



SERVICE MANUAL

VHF MARINE TRANSCEIVER
IC-M503E

INTRODUCTION

This service manual describes the latest service information for the **IC-M503E** VHF MARINE TRANSCEIVER at the time of publication.

MODEL	SYMBOL	VERSION	CHANNEL GROUP
IC-M503E	UK	United Kingdom	INT, USA
	EUR	Europe	INT
	HOL	Holland	INT, ATIS
	FRG	Germany	INT, DSC, ATIS

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 14 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>

1130007610 S.IC μPD3140GS IC-M503E MAIN UNIT 5 pieces
8820001210 Screw 2438 screw IC-M503E CHASSIS 10 pieces
Addresses are provided on the inside back cover for your convenience.

REPAIR NOTES

1. Make sure a problem is internal before disassembling the 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 coverage	: 156.000–161.450 MHz (Tx) 156.000–163.425 MHz (Rx)
• Mode	: FM, DSC
• Usable channels	: All international and USA channels
• Power supply requirement	: 12.0 V DC (negative ground)
• Usable temperature range	: –20°C to +60°C
• Current drain (at 13.8 V DC)	: Transmit at 25 W 5.5 A Receive max. audio 1.5 A
• Antenna connector	: SO-239 (50 Ω)
• Dimensions (projections not included)	: 165(W)×110(H)×109.4(D) mm
• Weight	: 1130 g

■ TRANSMITTER

• Output power (at 12.0 V DC)	: High 25 W Low 1 W
• Modulation	: Variable reactance frequency modulation
• Maximum frequency deviation	: ±5.0 kHz
• Frequency error	: Less than ±1.5 kHz
• Spurious emissions	: Less than 0.25 μV
• Adjacent channel power	: 70 dB
• Residual modulation	: More than 40 dB
• Audio harmonic distortion	: Less than 10% at 60% deviation
• Audio frequency response	: +1 dB to –3 dB of 6 dB octave from 300 Hz to 3000 Hz
• Microphone impedance	: 2 kΩ

■ RECEIVER

• Receive system	: Double conversion superheterodyne system
• Intermediate frequencies	: 1st 21.7 MHz 2nd 450 kHz
• Sensitivity	: Less than –2 dBμ emf at 20 dB SINAD
• Squelch sensitivity	: Less than 0 dBμ emf
• Adjacent channel selectivity	: More than 70 dB
• Spurious response	: More than 70 dB
• Intermodulation rejection ratio	: More than 68 dB
• Hum and noise	: More than 40 dB
• Audio output power (at 12.0 V DC)	: 2 W typical at 10% distortion with an 4 Ω load
• Audio frequency response	: +1 dB to –3 dB of –6 dB octave from 300 Hz to 3000 Hz

Specifications are measured in accordance with EN301 025-2, -3

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

■ VHF MARINE CHANNEL LIST

Channel No.		Frequency (MHz)		Channel No.		Frequency (MHz)		Channel No.		Frequency (MHz)	
USA	INT	Transmit	Receive	USA	INT	Transmit	Receive	USA	INT	Transmit	Receive
	01	156.050	160.650		22	157.100	161.700	73	73	156.675	156.675
01A		156.050	156.050	22A		157.100	157.100	74	74	156.725	156.725
	02	156.100	160.700		23	157.150	161.750		75	156.775	156.775
	03	156.150	160.750	23A		157.150	157.150		76	156.825	156.825
03A		156.150	156.150	24	24	157.200	161.800	77	77	156.875	156.875
	04	156.200	160.800	25	25	157.250	161.850		78	156.925	161.525
	05	156.250	160.850	26	26	157.300	161.900	78A		156.925	156.925
05A		156.250	156.250	27	27	157.350	161.950		79	156.975	161.575
06	06	156.300	156.300	28	28	157.400	162.000	79A		156.975	156.975
	07	156.350	160.950		60	156.025	160.625		80	157.025	161.625
07A		156.350	156.350	60A		156.025	156.025	80A		157.025	157.025
08	08	156.400	156.400		61	156.075	160.675		81	157.075	161.675
09	09	156.450	156.450	61A		156.075	156.075	81A		157.075	157.075
10	10	156.500	156.500		62	156.125	160.725		82	157.125	161.725
11	11	156.550	156.550	62A		156.125	156.125	82A		157.125	157.125
12	12	156.600	156.600		63	156.175	160.775		83	157.175	161.775
13* ¹	13	156.650	156.650	63A		156.175	156.175	83A		157.175	157.175
14	14	156.700	156.700		64	156.225	160.825	84	84	157.225	161.825
15* ¹	15* ¹	156.750	156.750	64A		156.225	156.225	84A		157.225	157.225
16	16	156.800	156.800		65	156.275	160.875	85	85	157.275	161.875
17* ¹	17* ¹	156.850	156.850	65A		156.275	156.275	85A		157.275	157.275
	18	156.900	161.500		66	156.325	160.925	86	86	157.325	161.925
18A		156.900	156.900	66A		156.325	156.325	86A		157.325	157.325
	19	156.950	161.550	67* ¹	67	156.375	156.375	87	87	157.375	161.975
19A		156.950	156.950	68	68	156.425	156.425	87A		157.375	157.375
20	20	157.000	161.600	69	69	156.475	156.475	88	88	157.425	162.025
20A		157.000	157.000	70* ²	70* ²	156.525	156.525	88A		157.425	157.425
	21	157.050	161.650	71	71	156.575	156.575				
21A		157.050	157.050	72	72	156.625	156.625				

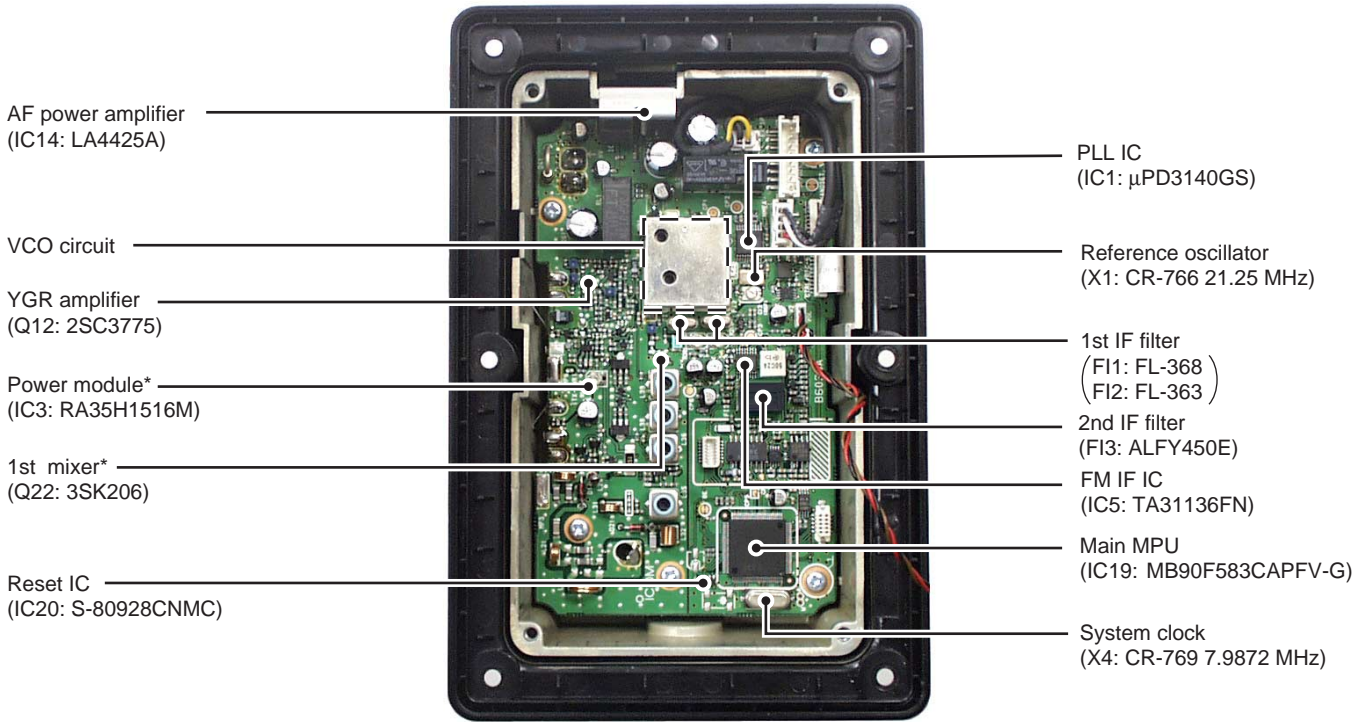
*¹ Low power only, *² Receive only

NOTE: USA channels for U.K. and Italy versions only.

SECTION 2 INSIDE VIEWS

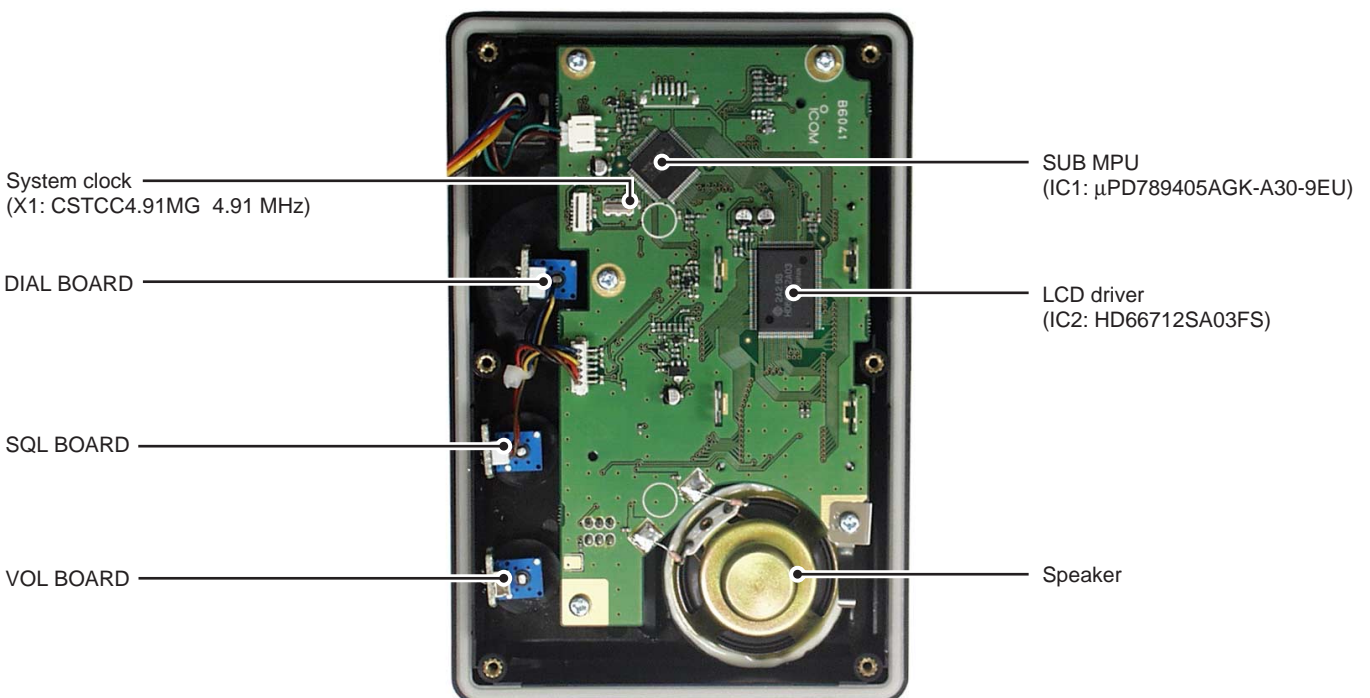
2-1 IC-M503E

• MAIN UNIT



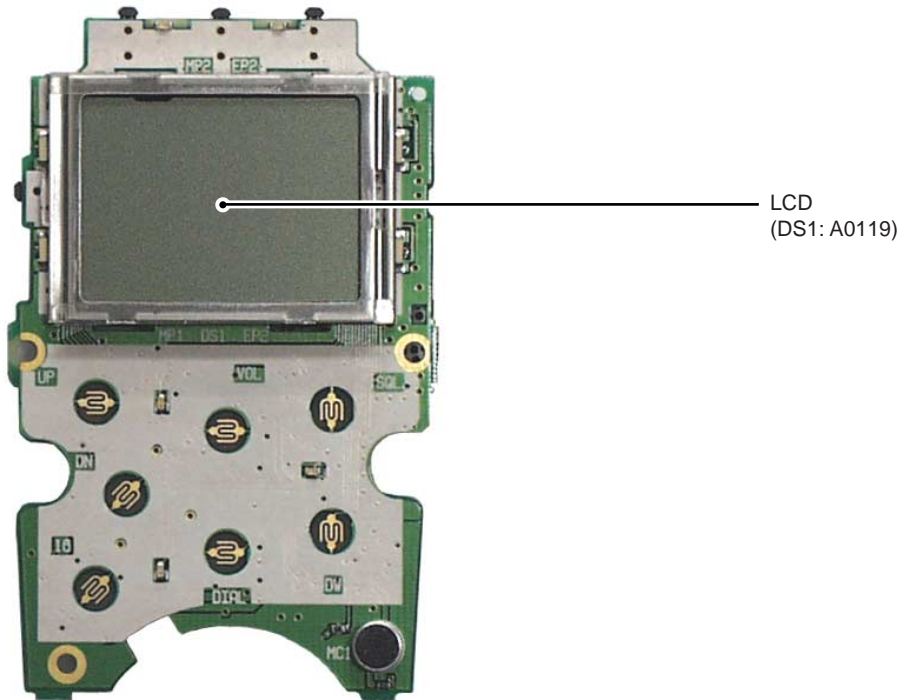
* Located under side of the point

• LOGIC BOARD

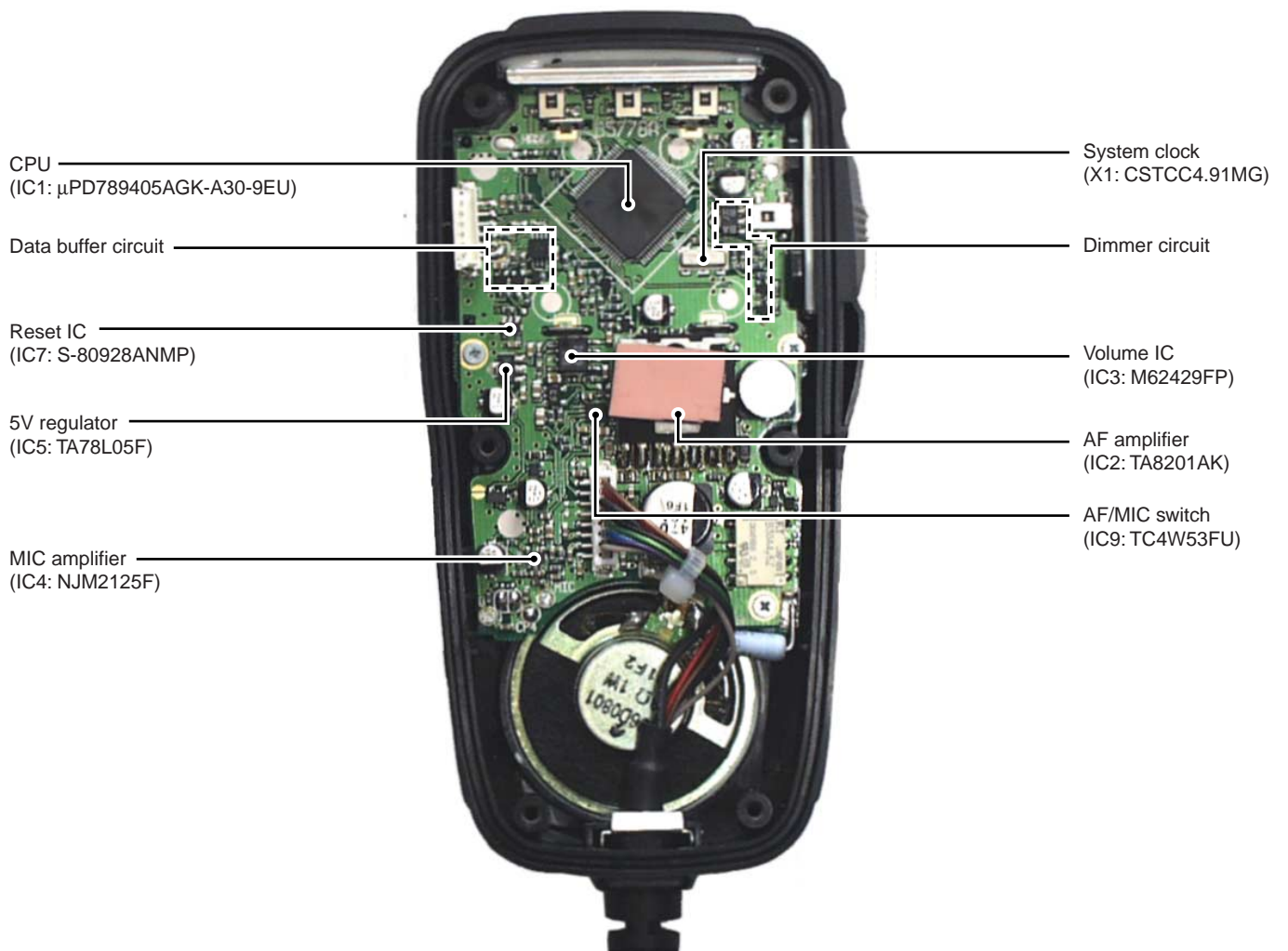


2-2 HM-134 (OPTIONAL MICROPHONE)

• TOP VIEW



• BOTTOM VIEW

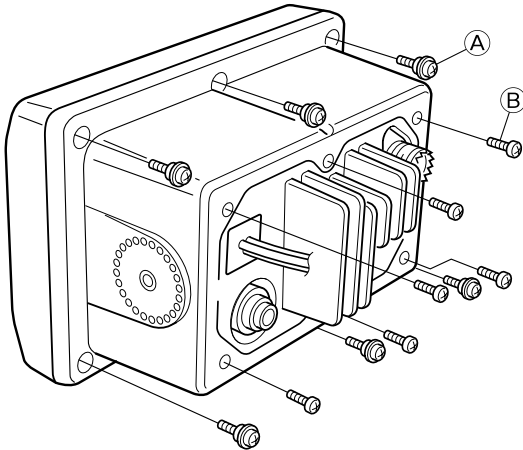


SECTION 3 DISASSEMBLY INSTRUCTION

CAUTION: DISCONNECT the DC power cable from the transceiver before performing any work on the transceiver. Otherwise, there is danger of electric shock and/or equipment damage.

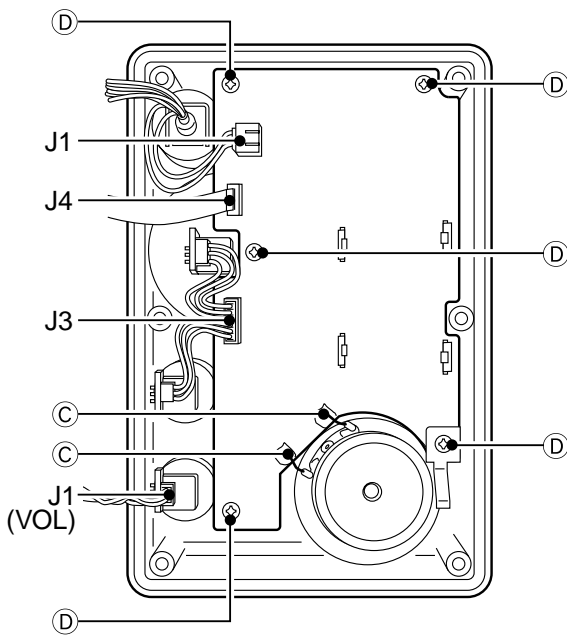
• Opening the transceiver case

- ① Unscrew 6 screws (A), and remove the front unit.
- ② Unscrew 6 screws (B), and remove the rear panel.



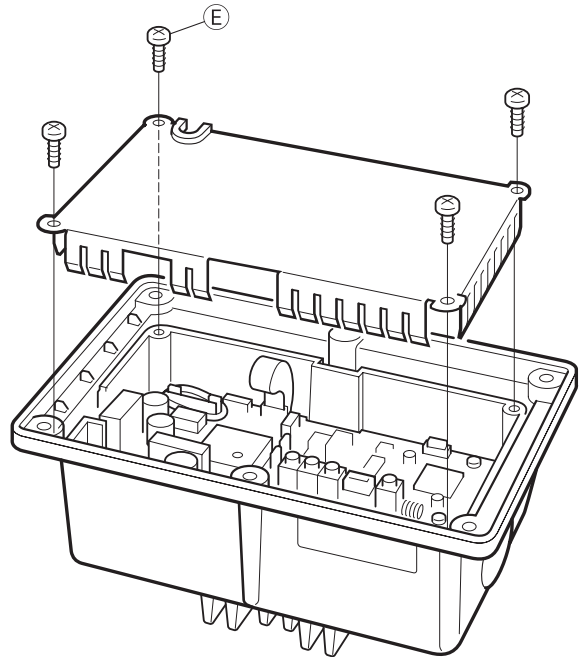
• Removing the LOGIC board

- ① Unsolder 2 point (C).
- ② Disconnect the connector from J4, the microphone connector from J1 and the SQL/DIAL connector from J3.
- ③ Disconnect the VOL connector from J1.
- ④ Unscrew 5 screws (D), and remove the LOGIC board.

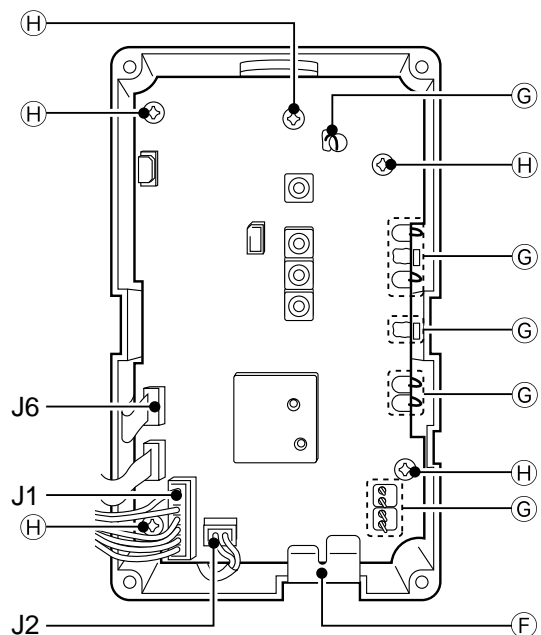


• Remove the MAIN unit

- ① Unscrew 4 screws (E) from the shielding plate, then lift up the shielding plate.



- ② Remove the clip (F).
- ③ Disconnect the microphone connector from J1, the CTRL connector from J6 and the EX-SP connector from J2.
- ④ Unsolder 11 point (G).
- ⑤ Unscrew 5 screws (H), and remove the MAIN unit.



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USA	INT	Transmit	Receive	USA	INT	Transmit	Receive	USA	INT	Transmit	Receive
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	03	156.150	160.750	23A		157.150	157.150		76	156.825	156.825
03A		156.150	156.150	24	24	157.200	161.800	77	77	156.875	156.875
	04	156.200	160.800	25	25	157.250	161.850		78	156.925	161.525
	05	156.250	160.850	26	26	157.300	161.900	78A		156.925	156.925
05A		156.250	156.250	27	27	157.350	161.950		79	156.975	161.575
06	06	156.300	156.300	28	28	157.400	162.000	79A		156.975	156.975
	07	156.350	160.950		60	156.025	160.625		80	157.025	161.625
07A		156.350	156.350	60A		156.025	156.025	80A		157.025	157.025
08	08	156.400	156.400		61	156.075	160.675		81	157.075	161.675
09	09	156.450	156.450	61A		156.075	156.075	81A		157.075	157.075
10	10	156.500	156.500		62	156.125	160.725		82	157.125	161.725
11	11	156.550	156.550	62A		156.125	156.125	82A		157.125	157.125
12	12	156.600	156.600		63	156.175	160.775		83	157.175	161.775
13* ¹	13	156.650	156.650	63A		156.175	156.175	83A		157.175	157.175
14	14	156.700	156.700		64	156.225	160.825	84	84	157.225	161.825
15* ¹	15* ¹	156.750	156.750	64A		156.225	156.225	84A		157.225	157.225
16	16	156.800	156.800		65	156.275	160.875	85	85	157.275	161.875
17* ¹	17* ¹	156.850	156.850	65A		156.275	156.275	85A		157.275	157.275
	18	156.900	161.500		66	156.325	160.925	86	86	157.325	161.925
18A		156.900	156.900	66A		156.325	156.325	86A		157.325	157.325
	19	156.950	161.550	67* ¹	67	156.375	156.375	87	87	157.375	161.975
19A		156.950	156.950	68	68	156.425	156.425	87A		157.375	157.375
20	20	157.000	161.600	69	69	156.475	156.475	88	88	157.425	162.025
20A		157.000	157.000	70* ²	70* ²	156.525	156.525	88A		157.425	157.425
	21	157.050	161.650	71	71	156.575	156.575				
21A		157.050	157.050	72	72	156.625	156.625				

*¹ Low power only, *² Receive only

NOTE: USA channels for U.K. and Italy versions only.

4-1-5 AF AMPLIFIER CIRCUIT (MAIN AND FRONT UNITS, VOL BOARD)

The AF amplifier circuit amplifies the detected signals to drive a speaker. The AF circuit includes an AF mute circuit for the squelch.

AF signals from IC5 (pin 9) are passed through the analog switch (IC16, pins 10, 11), and are applied to the de-emphasis circuit (R291, C291). The de-emphasis circuit is an integrated circuit with frequency characteristic of -6 dB/octave.

The integrated signals are applied to the active filters (Q35, Q36). Q35 functions as a high-pass filter to suppress unwanted lower noise signals and Q36 functions as a low-pass filter to suppress higher noise signals.

The filtered signals are passed through the [VOLUME] control on the VOL board, and are then applied to the AF power amplifier (IC14, pin 1). The output signal from IC14 (pin 4) drives the internal (external) speaker (FRONT unit).

4-1-6 SQUELCH CIRCUIT (MAIN UNIT)

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

A portion of the AF signals from the FM IF IC (IC5, pin 9) pass through the squelch adjustment pot (R214), and are then applied to the active filter section (IC5, pin 8). The active filter section amplifies and filters noise components. The filtered signals are applied to the noise detector section and output from pin 14. The signal is amplified at the SQL amplifier (IC6) and applied to the CPU (IC19, pin 39) as the "SQL" signal. The CPU analyzes the noise condition and outputs the "RMUTM", "RMUTS" signals to toggle the AF mute switches (Q37, Q38).

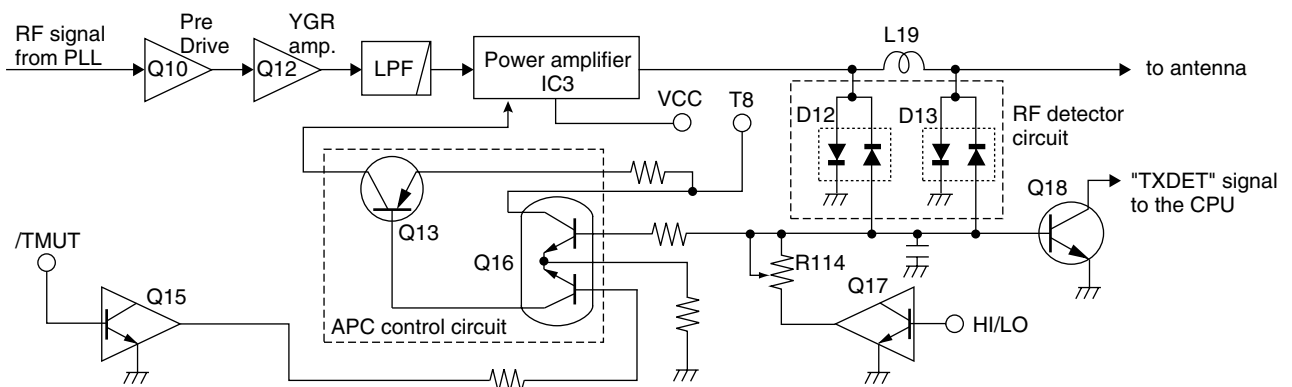
4-2 TRANSMITTER CIRCUITS

4-2-1 MICROPHONE AMPLIFIER CIRCUIT (MAIN UNIT)

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

The AF signals from the microphone are amplified at the microphone amplifier (IC15a, pin 2) via the analog switch (IC13, pins 11, 10). A capacitor (C367) and resistor (R369) are connected to the amplifier to obtain the pre-emphasis characteristics.

• AF CIRCUIT



The amplified signals are applied to the IDC amplifier (IC17a, pin 2) via the analog switch (IC16, pins 9, 8 and pins 4, 3) and are passed through the splatter filter (IC17b) to suppress unwanted 3 kHz or higher signals. The filtered signals are then applied to the modulation circuit.

4-2-2 MODULATION CIRCUIT (MAIN UNIT)

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

Audio signals from the splatter filter (IC17b) pass through the frequency deviation adjustment pot (R381) and are then applied to the modulation circuit (D1–D3) to change the reactance of D3, and modulate the oscillated signal at the TX-VCO (Q4).

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

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

The VCO output is buffer-amplified by Q6 and Q7, and is then applied to the Tx/Rx switch (D7, D8). The transmit signal from the Tx/Rx switch is amplified to the pre-drive (Q10) and YGR (Q12) amplifiers to obtain an approximate 50 mW signal level. The amplified signal is then applied to the RF power amplifier (IC3).

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

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

IC3 is a power module which has amplification output capabilities of about 35 W with 50 mW input. The output from IC3 (pin 4) is passed through the antenna switching circuit (D14) and is then applied to the antenna connector via the low-pass filter.

4-2-5 APC CIRCUIT (MAIN UNIT)

The APC circuit stabilizes transmit output power.

The RF output signal from the power amplifier (IC3) is detected at the power detector circuit (D12, D13). The detected signal is applied to the APC control circuit (Q13, Q16, D11) (one of the detected signal is applied to the CPU (IC19, pin 44) as comparison voltage via the "TXDET" signal). The signal from the APC control circuit is applied to the power amplifier's gate bias voltage (IC3). Thus, the APC circuit maintains a constant output power.

4-3 PLL CIRCUITS

4-3-1 GENERAL (MAIN UNIT)

The PLL circuit provides stable oscillation of the transmit frequency and receive 1st LO frequency. The PLL circuit compares the phase of the divided VCO frequency to the reference frequency. The PLL output frequency is controlled by a crystal oscillator and the divided ratio of the programmable divider.

IC1 is a dual PLL IC which controls both VCO circuits for Tx and Rx, and contains a prescaler, programmable counter, programmable divider phase detector, charge pump and etc.

The PLL circuit, using a one chip PLL IC (IC1), directly generates the transmit frequency and receive 1st IF frequency with VCOs. The PLL sets the divided ratio based on serial data from the CPU and compares the phases of VCO signals with the reference oscillator frequency. The PLL IC detects the out-of-step phase and output from pins 8 and 13 for Tx and Rx, respectively. The reference frequency (21.25 MHz) is oscillated at X1.

4-3-2 TX LOOP (MAIN UNIT)

The generated signal at the TX-VCO (Q4, D1–D3) enters the PLL IC (IC1, pin 2) and is divided at the programmable divider section and is then applied to the phase detector section.

The phase detector compares the input signal with a reference frequency, and then outputs the out-of-phase signal (pulse-type signal) from IC1, pin 8.

The pulse-type signal is converted into DC voltage (lock voltage) at the loop filter (L3, C41, R5), and is then applied to varactor diodes (D1–D3) of the TX-VCO to stabilize the oscillated frequency.

4-3-3 RX LOOP (MAIN UNIT)

The generated signal at the RX-VCO (Q8, D4, D5) enters the PLL IC (IC1, pin 19) and is divided at the programmable divider section and is then applied to the phase detector section.

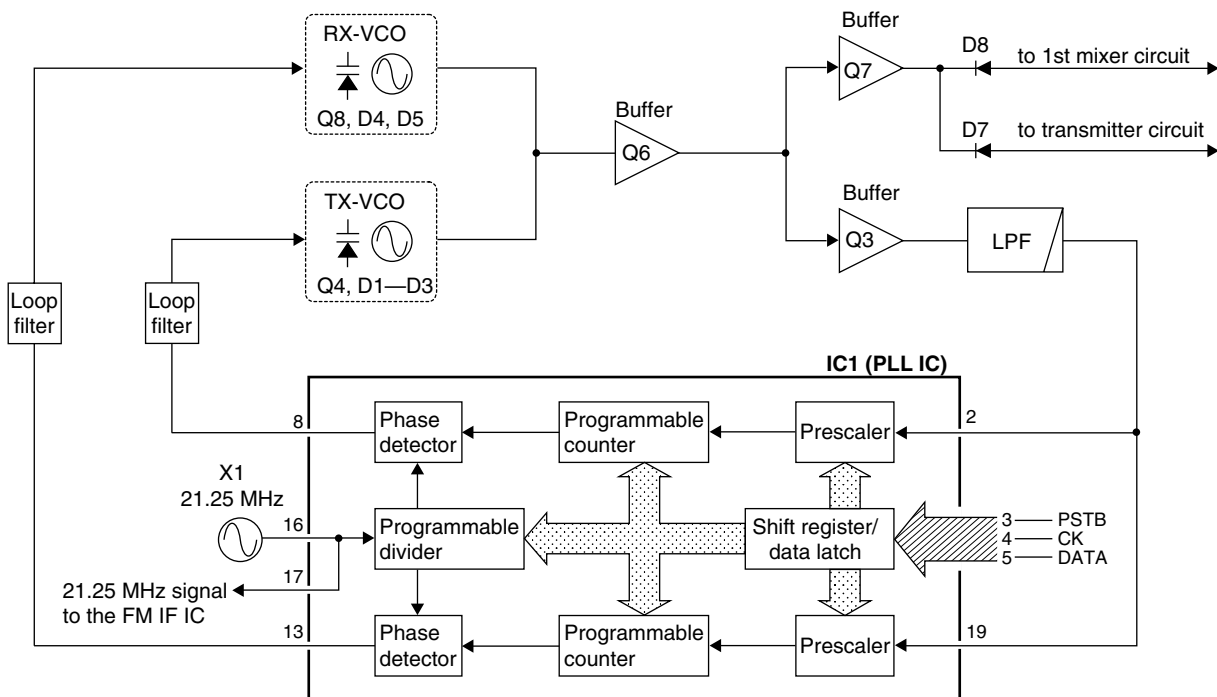
The phase detector compares the input signal with a reference frequency, and then outputs the out-of-phase signal (pulse-type signal) from IC1, pin 13.

The pulse-type signal is converted into DC voltage (lock voltage) at the loop filter (L8, R61, C61), and is then applied to varactor diodes (D4, D5) of the RX-VCO to stabilize the oscillated frequency. The lock voltage is also used for the receiver circuit for the bandpass filter center frequency. The lock voltage from the loop filter is amplified at the buffer-amplifier (Q6) and then applied to the RF circuit.

4-3-4 VCO CIRCUIT (MAIN UNIT)

The VCO outputs from TX-VCO (Q4) and RX-VCO (Q8) are amplified at the buffer amplifiers (Q6 and Q7), and are then sent to the Tx/Rx switch (D7, D8). The receive LO signal is applied to the 1st mixer circuit (Q22) through a low-pass filter, and the transmit signal is applied to the pre-drive amplifier (Q10). A portion of the VCO output is reapplied to the PLL IC (IC1, pin 2 or pin 19) via the buffer amplifier (Q3).

• MICROPHONE AMPLIFIER CIRCUIT



4-4 DSC CIRCUITS

4-4-1 DSC ENCODE CIRCUIT (MAIN UNIT)

The DSC signal is created at CPU (IC19, pin 30), is passed through the buffer amplifier (Q51) and applied to the analog switch (IC16, pin 1, 2). The analog switch (IC16) is a modulation switch that switches between the microphone audio signal and the DSC signal.

4-4-2 DSC DECODE CIRCUIT (MAIN UNIT)

The AF signals from FM IF IC (IC5, pin 9) are filtered at the bandpass filter (IC7) with +18 dB/octave characteristics. IC7b functions as a low-pass filter to suppress unwanted higher noise signals and IC7a functions as a high-pass filter to suppress lower noise signals. The filtered signals are converted analog signals into digital signals at DSC decoder IC (IC8), and are then applied to the CPU (IC19, pin 45) via the "DSDEC" signal after shaping waveform at IC9.

4-5 POWER SUPPLY CIRCUITS

4-5-1 VOLTAGE LINE (MAIN UNIT)

LINE	DESCRIPTION
HV	The voltage from the connected DC power supply.
HVS	Same voltage as the HV line which is passed through the [PWR] switch (LOGIC unit; S1).
VCC	Same voltage as the HVS line which is passed through the power controller (RL1).
8V	Common 8 V converted from the VCC line at the 8V regulator circuit (IC8).
+5V	Common 5 V converted from the 8V line at the +5V regulator circuit (IC9).
T8	Transmit 8 V controlled by the T8 control circuit (Q20, Q21) using the SEND signal from CPU.
R8	Receive 8 V controlled by the R8 control circuit (Q22, Q23) using the RCV signal from CPU. The controlled voltage is applied to the receiver circuits.

4-6 LOGIC CIRCUITS

4-6-1 LOGIC BOARD

• CPU

IC1 is a 8 bit single chip micro-computer and contains LCD driver, serial I/O, timer, A/D converter, programmable I/O, ROM and RAM. The CPU controls to display characters on the LCD too.

• SYSTEM CLOCK CIRCUIT

X1 is a ceramic oscillator and oscillates 4.91 MHz system clock for the CPU.

• LCD DRIVER

IC2 is a LCD driver to control dot matrix part on the LCD (DS1).

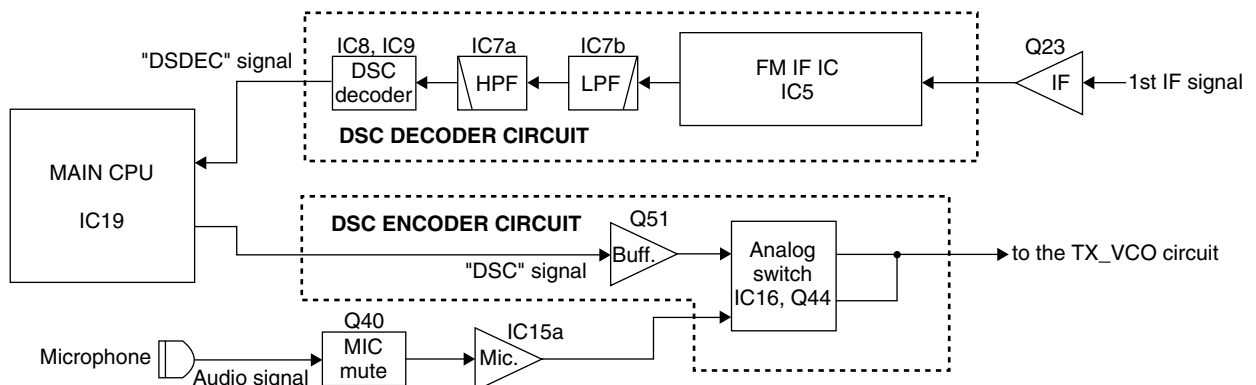
• DIMMER CIRCUIT

CPU (IC1) and Q2, Q3, Q8 compose dimmer circuit. The circuit controls 8 steps the LCD backlight (DS2-DS7) brightness.

• CONTRAST CIRCUIT

CPU (IC1) and Q1, Q4 compose contrast circuit. The circuit controls 8 steps segment and dot LCD contrast.

• DSC CIRCUIT



4-7 PORT ALLOCATIONS

4-7-1 SUB CPU (LOGIC unit; IC1)

Pin number	Port name	Description
27, 28, 29, 30	LRESET, E, RW, RS	Output ports for the LCD driver (IC2) control signals.
31–38	DB7–DB0	I/O port for the LCD driver (IC2) control signals.
42	SCAN	Input port for the [SCAN] key.
43	CHWX	Input port for the [CH/WX] key.
44	CH16	Input port for the [16/9] key.
46	SQLV	Input port for the squelch volume level.
47	KEYM	Input port from the microphone (HM-126) for remote control signal
51, 52	DIALA, DIALB	Input ports for the [CHANNEL].
54	SRXD	Outputs communication data for main CPU (MAIN unit; IC16).
55	STXD	Input port for the communication data from main CPU (MAIN unit; IC16).
58–60	CONTSEG3–CONTSEG1	Output port for the LCD contrast.
61	DTRS	Input port for the [DISTRESS] key.
62	IC	Input port for the [LO/DX] key.
63	DSC	Input port for the [DSC/ENT] key.
64	HL	Input port for the [HI/LO] key.
75–77	DIM3–DIM1	Output LCD backlight control signal for the dimmer circuit (Q2, Q3, Q8).
78–80	CONDOT3–CONDOT1	Output port for the LCD contrast.

4-7-2 MAIN CPU (MAIN unit; IC16)

Pin number	Port name	Description
1	STRU	Outputs control signal to the analog switch (IC12) for passing through the optional VOICE SCRAMBLER unit (UT98 or UT-112).
2	SCON	Outputs ON/OFF control signal for the optional VOICE SCRAMBLER unit (UT-98 or UT-112).
3	OPSTB	Outputs strobe signals for the optional VOICE SCRAMBLER unit UT-98 or UT-112.
4	PSTB	Outputs strobe signals to PLL IC (IC2, pin 2).
5	CK	Outputs clock signal to PLL IC (IC2, pin 3).
6	DATA	Outputs clock signal to PLL IC (IC2, pin 4).
7	PTTM	Outputs main microphone (HM-126) select signal to the analog switch (IC10) while intercom operation.
8	PTTS	Outputs optional remote microphone (HM-127) select signal to the analog switch (IC10) while intercom operation.
10	MMUTE	Outputs select signal for the speaker of main microphone (HM-126) to the analog switch (IC10) while intercom operation.
11	SMUTE	Outputs select signal for the speaker of optional remote microphone (HM-127) to the analog switch (IC10) while intercom operation.
12	SP	Outputs ON/OFF control signal for the internal speaker to the AF mute circuit (Q32, D23, RL2). Low : While internal speaker is ON.
13	HI/LO	Output port for RF output power (High or Low) select signal. Low : While low power is selected.
14	SEND	Outputs the T8 regulator (Q20, Q21) control signal. Low : While transmitting
15	TMUTE	Outputs transmit mute signal. High : While transmitting
16	SRXD	Input port for the communication data from sub CPU (LOGIC unit; IC1).
17	STXD	Outputs communication data for sub CPU (LOGIC unit; IC1).
19	CLR X	Input port for the cloning data from the buffer (D24).

Pin number	Port name	Description
20	CLTX	Output port for the cloning data to the buffer (MAIN unit; Q37).
23	ECK	Outputs clock signal for EEPROM (IC17).
24	EDA	Outputs serial data signal for EEPROM (IC17).
27	MICDSC	Outputs select signal to the analog switch (IC12) for the microphone audio signal or DSC signal.
30	DSC	D/A output port for the ATIS/DSC encode signal to the buffer amplifier (Q33).
39	SQL	Input port from the FM IF IC (IC1) for the squelch operation.
42	LBAT	Input port for the connected power supply voltage detection (low battery indicator).
44	TXDET	Input port for the "TX" indicator from the power detector circuit (D14, D15).
45	DSDEC	Input port for the ATIS/DSC decode signal.
46	UNLK	Input port for the PLL unlock signal. Low : While PLL is locked.
60	PTT	Input port for the PTT switch.
61	HANG	Input port for the microphone hanger detection signal. Low : Microphone on hook
62	OPTIN	Input port for the optional unit connection detection.
66	RCV	Outputs the R8 regulator (Q22, Q23) control signal. Low : While receiving
67	RMUTM	Outputs the AF mute switch (Q26) control signal for main body. Low : While squelched
68	RMUTS	Outputs the AF mute switch (Q27) control signal for the optional remote microphone (HM-127). Low : While squelched
69	BEEP M	Outputs beep audio for main body.
71	BPLVM	Outputs beep audio for the optional remote microphone (HM-127).
75	RESET	Input port for the reset signal.
100	SRESET	Outputs the reset signal for sub CPU (LOGIC unit; IC1).

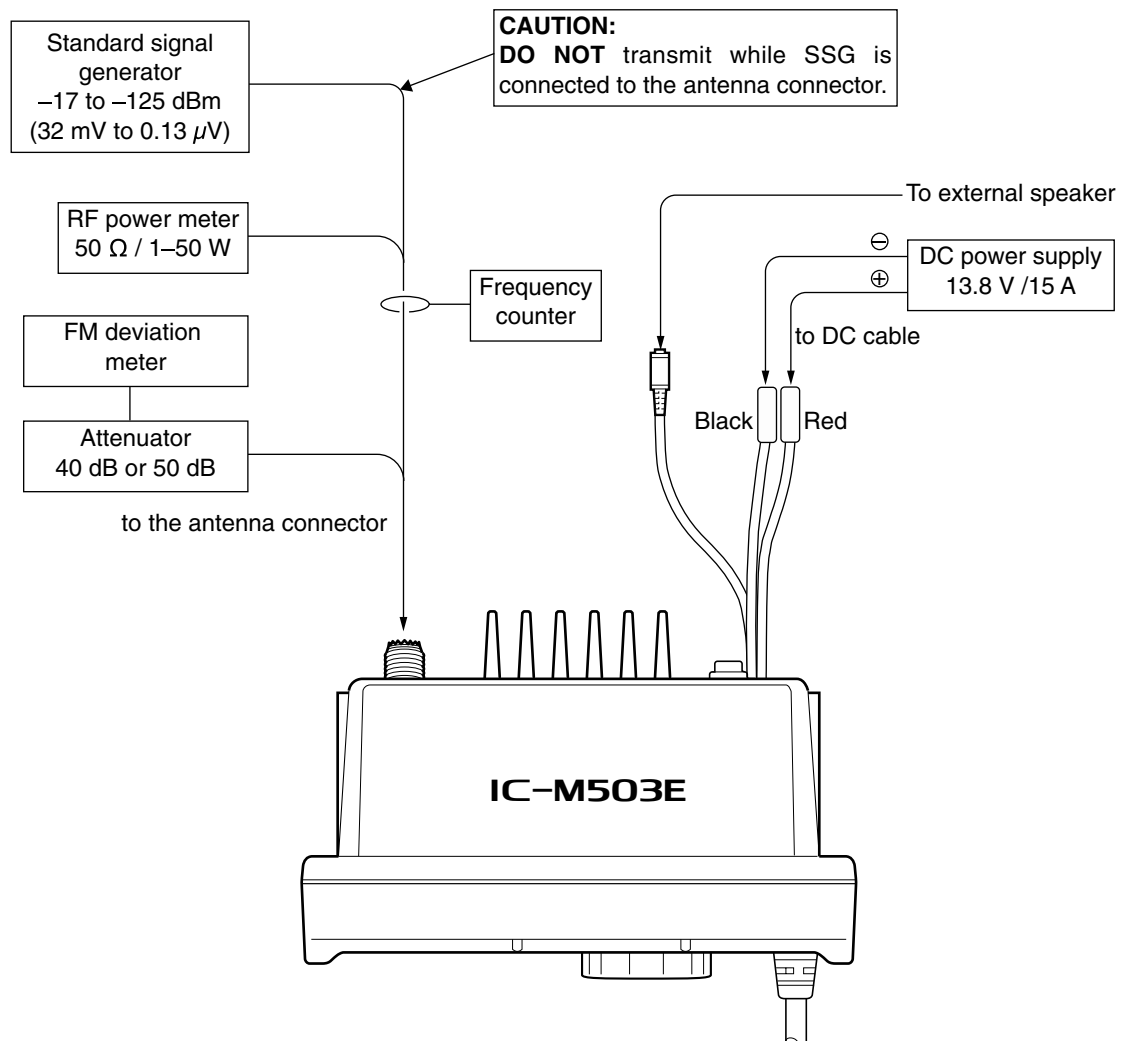
SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION

■ REQUIRED TEST EQUIPMENT

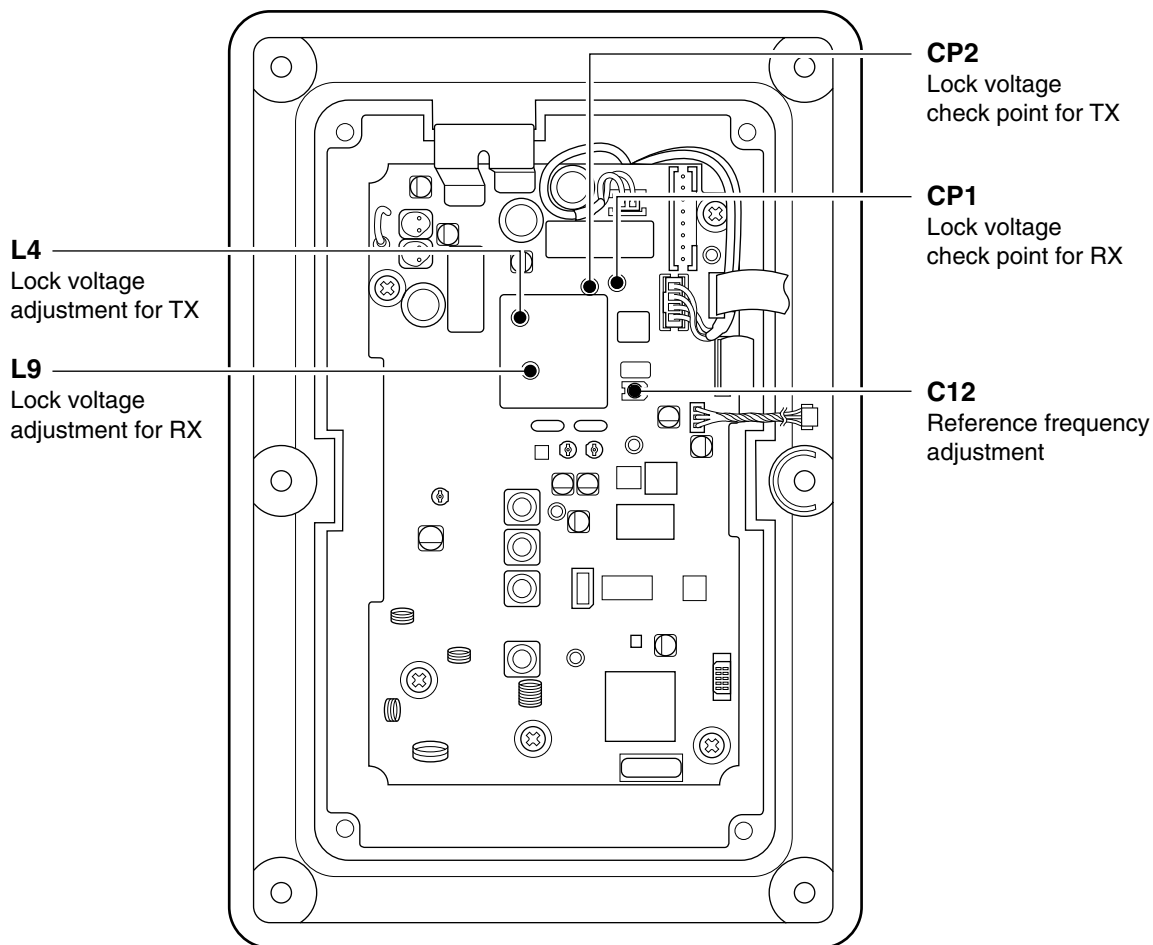
EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
DC power supply	Output voltage : 13.8 V DC Current capacity : 10 A or more	Audio generator	Frequency range : 300–3000 Hz Measuring range : 1–500 mV
RF power meter (terminated type)	Measuring range : 1–50 W Frequency range : 100–300 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1	Standard signal generator (SSG)	Frequency range : 0.1–300 MHz Output level : 0.1 μV–32 mV (–127 to –17 dBm)
Frequency counter	Frequency range : 0.1–300 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 : 30–300 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 : 5 W or more
		Attenuator	Power attenuation : 40 or 50 dB Capacity : 50 W or more

■ CONNECTIONS



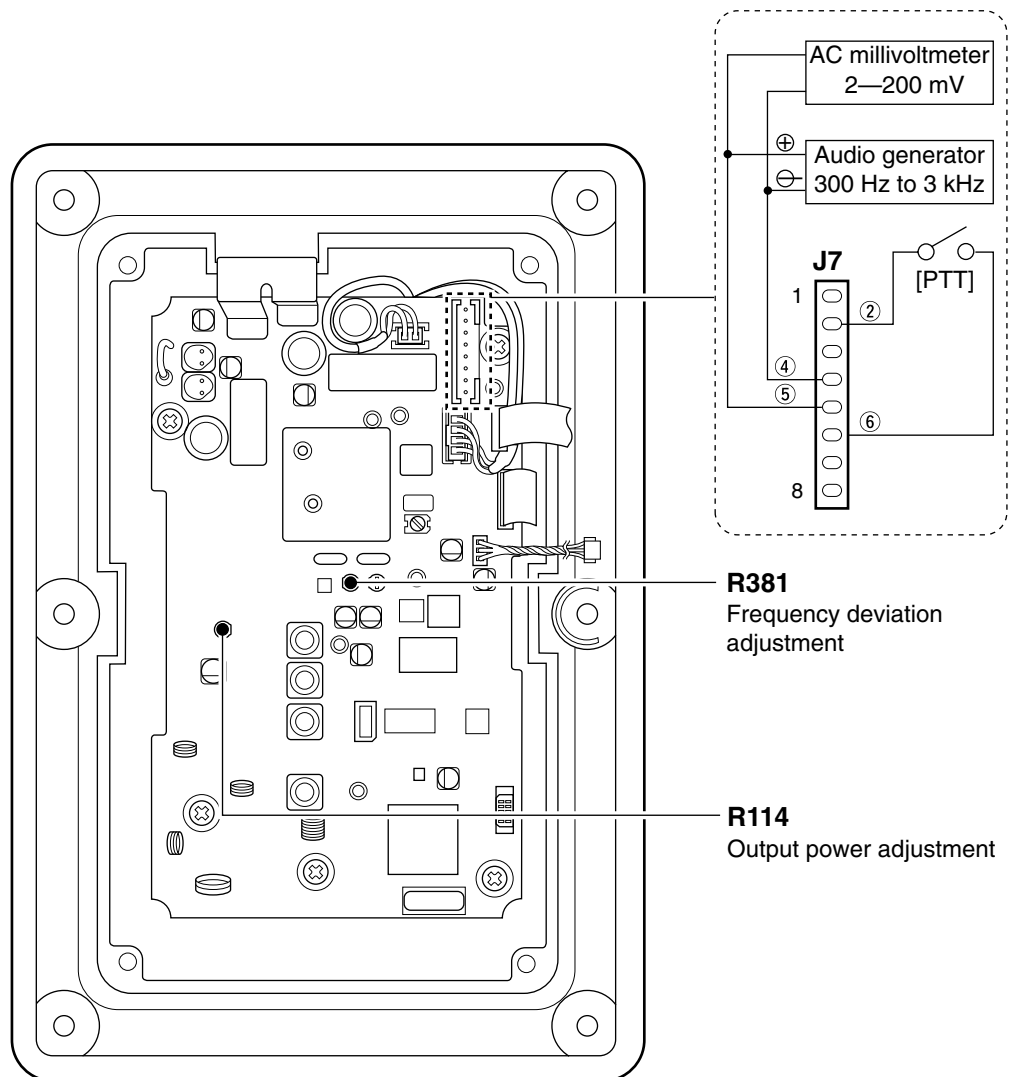
5-2 PLL ADJUSTMENTS

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
LOCK VOLTAGE	1 <ul style="list-style-type: none"> • Operating channel : chP2 (Frequency : 163.425 MHz) • Receiving 	MAIN	Connect a digital multi-meter or oscilloscope to check point CP2.	3.6 V	MAIN	L9
	2 <ul style="list-style-type: none"> • Operating channel : chP2 (Frequency : 161.450 MHz) • Output power : Low • Transmitting 					Connect a digital multi-meter or oscilloscope to check point CP1.
REFERENCE FREQUENCY	1 <ul style="list-style-type: none"> • Operating channel : ch16 • Output power : Low • Connect an RF power meter or a 50 Ω dummy load to the antenna connector. • Transmitting 	Rear Panel	Loosely couple the frequency counter to the antenna connector.	156.8000 MHz	MAIN	C12



5-3 TRANSMITTER ADJUSTMENTS

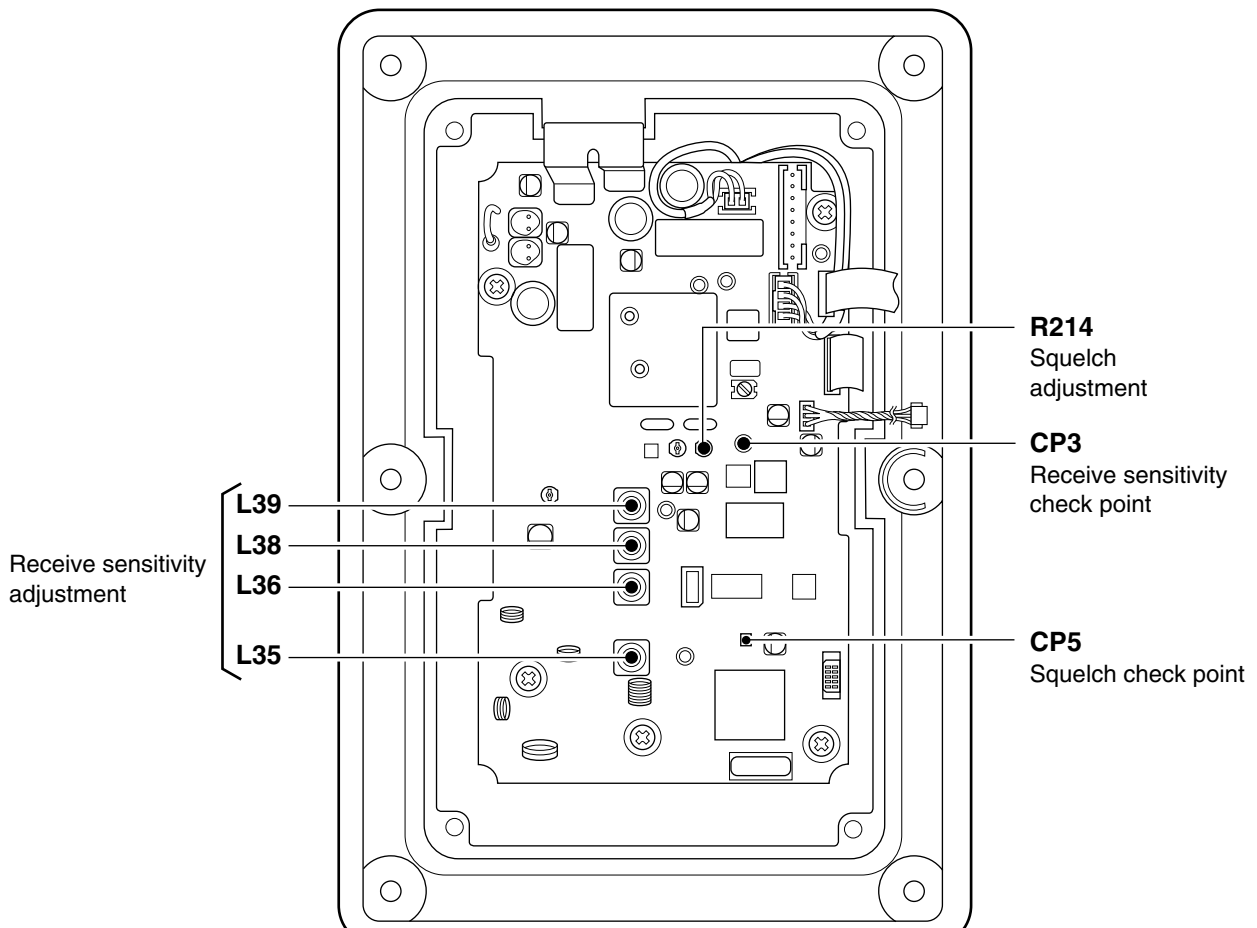
ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
OUTPUT POWER	1 <ul style="list-style-type: none"> • Operating channel : ch16 • Output power : High • Transmitting 	Rear Panel	Connect an RF power meter to the antenna connector.	23.5 W	MAIN	R114
FREQUENCY DEVIATION	1 <ul style="list-style-type: none"> • Operating channel : ch16 • Output power : Low • Connect an audio generator to J7 (pin 5) with an AC millivoltmeter and set as: <ul style="list-style-type: none"> Frequency : 1 kHz Level : 30 mV • 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 an attenuator.	±4.3 kHz	MAIN	R381



5-4 RECEIVER ADJUSTMENTS

ADJUSTMENT	ADJUSTMENT CONDITION	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
SENSITIVITY	1 <ul style="list-style-type: none"> • Operating channel : ch16 • [SQUELCH] control: Max. counterclockwise • Set the internal speaker OFF in the SET mode, and connect a distortion meter with a 4 Ω load to [EXT SP] receptacle. • Connect an SSG to the antenna connector and set as: Frequency : 156.800 MHz Level : 3.2 μV* (-97 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving 	MAIN	Connect a DC voltmeter to check point CP3.	Maximum voltage	MAIN	L35, L36, L38, L39
SQUELCH	1 <ul style="list-style-type: none"> • Operating channel : ch16 • [SQUELCH] control: Max. counterclockwise • Connect an SSG to the antenna connector and set as: Frequency : 156.800 MHz Level : 0.40 μV* (-115 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz • Receiving 	MAIN	Connect a DC voltmeter to check point CP5.	1.15 V	MAIN	R214

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



SECTION 6 PARTS LIST

6-1 IC-M503E

[VOL BOARD]

REF NO.	ORDER NO.	DESCRIPTION		M.
R1	7210003080	VARIABLE	TP96N97-15F-10KA-2345	T
J1	6510009470	CONNECTOR	S3B-ZR	T
W2	7120000470	JUMPER	ERDS2T0	T
EP1	0910056630	PCB	B 6038	

[SQL BOARD]

REF NO.	ORDER NO.	DESCRIPTION		M.
R1	7210002360	VARIABLE	TP96N97-15F-10KB-1301	T
W1	8900009870	CABLE	OPC-971	T
EP1	0910056641	PCB	B 6039A	

[DIAL BOARD]

REF NO.	ORDER NO.	DESCRIPTION		M.
S1	2250000220	ENCODER	TP90N937E20-15F-1540	T
EP1	0910056651	PCB	B 6040A	

[PWR-CORD BOARD]

REF NO.	ORDER NO.	DESCRIPTION		M.
F11	2040001440	S.LC	NFE31PT152Z1E9L (NFM60R20T152)	T
F12	2040001440	S.LC	NFE31PT152Z1E9L (NFM60R20T152)	T
C1	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	T
C3	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C5	4030011340	S.CERAMIC	C1608 CH 1H 471J-T	B
C7	4030007090	S.CERAMIC	C1608 CH 1H 470J-T	T
C8	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	T
C9	4030007090	S.CERAMIC	C1608 CH 1H 470J-T	B
C10	4030007090	S.CERAMIC	C1608 CH 1H 470J-T	T
J1	6510003130	CONNECTOR	SB4P-HVQ-22	T
EP1	0910056621	PCB	B 6037A	

[FRONT UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
MC1	0800005502	MICROPHONE	HM-126B-2 ACC <KN>	
W1	7120000470	JUMPER	ERDS2T0	
W2	7120000470	JUMPER	ERDS2T0	

[LOGIC BOARD]

REF NO.	ORDER NO.	DESCRIPTION		M.
IC1	1140009390	S.IC	μPD789405AGK-A30-9EU 2345DE	
IC2	1140008960	S.IC	HD66712SA03FS	B
Q1	1560000810	S.FET	2SK1069-4-TL	B
Q2	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
Q3	1520000460	S.TRANSISTOR	2SB1132 T100 R	B
Q4	1560000810	S.FET	2SK1069-4-TL	B
Q5	1590000720	S.TRANSISTOR	DTA144EUA T106	B
Q6	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q8	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
D1	1790001010	S.ZENER	MA8043-L (TX)	B
X1	6060000750	S.CERAMIC	CSTCC4M91G53-R0 (CSTCC4.91M)	B
R1	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
R2	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R3	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
R4	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R5	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
R6	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)	B
R7	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)	B
R8	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R9	7510001670	S.THRMISTOR	NTCG16 4BH 103KT	B
R10	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R11	7030004120	S.RESISTOR	ERJ3GEYJ 203 V (20 kΩ)	B
R12	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R13	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)	B
R14	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R15	7030004120	S.RESISTOR	ERJ3GEYJ 203 V (20 kΩ)	B
R16	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R17	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)	B
R18	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R19	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
R20	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)	B
R22	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R23	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)	B
R24	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R25	7510001670	S.THRMISTOR	NTCG16 4BH 103KT	B
R26	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R27	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R28	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R29	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R30	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R31	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R32	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R33	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R34	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R35	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R36	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R37	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R38	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)	B
R41	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)	B
R42	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)	B
R43	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)	B
R44	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R45	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R46	7030003610	S.RESISTOR	ERJ3GEYJ 273 V (27 kΩ)	B
R47	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R48	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R49	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B

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.
R50	7030003750	S.RESISTOR	ERJ3GEYJ 394 V (390 kΩ)	B
R51	7030003690	S.RESISTOR	ERJ3GEYJ 124 V (120 kΩ)	B
R52	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R53	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)	B
R54	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)	B
R55	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R56	7030003500	S.RESISTOR	ERJ3GEYJ 332 V (3.3 kΩ)	B
R64	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)	B
R65	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)	B
R66	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	B
R67	7030003590	S.RESISTOR	ERJ3GEYJ 183 V (18 kΩ)	B
R68	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	B
R69	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)	B
R70	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)	B
C1	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	B
C2	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	B
C3	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	B
C4	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	B
C5	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	B
C6	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	B
C7	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C8	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C9	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	B
C11	4510004630	S.ELECTROLYTIC	ECEV1CA100SR	B
C12	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	B
C13	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C14	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	B
C15	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C16	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C17	4510004630	S.ELECTROLYTIC	ECEV1CA100SR	B
C18	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C19	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C20	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	B
C21	4510004440	S.ELECTROLYTIC	ECEV1HA010SR	B
C22	4510004440	S.ELECTROLYTIC	ECEV1HA010SR	B
C23	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
C24	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	B
C25	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	B
J1	6510021600	S.CONNECTOR	S2B-PH-SM3-TB	B
J3	6510021440	S.CONNECTOR	B6B-ZR-SM3-TF	B
J4	6510022020	S.CONNECTOR	14FLT-SM1-TB	B
DS1	5030001880	LCD	TSD0393-UFFDCW	T
DS2	5040002310	S.LED	SML-311YTT86	T
DS3	5040002310	S.LED	SML-311YTT86	T
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
DS10	5040002310	S.LED	SML-311YTT86	T
DS11	5040002310	S.LED	SML-311YTT86	T
DS12	5040002310	S.LED	SML-311YTT86	T
DS13	5040002310	S.LED	SML-311YTT86	T
DS14	5040002310	S.LED	SML-311YTT86	T
DS15	5040002310	S.LED	SML-311YTT86	T
DS16	5040002310	S.LED	SML-311YTT86	T
DS17	5040002310	S.LED	SML-311YTT86	T
S1	2230000250	SWITCH	SPPH22014A	T
EP1	0910056680	PCB	B 6041	
EP2	8930052590	LCD CONTACT	SRCN-2345-SP-N-W	T

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
IC1	1130007610	S.IC	μPD3140GS-E1 (DS8)	T
IC2	1120002830	S.IC	NJM2125F-TE1	B
IC3	1150002080	IC	RA35H1516M-01	B
IC5	1110003200	S.IC	TA31136FN (EL)	T
IC6	1120002830	S.IC	NJM2125F-TE1	B
IC7	1110000960	S.IC	NJM4558M-T1	T
IC8	1110003650	S.IC	NJM2211M-TE1	T
IC9	1130007420	S.IC	TC7W14FU (TE12L)	T
IC10	1110002030	IC	TA7808S	T
IC12	1180001070	S.IC	TA7805F (TE16L)	B
IC13	1130007690	S.IC	BU4066BCF-E2	B
IC14	1110003090	IC	LA4425A	T
IC15	1110000960	S.IC	NJM4558M-T1	B
IC16	1130007690	S.IC	BU4066BCF-E2	B
IC17	1110000960	S.IC	NJM4558M-T1	B
IC18	1140008650	S.IC	HN58X2464T1	T
IC19	1140011620	S.IC	MB90F583CAPFV-G (FX-2697B EUR)	T
IC20	1110005730	S.IC	S-80928CNMC-G8Y-T2	T
IC21	1130007420	S.IC	TC7W14FU (TE12L)	T
IC24	1130007020	S.IC	TC7S66FU (TE85R)	T
IC25	1130007020	S.IC	TC7S66FU (TE85R)	T
Q1	1560000540	S.FET	2SK880-Y (TE85R)	B
Q2	1560000540	S.FET	2SK880-Y (TE85R)	B
Q3	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)	B
Q4	1560000340	S.FET	2SK210-Y (TE85R)	T
Q5	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
Q6	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)	T
Q7	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)	B
Q8	1560000990	S.FET	PMBFJ310	T
Q9	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	T
Q10	1530002920	S.TRANSISTOR	2SC4226-T1 R25	T
Q12	1530002240	S.TRANSISTOR	2SC3775-3-TB	T
Q13	1510000920	S.TRANSISTOR	2SA1577 T106 Q	T
Q15	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q16	1590000670	S.TRANSISTOR	FMW1 T148	T
Q17	1590000680	S.TRANSISTOR	DTC114EUA T106	T
Q18	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	T
Q21	1580000700	S.FET	3SK292 (TE85R)	T
Q22	1580000430	S.FET	3SK206-T1 U78	B
Q23	1530002360	S.TRANSISTOR	2SC2714-Y (TE85R)	T
Q31	1520000460	S.TRANSISTOR	2SB1132 T100 R	T
Q32	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q33	1520000460	S.TRANSISTOR	2SB1132 T100 R	T
Q34	1590000430	S.TRANSISTOR	DTC144EUA T106	T
Q35	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	T
Q36	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	T
Q37	1590001390	S.FET	2SJ144-Y (TE85R)	B
Q38	1590001390	S.FET	2SJ144-Y (TE85R)	B
Q39	1560000810	S.FET	2SK1069-4-TL	B
Q40	1590001390	S.FET	2SJ144-Y (TE85R)	B
Q41	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
Q42	1530002550	S.TRANSISTOR	2SC3326-B (TE85R)	B
Q43	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q44	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q45	1530002850	S.TRANSISTOR	2SC4116-BL (TE85R)	B
Q46	1590000720	S.TRANSISTOR	DTA144EUA T106	B
Q51	1560000810	S.FET	2SK1069-4-TL	B
Q52	1590000720	S.TRANSISTOR	DTA144EUA T106	B
Q53	1590000720	S.TRANSISTOR	DTA144EUA T106	B
Q54	1590000720	S.TRANSISTOR	DTA144EUA T106	B
Q55	1560000810	S.FET	2SK1069-4-TL	B
Q56	1530002060	S.TRANSISTOR	2SC4081 T106 R	B
Q57	1510000510	S.TRANSISTOR	2SA1576A T106R	B
Q58	1590000660	S.TRANSISTOR	DTC144TU T106	B
Q59	1530002280	S.TRANSISTOR	2SC4081 T106 S	B
Q60	1590000430	S.TRANSISTOR	DTC144EUA T106	B
Q61	1590000720	S.TRANSISTOR	DTA144EUA T106	B
Q62	1590000660	S.TRANSISTOR	DTC144TU T106	B
D1	1750000980	S.VARICAP	1SV278 (TPH3)	T
D2	1750000980	S.VARICAP	1SV278 (TPH3)	T
D3	1720000640	S.VARICAP	1SV284 (TPH3)	T
D4	1720000810	S.VARICAP	HVC358BTRF	T
D5	1720000810	S.VARICAP	HVC358BTRF	T
D6	1750000550	S.DIODE	1SS355 TE-17	B
D7	1790000620	S.DIODE	MA77 (TX)	B
D8	1790000620	S.DIODE	MA77 (TX)	B
D9	1750000550	S.DIODE	1SS355 TE-17	T
D11	1730002340	S.ZENER	MA8047-M (TX)	T
D12	1790000690	S.DIODE	HSM88ASR-TR	T
D13	1790000690	S.DIODE	HSM88ASR-TR	T
D14	1710001080	DIODE	XB15A308	T
D21	1710001080	DIODE	XB15A308	T
D24	1790001210	S.DIODE	1SS375-TL	B
D25	1720000260	S.VARICAP	1SV214 (TPH2)	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.
D26	1720000260	S.VARICAP 1SV214 (TPH2)	B
D27	1720000260	S.VARICAP 1SV214 (TPH2)	B
D28	1720000260	S.VARICAP 1SV214 (TPH2)	B
D29	1720000260	S.VARICAP 1SV214 (TPH2)	B
D30	1720000260	S.VARICAP 1SV214 (TPH2)	B
D31	1720000260	S.VARICAP 1SV214 (TPH2)	B
D32	1790001330	S.ZENER MA8036-L (TX)	T
D41	1790000700	DIODE DSA3A1	T
D42	1750000550	S.DIODE 1SS355 TE-17	T
D43	1750000130	S.DIODE DA204U T106	B
D44	1750000130	S.DIODE DA204U T106	B
D45	1750000550	S.DIODE 1SS355 TE-17	B
D46	1160000050	S.DIODE DAP202U T106	B
D47	1750000130	S.DIODE DA204U T106	B
D52	1750000130	S.DIODE DA204U T106	B
D53	1160000050	S.DIODE DAP202U T106	B
F11	2030000350	MONOLITH 21R15AB (FL-368)	T
F12	2030000270	MONOLITH FL-363 (21.7 MHz)	T
F13	2020001680	CERAMIC ALFY450E	T
X1	6050011740	S.XTAL CR-766 (21.250 MHz)	T
X2	6070000190	S.DISCRIMINATOR CDBC450KCAAY24-R0	T
X4	6050011800	S.XTAL CR-769 (7.9872 MHz)	T
L1	6200009560	S.COIL MLG1608B R10J-T	B
L2	6200006990	S.COIL ELJRE 56NG-F	B
L3	6200003320	S.COIL NL 322522T-3R3J-3	T
L4	6130002370	S.COIL LB-258	T
L5	6200003090	S.COIL NL 322522T-2R7J-3	T
L6	6200009560	S.COIL MLG1608B R10J-T	T
L7	6200009560	S.COIL MLG1608B R10J-T	T
L8	6200003100	S.COIL NL 322522T-3R9J-3	T
L9	6130002370	S.COIL LB-258	T
L10	6200003100	S.COIL NL 322522T-3R9J-3	T
L11	6200002410	S.COIL NL 252018T-056J	T
L13	6200009530	S.COIL ELJRE R15G-F3	T
L14	6200005740	S.COIL ELJRE 47NG-F	T
L15	6200002430	S.COIL NL 252018T-082J	T
L16	6200002430	S.COIL NL 252018T-082J	T
L17	6200002600	S.COIL NL 252018T-047J	T
L18	6200002600	S.COIL NL 252018T-047J	T
L19	6110001600	COIL LA-243	T
L20	6170000230	COIL LW-25	T
L21	6110001600	COIL LA-243	T
L22	6110001730	COIL LA-262	T
L31	6110001600	COIL LA-243	T
L32	6110001580	COIL LA-238	T
L35	6150003820	COIL LS-440	T
L36	6150003820	COIL LS-440	T
L37	6200007360	S.COIL ELJND R47J	B
L38	6150003820	COIL LS-440	T
L39	6150003820	COIL LS-440	T
L41	6200010780	S.COIL C2520C-1ROG-A	T
R1	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	T
R2	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R3	7410000950	S.ARRAY EXB-V8V 102JV	B
R4	7030003410	S.RESISTOR ERJ3GEYJ 561 V (560 Ω)	B
R5	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R6	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	B
R8	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R9	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	B
R10	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R11	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	B
R12	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)	T
R13	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R14	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)	B
R15	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R16	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R17	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R22	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R23	7030003650	S.RESISTOR ERJ3GEYJ 563 V (56 kΩ)	B
R24	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)	B
R26	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R27	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R31	7030003420	S.RESISTOR ERJ3GEYJ 681 V (680 Ω)	B
R32	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)	B
R33	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R34	7030003300	S.RESISTOR ERJ3GEYJ 680 V (68 Ω)	B
R35	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R41	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)	T
R42	7030003650	S.RESISTOR ERJ3GEYJ 563 V (56 kΩ)	T
R43	7030003310	S.RESISTOR ERJ3GEYJ 820 V (82 Ω)	T

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

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R51	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	B
R52	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R53	7030003420	S.RESISTOR ERJ3GEYJ 681 V (680 Ω)	T
R54	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)	T
R55	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R56	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)	B
R57	7030003330	S.RESISTOR ERJ3GEYJ 121 V (120 Ω)	B
R58	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	B
R59	7030003360	S.RESISTOR ERJ3GEYJ 221 V (220 Ω)	B
R61	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R62	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	T
R63	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	T
R71	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R72	7030003530	S.RESISTOR ERJ3GEYJ 562 V (5.6 kΩ)	T
R73	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	T
R74	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	B
R75	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R81	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R82	7030003270	S.RESISTOR ERJ3GEYJ 390 V (39 Ω)	T
R83	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R84	7030003390	S.RESISTOR ERJ3GEYJ 391 V (390 Ω)	T
R85	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	T
R86	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R87	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R88	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R91	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R92	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	T
R93	7030003240	S.RESISTOR ERJ3GEYJ 220 V (22 Ω)	T
R94	7030003240	S.RESISTOR ERJ3GEYJ 220 V (22 Ω)	T
R95	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R96	7030003310	S.RESISTOR ERJ3GEYJ 820 V (82 Ω)	T
R103	7030003800	S.RESISTOR ERJ3GEYJ 105 V (10 Ω)	T
R104	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	T
R107	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)	T
R110	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)	T
R111	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R112	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R113	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R114	7310002670	S.TRIMMER RV-143 (RH03A3AS2) 471	T
R115	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)	T
R116	7030003310	S.RESISTOR ERJ3GEYJ 820 V (82 Ω)	T
R121	7030003470	S.RESISTOR ERJ3GEYJ 182 V (1.8 kΩ)	T
R122	7030003470	S.RESISTOR ERJ3GEYJ 182 V (1.8 kΩ)	T
R123	7030001150	S.RESISTOR MCR50JZHJ 150 Ω (151)	T
R124	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	T
R125	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R126	7030003470	S.RESISTOR ERJ3GEYJ 182 V (1.8 kΩ)	T
R127	7030003470	S.RESISTOR ERJ3GEYJ 182 V (1.8 kΩ)	T
R141	7030003290	S.RESISTOR ERJ3GEYJ 560 V (56 Ω)	T
R146	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R147	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R148	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	B
R149	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R150	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R151	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R152	7030003860	S.RESISTOR ERJ3GE JPW V	T
R153	7030003300	S.RESISTOR ERJ3GEYJ 680 V (68 Ω)	T
R154	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R155	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	B
R157	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R171	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R172	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)	B
R173	7030003860	S.RESISTOR ERJ3GE JPW V	T
R174	7030003860	S.RESISTOR ERJ3GE JPW V	T
R181	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R182	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	B
R183	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)	B
R184	7030003330	S.RESISTOR ERJ3GEYJ 121 V (120 Ω)	B
R185	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	B
R201	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)	T
R202	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)	T
R203	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R204	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)	B
R205	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R206	7030003390	S.RESISTOR ERJ3GEYJ 391 V (390 Ω)	T
R207	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)	T
R208	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)	T
R211	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R212	7030003430	S.RESISTOR ERJ3GEYJ 821 V (820 Ω)	B
R213	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	B
R214	7310002760	S.TRIMMER RV-152 (RH03A3AJ4X0HA) 223	T
R215	7510001660	S.THRMISTOR NTCC16 4LH 473KT	T
R216	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	T
R218	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	B
R219	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	B
R221	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R222	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R223	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B

S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R224	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R225	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R226	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R227	7510001460	S.THERMISTOR NTCG16 3NH 471KT	B
R231	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R232	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R233	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R234	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R235	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R236	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	T
R237	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R238	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	T
R239	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)	T
R240	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R241	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R242	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)	T
R243	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R244	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)	T
R245	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R246	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R251	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R252	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)	T
R261	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R262	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R263	7030004050	S.RESISTOR ERJ3GEYJ 1R0 V (1 Ω)	T
R271	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R272	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R273	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R274	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R281	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	T
R282	7030006091	S.RESISTOR ERA3YED 822V	B
R284	7030006101	S.RESISTOR ERA3YED 183V	B
R285	7030005981	S.RESISTOR ERA3YED 333V	B
R291	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	T
R292	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R293	7030003710	S.RESISTOR ERJ3GEYJ 184 V (180 kΩ)	T
R294	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	T
R295	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)	T
R296	7030003470	S.RESISTOR ERJ3GEYJ 182 V (1.8 kΩ)	T
R297	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	T
R298	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	T
R299	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	T
R300	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	T
R301	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R302	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	T
R303	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R304	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R305	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R310	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R311	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	T
R312	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R314	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R315	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R316	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R317	7030003530	S.RESISTOR ERJ3GEYJ 562 V (5.6 kΩ)	T
R318	7030003420	S.RESISTOR ERJ3GEYJ 681 V (680 Ω)	B
R319	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R320	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R321	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R322	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R323	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	B
R331	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R332	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)	B
R333	7030003590	S.RESISTOR ERJ3GEYJ 183 V (18 kΩ)	B
R334	7030003590	S.RESISTOR ERJ3GEYJ 183 V (18 kΩ)	B
R341	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R342	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R343	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R344	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	T
R351	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)	B
R352	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	B
R353	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	T
R354	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R355	7030000100	S.RESISTOR MCR10EZJH 4.7 Ω (4R7)	B
R356	7030000320	S.RESISTOR MCR10EZJH 330 Ω (331)	B
R357	7030000320	S.RESISTOR MCR10EZJH 330 Ω (331)	B
R358	7030000320	S.RESISTOR MCR10EZJH 330 Ω (331)	B
R359	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	B
R360	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)	B
R361	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R362	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)	B
R363	7030003820	S.RESISTOR ERJ3GEYJ 155 V (1.5 MΩ)	B
R367	7030003590	S.RESISTOR ERJ3GEYJ 183 V (18 kΩ)	B
R368	7030003590	S.RESISTOR ERJ3GEYJ 183 V (18 kΩ)	B
R369	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	B
R370	7030003790	S.RESISTOR ERJ3GEYJ 824 V (820 kΩ)	B
R371	7030003590	S.RESISTOR ERJ3GEYJ 183 V (18 kΩ)	B
R372	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B

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

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R373	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R374	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R375	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R376	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R377	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R381	7310002600	S.TRIMMER RV-110 (RH03A3AS4X00AA) 473	T
R382	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)	B
R383	7510001670	S.THRMISTOR NTCG16 4BH 103KT	B
R384	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)	B
R385	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)	B
R386	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)	B
R387	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)	B
R388	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	B
R389	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R391	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R392	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R393	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)	B
R394	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R395	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	B
R396	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	B
R397	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	B
R398	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	B
R401	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R402	7030010760	S.RESISTOR ERA3YKD 623V (62 kΩ)	B
R403	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	B
R404	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)	T
R405	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R406	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R407	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R408	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R409	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R410	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R411	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R412	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R413	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R414	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R415	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R416	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R417	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R418	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R419	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R420	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R421	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R422	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R424	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R425	7030003200	S.RESISTOR ERJ3GEYJ 100 V (10 Ω)	B
R426	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R427	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R428	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)	B
R429	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	B
R430	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R431	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R432	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R433	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)	T
R434	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)	T
R435	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R441	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R442	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R443	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R444	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R445	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R446	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	B
R447	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R448	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R449	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)	B
R450	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R451	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R456	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)	T
R458	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R459	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
C1	4030008880	S.CERAMIC C1608 JB 1H 223K-T	T
C3	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C4	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C5	4550006560	S.TANTALUM ECST1CV225R	B
C7	4030017480	S.CERAMIC C1608 JB 1A 474K-T	B
C8	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C9	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C11	4030007020	S.CERAMIC C1608 CH 1H 120J-T	T
C12	4610001590	S.TRIMMER TZC3R100A110R00	T
C13	4030007060	S.CERAMIC C1608 CH 1H 270J-T	T
C14	4550000510	S.TANTALUM TEESVA 1V 473M8L	B
C17	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C18	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C21	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C22	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C23	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B

S.=Surface mount

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
C31	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C32	4030009920	S.CERAMIC C1608 CH 1H 050B-T	B
C33	4030009990	S.CERAMIC C1608 CH 1H 200J-T	B
C34	4030007060	S.CERAMIC C1608 CH 1H 270J-T	B
C35	4030007060	S.CERAMIC C1608 CH 1H 270J-T	B
C36	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C37	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C41	4550006130	S.TANTALUM ECST1VY224R	T
C42	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	T
C43	4030009520	S.CERAMIC C1608 CH 1H 020B-T	T
C44	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C45	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C46	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C47	4030008220	S.CERAMIC C1608 UJ 1H 070D-T	T
C48	4030009910	S.CERAMIC C1608 CH 1H 040B-T	T
C49	4030009530	S.CERAMIC C1608 CH 1H 030B-T	T
C50	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C51	4030009530	S.CERAMIC C1608 CH 1H 030B-T	T
C52	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	T
C53	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C54	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C55	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C56	4030007020	S.CERAMIC C1608 CH 1H 120J-T	B
C57	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C58	4030007020	S.CERAMIC C1608 CH 1H 120J-T	B
C59	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C61	4550000510	S.TANTALUM TEESVA 1V 473M8L	T
C63	4030008260	S.CERAMIC C1608 UJ 1H 150J-T	T
C64	4030008260	S.CERAMIC C1608 UJ 1H 150J-T	T
C65	4030007030	S.CERAMIC C1608 CH 1H 150J-T	T
C66	4030007040	S.CERAMIC C1608 CH 1H 180J-T	T
C67	4550006700	S.TANTALUM ECST1AY106R	B
C68	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C69	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C70	4030009560	S.CERAMIC C1608 CH 1H R75B-T	T
C71	4030011810	S.CERAMIC C1608 JB 1A 224K-T	T
C72	4550006700	S.TANTALUM ECST1AY106R	T
C73	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C74	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C75	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C76	4030007080	S.CERAMIC C1608 CH 1H 390J-T	T
C77	4030007080	S.CERAMIC C1608 CH 1H 390J-T	T
C81	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C82	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C83	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C84	4030007040	S.CERAMIC C1608 CH 1H 180J-T	T
C85	4030007040	S.CERAMIC C1608 CH 1H 180J-T	T
C86	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C87	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C88	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C91	4030007040	S.CERAMIC C1608 CH 1H 180J-T	T
C92	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C93	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C94	4030009530	S.CERAMIC C1608 CH 1H 030B-T	T
C95	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C96	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C97	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C101	4030007050	S.CERAMIC C1608 CH 1H 220J-T	T
C102	4030007040	S.CERAMIC C1608 CH 1H 180J-T	T
C103	4030007080	S.CERAMIC C1608 CH 1H 390J-T	T
C104	4030007040	S.CERAMIC C1608 CH 1H 180J-T	T
C105	4550006710	S.TANTALUM ECST1AX226R	T
C106	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C107	4030008560	S.CERAMIC C1608 CH 1H 300J-T	T
C108	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C109	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C110	4510005310	S.ELECTROLYTIC ECEV1CA220SR	T
C112	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C113	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C115	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C116	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C117	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C118	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C119	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C120	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C121	4030011170	S.CERAMIC GRM31M2C2H180JV01L (GRM42-6 CH)	T
C122	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C123	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C124	4030011170	S.CERAMIC GRM31M2C2H180JV01L (GRM42-6 CH)	T
C125	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C126	4030017200	S.CERAMIC GRM31BR32J102KY01L (GHM1030 R)	T
C127	4030011170	S.CERAMIC GRM31M2C2H180JV01L (GRM42-6 CH)	T
C130	4030011190	S.CERAMIC GRM31M2C2H270JV01L (GRM42-6 CH)	T
C135	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C141	4030011210	S.CERAMIC GRM31M2C2H330JV01L (GRM42-6 CH)	B
C142	4030011190	S.CERAMIC GRM31M2C2H270JV01L (GRM42-6 CH)	B
C143	4030018350	S.CERAMIC GRM31A5C2J151JW01D	T
C144	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
C149	4030009510	S.CERAMIC C1608 CH 1H 010B-T	T
C150	4030007010	S.CERAMIC C1608 CH 1H 100D-T	T
C151	4030009570	S.CERAMIC C1608 CH 1H 0R3B-T	B
C152	4030007030	S.CERAMIC C1608 CH 1H 150J-T	B
C153	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C154	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C155	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C156	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C157	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C158	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C159	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C160	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C161	4030009540	S.CERAMIC C1608 CH 1H 1R5B-T	B
C162	4030007030	S.CERAMIC C1608 CH 1H 150J-T	B
C163	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C164	4030009530	S.CERAMIC C1608 CH 1H 030B-T	B
C165	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C171	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C172	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C173	4030007030	S.CERAMIC C1608 CH 1H 150J-T	B
C174	4030009520	S.CERAMIC C1608 CH 1H 020B-T	B
C175	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T	T
C176	4030009520	S.CERAMIC C1608 CH 1H 020B-T	B
C177	4030009520	S.CERAMIC C1608 CH 1H 020B-T	B
C178	4030007030	S.CERAMIC C1608 CH 1H 150J-T	B
C179	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C180	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C181	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C182	4030009510	S.CERAMIC C1608 CH 1H 010B-T	B
C183	4030007010	S.CERAMIC C1608 CH 1H 100D-T	B
C184	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C186	4030018690	S.CERAMIC CM105 CH 470G 50AT	T
C187	4030008880	S.CERAMIC C1608 JB 1H 223K-T	B
C188	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C189	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C190	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C191	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C193	4030011770	S.CERAMIC C1608 CH 1H 060B-T	B
C195	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C197	4030009910	S.CERAMIC C1608 CH 1H 040B-T	B
C201	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C202	4030008880	S.CERAMIC C1608 JB 1H 223K-T	T
C203	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C204	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C205	4030007130	S.CERAMIC C1608 CH 1H 101J-T	T
C206	4030007090	S.CERAMIC C1608 CH 1H 470J-T	T
C207	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C208	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C209	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C210	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C211	4030011280	S.CERAMIC C1608 CH 1H 271J-T	B
C212	4030011280	S.CERAMIC C1608 CH 1H 271J-T	B
C213	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C215	4030017490	S.CERAMIC C1608 JB 1A 105K-T	T
C216	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C217	4030007050	S.CERAMIC C1608 CH 1H 220J-T	B
C218	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C219	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C220	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C221	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C222	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C223	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C224	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C225	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C231	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C232	4030008850	S.CERAMIC C1608 JB 1H 123K-T	T
C233	4030008900	S.CERAMIC C1608 JB 1H 333K-T	T
C234	4030008900	S.CERAMIC C1608 JB 1H 333K-T	T
C235	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C236	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C237	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C238	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C239	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C240	4030008920	S.CERAMIC C1608 JB 1H 473K-T	T
C241	4550006700	S.TANTALUM ECST1AY106R	T
C242	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C245	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C246	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C247	4030006870	S.CERAMIC C1608 JB 1H 222K-T	T
C248	4030011810	S.CERAMIC C1608 JB 1A 224K-T	T
C251	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C252	4030011340	S.CERAMIC C1608 CH 1H 471J-T	T
C261	4510005350	ELECTROLYTIC 25 MV 220 HC	T
C266	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C267	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C268	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C269	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C270	4030011600	S.CERAMIC C1608 JB 1E 104K-T	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.
C271	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C273	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C274	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C277	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C278	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C279	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C280	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C282	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C283	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C284	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C285	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C286	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C291	4550000530	S.TANTALUM TEESVA 1V 104M8L	T
C292	4030008890	S.CERAMIC C1608 JB 1H 273K-T	T
C293	4030008890	S.CERAMIC C1608 JB 1H 273K-T	T
C294	4030006870	S.CERAMIC C1608 JB 1H 222K-T	T
C295	4030009490	S.CERAMIC C1608 JB 1H 821K-T	T
C296	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C297	4030017490	S.CERAMIC C1608 JB 1A 105K-T	T
C301	4030010770	S.CERAMIC C1608 JB 1H 392K-T	B
C302	4030017490	S.CERAMIC C1608 JB 1A 105K-T	B
C303	4030017490	S.CERAMIC C1608 JB 1A 105K-T	B
C304	4030010770	S.CERAMIC C1608 JB 1H 392K-T	B
C305	4030017490	S.CERAMIC C1608 JB 1A 105K-T	B
C311	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C312	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C313	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C314	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C315	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C316	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C322	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C324	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C331	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C332	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C333	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C334	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C335	4030011340	S.CERAMIC C1608 CH 1H 471J-T	B
C336	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C341	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C342	4030017490	S.CERAMIC C1608 JB 1A 105K-T	T
C351	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C352	4030017490	S.CERAMIC C1608 JB 1A 105K-T	B
C353	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C354	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C355	4510004590	ELECTROLYTIC 16 MV 470 HC	T
C356	4510004590	ELECTROLYTIC 16 MV 470 HC	T
C357	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C361	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C362	4030007040	S.CERAMIC C1608 CH 1H 180J-T	B
C363	4030017490	S.CERAMIC C1608 JB 1A 105K-T	B
C365	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C367	4030006870	S.CERAMIC C1608 JB 1H 222K-T	B
C368	4030007020	S.CERAMIC C1608 CH 1H 120J-T	B
C371	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C372	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C373	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C374	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C375	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C376	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C377	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C381	4030017480	S.CERAMIC C1608 JB 1A 474K-T	B
C382	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C383	4030007090	S.CERAMIC C1608 CH 1H 470J-T	B
C384	4030008470	S.CERAMIC C1608 JB 1H 272K-T	B
C385	4030010770	S.CERAMIC C1608 JB 1H 392K-T	B
C386	4030006860	S.CERAMIC C1608 JB 1H 102K-T	B
C387	4030007120	S.CERAMIC C1608 CH 1H 820J-T	B
C389	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C391	4030007050	S.CERAMIC C1608 CH 1H 220J-T	B
C392	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C393	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C394	4030006900	S.CERAMIC C1608 JB 1H 103K-T	B
C395	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C396	4030011810	S.CERAMIC C1608 JB 1A 224K-T	B
C401	4030006900	S.CERAMIC C1608 JB 1H 103K-T	T
C403	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C404	4510004630	S.ELECTROLYTIC ECEV1CA100SR	T
C405	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C406	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C407	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C422	4030009650	S.CERAMIC C1608 CH 1H 240J-T	B
C423	4030009650	S.CERAMIC C1608 CH 1H 240J-T	B
C424	4030011600	S.CERAMIC C1608 JB 1E 104K-T	B
C426	4030008890	S.CERAMIC C1608 JB 1H 273K-T	T
C442	4030011600	S.CERAMIC C1608 JB 1E 104K-T	T
C443	4030011600	S.CERAMIC C1608 JB 1E 104K-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.
RL1	6330001670	RELAY FTR-P3CP012W1	T
RL2	6330001620	RELAY FTR-F3AA012E	T
J1	6510018920	S.CONNECTOR B8B-PH-SM3-TB	T
J2	6510018960	S.CONNECTOR B2B-PH-SM3-TB	T
J3	6510016430	S.CONNECTOR 53307-1491	T
J6	6510023090	S.CONNECTOR 20FLT-SM1-TB	T
J7	6510022020	S.CONNECTOR 14FLT-SM1-TB	T
W1	8900009850	CABLE OPC-969	T
W2	8900010210	CABLE OPC-1026	T
EP1	0910056613	PCB B 6036C	
EP2	9030602001	TUBE IRRAX 1 (d) L=10 mm	

[CTRL-E BOARD]

REF NO.	ORDER NO.	DESCRIPTION	M.
C1	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C2	4030006860	S.CERAMIC C1608 JB 1H 102K-T	T
C5	4030008560	S.CERAMIC C1608 CH 1H 300J-T	T
C6	4510004590	ELECTROLYTIC 16 MV 470 HC	T
J1	6510022440	CONNECTOR LTW-8MP-C <LIA>	B
EP1	0910056702	PCB B 6044B	

[DSC-E BOARD]

REF NO.	ORDER NO.	DESCRIPTION	M.
IC1	1110000960	S.IC NJM4558M-T1	T
IC2	1170000350	S.IC PC357N6T	T
IC3	1130007420	S.IC TC7W14FU (TE12L)	T
IC4	1130005640	S.IC TC4W53F (TE12L)	T
IC5	1120002830	S.IC NJM2125F-TE1	T
Q1	1590000660	S.TRANSISTOR DTC144TU T106	T
Q2	1530002850	S.TRANSISTOR 2SC4116-BL (TE85R)	T
Q3	1520000380	TRANSISTOR 2SB1143 S	B
Q4	1590001190	S.TRANSISTOR XP6501-(TX) .AB	T
D1	1730002360	S.ZENER MA8062-M (TX)	T
D2	1730002360	S.ZENER MA8062-M (TX)	T
D3	1730002360	S.ZENER MA8062-M (TX)	T
D4	1750000130	S.DIODE DA204U T106	T
D5	1750000550	S.DIODE 1SS355 TE-17	T
D6	1730002360	S.ZENER MA8062-M (TX)	T
R1	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R2	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	T
R3	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R4	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)	T
R10	7030003530	S.RESISTOR ERJ3GEYJ 562 V (5.6 kΩ)	T
R11	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	T
R12	7030003210	S.RESISTOR ERJ3GEYJ 120 V (12 Ω)	T
R13	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R14	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	T
R15	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)	T
R17	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	T
R18	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	T
R19	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	T
R20	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	T
R21	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)	T
R22	7030003410	S.RESISTOR ERJ3GEYJ 561 V (560 Ω)	T
R31	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T
R32	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	T

S.=Surface mount

[DSC-E BOARD]

REF NO.	ORDER NO.	DESCRIPTION		M.
R33	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)	T
R34	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)	T
R35	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)	T
R36	7030003690	S.RESISTOR	ERJ3GEYJ 124 V (120 kΩ)	T
R37	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)	T
R38	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)	T
R39	7030003660	S.RESISTOR	ERJ3GEYJ 683 V (68 kΩ)	T
R40	7030007230	S.RESISTOR	ERA3YED 102V	T
R41	7030005321	S.RESISTOR	ERA3YED 103V	T
R42	7030005321	S.RESISTOR	ERA3YED 103V	T
R43	7030000320	S.RESISTOR	MCR10EZHZ 330 Ω (331)	T
R44	7030000320	S.RESISTOR	MCR10EZHZ 330 Ω (331)	T
R45	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)	T
C1	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C2	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	T
C3	4030011330	S.CERAMIC	C1608 CH 1H 391J-T	T
C4	4030008650	S.CERAMIC	C1608 JB 1H 332K-T	T
C5	4030007120	S.CERAMIC	C1608 CH 1H 820J-T	T
C6	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C7	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C8	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C9	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C10	4510004630	S.ELECTROLYTIC	ECEV1CA100SR	T
C11	4030006880	S.CERAMIC	C1608 JB 1H 472K-T	T
C12	4030011600	S.CERAMIC	C1608 JB 1E 104K-T	T
C22	4030007170	S.CERAMIC	C1608 CH 1H 221J-T	T
C23	4030007170	S.CERAMIC	C1608 CH 1H 221J-T	T
C26	4030007170	S.CERAMIC	C1608 CH 1H 221J-T	T
C31	4510004630	S.ELECTROLYTIC	ECEV1CA100SR	T
C32	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	T
C33	4030017490	S.CERAMIC	C1608 JB 1A 105K-T	T
C34	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	T
C35	4030006900	S.CERAMIC	C1608 JB 1H 103K-T	T
C36	4030006860	S.CERAMIC	C1608 JB 1H 102K-T	T
C37	4510004630	S.ELECTROLYTIC	ECEV1CA100SR	T
J1	6510023620	CONNECTOR	LTWBU-10PMMP-LC LIA	B
J2	6510023090	S.CONNECTOR	20FLT-SM1-TB	T
J3	6910014220	CONNECTOR	IMSA-9230B-1-08Z124	T
T1	5920000570	TRANSFORMER	12T01	B
W1	8900011160	CABLE	OPC-1128 (P=0.5,N=20,L=50)	
EP1	0910056692	PCB	B 6043B	

6-2 HM-126

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION		M.
R1	7010006890	RESISTOR	R20J 12 kΩ	T
R2	7010006880	RESISTOR	R20J 6.8 kΩ	T
R3	7010006900	RESISTOR	R20J 15 kΩ	T
R4	7010006910	RESISTOR	R20J 33 kΩ	T
R5	7070001110	RESISTOR	15 ERG2SJ	T
C1	4010008030	CERAMIC	DD104 B 471K 50V	T
C2	4030017280	S.CERAMIC	C1608 CH 1H 471J-T-A	T
J1	6510022450	CONNECTOR	S07B-EH-S	T
MC1	7700002120	MICROPHONE	KUC2123-030245	T
S1	2260002330	SWITCH	SKHHLP014A	T
S2	2260002340	SWITCH	SKHHAM024A	B
S3	2260002340	SWITCH	SKHHAM024A	B
S4	2260002340	SWITCH	SKHHAM024A	B
SP1	2510001080	SPEAKER	S36G04K-09	T
EP1	0910052553	PCB	B 5431C	
EP2	9029701901	TUBE	IRRAX 0.7 (d) L=4 mm	

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

S.=Surface mount

6-3 HM-134

[CHASSIS UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R1	7070000860	RESISTOR ERG2SJ 150	
SP1	2510001091	SPEAKER 036D0801A	
W3	8900010970	CABLE OPC-1118	
EP1	6950000390	COVER VCP-10	

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
IC1	1140009390	S.IC μPD789405AGK-A30-9EU	B
IC2	1110005560	IC TA8201AK	B
IC3	1110004490	S.IC M62429FP 700C	B
IC4	1120002830	S.IC NJM2125F-TE1	B
IC5	1180000420	S.IC TA78L05F (TE12R)	B
IC7	1110004710	S.IC S-80928ANMP-DDR-T2	B
IC8	1130007420	S.IC TC7W14FU (TE12L)	B
IC9	1130006220	S.IC TC4W53FU (TE12L)	B
IC10	1130004200	S.IC TC4S66F (TE85R)	B
Q1	1560000810	S.FET 2SK1069-4-TL	B
Q2	1520000460	S.TRANSISTOR 2SB1132 T100 R	B
Q3	1530002850	S.TRANSISTOR 2SC4116-BL (TE85R)	B
Q5	1590000430	S.TRANSISTOR DTC144EUA T106	B
Q6	1590000980	S.TRANSISTOR DTB123EK T147	B
Q9	1560000810	S.FET 2SK1069-4-TL	B
Q10	1530002060	S.TRANSISTOR 2SC4081 T106 R	B
Q11	1510000510	S.TRANSISTOR 2SA1576A T106R	B
Q12	1530002850	S.TRANSISTOR 2SC4116-BL (TE85R)	B
Q13	1530002850	S.TRANSISTOR 2SC4116-BL (TE85R)	B
D1	1750000130	S.DIODE DA204U T106	B
D2	1750000550	S.DIODE 1SS355 TE-17	B
X1	6060000750	S.CERAMIC CSTCC4.91MG	B
R1	7030000280	S.RESISTOR MCR10EZHZH 150 Ω (151)	B
R2	7030000280	S.RESISTOR MCR10EZHZH 150 Ω (151)	B
R3	7030000280	S.RESISTOR MCR10EZHZH 150 Ω (151)	B
R6	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R7	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R8	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R9	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R10	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R11	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R12	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R13	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R14	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R15	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R16	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R17	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R18	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R19	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R20	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)	B
R21	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)	B
R22	7030004120	S.RESISTOR ERJ3GEYJ 203 V (20 kΩ)	B
R23	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R24	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)	B
R25	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R26	7510001150	S.THERMISTOR NTCCM1608 4BH 103KC	B
R27	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R28	7030004120	S.RESISTOR ERJ3GEYJ 203 V (20 kΩ)	B
R29	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R30	7030004120	S.RESISTOR ERJ3GEYJ 203 V (20 kΩ)	B
R31	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R32	7030004120	S.RESISTOR ERJ3GEYJ 203 V (20 kΩ)	B
R33	7030004120	S.RESISTOR ERJ3GEYJ 203 V (20 kΩ)	B
R34	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R35	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R36	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R37	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	M.
R38	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)	B
R42	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)	T
R43	7030003490	S.RESISTOR ERJ3GEYJ 272 V (2.7 kΩ)	T
R44	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R45	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R46	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)	B
R47	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)	B
R50	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R53	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R54	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R55	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R56	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R57	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)	B
R58	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)	B
R61	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R63	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)	B
R64	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)	B
R65	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R66	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R67	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R70	7030003260	S.RESISTOR ERJ3GEYJ 330 V (33 Ω)	B
R71	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)	B
R72	7030000060	S.RESISTOR MCR10EZHZH 2.2 Ω (2R2)	B
R73	7030000060	S.RESISTOR MCR10EZHZH 2.2 Ω (2R2)	B
R75	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
R76	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)	B
R77	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)	B
R78	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)	B
R79	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)	B
C1	4510004630	S.ELECTROLYTIC ECEV1CA100SR	B
C3	4510005430	S.ELECTROLYTIC ECEV0JA220SR	B
C4	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C5	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C6	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C7	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C9	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C10	4030012600	S.CERAMIC C2012 JB 1A 105M-T-A	B
C14	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C15	4510006670	S.ELECTROLYTIC ECEV1CA471P	B
C22	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C23	4510005430	S.ELECTROLYTIC ECEV0JA220SR	B
C24	4030012600	S.CERAMIC C2012 JB 1A 105M-T-A	B
C26	4030012600	S.CERAMIC C2012 JB 1A 105M-T-A	B
C27	4030006850	S.CERAMIC C1608 JB 1H 471K-T-A	B
C28	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C29	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A	B
C30	4510004630	S.ELECTROLYTIC ECEV1CA100SR	B
C31	4030011810	S.CERAMIC C1608 JB 1A 224K-T-N	B
C32	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C33	4030012600	S.CERAMIC C2012 JB 1A 105M-T-A	B
C34	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C35	4510005430	S.ELECTROLYTIC ECEV0JA220SR	B
C36	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C37	4510005430	S.ELECTROLYTIC ECEV0JA220SR	B
C42	4030008890	S.CERAMIC C1608 JB 1H 273K-T-A	B
C44	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C45	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C46	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C47	4030006850	S.CERAMIC C1608 JB 1H 471K-T-A	B
C50	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A	B
C53	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
C54	4030012600	S.CERAMIC C2012 JB 1A 105M-T-A	B
C56	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A	B
C58	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C59	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A	B
C60	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A	B
C61	4030011600	S.CERAMIC C1608 JB 1E 104K-T-N	B
C64	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C65	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C66	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C67	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C68	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C69	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C70	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C71	4030007090	S.CERAMIC C1608 CH 1H 470J-T-A	B
C72	4550005980	S.TANTALUM TEMSVA 1A 475M-8L	B
C73	4510005370	S.ELECTROLYTIC ECEV1AA221P	B
C74	4510004540	S.ELECTROLYTIC ECEV0JA470SR	B
C75	4030008980	S.CERAMIC C2012 JB 1C 154K-T-A	B
C76	4030008980	S.CERAMIC C2012 JB 1C 154K-T-A	B
C77	4030006900	S.CERAMIC C1608 JB 1H 103K-T-A	B
RL1	6310000040	S.RELAY FTR-B3GA4.5Z-SP-B10	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.
J1	6510019420	S.CONNECTOR	B8B-ZR-SM3-TF	B
DS1	5030001900	LCD	A0119 (LCD 36×28.5)	T
DS2	5040002660	S.LED	FY1101F-TR (LED)	T
DS3	5040002660	S.LED	FY1101F-TR (LED)	T
DS4	5040002310	S.LED	SML-311YTT86	T
DS5	5040002660	S.LED	FY1101F-TR (LED)	T
DS6	5040002660	S.LED	FY1101F-TR (LED)	T
DS7	5040002310	S.LED	SML-311YTT86	T
DS8	5040002310	S.LED	SML-311YTT86	T
DS9	5040002310	S.LED	SML-311YTT86	T
DS10	5040002310	S.LED	SML-311YTT86	T
MC1	7700002480	MICROPHONE	SKB-2746 LPC	T
S1	2260002710	S.SWITCH	SKQLLCE012	B
S2	2260002710	S.SWITCH	SKQLLCE012	B
S3	2260002710	S.SWITCH	SKQLLCE012	B
S4	2260002710	S.SWITCH	SKQLLCE012	B
W15	7030003860	S.JUMPER	ERJ3GE JPW V	B
W16	7030003860	S.JUMPER	ERJ3GE JPW V	B
W17	7030003860	S.JUMPER	ERJ3GE JPW V	B
EP1	0910055022	PCB	B 5778B	
EP2	8930051120	LCD CONTACT	SRCN-2320-SP-N-W	

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

S.=Surface mount

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

7-1 IC-M503E

[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510004880	Connector MR-DS-E 01	1
W1	8900009730	Cable OPC-944	1
MP1	8210017150	2345 rear panel assembly	1
MP4	8930049320	2288 vent. Sheet	1
MP5	8930052050	2345 R-packing	1
MP6	8810004540	Screw BiH M3 × 8 SUS	6
MP11	8410002460	2529 heatsink	1
MP12	8930034300	1542 ant seal	1
MP13	8810004540	Screw BiH M3 × 8 SUS	2
MP14	8930057551	Thermally sheet (AG)-1	1
MP15	8810008660	Screw PH BT M3 × 8 NI-ZU	1
MP16	8930054760	2345 A-module plate	1
MP17	8510012971	2345 module cover-1	1
MP18	8930053860	2345 module plate	1
MP19	8810008660	Screw PH BT M3 × 8 NI-ZU	2
MP20	8950000180	Cable tie-80	2
MP21	8810008660	Screw PH BT M3 × 8 NI-ZU	2
MP22	8930052440	2345 B-IC clip	1
MP23	8810008660	Screw PH BT M3 × 8 NI-ZU	5
MP31	8110007180	2345 shield cover	1
MP32	8010004340	Edging rubber	1
MP33	8930007280	Aluminum sheet	2
MP34	8810008660	Screw PH BT M3 × 8 NI-ZU	4
MP41	8930052060	2345 F-packing	1
MP42	8820001210	2438 screw	6
MP43	8930052290	O ring	6
MP45	8930055040	2438 cap	1
MP46	8930055040	2438 cap	1

[FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MC1	0800005502	Microphone HM-126B-2	1
MP1	8210020600	2345 front panel (G) assembly	1
MP21	8930052280	O ring (AC)	3
MP22	8930051970	2345 A-bush plate	1
MP23	8930053030	2345 earth plate	1
MP25	8810008660	Screw PH BT M3 × 8 NI-ZU	5
MP31	8610010851	Knob N279-1	2
MP32	8610010861	Knob N280-1	1
MP33	8610007510	Knob spring No.7800	3

[LOGIC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
S1	2230000250	Switch SPPH22014A	1
DS1	5030001880	LCD TSD0393-UFFDCW	1
EP2	8930052590	LCD contact SRCN-2345-SP-N-W	2
MP1	8210016830	2345 reflector	1
MP2	8930052000	2345 LCD holder	1
MP3	8930052630	2345 LCD filter	1

Screw abbreviations BT, A: Self-tapping
 BiH: Binding head PH: Pan head
 NI-ZU: Nickel-Zinc SUS: Stainless

[SQL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
R1	7210002360	Variable resistor TP96N97-15F-10KB-1301	1

[DIAL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
S1	2250000220	Switch TP90N937E20-15F-1540	1

[VOL BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
R1	7210003080	Variable resistor TP96N97-15F-10KA-2345	1

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8510013150	2345 VCO case	1
MP2	8930014140	Earth spring	1
MP3	8930054750	2345 A-earth plate	1
MP4	8930005320	Filter spacer	2
MP6	8930054750	2345 A-earth plate	1

[DSC-E BOARD]

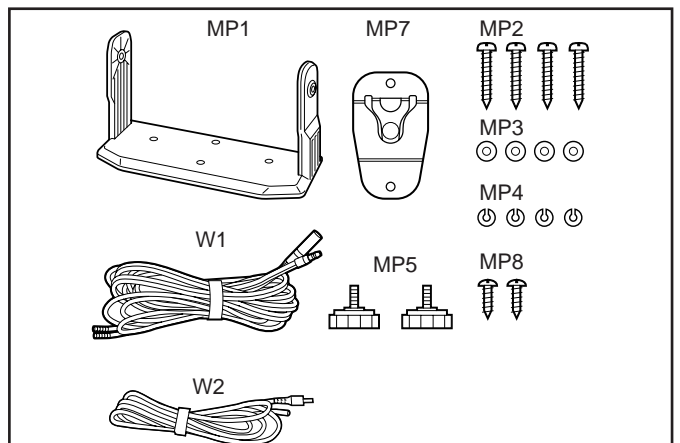
REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510023620	Connector LTWBU-10PMMP-LC	1
MP1	8930040940	Insulation plate (ER)	1

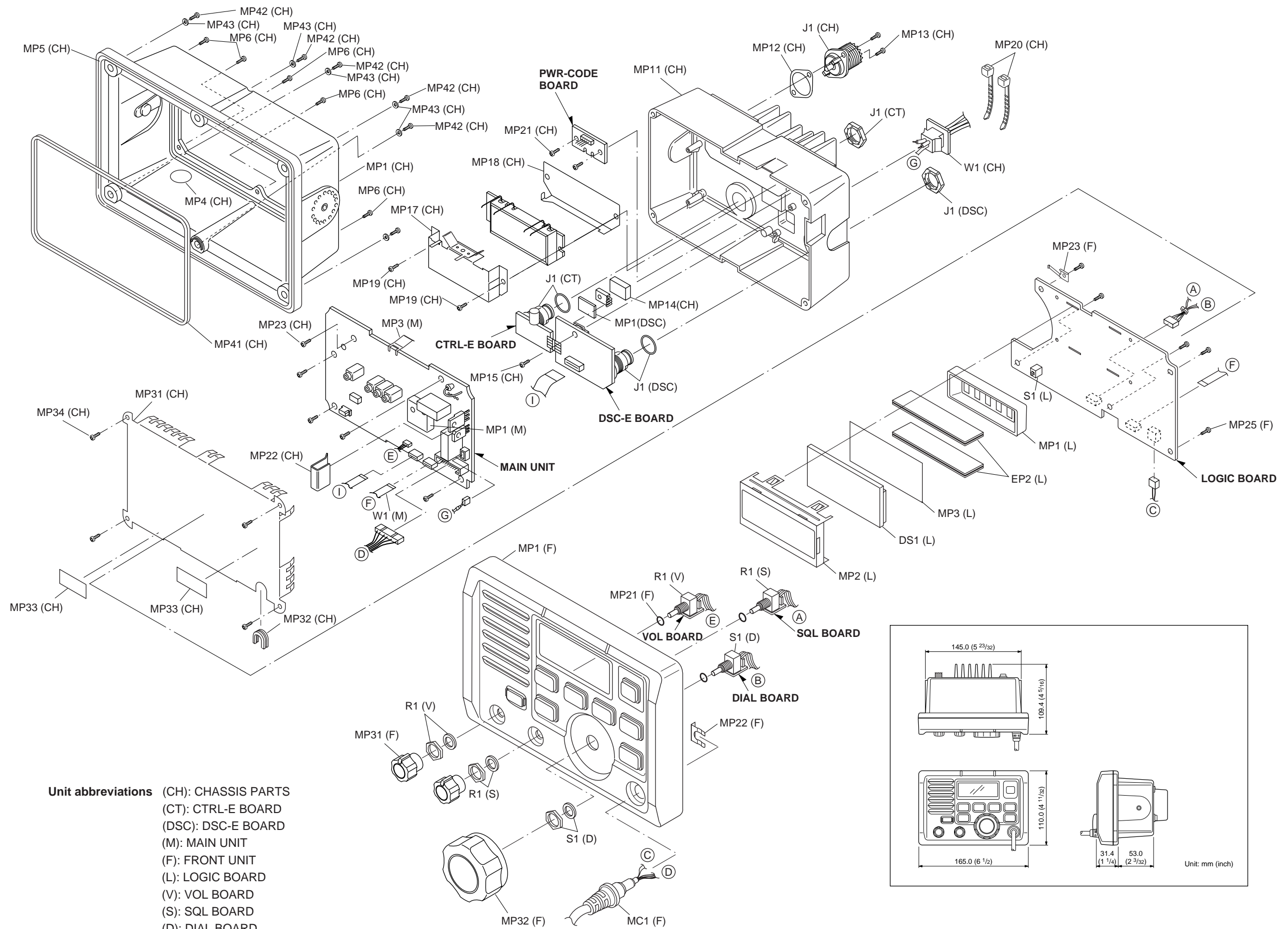
[CTRL-E BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510022440	Connector LTW-8MP-C	1

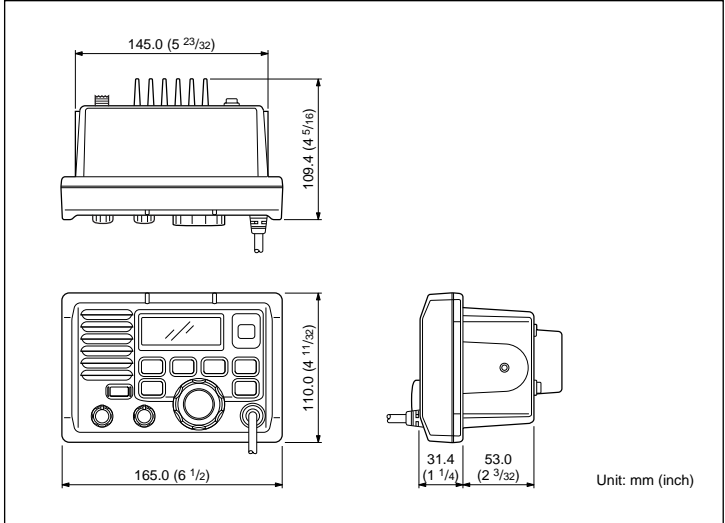
[ACCESSORIES]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900009040	Cable OPC-891	1
W2	8900010760	Cable OPC-1096 except [UK]	1
MP1	8010018154	2345 mobile bracket-4	1
MP2	8810001490	Screw PH A M5 × 20 SUS	4
MP3	8850000180	Flat washer M5 SUS	4
MP4	8850000500	Spring washer M5 SUS	4
MP5	8610010561	2040 knob bolt-1	2
MP7	8950005110	2289 mic hanger	1
MP8	8810004700	Screw PH A M3 × 16 SUS	2





Unit abbreviations (CH): CHASSIS PARTS
 (CT): CTRL-E BOARD
 (DSC): DSC-E BOARD
 (M): MAIN UNIT
 (F): FRONT UNIT
 (L): LOGIC BOARD
 (V): VOL BOARD
 (S): SQL BOARD
 (D): DIAL BOARD



Unit: mm (inch)

7-2 HM-126

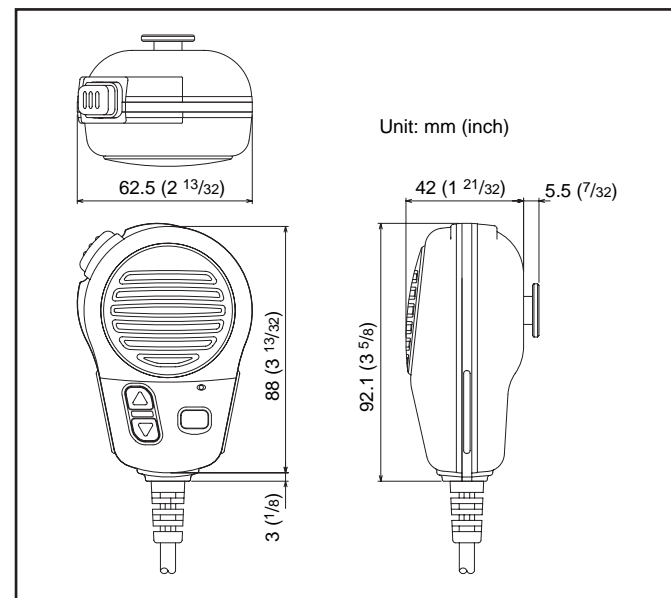
[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900009770	Cable OPC-948 [BLACK]	1
	8900009780	Cable OPC-949 [WHITE]	1
MP1	8210016861	2352 front panel-1 [BLACK]	1
	8210016961	2352 front panel (A)-1 [WHITE]	1
MP2	8210016850	2352 rear panel [BLACK]	1
	8210017110	2352 rear panel (A) [WHITE]	1
MP3	8930052160	2352 key	1
MP4	8930052150	2352 PTT rubber	1
MP5	8930052140	2352 PTT holder	1
MP6	8930052690	2352 MIC rubber	1
MP7	8930052120	2352 rubber	1
MP8	8930052110	2352 main seal	1
MP9	8610010870	2352 hanger knob	1
MP10	8310048760	2352 R-plate	1
MP11	8310048780	2352 MIC plate	1
MP12	8820001150	2352 screw	5
MP13	8850001850	ICOM washer (Y)	5
MP14	8930052340	O-ring (AE)	5
MP15	8930052350	O-ring (AF)	1
MP16	8930053870	2352 sheet (A)	1
MP17	8930053040	2352 SP net	1
MP18	8850001610	Spring washer M4 SUS	1
MP19	8810009260	Screw PH BT 2 × 6 NI	3
MP20	8810008900	Screw PH M3 × 6 NI	1
MP21	8810009240	Screw M4 × 10 ZK	1
MP23	8930053850	2352 SP rubber	1

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MC1	7700002120	Microphone KUC2123-030245	1
SP1	2510001070	Speaker S36G04K-4	1

Screw abbreviations BT: Self-Tapping PH: Pan head
 NI: Nickel SUS: Stainless
 NI-ZU: Nickel-zinc ZK: Black



7-3 HM-134 (OPTIONAL MICROPHONE)

[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W3	8900010970	Cable OPC-1118	1
SP1	2510001091	Speaker 036D0801A	1
MP1	8210018810	2417 front panel (B)-1 assembly	1
MP3	8930057220	2417 key board (A)	1
MP4	8930053540	2417 PTT rubber	1
MP5	8930053990	2417 PTT sheet	1
MP6	8930053550	2417 PTT holder	1
MP7	8930053520	2417 top key	1
MP8	8930053760	2417 key plate	1
MP10	8930039000	1757 sheet	1
MP11	8810009180	Screw FT BT M2 × 5 NI-ZU	3
MP12	8930053750	2417 plate	1
MP13	8210018900	2540 rear panel	1
MP14	8930057500	2540 R-plate	1
MP15	8610010980	2417 hanger knob	1
MP16	8930053740	O ring (AJ)	1
MP17	8810008450	Screw BiH M4 × 8 ZK	1
MP19	8930053530	2417 rubber	1
MP20	8820001180	2417 screw 2.6 × 16	6
MP21	8930053730	O ring (AI)	6
MP23	8930057550	Sheet (AG) TC-500TKC (10 × 5)	1
MP24	8850001870	Insulation washer (AD)	1
MP25	8930046000	1903 mic sponge	1

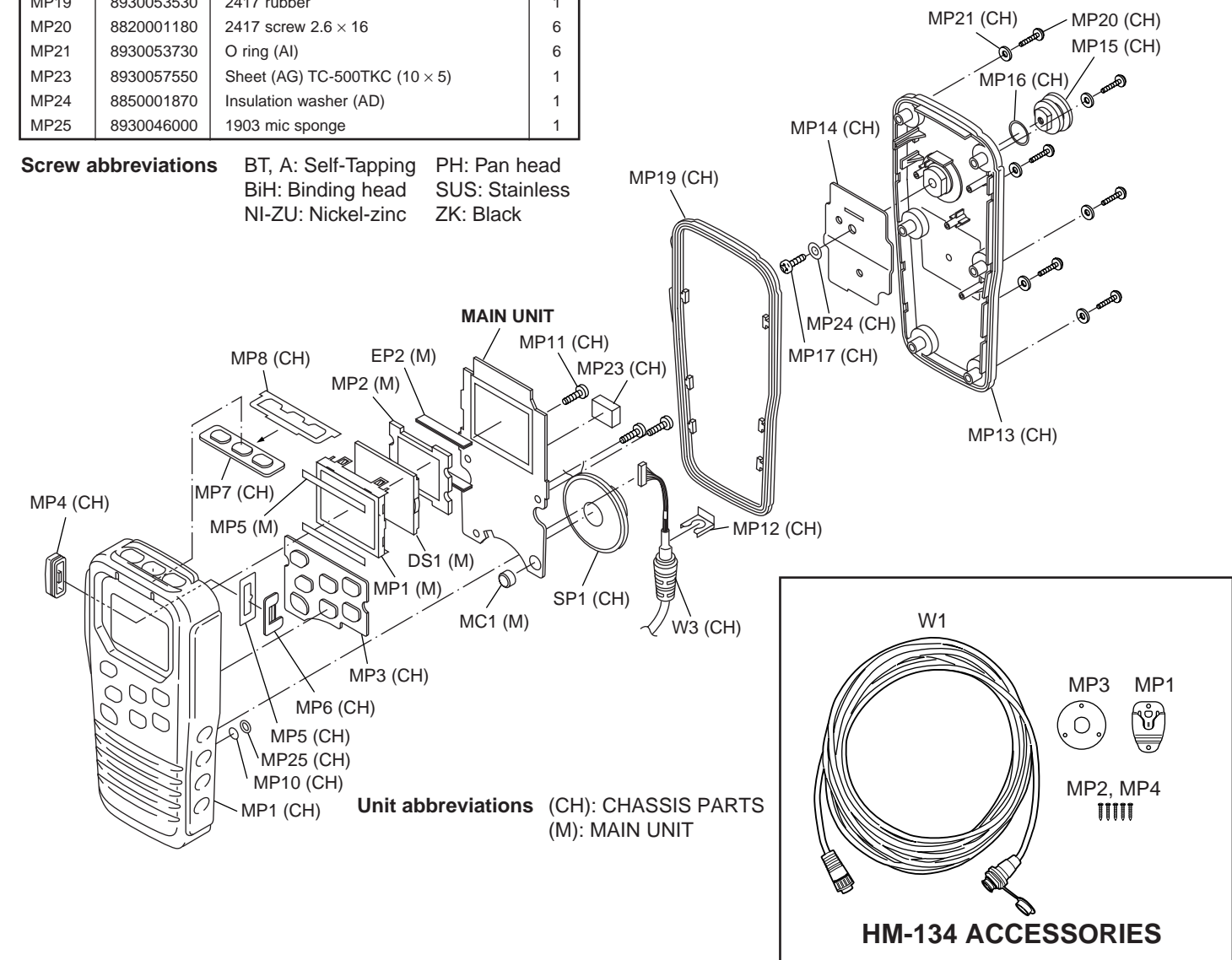
Screw abbreviations BT, A: Self-Tapping PH: Pan head
 BiH: Binding head SUS: Stainless
 NI-ZU: Nickel-zinc ZK: Black

[MAIN UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
DS1	5030001900	LCD A0119 (LCD 36 × 28.5)	1
EP2	8930051120	LCD contact SRCN-2320-SP-N-W	2
MC1	7700002480	Microphone SKB-2746 LPC	1
MP1	8930053780	2417 LCD holder	1
MP2	8210017240	2417 reflector	1
MP5	8930054890	Insulation plate (GM)	2

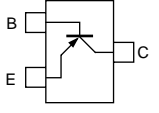
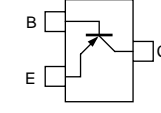
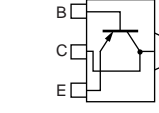
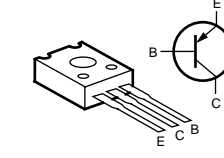
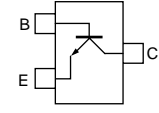
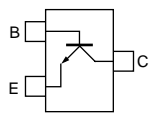
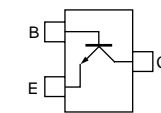
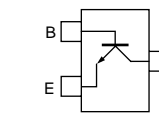
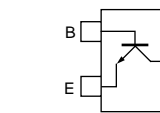
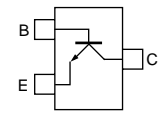
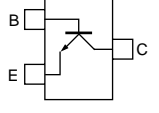
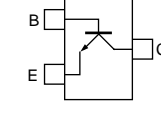
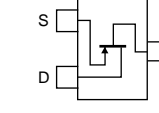
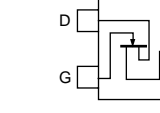
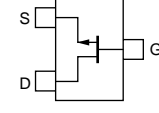
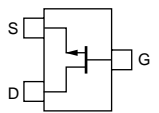
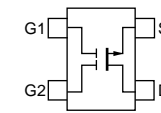
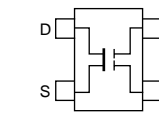
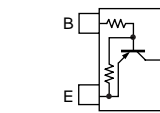
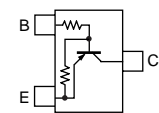
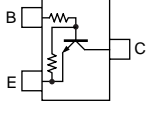
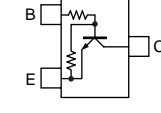
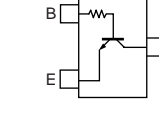
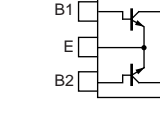
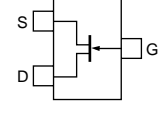
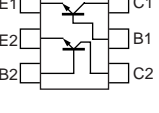
[ACCESSORIES]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900010280	Cable OPC-1000	1
MP1	8950005110	2289 mic hanger	1
MP2	8810004700	Screw PH A M3 × 16 SUS	2
MP3	8310050320	2417 C-plate	1
MP4	8810004700	Screw PH A M3 × 16 SUS	3


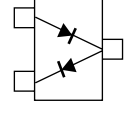


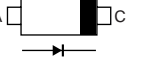
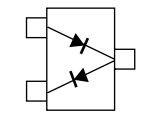
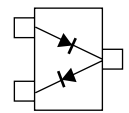
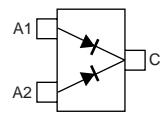
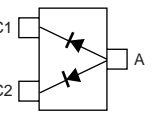
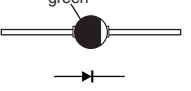
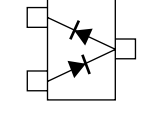
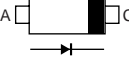

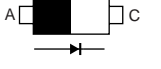


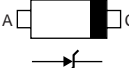
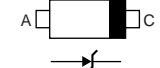
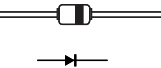


SECTION 8 SEMI-CONDUCTOR INFORMATION

• TRANSISTORS AND FET'S

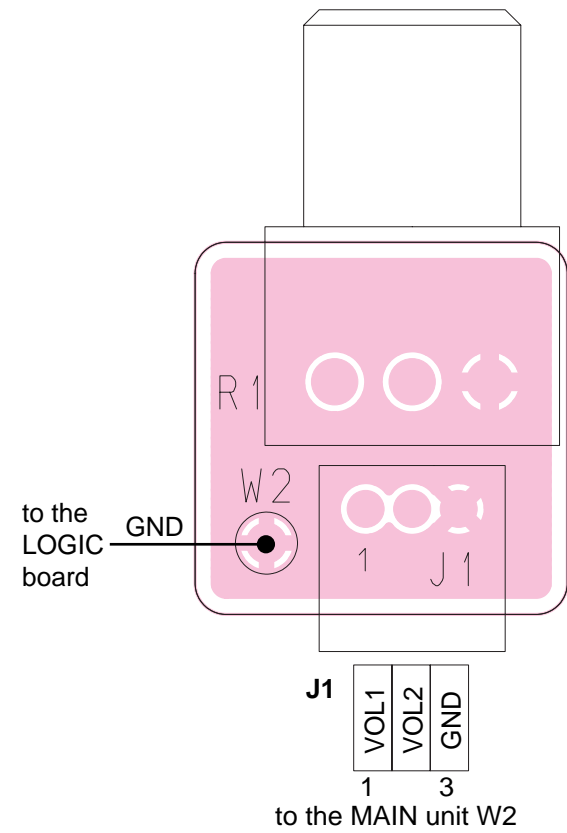
2SA1576A T106 R (Symbol: FR) 	2SA1577 T106 Q (Symbol: HQ) 	2SB1132 T100 R (Symbol: BAR) 	2SB1143 S (Symbol: B1143) 	2SC2714 Y (Symbol: QY) 
2SC3326 B (Symbol: CCB) 	2SC3775 3 TB (Symbol: OY3) 	2SC4081 T106 R (Symbol: BR) 	2SC4081 T106 S (Symbol: BS) 	2SC4116 BL (Symbol: LL) 
2SC4215 O (Symbol: QO) 	2SC4226 T1 R25 (Symbol: R25) 	2SJ144 Y (Symbol: VY) 	2SK210 Y (Symbol: YY) 	2SK880 Y (Symbol: XY) 
2SK1069 4 TL (Symbol: FJ) 	3SK206 T1 U78 (Symbol: U78) 	3SK292 (Symbol: UK) 	DTA144EUA T106 (Symbol: 16) 	DTB123 EK (Symbol: F12) 
DTC114EUA T106 (Symbol: 24) 	DTC144EUA T106 (Symbol: 26_) 	DTC144TU T106 (Symbol: 06) 	FMW1 T148 (Symbol: W1) 	PMBFJ310 (Symbol: M10) 
XP6501 AB (Symbol: 5N) 				

• DIODES

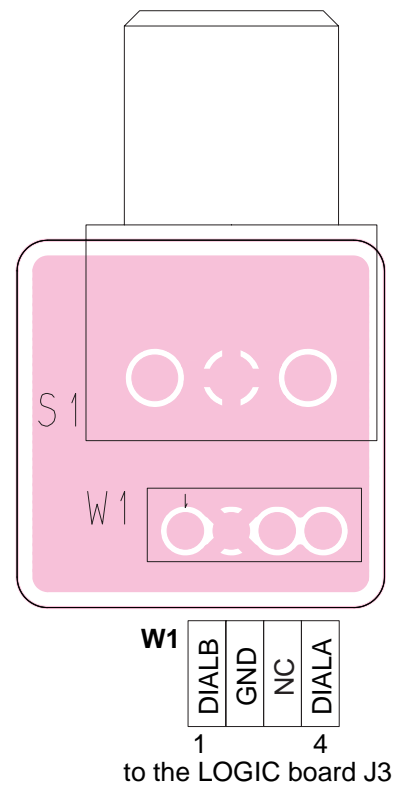
1SS355 (Symbol: A) 	1SS375-TL (Symbol: FH) 	1SV214 (Symbol: T1) 	1SV278 (Symbol: T1) 	1SV284 (Symbol: TL) 
DA204 K T146 (Symbol: K) 	DA204 U T106 (Symbol: K) 	DAN202 U (Symbol: N) 	DAP202 U T106 (Symbol: P) 	DSA3A1 (Color: Green) 
HSM88ASR TR (Symbol: C3) 	HSU88TRF (Symbol: 9) 	HVC358B (Symbol: B2) 	MA77 (Symbol: 4B) 	MA8036 L (Symbol: 3_6) 
MA8043 L (Symbol: 4_3) 	MA8047 M (Symbol: 4-7) 	MA8062 M (Symbol: 6-2) 	XB15A308 (Symbol: T8) 	

SECTION 9 BOARD LAYOUTS

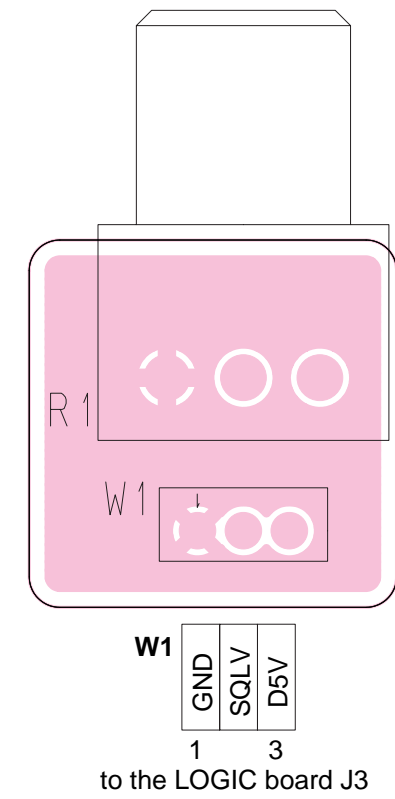
9-1 VOL BOARD



9-2 DIAL BOARD

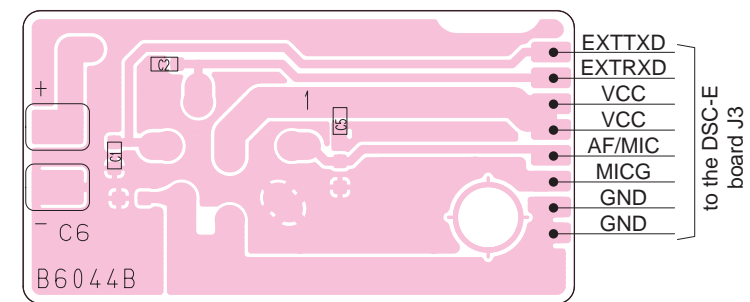


9-3 SQL BOARD

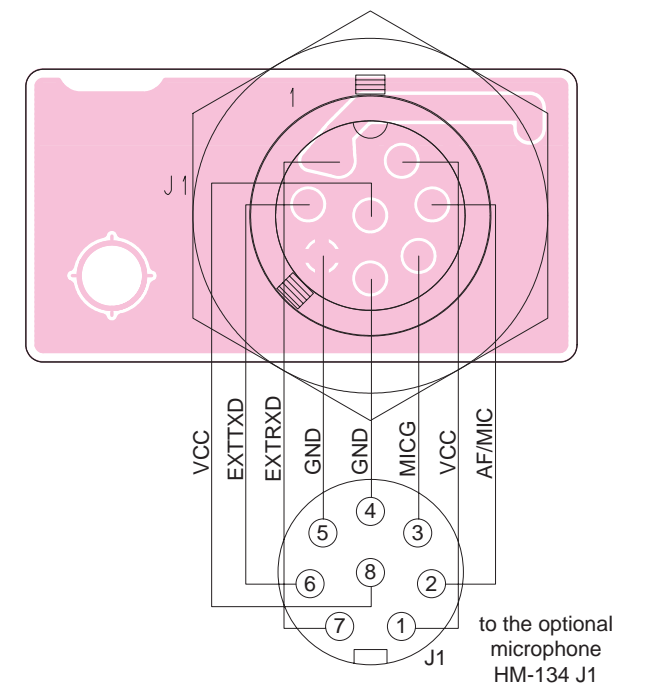


9-4 CTRL-E BOARD

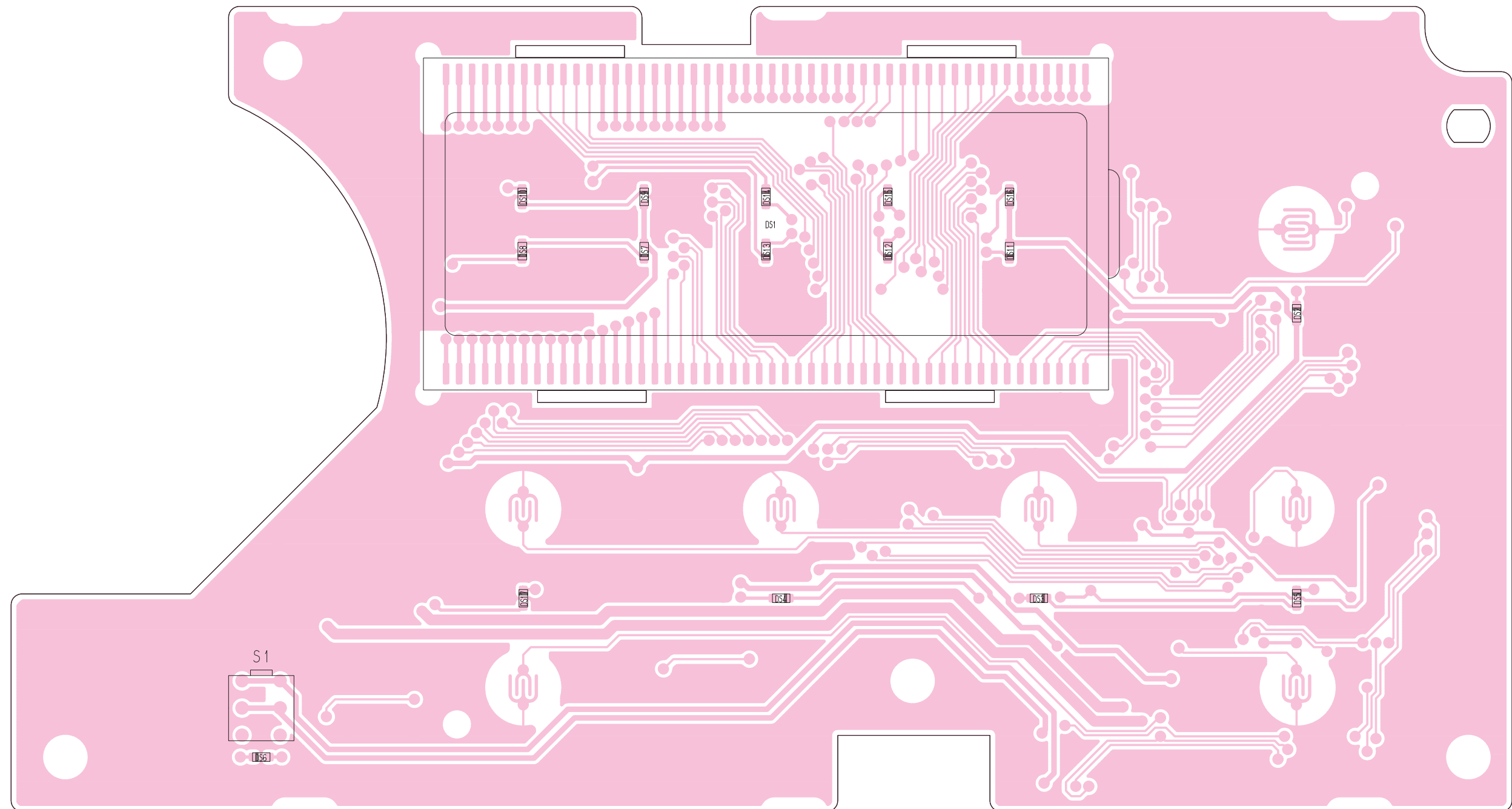
• TOP VIEW



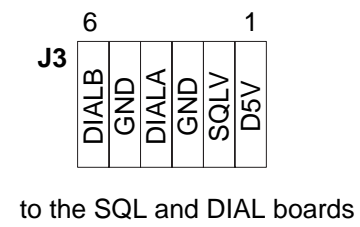
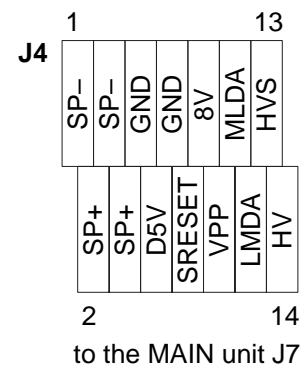
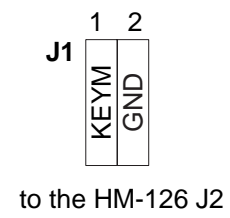
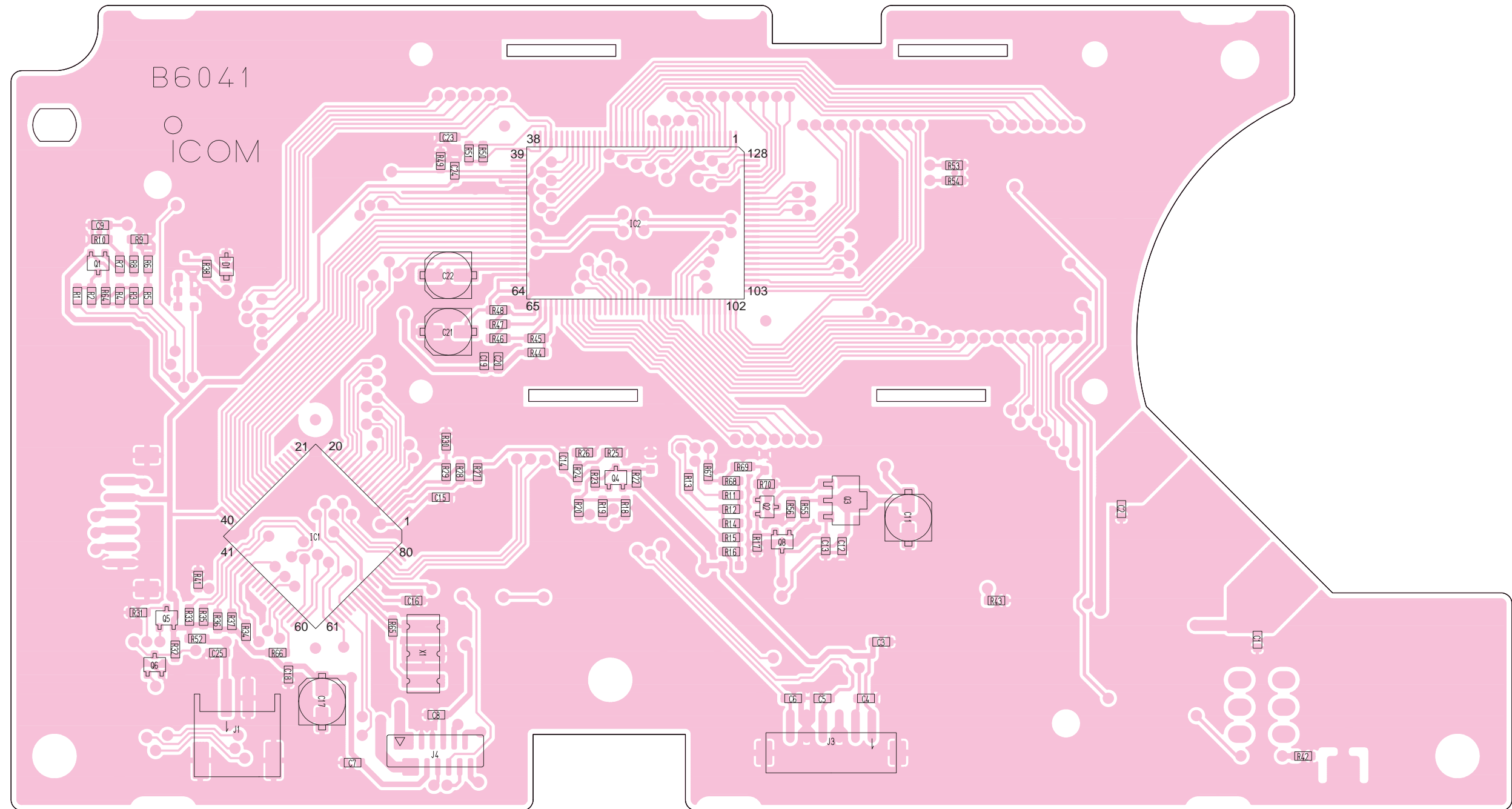
• BOTTOM VIEW (CTRL-E BOARD)



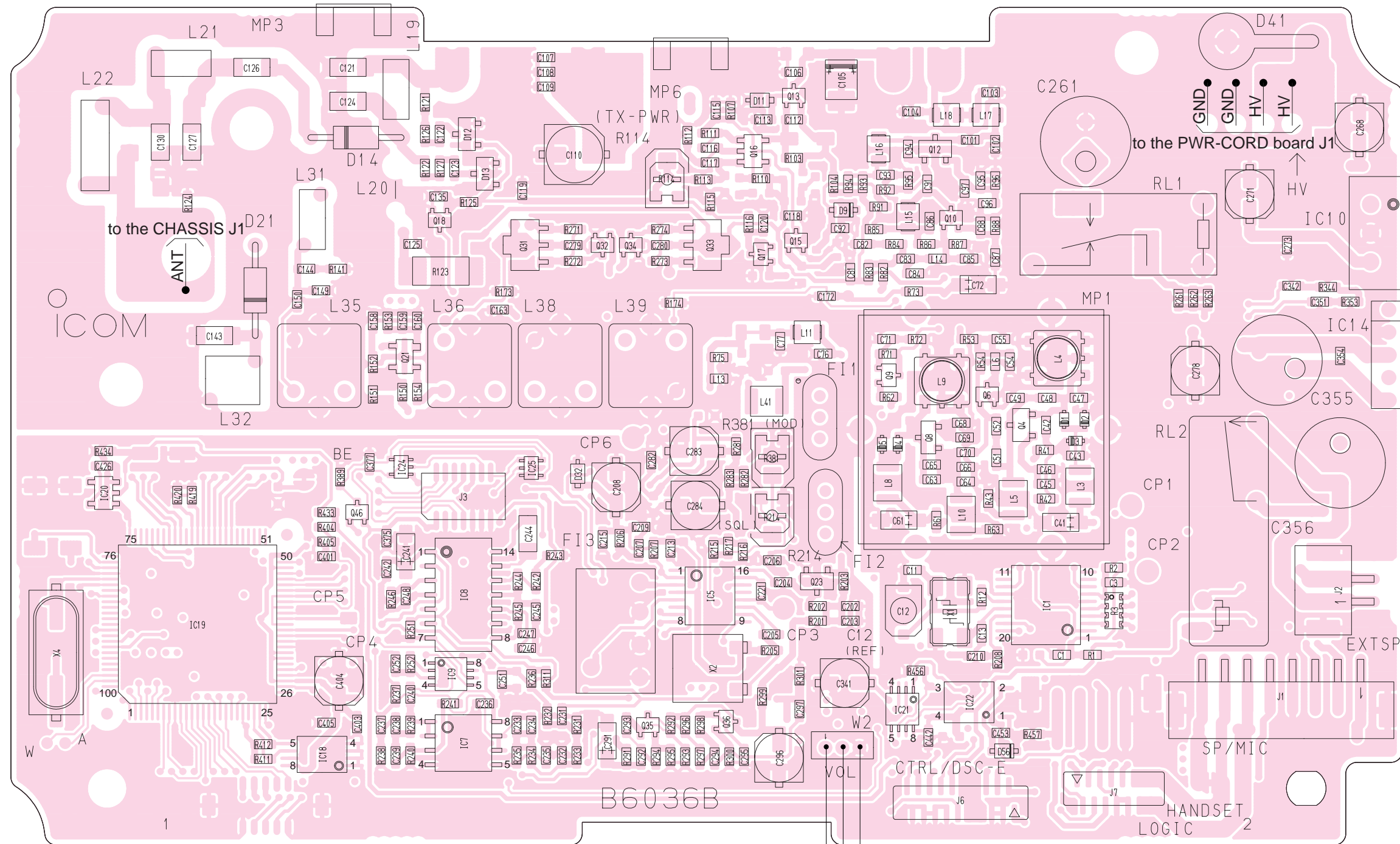
9-5 LOGIC BOARD
• TOP VIEW



• BOTTOM VIEW (LOGIC BOARD)



9-6 MAIN UNIT
• TOP VIEW



J2

AFG	2
AF	1

EXT SP

J3

2	SCK	14
1	D5V	13
	GND	
	OPTIN	
	OPSTB	
	MICI	
	DETI	
	MICO	
	DETO	

to the optional
scrambler unit

W2

VOL1	
VOL2	
GND	

to the VOL board J1

J6

20	CMDA	2
19	ICF3	1
	MDDA	
	MCDA	
	D5V	
	VCC	
	VCC	
	SMIC	
	SAFO	
	DSCMOD	
	PTTS	

from the DSC-E board J2

J7

1	HV	13
2	LMDA	14
	VPP	
	SRESET	
	D5V	
	SP+	
	SP+	
	GND	
	SP-	
	SP-	

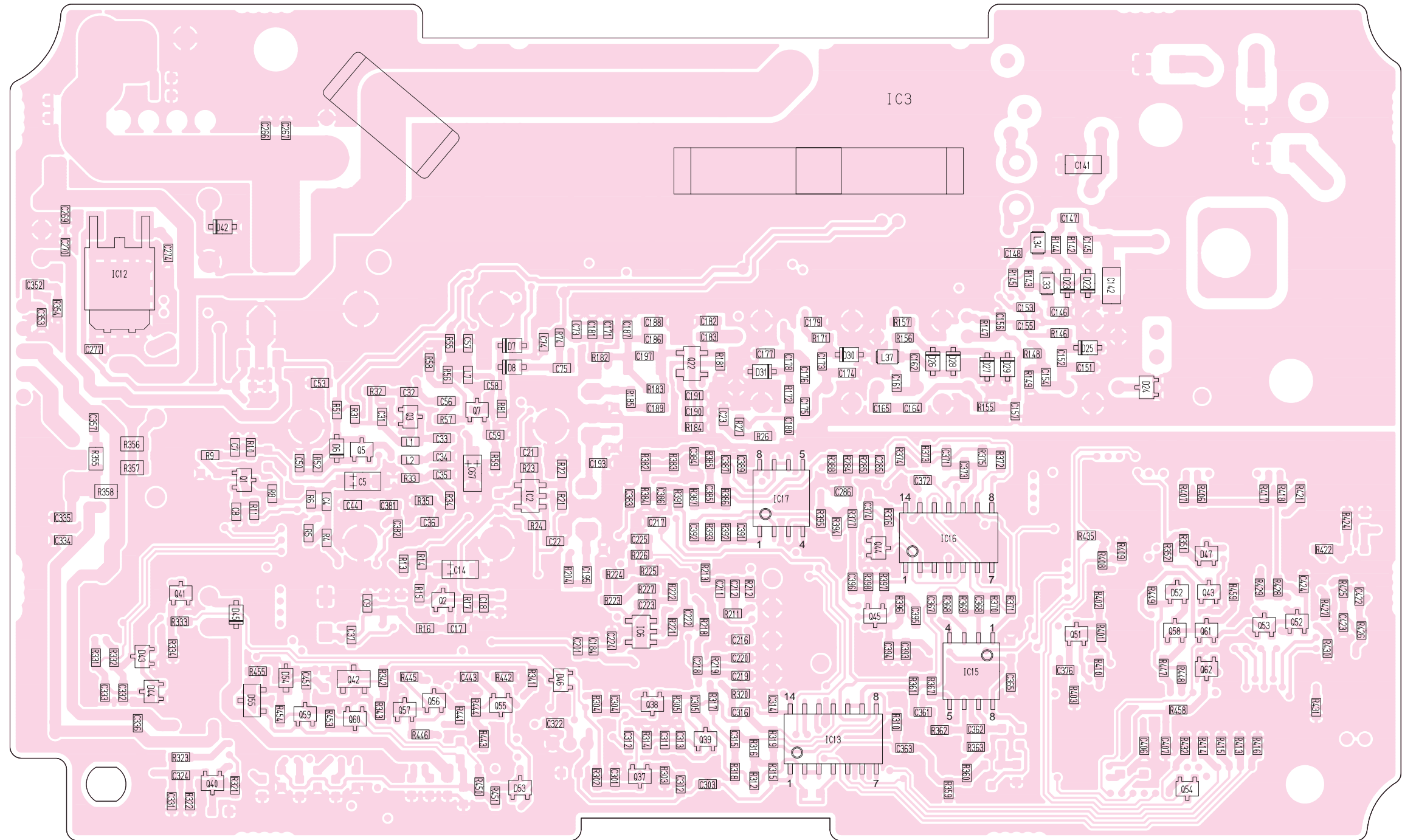
from the LOGIC board J4

J1

8	SPMIC	1
	AF2	
	GND	
	MIC	
	MICE	
	HANG	
	PTT	
	AF1	

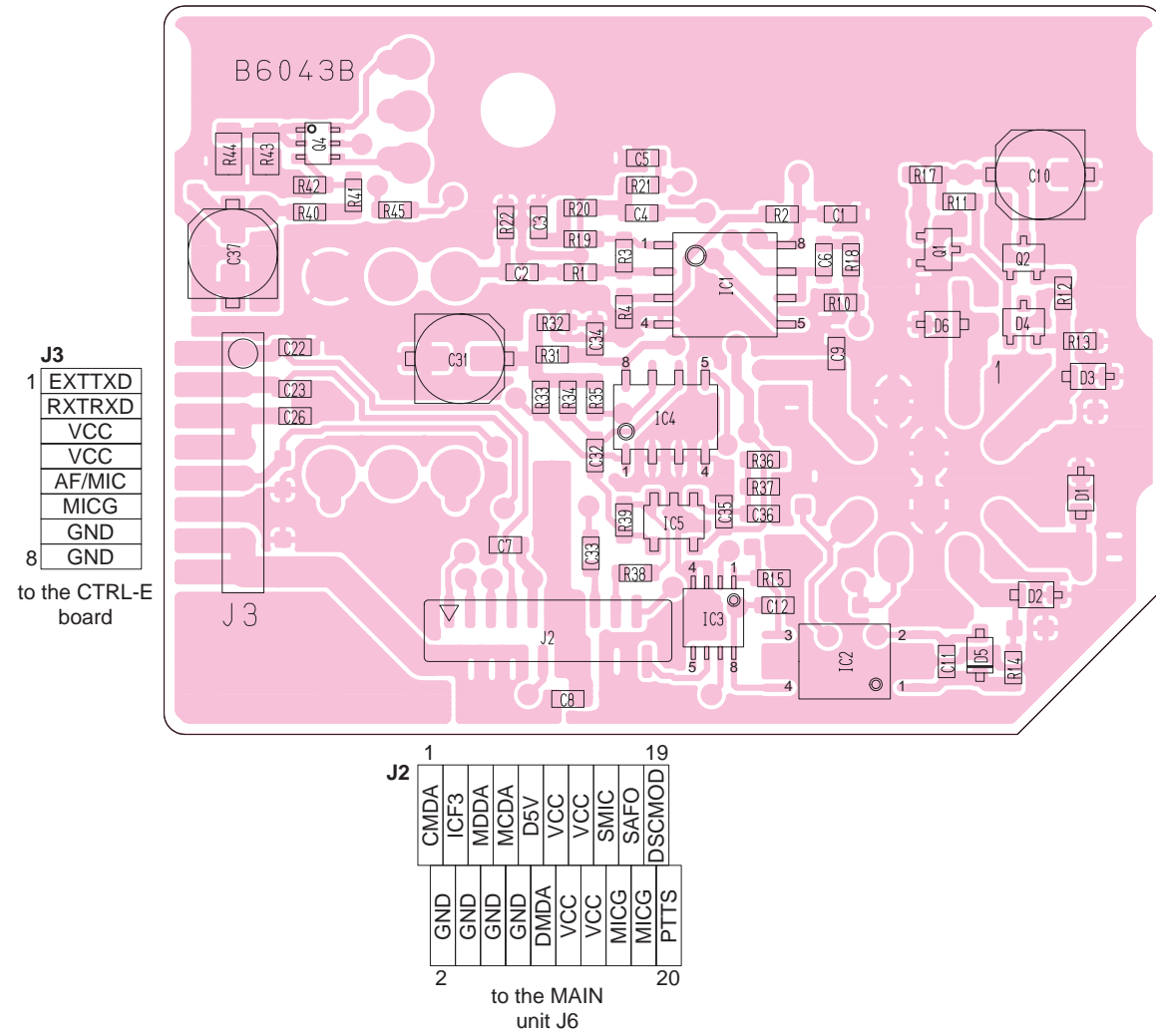
to the HM-126 J1

• BOTTOM VIEW (MAIN UNIT)



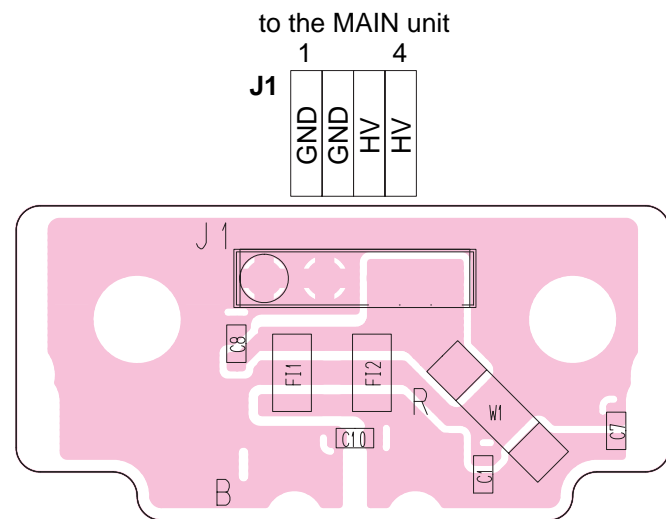
9-7 DSC-E BOARD

• TOP VIEW



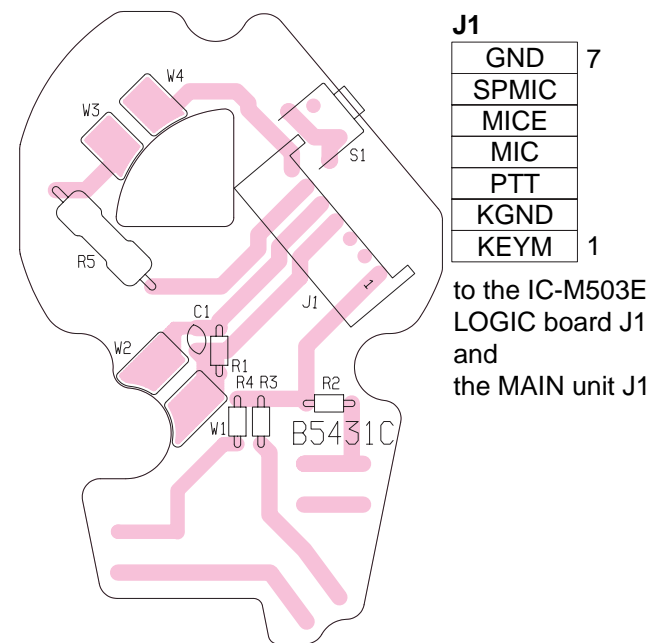
9-8 PWR-CODE BOARD

• TOP VIEW



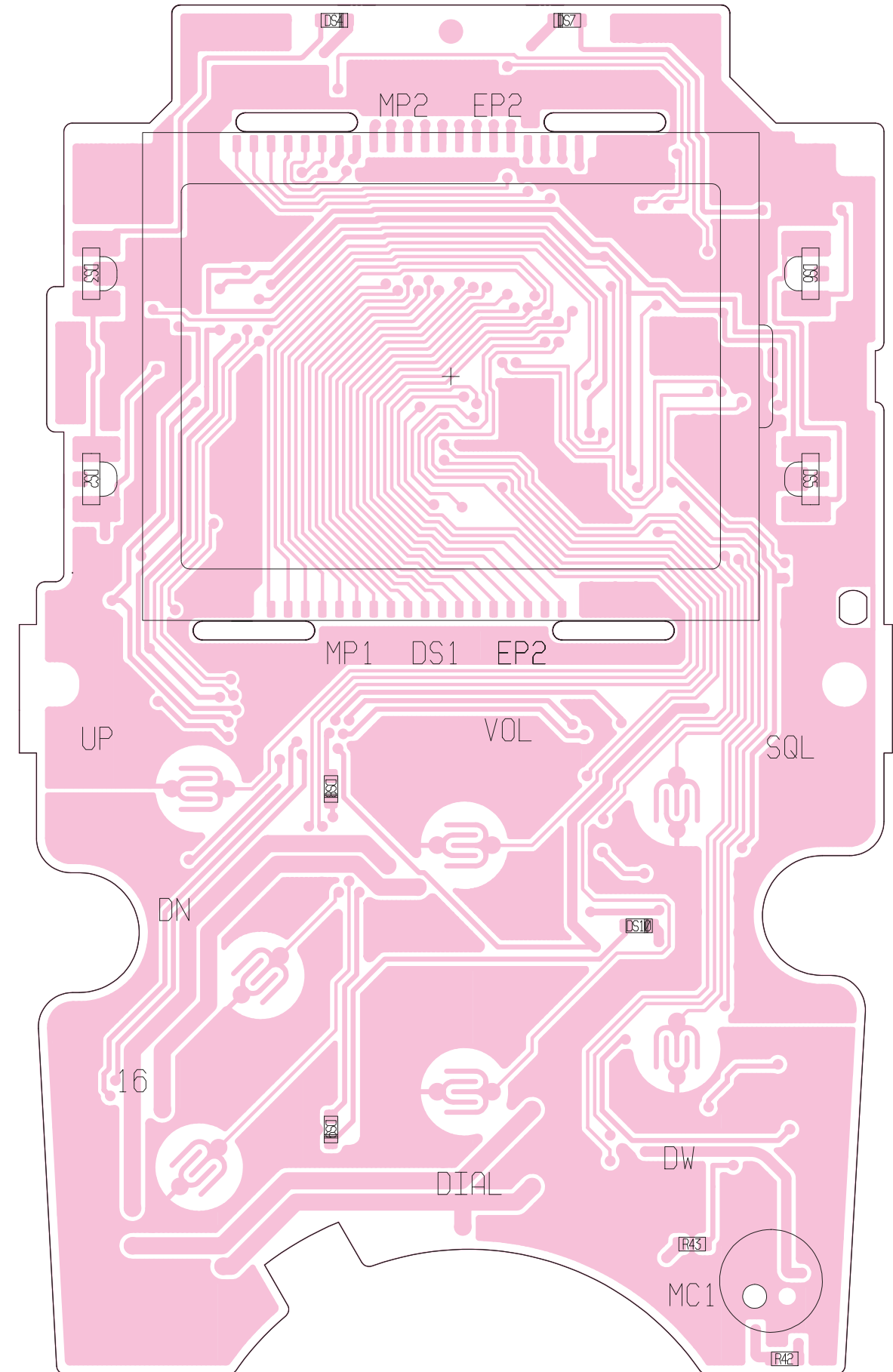
9-9 HM-126

• TOP VIEW

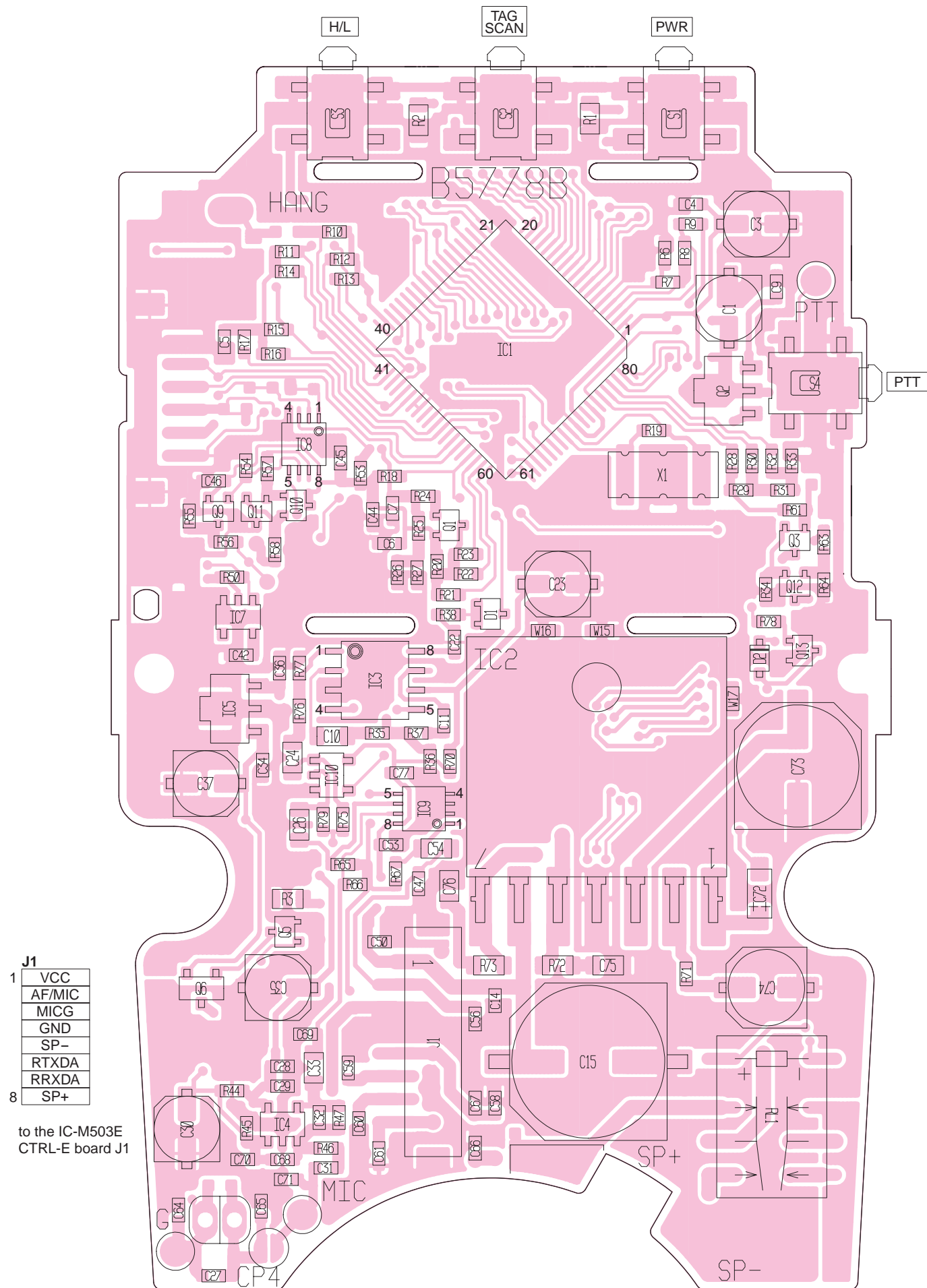


9-10 HM-134 (OPTIONAL MICROPHONE)

• TOP VIEW



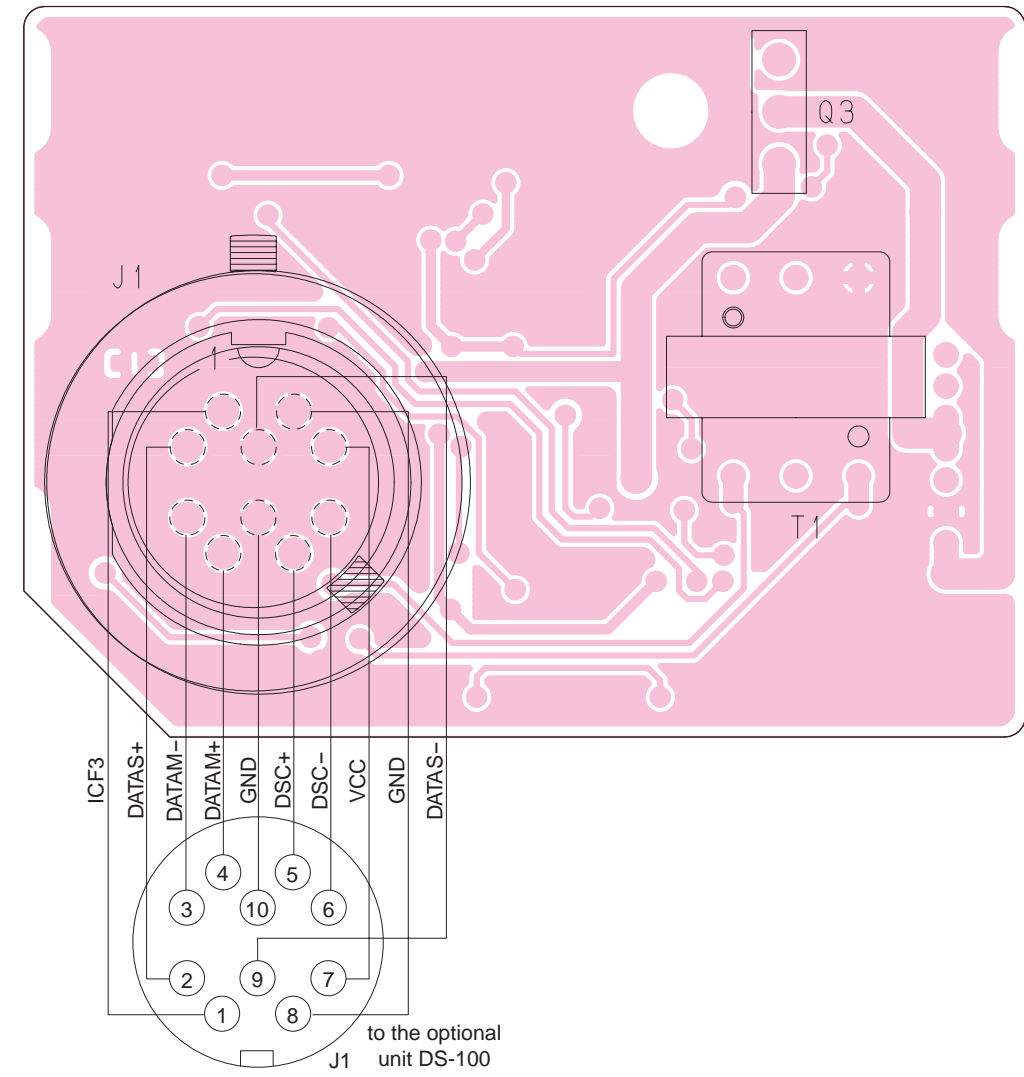
• BOTTOM VIEW (HM-134)



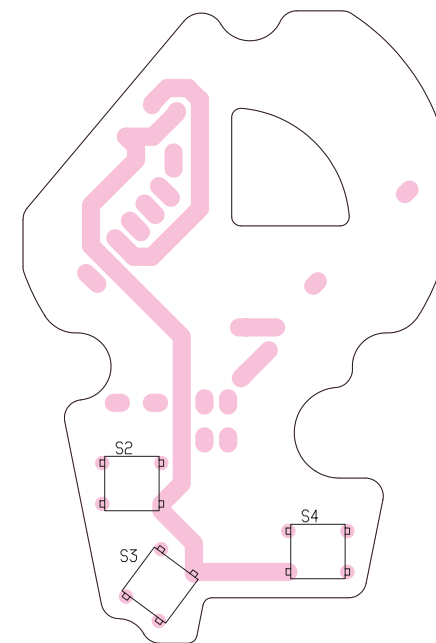
1	VCC
2	AF/MIC
3	MICG
4	GND
5	SP-
6	RTXDA
7	RRXDA
8	SP+

to the IC-M503E
CTRL-E board J1

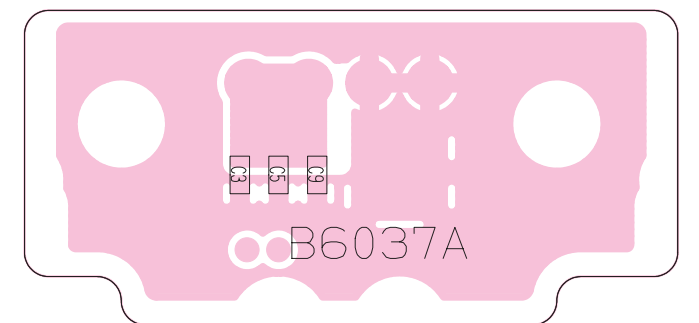
• BOTTOM VIEW (DSC-E BOARD)



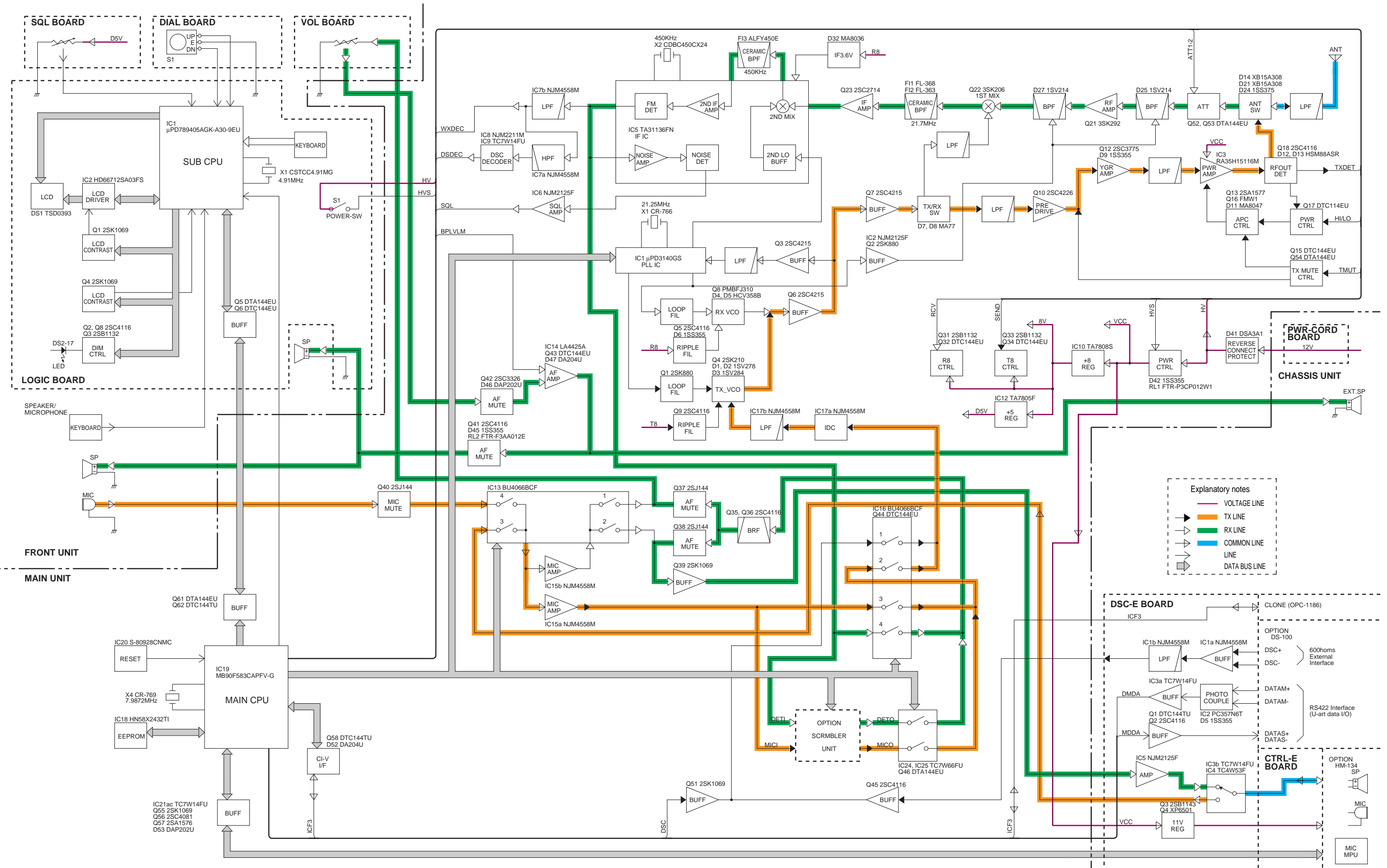
• BOTTOM VIEW (HM-126)



• BOTTOM VIEW (PWR-CORD BOARD)

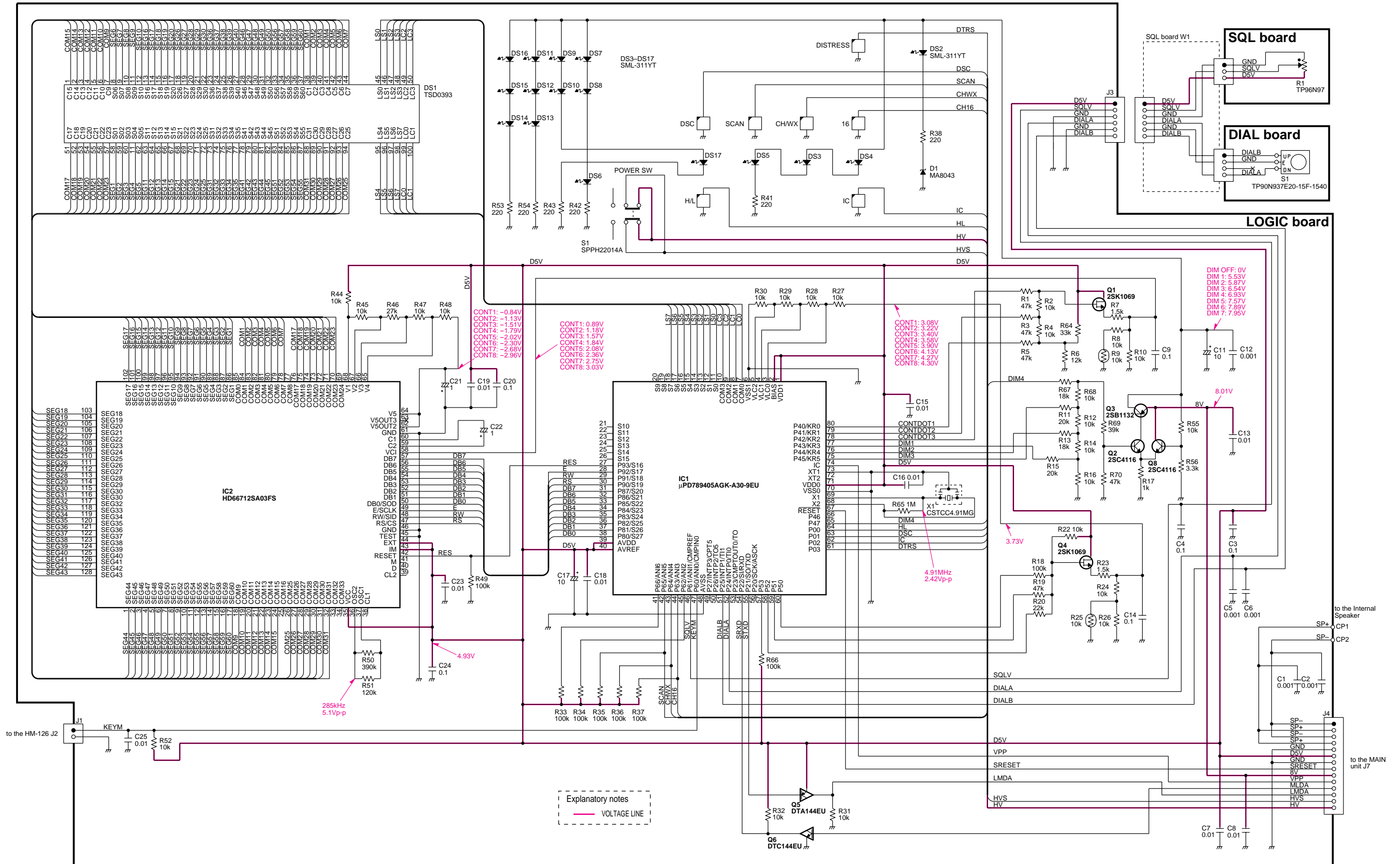


SECTION 10 BLOCK DIAGRAM

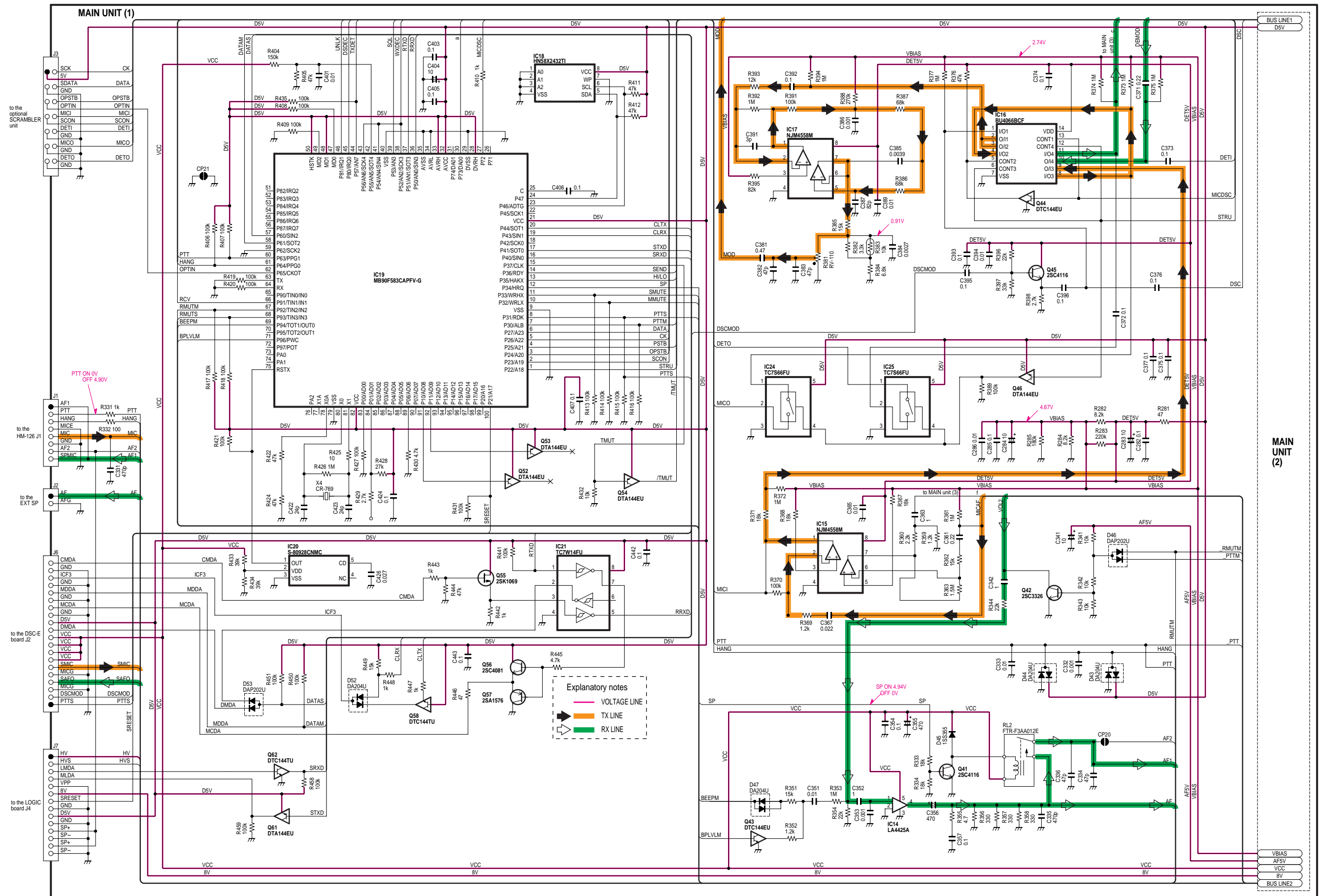


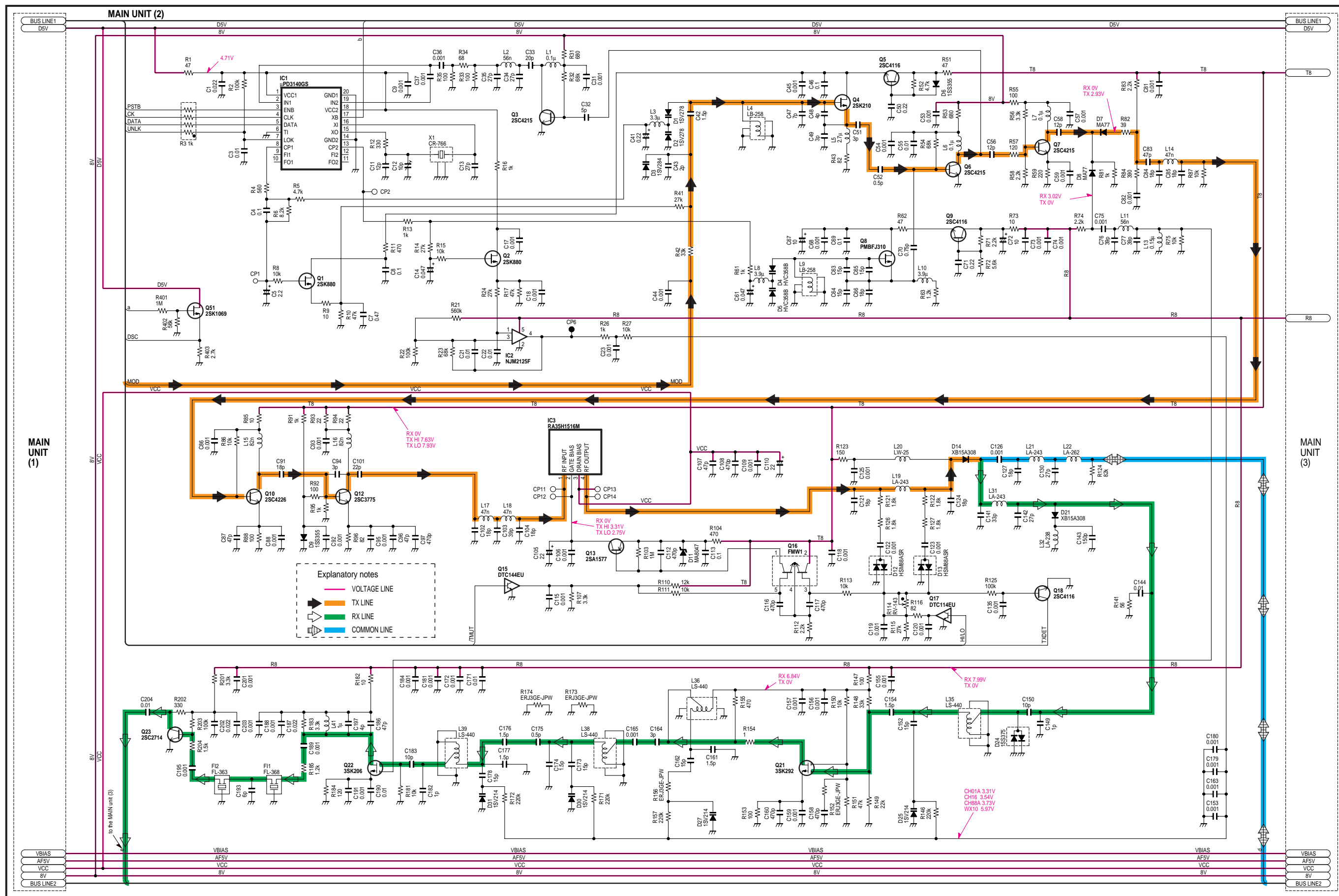
SECTION 11 VOLTAGE DIAGRAMS

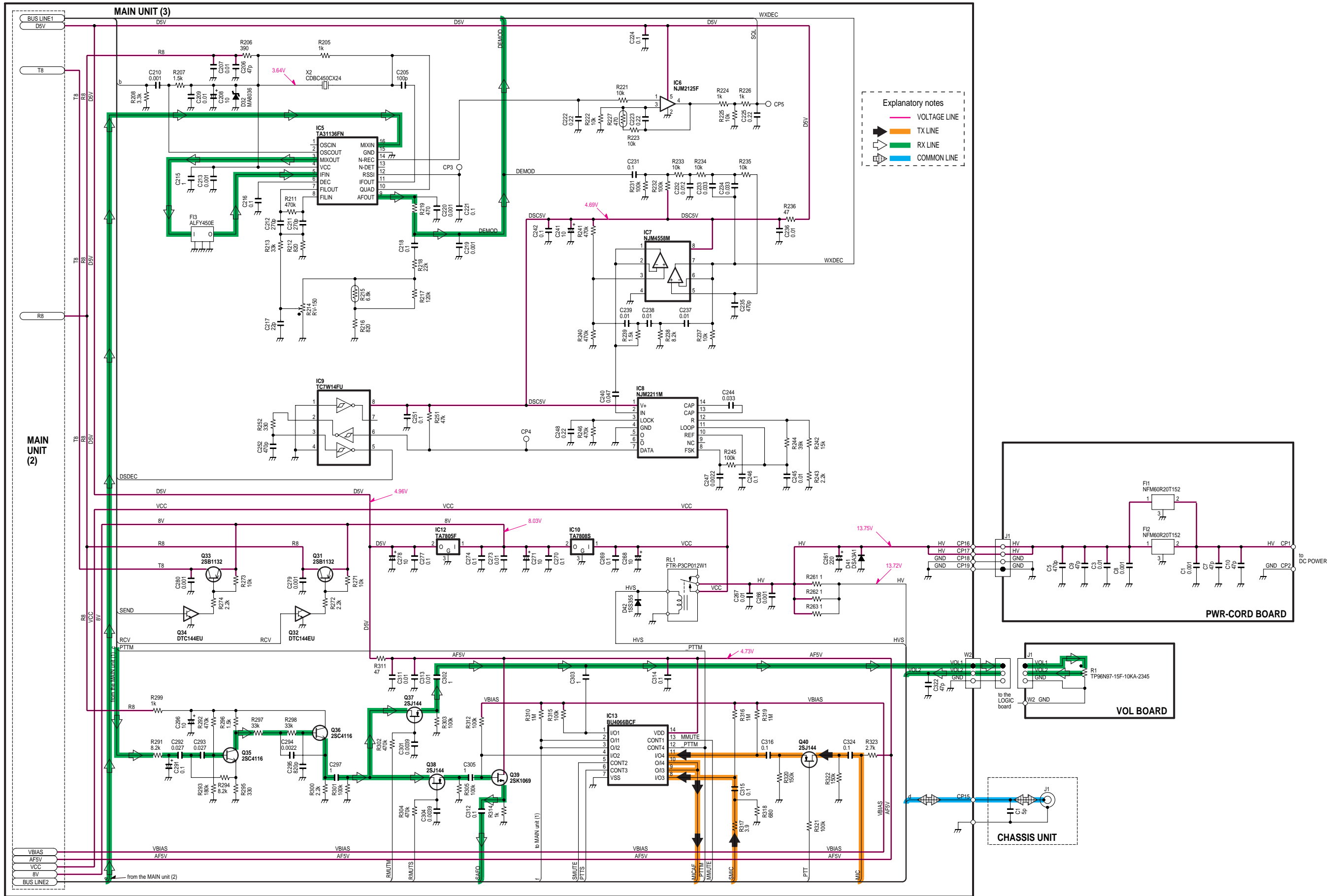
11-1 LOGIC BOARD



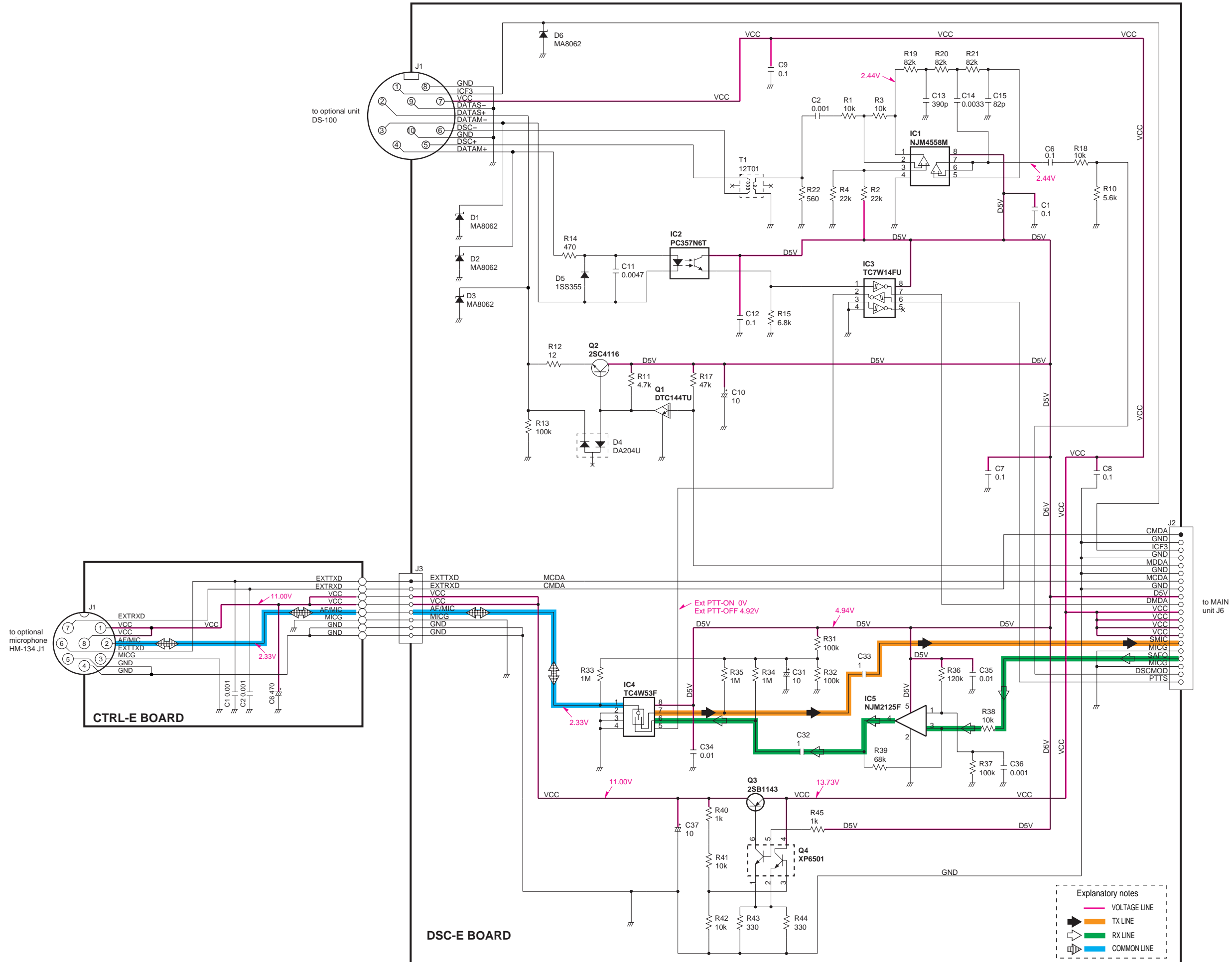
11-2 MAIN UNIT

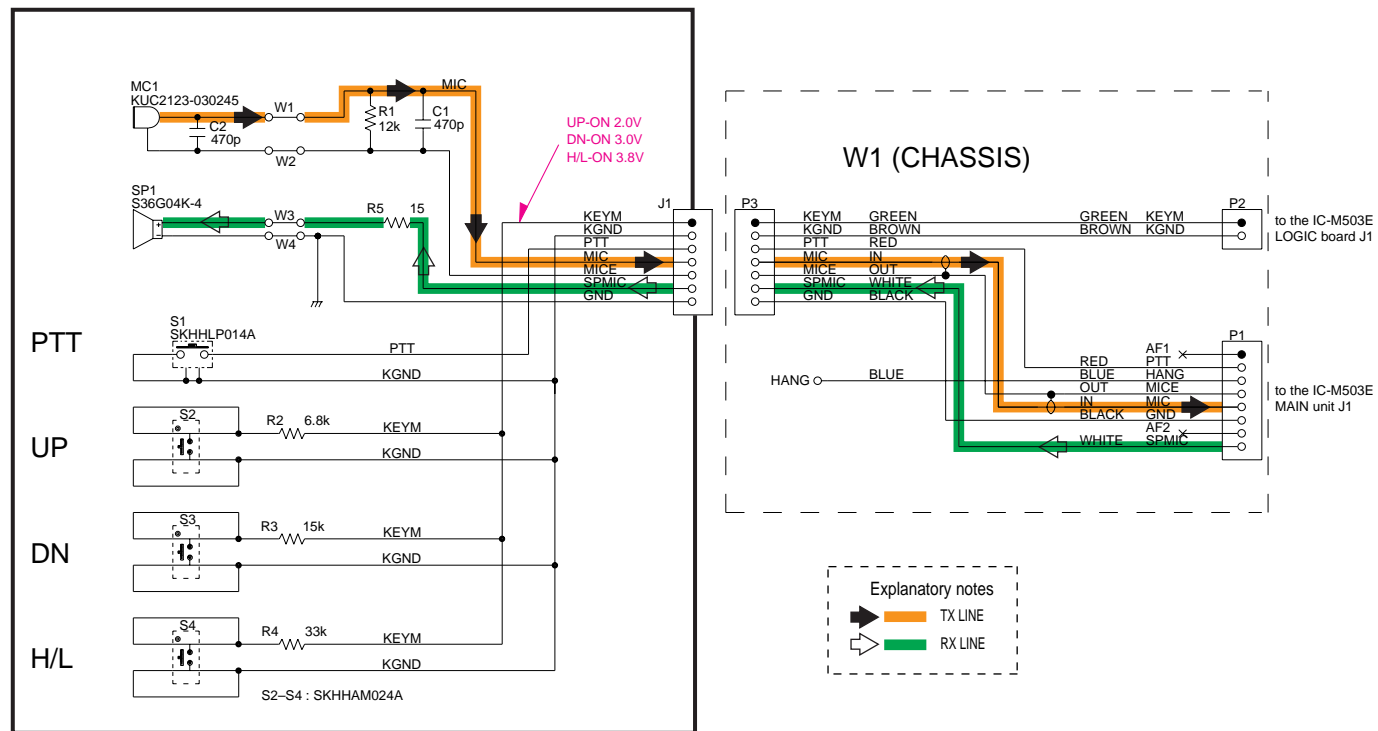




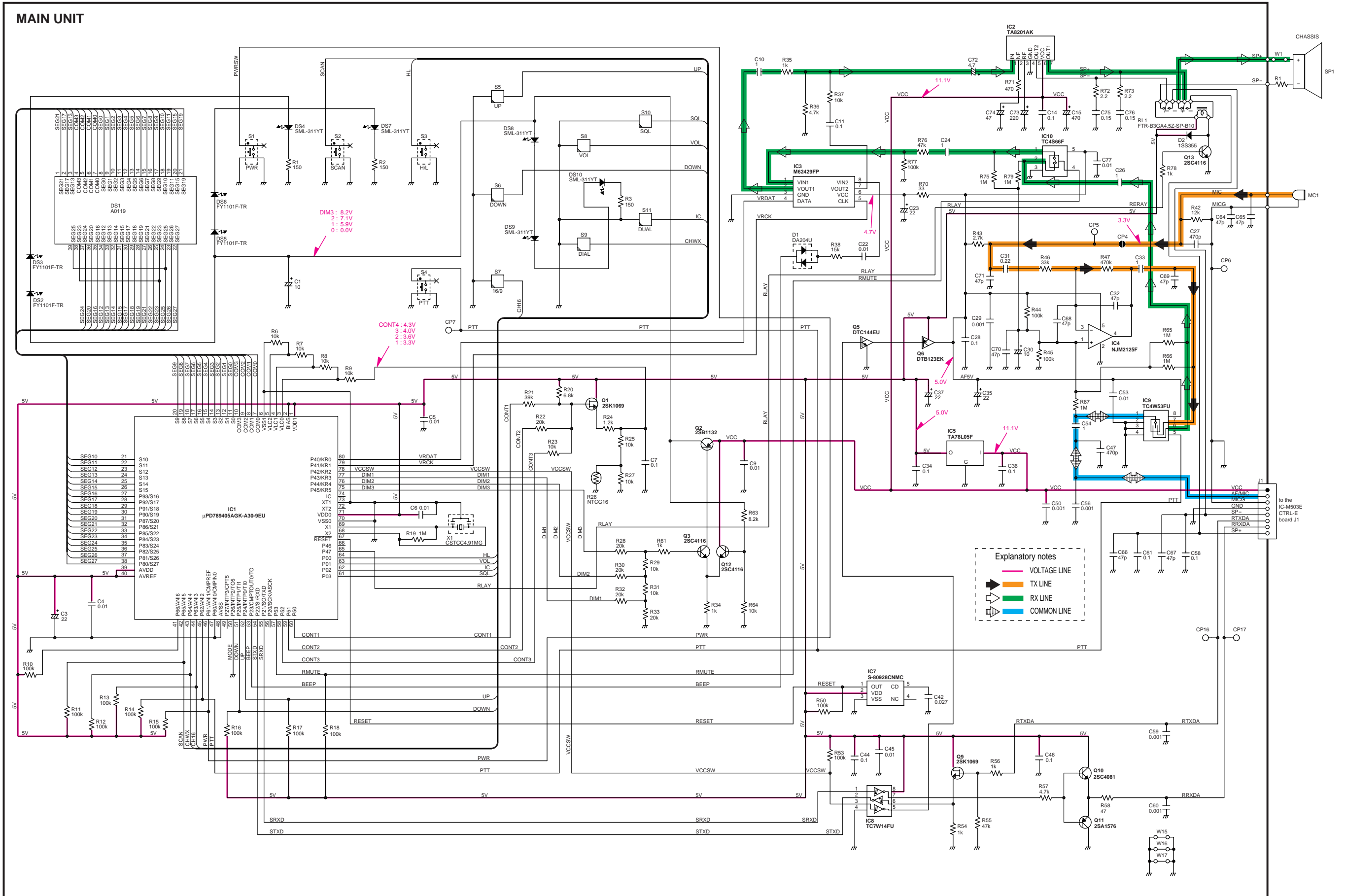


11-3 DSC-E AND CTRL-E BOARDS





11-5 HM-134 (OPTIONAL MICROPHONE)



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