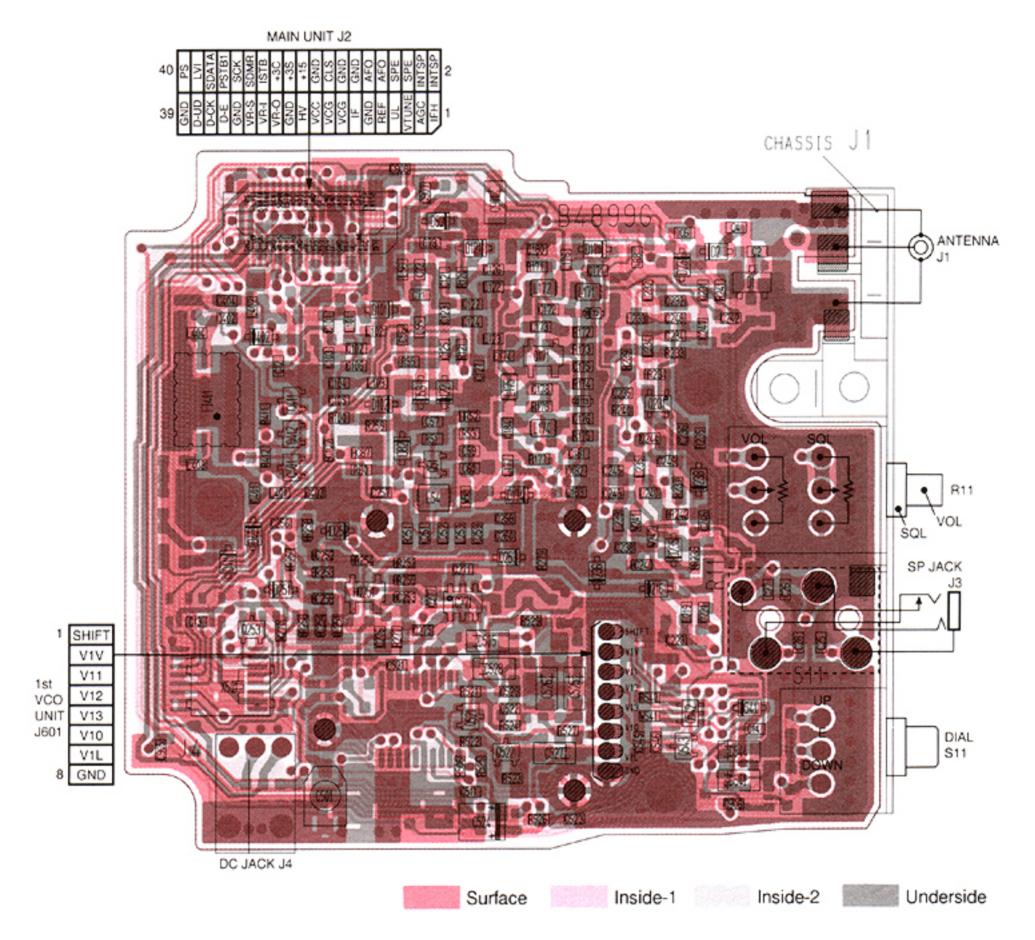
NAME	SYMBOL	INSIDE VIEW
DA112	AZ	A L K
DA113W	AY	A K
DA204U DA221	K K	A K
DAP202U	Р	A K1 K2
DAP222	Р	K A1 A2
HVU350TRF ISV245 ISV286 ISV288	4 T3 T7 TJ	A □□□□K →►II⊦
HSU88TRF MA111 MA728	9 1B 2A	A □

NAME	SYMBOL	INSIDE VIEW
MA6S121	M2D	K3 K2 K1
MA304	7R	pink A □□□□□K →H-
MA6S121	M2D	K3 K2 K1 A3 A2 A1
MA77	4B	A □ □ □ K → I
MA8051-M	5-1	A □ □ K - → 1
MA77	4B	A □
SB07-03C-TB	J	K

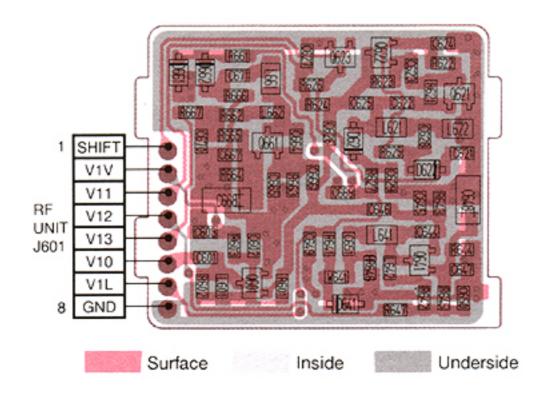
SECTION 9 BOARD LAYOUTS

RF UNIT (TOP VIEW)

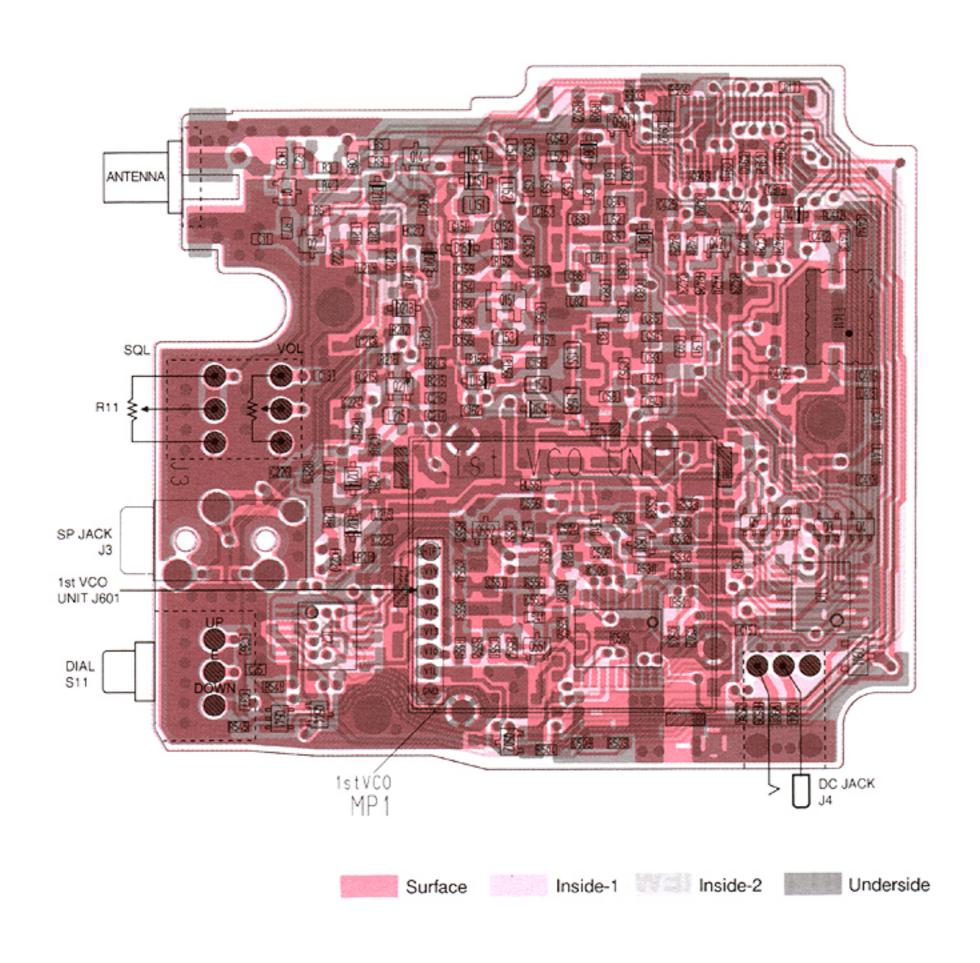
The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.



1ST VCO UNIT (TOP VIEW)

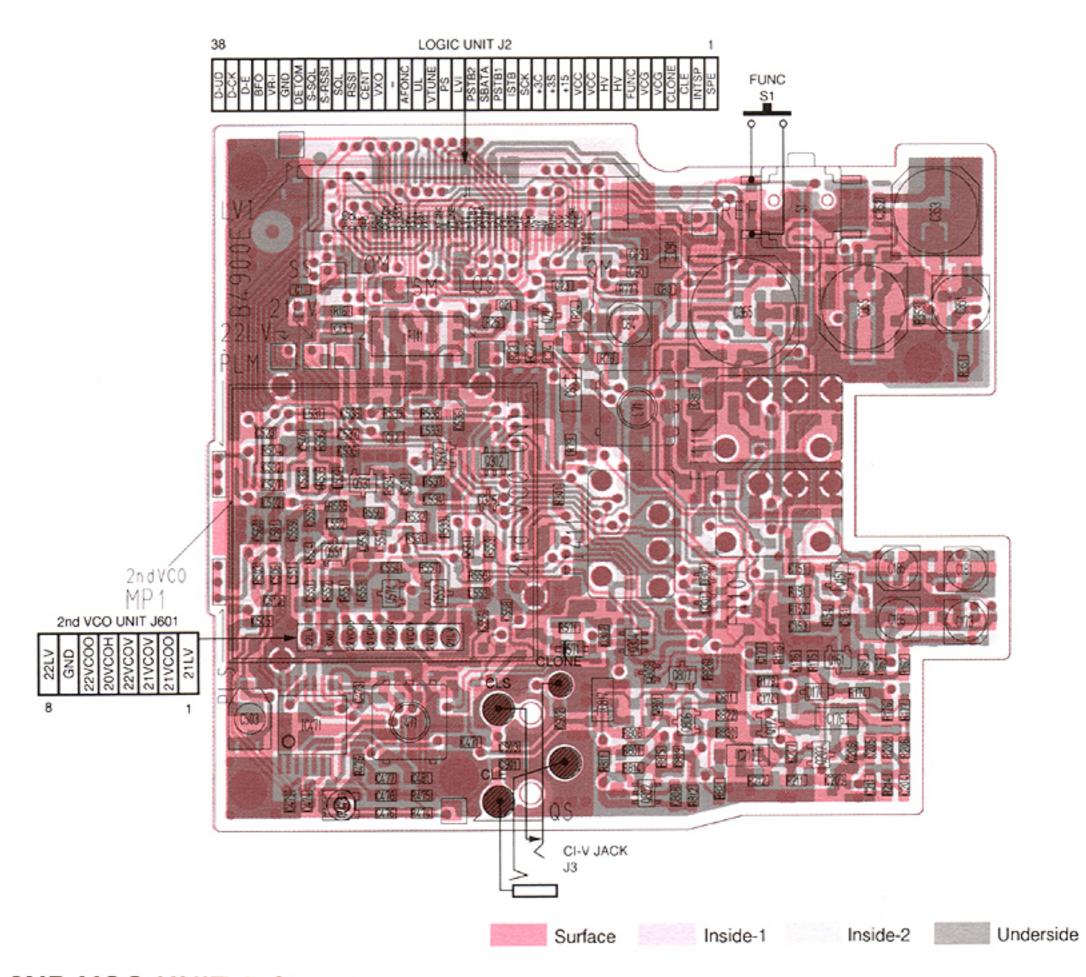


RF UNIT (BOTTOM VIEW)

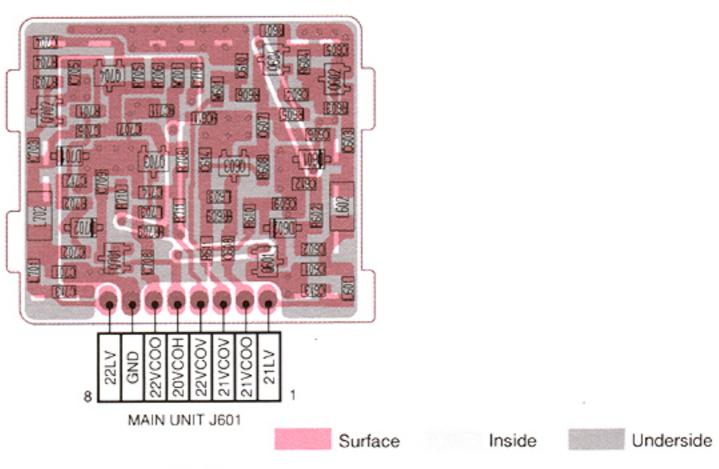


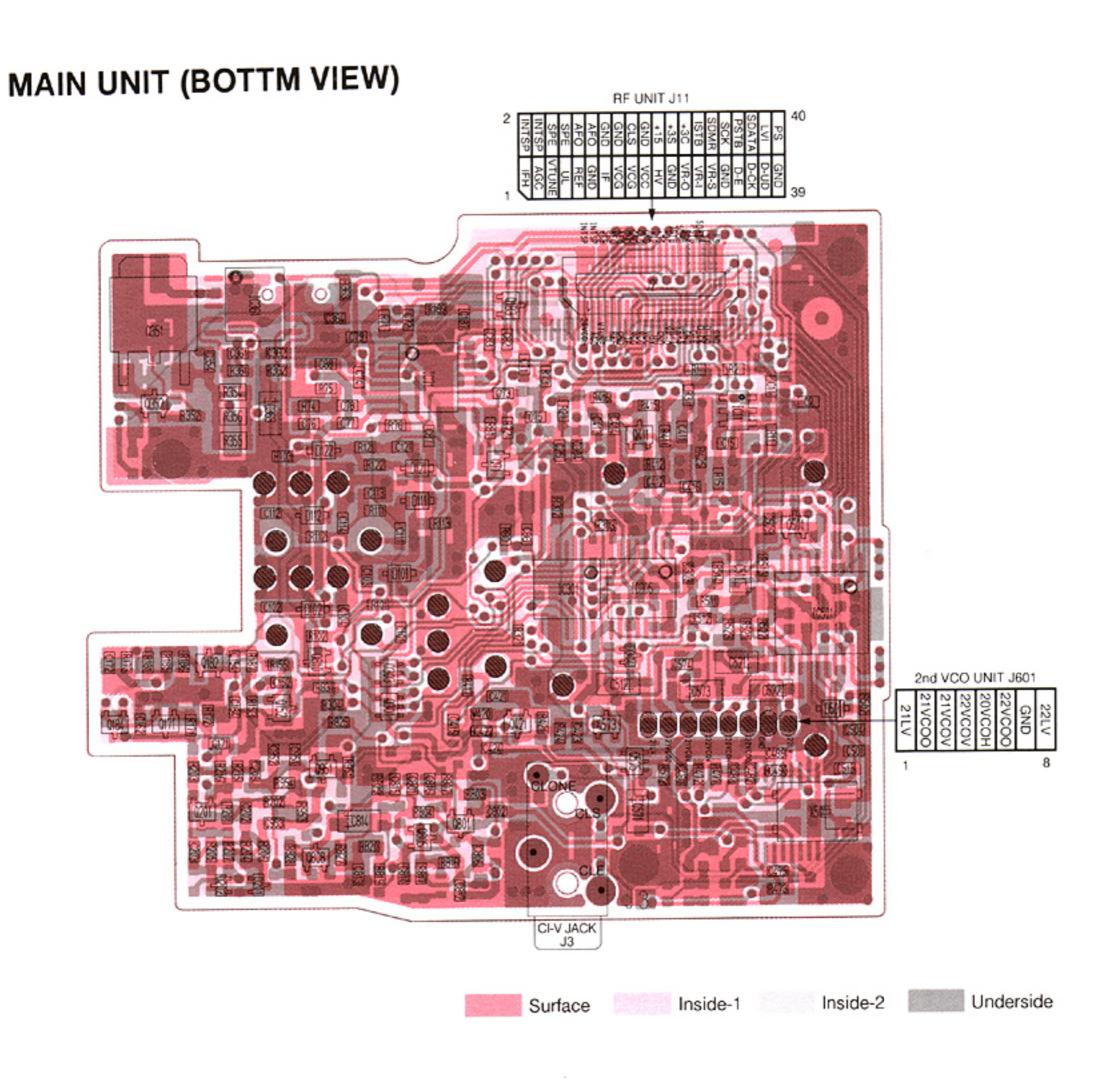
MAIN UNIT (TOP VIEW)

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

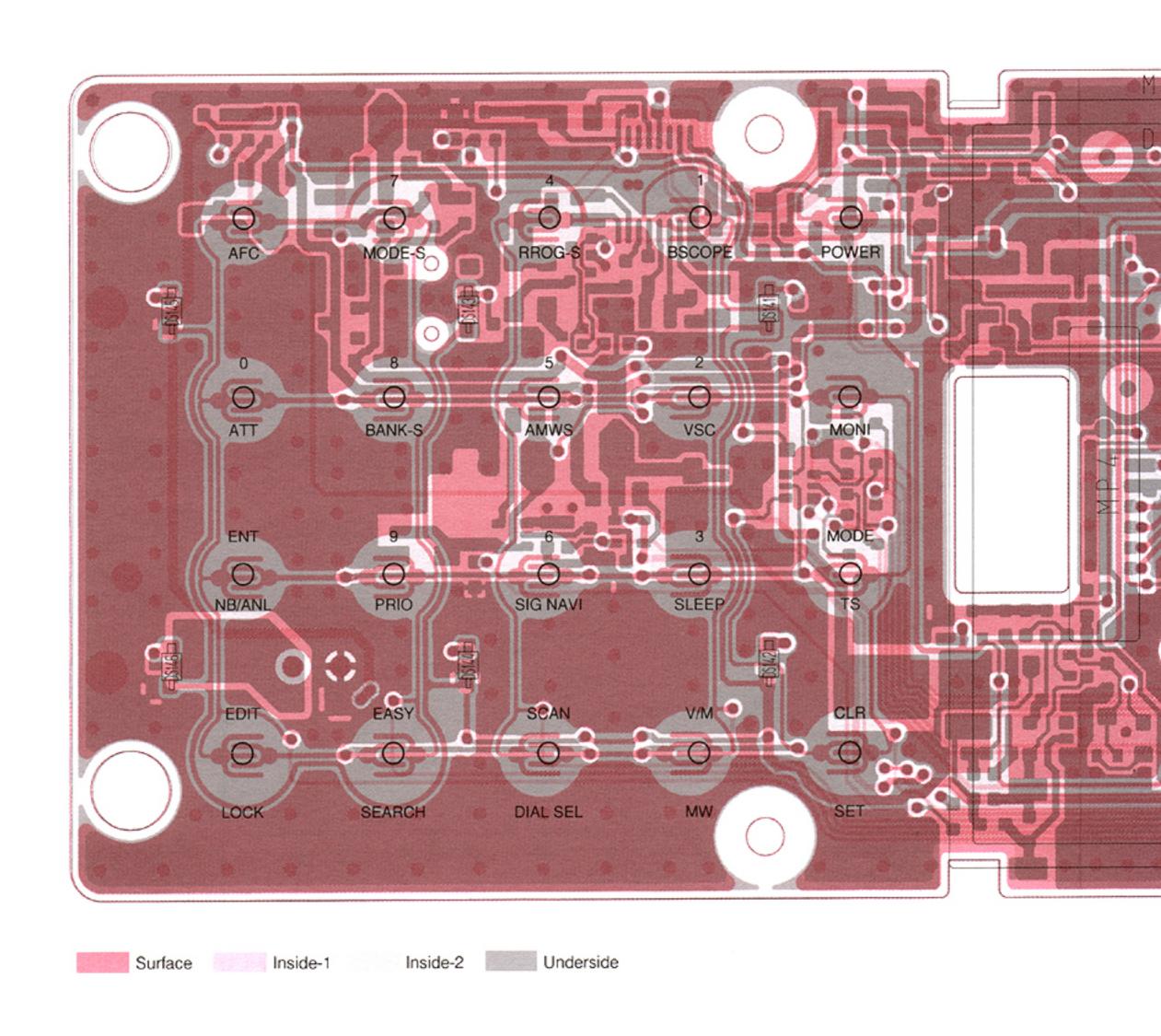


2ND VCO UNIT (TOP VIEW)

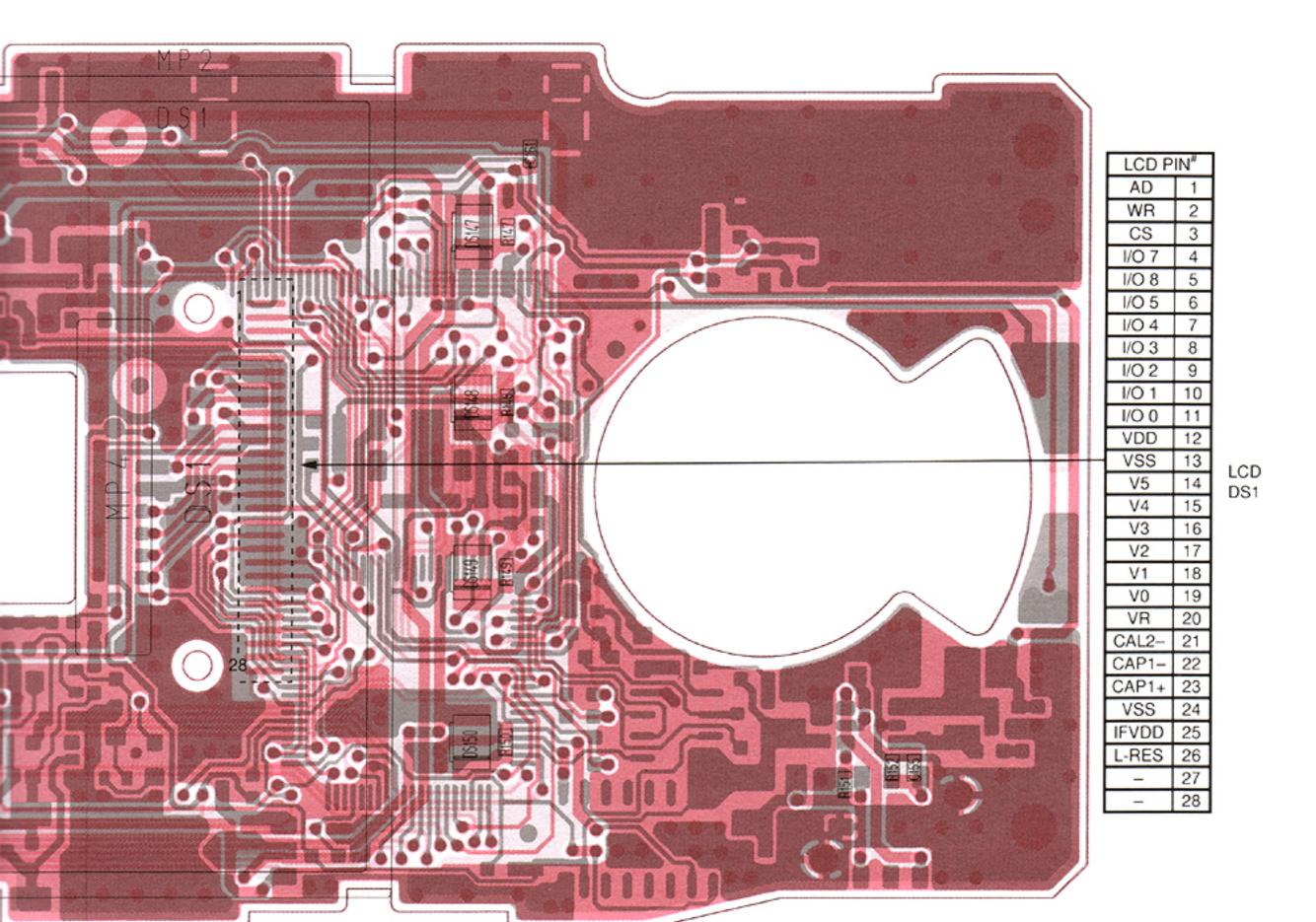




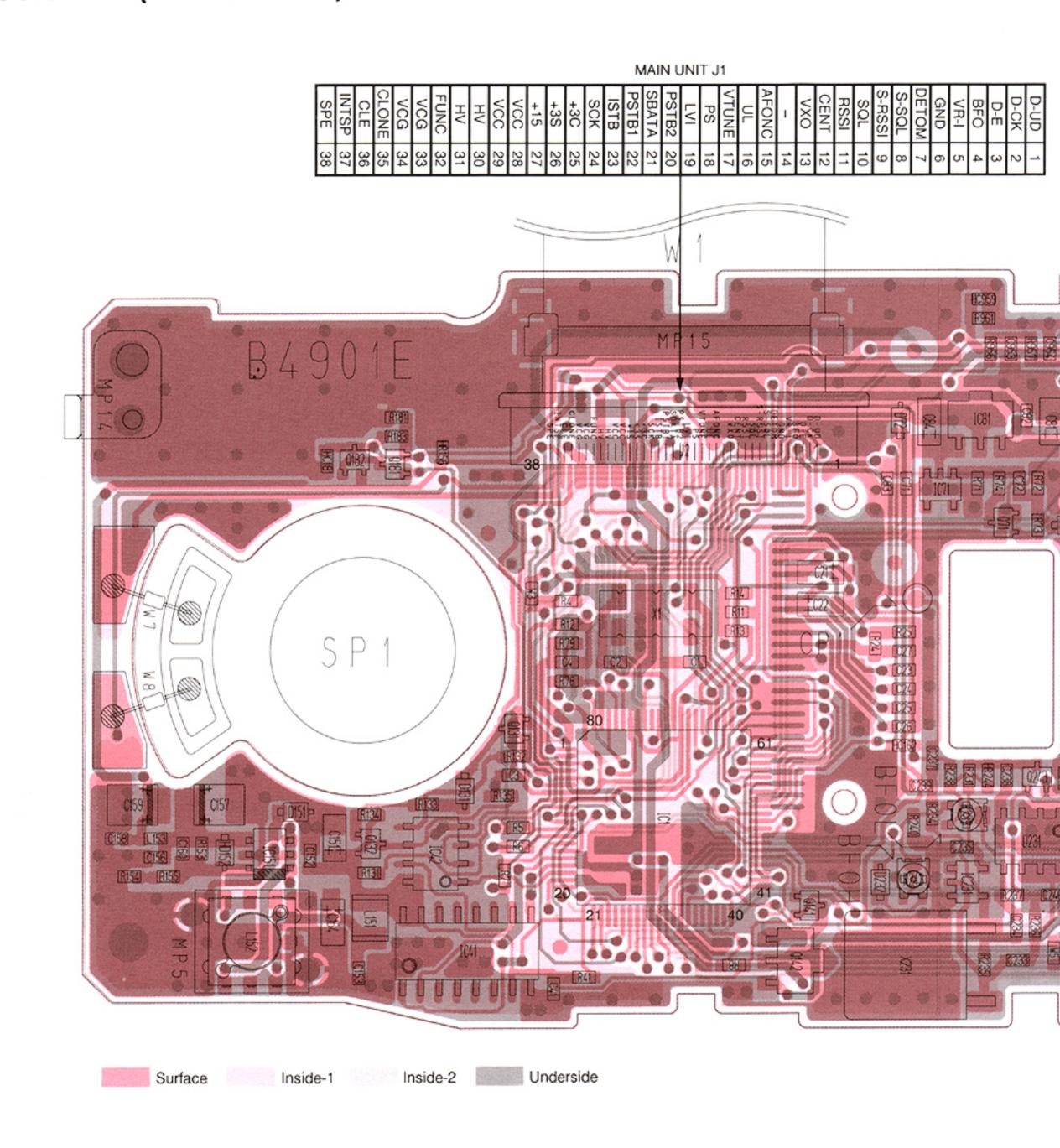
LOGIC UNIT (TOP VIEW)



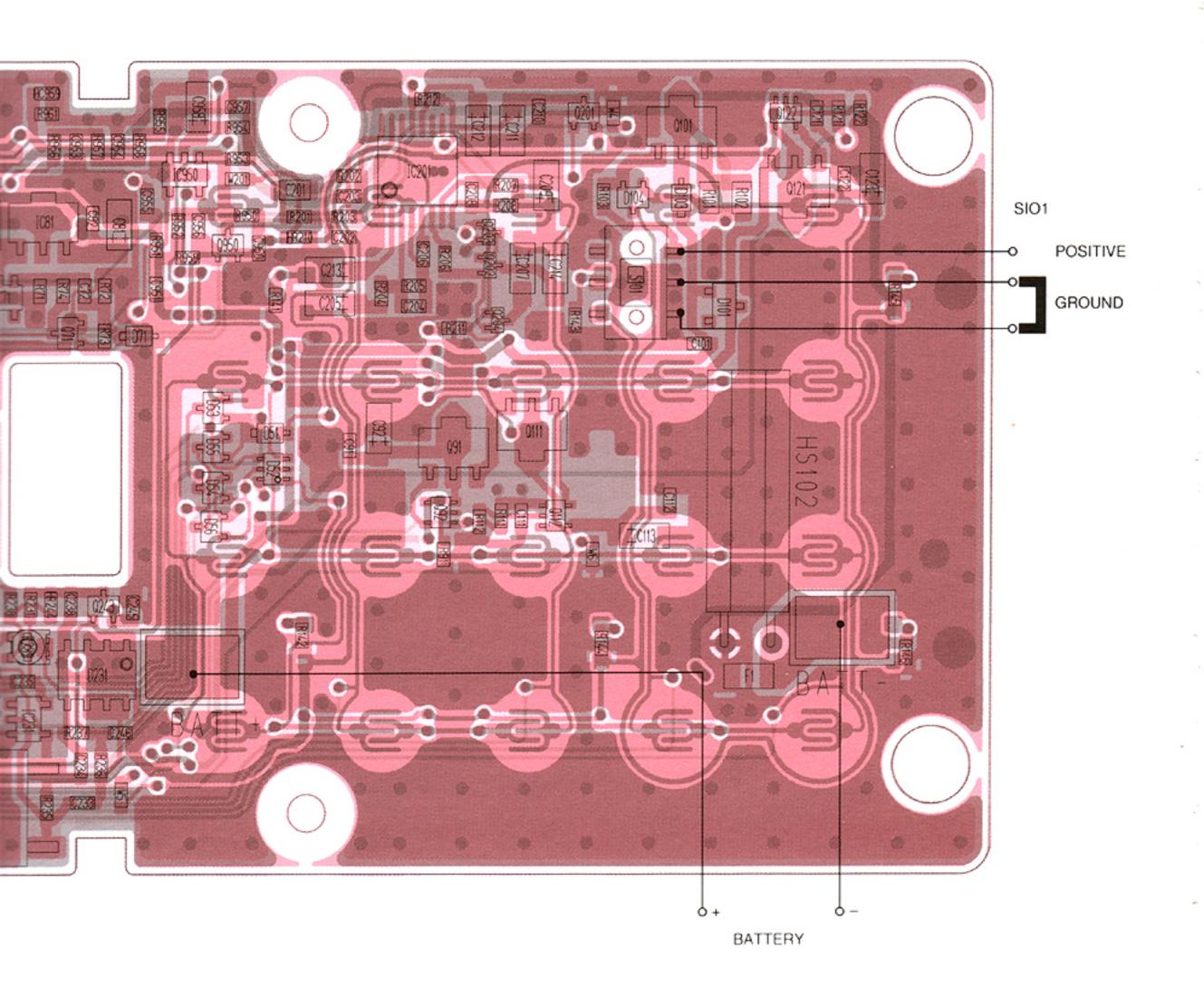
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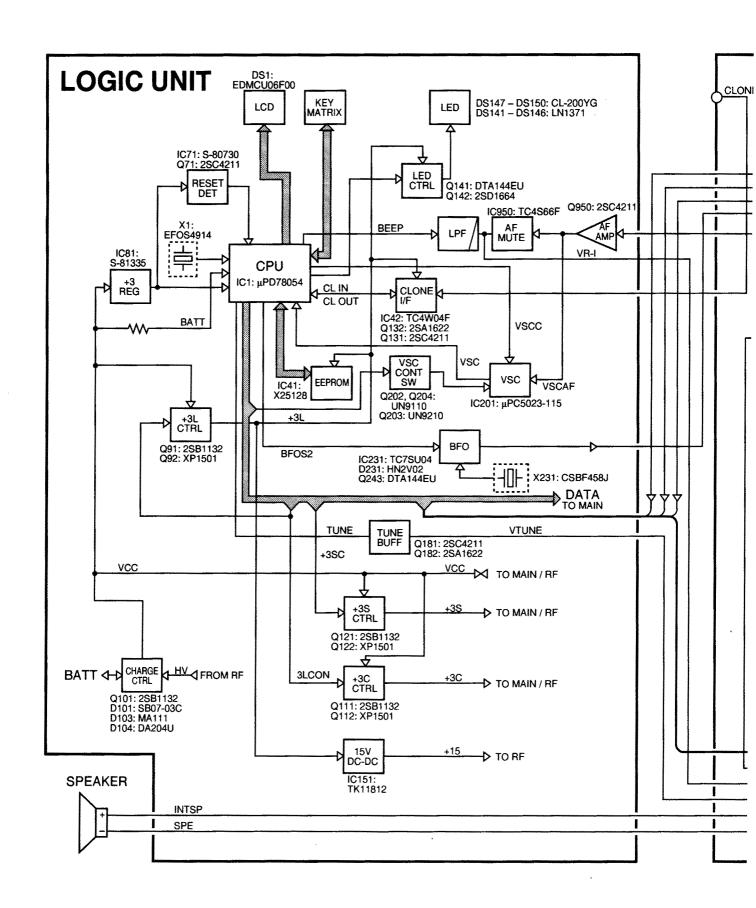


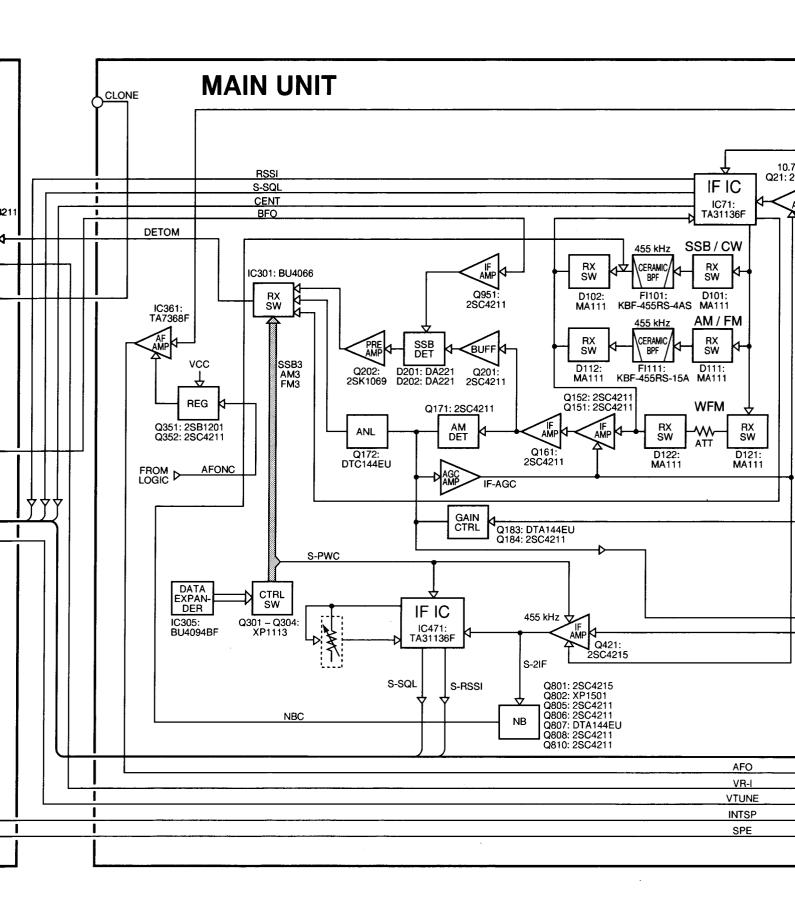
LOGIC UNIT (BOTTOM VIEW)

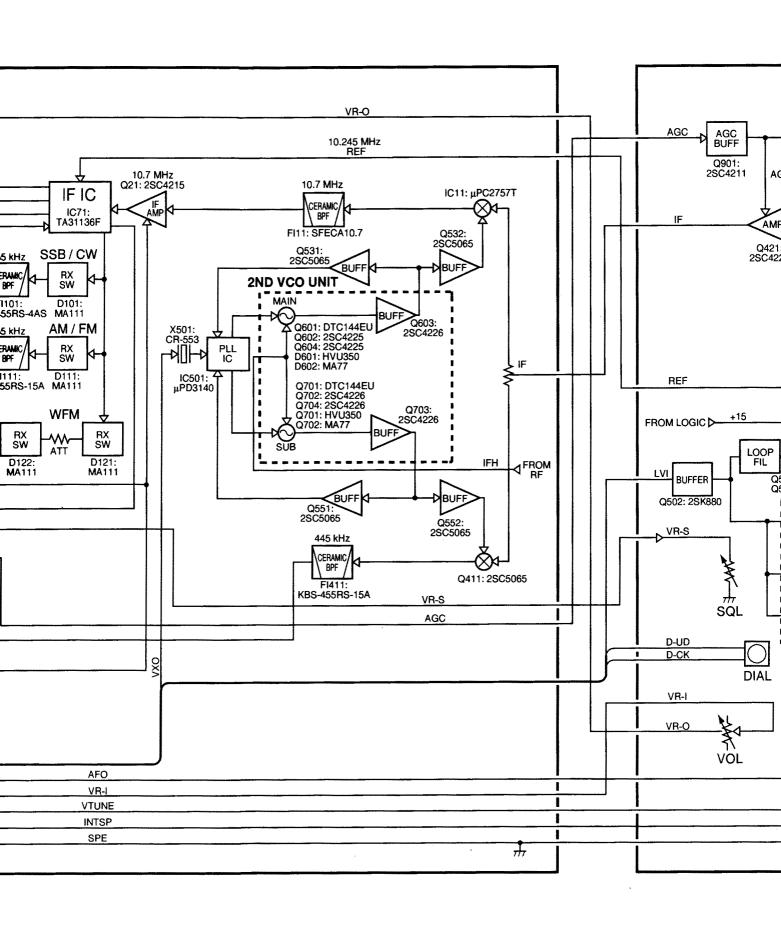


OZS OZS	VR-I	BFO	D-E	D-CK	D-UD
D	Ch	4	3	2	1

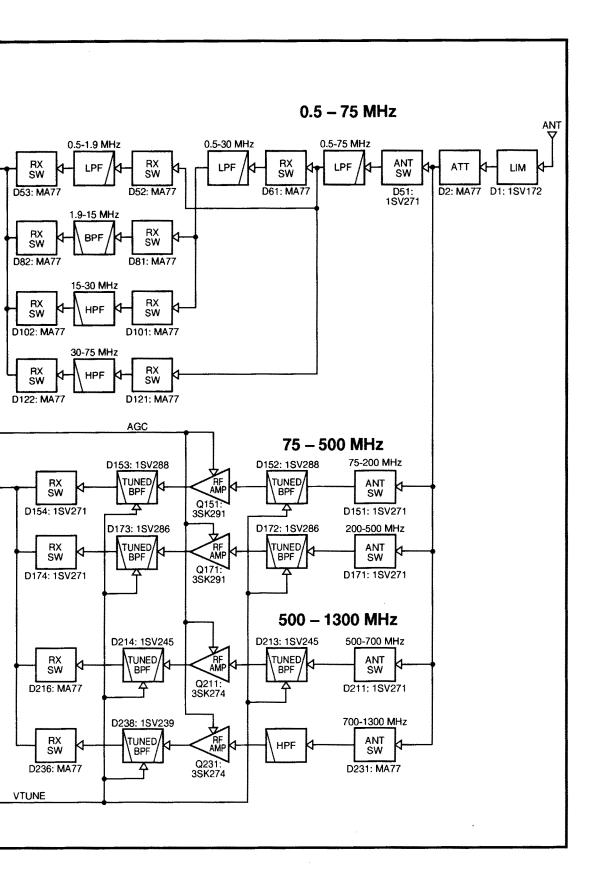




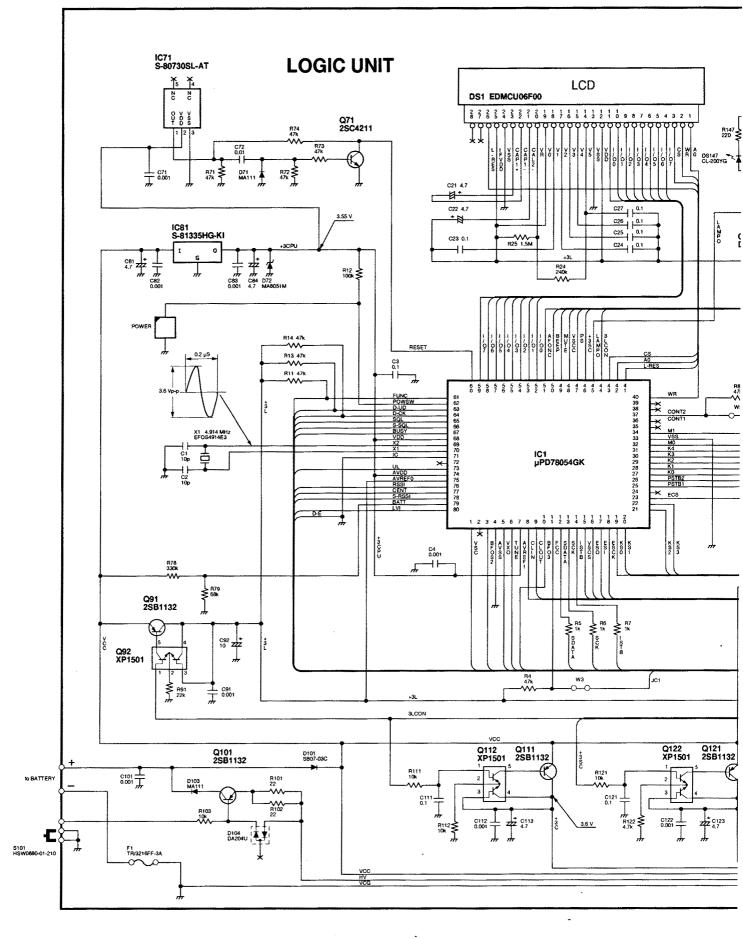


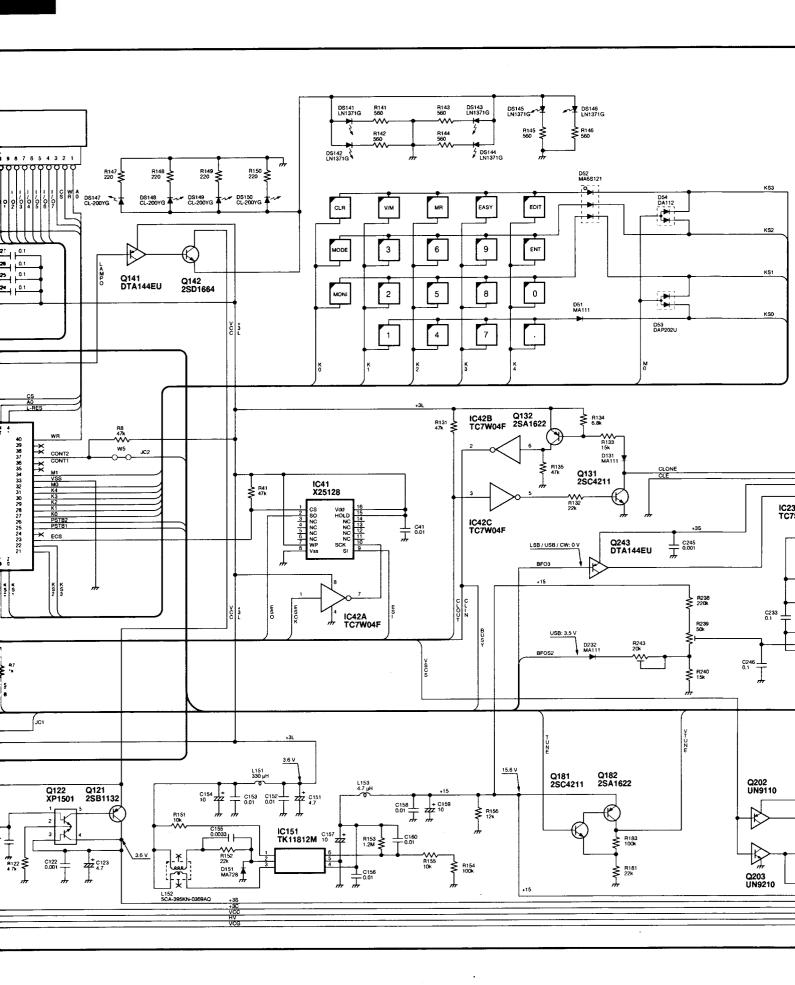


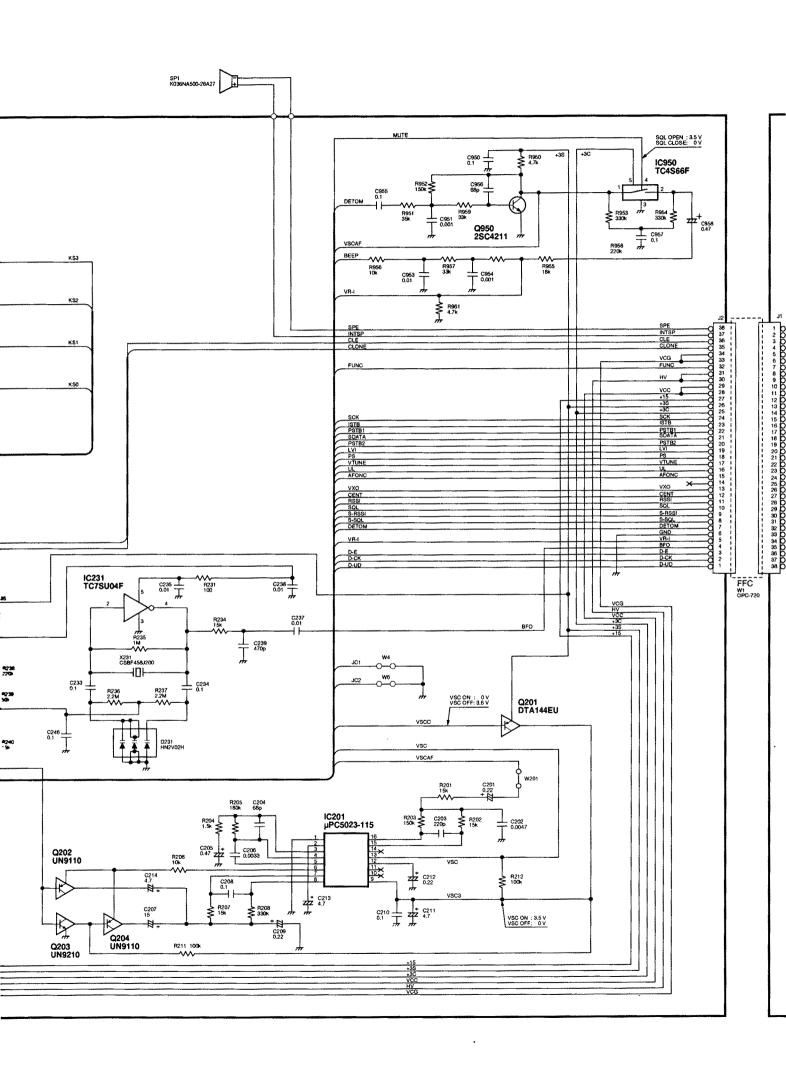
RF UNIT AGC BUFF AGC AGC Q901: 2SC4211 IC271: μPC2757T 0.5-1.9 MHz 0.5-3 AGC RX SW sŵ 266.7 MHz Q51: 2SC4215 D253: 1SV271 D52: MA77 D53: MA77 IF RX SW RX SW AMP 1.9-15 MHz Q421: 2SC4226 D402: FI401: D401: RX SW EFCH266MKQP1 BPF SW 429.1 MHz D82: MA77 D81: MA77 RX SW RX SW **BPF** 15-30 MHz D412: D411: FI411: EFCH429MKQP1 MA77 HPF SW SW D101: MA77 REF BUFF HPF 1LO SW SW X501: CR-555 Q531: 2SC4211 ROM LOGIC > D122: MA77 D121: MA77 CHARGE PUMP LOOP FIL PLL AGC AMP AMF Q521: 2SK880 | IC501: Q551: Q522: 2SC4211 | HD155001BT | 2SC4228 BUFFER 2SC4228 D153: 1SV288 Q502: 2SK880 TUNED/ RF AMP SW Q151: 3SK291 VR-S Q621, Q622: 2SC4228 D154: 1SV271 Q601: 2SC4228 D173: 1SV286 VCO₂ TUNED/ BPF/ **1ST VCO UNIT** SW Q641: 2SC4226 Q171: 35K291 D174: 1SV271 Q661: 2SC4228 D-UD D-CK SPEAKER D214: 1SV245 INTSP / SPE DIAL **JACK** RF TUNED BPF SW VR-I TO MAIN VCC REVERSE VOLTAGE PROTECT Q211: 3SK274 D216: MA77 VR-Q D901: SB07-03C TO LOGIC 4HV DC JACK D238: 1SV239 VOL RX SW TUNED BPF Q231: 3SK274 D236: MA77 **VTUNE**

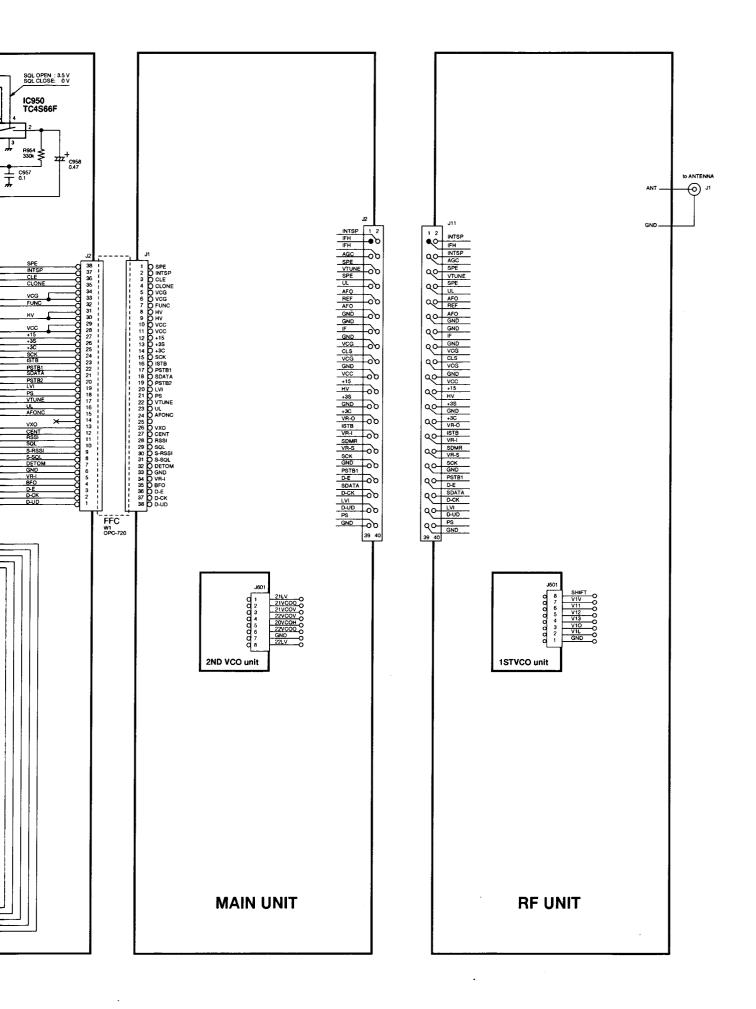


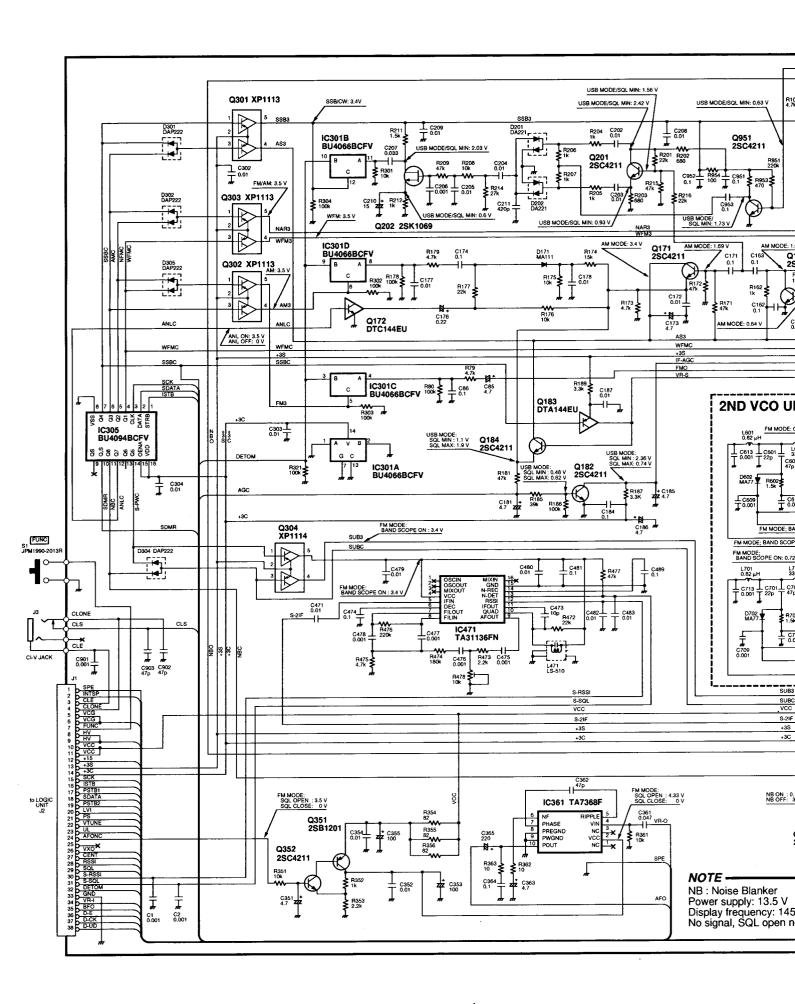
SECTION 11 VOLTAGE DIAGRAM

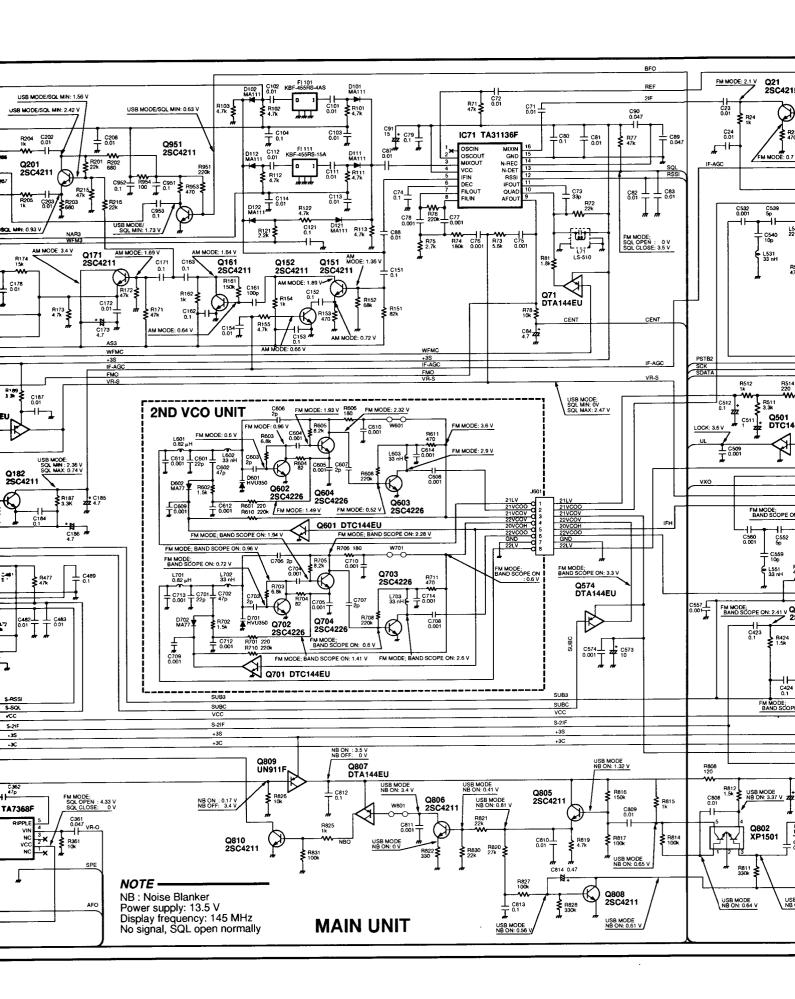


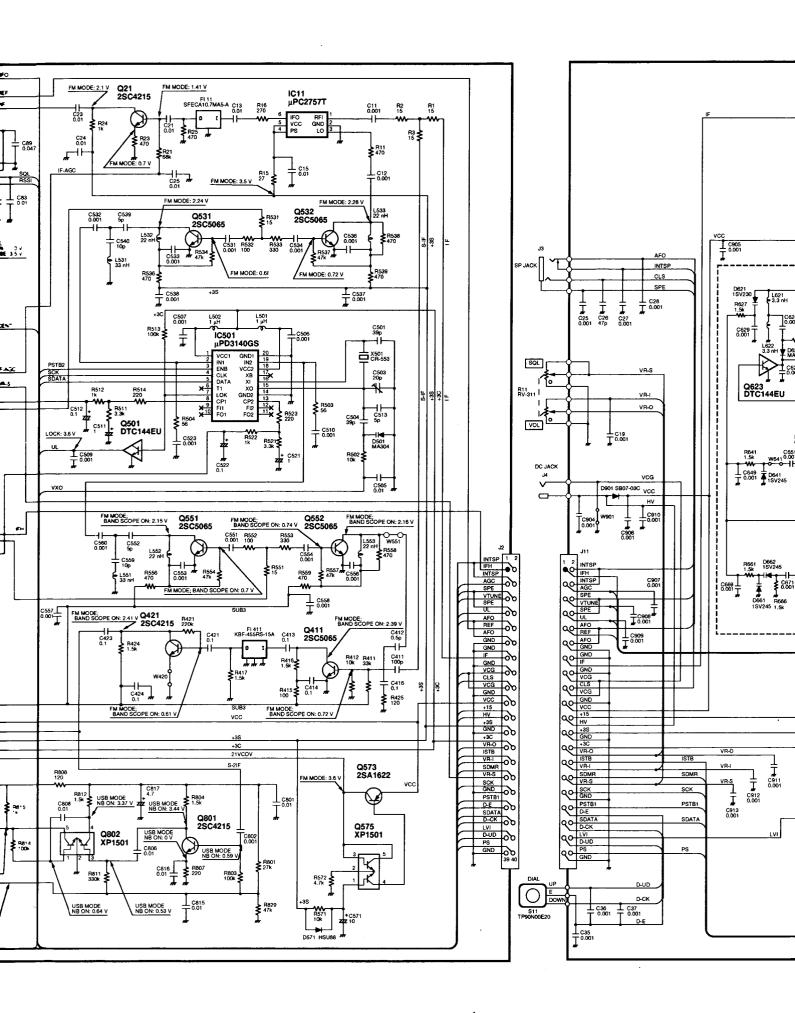


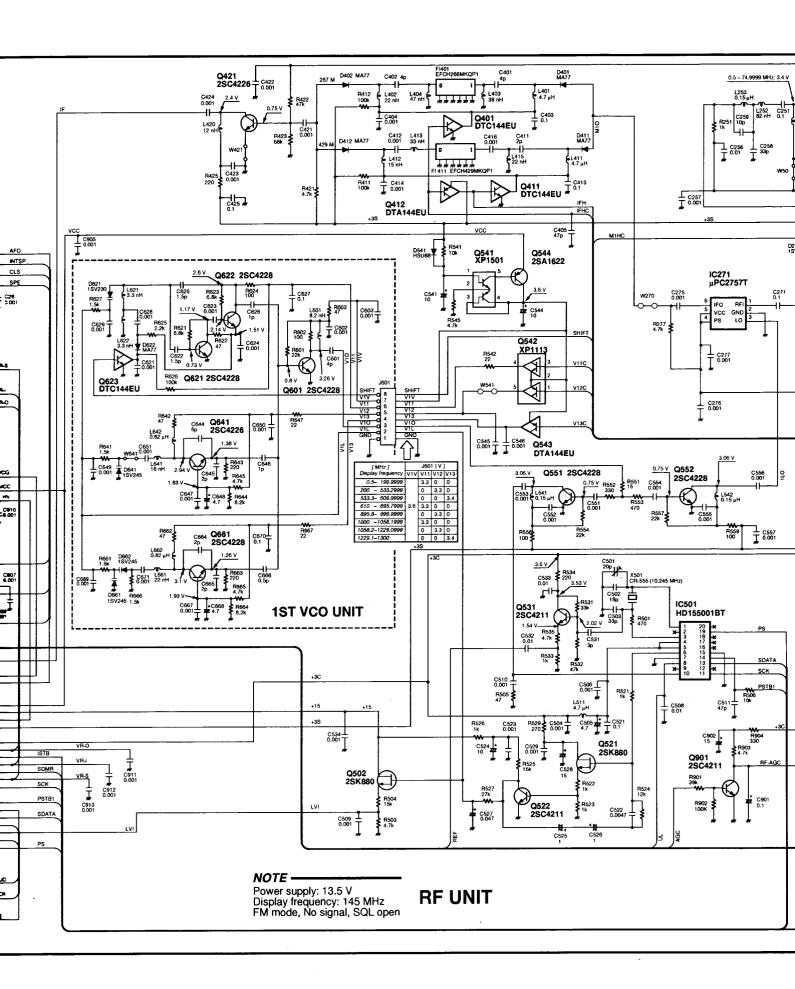


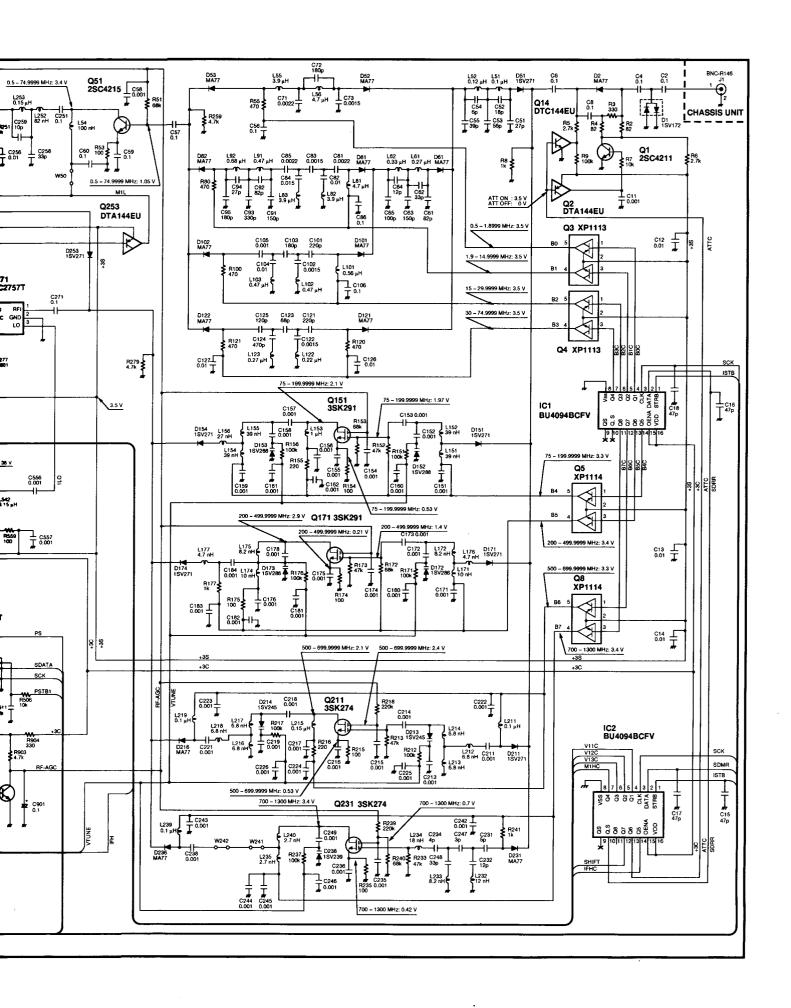












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