



SERVICE MANUAL

UHF TRANSCEIVER

IC-400PRO

INTRODUCTION

This service manual describes the latest service information for the **IC-400PRO** UHF TRANSCEIVER at the time of publication.

MODEL	FREQUENCY(MHz)	CH. SPACING(kHz)	POWER(W)	VERSION
IC-400PRO	450-500	12.5/25	5/25	Australia

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

DANGER

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

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

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

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



ORDERING PARTS

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

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

<SAMPLE ORDER>

1110003490 S.IC TA31136FN IC-400PRO MAIN UNIT 5 pieces
8810009990 Screw PH BT M3x8 ZK IC-400PRO Bottom cover 10 pieces

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

REPAIR NOTES

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

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SECTION 1 SPECIFICATIONS

■ GENERAL

• Frequency range	: 476.425 MHz–477.400 MHz	[CB]
	450 MHz–500 MHz	[Private]
• Number of conventional channels	: 40 channels (Include in 1 bank)	[CB]
	88 channels (Include in 2–8 bank)	[Private]
• Type of emission	: Wide (16K0F3E)	(25 kHz; [CB])
	Wide (16K0F3E)/Narrow (8K50F3E)	(25 kHz/12.5 kHz; [Private])
• Antenna impedance	: 50 Ω nominal	
• Input impedance (Microphone)	: 600 Ω	
• Output impedance (speaker)	: 4 Ω	
• Intermediate frequency	: 1st IF 46.35 MHz, 2nd IF 450 kHz	
• Operating temperature range	: –10 °C to +60 °C	
• Power supply voltage	: 13.8 V DC nominal (Negative ground)	
• Current drain (Approx.)	: Receive stand-by	300 mA
	Receive max. audio	1200 mA
	Transmit (25 W)	7.0 A
	Transmit (5 W)	4.0 A
• Dimensions	: 150(W) × 40(H) × 117.5(D) mm	
• Weight	: 0.8 kg	

■ TRANSMITTER

• Output power	: 5 W	[CB]
	25 W	[Private]
• Modulation	: Variable reactance frequency modulation	
• Maximum permissible deviation	: ± 2.5 kHz	[Narrow]
	± 5.0 kHz	[Wide]
• Frequency error	: ±2.5 ppm	
• Spurious emissions	: –30 dBm (25 W: 74 dBc, 5 W: 67 dBc)	
• Adjacent channel power	: –16 dBm (25 W: 60 dBc, 5 W: 53 dBc) [Narrow]	
	–22 dBm (25 W: 66 dBc, 5 W: 59 dBc) [Wide]	
• Audio frequency response	: +2 dB to –5 dB of 6 dB/octave	
	From 300 Hz to 2550 Hz	[Narrow]
	From 300 Hz to 3000 Hz	[Wide]
• Audio harmonic distortion	: 3 % typical at 40 % deviation	
• FM hum and noise	: 34 dB minimum, 40 dB typical	[Narrow]
	40 dB minimum, 46 dB typical	[Wide]
• Limiting charact of modulator	: 70 %–100 % of maximum deviation	

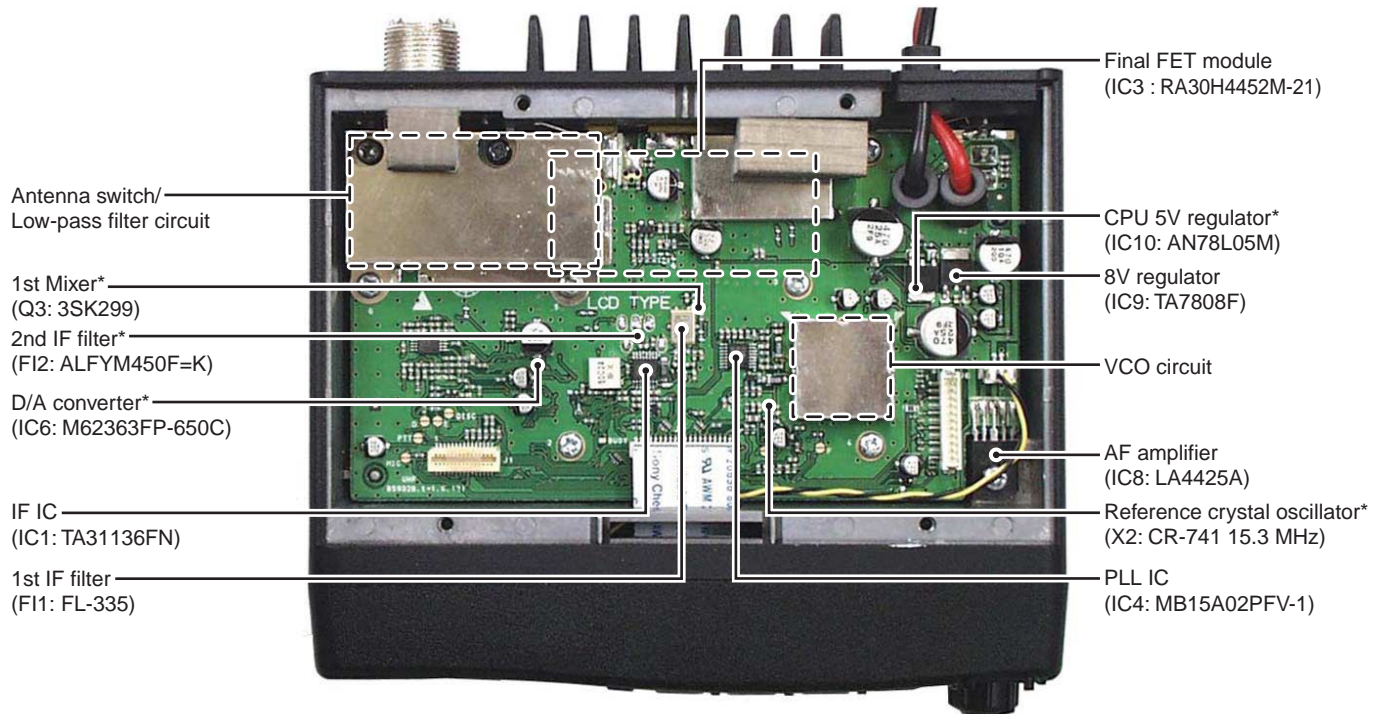
■ RECEIVER

• Sensitivity	: 0.25 μV typical at 12 dB SINAD	
• Audio output power	: 4.0 W typical at 10 % distortion with 4 Ω	
• Adjacent channel selectivity	: 65 dB	[Narrow]
	73 dB	[Wide]
• Spurious response	: 75 dB	
• Intermodulation	: 70 dB	
• Hum and Noise	: 34 dB minimum, 40 dB typical	[Narrow]
	40 dB minimum, 45 dB typical	[Wide]
• Squelch sensitivity (Threshold)	: 0.25 μV typical	

Measurements made in accordance with AS4295-1995, AS/NZS4365-1996.

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

SECTION 2 INSIDE VIEW

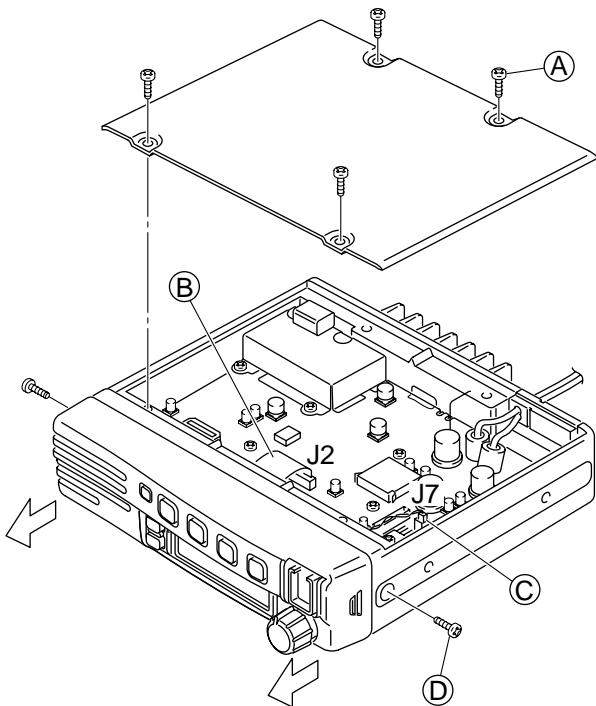


* Located under side of the point.

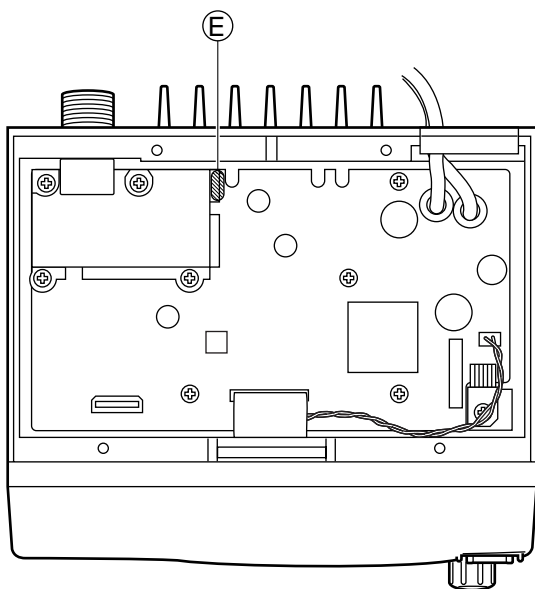
SECTION 3 DISASSEMBLY INSTRUCTIONS

• Opening case and removing the front unit

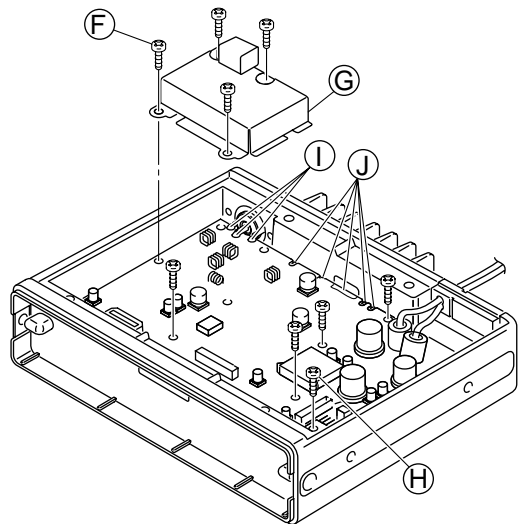
- ① Unscrew 4 screws (A), and remove the bottom cover.
- ② Disconnect the flat cable (B) from J2.
- ③ Disconnect the cable (C) from J7.
- ④ Unscrew 2 screws (D), and remove the front unit.



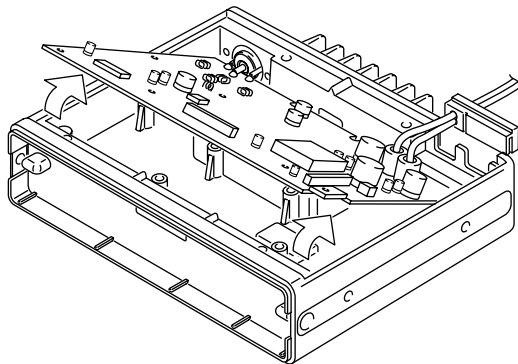
- ⑤ Unsolder the point (E).



- ⑥ Unscrew 8 screws (F).
- ⑦ Remove the filter case (G).
- ⑧ Unscrew the screw (H).
- ⑨ Unsolder 3 points (I) from the antenna connector.
- ⑩ Unsolder 5 points (J) from IC3.

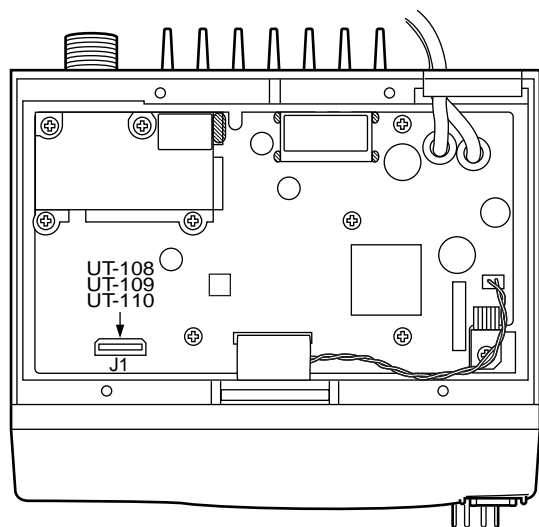


- ⑪ Lift up the front portion of the main unit and remove it.



• Installation location

- | | |
|--------|---|
| UT-108 | DTMF decoder unit |
| UT-109 | Voice scrambler unit (Non-rolling type) |
| UT-110 | Voice scrambler unit (Rolling type) |



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

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

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

Received signals enter the antenna connector and pass through the low-pass filters (L1–L3, C1, C2, C6–8, C16). The filtered signals are then applied to the RF circuit passed through the $\lambda/4$ type antenna switching circuit (D5–D7).

4-1-2 RF CIRCUIT (MAIN UNIT)

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

The signals from the antenna switching circuit pass through the two-stage tunable bandpass filters (D8, D4). The filtered signals are amplified at the RF amplifier (Q2) and then enter other two-stage bandpass filters (D9, D10) to suppress unwanted signals. The filtered signals are applied to the 1st mixer circuit (Q3).

The tunable bandpass filters (D4, D8–D10) employ varactor diodes to tune the center frequency of the RF passband for wide bandwidth receiving and good image response rejection. These diodes are controlled by the CPU (FRONT unit; IC1) via the D/A converter (IC6).

The gate control circuit reduces RF amplifier gain and attenuates RF signal to keep the audio output at a constant level.

The receiver gain is determined by the voltage on the "RSSI" line from the FM IF IC (IC1, pin 12). The gate control circuit (Q1) supplies control voltage to the RF amplifier (Q2) and sets the receiver gain.

When receiving strong signals, the "RSSI" voltage increases and the gate control voltage decreases. As the gate control voltage is used for the bias voltage of the RF amplifier (Q2), then the RF amplifier gain is decreased.

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

The 1st mixer circuit converts the received 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 a MCF (Monolithic Crystal Filter; F11) at the next stage of the 1st mixer.

The RF signals from the bandpass filter are applied to the 1st mixer circuit (Q3). The applied signals are mixed with the 1st LO signal coming from the RX VCO circuit (Q13) to produce a 46.35 MHz 1st IF signal. The 1st IF signal passes through a MCF (Monolithic Crystal Filter; F11) to suppress out-of-band signals. The filtered signal is amplified at the 1st IF amplifier (Q4) and applied to the 2nd IF circuit.

4-1-4 2ND IF AND DEMODULATOR CIRCUITS (MAIN UNIT)

The 2nd mixer circuit converts the 1st IF signal to a 2nd IF signal. A double-conversion superheterodyne system improves the image rejection ratio and obtains stable receiver gain.

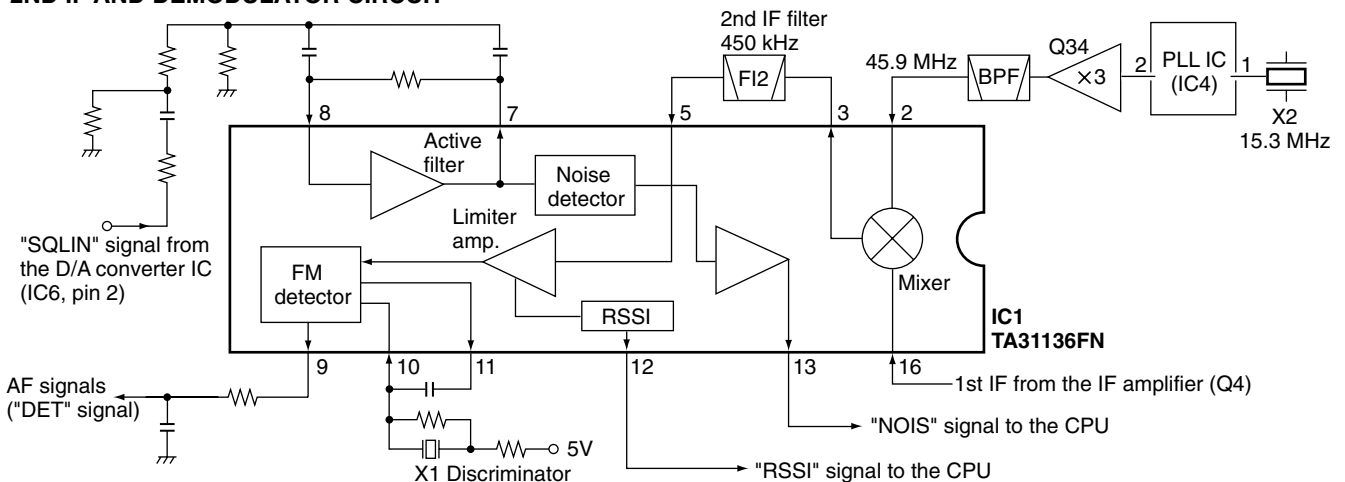
The 1st IF signal from the 1st IF amplifier (Q4) is applied to the 2nd mixer section of the FM IF IC (IC1, pin 16) and is then mixed with the 2nd LO signal for conversion to a 450 kHz 2nd IF signal.

IC1 contains the 2nd mixer, limiter amplifier, quadrature detector, active filter and noise amplifier circuits, etc. A tripled frequency from the PLL reference oscillator is used for the 2nd LO signal (45.9 MHz).

The 2nd IF signal from the 2nd mixer (IC1, pin 3) passes through a ceramic filter (F12) to remove unwanted heterodyned frequencies. It is then amplified at the limiter amplifier section (IC1, pin 5) and applied to the quadrature detector section (IC1, pins 10, 11 and X1) to demodulate the 2nd IF signal into AF signals.

The AF signals are output from pin 9 (IC1) and are then applied to the AF amplifier circuit.

• 2ND IF AND DEMODULATOR CIRCUIT



4-1-5 AF AMPLIFIER CIRCUIT (MAIN UNIT)

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

The AF signals from the FM IF IC (IC1, pin 9) are applied to the active filter circuit (IC16). The active filter circuit (high-pass filter) removes CTCSS or DTCS signals.

The filtered AF signals are output from pin 14 (IC16) and are applied to the de-emphasis circuit (R117, C378) with frequency characteristics of -6 dB/octave, and then passed through the analog switch (IC14, pins 1–3) and low-pass filter (IC5). The filtered signal is applied to the electronic volume controller (IC6, pin 9).

The output AF signals from the electronic volume controller (IC6, pin 10) are passed through the analog switch (IC14 pins 9–11) and are applied to the AF amplifier (IC15) and AF power amplifier (IC8) to drive the speaker.

4-1-6 RECEIVER MUTE CIRCUITS (MAIN AND FRONT UNITS)

• NOISE SQUELCH

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

Some noise components in the AF signals from the FM IF IC (IC1, pin 9) are passed through the level controller (IC6, pins 1, 2). The level controlled signals are applied to the active filter section in the FM IF IC (IC1, pin 8). Noise components about 10 kHz are amplified and output from pin 7.

The filtered signals are converted to the pulse-type signals at the noise detector section and output from pin 13 (NOIS).

The NOIS signal from the FM IF IC is applied to the CPU (FRONT unit; IC1, pin 53). The CPU then analyzes the noise condition and controls the AF mute signal via "AFON" line (D44, D45) to the AF mute circuit (Q35, Q36, D29, D30).

• CTCSS AND DTCS

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

A portion of the AF signals from the FM IF IC (IC1, pin 9) passes through the low-pass filter (IC16) to remove AF (voice) signals and is applied to the CTCSS or DTCS decoder inside the CPU (FRONT unit; IC1, pin 60) via the "CDEC" line to control the AF mute switch.

4-2 TRANSMITTER CIRCUITS

4-2-1 MICROPHONE AMPLIFIER CIRCUIT (MAIN AND FRONT UNITS)

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

The AF signals (MIC) from the MIC jack (FRONT unit; J1) are amplified at the AF amplifier (FRONT unit; IC5) and applied to the MAIN unit via J2 (pin 28). The AF signal are applied to the limiter amplifier (IC5, pin 5).

The entered signals are pre-emphasized with $+6$ dB/octave at a limiter amplifier, then passed through the analog switch (IC14, pins 2–4) and splatter filter (IC5, pins 2, 1). The output signals from the splatter filter are applied to the level controller (IC6, pin 9).

The deviation level controlled signals are then applied to the modulation circuit (D18) as the "MOD" signal after being passed through the analog switch (IC14, pins 9, 8).

4-2-2 MODULATION CIRCUIT (MAIN AND FRONT UNITS)

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

The AF signals from the analog switch (IC14, pin 8) change the reactance of varactor diode (D18) to modulate the oscillated signal at the TX VCO circuit (Q14, D17). The modulated VCO signal is amplified at the buffer amplifiers (Q11, Q10) and is then applied to the drive amplifier circuit via the T/R switch (D14).

The CTCSS/DTCS signals from the CPU (FRONT unit; IC1, pins 22–24) are passed through the low-pass filter (FRONT unit; IC5), and mixer and splatter filter (IC5), and are then applied to the VCO circuit.

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

The drive amplifier circuit amplifies the VCO oscillating signal to the level needed at the power amplifier.

The RF signal from the buffer amplifier (Q10) passes through the T/R switch (D14) and is amplified at the drive amplifier circuit (Q8). The amplified signal is applied to the power amplifier circuit.

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

The power amplifier circuit amplifies the driver signal to an output power level.

The RF signal from the drive amplifier (Q8) is passed through the low-pass filter circuit (L18, L43, C89, C90, C92, C380, C381, C510) and applied to the power module (IC3) to obtain 25 W of RF power.

The amplified signal is passed through the antenna switching circuit (D2), low-pass filter and APC detector, and is then applied to the antenna connector.

Control voltage for the power amplifier (IC3, pin 2) comes from the APC amplifier (IC2) to stabilize the output power. The transmit mute switch (D28) controls the APC amplifier when transmit mute is necessary.

4-2-5 APC CIRCUIT (MAIN UNIT)

The APC circuit protects the power amplifier from a mismatched output load and stabilizes the output power.

The APC detector circuit detects forward signals and reflection signals at D1 and D11 respectively. The combined voltage is at minimum level when the antenna impedance is matched at 50 Ω, and is increased when it is mismatched.

The detected voltage is applied to the APC amplifier (IC2, pin 3), and the power setting "T2" signal from the D/A converter (IC6, pin 22), controlled by the CPU (FRONT unit; IC1), is applied to the other input for reference. When antenna impedance is mismatched, the detected voltage exceeds the power setting voltage. Then the output voltage of the APC amplifier (IC2, pin 4) controls the input current of the power module (IC3) to reduce the output power.

4-3 PLL CIRCUITS

4-3-1 PLL CIRCUIT (MAIN UNIT)

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

The PLL circuit contains the TX/RX VCO circuit (Q13, Q14). The oscillated signal is amplified at the buffer amplifiers (Q11, Q12) and then applied to the PLL IC (IC4, pin 8) via the low-pass filter (L32, C298, C299).

The PLL IC contains a prescaler, programmable counter, programmable divider and phase detector, etc. The entered signal is divided at the prescaler and programmable counter section by the N-data ratio from the CPU. The reference signal is generated at the reference oscillator (X2) and is also applied to the PLL IC. The PLL IC detects the out-of-step phase using the reference frequency, and outputs it from pin 5. The output signal is passed through the loop filter (R97/C147, R95/C146), and is then applied to the VCO circuit as the lock voltage.

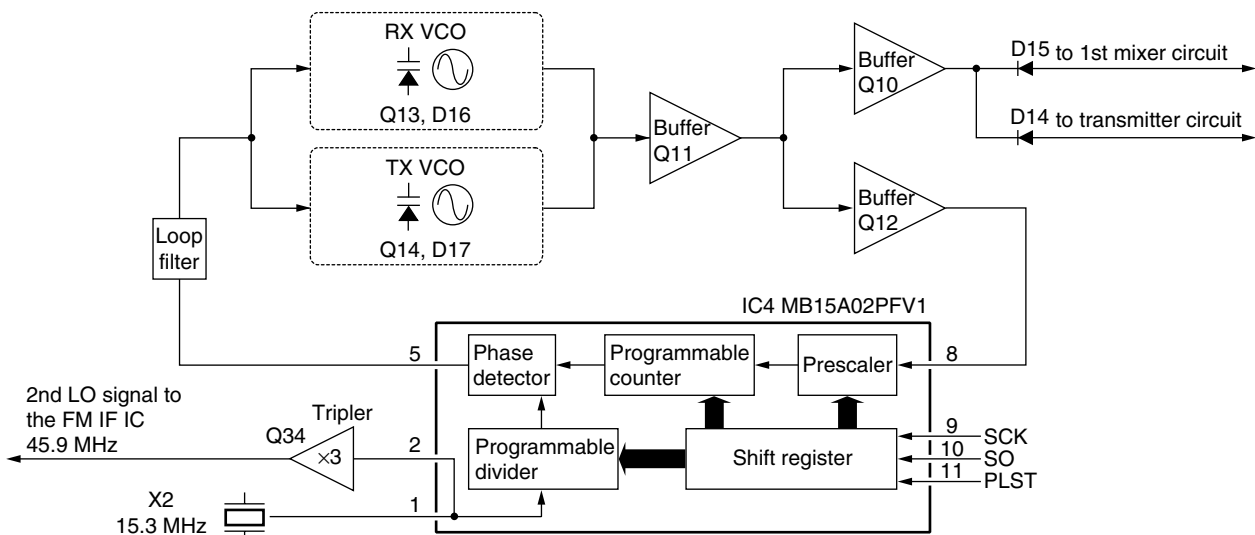
If the oscillated signal drifts, its phase changes from that of the reference frequency, causing a lock voltage change to compensate for the drift in the oscillated frequency.

4-3-2 VCO CIRCUIT (MAIN UNIT)

The VCO circuit contains a separate RX VCO (Q13, D16) and TX VCO (Q14, D17). The oscillated signal is amplified at the buffer amplifiers (Q11, Q10) and is then applied to the T/R switch circuit (D14, D15). Then the receive 1st LO (Rx) signal is applied to the 1st mixer (Q3) and the transmit (Tx) signal to the YGR amplifier circuit (Q9).

A portion of the signal from the buffer amplifier (Q11) is fed back to the PLL IC (IC4, pin 8) via the buffer amplifier (Q12) and low-pass filter (L32, C298, C299) as the comparison signal.

• PLL CIRCUIT



4-4 POWER SUPPLY CIRCUITS

4-4-1 VOLTAGE LINES (MAIN UNIT)

Line	Description
HV	The voltage from a DC power supply.
VCC	The same voltage as the HV line which is controlled by the power switching circuit (Q23, Q24). The CPU outputs the "PWON" control signal to the power switching circuit to turn the circuit ON when the [POWER] switch is pushed.
CPU5V	Common 5 V for the CPU converted from the HV line by the CPU5V regulator circuit (IC10). The circuit outputs the voltage regardless of the power ON/OFF condition.
8V	Common 8 V converted from the VCC line by the 8V regulator circuit (IC9).
5V	Common 5 V converted from the 8 V and CPU5V lines by the 5V regulator circuit (Q27, Q28).
R8V	Receive 8 V controlled by the R8 regulator circuit (Q26, Q30) using the "RXC" signal from the expander IC (IC17, pin 4).
T8V	Transmit 8 V controlled by the T8 regulator circuit (Q25, Q29, D23) using the "TMUT" signal from the expander IC (IC17, pin 13).

4-5 PORT ALLOCATIONS

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

Pin number	Port name	Description
1	TEMP	Input port for the internal temperature.
2	BATV	Input port for the low voltage detection from the connected power supply.
7	RES	Input port for reset signal.
13, 14	SENC0–SENC1	Output ports for 5/2 tone and DTMF signals.
15	CSFT	Outputs the CPU clock shift signal.
16	DUSE	Outputs cut-off frequency control signal to the low-pass filter (MAIN unit; IC5) for CTCSS/DTCS switching.
17, 18	KS0, KS1	Input port for the key matrix.
19–20	SENC2–SENC3	Output ports for 5/2 tone and DTMF signals.
21	UNLK	Input port for the PLL unlock signal from the PLL IC (MAIN unit; IC4).
22	KR0	Input port for the key matrix.
23–25	CENC0–CENC2	Output ports for CTCSS/DTCS signals.
26, 27	KR1, KR2	Input ports for the key matrix.
28	SCK	Outputs the clock signal to the PLL IC (MAIN unit; IC4), D/A converter (MAIN unit; IC6), LED driver (IC4) and optional board (connect to MAIN unit; J1).
29	SO	Outputs the data signal to the PLL IC (MAIN unit; IC4), D/A converter (MAIN unit; IC6) and optional board (connect to MAIN unit; J1).
30	BEEP	Output port for beep sound signal.
31	ESDA	I/O port for the data signal for the EEPROM (IC3)
32	ESCL	Outputs the clock signal for the EEPROM (IC3).
33	LSCK	Outputs the clock signal for the LCD driver (IC6, pin 17).
34	LSO	Outputs the data signal for the LCD driver (IC6, pin 48).
36	PLST	Outputs the strobe signal for the PLL IC (MAIN unit; IC4).
37	DAST	Outputs the strobe signal for the D/A converter IC (MAIN unit; IC6).
38	EXST	Outputs the strobe signal for the expander IC (IC17).
39	EXOE	Outputs the control signal for the LCD driver IC (IC6).
41	PWON	Outputs the control signal for the power switching circuit (MAIN unit; Q24, Q23).

CPU-Continued

Pin number	Port name	Description
44-46	OPT3- OPT1	I/O ports for the optional board control signals.
48	SI	Input port for the clock signal from the optional board via J1.
49	CLI	Input port for the cloning signal.
50	CLO	Output port for the cloning signal.
51	POSW	Input port for the POWER switch.
52	DIM	<ul style="list-style-type: none"> • Input port for the remote power control signal from the external connector (J6). • Input port for the dimmer control.
53	NOIS	Input port for the "NOIS" signal from the FM IF IC (MAIN unit; IC1) for noise squelch operation.
54	CIRQ	Input port for interruption signal from the optional board via J1.
55	CCS	Outputs chip select signal for the optional board via J1.
56	PTT	Input port for the PTT switch from microphone.
57	EPTT	Input port for the PTT switch from the external connector (J6). Low : External PTT switch is ON.
58	HANG	Input port for the microphone hanger detection signal. Low : Microphone on hook.
59	AFVI	Input port for the AF volume control signal (R14). High: [VOL] is maximum clockwise.
60	CDEC	Input port for the CTCSS/DTCS decoding signals.
61	SDEC	Input port for the single tone decoding signal.
62	OV12	Input port for the optional board detection signal.
63	RSSI	Input port for receiving signal strength level detection.
64	LVIN	Input port for the PLL lock voltage.

4-5-2 OUTPUT EXPANDER (MAIN UNIT; IC17)

Pin number	Port name	Description
4	RXC	Outputs transmit/receive control signal. High: While receiving.
5	AFON	Outputs audio output control signal. High: While receiving.
6	NWC	Outputs wide/narrow control signal. High: Wide is selected.
7	RMUT	Outputs receiving mute control signal. Low: While receiving is muting.
11	BUSY	Outputs busy detecting signal to the optional unit.
13	TMUT	Outputs transmitting mute control signal. Low: While transmitting is muting.
14	MMUT	Outputs the microphone mute control signal. Low: While the microphone is muting.

4-5-3 LCD DRIVER (FRONT UNIT; IC6)

Pin number	Port name	Description
1	LIGT1	Outputs dimmer control signal. High: Dimmer is ON.
2	LIGT2	Outputs backlight control signal. High: Backlight is ON.
3-34	SEG32- SEG1	Output LCD segment signals.
35-38	COM4- COM1	Output LCD common signals.

4-5-4 D/A CONVERTER IC (MAIN UNIT; IC6)

Pin number	Port name	Description
2	SQIN	Outputs the detection level control signal for the squelch circuit.
4	TENC	Outputs the TENC level control signal.
11	BAL	Outputs the modulation balance control signal.
14	T1	Outputs the tuning voltage for band-pass filters
22	T2	<ul style="list-style-type: none"> • Outputs the tuning voltage for band-pass filters. • Outputs transmitting power control signal.
23	REF	Outputs the reference oscillator correcting voltage.

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION

When you adjust the contents on pages 5-5 and 5-6, SOFTWARE ADJUSTMENT, the optional CS-400PRO ADJ ADJUSTMENT SOFTWARE (Rev. 1.0 or later), *OPC-1122 JIG CABLE (modified OPC-1122 CLONING CABLE; see illustration below) are required.

SYSTEM REQUIREMENTS

- IBM PC compatible computer with an RS-232C serial port (38400 bps or faster).
- Microsoft Windows 95/98 or Windows ME
- Intel Pentium 100 MHz processor or faster
- At least 16 MB RAM and 10 MB of hard disk space
- 640×480 pixel display (800×600 pixel display recommended)

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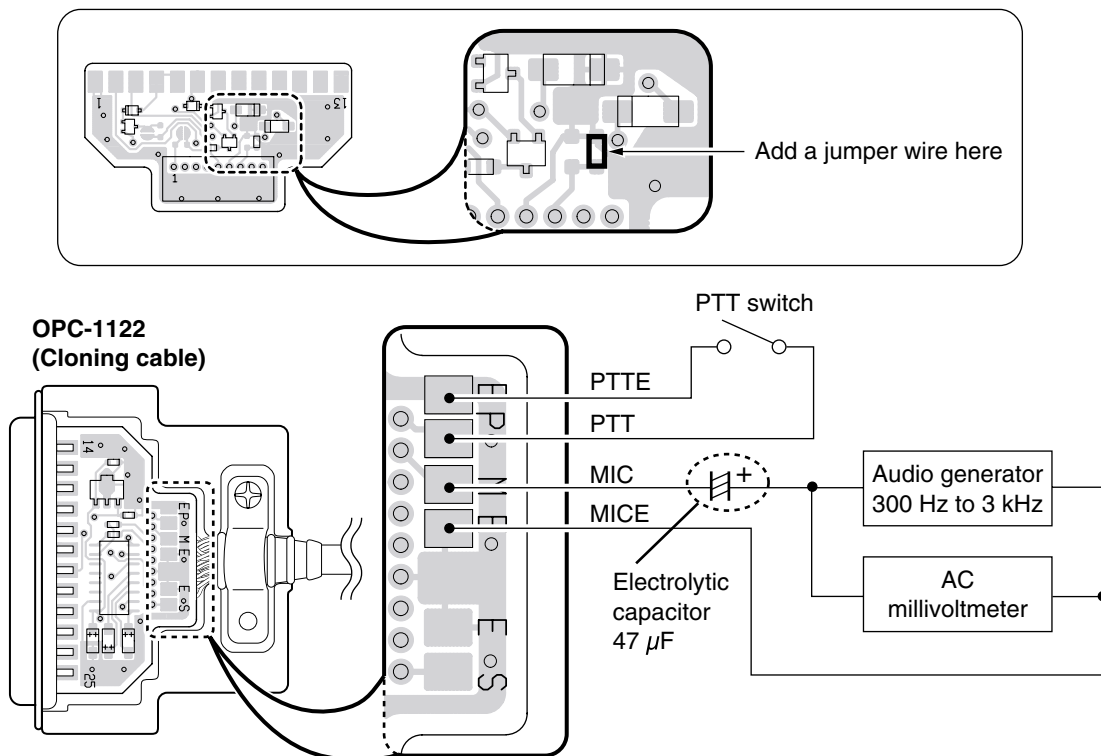
ADJUSTMENT SOFTWARE INSTALLATION

- ① Boot up Windows.
 - Quit all applications when Windows is running.
- ② Insert the 'CS-400PRO' into the appropriate CD drive.
- ③ Select 'Run' from the [Start] menu.
- ④ Type the setup program name using the full path name, then push [Enter] key.
(ex. D:\CS400PROADJ\Setup.exe)
- ⑤ Follow the prompts.
- ⑥ Program group 'CS-400PRO ADJ' appears in the 'Programs' folder of the [Start] menu.

STARTING SOFTWARE ADJUSTMENT

- ① Connect IC-400PRO and PC with *OPC-1122 JIG CABLE.
- ② Turn the transceiver power ON.
- ③ Boot up Windows, and click the program group 'CS-400PRO ADJ' in the 'Programs' folder of the [Start] menu, then CS-400PRO ADJ's window appears.
- ④ Click 'Connect' on the CS-400PRO ADJ's window, then appears IC-400PRO's up-to-date condition.
- ⑤ Set or modify adjustment data as desired.

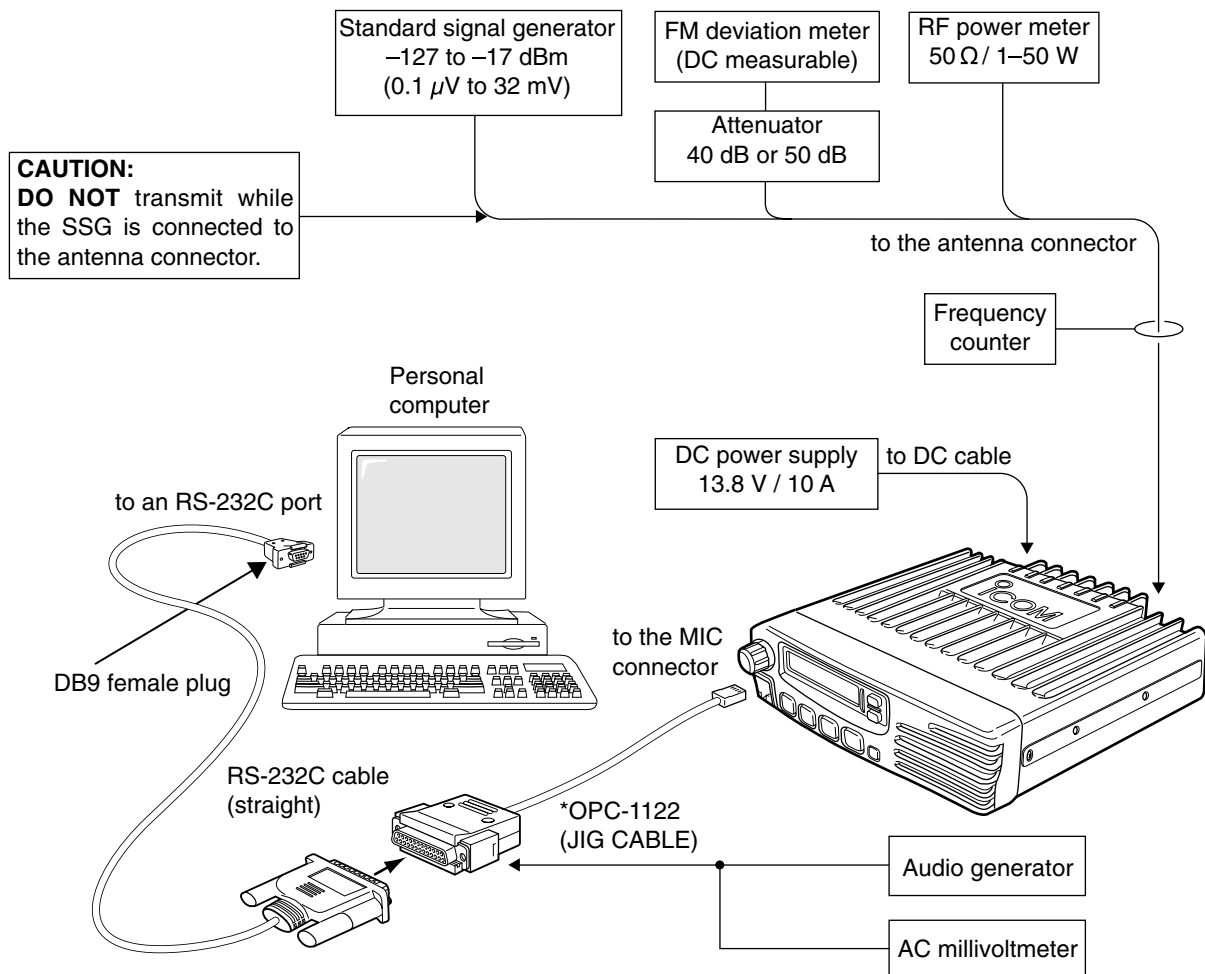
*OPC-1122 MODIFICATION (JIG CABLE)



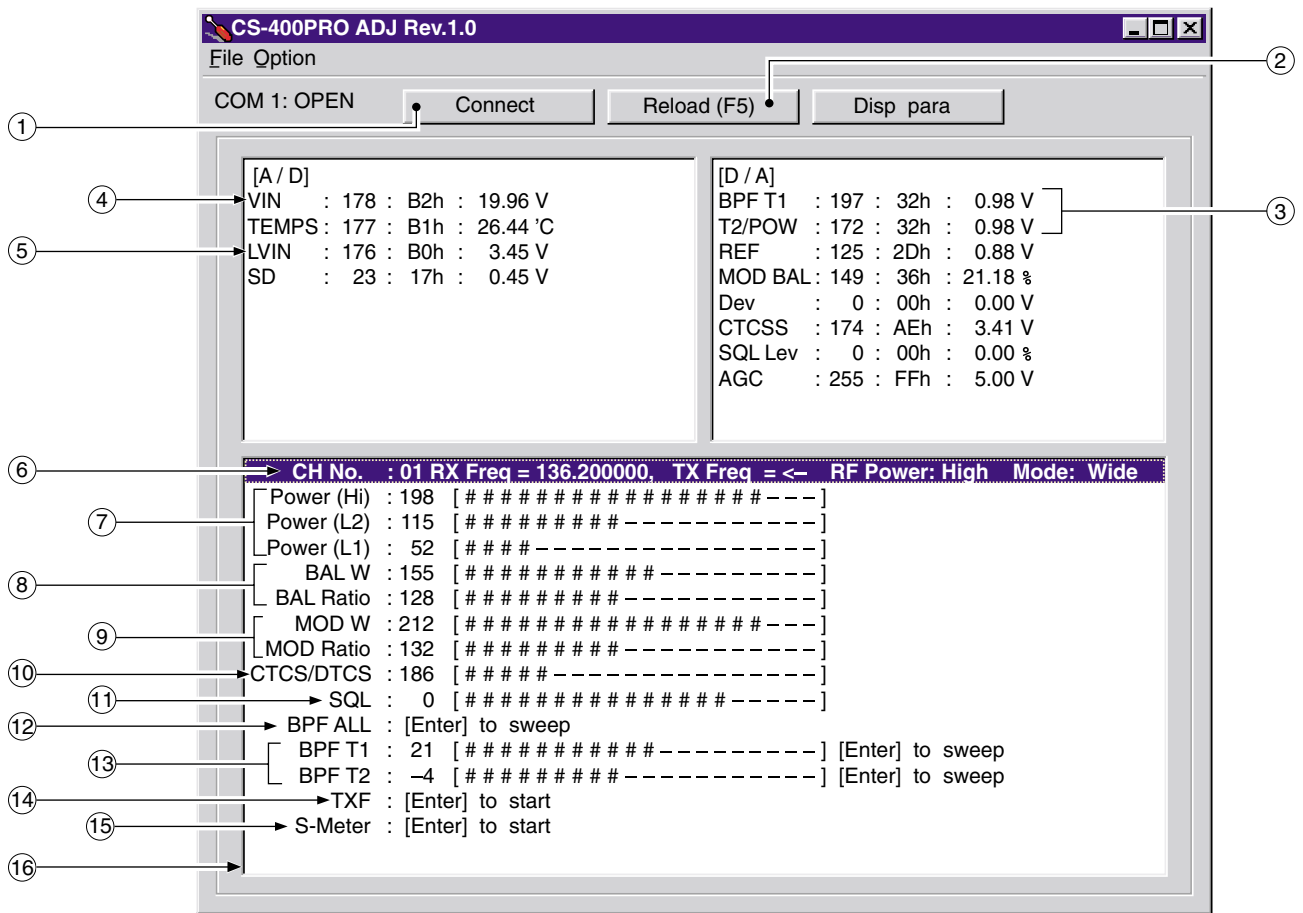
■ REQUIRED TEST EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 13.8 V DC Current capacity : 10 A or more	Audio generator	Frequency range : 300–3000 Hz Measuring range : 1–500 mV
RF power meter (terminated type)	Measuring range : 1–50 W Frequency range : 300–600 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Standard signal generator (SSG)	Frequency range : 0.1–600 MHz Output level : 0.1 μV–32 mV (–127 to –17 dBm)
Frequency counter	Frequency range : 0.1–600 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better	Oscilloscope	Frequency range : DC–20 MHz Measuring range : 0.01–20 V
FM deviation meter	Frequency range : DC–600 MHz Measuring range : 0 to ±10 kHz	AC millivoltmeter	Measuring range : 10 mV–10 V
DC voltmeter	Input impedance : 50 kΩ/V DC or better	External speaker	Input impedance : 4 Ω Capacity : 4 W or more
		Attenuator	Power attenuation : 40 or 50 dB Capacity : 25 W or more

• CONNECTIONS



• SCREEN DISPLAY EXAMPLE

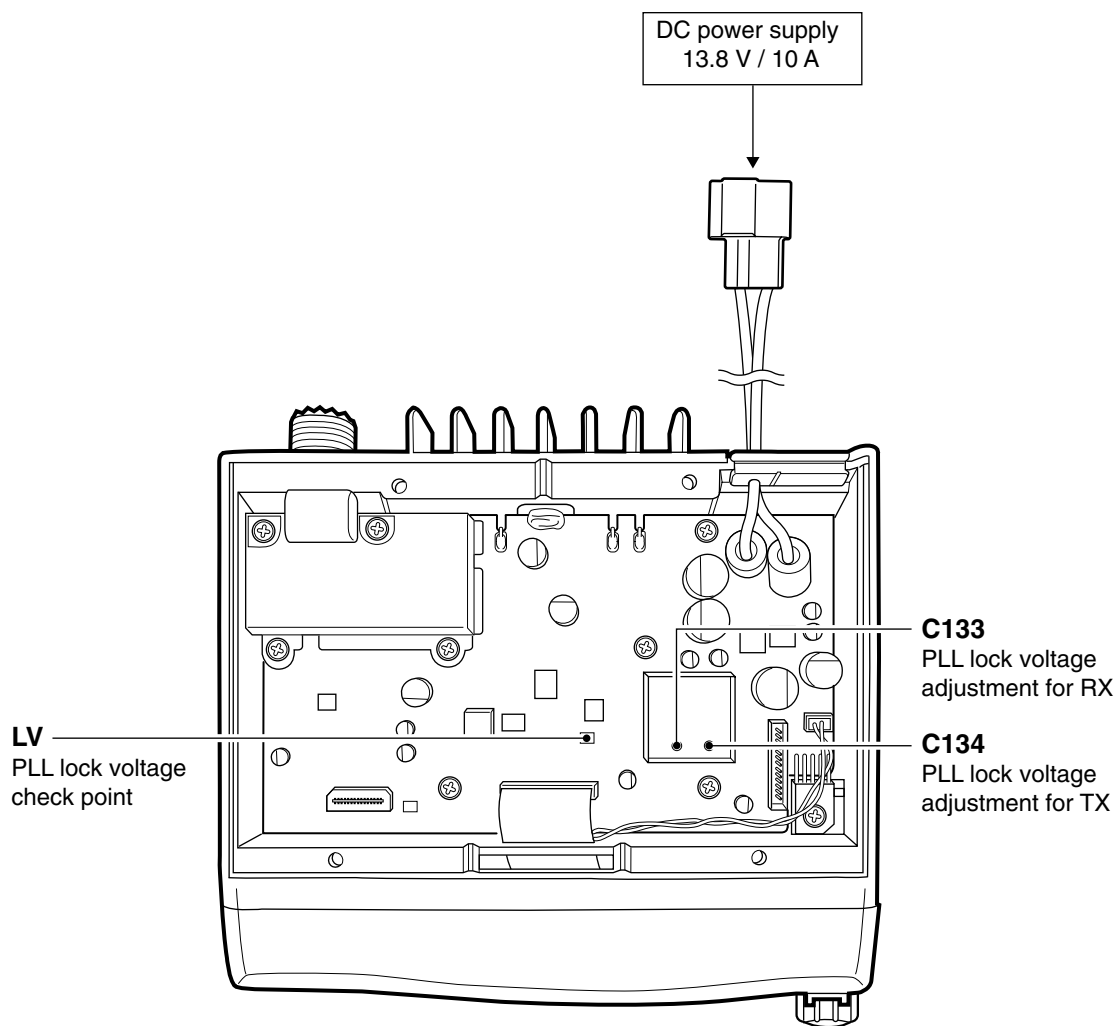


NOTE: The above values for settings are example only.
Each transceiver has its own specific values for each setting.

- | | |
|-------------------------------------|---|
| ① : Transceiver's connection state | ⑨ : FM deviation |
| ② : Reload adjustment data | ⑩ : CTCSS/DTCS deviation |
| ③ : Receive sensitivity measurement | ⑪ : Squelch level |
| ④ : Connected DC voltage | ⑫ : Receive sensitivity (automatically) |
| ⑤ : PLL lock voltage | ⑬ : Receive sensitivity (manually) |
| ⑥ : Operating channel select | ⑭ : Reference frequency |
| ⑦ : RF output power | ⑮ : S-meter |
| ⑧ : Modulation balance | ⑯ : Adjustment items |

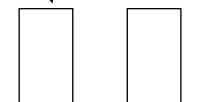
5-2 PLL ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT		
		UNIT	LOCATION		UNIT	ADJUST	
PLL LOCK VOLTAGE	1 • Operating freq. : 450.000 MHz • Receiving	MAIN	Connect a digital multi-meter or an oscilloscope to the check point, "LV".	1.0 V	MAIN	C133	
	2 • Output power : Low1 • Transmitting					1.0 V	C134
	3 • Operating freq. : 500.000 MHz • Receiving					3.3–4.5 V	Verify
	4 • Output power : Low1 • Transmitting					3.3–4.5 V	



5-3 SOFTWARE ADJUSTMENT

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE
		UNIT	LOCATION	
REFERENCE FREQUENCY [TXF]	1 <ul style="list-style-type: none"> • Operating freq. : 500.000 MHz • Output power : Low1 • Connect the RF power meter or 50 Ω dummy load to the antenna connector. • Transmitting 	Rear panel	Loosely couple a frequency counter to the antenna connector.	500.0000 MHz
OUTPUT POWER [Power (Hi)]	1 <ul style="list-style-type: none"> • Operating freq. : 450.000 MHz • Output power : High • Transmitting 	Rear panel	Connect an RF power meter to the antenna connector.	25.0 W
[Power (L2)]	2 <ul style="list-style-type: none"> • Output power : Low2 • Transmitting 			5.0 W
[Power (L1)]	3 <ul style="list-style-type: none"> • Output power : Low1 • Transmitting 			1.0 W
FM DEVIATION [MOD W]	1 <ul style="list-style-type: none"> • Operating freq. : 475.000 MHz • Output power : Low1 • IF bandwidth : Wide • Connect an audio generator to the [MIC] jack through the JIG cable and set as: 1.0 kHz/40 mVrms • Set an FM deviation meter as: <ul style="list-style-type: none"> HPF : OFF LPF : 20 kHz De-emphasis: OFF Detector : (P-P)/2 • Transmitting 	Rear panel	Connect an FM deviation meter to the antenna connector through the attenuator.	±4.1 kHz
[MOD Ratio]	2 <ul style="list-style-type: none"> • IF bandwidth : Narrow • Transmitting 			±2.1 kHz
MODULATION BALANCE [BAL W]	1 <ul style="list-style-type: none"> • Operating freq. : 475.000 MHz • Set to the DTCS set *channel, and push [Connect] on the Adjustment software. *Except bank 1 • Output power : Low1 • Transmitting 	Rear panel	Connect an FM deviation meter with an oscilloscope to the antenna connector through an attenuator.	Set to square wave form 
[BAL Ratio]	2 <ul style="list-style-type: none"> • IF bandwidth : Narrow • Transmitting 			
CTCSS/DTCS DEVIATION [CTCSS/DTCS]	1 <ul style="list-style-type: none"> • Operating freq. : 500.000 MHz • Output power : Low1 • IF bandwidth : Wide • CTCSS : 67 Hz • DTCS code : 007 • Set the FM deviation meter as: <ul style="list-style-type: none"> HPF : OFF LPF : 20 kHz De-emphasis: OFF Detector : (P-P)/2 • No audio applied to the [MIC] connector. • Transmitting 	Rear panel	Connect an FM deviation meter to the antenna connector through the attenuator.	±0.7 kHz

SOFTWARE ADJUSTMENT – continued

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	
		UNIT	LOCATION		
RX SENSITIVITY [BPF T1], [BPF T2]	1	<ul style="list-style-type: none"> Operating freq. : 450.000 MHz IF bandwidth : Wide Connect a standard signal generator to the antenna connector and set as: <ul style="list-style-type: none"> Frequency : 450.000 MHz Level : 10 μV* (-87 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz Receiving 	MAIN	Connect a SINAD meter with a 4 Ω load to the external [SP] jack.	Minimum distortion level
	<p>CONVENIENT: The BPF T1–BPF T2 can be adjusted automatically.</p> <p>①-1: Set the cursor to “BPF ALL” on the adjustment program and then push [ENTER] key. ①-2: The connected PC tunes BPF T1, BPF T2 to peak levels. or ②-1: Set the cursor to BPF T1 or BPF T2 as desired. ②-2: Push [ENTER] key to start tuning. ②-3: Repeat ②-1 and ②-2 to perform additional BPF tuning.</p>				
SQUELCH LEVEL [SQL]	1	<ul style="list-style-type: none"> Operating freq. : 475.000 MHz IF bandwidth : Narrow Connect an SSG to the antenna connector and set as: <ul style="list-style-type: none"> Frequency : 475.000 MHz Level : 0.2 μV* (-121 dBm) Modulation : 1 kHz Deviation : \pm1.75 kHz Receiving 	Rear panel	Connect a SINAD meter with a 4 Ω load to the external [SP] jack.	Set “SQL level” to close squelch. Then set “SQL level” at the point where the audio signals just appears.
S-METER [S-METER] (S3 LEVEL)	1	<ul style="list-style-type: none"> Operating freq. : 450.000 MHz IF bandwidth : Wide Connect an SSG to the antenna connector and set as: <ul style="list-style-type: none"> Frequency : 450.000 MHz Level : 14 μV* (-84 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz Receiving 	<ul style="list-style-type: none"> Adjusting S3 and S1’s S-meter level automatically when push the return key on the key board. 		
(S1 LEVEL)	2	<ul style="list-style-type: none"> Set an SSG as: <ul style="list-style-type: none"> Level : 0.45 μV* (-114 dBm) Receiving 			

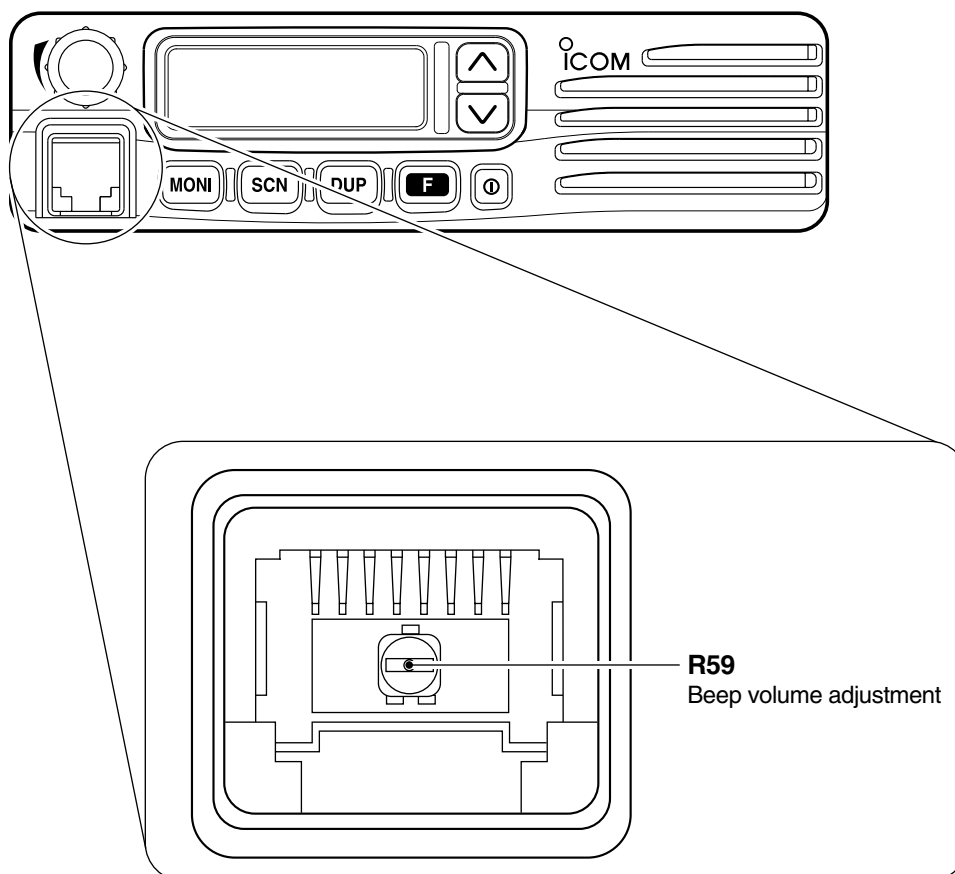
*The output level of the standard signal generator (SSG) is indicated as the SSG’s open circuit.

5-4 TRIMMER ADJUSTMENT

- Make this adjustment if necessary (For example, when beep sound is too loud or too soft).
- **BE CAREFUL!**: 5-tone calling beep sound becomes loud or soft when beep volume adjusts to loud or soft.

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		ADJUSTMENT	
		UNIT	LOCATION	UNIT	ADJUST
BEEP VOLUME	1 <ul style="list-style-type: none"> • Operating freq. : Any • Receiving 	FRONT	Push any button except [POWER] switch, then verify the beep volume level.	FRONT	R59

• FRONT PANEL



SECTION 6 PARTS LIST

[FRONT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
IC1	1140011470	S.IC HD6433687A37FP (FX-2622B)	B
IC2	1110005770	S.IC S-80942CNMC-G9C-T2	B
IC3	1140008650	S.IC HN58X2464TI	B
IC5	1110005340	S.IC NJM12902V-TE1	B
IC6	1130009090	S.IC LC75834W-TLM	B
Q1	1530002850	S.TRANSISTOR 2SC4116-BL (TE85R)	B
Q2	1590001050	S.TRANSISTOR DTC114TUA T106	B
Q3	1590000430	S.TRANSISTOR DTC144EUA T106	B
Q5	1590001050	S.TRANSISTOR DTC114TUA T106	B
D1	1790000950	S.ZENER MA8056-M (TX)	B
D2	1790000950	S.ZENER MA8056-M (TX)	T
D3	1790000950	S.ZENER MA8056-M (TX)	B
D4	1790000620	S.DIODE MA77 (TX)	B
D5	1790001250	S.DIODE MA2S111-(TX)	B
X1	6050009520	S.XTAL CR-520 (19.6608 MHz+)	B
L1	6200003640	S.COIL MLF1608E 100K-T	B
L2	6200001980	S.COIL NL 252018T-1R0J	B
R7	7030009160	S.RESISTOR ERJ2GEJ 181 X (180 Ω)	B
R8	7030009160	S.RESISTOR ERJ2GEJ 181 X (180 Ω)	B
R9	7030005000	S.RESISTOR ERJ2GEJ 471 X (470 Ω)	B
R11	7030009280	S.RESISTOR ERJ2GE	B
R12	7030009140	S.RESISTOR ERJ2GEJ 272 X (2.7 kΩ)	B
R14	7210003020	VARIABLE EVU-F2KFK1 B14 (10KB)	T
R15	7030005120	S.RESISTOR ERJ2GEJ 102 X (1 kΩ)	T
R16	7030005120	S.RESISTOR ERJ2GEJ 102 X (1 kΩ)	B
R18	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R19	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R20	7030008300	S.RESISTOR ERJ2GEJ 184 X (180 kΩ)	B
R21	7030005720	S.RESISTOR ERJ2GEJ 563 X (56 kΩ)	B
R22	7030005220	S.RESISTOR ERJ2GEJ 223 X (22 kΩ)	B
R23	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R24	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R25	7030005220	S.RESISTOR ERJ2GEJ 223 X (22 kΩ)	B
R26	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R27	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R28	7030005040	S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ)	B
R29	7030008290	S.RESISTOR ERJ2GEJ 183 X (18 kΩ)	B
R30	7030005110	S.RESISTOR ERJ2GEJ 224 X (220 kΩ)	B
R31	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R32	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R33	7030005220	S.RESISTOR ERJ2GEJ 223 X (22 kΩ)	B
R34	7030005220	S.RESISTOR ERJ2GEJ 223 X (22 kΩ)	B
R35	7030005070	S.RESISTOR ERJ2GEJ 683 X (68 kΩ)	B
R36	7030005070	S.RESISTOR ERJ2GEJ 683 X (68 kΩ)	B
R37	7030005070	S.RESISTOR ERJ2GEJ 683 X (68 kΩ)	B
R38	7030005070	S.RESISTOR ERJ2GEJ 683 X (68 kΩ)	B
R39	7030005070	S.RESISTOR ERJ2GEJ 683 X (68 kΩ)	B
R40	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R41	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B
R42	7030007350	S.RESISTOR ERJ2GEJ 393 X (39 kΩ)	B
R43	7030005060	S.RESISTOR ERJ2GEJ 333 X (33 kΩ)	B
R44	7030005100	S.RESISTOR ERJ2GEJ 154 X (150 kΩ)	B
R45	7030005530	S.RESISTOR ERJ2GEJ 100 X (10 Ω)	B
R46	7030005160	S.RESISTOR ERJ2GEJ 105 X (1 MΩ)	B
R47	7030008010	S.RESISTOR ERJ2GEJ 123 X (12 kΩ)	B
R48	7030008010	S.RESISTOR ERJ2GEJ 123 X (12 kΩ)	B
R49	7030008010	S.RESISTOR ERJ2GEJ 123 X (12 kΩ)	B
R50	7410001130	S.ARRAY EXB28V102JX	B
R51	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R52	7030005120	S.RESISTOR ERJ2GEJ 102 X (1 kΩ)	B
R54	7410001130	S.ARRAY EXB28V102JX	B
R55	7410000770	S.ARRAY EXB-V4V 102JV (1 kΩ)	B
R56	7410001130	S.ARRAY EXB28V102JX	B
R57	7030005160	S.RESISTOR ERJ2GEJ 105 X (1 MΩ)	B
R58	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B
R59	7310002740	S.TRIMMER RV-150 (RH03A3A14X0FC) 103	B
R60	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R65	7030005120	S.RESISTOR ERJ2GEJ 102 X (1 kΩ)	B
R67	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B
R68	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B
R73	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B

[FRONT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R74	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B
R75	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	B
R76	7030005120	S.RESISTOR ERJ2GEJ 102 X (1 kΩ)	B
R77	7030005030	S.RESISTOR ERJ2GEJ 152 X (1.5 kΩ)	B
R78	7030005240	S.RESISTOR ERJ2GEJ 473 X (47 kΩ)	B
R79	7410000770	S.ARRAY EXB-V4V 102JV (1 kΩ)	B
R80	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R81	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R82	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R83	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R84	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R85	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R86	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R87	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R88	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R89	7030005090	S.RESISTOR ERJ2GEJ 104 X (100 kΩ)	B
R90	7030006610	S.RESISTOR ERJ2GEJ 394 X (390 kΩ)	T
C1	4030018100	S.CERAMIC ECJ0EB1H681K	B
C2	4030017420	S.CERAMIC ECJ0EC1H470J	B
C3	4030017420	S.CERAMIC ECJ0EC1H470J	B
C4	4030017420	S.CERAMIC ECJ0EC1H470J	B
C5	4030017420	S.CERAMIC ECJ0EC1H470J	B
C6	4030017420	S.CERAMIC ECJ0EC1H470J	B
C7	4030017420	S.CERAMIC ECJ0EC1H470J	B
C8	4030017460	S.CERAMIC ECJ0EB1E102K	B
C9	4030017460	S.CERAMIC ECJ0EB1E102K	B
C10	4030017460	S.CERAMIC ECJ0EB1E102K	B
C11	4030017420	S.CERAMIC ECJ0EC1H470J	T
C12	4030017460	S.CERAMIC ECJ0EB1E102K	B
C14	4030017460	S.CERAMIC ECJ0EB1E102K	B
C15	4030016960	S.CERAMIC ECJ0EB1C183K	B
C16	4030016930	S.CERAMIC ECJ0EB1A104K	B
C17	4030017740	S.CERAMIC ECJ0EB1E821K	B
C19	4030016930	S.CERAMIC ECJ0EB1A104K	B
C20	4030018110	S.CERAMIC ECJ0EB1H272K	B
C21	4030018240	S.CERAMIC ECJ0EB1E562K	B
C22	4030017710	S.CERAMIC ECJ0EC1H181J	B
C23	4030018090	S.CERAMIC ECJ0EB1C822K	B
C24	4030017510	S.CERAMIC ECJ0EC1H680J	B
C25	4030016790	S.CERAMIC ECJ0EB1C103K	B
C26	4030016930	S.CERAMIC ECJ0EB1A104K	B
C27	4030017450	S.CERAMIC ECJ0EB1E271K	B
C28	4030016930	S.CERAMIC ECJ0EB1A104K	B
C29	4550006050	S.TANTALUM TEESVA OJ 106M8L	B
C30	4030017030	S.CERAMIC ECJ0EB1A273K	B
C31	4030017400	S.CERAMIC ECJ0EC1H220J	B
C32	4030017640	S.CERAMIC ECJ0EC1H150J	B
C33	4030017510	S.CERAMIC ECJ0EC1H680J	B
C34	4030017730	S.CERAMIC ECJ0EB1E471K	B
C35	4030016930	S.CERAMIC ECJ0EB1A104K	B
C36	4030016930	S.CERAMIC ECJ0EB1A104K	B
C37	4030017420	S.CERAMIC ECJ0EC1H470J	B
C38	4030017420	S.CERAMIC ECJ0EC1H470J	B
C41	4030017460	S.CERAMIC ECJ0EB1E102K	B
C50	4030017420	S.CERAMIC ECJ0EC1H470J	B
C54	4030017420	S.CERAMIC ECJ0EC1H470J	B
C69	4030017420	S.CERAMIC ECJ0EC1H470J	B
C74	4030017420	S.CERAMIC ECJ0EC1H470J	B
C75	4030016930	S.CERAMIC ECJ0EB1A104K	B
C76	4030016930	S.CERAMIC ECJ0EB1A104K	B
C77	4030016950	S.CERAMIC ECJ0EB1A473K	B
C78	4030017460	S.CERAMIC ECJ0EB1E102K	B
C79	4030016930	S.CERAMIC ECJ0EB1A104K	B
C80	4030016930	S.CERAMIC ECJ0EB1A104K	B
C81	4030017460	S.CERAMIC ECJ0EB1E102K	T
C82	4030017420	S.CERAMIC ECJ0EC1H470J	B
C83	4030017420	S.CERAMIC ECJ0EC1H470J	B
C84	4030017420	S.CERAMIC ECJ0EC1H470J	B
C85	4030017420	S.CERAMIC ECJ0EC1H470J	B
J1	6450002210	CONNECTOR 3017-8821 <KIN>	T
J2	6510022470	S.CONNECTOR 40FLT-SM1-TB	B
J3	6510022020	S.CONNECTOR 14FLT-SM1-TB	B
DS1	5040002310	S.LED SML-311YTT86	T
DS2	5040002310	S.LED SML-311YTT86	T
DS3	5040002310	S.LED SML-311YTT86	T

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

S.=Surface mount

[FRONT UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
DS4	5040002310	S.LED	SML-311YTT86	T
DS5	5040002310	S.LED	SML-311YTT86	T
DS6	5040002310	S.LED	SML-311YTT86	T
DS7	5040002310	S.LED	SML-311YTT86	T
DS8	5040002310	S.LED	SML-311YTT86	T
DS9	5040002310	S.LED	SML-311YTT86	T
DS11	5030002510	LCD	L2-0607TAY	T
SP1	2510001220	SPEAKER	C052SB500-13	
W1	8900010500	CABLE	OPC-1046	B
EP1	0910055684	PCB	B 5910D	
EP2	8930059170	LCD CONTACT	SRCN-2622-SP-N-W	T

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
IC1	1110003490	S.IC	TA31136FN (D,EL)	T
IC2	1110002750	S.IC	TA75S01F (TE85R)	T
IC3	1150002031	IC	RA30H4452M-21	T
IC4	1140005990	S.IC	MB15A02PFV1-G-BND-ER	T
IC5	1110005330	S.IC	NJM12904V-TE1	T
IC6	1190000350	S.IC	M62363FP-650C	B
IC8	1110003090	IC	LA4425A	T
IC9	1180001250	S.IC	TA7808F (TE16L)	T
IC10	1180000970	S.IC	AN78L05M-(E1)	B
IC14	1130008090	S.IC	BU4066BCFV-E1	B
IC15	1110002750	S.IC	TA75S01F (TE85R)	B
IC16	1110005340	S.IC	NJM12902V-TE1	B
IC17	1130007570	S.IC	BU4094BCFV-E2	B
Q1	1560000840	S.FET	2SK1829 (TE85R)	B
Q2	1580000730	S.FET	3SK293 (TE85L)	B
Q3	1580000760	S.FET	3SK299-T1 U73	B
Q4	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)	T
Q5	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q8	1530000371	S.TRANSISTOR	2SC3356-T1B R25	B
Q9	1530003310	S.TRANSISTOR	2SC5107-O (TE85R)	B
Q10	1530003310	S.TRANSISTOR	2SC5107-O (TE85R)	B
Q11	1530003310	S.TRANSISTOR	2SC5107-O (TE85R)	T
Q12	1530003310	S.TRANSISTOR	2SC5107-O (TE85R)	T
Q13	1530002920	S.TRANSISTOR	2SC4226-T1 R25	T
Q14	1530002920	S.TRANSISTOR	2SC4226-T1 R25	T
Q15	1590001400	S.TRANSISTOR	XP1214 (TX)	B
Q16	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q17	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
Q18	1560000540	S.FET	2SK880-Y (TE85R)	T
Q19	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)	B
Q23	1550000020	S.FET	2SJ377 (TE16R)	T
Q24	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q25	1540000550	S.TRANSISTOR	2SD1664 T100Q	B
Q26	1510000920	S.TRANSISTOR	2SA1577 T106 Q	B
Q27	1510000920	S.TRANSISTOR	2SA1577 T106 Q	B
Q28	1590001190	S.TRANSISTOR	XP6501-(TX) .AB	B
Q29	1590001050	S.TRANSISTOR	DTC114TUA T106	B
Q30	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q31	1590001450	S.FET	2SJ144-GR (TE85R)	T
Q33	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q34	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
Q35	1590000990	S.TRANSISTOR	DTC363EK T146	B
Q36	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q37	1530003090	S.TRANSISTOR	2SC4213-B (TE85R)	T
Q38	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q39	1590000430	S.TRANSISTOR	DTC144EUA T106	T
D1	1790000660	S.DIODE	MA728 (TX)	B
D2	1750000510	S.DIODE	UM9401F	T
D4	1750000710	S.VARICAP	HVC350BTRF	B
D5	1750000510	S.DIODE	UM9401F	T
D7	1790000660	S.DIODE	MA728 (TX)	B
D8	1750000710	S.VARICAP	HVC350BTRF	B
D9	1750000710	S.VARICAP	HVC350BTRF	B
D10	1750000710	S.VARICAP	HVC350BTRF	B
D11	1790000660	S.DIODE	MA728 (TX)	B
D14	1750000580	S.DIODE	1SV307 (TPH3)	B

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
D15	1790000620	S.DIODE	MA77 (TX)	B
D16	1750000710	S.VARICAP	HVC350BTRF	T
D17	1750000710	S.VARICAP	HVC350BTRF	T
D18	1720000570	S.VARICAP	MA368 (TX)	B
D20	1790001250	S.DIODE	MA2S111-(TX)	B
D21	1750000830	S.VARICAP	HVC362TRF	T
D22	1790000700	DIODE	DSA3A1	B
D23	1750000370	S.DIODE	DA221 TL	B
D25	1790001250	S.DIODE	MA2S111-(TX)	B
D26	1790001250	S.DIODE	MA2S111-(TX)	B
D28	1790001250	S.DIODE	MA2S111-(TX)	T
D29	1790001250	S.DIODE	MA2S111-(TX)	B
D31	1750000520	S.DIODE	DAN222TL	B
D37	1790001250	S.DIODE	MA2S111-(TX)	T
D38	1790001250	S.DIODE	MA2S111-(TX)	T
D39	1160000140	S.DIODE	DAP222 TL	B
D40	1160000140	S.DIODE	DAP222 TL	B
D43	1750000710	S.VARICAP	HVC350BTRF	B
FI1	2030000150	S.MONOLITH	FL-335 (46.350 MHz)	T
FI2	2020001840	CERAMIC	ALFYM450F=K	B
FI3	2040001440	S.LC	NFE31PT152Z1E9L (NFM60R20T152)	B
FI4	2040001440	S.LC	NFE31PT152Z1E9L (NFM60R20T152)	B
X1	6070000190	S.DISCRIMINATOR	CDBC450KAY24-R0 (CDBC450CX24)	T
X2	6050011540	S.XTAL	CR-741 (15.300 MHz)	B
L1	6200010150	S.COIL	AS080340-15N	T
L2	6200010150	S.COIL	AS080340-15N	T
L3	6200010040	S.COIL	AS100340-10N	T
L4	6200008210	S.COIL	0.45-1.5-5TL 23.2N	T
L5	6200010420	S.COIL	FHW1210HC 1R0JGT	T
L7	6200007680	S.COIL	LQW2BHN12NJ01L (LQN21A 12NJ04)	B
L8	6200007680	S.COIL	LQW2BHN12NJ01L (LQN21A 12NJ04)	B
L9	6200007680	S.COIL	LQW2BHN12NJ01L (LQN21A 12NJ04)	B
L10	6200004660	S.COIL	MLF1608A 1R8K-T	T
L11	6200007680	S.COIL	LQW2BHN12NJ01L (LQN21A 12NJ04)	B
L12	6200005720	S.COIL	ELJRE 33NG-F	B
L13	6200003010	S.COIL	NL 322522T-R27J-3	B
L16	6200010150	S.COIL	AS080340-15N	T
L17	6200005660	S.COIL	ELJRE 10NG-F	B
L18	6200005680	S.COIL	ELJRE 15NG-F	T
L19	6200005710	S.COIL	ELJRE 27NG-F	B
L20	6200005710	S.COIL	ELJRE 27NG-F	B
L21	6200005700	S.COIL	ELJRE 22NG-F	B
L23	6200002850	S.COIL	NL 252018T-R82J	B
L25	6200009360	S.COIL	0.45-1.4-3TL 11N	T
L26	6200009360	S.COIL	0.45-1.4-3TL 11N	T
L27	6200004950	S.COIL	NL 252018T-1R8J	B
L28	6200002710	S.COIL	ELJFC 1R8K-F	B
L29	6200004660	S.COIL	MLF1608A 1R8K-T	T
L31	6200005720	S.COIL	ELJRE 33NG-F	B
L32	6200005680	S.COIL	ELJRE 15NG-F	B
L33	6200002850	S.COIL	NL 252018T-R82J	B
L35	6200002840	S.COIL	NL 252018T-R22J	B
L37	6200006980	S.COIL	ELJRE R10G-F	T
L38	6200005700	S.COIL	ELJRE 22NG-F	B
L41	6200005710	S.COIL	ELJRE 27NG-F	T
L42	6200005640	S.COIL	ELJRE 6N8Z-F	B
L43	6200005720	S.COIL	ELJRE 33NG-F	B
R1	7030000620	S.RESISTOR	MCR10EZHZ 100 kΩ	B
R2	7030000220	S.RESISTOR	MCR10EZHZ 47 Ω (470)	B
R3	7030000220	S.RESISTOR	MCR10EZHZ 47 Ω (470)	B
R4	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)	B
R5	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R6	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R7	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)	B
R8	7030006070	S.RESISTOR	ERJ12VJ101U (100 Ω)	B
R10	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)	B
R11	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)	B
R12	7030005530	S.RESISTOR	ERJ2GEJ 100 X (10 Ω)	B
R13	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)	B
R14	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R15	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
R16	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)	B
R17	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)	B
R18	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R19	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)	B
R20	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
R21	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)	B
R22	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R23	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)	B
R25	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)	B

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R28	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R29	7030003340	S.RESISTOR ERJ3GEYJ 151 V (150 Ω)	B
R30	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R31	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R32	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R33	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)	T
R34	7030003690	S.RESISTOR ERJ3GEYJ 124 V (120 kΩ)	T
R35	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R36	7030003510	S.RESISTOR ERJ3GEYJ 392 V (3.9 kΩ)	T
R37	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	T
R38	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R39	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	B
R40	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)	B
R43	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	T
R44	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R45	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R46	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)	B
R50	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R51	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R52	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	T
R53	7030003410	S.RESISTOR ERJ3GEYJ 561 V (560 Ω)	T
R54	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R55	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R56	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	T
R57	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R58	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R59	7030003690	S.RESISTOR ERJ3GEYJ 124 V (120 kΩ)	T
R61	7030003300	S.RESISTOR ERJ3GEYJ 680 V (68 Ω)	B
R62	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R65	7030003360	S.RESISTOR ERJ3GEYJ 221 V (220 Ω)	B
R66	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R67	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R68	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R69	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R70	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	B
R71	7030003260	S.RESISTOR ERJ3GEYJ 330 V (33 Ω)	T
R72	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	T
R73	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R74	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R75	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	T
R76	7030003360	S.RESISTOR ERJ3GEYJ 221 V (220 Ω)	T
R77	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R78	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R79	7030005341	S.RESISTOR ERA3YED 332V	T
R80	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R81	7030004040	S.RESISTOR ERJ3GEYJ 4R7 V (4.7 Ω)	T
R82	7030004040	S.RESISTOR ERJ3GEYJ 4R7 V (4.7 Ω)	T
R83	7030005341	S.RESISTOR ERA3YED 332V	T
R84	7030005341	S.RESISTOR ERA3YED 332V	T
R85	7030005341	S.RESISTOR ERA3YED 332V	T
R86	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R87	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	B
R89	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R90	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R91	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R92	7030003690	S.RESISTOR ERJ3GEYJ 124 V (120 kΩ)	B
R93	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R95	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R96	7030003510	S.RESISTOR ERJ3GEYJ 392 V (3.9 kΩ)	T
R97	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R98	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	B
R100	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R101	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R103	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	T
R104	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	B
R105	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R106	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	B
R110	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	B
R111	7030006571	S.RESISTOR ERA3YED 392V	T
R112	7030008071	S.RESISTOR ERA3YED 273V	T
R113	7030008061	S.RESISTOR ERA3YED 222V	T
R114	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)	T
R115	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	B
R116	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)	B
R117	7030003710	S.RESISTOR ERJ3GEYJ 184 V (180 kΩ)	B
R118	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)	T
R119	7030003530	S.RESISTOR ERJ3GEYJ 562 V (5.6 kΩ)	T
R120	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R121	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R122	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)	B
R124	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	T
R125	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R126	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	T
R127	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R128	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R129	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R130	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R133	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	T

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R134	7030003650	S.RESISTOR ERJ3GEYJ 563 V (56 kΩ)	T
R135	7030003690	S.RESISTOR ERJ3GEYJ 124 V (120 kΩ)	T
R136	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R137	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)	T
R138	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R139	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R140	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R141	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R142	7410001130	S.ARRAY EXB28V102JX	T
R143	7410001130	S.ARRAY EXB28V102JX	T
R144	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R145	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	T
R146	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R147	7410001130	S.ARRAY EXB28V102JX	T
R148	7410001130	S.ARRAY EXB28V102JX	T
R149	7410001130	S.ARRAY EXB28V102JX	T
R150	7410001130	S.ARRAY EXB28V102JX	T
R156	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R159	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R163	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R164	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R183	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	T
R184	7030003650	S.RESISTOR ERJ3GEYJ 563 V (56 kΩ)	T
R185	7030003690	S.RESISTOR ERJ3GEYJ 124 V (120 kΩ)	T
R186	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R187	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R188	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	T
R191	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R192	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R193	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R194	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	B
R195	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	B
R196	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R197	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R198	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R199	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R200	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R201	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	T
R202	7030000440	S.RESISTOR MCR10EZJH 3.3 kΩ	B
R203	7030000440	S.RESISTOR MCR10EZJH 3.3 kΩ	B
R204	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R205	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R206	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R207	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R208	7030000440	S.RESISTOR MCR10EZJH 3.3 kΩ	B
R209	7510001470	S.THERMISTOR NTCG20 4AG 473JT	T
R210	7030005871	S.RESISTOR ERA3YKD 104V (100 kΩ)	T
R211	7030003290	S.RESISTOR ERJ3GEYJ 560 V (56 Ω)	B
R215	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	B
R217	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	T
R218	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	T
R219	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R220	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R222	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R223	7030005120	S.RESISTOR ERJ2GEJ 102 X (1 kΩ)	T
R224	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	B
R225	7030005050	S.RESISTOR ERJ2GEJ 103 X (10 kΩ)	T
R226	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R227	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R228	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R229	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R230	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R231	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R232	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)	T
R234	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R235	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R236	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	B
R237	7030003780	S.RESISTOR ERJ3GEYJ 684 V (680 kΩ)	B
R238	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R240	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R241	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R242	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)	B
R243	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	B
R244	7030003750	S.RESISTOR ERJ3GEYJ 394 V (390 kΩ)	B
R245	7030003710	S.RESISTOR ERJ3GEYJ 184 V (180 kΩ)	B
R246	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)	B
R247	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R248	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R249	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R250	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R251	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R252	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	B
R261	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	T
R262	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	T
R263	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	T
R264	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)	T
R265	7030003590	S.RESISTOR ERJ3GEYJ 183 V (18 kΩ)	T
R266	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T

S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R267	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)	T
R268	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R269	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R270	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R271	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R285	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R287	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R290	7030003420	S.RESISTOR ERJ3GEYJ 681 V (680 Ω)	T
R291	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R292	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)	B
R297	7030005651	S.RESISTOR ERA3YKD 304V (300 kΩ)	T
R298	7030005871	S.RESISTOR ERA3YKD 104V (100 kΩ)	T
R304	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	T
R305	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	T
R306	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R308	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	T
R309	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R310	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R315	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R316	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R317	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R318	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R319	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R320	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	T
R322	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R323	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
C1	4030011100	S.CERAMIC GRM31M2C2H8R0DV01L (GRM42-6 CH)	T
C2	4030011080	S.CERAMIC GRM31M2C2H6R0DV01L (GRM42-6 CH)	T
C3	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C4	4030007010	S.CERAMIC C1608 CH 1H 100D-T	B
C5	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C6	4030011020	S.CERAMIC GRM31M4C2H1R0CY21L (GRM42-6 CK)	T
C7	4030011060	S.CERAMIC GRM31M2C2H4R0CY21L (GRM42-6 CH)	T
C8	4030011020	S.CERAMIC GRM31M4C2H1R0CY21L (GRM42-6 CK)	T
C9	4030011060	S.CERAMIC GRM31M2C2H4R0CY21L (GRM42-6 CH)	T
C10	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C11	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C12	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C13	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C14	4030011240	S.CERAMIC GRM31M2C2H470JV01L (GRM42-6 CH)	T
C15	4030006990	S.CERAMIC C1608 CH 1H 080D-T	B
C16	4030011040	S.CERAMIC GRM31M4C2H2R0CY21L (GRM42-6 CK)	T
C18	4030011770	S.CERAMIC C1608 CH 1H 060B-T	B
C19	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C20	4030009920	S.CERAMIC C1608 CH 1H 050B-T	B
C21	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C22	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	B
C25	4030009520	S.CERAMIC C1608 CH 1H 020B-T	B
C26	4030011770	S.CERAMIC C1608 CH 1H 060B-T	B
C27	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C28	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C29	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C30	4030009920	S.CERAMIC C1608 CH 1H 050B-T	B
C32	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C33	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C34	4030017460	S.CERAMIC ECJ0EB1E102K	B
C35	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C36	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C37	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C38	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C39	4030006990	S.CERAMIC C1608 CH 1H 080D-T	B
C40	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	B
C41	4030007030	S.CERAMIC C1608 CH 1H 150J-T	B
C42	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C43	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C44	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C45	4030006990	S.CERAMIC C1608 CH 1H 080D-T	B
C48	4030007050	S.CERAMIC C1608 CH 1H 220J-T	B
C49	4030009920	S.CERAMIC C1608 CH 1H 050B-T	B
C50	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C51	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C52	4030007080	S.CERAMIC C1608 CH 1H 390J-T	B
C53	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C54	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C55	4030009920	S.CERAMIC C1608 CH 1H 050B-T	T
C56	4030007050	S.CERAMIC C1608 CH 1H 220J-T	T
C57	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C58	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C59	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C60	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C61	4030007130	S.CERAMIC C1608 CH 1H 101J-T	T
C62	4030007130	S.CERAMIC C1608 CH 1H 101J-T	T
C63	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C64	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C65	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C66	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
C67	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C69	4030011330	S.CERAMIC C1608 CH 1H 391J-T	B
C70	4030011330	S.CERAMIC C1608 CH 1H 391J-T	B
C71	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C73	4030017490	S.CERAMIC C1608 JB 1A 105K-T	T
C75	4550006050	S.TANTALUM TEESVA 0J 106M8L	T
C76	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C77	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C78	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C79	4030011810	S.CERAMIC C1608 JB 1A 224K-T	T
C80	4030006880	S.CERAMIC C1608 JB 1H 472K-T	T
C81	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C82	4030011040	S.CERAMIC GRM31M4C2H2R0CY21L (GRM42-6 CK)	T
C83	4030011040	S.CERAMIC GRM31M4C2H2R0CY21L (GRM42-6 CK)	T
C84	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C85	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C86	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C87	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C88	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C89	4030009910	S.CERAMIC C1608 CH 1H 040B-T	T
C90	4030009520	S.CERAMIC C1608 CH 1H 020B-T	T
C91	4510005750	S.ELECTROLYTIC ECEV1EA220SP	T
C92	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C93	4030009920	S.CERAMIC C1608 CH 1H 050B-T	B
C94	4030009520	S.CERAMIC C1608 CH 1H 020B-T	B
C96	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C97	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C98	4030009520	S.CERAMIC C1608 CH 1H 020B-T	B
C99	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C100	4030007010	S.CERAMIC C1608 CH 1H 100D-T	B
C101	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C102	4030007020	S.CERAMIC C1608 CH 1H 120J-T	T
C103	4030009920	S.CERAMIC C1608 CH 1H 050B-T	T
C104	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C105	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C106	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C107	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C108	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C109	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C110	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C111	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C112	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C113	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	T
C114	4030006980	S.CERAMIC C1608 CH 1H 070D-T	T
C115	4030009910	S.CERAMIC C1608 CH 1H 040B-T	T
C116	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C117	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C118	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	T
C119	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C120	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C121	4030007000	S.CERAMIC C1608 CH 1H 090D-T	T
C122	4030006990	S.CERAMIC C1608 CH 1H 080D-T	T
C123	4030006990	S.CERAMIC C1608 CH 1H 080D-T	T
C124	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	T
C125	4030008210	S.CERAMIC C1608 UJ 1H 060D-T	T
C126	4030007000	S.CERAMIC C1608 CH 1H 090D-T	T
C127	4030009570	S.CERAMIC C1608 CH 1H 0R3B-T	T
C128	4030008190	S.CERAMIC C1608 UJ 1H 040C-T	T
C129	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	B
C130	4030008920	S.CERAMIC C1608 JB 1H 473K-T	T
C131	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C132	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C133	4540000040	S.TRIMMER ECR-KN006 A61X	T
C134	4540000040	S.TRIMMER ECR-KN006 A61X	T
C138	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C139	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C140	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C141	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C142	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C143	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C144	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C145	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C146	4550000530	S.TANTALUM TEESVA 1V 104M8L	T
C147	4550003220	S.TANTALUM TEESVA 1E 105M8L	T
C148	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C151	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C152	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C153	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C154	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C155	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C156	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C157	4030007130	S.CERAMIC C1608 CH 1H 101J-T	B
C158	4030007130	S.CERAMIC C1608 CH 1H 101J-T	B
C159	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C160	4030007000	S.CERAMIC C1608 CH 1H 090D-T	B
C161	4030007130	S.CERAMIC C1608 CH 1H 101J-T	B
C162	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C163	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T

S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
C164	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C167	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C168	4030008920	S.CERAMIC C1608 JB 1H 473K-T	B
C169	4030008920	S.CERAMIC C1608 JB 1H 473K-T	B
C170	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C172	4030009630	S.CERAMIC C1608 JB 1H 822K-T	T
C173	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C174	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C175	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C177	4030008770	S.CERAMIC C1608 JB 1H 562K-T	T
C178	4030007120	S.CERAMIC C1608 CH 1H 820J-T	T
C179	4030008860	S.CERAMIC C1608 JB 1H 153K-T	T
C180	4510004640	S.ELECTROLYTIC ECEV1CA470SP	T
C181	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C182	4030008650	S.CERAMIC C1608 JB 1H 332K-T	T
C183	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C184	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C185	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C200	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C201	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C202	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C203	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C204	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C207	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C208	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C209	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C210	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C243	4030006880	S.CERAMIC C1608 JB 1H 472K-T	T
C244	4030017480	S.CERAMIC C1608 JB 1A 474K-T	B
C245	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C246	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C248	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C249	4030006870	S.CERAMIC C1608 JB 1H 222K-T	B
C250	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C251	4030008920	S.CERAMIC C1608 JB 1H 473K-T	B
C252	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C253	4030008880	S.CERAMIC C1608 JB 1H 223K-T	B
C254	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C255	4510008030	S.ELECTROLYTIC ECEV1EA471P	T
C256	4510006260	S.ELECTROLYTIC ECEV1AA471UP	T
C258	4510008030	S.ELECTROLYTIC ECEV1EA471P	T
C259	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C260	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C261	4030004760	S.CERAMIC C2012 JF 1H 104Z-T	B
C262	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C263	4030004760	S.CERAMIC C2012 JF 1H 104Z-T	T
C264	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C266	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C268	4550006700	S.TANTALUM ECST1AY106R	B
C269	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C270	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C271	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C272	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C273	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C274	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C275	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C276	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C280	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C282	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C283	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C286	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C287	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C288	4030016930	S.CERAMIC ECJ0EB1A104K	T
C289	4030016930	S.CERAMIC ECJ0EB1A104K	T
C290	4030017460	S.CERAMIC ECJ0EB1E102K	T
C291	4030017460	S.CERAMIC ECJ0EB1E102K	T
C292	4030017420	S.CERAMIC ECJ0EC1H470J	T
C293	4030017460	S.CERAMIC ECJ0EB1E102K	T
C294	4030017460	S.CERAMIC ECJ0EB1E102K	T
C295	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C297	4030007010	S.CERAMIC C1608 CH 1H 100D-T	B
C298	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C299	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C301	4030006850	S.CERAMIC C1608 JB 1H 471K-T	B
C302	4030009910	S.CERAMIC C1608 CH 1H 040B-T	B
C303	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C304	4030007010	S.CERAMIC C1608 CH 1H 100D-T	B
C305	4030007100	S.CERAMIC C1608 CH 1H 560J-T	B
C306	4030009910	S.CERAMIC C1608 CH 1H 040B-T	B
C307	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C308	4030009530	S.CERAMIC C1608 CH 1H 030B-T	B
C309	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C310	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C311	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C314	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C315	4030008880	S.CERAMIC C1608 JB 1H 223K-T	B
C316	4030009490	S.CERAMIC C1608 JB 1H 821K-T	B
C317	4030009490	S.CERAMIC C1608 JB 1H 821K-T	B

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
C318	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C319	4030008920	S.CERAMIC C1608 JB 1H 473K-T	B
C320	4030008910	S.CERAMIC C1608 JB 1H 393K-T	B
C321	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C322	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C324	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C325	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C327	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C328	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C329	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C331	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	B
C333	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C334	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C335	4030007020	S.CERAMIC C1608 CH 1H 120J-T	B
C336	4030007050	S.CERAMIC C1608 CH 1H 220J-T	B
C337	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C339	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	B
C342	4550002890	S.TANTALUM TEESVA 1A 225M8L	T
C343	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C344	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C345	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C346	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C348	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C349	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C350	4030017490	S.CERAMIC C1608 JB 1A 105K-T	B
C351	4030008920	S.CERAMIC C1608 JB 1H 473K-T	B
C352	4510005750	S.ELECTROLYTIC ECEV1EA220SP	T
C357	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C359	4030017490	S.CERAMIC C1608 JB 1A 105K-T	T
C360	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C361	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C362	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C363	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C364	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C365	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C366	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C367	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C370	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	T
C372	4030007110	S.CERAMIC C1608 CH 1H 680J-T	B
C373	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C374	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C375	4030007080	S.CERAMIC C1608 CH 1H 390J-T	T
C376	4030007160	S.CERAMIC C1608 CH 1H 181J-T	T
C377	4030007160	S.CERAMIC C1608 CH 1H 181J-T	T
C378	4030017670	S.CERAMIC ECJ0EC1H390J	T
C379	4030017670	S.CERAMIC ECJ0EC1H390J	T
C380	4030017670	S.CERAMIC ECJ0EC1H390J	T
C381	4030007160	S.CERAMIC C1608 CH 1H 181J-T	T
C382	4030007080	S.CERAMIC C1608 CH 1H 390J-T	T
C383	4030007050	S.CERAMIC C1608 CH 1H 220J-T	B
C384	4030007020	S.CERAMIC C1608 CH 1H 120J-T	B
C385	4030006980	S.CERAMIC C1608 CH 1H 070D-T	B
C386	4030007160	S.CERAMIC C1608 CH 1H 181J-T	B
C387	4030007160	S.CERAMIC C1608 CH 1H 181J-T	B
C388	4030007160	S.CERAMIC C1608 CH 1H 181J-T	B
C389	4030011770	S.CERAMIC C1608 CH 1H 060B-T	B
C390	4030017460	S.CERAMIC ECJ0EB1E102K	T
C391	4030017420	S.CERAMIC ECJ0EC1H470J	T
C392	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C393	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C394	4030008770	S.CERAMIC C1608 JB 1H 562K-T	B
J1	6510018430	S.CONNECTOR AXN330C038P	T
J2	6510022470	S.CONNECTOR 40FLT-SM1-TB	T
J4	6450000140	CONNECTOR HSJ0807-01-010	B
J6	6510019250	S.CONNECTOR B11B-ZR-SM3-TF	T
J7	6510014960	S.CONNECTOR B2B-ZR-SM3-TF	T
W1	7120000470	JUMPER ERDS2T0	T
W2	8900011861	CABLE OPC-1195A <CMI>	T
W3	7030000010	S.RESISTOR MCR10EZJH JPW (000)	T
W4	7030003860	S.RESISTOR ERJ3GE JPW V	T
W5	7030010040	S.RESISTOR ERJ2GE-JPW	T
EP1	6910013370	S.BEAD BLM18BB221SN1D (BLM11B221SB)	T
EP3	6910011560	BEAD HF70BB4.5X5X1.6	T
EP4	6910010280	BEAD HF70BB9.5X10.4X4.9	T
EP5	6910010280	BEAD HF70BB9.5X10.4X4.9	T
EP6	0910056213	PCB B 5932C	T

S.=Surface mount

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510004880	Connector MR-DS-E 01	1
MP1	8010019060	2601 chassis	1
MP2	8110007820	2601 cover	1
MP3	8210019340	2622 front panel	1
MP4	8930060840	2622 keyboard (A)	1
MP5	8930059090	2622 LCD plate	1
MP6	8210019350	2622 reflector	1
MP7	8610011180	Knob N292	1
MP9	8810008660	Screw PH BT M3 × 8 NI-ZU	8
MP10	8810008660	Screw PH BT M3 × 8 NI-ZU	2
MP11	8810008660	Screw PH BT M3 × 8 NI-ZU	2
MP12	8810008760	Screw PH BT M3 × 8 NI-ZU	3
MP13	8810008660	Screw PH BT M3 × 8 NI-ZU	1
MP14	8810009990	Screw PH BT M3 × 8 ZK	4
MP15	8810009990	Screw PH BT M3 × 8 ZK	2
MP16	8930059100	2622 LCD filter	1
MP17	8930059000	2601 SP net	1
MP18	8930058990	Shield sponge (V)	2

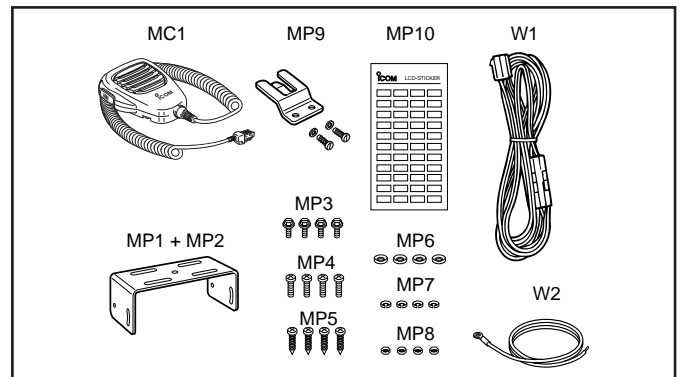
[ACCESSORIES]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MC1	0800005780	Microphone HM-100N	1
W1	8900011780	Cable OPC-1194	1
W2	8900000730	Cable OPC-049	1
MP1	8010019151	2601 mobil bracket-1	1
MP2	8930059160	2601 felt	2
MP3	8820000530	Flange bolt M4 × 8 NI	4
MP4	8810000470	Screw PH M5 × 12 (+-)	4
MP5	8810005840	Screw PH A M5 × 20	4
MP6	8850000150	Flat washer M5 NI BS	4
MP7	8850000390	Spring washer M5	4
MP8	8830000120	Nut M5	4
MP9	6910004210	731 mic hanger set	1
MP10	8310054770	1705 LCD seal (F)	1

Screw abbreviations A, BT: Self-tapping
 PH: Pan head ZK: Black
 BS: Brass NI: Nickel
 NI-ZU: Nickel-Zinc

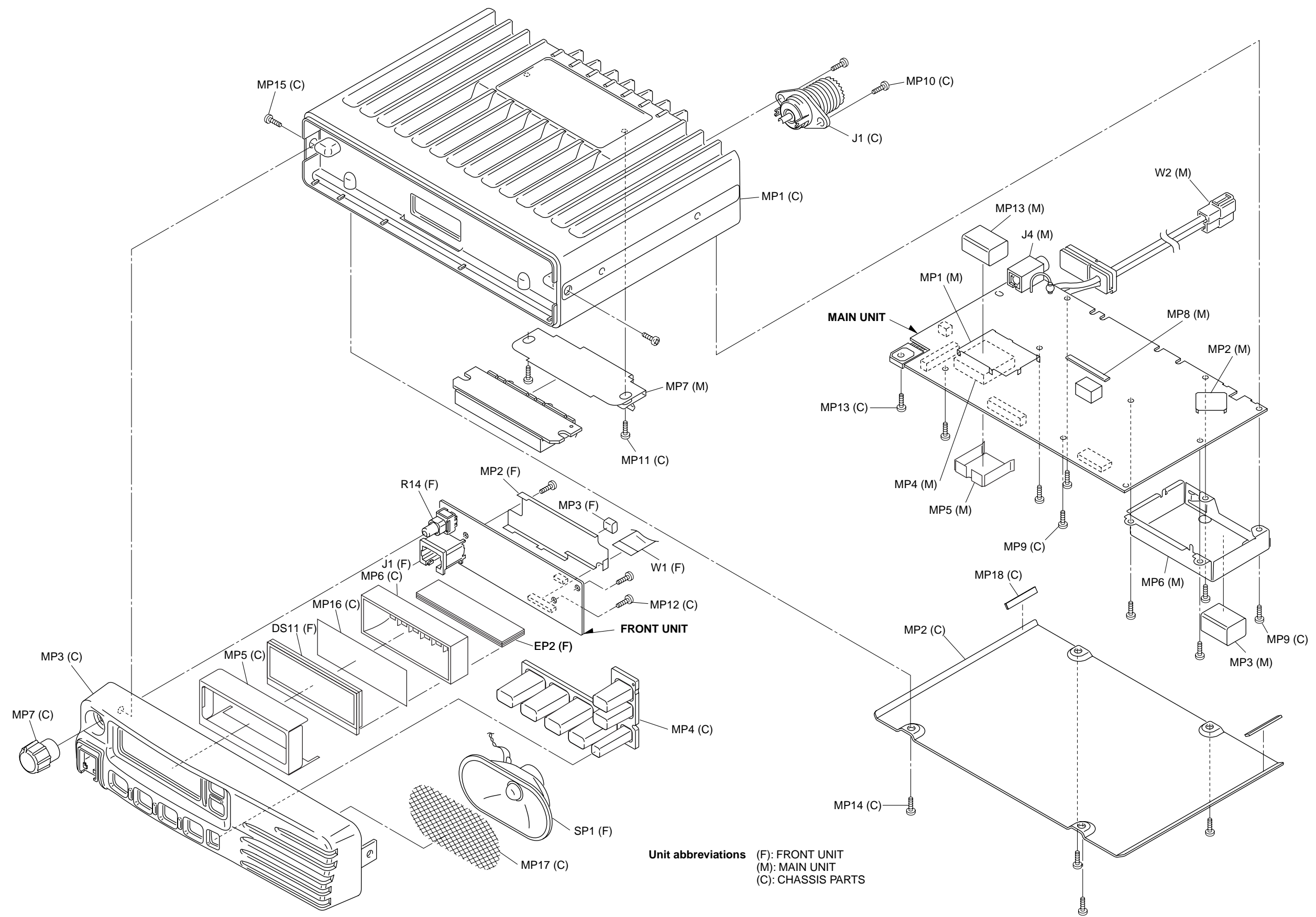
[FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
R14	7210003020	Variable resistor EVU-F2KFK1 B14	1
SP1	2510001220	Speaker C052SB500-13	1
J1	6450002210	Connector 3017-8821	1
W1	8900010500	Cable OPC-1046	1
DS11	5030002510	LCD L2-0607TAY	1
EP2	8930059170	LCD contact SRCN-2622-SP-N-W	1
MP2	8510015290	2623 F-shield	1
MP3	8930058840	Shield sponge (T)	1



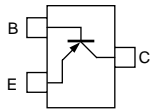
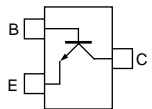
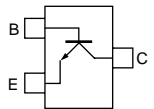
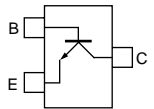
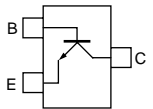
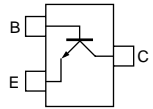
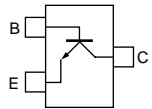
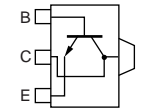
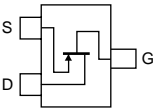
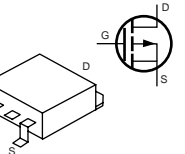
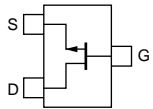
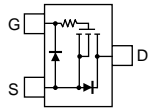
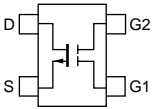
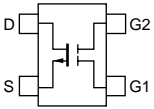
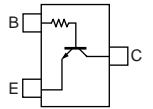
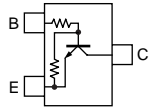
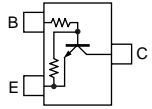
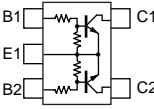
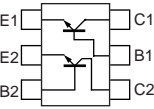
[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J4	6450000140	Connector HSJ0807-01-010	1
W2	8900011861	Cable OPC-1195A	1
MP1	8510005070	599 shield plate	1
MP2	8510011230	1923 VCO shield	1
MP3	8930058840	Shield sponge (T)	1
MP4	8510014940	2601 VCO case	1
MP5	8510014950	2601 VCO cover	1
MP6	8510014910	2601 filter case	1
MP7	8510015110	2602 M-plate	1
MP8	8930058990	Shield sponge (V)	1
MP13	8930058840	Shield sponge (T)	1

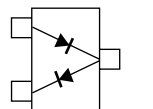
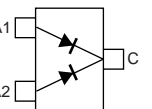
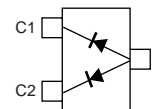
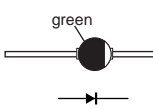
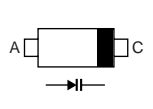

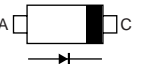




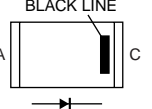


SECTION 8 SEMI-CONDUCTOR INFORMATION

• TRANSISTORS AND FET'S

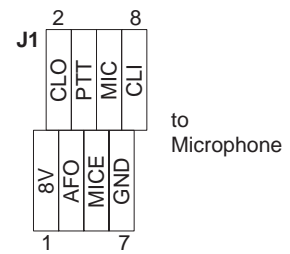
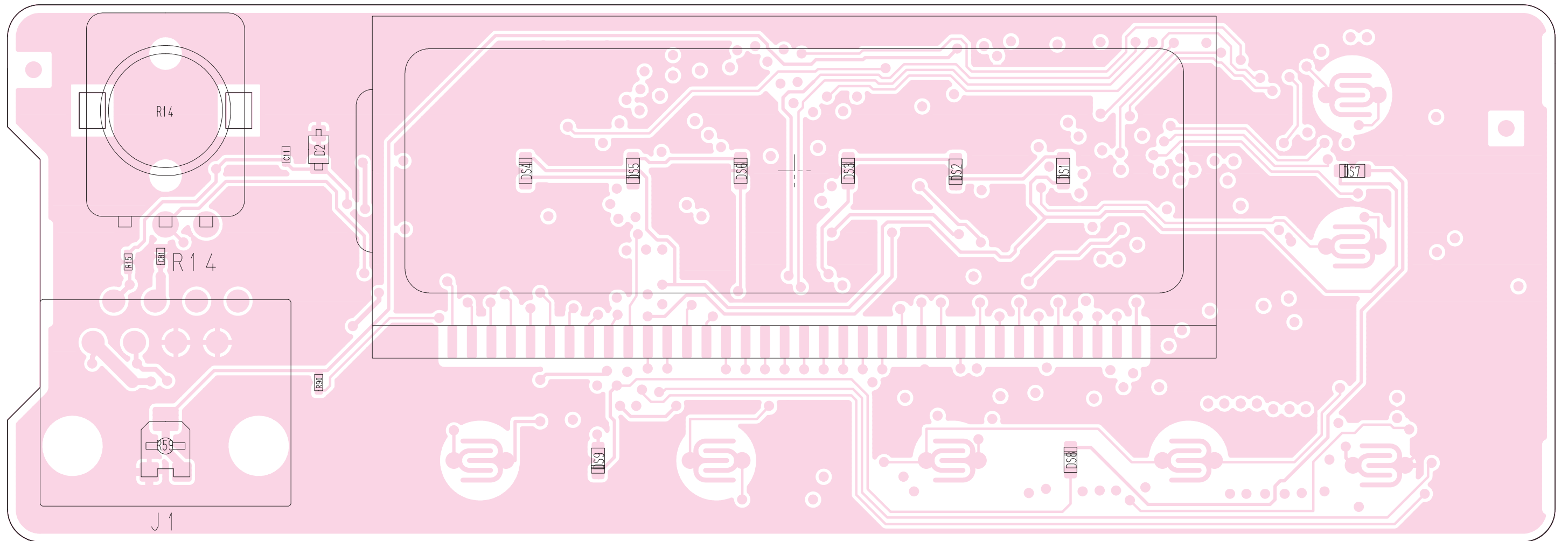
2SA1577 T106 Q (Symbol: HQ) 	2SC3356 T1B R25 (Symbol: R25) 	2SC4116 BL (Symbol: LL) 	2SC4213 B (Symbol: AB) 	2SC4215 O (Symbol: QO) 
2SC4226 T1 R25 (Symbol: R25) 	2SC5107 O (Symbol: MFO) 	2SD1664 T100Q (Symbol: DAQ) 	2SJ144 GR (Symbol: VG) 	2SJ377 (Symbol: 4L) 
2SK880 Y (Symbol: XY) 	2SK1829 (Symbol: K1) 	3SK293 (Symbol: UF) 	3SK299 T1 U73 (Symbol: U73) 	DTC114TUA T106 (Symbol: 04) 
DTC144EUA T106 (Symbol: 26) 	DTC363 EK (Symbol: H27) 	XP1214 (Symbol: 9H) 	XP6501 AB (Symbol: 5N) 	

• DIODES

DA221 TL (Symbol: K) 	DAN222TL (Symbol: N) 	DAP222 (Symbol: P) 	DSA3A1 (Symbol: Green) 	HVC350B (Symbol: B0) 
HVC362 (Symbol: V2) 	MA2S111 (Symbol: A) 	MA77 (Symbol: 4B) 	MA368 (Symbol: 6L) 	MA728 (Symbol: 2A) 
MA8056 M (Symbol: 5-6) 	UM9401F (Symbol: none) BLACK LINE 			

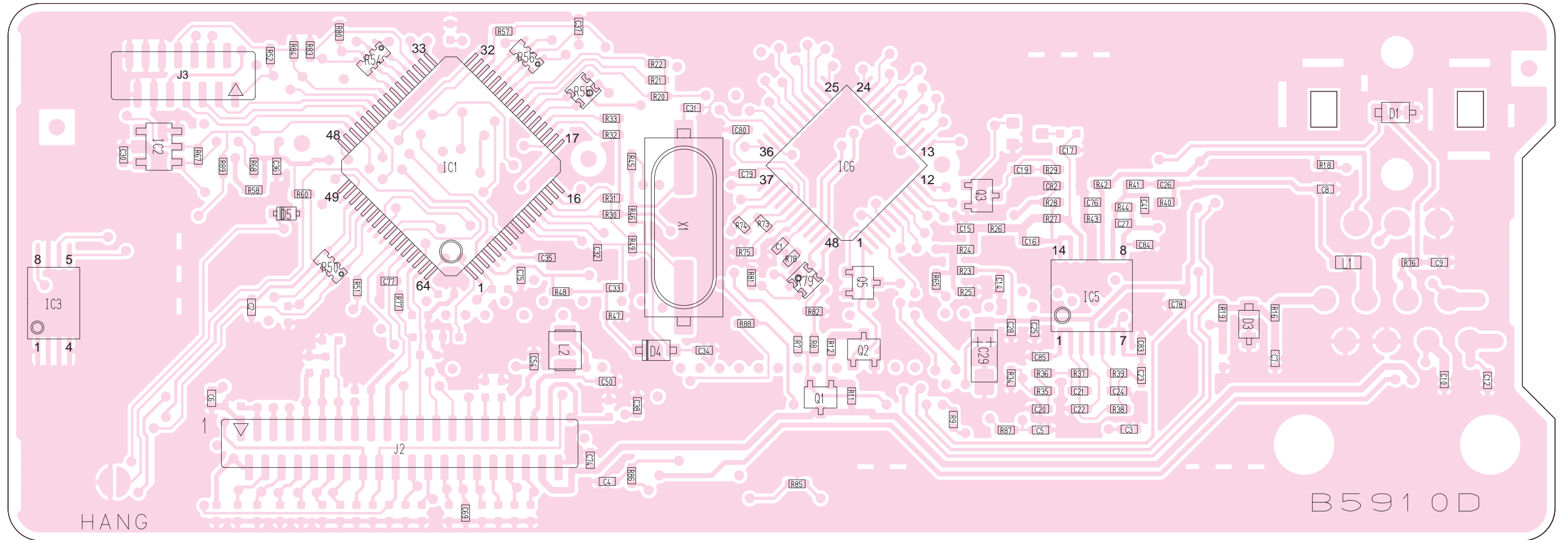
SECTION 9 BOARD LAYOUTS

9-1 FRONT UNIT • TOP VIEW



• BOTTOM VIEW (FRONT UNIT)

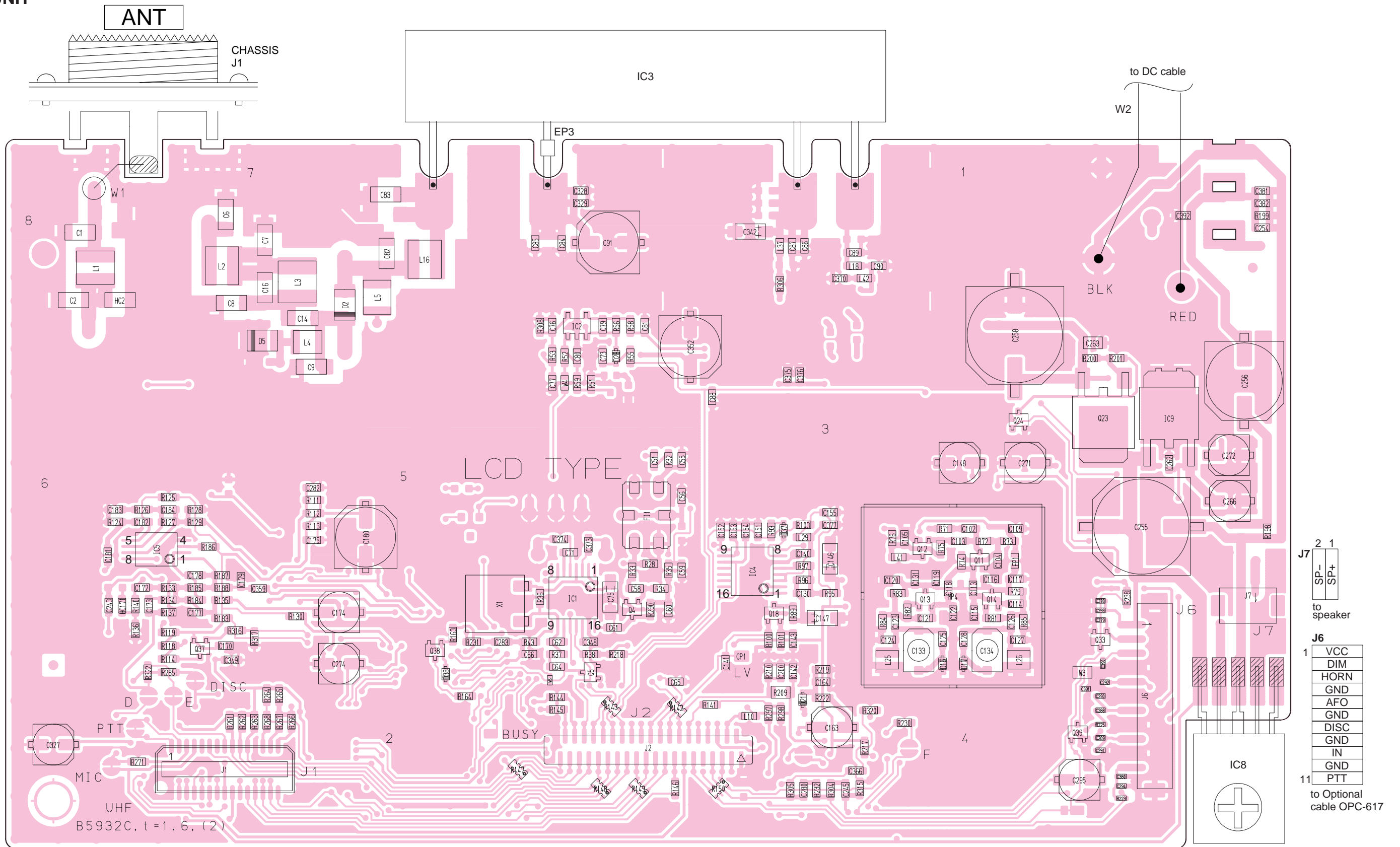
14	2
GND	NC
GND	RES
GND	OPT2
NMI	P86
RES	CPU5V
OPT1	
PWON	
GND	
GND	
GND	
13	1



1	39
GND	AFO
tone	CPU5
TENC	5V
NOIS	NC
EXOE	NC
EXST	BEEP
UNLK	PWON
PLST	8V
CDEC	GND
SDEC	
OV12	
RSSI	
LVIN	
TEMP	
BATV	
NC	
NC	
5V	
CPU5	
AFO	
2	40

to MAIN unit J2

9-2 MAIN UNIT
• TOP VIEW



J1	1	PTTI	15
	2	PTTO	
	3	MCOT	
	4	MCIN	
	5	NC	
	6	BUSY	
	7	NC	
	8	DET	
	9	SIGO	
	10	OPT1	
	11	OPT2	
	12	OPT3	
	13	CCS	
	14	CIRQ	
	15	GND	
	16	SO	
	17	DAST	
	18	SI	
	19	OV12	
	20	SCK	
	21	OV12	
	22	GND	
	23	OV12	
	24	GND	
	25	OV12	
	26	GND	
	27	OV12	
	28	GND	
	29	OV12	
	30	GND	

to Optional unit

J2	40	GND	2
	39	TONE	
	38	TENC	
	37	NOIS	
	36	EXOE	
	35	EXST	
	34	UNLK	
	33	PLST	
	32	CDEC	
	31	SDEC	
	30	OV12	
	29	RSSI	
	28	LVIN	
	27	CCS	
	26	MIC	
	25	BATV	
	24	NC	
	23	NC	
	22	BEEP	
	21	PWON	
	20	5V	
	19	CPU5	
	18	8V	
	17	AFO	
	16	GND	
	15	GND	
	14	GND	
	13	GND	
	12	GND	
	11	GND	
	10	GND	
	9	GND	
	8	GND	
	7	GND	
	6	GND	
	5	GND	
	4	GND	
	3	GND	
	2	GND	

to FRONT unit J2

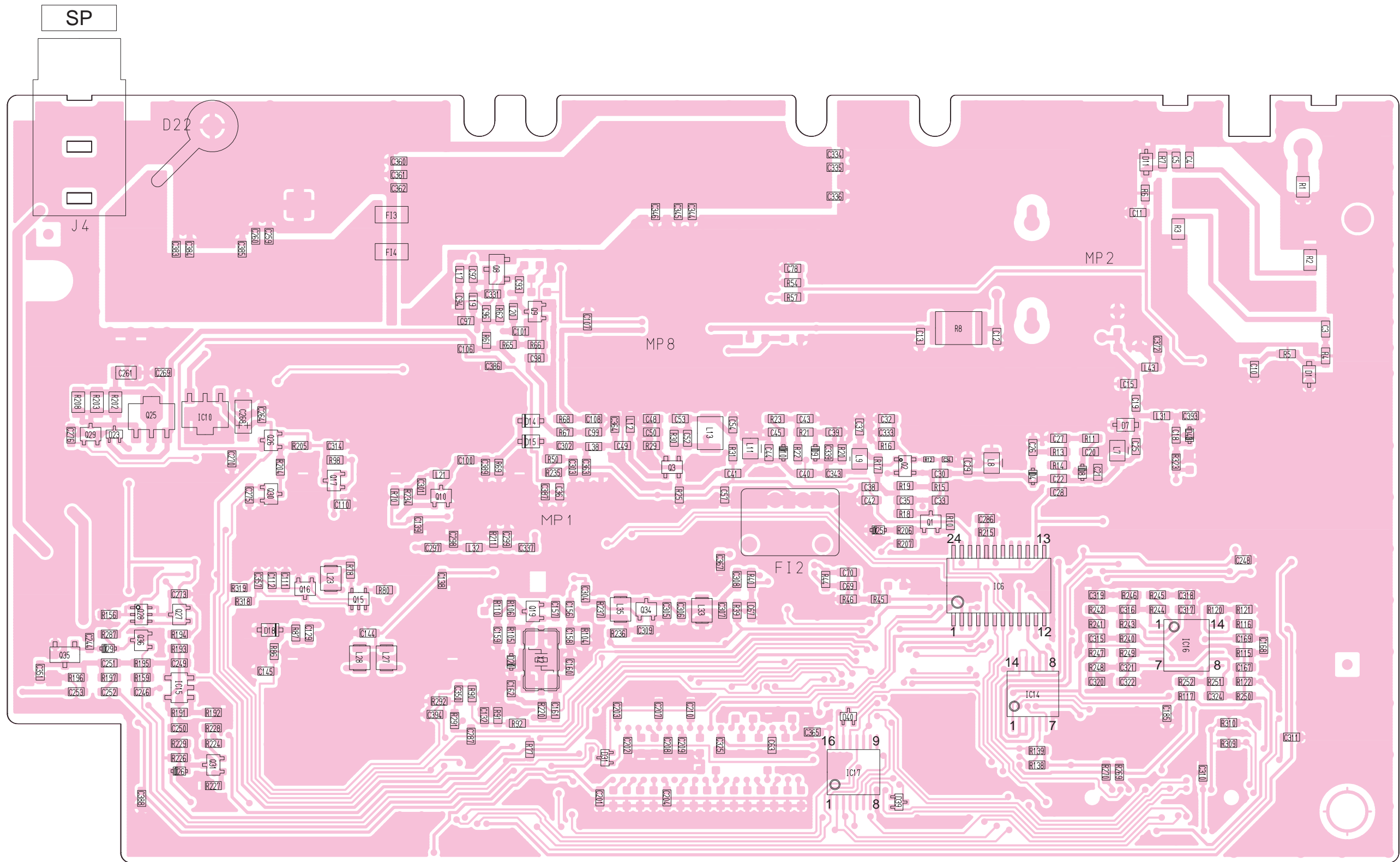
J7	2	1
	SP	+
	-	+
	+	-

to speaker

J6	1	VCC
	2	DIM
	3	HORN
	4	GND
	5	AFO
	6	GND
	7	DISC
	8	GND
	9	IN
	10	GND
	11	PTT

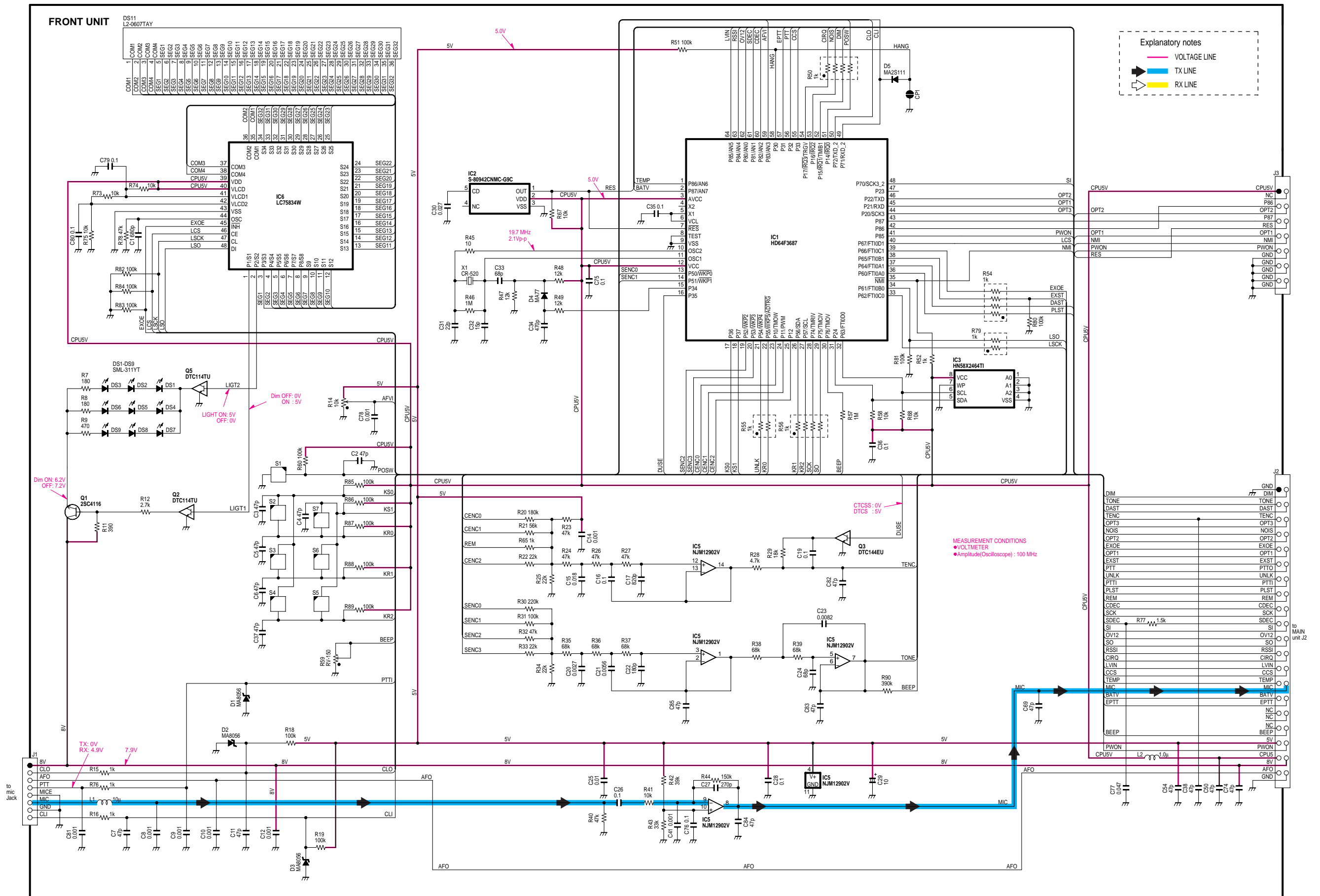
to Optional cable OPC-617

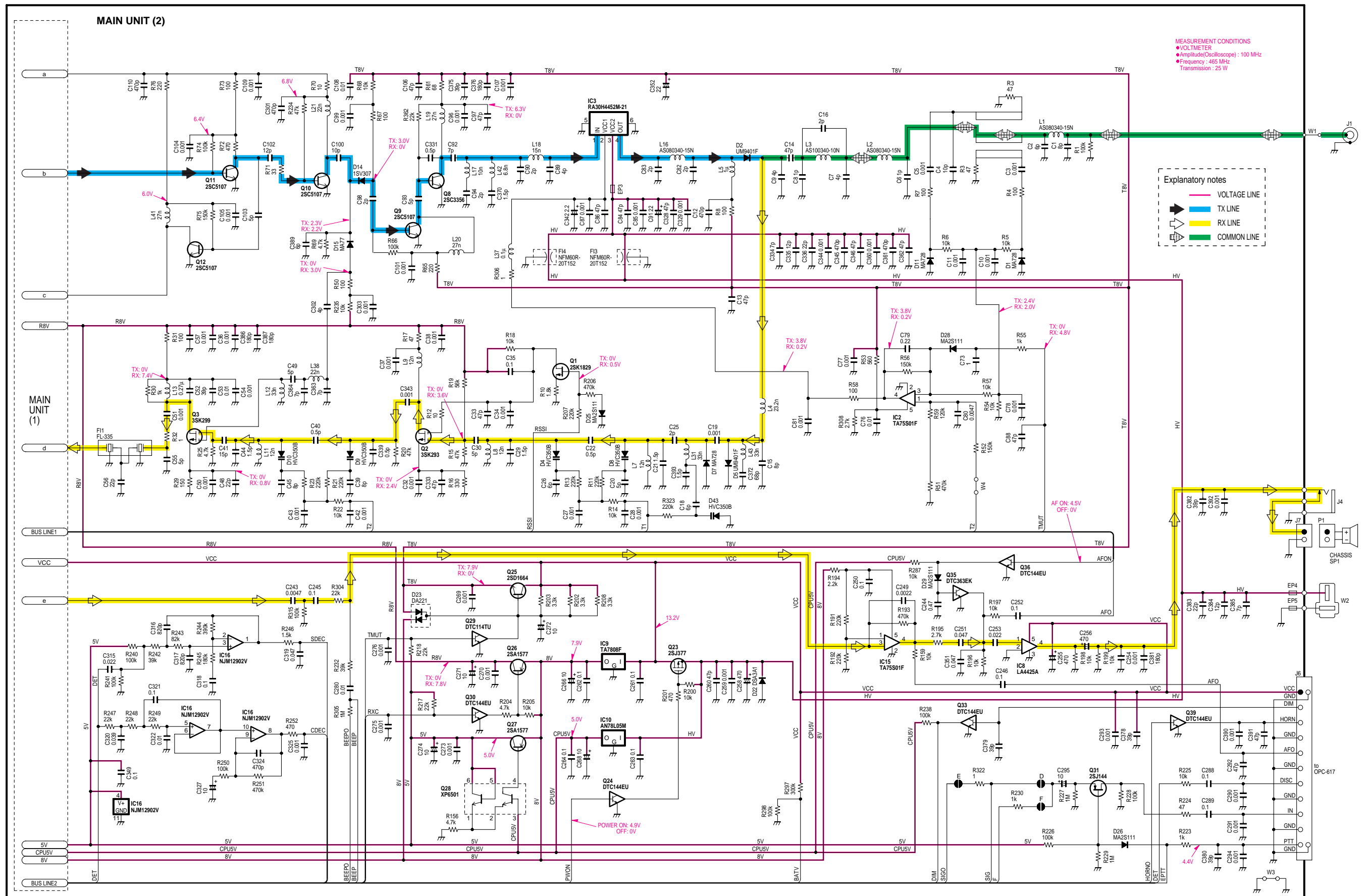
• BOTTOM VIEW (MAIN UNIT)



SECTION 11 VOLTAGE DIAGRAMS

11-1 FRONT UNIT





MEASUREMENT CONDITIONS
 ● VOLTMETER
 ● Amplitude (Oscilloscope) : 100 MHz
 ● Frequency : 465 MHz
 ● Transmission : 25 W

Explanatory notes
 — VOLTAGE LINE
 — TX LINE
 — RX LINE
 — COMMON LINE

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