

**ICOM<sup>®</sup>**

**SERVICE  
MANUAL**

VHF MARINE TRANSCEIVER  
**IC-M601**

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**Icom Inc.**

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## INTRODUCTION

This service manual describes the latest service information for the **IC-M601** VHF MARINE TRANSCEIVER at the time of publication.

| MODEL   | VERSION        | SYMBOL |
|---------|----------------|--------|
| IC-M601 | United Kingdom | UK     |
|         | Europe         | EUR    |
|         | Holland        | HOL    |
|         | Germany        | FRG    |

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 15.8 V. This will ruin the transceiver.

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

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

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



## ORDERING PARTS

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

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

### <SAMPLE ORDER>

1110003490 S.IC TA31136FN IC-M601 MAIN UNIT 5 pieces  
8820001210 Screw 2438 screw IC-M601 Top cover 10 pieces  
Addresses are provided on the inside back cover for your convenience.

## REPAIR NOTES

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated tuning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or a sweep generator.
7. **ALWAYS** connect a 50 dB to 60 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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## TABLE OF CONTENTS

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|                   |                                   |        |
|-------------------|-----------------------------------|--------|
| <b>SECTION 1</b>  | <b>SPECIFICATIONS</b>             |        |
| <b>SECTION 2</b>  | <b>INSIDE VIEWS</b>               |        |
| 2 - 1             | IC-M601 .....                     | 2 - 1  |
| 2 - 2             | HM-134 (OPTIONAL UNIT) .....      | 2 - 2  |
| <b>SECTION 3</b>  | <b>DISASSEMBLY INSTRUCTION</b>    |        |
| <b>SECTION 4</b>  | <b>CIRCUIT DESCRIPTION</b>        |        |
| 4 - 1             | RECEIVER CIRCUITS .....           | 4 - 1  |
| 4 - 2             | TRANSMITTER CIRCUITS .....        | 4 - 3  |
| 4 - 3             | PLL CIRCUITS .....                | 4 - 4  |
| 4 - 4             | DSC CIRCUITS .....                | 4 - 5  |
| 4 - 5             | LOGIC CIRCUITS .....              | 4 - 5  |
| 4 - 6             | POWER SUPPLY CIRCUITS .....       | 4 - 6  |
| 4 - 7             | PORT ALLOCATIONS .....            | 4 - 6  |
| <b>SECTION 5</b>  | <b>ADJUSTMENT PROCEDURES</b>      |        |
| 5 - 1             | PREPARATION .....                 | 5 - 1  |
| 5 - 2             | PLL ADJUSTMENTS .....             | 5 - 2  |
| 5 - 3             | RECEIVER ADJUSTMENTS .....        | 5 - 3  |
| <b>SECTION 6</b>  | <b>PARTS LIST</b>                 |        |
| <b>SECTION 7</b>  | <b>MECHANICAL PARTS</b>           |        |
| 7 - 1             | IC-M601 .....                     | 7 - 1  |
| 7 - 2             | HM-137 .....                      | 7 - 3  |
| 7 - 3             | HM-134 (OPTIONAL UNIT) .....      | 7 - 3  |
| <b>SECTION 8</b>  | <b>SEMI-CONDUCTOR INFORMATION</b> |        |
| <b>SECTION 9</b>  | <b>BOARD LAYOUTS</b>              |        |
| 9 - 1             | VR BOARD .....                    | 9 - 1  |
| 9 - 2             | SQL BOARD .....                   | 9 - 1  |
| 9 - 3             | DIAL BOARD .....                  | 9 - 1  |
| 9 - 4             | CONNECT-A UNIT .....              | 9 - 1  |
| 9 - 5             | LOGIC BOARD .....                 | 9 - 2  |
| 9 - 6             | MAIN UNIT .....                   | 9 - 4  |
| 9 - 7             | AF UNIT .....                     | 9 - 6  |
| 9 - 8             | HM-137 .....                      | 9 - 8  |
| 9 - 9             | HM-134 (OPTIONAL UNIT) .....      | 9 - 8  |
| <b>SECTION 10</b> | <b>BLOCK DIAGRAM</b>              |        |
| <b>SECTION 11</b> | <b>WIRING DIAGRAM</b>             |        |
| <b>SECTION 12</b> | <b>VOLTAGE DIAGRAM</b>            |        |
| 12 - 1            | LOGIC BOARD .....                 | 12 - 1 |
| 12 - 2            | MAIN UNIT .....                   | 12 - 2 |
| 12 - 3            | AF UNIT .....                     | 12 - 4 |
| 12 - 4            | HM-137 .....                      | 12 - 5 |
| 12 - 5            | HM-134 (OPTIONAL UNIT) .....      | 12 - 6 |

# SECTION 1 SPECIFICATIONS

## ■ GENERAL

|   |  |       |
|---|--|-------|
| • Frequency coverage                    | : 156.000–161.450 MHz (Tx)<br>156.000–163.425 MHz (Rx)   |       |
| • Mode                                  | : 16K0G3E (FM) / 16K0G2B (DSC)* <sup>3</sup>   |       |
| • Usable channels                       | : All international and U.S.A channels   | [UK]  |
|   | : All international channel only   | [EUR] |
|   | : All international and ATIS channels  | [HOL] |
|   | : All international, DSC and ATIS channels   | [FRG] |
| • Power supply requirement              | : 10.8 V–15.6V (negative ground)   |       |
| • Usable temperature range              | : –20°C to +60°C   |       |
| • +Frequency stability                  | : Less than ±1.5 kHz (–20°C to +60°C)  |       |
| • Current drain (at 13.8 V DC)          | : Transmit at 25 W 5.5 A<br>Receive max. audio 1.5 A   |       |
| • Antenna connector                     | : SO-239 (50 Ω)  |       |
| • Dimensions (projections not included) | : 220(W)×110(H)×109.4(D) mm; 8 <sup>21</sup> / <sub>32</sub> (W) × 4 <sup>11</sup> / <sub>32</sub> (H) × 4 <sup>5</sup> / <sub>16</sub> (D) inch |       |
| • Weight                                | : 1350 g; 2.97 lb  |       |

## ■ TRANSMITTER

|                               |  |  |
|-------------------------------|--|--|
| • Output power (at 13.8 V DC) | : High 25 W<br>Low 1 W                                 |  |
| • Modulation                  | : Variable reactance frequency modulation              |  |
| • Maximum frequency deviation | : ±5.0 kHz   |  |
| • Frequency error             | : Less than ±0.3 kHz                                   |  |
| • Spurious emissions          | : Less than 0.25 μV                                    |  |
| • Adjacent channel power      | : More than 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* <sup>1</sup> , 31.05 MHz* <sup>2</sup><br>2nd 450 kHz                                 |  |
| • Sensitivity                       | : Less than –5 dBμ emf typical at 20 dB SINAD<br>: Less than –5 dBμ emf typical (For Channel 70 only) |  |
| • Squelch sensitivity               | : Less than –5 dBμ emf typical at threshold   |  |
| • Adjacent channel selectivity      | : More than 75 dB   |  |
| • Spurious response                 | : More than 75 dB   |  |
| • Intermodulation rejection ratio   | : more than 75 dB   |  |
| • Hum and noise                     | : More than 45 dB   |  |
| • Audio output power (at 13.8 V DC) | : 2.0 W at 10% distortion with a 4 Ω load   |  |
| • Audio frequency response          | : +1 dB to –3 dB of –6 dB octave from 300 Hz to 3000 Hz   |  |
| • GPS interface* <sup>3</sup>       | : NMEA0183 Ver. 2.0 or 3.01   |  |

**NOTE:** \*<sup>1</sup>For Channel 70 only, \*<sup>2</sup>For other channels, \*<sup>3</sup>[FRG] only

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* <sup>1</sup> | 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* <sup>1</sup> | 15* <sup>1</sup> | 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* <sup>1</sup> | 17* <sup>1</sup> | 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* <sup>1</sup> | 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* <sup>2</sup> | 70* <sup>2</sup> | 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 |             |     |                 |         |

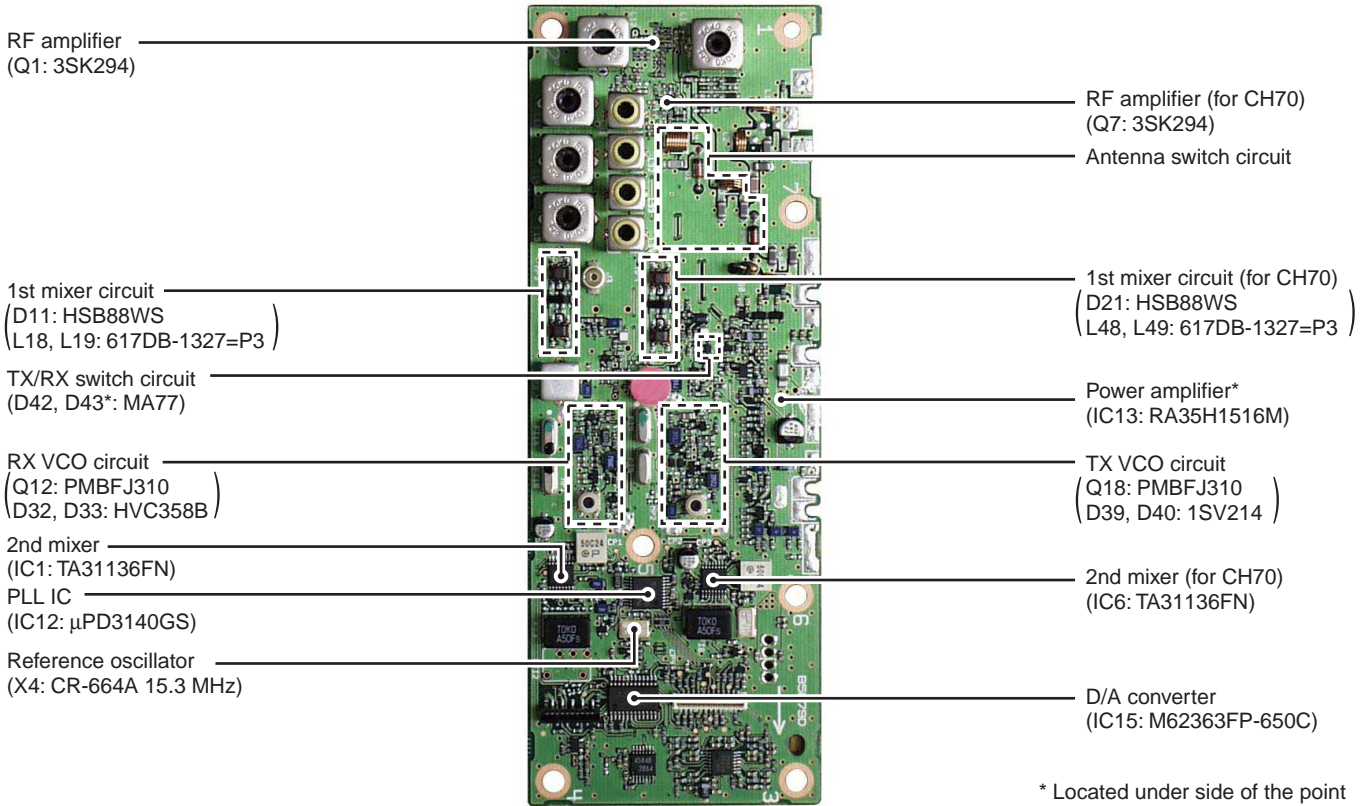
\*<sup>1</sup> Low power only, \*<sup>2</sup> Receive only

**NOTE:** USA channels for U.K. version only.

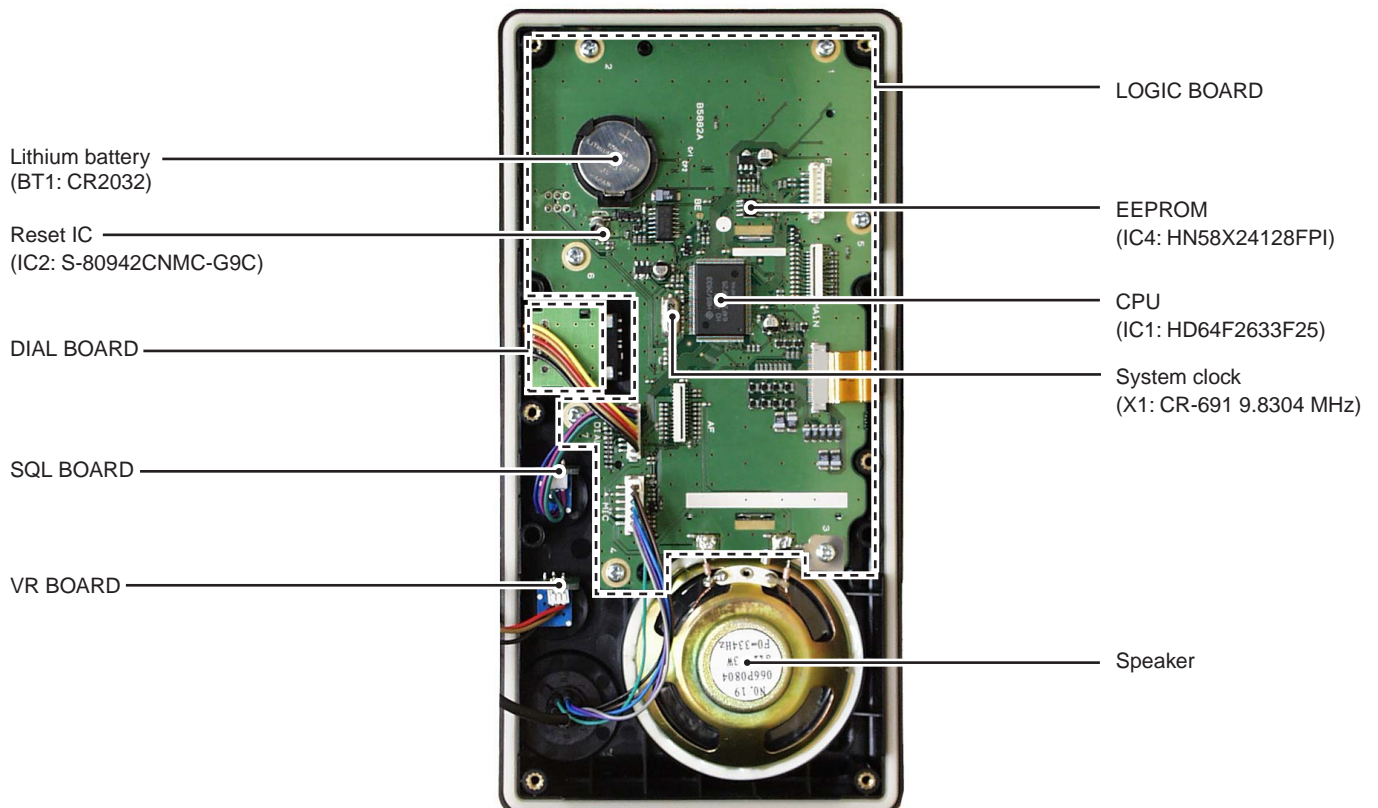
## SECTION 2 INSIDE VIEWS

### 2-1 IC-M601

#### • MAIN UNIT

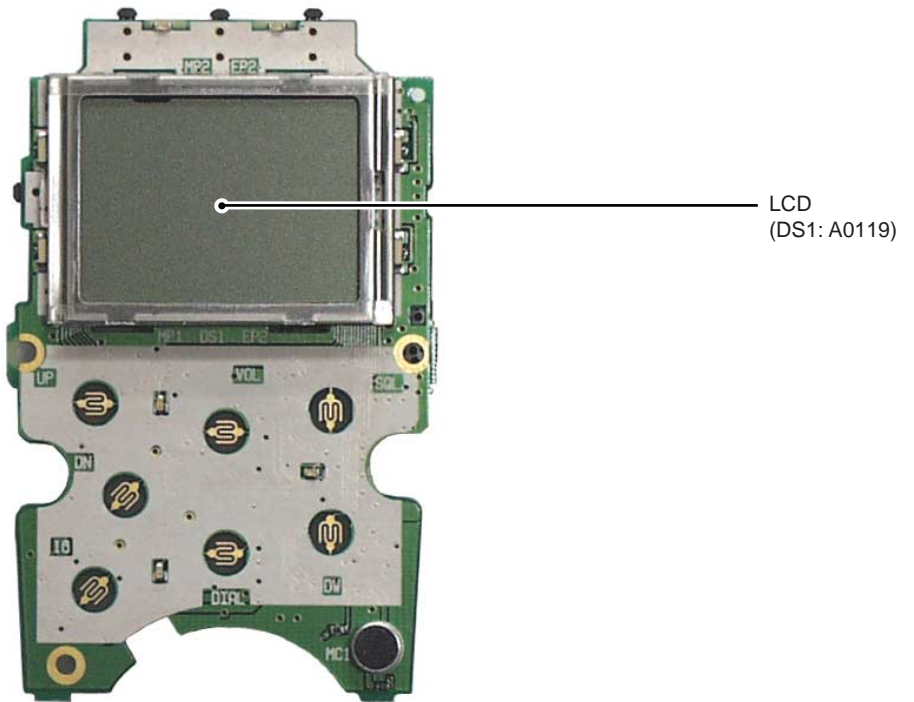


#### • LOGIC BOARD

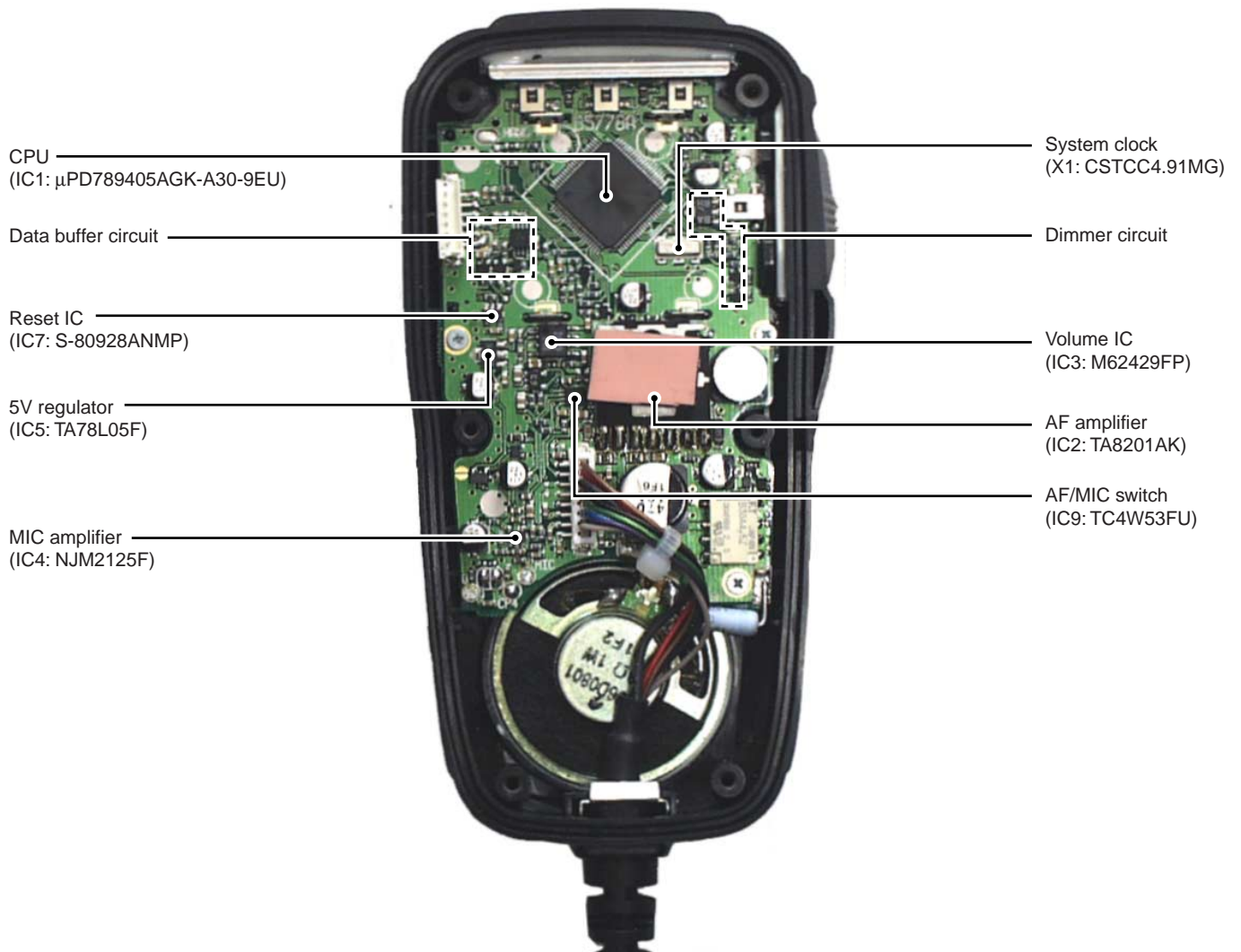


## 2-2 HM-134 (OPTIONAL UNIT)

### • TOP VIEW



### • BOTTOM VIEW



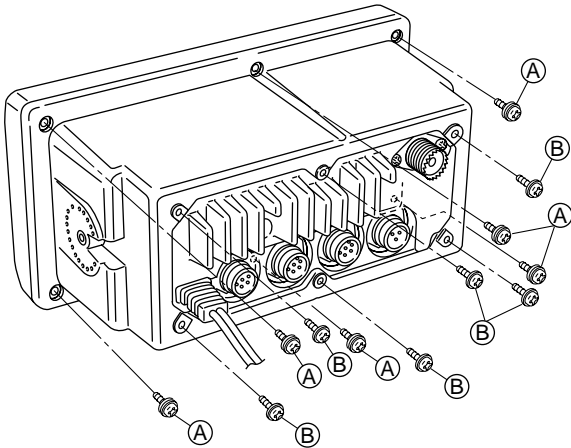


## SECTION 3 DISASSEMBLY AND OPTIONS INSTRUCTIONS

**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.

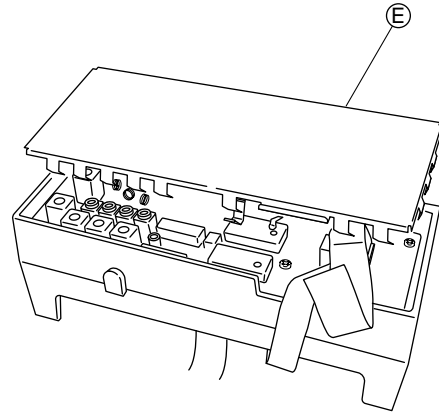
### • Opening the transceiver case

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



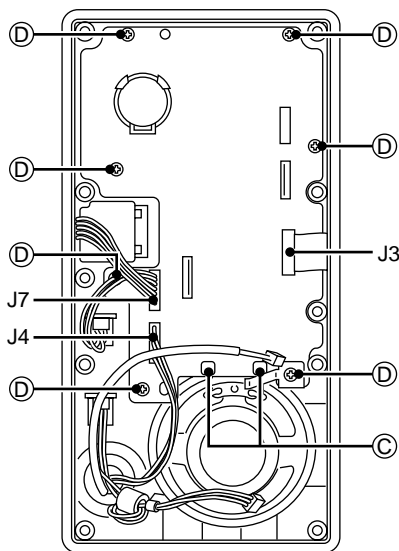
### • Removing the MAIN unit

- ① Remove the shield cover (E).

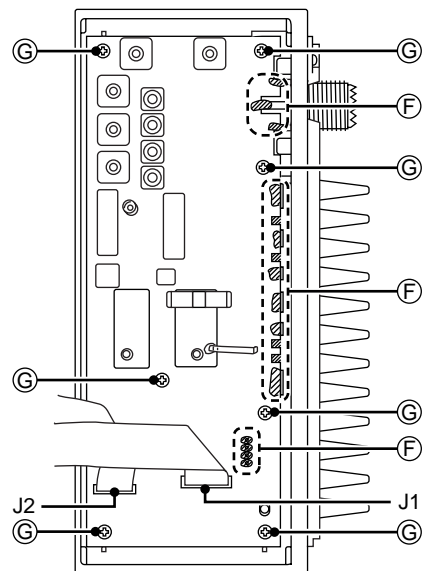



### • Removing the LOGIC board

- ① Unsolder 2 points (C).
- ② Disconnect microphone connector from J4 and SQL/DIAL connector from J7.
- ③ Unscrew 7 screws (D), and remove the LOGIC board.



- ② Disconnect flat cables from J1 and J2.
- ③ Unsolder 17 points (F).
- ④ Unscrew 7 screws (G), and remove the MAIN unit.

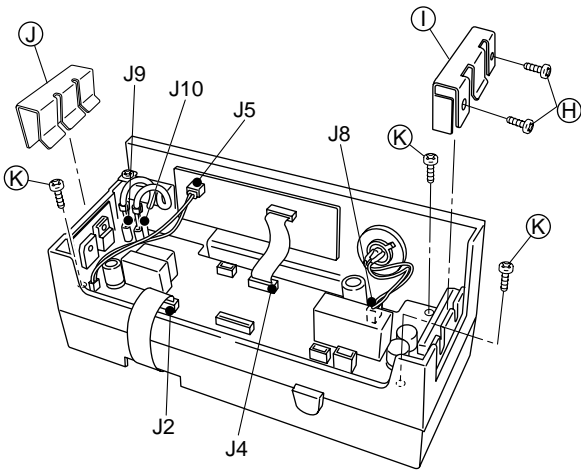


 Unsolder point



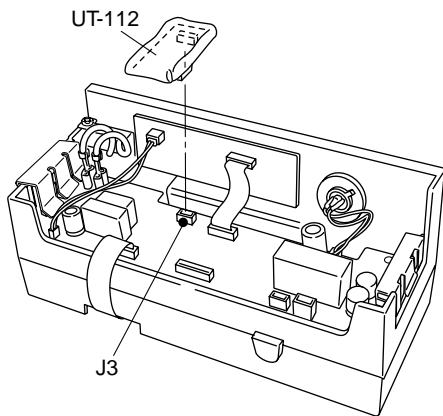
• **Removing the AF unit**

- ① Disconnect 4 connectors from J5, J8, J9 and J10.
- ② Disconnect 2 flat cables from J2 and J4
- ③ Unscrew 2 screws (H), and remove 2 clips (I, J).
- ④ Unscrew 3 screws (K), and remove the AF unit.



• **UT-112 VOICE SCRAMBLER UNIT INSTALLATION**

- ① Plug UT-112 into J3 on the AF unit.



## SECTION 4 CIRCUIT DESCRIPTION

### 4-1 RECEIVER CIRCUITS

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

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

Received signals enter the MAIN unit from the antenna connector and pass through the low-pass filter (L1, L2, C1, C3, C5). The signals are then applied to the RF circuit via the antenna switching circuit (D1, L3, L4, C7–C9).

#### 4-1-2 RF CIRCUIT (MAIN UNIT)

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

The signals from the antenna switching circuit pass through the tunable bandpass filter (L11, C23–C25) which the object signals are led to each RF amplifier of channel 70 circuit (Q7) or other channels (except channel 70) circuit (Q1).

##### • CHANNEL 70 CIRCUIT

The amplified signals from the RF amplifier (Q7) are applied to the 4-stage bandpass filter (L31–L34, C407, C408, C410–C423) to suppress unwanted signals and improve the selectivity. The signals are then applied to the 1st mixer circuit for channel 70.

##### • OTHER CHANNELS CIRCUIT

The amplified signals from the RF amplifier (Q1) are applied to the 4-stage bandpass filter (L12–L15, C33, C34, C36–C48) to suppress unwanted signals and improve the selectivity. The signals are then applied to the 1st mixer circuit for other channels.

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

The 1st mixer circuit converts the received signal into a fixed frequency of the 1st IF signal with a 1st LO (VCO output) frequency. By changing the 1st LO frequency, only the desired frequency will pass through a pair of crystal filters at the next stage of the mixer.

##### • CHANNEL 70 CIRCUIT

The signals from the RF circuit are mixed with the 1st LO signals at the 1st mixer circuit (D21, L48, L49) to produce a 21.7 MHz 1st IF signal.

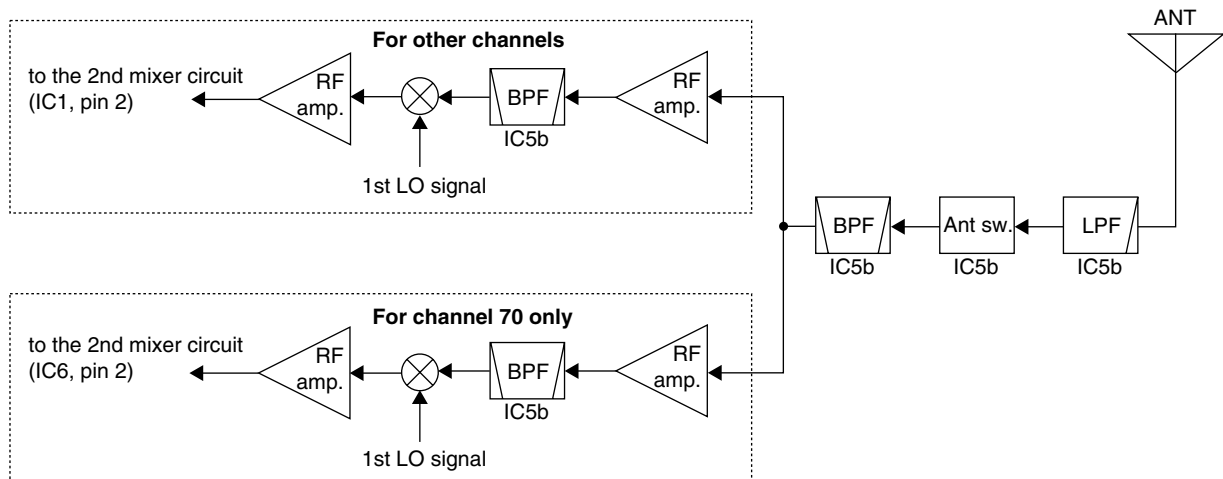
The 1st IF signal is amplified at the 1st IF amplifiers (Q8, Q9), and then passes through the pair of crystal bandpass filters (F14, F15) to suppress out-of-band signals. The filtered signal is then amplified at the 2nd IF amplifier (Q10), and is then applied to the 2nd mixer circuit (IC6).

##### • OTHER CHANNELS CIRCUIT

The signals from the RF circuit are mixed with the 1st LO signals at the 1st mixer circuit (D11, L18, L19) to produce a 31.05 MHz 1st IF signal.

The 1st IF signal is amplified at the 1st IF amplifiers (Q3, Q4), and then passes through the crystal bandpass filter (F11) to suppress out-of-band signals. The filtered signal is then amplified at the 2nd IF amplifier (Q2), and is then applied to the 2nd mixer circuit (IC1).

#### • 1ST MIXER AND 1ST IF CIRCUITS



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

The 2nd mixer circuit converts the 1st IF signal into a 2nd IF signal. A double superheterodyne system (which converts receive signals twice) improves the image rejection ratio and obtains stable receiver gain.

The FM IF IC (IC6 for channel 70, IC1 for other channels) contains the 2nd local oscillator, 2nd mixer, limiter amplifier, quadrature detector, and noise detector circuits, etc.

##### • CHANNEL 70 CIRCUIT

The 1st IF signal from the 2nd IF amplifier (Q10) is applied to the 2nd mixer section of FM IF IC (IC6, pin 16), and is mixed with a 21.25 MHz 2nd LO signal, which is generated at the 2nd oscillator section in IC6 and X3, to produce a 450 kHz 2nd IF signal.

The 2nd IF signal from IC6 (pin 3) is passed through the ceramic filter (F16), which unwanted signals are suppressed, and is then applied to the 2nd IF (limiter) amplifier in IC6 (pin 5). The signal is applied to the FM detector section in IC6 for demodulating into AF signals.

The FM detector circuit employs a quadrature detection method (linear phase detection), which uses a ceramic discriminator (X2) for phase delay to obtain a non-adjusting circuit. The detected signal from IC6 (pin 9) is applied to the AF circuit.

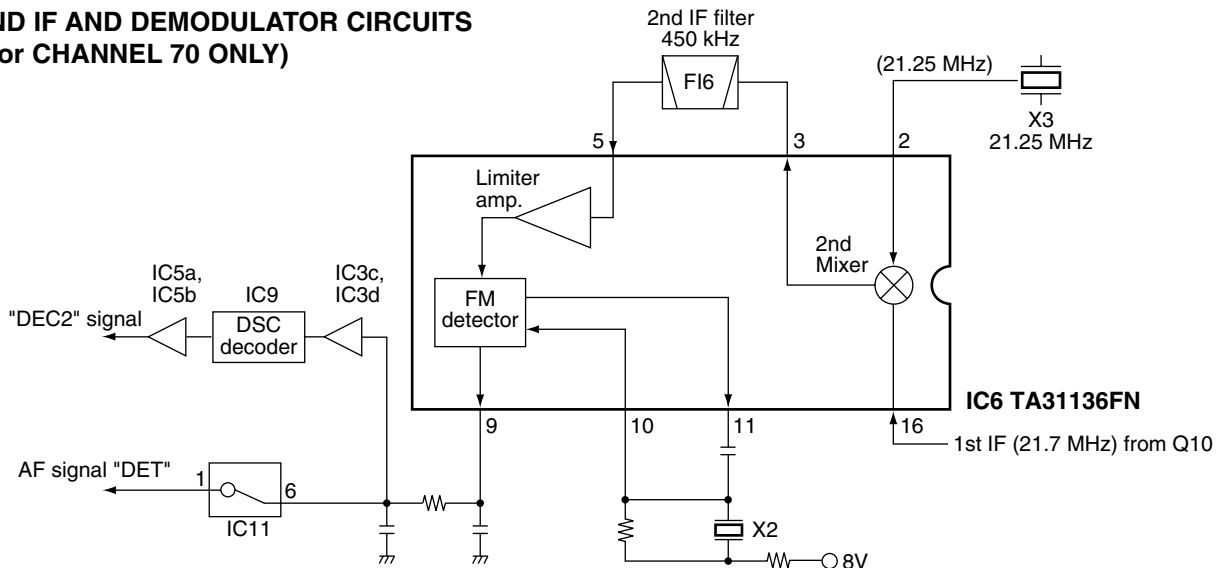
##### • OTHER CHANNELS CIRCUIT

The 1st IF signal from the 2nd IF amplifier (Q2) is applied to the 2nd mixer section of FM IF IC (IC1, pin 16), and is mixed with a 30.6 MHz 2nd LO signal, which is generated at the PLL circuit using the reference frequency (15.3 MHz), to produce a 450 kHz 2nd IF signal.

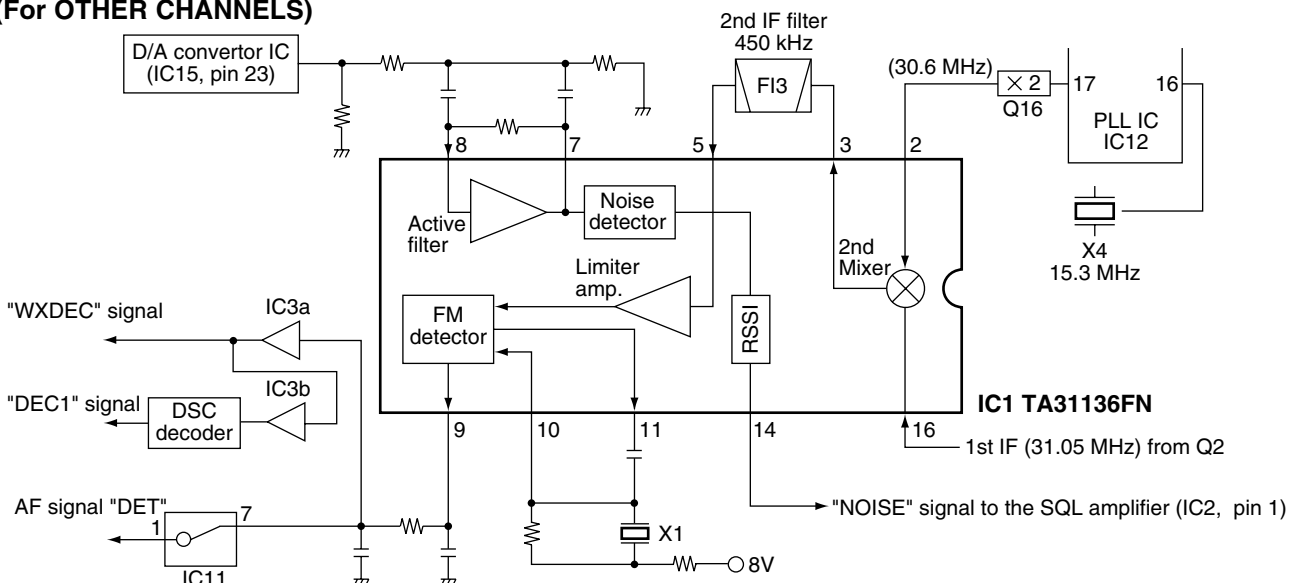
The 2nd IF signal from IC1 (pin 3) is passed through the ceramic filter (F13), which unwanted signals are suppressed, and is then applied to the 2nd IF (limiter) amplifier in IC1 (pin 5). The signal is applied to the FM detector section in IC1 for demodulating into AF signals.

The FM detector circuit employs a quadrature detection method (linear phase detection), which uses a ceramic discriminator (X1) for phase delay to obtain a non-adjusting circuit. The detected signal from IC1 (pin 9) is applied to the AF circuit.

##### • 2ND IF AND DEMODULATOR CIRCUITS (For CHANNEL 70 ONLY)



##### • 2ND IF AND DEMODULATOR CIRCUITS (For OTHER CHANNELS)



#### **4-1-5 AF AMPLIFIER CIRCUIT (AF UNIT)**

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

AF signals from the FM IF ICs (channel 70; IC6, pin 9, other channels IC1, pin 9) are passed through the analog switch (IC7, pins 10, 11) via the "DET" signal, and are applied to the de-emphasis circuit (R31, C41). The de-emphasis circuit is an integrated circuit with frequency characteristic of -6 dB/octave.

The signals pass through the bandpass filter (Q11, Q12), and are then applied to the AF mute switch (Q11). The signals passed through the [VOLUME] control (VR unit; R1), and are then applied to the AF power amplifier (IC3, pin 1) to obtain 5 W AF audio output power. The amplified AF signals drive the internal speaker as "SP+" signal directly or external speaker as "AF" signal via the RL2.

#### **4-1-6 SQUELCH CIRCUIT (MAIN AND LOGIC UNITS)**

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 (IC1, pin 9) is passed through C89, and is applied to the D/A converter (IC15, pin 24) to control the amplitude. The signal is applied to the FM IF IC's active filter section (IC1, 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 as the "SQL" signal. The "SQL" signal is amplified at the DC amplifier (IC2) and applied to the main CPU (LOGIC unit; IC1, pin 104) as the "SQL" signal. The main CPU compares "SQL" voltage with "SQLV" voltage from the SQL board, and outputs the "MICM" and "RMUTE" signals to toggle the AF mute switches (Q7, Q13).

### **4-2 TRANSMITTER CIRCUITS**

#### **4-2-1 MICROPHONE AMPLIFIER CIRCUIT (AF 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.

##### **• USING HM-136**

The AF signals from the microphone (ACC unit; HM-136) are amplified at the microphone amplifier (IC6a) via the analog switch (IC4, pins 11, 10) as "MIC" signal. A capacitor (C77) and resistor (R73) are connected to the microphone amplifier to obtain the pre-emphasis characteristics.

##### **• USING HM-127**

The AF signals from the microphone (ACC unit; HM-127) are amplified at the microphone amplifier (IC6a) via the analog switch (connecting option1 jack: IC16, pins 2, 3, 4; connecting option2 jack: IC16, pins 4, 9, 10) as "AF/MIC1" or "AF/MIC2" signals. A capacitor (C77) and resistor (R73) are connected to the microphone amplifier to obtain the pre-emphasis characteristics.

The amplified signals are applied to the IDC amplifier (IC8a, pin 2) via the analog switch (IC7, pins 2, 3, 9), and are then passed through the splatter filter (IC8b) to suppress unwanted 3 kHz or higher signals. The filtered signals are 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.

The audio signals from the splatter filter (IC8b) are passed through the D/A converter IC (IC15, pins 11, 12), and are then applied to the modulation circuit. The applied signals change the reactance of the varactor diode (D37), and modulate the oscillated signal at the TX-VCO (Q18).

#### **4-2-3 PRE-DRIVE AND YGR AMPLIFIERS CIRCUIT (MAIN UNIT)**

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

The output signal from VCO circuit is amplified at the buffer amplifiers (Q19 and Q27), and is applied to the TX/RX switch (D43). The transmit signal from the TX/RX switch is amplified at the pre-drive (Q28) and YGR (Q30) amplifiers to obtain an approximate 50 mW signal level. The amplified signal is then applied to the RF power amplifier (IC13).

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

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

IC13 is a power module which has amplification output capabilities of about 35 W with 50 mW input. The output signal from IC13 (pin 1) is passed through the antenna switching circuit (D46) and is then applied to the antenna connector via the low-pass filter (L1, L2, L89, C1, C3, C5, C361, C364).

#### 4-2-5 APC CIRCUIT (MAIN UNIT)

The APC (Automatic Power Controller) circuit stabilizes the TX output power.

The RF output signal from the power amplifier (IC13) is detected at the power detector circuit (D47, D48) and is applied to APC controller. The applied voltage compares to "PCON" signal from the D/A converter IC (IC15, pin 14), and then outputs the differential bias voltage for power amplifier (IC13, pin 3). Thus the APC circuit maintains a constant output power.

### 4-3 PLL CIRCUITS

#### 4-3-1 GENERAL

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

IC12 is a dual PLL IC, which controls both TX and RX VCO circuits, and contains a prescaler, programmable counter, programmable divider, phase detector, charge pump and etc.

The PLL circuit, using a one chip PLL IC (IC12), directly generates the transmit frequency and receive 1st IF frequency with VCOs. The PLL IC sets the divided ratio based on serial data from the main CPU, and compares the phases of VCO signals with the reference oscillator frequency. The PLL IC detects the out-of-step phase and outputs from pins 8 and 13 for TX and RX, respectively. The reference frequency (15.3 MHz) is oscillated at the reference oscillator (X4).

#### 4-3-2 TX AND CHANNEL 70 (RX) LOOPS

The generated signal at the TX-VCO/CHANNEL 70-VCO (Q18, D39, D40) enters the PLL IC (IC2, 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 pin 8.

The pulse-type signal is converted into DC voltage (lock voltage) at the loop filter (R217–R219, C247, C249, C278), and is then applied to the varactor diodes (D39, D40) of the TX-VCO to stabilize the oscillated frequency.

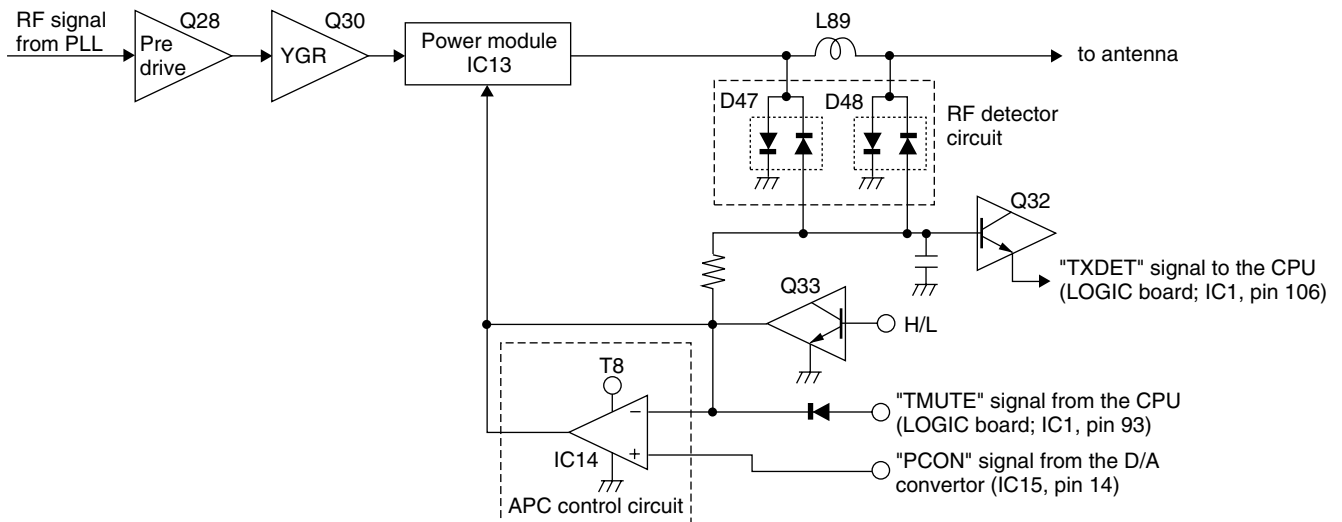
#### 4-3-3 OTHER CHANNELS (RX) LOOP

The generated signal at the RX-VCO (Q12, D32, D33) enters the PLL IC (IC2, 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 pin 13.

The pulse-type signal is converted into DC voltage (lock voltage) at the loop filter (R182, R213, R214, C225, C248), and is then applied to the varactor diodes (D32, D33) of the RX-VCO to stabilize the oscillated frequency. The lock voltage from the loop filter is amplified at the buffer amplifier (Q23), and is then applied to the RF circuit.

#### • APC CIRCUIT



### 4-3-4 VCO CIRCUIT (MAIN UNIT)

#### • TX-VCO/CHANNEL 70-VCO (RX) CIRCUITS

The VCO outputs from TX-VCO/CHANNEL 70-VCO (Q18) are amplified at the buffer amplifiers (Q19 and Q27), and are applied to the TX/RX switch circuit (D42, D43). The receiver LO signal is applied to the 1st mixer circuit for CHANNEL 70 (D21, L48, L49) passing through a low-pass filter (L51, L52, C150–C152), and the transmitter signal is applied to the pre-drive amplifier (Q28). A portion of the VCO output signal is re-applied to the PLL IC (IC2, pin 2) via the buffer amplifier (Q15).

#### • OTHER CHANNELS-VCO (RX) CIRCUITS

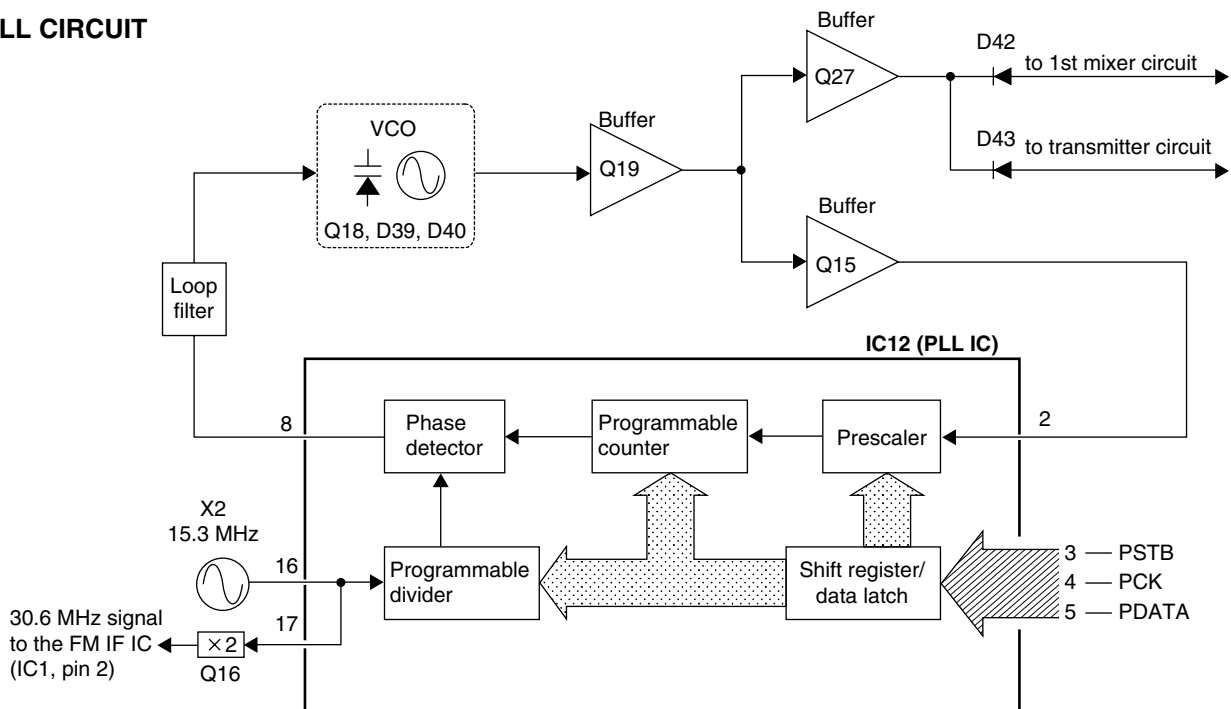
The VCO outputs from OTHER CHANNELS-VCO (Q12) are amplified at the buffer amplifiers (Q13 and Q23). The receiver LO signal is applied to the 1st mixer circuit for OTHER CHANNELS (D11, L18, L19) passing through a low-pass filter (L21, L22, C52–C54). A portion of the VCO output signal is re-applied to the PLL IC (IC2, pin 2 or pin 19) via the buffer amplifier (Q19).

## 4-4 DSC CIRCUITS

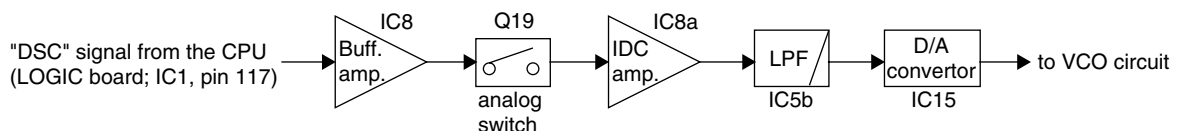
### 4-4-1 DSC MODULATION CIRCUIT (LOGIC, AF AND MAIN UNITS)

The ATIS signal from the CPU (LOGIC unit; IC1, pin 117) is applied to the buffer amplifier (AF unit; Q18) as "DSC" signal. The signal passes through the analog switch (AF unit; IC7, pin 1), and then applied to IDC amplifier (AF unit; IC8a). Then, the amplified signal is applied to the transmitter circuit.

#### • PLL CIRCUIT



#### • DSC CIRCUIT



The signals passed through the splatter filter (AF unit; IC8b) to suppress unwanted 3 kHz or higher signals. The filtered signals are then applied to the TX modulation circuit via the D/A converter IC (MAIN unit; IC15, pins 11, 12) as a DSC modulation signal "MOD".

## 4-5 LOGIC CIRCUITS

### 4-5-1 MAIN UNIT

#### • CPU

IC1 is a 8 bit single chip micro-computer, which contains LCD driver, serial I/O, timer, A/D converter, programmable I/O, ROM and RAM.

#### • SYSTEM CLOCK CIRCUIT

X1 is a crystal oscillator, which oscillates 9.8304 MHz system clock for the main CPU (IC1).

#### • RESET CIRCUIT

IC2 is a reset IC, which outputs a reset signal ("LOW" pulse) to main CPU (IC1, pin 79) when turning transceiver power ON.

## 4-6 POWER SUPPLY CIRCUITS

### 4-6-1 VOLTAGE LINE (MAIN UNIT)

| LINE | DESCRIPTION  |
|------|--|
| 13.8 | The 13.8 V from the connected DC power supply.   |
| HV   | Same voltage as the HV line which is passed through the [PWR] switch (LOGIC unit; S1).   |
| HVS  | Same voltage as the HVS line which is passed through the power controller (AF unit; RL1).  |
| VCC  | Same voltage as the 13.8 V line, and is applied to the AF power amplifiers (AF unit; IC3, IC10), LOGIC unit, etc.  |
| 8V   | Common 8 V converted from the VCC line at the +8V regulator circuit (AF unit; IC1). The output voltage is applied to the T8 controller (MAIN unit; Q36, Q36), +5 regulator (AF unit; IC2), R8 regulator (AF unit; Q1, Q2), etc.                        |
| 5V   | Common 5 V converted from the 8V line at the +5 regulator circuit (AF unit; IC2). The output voltage is applied to the buffer amplifiers (AF unit; IC19, Q14), expander ICs (AF unit; IC17, IC18), etc.  |
| T8   | Transmit 8 V controlled by the T8 control circuit (MAIN unit; Q35, Q36) using the "SEND" signal from main CPU. The output voltage is applied to the pre-drive (MAIN unit; Q28), YGR amplifier (MAIN unit; Q30), APC controller (MAIN unit; IC14), etc. |
| R8   | Receive 8 V controlled by the R8 control circuit (AF unit; Q1, Q2) using the RCV signal from main CPU. The controlled voltage is applied to the bandpass filter (AF unit; Q11, Q12), buffer and IF amplifiers (AF unit; Q2 and Q23), etc.              |

## 4-7 PORT ALLOCATIONS

### 4-7-1 EXPANDER IC (AF unit; IC18)

| Pin number | Port name | Description  |
|------------|-----------|--|
| 4          | MICS2     | Outputs HM-134/2 control signal.<br>High : While transmitting via the HM-134/2.                      |
| 5          | MICS1     | Outputs HM-134/1 control signal.<br>High : While transmitting via the HM-134/1.                      |
| 6          | SPS2      | Outputs HM-134/2 control signal.<br>High : While receiving via the HM-134/2.                         |
| 7          | SPS1      | Outputs HM-134/1 control signal.<br>High : While receiving via the HM-134/1.                         |
| 11         | SP        | Outputs the internal speaker (FRONT unit; SP1) control signal.<br>High : The speaker is activating.  |
| 12         | BPLVL     | Outputs beep audio level control signal.<br>Low : Beep audio level is maximum.                       |
| 13         | RCV       | Outputs the R8 regulator (AF unit; Q1, Q2) control signal.<br>High : While receiving.                |
| 14         | HLC       | Outputs the Hailer speaker TX/RX select signal.<br>High : While transmitting via the Hailer speaker. |

### 4-7-2 EXPANDER IC (AF unit; IC17)

| Pin number | Port name | Description   |
|------------|-----------|---|
| 4          | STRU      | Outputs scrambler unit bypass control signal.<br>High : Bypassing the scrambler unit.               |
| 5          | AFSUB     | Outputs sound signals to the HM-134.<br>High : Sounding from HM-134.                                |
| 6          | INCMH     | Outputs voice signals from IC-M601 to HM-134 using intercom function.<br>High : While receiving.    |
| 7          | INCHM     | Outputs voice signals from HM-134 to IC-M601 using intercom function.<br>High : While transmitting. |
| 11         | MIC/DSC   | Outputs MIC/DSC modulation circuit control signal.<br>High : While the DSC signal is modulated.     |
| 12         | HAILIN    | Outputs the microphone select signal.<br>High : While using the hailer speaker.                     |
| 13         | FOGC      | Outputs fog horn control signal.<br>High : Fog horn is ON.  |
| 14         | HAILOUT   | Outputs the microphone select signal.<br>High : While using the HM-137.                             |



### 4-7-3 CPU (LOGIC BOARD; IC1)

| Pin number | Port name | Description   |
|------------|-----------|---|
| 7          | UNLK      | Input port for PLL unlock signal from the PLL IC (MAIN unit; IC12, pin 7).<br>High : While PLL is unlocked.               |
| 25         | EDATA     | I/O port for the data signals to the EEPROM (IC4, pin 5).   |
| 28         | ECK       | Outputs a clock signal to the EEPROM (IC4, pin 6).  |
| 34         | DEC3      | Input port for the decode signal for channel 70 receiver.   |
| 38         | DEC1      | Input port for the ATIS/DSC decode signals.   |
| 39         | BEEP      | Outputs beep audio signals.   |
| 58         | DATAMC    | I/O port for the cloning data from the transceiver.   |
| 59         | DATACM    | I/O port for the cloning data to the transceiver.   |
| 63         | DATAMH1   | I/O port for the communicating signal from the transceiver to the microphone (HM-134/1).                                  |
| 64         | DATAH1M   | I/O port for the communicating signal from the microphone (HM-134/1) to the transceiver.                                  |
| 66         | DATANM    | I/O port for the GGA signals  |
| 69         | DATAMN    | I/O port for the NMEA data.   |
| 70         | PDATA     | Outputs a data signal to the PLL IC (MAIN unit; IC12, pin 5).   |
| 71         | PCK       | Outputs a clock signal to the PLL IC (MAIN unit; IC12, pin 4).  |
| 74         | OPTIN     | Outputs the voice scrambler unit (UT-112) detecting signal.<br>Low : While UT-112 is connecting.                          |
| 91         | RMUTE     | Outputs RX muting signal.<br>High : While RX signal is muting.  |
| 93         | TMUTE     | Outputs transmit mute signal.<br>High : While TX muting.  |
| 94         | SEND      | Outputs T8 regulator control signal.<br>High: While transmitting.   |
| 95         | H/L       | Output port for RF output power (High or Low) select signal.<br>Low : While Low power is selected.                        |
| 103        | WXDEC     | Input port for the weather alert signal.  |
| 104        | SQL       | Input port for the FM IF IC (MAIN unit; IC1, pin 14)'s noise amplifier detecting signal.                                  |
| 105        | LBAT      | Input port for the low-battery detecting signal. Low battery indicator appears when the battery becomes less than 2.58 V. |
| 106        | TXDET     | Input port for transmit detecting signal.   |

| Pin number | Port name   | Description   |
|------------|-------------|---|
| 107        | TEMP        | Input port for the inside temperature detecting signal.                                       |
| 111-114    | DIAL1-DIAL4 | Input ports for the dial data signals.  |
| 115        | PTT         | Input port for the HM-137's PTT button detecting signal.<br>Low : While PTT button is pushed. |
| 116        | HANG        | Input port for the microphone hanger detecting signal.<br>Low : The microphone on hook.       |
| 117        | DSC         | Outputs ATIS/DSC encode signals.  |
| 120        | SCON        | Outputs the voice scrambler unit (UT-112) control signal.                                     |
| 121        | OPSTB       | Outputs a strobe signal to the voice scrambler unit (UT-112).                                 |
| 124        | DASTB       | Outputs a strobe signal to the PLL IC (MAIN unit; IC12, pin 3).                               |
| 125        | PSTB        | Outputs a strobe signal to the D/A convertor IC (MAIN unit; IC15, pin 6).                     |
| 126        | DATAH2M     | I/O port for the communicating signal from the microphone (HM-134/2) to the transceiver.      |
| 127        | DATAMH2     | I/O port for the communicating signal from the transceiver to the microphone (HM-134/2).      |

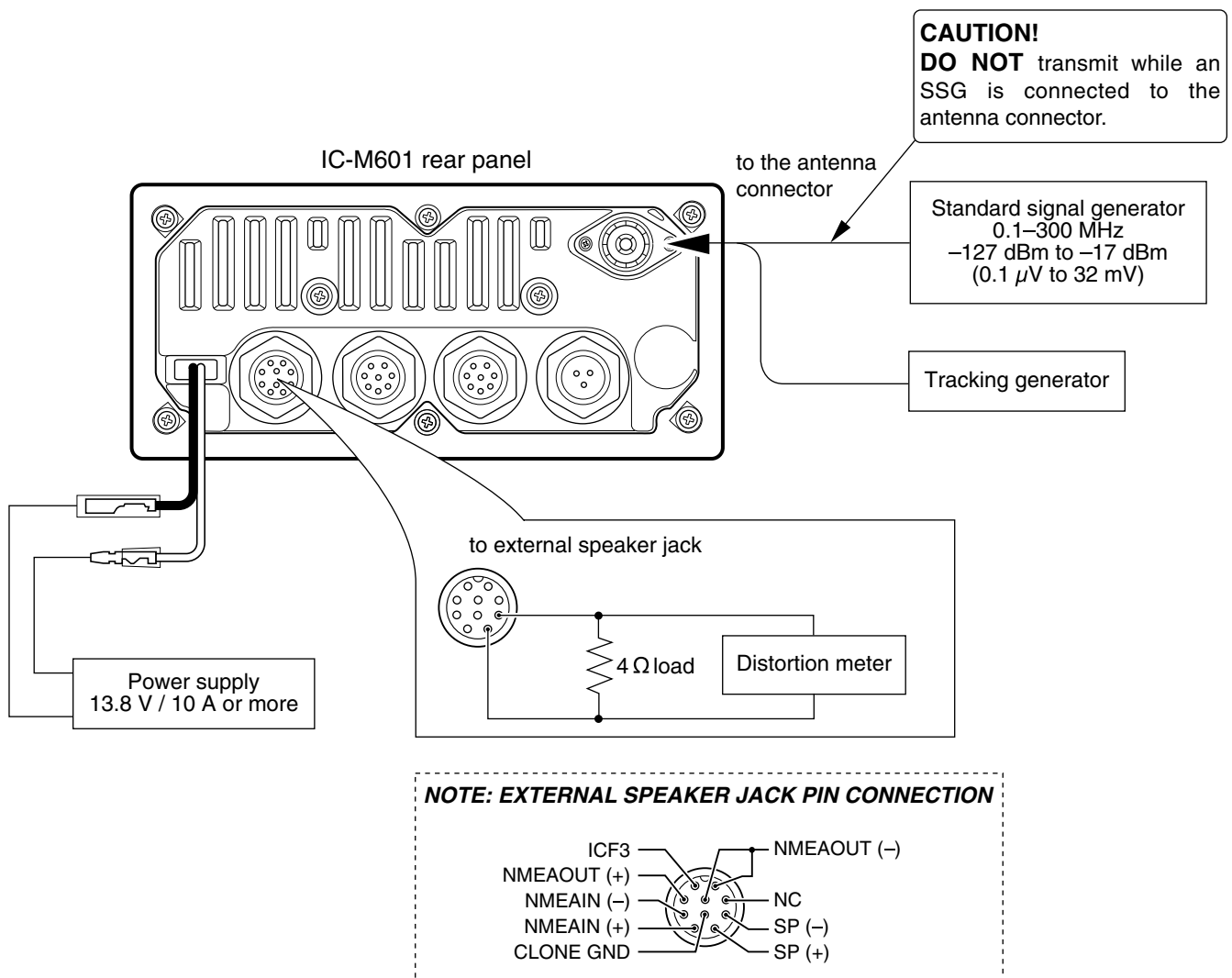
# SECTION 5 ADJUSTMENT PROCEDURES

## 5-1 PREPARATION

### ■ REQUIRED TEST EQUIPMENT

| EQUIPMENT          | GRADE AND RANGE  | EQUIPMENT                       | GRADE AND RANGE  |
|--------------------|--|---------------------------------|--|
| DC power supply    | Output voltage : 13.8 V DC<br>Current capacity : 10 A or more                              | Standard signal generator (SSG) | Frequency range : 0.1–300 MHz<br>Output level : 0.1 $\mu$ V–32 mV<br>(–127 to –17 dBm) |
| External speaker   | Input impedance : 4 $\Omega$<br>Capacity : 5 W or more                                     | DC voltmeter                    | Input impedance : 50 k $\Omega$ /V DC or better  |
| Tracking generator | Frequency range : 100–300 MHz<br>Output level : 0.1 $\mu$ V–32 mV<br>(–127 dBm to –17 dBm) | Distortion meter                | Frequency range : 1 kHz $\pm$ 10 %<br>Measuring range : 1–100 %                        |

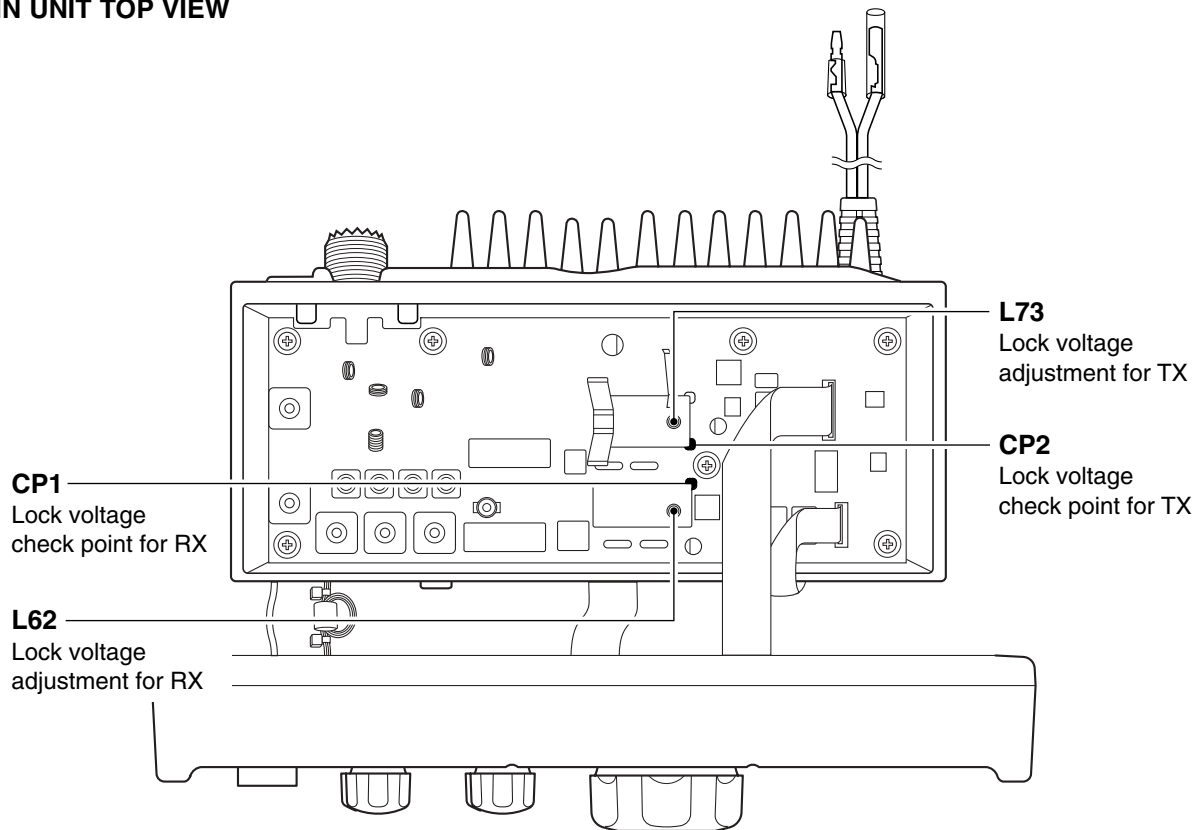
### ■ CONNECTION



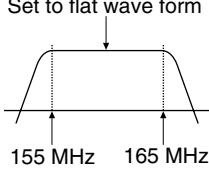
## 5-2 PLL ADJUSTMENTS

| ADJUSTMENT   | ADJUSTMENT CONDITION  | MEASUREMENT |   | VALUE         | ADJUSTMENT POINT |   |               |        |
|--------------|---|-------------|---|---------------|------------------|---|---------------|--------|
|              |   | UNIT        | LOCATION  |               | UNIT             | ADJUST  |               |        |
| LOCK VOLTAGE | 1 <ul style="list-style-type: none"> <li>• Operating channel : ch P2</li> <li>• Receiving</li> </ul>                                  | MAIN        | Connect a digital multi-meter or oscilloscope to check point CP1. | 3.8 V – 4.0 V | MAIN             | L62   |               |        |
|              | 2 <ul style="list-style-type: none"> <li>• Operating channel : ch P2</li> <li>• Output power : Low</li> <li>• Transmitting</li> </ul> |             |   |               |                  | Connect a digital multi-meter or oscilloscope to check point CP2. | 3.1 V – 3.3 V | L73    |
|              | 3 <ul style="list-style-type: none"> <li>• Operating channel : ch 70</li> <li>• Receiving</li> </ul>                                  |             |   |               |                  |   | 2.7–3.7 V     | Verify |

### • MAIN UNIT TOP VIEW

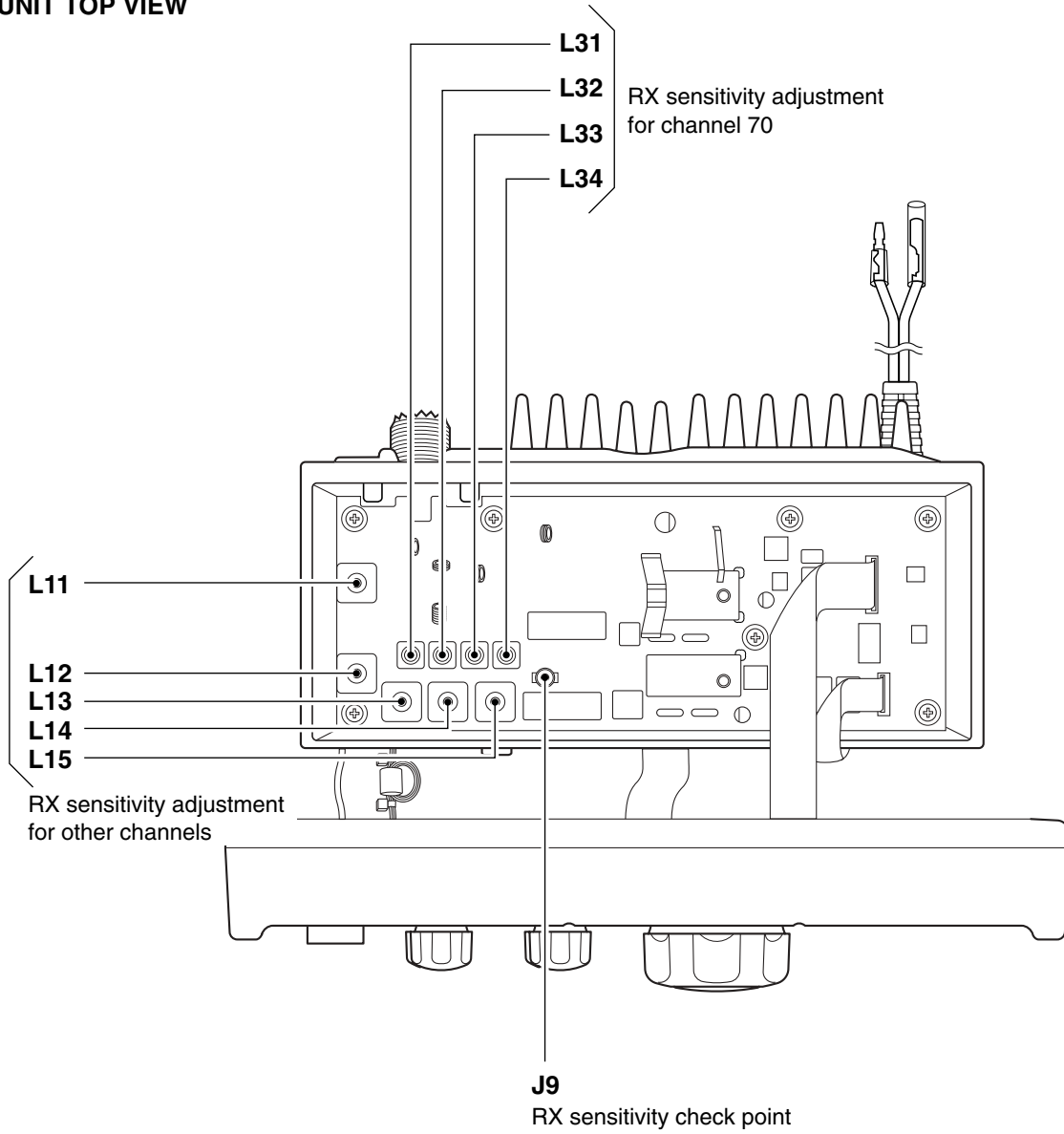


## 5-3 RECEIVER ADJUSTMENTS

| ADJUSTMENT                         | ADJUSTMENT CONDITION   | MEASUREMENT |  | VALUE  | ADJUSTMENT POINT |                                 |
|------------------------------------|--|-------------|--|--|------------------|---------------------------------|
|                                    |  | UNIT        | LOCATION   |  | UNIT             | ADJUST                          |
| SENSITIVITY<br>(Except channel 70) | 1 <ul style="list-style-type: none"> <li>• Operating channel : ch 16</li> <li>• Connect a tracking generator's output to the antenna connector and set as:<br/>Level : 7.1 mV*<br/>(-30 dBm)</li> </ul>  | MAIN        | Connect a tracking generator's input to the MAIN unit; J3. | Set the flat wave form as shown below.<br><br>Set to flat wave form<br> | MAIN             | L11<br>L12<br>L13<br>L14<br>L15 |
| (Channel 70)                       | 2 <ul style="list-style-type: none"> <li>• Operating channel : ch 16</li> <li>• Connect an SSG to the antenna connector and set as:<br/>Frequency : 156.800 MHz<br/>Level : 10 <math>\mu</math>V*<br/>(-97 dBm)<br/>Modulation : 1 kHz<br/>Deviation : <math>\pm</math>3.5 kHz</li> <li>• Set the internal speaker OFF in the SET mode, and connect a distortion meter with a 4 <math>\Omega</math> load to [EXT SP] receptacle.</li> <li>• Receiving</li> </ul> | MAIN        | Connect a DC voltmeter to check point CP3.                 | Maximum voltage  | MAIN             | L31<br>L32<br>L33<br>L34        |

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

• MAIN UNIT TOP VIEW



# SECTION 6 PARTS LIST

## 6-1 IC-M601

### [SQL BOARD]

| REF NO. | ORDER NO.  | DESCRIPTION |                       |
|---------|------------|-------------|-----------------------|
| R1      | 7210002360 | VARIABLE    | TP96N97-15F-10KB-1301 |
| EP1     | 0910055532 | PCB         | B 5885B               |

### [VR BOARD]

| REF NO. | ORDER NO.  | DESCRIPTION |                       |
|---------|------------|-------------|-----------------------|
| R1      | 7210003080 | VARIABLE    | TP96N97-15F-10KA-2345 |
| W1      | 8900011710 | CABLE       | OPC-1186              |
| EP1     | 0910055522 | PCB         | B 5884B               |

### [CONNECT-A UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION |                      |
|---------|------------|-------------|----------------------|
| J1      | 6510022440 | CONNECTOR   | LTW-8MP-C <LIA>      |
| J2      | 6510022440 | CONNECTOR   | LTW-8MP-C <LIA>      |
| J3      | 6510023320 | CONNECTOR   | LTWD-06PMMP-LC <LIA> |
| J4      | 6510023090 | S.CONNECTOR | 20FLT-SM1-TB         |
| J5      | 6510014960 | S.CONNECTOR | B2B-ZR-SM3-TF        |
| EP1     | 0910055492 | PCB         | B 5881B              |

### [DIAL BOARD]

| REF NO. | ORDER NO.  | DESCRIPTION |               |
|---------|------------|-------------|---------------|
| S1      | 2250000470 | ENCODER     | EVQ-V9C00116E |
| W1      | 8900011720 | CABLE       | OPC-1187      |
| EP1     | 0910055512 | PCB         | B 5883B       |

### [FRONT UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION |                |
|---------|------------|-------------|----------------|
| SP1     | 2510001210 | SPEAKER     | 066P0804 <KS>  |
| W1      | 8900011470 | CABLE       | OPC-1177 <LIA> |
| W2      | 7120000470 | JUMPER      | ERDS2T0        |
| W3      | 7120000470 | JUMPER      | ERDS2T0        |

### [LOGIC BOARD]

| REF NO. | ORDER NO.  | DESCRIPTION  |                          |
|---------|------------|--------------|--------------------------|
| IC1     | 1140010584 | S.IC         | HD64F2633F25 (FX2577A-4) |
| IC2     | 1110005770 | S.IC         | S-80942CNMC-G9C-T2       |
| IC3     | 1130007450 | S.IC         | RTC-4553A                |
| IC4     | 1140009240 | S.IC         | HN58X24128FP1            |
| IC5     | 1180002420 | S.IC         | S-818A33AUC-BGN-T2       |
| Q1      | 1510000580 | S.TRANSISTOR | 2SA1362-GR (TE85R)       |
| Q2      | 1590000430 | S.TRANSISTOR | DTC144EUA T106           |
| Q4      | 1590000430 | S.TRANSISTOR | DTC144EUA T106           |
| Q5      | 1590000430 | S.TRANSISTOR | DTC144EUA T106           |
| Q6      | 1590000430 | S.TRANSISTOR | DTC144EUA T106           |
| Q7      | 1590000720 | S.TRANSISTOR | DTA144EUA T106           |
| Q8      | 1590000430 | S.TRANSISTOR | DTC144EUA T106           |
| Q11     | 1590000430 | S.TRANSISTOR | DTC144EUA T106           |
| Q12     | 1590000720 | S.TRANSISTOR | DTA144EUA T106           |
| Q13     | 1590000720 | S.TRANSISTOR | DTA144EUA T106           |
| Q15     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)       |
| Q16     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)       |
| Q17     | 1520000460 | S.TRANSISTOR | 2SB1132 T100 R           |
| D1      | 1160000070 | S.DIODE      | DAN202K T146             |
| D2      | 1750000150 | S.DIODE      | DA204K T146              |
| D3      | 1750000150 | S.DIODE      | DA204K T146              |
| D4      | 1750000150 | S.DIODE      | DA204K T146              |
| D5      | 1730002360 | S.ZENER      | MA8062-M (TX)            |
| D11     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D12     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D13     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D14     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D15     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D16     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D17     | 1720000360 | S.DIODE      | HSU88TRF                 |
| D18     | 1720000360 | S.DIODE      | HSU88TRF                 |
| X1      | 6050011090 | S.XTAL       | CR-691 (9.8304 MHz)      |
| R1      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R2      | 7030003800 | S.RESISTOR   | ERJ3GEYJ 105 V (1 MΩ)    |
| R3      | 7030003640 | S.RESISTOR   | ERJ3GEYJ 473 V (47 kΩ)   |
| R4      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R5      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R6      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R7      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R8      | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R9      | 7030003640 | S.RESISTOR   | ERJ3GEYJ 473 V (47 kΩ)   |
| R10     | 7030003640 | S.RESISTOR   | ERJ3GEYJ 473 V (47 kΩ)   |
| R12     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R13     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R14     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R15     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R16     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R21     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R22     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R23     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R24     | 7030003450 | S.RESISTOR   | ERJ3GEYJ 122 V (1.2 kΩ)  |
| R25     | 7030003450 | S.RESISTOR   | ERJ3GEYJ 122 V (1.2 kΩ)  |
| R27     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R28     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R29     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R31     | 7030003440 | S.RESISTOR   | ERJ3GEYJ 102 V (1 kΩ)    |
| R32     | 7030003440 | S.RESISTOR   | ERJ3GEYJ 102 V (1 kΩ)    |
| R33     | 7030003580 | S.RESISTOR   | ERJ3GEYJ 153 V (15 kΩ)   |
| R35     | 7030003500 | S.RESISTOR   | ERJ3GEYJ 332 V (3.3 kΩ)  |
| R36     | 7030003360 | S.RESISTOR   | ERJ3GEYJ 221 V (220 Ω)   |
| R37     | 7030003570 | S.RESISTOR   | ERJ3GEYJ 123 V (12 kΩ)   |
| R38     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)   |
| R39     | 7030003330 | S.RESISTOR   | ERJ3GEYJ 121 V (120 Ω)   |
| R40     | 7030003330 | S.RESISTOR   | ERJ3GEYJ 121 V (120 Ω)   |
| R41     | 7030003630 | S.RESISTOR   | ERJ3GEYJ 393 V (39 kΩ)   |
| R42     | 7030003640 | S.RESISTOR   | ERJ3GEYJ 473 V (47 kΩ)   |

S.=Surface mount

**[LOGIC BOARD]**

| REF NO. | ORDER NO.  | DESCRIPTION    |                         |
|---------|------------|----------------|-------------------------|
| R43     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R44     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R45     | 7030003500 | S.RESISTOR     | ERJ3GEYJ 332 V (3.3 kΩ) |
| R46     | 7030003360 | S.RESISTOR     | ERJ3GEYJ 221 V (220 Ω)  |
| R47     | 7030003360 | S.RESISTOR     | ERJ3GEYJ 221 V (220 Ω)  |
| R48     | 7030003360 | S.RESISTOR     | ERJ3GEYJ 221 V (220 Ω)  |
| R49     | 7030003360 | S.RESISTOR     | ERJ3GEYJ 221 V (220 Ω)  |
| R50     | 7030003330 | S.RESISTOR     | ERJ3GEYJ 121 V (120 Ω)  |
| R51     | 7030003330 | S.RESISTOR     | ERJ3GEYJ 121 V (120 Ω)  |
| R52     | 7030003700 | S.RESISTOR     | ERJ3GEYJ 154 V (150 kΩ) |
| R53     | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R55     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R56     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R57     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R58     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R61     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R62     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R63     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R64     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R65     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R81     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R82     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R83     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R84     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R85     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R86     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R87     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R88     | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R91     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R92     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R93     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R94     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R95     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R96     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R97     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R98     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R101    | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R102    | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R103    | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| C1      | 4550006660 | S.TANTALUM     | ECST1CC226R             |
| C2      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C3      | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C4      | 4030008890 | S.CERAMIC      | C1608 JB 1H 273K-T      |
| C5      | 4510005860 | S.ELECTROLYTIC | ECEV1HA2R2SR            |
| C6      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C7      | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C8      | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C9      | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C11     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C12     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C15     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T      |
| C16     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C17     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C18     | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T      |
| C19     | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T      |
| C20     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C21     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C25     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C26     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C27     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C31     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C32     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C33     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C34     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C35     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C37     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C38     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C39     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C40     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C41     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C42     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C45     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C46     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C47     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T      |
| C48     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C49     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C50     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C51     | 4030007130 | S.CERAMIC      | C1608 CH 1H 101J-T      |
| C52     | 4030007130 | S.CERAMIC      | C1608 CH 1H 101J-T      |

**[LOGIC BOARD]**

| REF NO. | ORDER NO.  | DESCRIPTION |                    |
|---------|------------|-------------|--------------------|
| C61     | 4550006460 | S.TANTALUM  | ECST1VX225R        |
| C62     | 4550006460 | S.TANTALUM  | ECST1VX225R        |
| C63     | 4550006460 | S.TANTALUM  | ECST1VX225R        |
| C64     | 4550006460 | S.TANTALUM  | ECST1VX225R        |
| C65     | 4550007000 | S.TANTALUM  | ECST1VY105R        |
| C66     | 4550007000 | S.TANTALUM  | ECST1VY105R        |
| C67     | 4550007000 | S.TANTALUM  | ECST1VY105R        |
| C68     | 4550007000 | S.TANTALUM  | ECST1VY105R        |
| C69     | 4550007000 | S.TANTALUM  | ECST1VY105R        |
| C101    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C102    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C103    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C104    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C105    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C106    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C107    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C108    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C109    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C110    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C111    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C112    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C113    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C114    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C115    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C116    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C117    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C118    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C119    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C120    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C121    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C122    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C123    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C124    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C125    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C126    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C127    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C128    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C129    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C130    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C131    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C132    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C133    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C134    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C135    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C136    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C137    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C138    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C139    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C140    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C141    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C142    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| C143    | 4030007090 | S.CERAMIC   | C1608 CH 1H 470J-T |
| J1      | 6510023360 | S.CONNECTOR | 26FLT-SM1-TB       |
| J2      | 6510023510 | S.CONNECTOR | 28FLT-SM1-TB       |
| J3      | 6510023390 | S.CONNECTOR | 27FLZ-SM1-TB       |
| J4      | 6510023260 | S.CONNECTOR | B6B-PH-SM3-TB      |
| J5      | 6510021860 | CONNECTOR   | BH-800.8 <LTC>     |
| J6      | 6510019420 | S.CONNECTOR | B8B-ZR-SM3-TF      |
| J7      | 6510019420 | S.CONNECTOR | B8B-ZR-SM3-TF      |
| DS1     | 5030002390 | LCD         | HLM7784-010100     |
| DS2     | 5040002660 | S.LED       | FY1101F-TR (LED)   |
| DS3     | 5040002660 | S.LED       | FY1101F-TR (LED)   |
| DS4     | 5040002660 | S.LED       | FY1101F-TR (LED)   |
| DS5     | 5040002660 | S.LED       | FY1101F-TR (LED)   |
| DS6     | 5040002660 | S.LED       | FY1101F-TR (LED)   |
| DS7     | 5040002660 | S.LED       | FY1101F-TR (LED)   |
| DS8     | 5040002310 | S.LED       | SML-311YTT86       |
| DS9     | 5040002310 | S.LED       | SML-311YTT86       |
| DS10    | 5040002310 | S.LED       | SML-311YTT86       |
| DS11    | 5040002310 | S.LED       | SML-311YTT86       |
| DS12    | 5040002310 | S.LED       | SML-311YTT86       |
| DS13    | 5040002310 | S.LED       | SML-311YTT86       |
| DS14    | 5040002310 | S.LED       | SML-311YTT86       |
| DS15    | 5040002310 | S.LED       | SML-311YTT86       |
| DS16    | 5040002310 | S.LED       | SML-311YTT86       |
| DS17    | 5040002310 | S.LED       | SML-311YTT86       |
| DS18    | 5040002310 | S.LED       | SML-311YTT86       |
| DS19    | 5040002310 | S.LED       | SML-311YTT86       |

S.=Surface mount



**[LOGIC BOARD]**

| REF NO. | ORDER NO.  | DESCRIPTION |                  |
|---------|------------|-------------|------------------|
| DS20    | 5040002660 | S.LED       | FY1101F-TR (LED) |
| DS21    | 5040002660 | S.LED       | FY1101F-TR (LED) |
| DS22    | 5040002660 | S.LED       | FY1101F-TR (LED) |
| DS23    | 5040002660 | S.LED       | FY1101F-TR (LED) |
| DS24    | 5040002660 | S.LED       | FY1101F-TR (LED) |
| DS25    | 5040002660 | S.LED       | FY1101F-TR (LED) |
| S1      | 2230000250 | SWITCH      | SPPH22014A       |
| BT1     | 3020000110 | LITHIUM     | CR2032           |
| EP1     | 0910055503 | PCB         | B 5882C          |

**[AF UNIT]**

| REF NO. | ORDER NO.  | DESCRIPTION |                         |
|---------|------------|-------------|-------------------------|
| R11     | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R12     | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R13     | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R14     | 7030003580 | S.RESISTOR  | ERJ3GEYJ 153 V (15 kΩ)  |
| R15     | 7030003450 | S.RESISTOR  | ERJ3GEYJ 122 V (1.2 kΩ) |
| R16     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R17     | 7030003600 | S.RESISTOR  | ERJ3GEYJ 223 V (22 kΩ)  |
| R18     | 7030003600 | S.RESISTOR  | ERJ3GEYJ 223 V (22 kΩ)  |
| R19     | 7030000100 | S.RESISTOR  | MCR10EZHZ 4.7 Ω (4R7)   |
| R20     | 7030003590 | S.RESISTOR  | ERJ3GEYJ 183 V (18 kΩ)  |
| R21     | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R31     | 7030003550 | S.RESISTOR  | ERJ3GEYJ 822 V (8.2 kΩ) |
| R32     | 7030003550 | S.RESISTOR  | ERJ3GEYJ 822 V (8.2 kΩ) |
| R33     | 7030003380 | S.RESISTOR  | ERJ3GEYJ 331 V (330 Ω)  |
| R34     | 7030003770 | S.RESISTOR  | ERJ3GEYJ 564 V (560 kΩ) |
| R35     | 7030003710 | S.RESISTOR  | ERJ3GEYJ 184 V (180 kΩ) |
| R36     | 7030003490 | S.RESISTOR  | ERJ3GEYJ 272 V (2.7 kΩ) |
| R37     | 7030003620 | S.RESISTOR  | ERJ3GEYJ 333 V (33 kΩ)  |
| R38     | 7030003620 | S.RESISTOR  | ERJ3GEYJ 333 V (33 kΩ)  |
| R39     | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R40     | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R41     | 7030003680 | S.RESISTOR  | ERJ3GEYJ 104 V (100 kΩ) |
| R42     | 7030003680 | S.RESISTOR  | ERJ3GEYJ 104 V (100 kΩ) |
| R43     | 7030003760 | S.RESISTOR  | ERJ3GEYJ 474 V (470 kΩ) |
| R44     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R45     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R46     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R47     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R48     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R49     | 7030003280 | S.RESISTOR  | ERJ3GEYJ 470 V (47 Ω)   |
| R50     | 7030003280 | S.RESISTOR  | ERJ3GEYJ 470 V (47 Ω)   |
| R51     | 7030003490 | S.RESISTOR  | ERJ3GEYJ 272 V (2.7 kΩ) |
| R52     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R53     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R54     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R55     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R56     | 7030003280 | S.RESISTOR  | ERJ3GEYJ 470 V (47 Ω)   |
| R57     | 7030003760 | S.RESISTOR  | ERJ3GEYJ 474 V (470 kΩ) |
| R59     | 7030003680 | S.RESISTOR  | ERJ3GEYJ 104 V (100 kΩ) |
| R60     | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R61     | 7030003280 | S.RESISTOR  | ERJ3GEYJ 470 V (47 Ω)   |
| R62     | 7030003550 | S.RESISTOR  | ERJ3GEYJ 822 V (8.2 kΩ) |
| R63     | 7030003580 | S.RESISTOR  | ERJ3GEYJ 153 V (15 kΩ)  |
| R64     | 7030003650 | S.RESISTOR  | ERJ3GEYJ 563 V (56 kΩ)  |
| R67     | 7030003590 | S.RESISTOR  | ERJ3GEYJ 183 V (18 kΩ)  |
| R68     | 7030003620 | S.RESISTOR  | ERJ3GEYJ 333 V (33 kΩ)  |
| R69     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R71     | 7030003280 | S.RESISTOR  | ERJ3GEYJ 470 V (47 Ω)   |
| R72     | 7030003590 | S.RESISTOR  | ERJ3GEYJ 183 V (18 kΩ)  |
| R73     | 7030003550 | S.RESISTOR  | ERJ3GEYJ 822 V (8.2 kΩ) |
| R74     | 7030003750 | S.RESISTOR  | ERJ3GEYJ 394 V (390 kΩ) |
| R75     | 7030003590 | S.RESISTOR  | ERJ3GEYJ 183 V (18 kΩ)  |
| R76     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R79     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R80     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R81     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R82     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R83     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R84     | 7030003670 | S.RESISTOR  | ERJ3GEYJ 823 V (82 kΩ)  |
| R85     | 7030003570 | S.RESISTOR  | ERJ3GEYJ 123 V (12 kΩ)  |
| R86     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R87     | 7030003690 | S.RESISTOR  | ERJ3GEYJ 124 V (120 kΩ) |
| R88     | 7030003690 | S.RESISTOR  | ERJ3GEYJ 124 V (120 kΩ) |
| R89     | 7030003660 | S.RESISTOR  | ERJ3GEYJ 683 V (68 kΩ)  |
| R90     | 7030003660 | S.RESISTOR  | ERJ3GEYJ 683 V (68 kΩ)  |
| R91     | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R92     | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R94     | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R95     | 7030003650 | S.RESISTOR  | ERJ3GEYJ 563 V (56 kΩ)  |
| R96     | 7030003490 | S.RESISTOR  | ERJ3GEYJ 272 V (2.7 kΩ) |
| R97     | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R197    | 7030003550 | S.RESISTOR  | ERJ3GEYJ 822 V (8.2 kΩ) |
| R198    | 7030003590 | S.RESISTOR  | ERJ3GEYJ 183 V (18 kΩ)  |
| R199    | 7030003620 | S.RESISTOR  | ERJ3GEYJ 333 V (33 kΩ)  |
| R201    | 7030003590 | S.RESISTOR  | ERJ3GEYJ 183 V (18 kΩ)  |
| R202    | 7030003520 | S.RESISTOR  | ERJ3GEYJ 472 V (4.7 kΩ) |
| R203    | 7030003790 | S.RESISTOR  | ERJ3GEYJ 824 V (820 kΩ) |
| R204    | 7030003620 | S.RESISTOR  | ERJ3GEYJ 333 V (33 kΩ)  |
| R205    | 7030003580 | S.RESISTOR  | ERJ3GEYJ 153 V (15 kΩ)  |
| R206    | 7030003680 | S.RESISTOR  | ERJ3GEYJ 104 V (100 kΩ) |
| R207    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R208    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |

**[AF UNIT]**

| REF NO. | ORDER NO.  | DESCRIPTION  |                         |
|---------|------------|--------------|-------------------------|
| IC1     | 1110002030 | IC           | TA7808S                 |
| IC2     | 1180000420 | S.IC         | TA78L05F (TE12R)        |
| IC3     | 1110003090 | IC           | LA4425A                 |
| IC4     | 1130007690 | S.IC         | BU4066BCF-E2            |
| IC5     | 1130007690 | S.IC         | BU4066BCF-E2            |
| IC6     | 1110003750 | S.IC         | M5218AFP 600C           |
| IC7     | 1130007690 | S.IC         | BU4066BCF-E2            |
| IC8     | 1110003750 | S.IC         | M5218AFP 600C           |
| IC9     | 1110003750 | S.IC         | M5218AFP 600C           |
| IC10    | 1110005800 | IC           | TA8225L                 |
| IC11    | 1110004520 | S.IC         | M5222FP 600C            |
| IC12    | 1170000350 | S.IC         | PC357N6T                |
| IC13    | 1130011120 | S.IC         | BU4584BFV-E2            |
| IC14    | 1110002400 | S.IC         | NJM2107F-TE1            |
| IC16    | 1130007690 | S.IC         | BU4066BCF-E2            |
| IC17    | 1130007570 | S.IC         | BU4094BCFV-E2           |
| IC18    | 1130007570 | S.IC         | BU4094BCFV-E2           |
| IC19    | 1130007430 | S.IC         | TC7S14FU (TE85R)        |
| IC20    | 1110002400 | S.IC         | NJM2107F-TE1            |
| Q1      | 1520000460 | S.TRANSISTOR | 2SB1132 T100 R          |
| Q2      | 1590000430 | S.TRANSISTOR | DTC144EUA T106          |
| Q7      | 1530002550 | S.TRANSISTOR | 2SC3326-B (TE85R)       |
| Q8      | 1590000430 | S.TRANSISTOR | DTC144EUA T106          |
| Q9      | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| Q11     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| Q12     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| Q13     | 1590001390 | S.FET        | 2SJ144-Y (TE85R)        |
| Q18     | 1560000810 | S.FET        | 2SK1069-4-TL            |
| Q21     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| Q22     | 1530002280 | S.TRANSISTOR | 2SC4081 T106 S          |
| Q23     | 1590000430 | S.TRANSISTOR | DTC144EUA T106          |
| Q24     | 1560000810 | S.FET        | 2SK1069-4-TL            |
| Q25     | 1530002280 | S.TRANSISTOR | 2SC4081 T106 S          |
| Q26     | 1510000510 | S.TRANSISTOR | 2SA1576A T106R          |
| Q28     | 1560000810 | S.FET        | 2SK1069-4-TL            |
| Q29     | 1530002280 | S.TRANSISTOR | 2SC4081 T106 S          |
| Q30     | 1510000510 | S.TRANSISTOR | 2SA1576A T106R          |
| Q51     | 1520000380 | TRANSISTOR   | 2SB1143 S               |
| Q52     | 1540000550 | S.TRANSISTOR | 2SD1664 T100Q           |
| Q53     | 1540000550 | S.TRANSISTOR | 2SD1664 T100Q           |
| D1      | 1790000700 | DIODE        | DSA3A1                  |
| D2      | 1750000550 | S.DIODE      | 1SS355 TE-17            |
| D5      | 1160000080 | S.DIODE      | DAP202K T146            |
| D6      | 1750000150 | S.DIODE      | DA204K T146             |
| D7      | 1750000550 | S.DIODE      | 1SS355 TE-17            |
| D8      | 1730002360 | S.ZENER      | MA8062-M (TX)           |
| D11     | 1750000550 | S.DIODE      | 1SS355 TE-17            |
| D12     | 1750000550 | S.DIODE      | 1SS355 TE-17            |
| D13     | 1750000150 | S.DIODE      | DA204K T146             |
| D14     | 1730002360 | S.ZENER      | MA8062-M (TX)           |
| D15     | 1730002360 | S.ZENER      | MA8062-M (TX)           |
| R1      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R2      | 7030003480 | S.RESISTOR   | ERJ3GEYJ 222 V (2.2 kΩ) |

S.=Surface mount

## [AF UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION    |                         |
|---------|------------|----------------|-------------------------|
| R209    | 7030003610 | S.RESISTOR     | ERJ3GEYJ 273 V (27 kΩ)  |
| R210    | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R211    | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R212    | 7030003300 | S.RESISTOR     | ERJ3GEYJ 680 V (68 Ω)   |
| R213    | 7030003500 | S.RESISTOR     | ERJ3GEYJ 332 V (3.3 kΩ) |
| R214    | 7030003500 | S.RESISTOR     | ERJ3GEYJ 332 V (3.3 kΩ) |
| R215    | 7030003300 | S.RESISTOR     | ERJ3GEYJ 680 V (68 Ω)   |
| R216    | 7030000020 | S.RESISTOR     | MCR10EZHZ 1 Ω (010)     |
| R217    | 7030000020 | S.RESISTOR     | MCR10EZHZ 1 Ω (010)     |
| R218    | 7030003620 | S.RESISTOR     | ERJ3GEYJ 333 V (33 kΩ)  |
| R219    | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R221    | 7030003540 | S.RESISTOR     | ERJ3GEYJ 682 V (6.8 kΩ) |
| R222    | 7030003400 | S.RESISTOR     | ERJ3GEYJ 471 V (470 Ω)  |
| R223    | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R224    | 7030003520 | S.RESISTOR     | ERJ3GEYJ 472 V (4.7 kΩ) |
| R225    | 7030003210 | S.RESISTOR     | ERJ3GEYJ 120 V (12 Ω)   |
| R226    | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R230    | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R231    | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R232    | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R233    | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R244    | 7030003520 | S.RESISTOR     | ERJ3GEYJ 472 V (4.7 kΩ) |
| R245    | 7030003280 | S.RESISTOR     | ERJ3GEYJ 470 V (47 Ω)   |
| R260    | 7030003200 | S.RESISTOR     | ERJ3GEYJ 100 V (10 Ω)   |
| R261    | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R262    | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R263    | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R264    | 7030003520 | S.RESISTOR     | ERJ3GEYJ 472 V (4.7 kΩ) |
| R265    | 7030003280 | S.RESISTOR     | ERJ3GEYJ 470 V (47 Ω)   |
| R267    | 7030003280 | S.RESISTOR     | ERJ3GEYJ 470 V (47 Ω)   |
| R268    | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R269    | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R270    | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R271    | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R272    | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R273    | 7030003500 | S.RESISTOR     | ERJ3GEYJ 332 V (3.3 kΩ) |
| R274    | 7030003460 | S.RESISTOR     | ERJ3GEYJ 152 V (1.5 kΩ) |
| R275    | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R276    | 7030003500 | S.RESISTOR     | ERJ3GEYJ 332 V (3.3 kΩ) |
| R277    | 7030003460 | S.RESISTOR     | ERJ3GEYJ 152 V (1.5 kΩ) |
| R301    | 7030003400 | S.RESISTOR     | ERJ3GEYJ 471 V (470 Ω)  |
| R302    | 7030003360 | S.RESISTOR     | ERJ3GEYJ 221 V (220 Ω)  |
| R303    | 7030009591 | S.RESISTOR     | ERA3YED 472V            |
| R304    | 7030009591 | S.RESISTOR     | ERA3YED 472V            |
| R305    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R306    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R307    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R308    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R309    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R310    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R311    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R312    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R313    | 7030000190 | S.RESISTOR     | MCR10EZHZ 27 Ω (270)    |
| R314    | 7030003400 | S.RESISTOR     | ERJ3GEYJ 471 V (470 Ω)  |
| R315    | 7030003400 | S.RESISTOR     | ERJ3GEYJ 471 V (470 Ω)  |
| R316    | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R317    | 7030003700 | S.RESISTOR     | ERJ3GEYJ 154 V (150 kΩ) |
| R318    | 7030003600 | S.RESISTOR     | ERJ3GEYJ 223 V (22 kΩ)  |
| C1      | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C2      | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C3      | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C4      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C5      | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T      |
| C6      | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C7      | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C8      | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C9      | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C10     | 4510004590 | ELECTROLYTIC   | 16 MV 470 HC            |
| C11     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T      |
| C12     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C21     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C22     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C23     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C24     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T      |
| C25     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C26     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C27     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T      |
| C31     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T      |
| C32     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T      |
| C33     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T      |

## [AF UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION    |                    |
|---------|------------|----------------|--------------------|
| C34     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C35     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C36     | 4510004590 | ELECTROLYTIC   | 16 MV 470 HC       |
| C37     | 4510004590 | ELECTROLYTIC   | 16 MV 470 HC       |
| C38     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C39     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C41     | 4550000530 | S.TANTALUM     | TESVA 1V 104M1-8L  |
| C42     | 4030008890 | S.CERAMIC      | C1608 JB 1H 273K-T |
| C43     | 4030008890 | S.CERAMIC      | C1608 JB 1H 273K-T |
| C44     | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T |
| C45     | 4030010040 | S.CERAMIC      | C1608 JB 1H 561K-T |
| C46     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR       |
| C47     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C48     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C49     | 4030010770 | S.CERAMIC      | C1608 JB 1H 392K-T |
| C50     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C51     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C52     | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T |
| C53     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C55     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C56     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C58     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C59     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C60     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C61     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C63     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C64     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C71     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C72     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR       |
| C73     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C75     | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T |
| C76     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C77     | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T |
| C78     | 4030007020 | S.CERAMIC      | C1608 CH 1H 120J-T |
| C79     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C80     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C81     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C82     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C83     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C84     | 4030007050 | S.CERAMIC      | C1608 CH 1H 220J-T |
| C85     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C86     | 4030010770 | S.CERAMIC      | C1608 JB 1H 392K-T |
| C87     | 4030007120 | S.CERAMIC      | C1608 CH 1H 820J-T |
| C89     | 4030008900 | S.CERAMIC      | C1608 JB 1H 333K-T |
| C90     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C91     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C92     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C93     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C94     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR       |
| C95     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C96     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C97     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C98     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C200    | 4510005870 | S.ELECTROLYTIC | ECEV1HA3R3SR       |
| C201    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C202    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C204    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C205    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C206    | 4510005870 | S.ELECTROLYTIC | ECEV1HA3R3SR       |
| C207    | 4510004600 | ELECTROLYTIC   | 16 MV 1000 HC      |
| C208    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C209    | 4510006220 | S.ELECTROLYTIC | ECEV1CA101UP       |
| C210    | 4510006220 | S.ELECTROLYTIC | ECEV1CA101UP       |
| C211    | 4510004640 | S.ELECTROLYTIC | ECEV1CA470SP       |
| C212    | 4510006240 | S.ELECTROLYTIC | ECEV1CA221P        |
| C213    | 4510006240 | S.ELECTROLYTIC | ECEV1CA221P        |
| C214    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C215    | 4030008920 | S.CERAMIC      | C1608 JB 1H 473K-T |
| C216    | 4030008920 | S.CERAMIC      | C1608 JB 1H 473K-T |
| C217    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C219    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C220    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C221    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C222    | 4030006880 | S.CERAMIC      | C1608 JB 1H 472K-T |
| C225    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C227    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C228    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C231    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C237    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C251    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C254    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C260    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |

S.=Surface mount

[AF UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION    |                              |
|---------|------------|----------------|------------------------------|
| C261    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T           |
| C262    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T           |
| C263    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C265    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C266    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T           |
| C267    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T           |
| C271    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C272    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C273    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C274    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C275    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C276    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C277    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C278    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C279    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T           |
| C280    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T           |
| C281    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T           |
| C282    | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T           |
| C283    | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T           |
| C301    | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR                 |
| RL1     | 6330001670 | RELAY          | FTR-P3CP012W1                |
| RL2     | 6330001620 | RELAY          | FTR-F3AA012E                 |
| RL3     | 6330001460 | RELAY          | FTR-F1CA012V                 |
| J1      | 6510023510 | S.CONNECTOR    | 28FLT-SM1-TB                 |
| J2      | 6510022620 | S.CONNECTOR    | 10FMN-BMTTR-A-TBT            |
| J3      | 6510016430 | S.CONNECTOR    | 53307-1491                   |
| J4      | 6510023090 | S.CONNECTOR    | 20FLT-SM1-TB                 |
| J5      | 6510023420 | CONNECTOR      | SB4P-HVQ-A                   |
| J6      | 6510019370 | S.CONNECTOR    | B3B-ZR-SM3-TF                |
| J7      | 6510018960 | S.CONNECTOR    | B2B-PH-SM3-TB                |
| J8      | 6510003380 | CONNECTOR      | B02B-EH-S                    |
| J9      | 6510020800 | CONNECTOR      | OP-10                        |
| J10     | 6510020800 | CONNECTOR      | OP-10                        |
| W4      | 7030003860 | S.JUMPER       | ERJ3GE JPW V                 |
| W5      | 7030003860 | S.JUMPER       | ERJ3GE JPW V                 |
| W6      | 8900011870 | CABLE          | OPC-1203                     |
| EP1     | 0910056054 | PCB            | B 5880D                      |
| EP2     | 6910013370 | S.BEAD         | BLM18BB221SN1D (BLM11B221SB) |
| EP3     | 6910013370 | S.BEAD         | BLM18BB221SN1D (BLM11B221SB) |

[MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION  |                                |
|---------|------------|--------------|--------------------------------|
| IC1     | 1110003490 | S.IC         | TA31136FN (D,EL)               |
| IC2     | 1120002830 | S.IC         | NJM2125F-TE1                   |
| IC3     | 1110003780 | S.IC         | NJM2902V-TE1                   |
| IC4     | 1110003650 | S.IC         | NJM2211M-TE1 [HOL], [FRG] only |
| IC5     | 1130011120 | S.IC         | BU4584BFV-E2                   |
| IC6     | 1110003490 | S.IC         | TA31136FN (D,EL)               |
| IC9     | 1110003650 | S.IC         | NJM2211M-TE1                   |
| IC11    | 1130005640 | S.IC         | TC4W53F (TE12L)                |
| IC12    | 1130007610 | S.IC         | μPD3140GS-E1 (DS8)             |
| IC13    | 1150002080 | IC           | RA35H1516M-01                  |
| IC14    | 1110002400 | S.IC         | NJM2107F-TE1                   |
| IC15    | 1190003350 | S.IC         | M62363FP-650C                  |
| Q1      | 1580000750 | S.FET        | 3SK294 (TE85L)                 |
| Q2      | 1530002600 | S.TRANSISTOR | 2SC4215-O (TE85R)              |
| Q3      | 1560000990 | S.FET        | PMBFJ310                       |
| Q4      | 1560000990 | S.FET        | PMBFJ310                       |
| Q7      | 1580000750 | S.FET        | 3SK294 (TE85L)                 |
| Q8      | 1560000990 | S.FET        | PMBFJ310                       |
| Q9      | 1560000990 | S.FET        | PMBFJ310                       |
| Q10     | 1530002600 | S.TRANSISTOR | 2SC4215-O (TE85R)              |
| Q11     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)             |
| Q12     | 1560000990 | S.FET        | PMBFJ310                       |
| Q13     | 1530002600 | S.TRANSISTOR | 2SC4215-O (TE85R)              |

[MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION     |                             |
|---------|------------|-----------------|-----------------------------|
| Q14     | 1530002600 | S.TRANSISTOR    | 2SC4215-O (TE85R)           |
| Q15     | 1530002600 | S.TRANSISTOR    | 2SC4215-O (TE85R)           |
| Q16     | 1530002850 | S.TRANSISTOR    | 2SC4116-BL (TE85R)          |
| Q17     | 1530002850 | S.TRANSISTOR    | 2SC4116-BL (TE85R)          |
| Q18     | 1560000990 | S.FET           | PMBFJ310                    |
| Q19     | 1530002600 | S.TRANSISTOR    | 2SC4215-O (TE85R)           |
| Q21     | 1590000720 | S.TRANSISTOR    | DTA144EUA T106              |
| Q22     | 1590000430 | S.TRANSISTOR    | DTC144EUA T106              |
| Q23     | 1530003420 | S.TRANSISTOR    | 2SC5110-O (TE85R)           |
| Q27     | 1530003420 | S.TRANSISTOR    | 2SC5110-O (TE85R)           |
| Q28     | 1530002240 | S.TRANSISTOR    | 2SC3775-3-TB                |
| Q29     | 1590000430 | S.TRANSISTOR    | DTC144EUA T106              |
| Q30     | 1530002240 | S.TRANSISTOR    | 2SC3775-3-TB                |
| Q32     | 1590000660 | S.TRANSISTOR    | DTC144TU T106               |
| Q33     | 1590000430 | S.TRANSISTOR    | DTC144EUA T106              |
| Q35     | 1510000920 | S.TRANSISTOR    | 2SA1577 T106 Q              |
| Q36     | 1590000430 | S.TRANSISTOR    | DTC144EUA T106              |
| D1      | 1710001080 | DIODE           | XB15A308                    |
| D11     | 1750000430 | S.DIODE         | HSB88WSTR                   |
| D12     | 1790001330 | S.ZENER         | MA8036-L (TX)               |
| D15     | 1790000980 | S.DIODE         | MA742 (TX)                  |
| D21     | 1750000430 | S.DIODE         | HSB88WSTR                   |
| D22     | 1790001330 | S.ZENER         | MA8036-L (TX)               |
| D32     | 1720000810 | S.VARICAP       | HVC358BTRF                  |
| D33     | 1720000810 | S.VARICAP       | HVC358BTRF                  |
| D35     | 1720000660 | S.VARICAP       | 1SV288 (TPH2)               |
| D37     | 1720000260 | S.VARICAP       | 1SV214 (TPH2)               |
| D39     | 1720000260 | S.VARICAP       | 1SV214 (TPH2)               |
| D40     | 1720000260 | S.VARICAP       | 1SV214 (TPH2)               |
| D41     | 1790001620 | S.DIODE         | 1SV308 (TPL3)               |
| D42     | 1790000620 | S.DIODE         | MA77 (TX)                   |
| D43     | 1790000620 | S.DIODE         | MA77 (TX)                   |
| D44     | 1750000550 | S.DIODE         | 1SS355 TE-17                |
| D46     | 1710001080 | DIODE           | XB15A308                    |
| D47     | 1790000690 | S.DIODE         | HSM88ASR-TR                 |
| D48     | 1790000690 | S.DIODE         | HSM88ASR-TR                 |
| D49     | 1730002320 | S.ZENER         | MA8051-M (TX)               |
| D52     | 1790001250 | S.DIODE         | MA2S111-(TX)                |
| F11     | 2030000250 | MONOLITH        | FL-285 IMD:-100 (31.05 MHz) |
| F13     | 2020001840 | CERAMIC         | ALFYM450F=K                 |
| F14     | 2030000240 | MONOLITH        | FL-298 IMD:-100 (21.7 MHz)  |
| F15     | 2010002330 | MONOLITH        | FL-298 (21.700 MHz)         |
| F16     | 2020001840 | CERAMIC         | ALFYM450F=K                 |
| X1      | 6070000190 | S.DISCRIMINATOR | CDBC450KCAY24-R0            |
| X2      | 6070000190 | S.DISCRIMINATOR | CDBC450KCAY24-R0            |
| X3      | 6050011590 | S.XTAL          | CR-744 (21.25 MHz)          |
| X4      | 6050011070 | S.XTAL          | CR-664A (15.300 MHz)        |
| L1      | 6110001600 | COIL            | LA-243                      |
| L2      | 6110001600 | COIL            | LA-243                      |
| L3      | 6110001600 | COIL            | LA-243                      |
| L4      | 6110001580 | COIL            | LA-238                      |
| L11     | 6190001590 | COIL            | E526HNA-100312              |
| L12     | 6190001590 | COIL            | E526HNA-100312              |
| L13     | 6190001590 | COIL            | E526HNA-100312              |
| L14     | 6190001590 | COIL            | E526HNA-100312              |
| L15     | 6190001590 | COIL            | E526HNA-100312              |
| L18     | 6130002960 | S.COIL          | 617DB-1327=P3               |
| L19     | 6130002960 | S.COIL          | 617DB-1327=P3               |
| L20     | 6200001830 | S.COIL          | NL 322522T-100J             |
| L21     | 6200002430 | S.COIL          | NL 252018T-082J             |
| L22     | 6200008090 | S.COIL          | LQW2BHN68NJ01L              |
| L25     | 6200002860 | S.COIL          | NL 252018T-4R7J             |
| L26     | 6200010520 | S.COIL          | C2520C-R75G (0.75U)         |
| L31     | 6190001580 | COIL            | E544ENAS-100014             |
| L32     | 6190001580 | COIL            | E544ENAS-100014             |
| L33     | 6190001580 | COIL            | E544ENAS-100014             |
| L34     | 6190001580 | COIL            | E544ENAS-100014             |
| L48     | 6130002960 | S.COIL          | 617DB-1327=P3               |
| L49     | 6130002960 | S.COIL          | 617DB-1327=P3               |
| L50     | 6200001830 | S.COIL          | NL 322522T-100J             |
| L51     | 6200002160 | S.COIL          | ELJNC 82NK-F                |
| L52     | 6200008090 | S.COIL          | LQW2BHN68NJ01L              |
| L55     | 6200002860 | S.COIL          | NL 252018T-4R7J             |
| L56     | 6200010440 | S.COIL          | C2520C-1R2G (1.2U)          |

S.=Surface mount

[MAIN UNIT]

| REF NO. | ORDER NO.  |            | DESCRIPTION                                  |
|---------|------------|------------|--|
| L57     | 6200010510 | S.COIL     | ACL2520L-3R3K-T                              |
| L61     | 6200003100 | S.COIL     | NL 322522T-3R9J-3                            |
| L62     | 6130002370 | S.COIL     | LB-258                                       |
| L63     | 6200002990 | S.COIL     | NL 322522T-2R2J-3                            |
| L64     | 6200009560 | S.COIL     | MLG1608B R10J-T                              |
| L65     | 6200009560 | S.COIL     | MLG1608B R10J-T                              |
| L66     | 6200006990 | S.COIL     | ELJRE 56NG-F                                 |
| L67     | 6200009560 | S.COIL     | MLG1608B R10J-T                              |
| L68     | 6200001980 | S.COIL     | NL 252018T-1R0J                              |
| L69     | 6200001980 | S.COIL     | NL 252018T-1R0J                              |
| L70     | 6200006990 | S.COIL     | ELJRE 56NG-F                                 |
| L72     | 6200003320 | S.COIL     | NL 322522T-3R3J-3                            |
| L73     | 6130002370 | S.COIL     | LB-258                                       |
| L74     | 6200003090 | S.COIL     | NL 322522T-2R7J-3                            |
| L75     | 6200009560 | S.COIL     | MLG1608B R10J-T                              |
| L79     | 6200003280 | S.COIL     | NL 252018T-2R2J                              |
| L81     | 6200009560 | S.COIL     | MLG1608B R10J-T                              |
| L83     | 6200009560 | S.COIL     | MLG1608B R10J-T                              |
| L84     | 6200005740 | S.COIL     | ELJRE 47NG-F                                 |
| L85     | 6200002430 | S.COIL     | NL 252018T-082J                              |
| L86     | 6200002430 | S.COIL     | NL 252018T-082J                              |
| L87     | 6200002600 | S.COIL     | NL 252018T-047J                              |
| L88     | 6200002600 | S.COIL     | NL 252018T-047J                              |
| L89     | 6110001600 | COIL       | LA-243                                       |
| L90     | 6170000230 | COIL       | LW-25  |
| L91     | 6200008950 | S.COIL     | LQH32MN221K21L                               |
| R1      | 7030003670 | S.RESISTOR | ERJ3GEYJ 823 V (82 kΩ)                       |
| R4      | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)                      |
| R6      | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)                      |
| R11     | 7030003620 | S.RESISTOR | ERJ3GEYJ 333 V (33 kΩ)                       |
| R12     | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R13     | 7030003600 | S.RESISTOR | ERJ3GEYJ 223 V (22 kΩ)                       |
| R14     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R15     | 7030003640 | S.RESISTOR | ERJ3GEYJ 473 V (47 kΩ)                       |
| R16     | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |
| R17     | 7030004050 | S.RESISTOR | ERJ3GEYJ 1R0 V (1 Ω)                         |
| R18     | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R19     | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R31     | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R32     | 7030003400 | S.RESISTOR | ERJ3GEYJ 471 V (470 Ω)                       |
| R33     | 7030003200 | S.RESISTOR | ERJ3GEYJ 100 V (10 Ω)                        |
| R34     | 7030003400 | S.RESISTOR | ERJ3GEYJ 471 V (470 Ω)                       |
| R37     | 7030003240 | S.RESISTOR | ERJ3GEYJ 220 V (22 Ω)                        |
| R38     | 7030003500 | S.RESISTOR | ERJ3GEYJ 332 V (3.3 kΩ)                      |
| R39     | 7030003200 | S.RESISTOR | ERJ3GEYJ 100 V (10 Ω)                        |
| R40     | 7030003400 | S.RESISTOR | ERJ3GEYJ 1R0 V (1 Ω)                         |
| R41     | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R43     | 7030003390 | S.RESISTOR | ERJ3GEYJ 391 V (390 Ω)                       |
| R47     | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)                      |
| R48     | 7030003740 | S.RESISTOR | ERJ3GEYJ 334 V (330 kΩ)                      |
| R49     | 7030003620 | S.RESISTOR | ERJ3GEYJ 333 V (33 kΩ)                       |
| R50     | 7030003610 | S.RESISTOR | ERJ3GEYJ 273 V (27 kΩ)                       |
| R51     | 7030003430 | S.RESISTOR | ERJ3GEYJ 821 V (820 Ω)                       |
| R53     | 7030003200 | S.RESISTOR | ERJ3GEYJ 100 V (10 Ω)                        |
| R59     | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |
| R61     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R62     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R63     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R64     | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |
| R65     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R66     | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |
| R71     | 7030003280 | S.RESISTOR | ERJ3GEYJ 470 V (47 Ω)                        |
| R72     | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R73     | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R74     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R75     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R76     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R77     | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R78     | 7030003550 | S.RESISTOR | ERJ3GEYJ 822 V (8.2 kΩ)                      |
| R79     | 7030003460 | S.RESISTOR | ERJ3GEYJ 152 V (1.5 kΩ)<br>[HOL], [FRG] only |
| R80     | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)                      |
| R81     | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)<br>[HOL], [FRG] only |
| R84     | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)<br>[HOL], [FRG] only |
| R85     | 7030003640 | S.RESISTOR | ERJ3GEYJ 473 V (47 kΩ)                       |
| R86     | 7030003280 | S.RESISTOR | ERJ3GEYJ 470 V (47 Ω)                        |
| R87     | 7030003380 | S.RESISTOR | ERJ3GEYJ 331 V (330 Ω)                       |

[MAIN UNIT]

| REF NO. | ORDER NO.  |            | DESCRIPTION                                  |
|---------|------------|------------|--|
| R88     | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)<br>[HOL], [FRG] only |
| R89     | 7030003630 | S.RESISTOR | ERJ3GEYJ 393 V (39 kΩ)<br>[HOL], [FRG] only  |
| R90     | 7030003580 | S.RESISTOR | ERJ3GEYJ 153 V (15 kΩ)<br>[HOL], [FRG] only  |
| R91     | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)<br>[HOL], [FRG] only |
| R95     | 7030003420 | S.RESISTOR | ERJ3GEYJ 681 V (680 Ω)                       |
| R96     | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R97     | 7030003380 | S.RESISTOR | ERJ3GEYJ 331 V (330 Ω)                       |
| R98     | 7030003500 | S.RESISTOR | ERJ3GEYJ 332 V (3.3 kΩ)                      |
| R104    | 7030003370 | S.RESISTOR | ERJ3GEYJ 271 V (270 Ω)                       |
| R105    | 7030003230 | S.RESISTOR | ERJ3GEYJ 180 V (18 Ω)                        |
| R106    | 7030003370 | S.RESISTOR | ERJ3GEYJ 271 V (270 Ω)                       |
| R107    | 7030003240 | S.RESISTOR | ERJ3GEYJ 220 V (22 Ω)                        |
| R108    | 7030003500 | S.RESISTOR | ERJ3GEYJ 332 V (3.3 kΩ)                      |
| R111    | 7030003400 | S.RESISTOR | ERJ3GEYJ 471 V (470 Ω)                       |
| R112    | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R113    | 7030003390 | S.RESISTOR | ERJ3GEYJ 391 V (390 Ω)                       |
| R116    | 7030003200 | S.RESISTOR | ERJ3GEYJ 100 V (10 Ω)                        |
| R120    | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R121    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R122    | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R123    | 7030003380 | S.RESISTOR | ERJ3GEYJ 331 V (330 Ω)                       |
| R124    | 7030003500 | S.RESISTOR | ERJ3GEYJ 332 V (3.3 kΩ)                      |
| R142    | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R143    | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R144    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R145    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R146    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R147    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R148    | 7030003550 | S.RESISTOR | ERJ3GEYJ 822 V (8.2 kΩ)                      |
| R149    | 7030003460 | S.RESISTOR | ERJ3GEYJ 152 V (1.5 kΩ)                      |
| R150    | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)                      |
| R151    | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)                      |
| R154    | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)                      |
| R155    | 7030003640 | S.RESISTOR | ERJ3GEYJ 473 V (47 kΩ)                       |
| R157    | 7030003380 | S.RESISTOR | ERJ3GEYJ 331 V (330 Ω)                       |
| R158    | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R159    | 7030003630 | S.RESISTOR | ERJ3GEYJ 393 V (39 kΩ)                       |
| R160    | 7030003580 | S.RESISTOR | ERJ3GEYJ 153 V (15 kΩ)                       |
| R161    | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)                      |
| R163    | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R181    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R182    | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |
| R185    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R186    | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R188    | 7030003380 | S.RESISTOR | ERJ3GEYJ 331 V (330 Ω)                       |
| R189    | 7030003520 | S.RESISTOR | ERJ3GEYJ 472 V (4.7 kΩ)                      |
| R190    | 7030003520 | S.RESISTOR | ERJ3GEYJ 472 V (4.7 kΩ)                      |
| R191    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R192    | 7030003420 | S.RESISTOR | ERJ3GEYJ 681 V (680 Ω)                       |
| R193    | 7030003660 | S.RESISTOR | ERJ3GEYJ 683 V (68 kΩ)                       |
| R194    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R195    | 7030003300 | S.RESISTOR | ERJ3GEYJ 680 V (68 Ω)                        |
| R196    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R201    | 7030003420 | S.RESISTOR | ERJ3GEYJ 681 V (680 Ω)                       |
| R202    | 7030003660 | S.RESISTOR | ERJ3GEYJ 683 V (68 kΩ)                       |
| R203    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R204    | 7030003300 | S.RESISTOR | ERJ3GEYJ 680 V (68 Ω)                        |
| R205    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R207    | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)                      |
| R208    | 7030003640 | S.RESISTOR | ERJ3GEYJ 473 V (47 kΩ)                       |
| R209    | 7030003320 | S.RESISTOR | ERJ3GEYJ 101 V (100 Ω)                       |
| R212    | 7030003680 | S.RESISTOR | ERJ3GEYJ 104 V (100 kΩ)                      |
| R213    | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |
| R214    | 7030003610 | S.RESISTOR | ERJ3GEYJ 273 V (27 kΩ)                       |
| R217    | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)                      |
| R218    | 7030003500 | S.RESISTOR | ERJ3GEYJ 332 V (3.3 kΩ)                      |
| R219    | 7030003480 | S.RESISTOR | ERJ3GEYJ 222 V (2.2 kΩ)                      |
| R220    | 7030003260 | S.RESISTOR | ERJ3GEYJ 330 V (33 Ω)                        |
| R221    | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R222    | 7030003760 | S.RESISTOR | ERJ3GEYJ 474 V (470 kΩ)                      |
| R226    | 7030003560 | S.RESISTOR | ERJ3GEYJ 103 V (10 kΩ)                       |
| R227    | 7030003640 | S.RESISTOR | ERJ3GEYJ 473 V (47 kΩ)                       |
| R228    | 7030003620 | S.RESISTOR | ERJ3GEYJ 333 V (33 kΩ)                       |
| R230    | 7030003450 | S.RESISTOR | ERJ3GEYJ 122 V (1.2 kΩ)                      |
| R232    | 7030003420 | S.RESISTOR | ERJ3GEYJ 681 V (680 Ω)                       |
| R233    | 7030003660 | S.RESISTOR | ERJ3GEYJ 683 V (68 kΩ)                       |
| R236    | 7030001150 | S.RESISTOR | MCR50JZHJ 150 Ω (151)                        |
| R238    | 7030003440 | S.RESISTOR | ERJ3GEYJ 102 V (1 kΩ)                        |

S.=Surface mount

[MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION |                         |
|---------|------------|-------------|-------------------------|
| R239    | 7030003680 | S.RESISTOR  | ERJ3GEYJ 104 V (100 kΩ) |
| R241    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R242    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R243    | 7030003500 | S.RESISTOR  | ERJ3GEYJ 332 V (3.3 kΩ) |
| R244    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R245    | 7030003360 | S.RESISTOR  | ERJ3GEYJ 221 V (220 Ω)  |
| R251    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R252    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R253    | 7030003500 | S.RESISTOR  | ERJ3GEYJ 332 V (3.3 kΩ) |
| R254    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R255    | 7030003360 | S.RESISTOR  | ERJ3GEYJ 221 V (220 Ω)  |
| R256    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R257    | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R258    | 7030003270 | S.RESISTOR  | ERJ3GEYJ 390 V (39 Ω)   |
| R259    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R260    | 7030003390 | S.RESISTOR  | ERJ3GEYJ 391 V (390 Ω)  |
| R262    | 7030003200 | S.RESISTOR  | ERJ3GEYJ 100 V (10 Ω)   |
| R263    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R264    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R265    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R267    | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R268    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R271    | 7030003240 | S.RESISTOR  | ERJ3GEYJ 220 V (22 Ω)   |
| R272    | 7030003240 | S.RESISTOR  | ERJ3GEYJ 220 V (22 Ω)   |
| R273    | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R274    | 7030003310 | S.RESISTOR  | ERJ3GEYJ 820 V (82 Ω)   |
| R277    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R278    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R282    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R283    | 7030003460 | S.RESISTOR  | ERJ3GEYJ 152 V (1.5 kΩ) |
| R284    | 7030003640 | S.RESISTOR  | ERJ3GEYJ 473 V (47 kΩ)  |
| R285    | 7030003500 | S.RESISTOR  | ERJ3GEYJ 332 V (3.3 kΩ) |
| R286    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R287    | 7030003400 | S.RESISTOR  | ERJ3GEYJ 471 V (470 Ω)  |
| R288    | 7030003800 | S.RESISTOR  | ERJ3GEYJ 105 V (1 MΩ)   |
| R290    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R291    | 7030003400 | S.RESISTOR  | ERJ3GEYJ 471 V (470 Ω)  |
| R292    | 7030003400 | S.RESISTOR  | ERJ3GEYJ 471 V (470 Ω)  |
| R293    | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R296    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R297    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R299    | 7410000950 | S.ARRAY     | EXB-V8V 102JV           |
| R302    | 7510001660 | S.THRMISTOR | NTCG16 4LH 473KT        |
| R306    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R307    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R308    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R309    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R310    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R311    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R312    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R313    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R314    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R315    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R316    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R317    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R318    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R319    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R320    | 7030003480 | S.RESISTOR  | ERJ3GEYJ 222 V (2.2 kΩ) |
| R321    | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R322    | 7030003440 | S.RESISTOR  | ERJ3GEYJ 102 V (1 kΩ)   |
| R323    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R324    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R325    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R329    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R330    | 7030003620 | S.RESISTOR  | ERJ3GEYJ 333 V (33 kΩ)  |
| R331    | 7030003680 | S.RESISTOR  | ERJ3GEYJ 104 V (100 kΩ) |
| R332    | 7030003600 | S.RESISTOR  | ERJ3GEYJ 223 V (22 kΩ)  |
| R333    | 7030003560 | S.RESISTOR  | ERJ3GEYJ 103 V (10 kΩ)  |
| R334    | 7030003640 | S.RESISTOR  | ERJ3GEYJ 473 V (47 kΩ)  |
| R335    | 7030003490 | S.RESISTOR  | ERJ3GEYJ 272 V (2.7 kΩ) |
| R336    | 7030004050 | S.RESISTOR  | ERJ3GEYJ 1R0 V (1 Ω)    |
| R337    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R338    | 7030003320 | S.RESISTOR  | ERJ3GEYJ 101 V (100 Ω)  |
| R341    | 7030003600 | S.RESISTOR  | ERJ3GEYJ 223 V (22 kΩ)  |
| R342    | 7030003600 | S.RESISTOR  | ERJ3GEYJ 223 V (22 kΩ)  |
| C1      | 4030011070 | S.CERAMIC   | GRM31M2C2H5R0CY21L      |
| C3      | 4030011190 | S.CERAMIC   | GRM31M2C2H270JV01L      |
| C5      | 4030011170 | S.CERAMIC   | GRM31M2C2H180JV01L      |
| C6      | 4030017200 | S.CERAMIC   | GRM31BR32J102KY01L      |
| C7      | 4030011210 | S.CERAMIC   | GRM31M2C2H330JV01L      |

[MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION    |                    |
|---------|------------|----------------|--------------------|
| C8      | 4030011190 | S.CERAMIC      | GRM31M2C2H270JV01L |
| C9      | 4030018350 | S.CERAMIC      | GRM31A5C2J151JW01D |
| C14     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C21     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C23     | 4030007070 | S.CERAMIC      | C1608 CH 1H 330J-T |
| C24     | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C25     | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T |
| C26     | 4030007170 | S.CERAMIC      | C1608 CH 1H 221J-T |
| C27     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C28     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C29     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C30     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C32     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C33     | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T |
| C34     | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T |
| C35     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C36     | 4030009520 | S.CERAMIC      | C1608 CH 1H 020B-T |
| C37     | 4030009350 | S.CERAMIC      | C1608 CH 1H 3R5B-T |
| C38     | 4030006990 | S.CERAMIC      | C1608 CH 1H 080D-T |
| C39     | 4030009540 | S.CERAMIC      | C1608 CH 1H 1R5B-T |
| C40     | 4030009520 | S.CERAMIC      | C1608 CH 1H 020B-T |
| C41     | 4030009350 | S.CERAMIC      | C1608 CH 1H 3R5B-T |
| C42     | 4030006990 | S.CERAMIC      | C1608 CH 1H 080D-T |
| C43     | 4030009510 | S.CERAMIC      | C1608 CH 1H 010B-T |
| C44     | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T |
| C45     | 4030007020 | S.CERAMIC      | C1608 CH 1H 120J-T |
| C47     | 4030007100 | S.CERAMIC      | C1608 CH 1H 560J-T |
| C48     | 4030009550 | S.CERAMIC      | C1608 CH 1H 2R5B-T |
| C49     | 4030009520 | S.CERAMIC      | C1608 CH 1H 020B-T |
| C52     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C53     | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T |
| C54     | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T |
| C55     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C56     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C57     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C59     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C60     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C61     | 4030018400 | S.CERAMIC      | CM105 CH 330G 50AT |
| C62     | 4030009540 | S.CERAMIC      | C1608 CH 1H 1R5B-T |
| C63     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C64     | 4030011770 | S.CERAMIC      | C1608 CH 1H 060B-T |
| C67     | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T |
| C68     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C69     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C70     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C71     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C72     | 4030007130 | S.CERAMIC      | C1608 CH 1H 101J-T |
| C73     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C74     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C77     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR       |
| C78     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C79     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C80     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C81     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C83     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C84     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C86     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C87     | 4030007160 | S.CERAMIC      | C1608 CH 1H 181J-T |
| C88     | 4030007160 | S.CERAMIC      | C1608 CH 1H 181J-T |
| C89     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C90     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C91     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C92     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C93     | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T |
| C94     | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T |
| C95     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C96     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C98     | 4550006700 | S.TANTALUM     | ECST1AY106R        |
| C99     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C100    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C102    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C103    | 4030008850 | S.CERAMIC      | C1608 JB 1H 123K-T |
| C104    | 4030008900 | S.CERAMIC      | C1608 JB 1H 333K-T |
| C105    | 4030008900 | S.CERAMIC      | C1608 JB 1H 333K-T |
| C106    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C107    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
|         |            |                | [HOL], [FRG] only  |
| C108    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
|         |            |                | [HOL], [FRG] only  |
| C109    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
|         |            |                | [HOL], [FRG] only  |

S.=Surface mount

**[MAIN UNIT]**

| REF NO. | ORDER NO.  | DESCRIPTION    |   |
|---------|------------|----------------|---|
| C111    | 4030008920 | S.CERAMIC      | C1608 JB 1H 473K-T<br>[HOL], [FRG] only |
| C112    | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T<br>[HOL], [FRG] only |
| C113    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C114    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T                      |
| C115    | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T<br>[HOL], [FRG] only |
| C116    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T<br>[HOL], [FRG] only |
| C117    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T<br>[HOL], [FRG] only |
| C118    | 4340000180 | S.MYLAR        | ECHU 1C 333JB5<br>[HOL], [FRG] only     |
| C150    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C151    | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T                      |
| C152    | 4030008560 | S.CERAMIC      | C1608 CH 1H 300J-T                      |
| C155    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C157    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C158    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C159    | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T                      |
| C160    | 4030018400 | S.CERAMIC      | CM105 CH 330G 50AT                      |
| C161    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C164    | 4030009910 | S.CERAMIC      | C1608 CH 1H 040B-T                      |
| C165    | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T                      |
| C166    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C167    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C168    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C169    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C170    | 4030007130 | S.CERAMIC      | C1608 CH 1H 101J-T                      |
| C171    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T                      |
| C172    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C175    | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR                            |
| C176    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C177    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T                      |
| C178    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C179    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C182    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C183    | 4030007100 | S.CERAMIC      | C1608 CH 1H 560J-T                      |
| C184    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T                      |
| C186    | 4550006700 | S.TANTALUM     | ECST1AY106R                             |
| C187    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C190    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C191    | 4030008850 | S.CERAMIC      | C1608 JB 1H 123K-T                      |
| C192    | 4030008900 | S.CERAMIC      | C1608 JB 1H 333K-T                      |
| C193    | 4030008900 | S.CERAMIC      | C1608 JB 1H 333K-T                      |
| C194    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T                      |
| C195    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C196    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C197    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C199    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C200    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C201    | 4030008920 | S.CERAMIC      | C1608 JB 1H 473K-T                      |
| C202    | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T                      |
| C204    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T                      |
| C205    | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T                      |
| C206    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C207    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C208    | 4340000180 | S.MYLAR        | ECHU 1C 333JB5                          |
| C221    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T                      |
| C222    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C223    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T                      |
| C224    | 4550006700 | S.TANTALUM     | ECST1AY106R                             |
| C225    | 4550000510 | S.TANTALUM     | TESVA 1V 473M1-8L                       |
| C227    | 4030009520 | S.CERAMIC      | C1608 CH 1H 020B-T                      |
| C228    | 4030008270 | S.CERAMIC      | C1608 UJ 1H 180J-T                      |
| C229    | 4030008270 | S.CERAMIC      | C1608 UJ 1H 180J-T                      |
| C230    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T                      |
| C231    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T                      |
| C232    | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T                      |
| C233    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |
| C235    | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T                      |
| C236    | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T                      |
| C237    | 4030007020 | S.CERAMIC      | C1608 CH 1H 120J-T                      |
| C239    | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T                      |
| C240    | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T                      |
| C241    | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T                      |
| C242    | 4030009990 | S.CERAMIC      | C1608 CH 1H 200J-T                      |
| C243    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C244    | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T                      |
| C245    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T                      |
| C246    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T                      |

**[MAIN UNIT]**

| REF NO. | ORDER NO.  | DESCRIPTION    |                    |
|---------|------------|----------------|--------------------|
| C247    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C248    | 4550000510 | S.TANTALUM     | TESVA 1V 473M1-8L  |
| C249    | 4550006560 | S.TANTALUM     | ECST1CY225R        |
| C251    | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T |
| C252    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C253    | 4030009990 | S.CERAMIC      | C1608 CH 1H 200J-T |
| C254    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C255    | 4030007080 | S.CERAMIC      | C1608 CH 1H 390J-T |
| C256    | 4030009910 | S.CERAMIC      | C1608 CH 1H 040B-T |
| C257    | 4030007110 | S.CERAMIC      | C1608 CH 1H 680J-T |
| C258    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C259    | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T |
| C260    | 4030007060 | S.CERAMIC      | C1608 CH 1H 270J-T |
| C261    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C262    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C263    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C264    | 4030009920 | S.CERAMIC      | C1608 CH 1H 050B-T |
| C265    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C266    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C267    | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T |
| C268    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C269    | 4030007010 | S.CERAMIC      | C1608 CH 1H 100D-T |
| C271    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C272    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C273    | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T |
| C274    | 4550006700 | S.TANTALUM     | ECST1AY106R        |
| C275    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C276    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C277    | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T |
| C278    | 4550000530 | S.TANTALUM     | TESVA 1V 104M1-8L  |
| C280    | 4030009510 | S.CERAMIC      | C1608 CH 1H 010B-T |
| C281    | 4030009350 | S.CERAMIC      | C1608 CH 1H 3R5B-T |
| C282    | 4030011770 | S.CERAMIC      | C1608 CH 1H 060B-T |
| C283    | 4030009500 | S.CERAMIC      | C1608 CH 1H 0R5B-T |
| C284    | 4030009910 | S.CERAMIC      | C1608 CH 1H 040B-T |
| C285    | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T |
| C286    | 4030007010 | S.CERAMIC      | C1608 CH 1H 100D-T |
| C287    | 4030007010 | S.CERAMIC      | C1608 CH 1H 100D-T |
| C288    | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T |
| C289    | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T |
| C290    | 4030009500 | S.CERAMIC      | C1608 CH 1H 0R5B-T |
| C292    | 4030007020 | S.CERAMIC      | C1608 CH 1H 120J-T |
| C294    | 4030006870 | S.CERAMIC      | C1608 JB 1H 222K-T |
| C295    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C307    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C308    | 4030007010 | S.CERAMIC      | C1608 CH 1H 100D-T |
| C309    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C316    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C317    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C318    | 4030007030 | S.CERAMIC      | C1608 CH 1H 150J-T |
| C319    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C320    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C322    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C323    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C324    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C325    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C330    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C331    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C332    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C333    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C334    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C335    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C338    | 4030009530 | S.CERAMIC      | C1608 CH 1H 030B-T |
| C339    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C341    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C342    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C343    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C345    | 4030007050 | S.CERAMIC      | C1608 CH 1H 220J-T |
| C346    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C347    | 4030007080 | S.CERAMIC      | C1608 CH 1H 390J-T |
| C348    | 4030007040 | S.CERAMIC      | C1608 CH 1H 180J-T |
| C351    | 4550006700 | S.TANTALUM     | ECST1AY106R        |
| C352    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C353    | 4510005310 | S.ELECTROLYTIC | ECEV1CA220SR       |
| C354    | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T |
| C355    | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T |
| C356    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C361    | 4030011170 | S.CERAMIC      | GRM31M2C2H180JV01L |
| C362    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C363    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |
| C364    | 4030011170 | S.CERAMIC      | GRM31M2C2H180JV01L |
| C365    | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T |

S.=Surface mount

[MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION |                    |
|---------|------------|-------------|--------------------|
| C370    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C371    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C372    | 4550006130 | S.TANTALUM  | ECST1VY224R        |
| C373    | 4030011600 | S.CERAMIC   | C1608 JB 1E 104K-T |
| C374    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C375    | 4030007050 | S.CERAMIC   | C1608 CH 1H 220J-T |
| C376    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C377    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C378    | 4550006700 | S.TANTALUM  | ECST1AY106R        |
| C379    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C381    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C383    | 4030006900 | S.CERAMIC   | C1608 JB 1H 103K-T |
| C385    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C386    | 4030006900 | S.CERAMIC   | C1608 JB 1H 103K-T |
| C391    | 4550006650 | S.TANTALUM  | ECST1CY685R        |
| C392    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C393    | 4030006850 | S.CERAMIC   | C1608 JB 1H 471K-T |
| C397    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C398    | 4030006850 | S.CERAMIC   | C1608 JB 1H 471K-T |
| C399    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C400    | 4030009520 | S.CERAMIC   | C1608 CH 1H 020B-T |
| C401    | 4030007170 | S.CERAMIC   | C1608 CH 1H 221J-T |
| C402    | 4030006850 | S.CERAMIC   | C1608 JB 1H 471K-T |
| C403    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C404    | 4030011600 | S.CERAMIC   | C1608 JB 1E 104K-T |
| C405    | 4030006850 | S.CERAMIC   | C1608 JB 1H 471K-T |
| C406    | 4030011600 | S.CERAMIC   | C1608 JB 1E 104K-T |
| C407    | 4030009920 | S.CERAMIC   | C1608 CH 1H 050B-T |
| C408    | 4030011770 | S.CERAMIC   | C1608 CH 1H 060B-T |
| C409    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C410    | 4030009540 | S.CERAMIC   | C1608 CH 1H 1R5B-T |
| C411    | 4030009510 | S.CERAMIC   | C1608 CH 1H 010B-T |
| C412    | 4030006990 | S.CERAMIC   | C1608 CH 1H 080D-T |
| C413    | 4030009350 | S.CERAMIC   | C1608 CH 1H 3R5B-T |
| C414    | 4030009560 | S.CERAMIC   | C1608 CH 1H R75B-T |
| C415    | 4030009560 | S.CERAMIC   | C1608 CH 1H R75B-T |
| C416    | 4030006990 | S.CERAMIC   | C1608 CH 1H 080D-T |
| C417    | 4030009350 | S.CERAMIC   | C1608 CH 1H 3R5B-T |
| C418    | 4030009510 | S.CERAMIC   | C1608 CH 1H 010B-T |
| C419    | 4030009540 | S.CERAMIC   | C1608 CH 1H 1R5B-T |
| C420    | 4030007020 | S.CERAMIC   | C1608 CH 1H 120J-T |
| C421    | 4030009530 | S.CERAMIC   | C1608 CH 1H 030B-T |
| C423    | 4030007100 | S.CERAMIC   | C1608 CH 1H 560J-T |
| C427    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C428    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C431    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C432    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C433    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C434    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C435    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C436    | 4030006850 | S.CERAMIC   | C1608 JB 1H 471K-T |
| C437    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C438    | 4030006850 | S.CERAMIC   | C1608 JB 1H 471K-T |
| C439    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C440    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| C441    | 4030006860 | S.CERAMIC   | C1608 JB 1H 102K-T |
| J1      | 6510023360 | S.CONNECTOR | 26FLT-SM1-TB       |
| J2      | 6510022620 | S.CONNECTOR | 10FMN-BMTTR-A-TBT  |
| J3      | 6510007020 | CONNECTOR   | TMP-J01X-V6        |
| W1      | 7030003860 | S.JUMPER    | ERJ3GE JPW V       |
| W2      | 7030003860 | S.JUMPER    | ERJ3GE JPW V       |
| W3      | 7030003860 | S.JUMPER    | ERJ3GE JPW V       |
| W4      | 7030003860 | S.JUMPER    | ERJ3GE JPW V       |
| W5      | 7030003860 | S.JUMPER    | ERJ3GE JPW V       |
| W6      | 7030003860 | S.JUMPER    | ERJ3GE JPW V       |
| W7      | 7030010840 | S.JUMPER    | MJP-0.2-T          |
| W8      | 7030010850 | S.JUMPER    | MCR100JZHJ JPW     |
| W9      | 7030010850 | S.JUMPER    | MCR100JZHJ JPW     |
| W10     | 7030010850 | S.JUMPER    | MCR100JZHJ JPW     |
| W11     | 7030010850 | S.JUMPER    | MCR100JZHJ JPW     |
| W12     | 7030010860 | JUMPER      | MJP-0.6            |
| EP1     | 0910056045 | PCB         | B 5879E            |
| EP2     | 6910013370 | S.BEAD      | BLM18BB221SN1D     |
| EP3     | 6910002160 | CASE        | BM7                |

6-2 HM-137

[MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION |                           |
|---------|------------|-------------|---------------------------|
| R1      | 7010006890 | RESISTOR    | R20J 12 kΩ                |
| R2      | 7010006880 | RESISTOR    | R20J 6.8 kΩ               |
| R3      | 7010006900 | RESISTOR    | R20J 15 kΩ                |
| R4      | 7010006910 | RESISTOR    | R20J 33 kΩ                |
| R5      | 7070001150 | RESISTOR    | MOS2W-150-J <KN>          |
| C1      | 4010007711 | CERAMIC     | HE40SJ YB 471K 50V        |
| C2      | 4030017280 | S.CERAMIC   | C1608 CH 1H 471J-T-A <KN> |
| J1      | 6510022450 | CONNECTOR   | S07B-EH-S <KN>            |
| MC1     | 7700002120 | MICROPHONE  | KUC2123-030245            |
| S1      | 2260002330 | SWITCH      | SKHHLPO14A                |
| S2      | 2260002340 | SWITCH      | SKHHAM024A                |
| S3      | 2260002340 | SWITCH      | SKHHAM024A                |
| S4      | 2260002340 | SWITCH      | SKHHAM024A                |
| SP1     | 2510001092 | SPEAKER     | S36D0801B <KN>            |
| W1      | 9044902012 | WIRE        | 71/98/010/X98/X98         |
| W2      | 9044902012 | WIRE        | 71/98/010/X98/X98         |
| W3      | 9045995030 | WIRE        | 71/98/020/X98/X98         |
| W4      | 9045995030 | WIRE        | 71/98/020/X98/X98         |
| EP1     | 0910052553 | PCB         | B 5431C                   |
| EP2     | 9029701901 | TUBE        | IRRAX 0.7 (d) L=4 mm      |

S.=Surface mount



### 6-3 HM-134 (OPTIONAL MICROPHONE)

#### [CHASSIS UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION |            |
|---------|------------|-------------|------------|
| 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  |                         |
|---------|------------|--------------|-------------------------|
| IC1     | 1140009390 | S.IC         | μPD789405AGK-A30-9EU    |
| IC2     | 1110005560 | IC           | TA8201AK                |
| IC3     | 1110004490 | S.IC         | M62429FP 700C           |
| IC4     | 1120002830 | S.IC         | NJM2125F-TE1            |
| IC5     | 1180000420 | S.IC         | TA78L05F (TE12R)        |
| IC7     | 1110005730 | S.IC         | S-80928CNMC-G8Y-T2      |
| IC8     | 1130007420 | S.IC         | TC7W14FU (TE12L)        |
| IC9     | 1130006220 | S.IC         | TC4W53FU (TE12L)        |
| IC10    | 1130004200 | S.IC         | TC4S66F (TE85R)         |
| Q1      | 1560000810 | S.FET        | 2SK1069-4-TL            |
| Q2      | 1520000460 | S.TRANSISTOR | 2SB1132 T100 R          |
| Q3      | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| Q5      | 1590000430 | S.TRANSISTOR | DTC144EUA T106          |
| Q6      | 1590000980 | S.TRANSISTOR | DTB123EK T147           |
| Q9      | 1560000810 | S.FET        | 2SK1069-4-TL            |
| Q10     | 1530002060 | S.TRANSISTOR | 2SC4081 T106 R          |
| Q11     | 1510000510 | S.TRANSISTOR | 2SA1576A T106R          |
| Q12     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| Q13     | 1530002850 | S.TRANSISTOR | 2SC4116-BL (TE85R)      |
| D1      | 1750000130 | S.DIODE      | DA204U T106             |
| D2      | 1750000550 | S.DIODE      | 1SS355 TE-17            |
| X1      | 6060000750 | S.CERAMIC    | CSTCC4.91MG             |
| R1      | 7030000280 | S.RESISTOR   | MCR10EZHZ 150 Ω (151)   |
| R2      | 7030000280 | S.RESISTOR   | MCR10EZHZ 150 Ω (151)   |
| R3      | 7030000280 | S.RESISTOR   | MCR10EZHZ 150 Ω (151)   |
| R6      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R7      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R8      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R9      | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R10     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R11     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R12     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R13     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R14     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R15     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R16     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R17     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R18     | 7030003680 | S.RESISTOR   | ERJ3GEYJ 104 V (100 kΩ) |
| R19     | 7030003800 | S.RESISTOR   | ERJ3GEYJ 105 V (1 MΩ)   |
| R20     | 7030003540 | S.RESISTOR   | ERJ3GEYJ 682 V (6.8 kΩ) |
| R21     | 7030003630 | S.RESISTOR   | ERJ3GEYJ 393 V (39 kΩ)  |
| R22     | 7030004120 | S.RESISTOR   | ERJ3GEYJ 203 V (20 kΩ)  |
| R23     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R24     | 7030003450 | S.RESISTOR   | ERJ3GEYJ 122 V (1.2 kΩ) |
| R25     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R26     | 7510001670 | S.THERMISTOR | NTCG16 4BH 103KT        |
| R27     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R28     | 7030004120 | S.RESISTOR   | ERJ3GEYJ 203 V (20 kΩ)  |
| R29     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R30     | 7030004120 | S.RESISTOR   | ERJ3GEYJ 203 V (20 kΩ)  |
| R31     | 7030003560 | S.RESISTOR   | ERJ3GEYJ 103 V (10 kΩ)  |
| R32     | 7030004120 | S.RESISTOR   | ERJ3GEYJ 203 V (20 kΩ)  |

#### [MAIN UNIT]

| REF NO. | ORDER NO.  | DESCRIPTION    |                         |
|---------|------------|----------------|-------------------------|
| R33     | 7030004120 | S.RESISTOR     | ERJ3GEYJ 203 V (20 kΩ)  |
| R34     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R35     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R36     | 7030003520 | S.RESISTOR     | ERJ3GEYJ 472 V (4.7 kΩ) |
| R37     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R38     | 7030003580 | S.RESISTOR     | ERJ3GEYJ 153 V (15 kΩ)  |
| R42     | 7030003570 | S.RESISTOR     | ERJ3GEYJ 123 V (12 kΩ)  |
| R43     | 7030003490 | S.RESISTOR     | ERJ3GEYJ 272 V (2.7 kΩ) |
| R44     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R45     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R46     | 7030003620 | S.RESISTOR     | ERJ3GEYJ 333 V (33 kΩ)  |
| R47     | 7030003760 | S.RESISTOR     | ERJ3GEYJ 474 V (470 kΩ) |
| R50     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R53     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R54     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R55     | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R56     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R57     | 7030003520 | S.RESISTOR     | ERJ3GEYJ 472 V (4.7 kΩ) |
| R58     | 7030003280 | S.RESISTOR     | ERJ3GEYJ 470 V (47 kΩ)  |
| R61     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R63     | 7030003550 | S.RESISTOR     | ERJ3GEYJ 822 V (8.2 kΩ) |
| R64     | 7030003560 | S.RESISTOR     | ERJ3GEYJ 103 V (10 kΩ)  |
| R65     | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R66     | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R67     | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R70     | 7030003260 | S.RESISTOR     | ERJ3GEYJ 330 V (33 Ω)   |
| R71     | 7030003400 | S.RESISTOR     | ERJ3GEYJ 471 V (470 Ω)  |
| R72     | 7030000060 | S.RESISTOR     | MCR10EZHZ 2.2 Ω (2R2)   |
| R73     | 7030000060 | S.RESISTOR     | MCR10EZHZ 2.2 Ω (2R2)   |
| R75     | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| R76     | 7030003640 | S.RESISTOR     | ERJ3GEYJ 473 V (47 kΩ)  |
| R77     | 7030003680 | S.RESISTOR     | ERJ3GEYJ 104 V (100 kΩ) |
| R78     | 7030003440 | S.RESISTOR     | ERJ3GEYJ 102 V (1 kΩ)   |
| R79     | 7030003800 | S.RESISTOR     | ERJ3GEYJ 105 V (1 MΩ)   |
| C1      | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C3      | 4510005430 | S.ELECTROLYTIC | ECEV0JA220SR            |
| C4      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C5      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C6      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C7      | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C9      | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C10     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T-A    |
| C14     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C15     | 4510006670 | S.ELECTROLYTIC | ECEV1CA471P             |
| C22     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C23     | 4510005430 | S.ELECTROLYTIC | ECEV0JA220SR            |
| C24     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T-A    |
| C26     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T-A    |
| C27     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T-A    |
| C28     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C29     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T-A    |
| C30     | 4510004630 | S.ELECTROLYTIC | ECEV1CA100SR            |
| C31     | 4030011810 | S.CERAMIC      | C1608 JB 1A 224K-T-N    |
| C32     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C33     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T-A    |
| C34     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C35     | 4510005430 | S.ELECTROLYTIC | ECEV0JA220SR            |
| C36     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C37     | 4510005430 | S.ELECTROLYTIC | ECEV0JA220SR            |
| C42     | 4030008890 | S.CERAMIC      | C1608 JB 1H 273K-T-A    |
| C44     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C45     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C46     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C47     | 4030006850 | S.CERAMIC      | C1608 JB 1H 471K-T-A    |
| C50     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T-A    |
| C53     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A    |
| C54     | 4030012600 | S.CERAMIC      | C2012 JB 1A 105M-T-A    |
| C56     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T-A    |
| C58     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C59     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T-A    |
| C60     | 4030006860 | S.CERAMIC      | C1608 JB 1H 102K-T-A    |
| C61     | 4030011600 | S.CERAMIC      | C1608 JB 1E 104K-T-N    |
| C64     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C65     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C66     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C67     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C68     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C69     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C70     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |
| C71     | 4030007090 | S.CERAMIC      | C1608 CH 1H 470J-T-A    |

S.=Surface mount

**[MAIN UNIT]**

| REF NO. | ORDER NO.  | DESCRIPTION    |                      |
|---------|------------|----------------|----------------------|
| C72     | 4550005980 | S.TANTALUM     | TEMSVA 1A 475M-8L    |
| C73     | 4510005370 | S.ELECTROLYTIC | ECEV1AA221P          |
| C74     | 4510004540 | S.ELECTROLYTIC | ECEV0JA470SR         |
| C75     | 4030008980 | S.CERAMIC      | C2012 JB 1C 154K-T-A |
| C76     | 4030008980 | S.CERAMIC      | C2012 JB 1C 154K-T-A |
| C77     | 4030006900 | S.CERAMIC      | C1608 JB 1H 103K-T-A |
| RL1     | 6310000040 | S.RELAY        | FTR-B3GA4.5Z-SP-B10  |
| J1      | 6510019420 | S.CONNECTOR    | B8B-ZR-SM3-TF        |
| DS1     | 5030001900 | LCD            | A0119 (LCD 36×28.5)  |
| DS2     | 5040002660 | S.LED          | FY1101F-TR (LED)     |
| DS3     | 5040002660 | S.LED          | FY1101F-TR (LED)     |
| DS4     | 5040002310 | S.LED          | SML-311YTT86         |
| DS5     | 5040002660 | S.LED          | FY1101F-TR (LED)     |
| DS6     | 5040002660 | S.LED          | FY1101F-TR (LED)     |
| DS7     | 5040002310 | S.LED          | SML-311YTT86         |
| DS8     | 5040002310 | S.LED          | SML-311YTT86         |
| DS9     | 5040002310 | S.LED          | SML-311YTT86         |
| DS10    | 5040002310 | S.LED          | SML-311YTT86         |
| MC1     | 7700002480 | MICROPHONE     | SKB-2746 LPC         |
| S1      | 2260002710 | S.SWITCH       | SKQLLCE012           |
| S2      | 2260002710 | S.SWITCH       | SKQLLCE012           |
| S3      | 2260002710 | S.SWITCH       | SKQLLCE012           |
| S4      | 2260002710 | S.SWITCH       | SKQLLCE012           |
| W15     | 7030003860 | S.JUMPER       | ERJ3GE JPW V         |
| W16     | 7030003860 | S.JUMPER       | ERJ3GE JPW V         |
| W17     | 7030003860 | S.JUMPER       | ERJ3GE JPW V         |
| EP1     | 0910055022 | PCB            | B 5778B              |
| EP2     | 8930051120 | LCD CONTACT    | SRCN-2320-SP-N-W     |

S.=Surface mount

# SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

## 7-1 IC-M601

### [CHASSIS PARTS]

| REF. NO. | ORDER NO.  | DESCRIPTION                  | QTY. |
|----------|------------|------------------------------|------|
| J1       | 6510004880 | Antenna connector MR-DS-E 01 | 1    |
| W1       | 8900011450 | Cable OPC-1175               | 1    |
| W2       | 8900011460 | Cable OPC-1176               | 1    |
| MP1      | 8010019070 | 2577 chassis                 | 1    |
| MP2      | 8210019050 | 2577 rear panel              | 1    |
| MP3      | 8930058270 | 2577 F-packing               | 1    |
| MP4      | 8930058260 | 2577 R-packing               | 1    |
| MP5      | 8930058460 | 2577 bush plate              | 1    |
| MP6      | 8110007800 | 2577 module cover            | 1    |
| MP7      | 8930058480 | 2577 module plate            | 1    |
| MP8      | 8510014900 | 2577 shield cover            | 1    |
| MP9      | 8930034300 | 1542 ANT seal                | 1    |
| MP10     | 8930058780 | 2577 sheet                   | 1    |
| MP11     | 8810008660 | Screw PH BT M3 × 8 NI-ZU     | 7    |
| MP12     | 8810008660 | Screw PH BT M3 × 8 NI-ZU     | 3    |
| MP13     | 8820001210 | 2438 screw                   | 6    |
| MP14     | 8820001210 | 2438 screw                   | 6    |
| MP15     | 8820001210 | 2438 screw                   | 2    |
| MP16     | 8820001210 | 2438 screw                   | 2    |
| MP17     | 8810004300 | Screw PH M3 × 10 ZK          | 2    |
| MP18     | 8830001400 | Sonic lock SL-M5-5.8 NI      | 2    |
| MP19     | 8930052290 | O ring (AD)                  | 8    |
| MP20     | 8930058450 | 2577 IC clip                 | 1    |
| MP21     | 8930058470 | 2577 IC plate                | 1    |
| MP22     | 8930049040 | Insulation plate             | 1    |
| MP23     | 8930055040 | 2438 cap                     | 4    |
| MP25     | 8930059020 | Thermally sheet (AI)         | 1    |
| MP26     | 8810008660 | Screw PH BT M3 × 8 NI-ZU     | 1    |

### [MAIN UNIT]

| REF. NO. | ORDER NO.  | DESCRIPTION      | QTY. |
|----------|------------|------------------|------|
| W12      | 7030010860 | Jumper MJP-0.6   | 1    |
| EP3      | 6910002160 | Shield case BM7  | 1    |
| MP1      | 8510014870 | 2577 RX-VCO case | 1    |
| MP2      | 8510014880 | 2577 TX-VCO case | 1    |
| MP3      | 8510014890 | 2577 DBM case    | 1    |
| MP4      | 8510014890 | 2577 DBM case    | 1    |
| MP5      | 8510015100 | 2577 shield case | 1    |
| MP6      | 8930059350 | 2577 earth plate | 1    |
| MP7      | 8930014140 | Earth spring (D) | 1    |
| MP8      | 8930005320 | Filter spacer    | 1    |

### [LOGIC BOARD]

| REF. NO. | ORDER NO.  | DESCRIPTION        | QTY. |
|----------|------------|--------------------|------|
| S1       | 2230000250 | Switch SPPH22014A  | 1    |
| BT1      | 3020000110 | Battery CR2032     | 1    |
| DS1      | 5030002390 | LCD HLM7784-010100 | 1    |
| MP1      | 8930058440 | 2577 LCD holder    | 1    |
| MP2      | 8210019060 | 2577 reflector     | 1    |
| MP3      | 8930058910 | 2577 LCD sheet     | 1    |

**Screw abbreviations** BT: Self-tapping PH: Pan head  
 ZK: Black NI: Nickel  
 SUS: Stainless NI-ZU: Nickel-Zinc

Accessories illustration is shown at the next page.

### [FRONT UNIT]

| REF. NO. | ORDER NO.  | DESCRIPTION              | QTY. |
|----------|------------|--------------------------|------|
| W1       | 8900011470 | Cable OPC-1177           | 1    |
| SP1      | 2510001210 | Speaker 066P0804         | 1    |
| MP1      | 8210019300 | 2577 front panel (B)     | 1    |
| MP2      | 8930059450 | 2577 2-key (A)           | 1    |
| MP3      | 8310054590 | 2577 windows plate (B)   | 1    |
| MP5      | 8930059440 | 2577 18-key (A)          | 1    |
| MP8      | 8930052030 | 2345 spring              | 1    |
| MP9      | 8930052010 | 2345 shaft               | 1    |
| MP10     | 8930052020 | 2345 shaft angle         | 1    |
| MP11     | 8110007160 | 2345 cover               | 1    |
| MP12     | 8610011240 | Knob N295                | 1    |
| MP13     | 8610011240 | Knob N295                | 1    |
| MP14     | 8610011210 | Knob N293                | 1    |
| MP15     | 8830001350 | Sonic lock SL-M3-5.8     | 6    |
| MP17     | 8810008660 | Screw PH BT M3 × 8 NI-ZU | 7    |
| MP18     | 8930059200 | O ring (AT)              | 1    |
| MP19     | 8930053030 | 2345 earth plate         | 1    |
| MP20     | 8930058900 | Rubber sheet (BB)        | 2    |
| MP21     | 8850001980 | Flat washer M10          | 1    |
| MP22     | 8930052280 | O ring (AC)              | 2    |
| MP23     | 8930058790 | 2577 SP net              | 1    |

### [CONNECT-A UNIT]

| REF. NO. | ORDER NO.  | DESCRIPTION              | QTY. |
|----------|------------|--------------------------|------|
| J1       | 6510022440 | Connector LTW-8MP-C      | 1    |
| J2       | 6510022440 | Connector LTW-8MP-C      | 1    |
| J3       | 6510023320 | Connector LTWD-06PMMP-LC | 1    |

### [DIAL BOARD]

| REF. NO. | ORDER NO.  | DESCRIPTION          | QTY. |
|----------|------------|----------------------|------|
| S1       | 2250000470 | Switch EVQ-V9C00116E | 1    |

### [SQL BOARD]

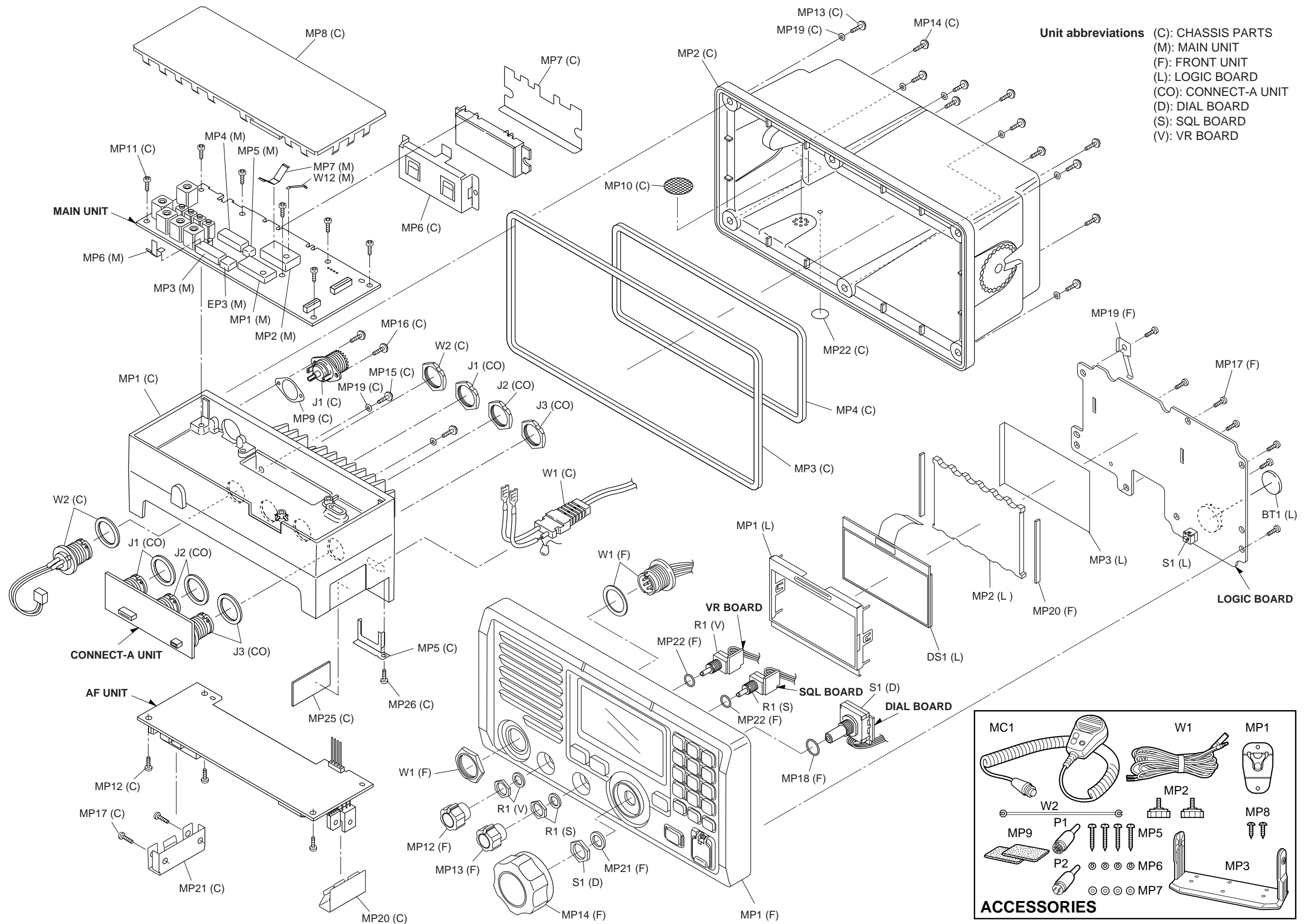
| REF. NO. | ORDER NO.  | DESCRIPTION                             | QTY. |
|----------|------------|---|------|
| R1       | 7210002360 | Variable resistor TP96N97-15F-10KA-1301 | 1    |

### [VR BOARD]

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

### [ACCESSORIES]

| REF. NO. | ORDER NO.  | DESCRIPTION                          | QTY. |
|----------|------------|--------------------------------------|------|
| W1       | 8900011440 | Cable OPC-1174                       | 1    |
| W2       | 8900010760 | Cable OPC-1096 [EUR],[HOL],[FRG]only | 1    |
| P1       | 5610000330 | LTWBU-10BFFA-L180                    | 1    |
| P2       | 6510023300 | LTWB-03BFFA-L180                     | 1    |
| MC1      | 0800006850 | HM-137B                              | 1    |
| MP1      | 8950005110 | 2289 mic hanger                      | 1    |
| MP2      | 8610010561 | 2040 knob bolt-1                     | 2    |
| MP3      | 8010018860 | 2455 bracket                         | 1    |
| MP5      | 8810001490 | Screw PH A M5 × 20 SUS               | 4    |
| MP6      | 8850000500 | Spring washer M5 SUS                 | 4    |
| MP7      | 8850000180 | Flat washer M5 SUS                   | 4    |
| MP8      | 8810004700 | Screw PH A M3 × 16 SUS               | 2    |
| MP9      | 8930059480 | Sponge (GZ)                          | 2    |



## 7-2 HM-137

### [CHASSIS PARTS]

| REF. NO. | ORDER NO.  | DESCRIPTION            | QTY.      |
|----------|------------|------------------------|-----------|
| W1       | 8900011480 | Cable OPC-1180         | [BLACK] 1 |
|          | 8900011490 | Cable OPC-1181         | [WHITE] 1 |
| MP1      | 8210017670 | 2352 front panel (B)-1 | [BLACK] 1 |
|          | 8210019241 | 2352 front panel (G)-1 | [WHITE] 1 |
| MP2      | 8210016851 | 2352 rear panel-1      | [BLACK] 1 |
|          | 8210019221 | 2352 rear panel (B)-1  | [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         |
| MP24     | 8930058590 | 2589 A-mic sheet       | 1         |

### [MAIN UNIT]

| REF. NO. | ORDER NO.  | DESCRIPTION               | QTY. |
|----------|------------|---------------------------|------|
| MC1      | 7700002120 | Microphone KUC2123-030245 | 1    |
| SP1      | 2510001092 | Speaker 036D0801B         | 1    |

**Screw abbreviations** BT: Self-tapping PH: Pan head  
 FH: Flat head ZK: Black  
 SUS: Stainless NI: Nickel  
 NI-ZU: Nickel-Zinc

## 7-3 HM-134

### [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    |

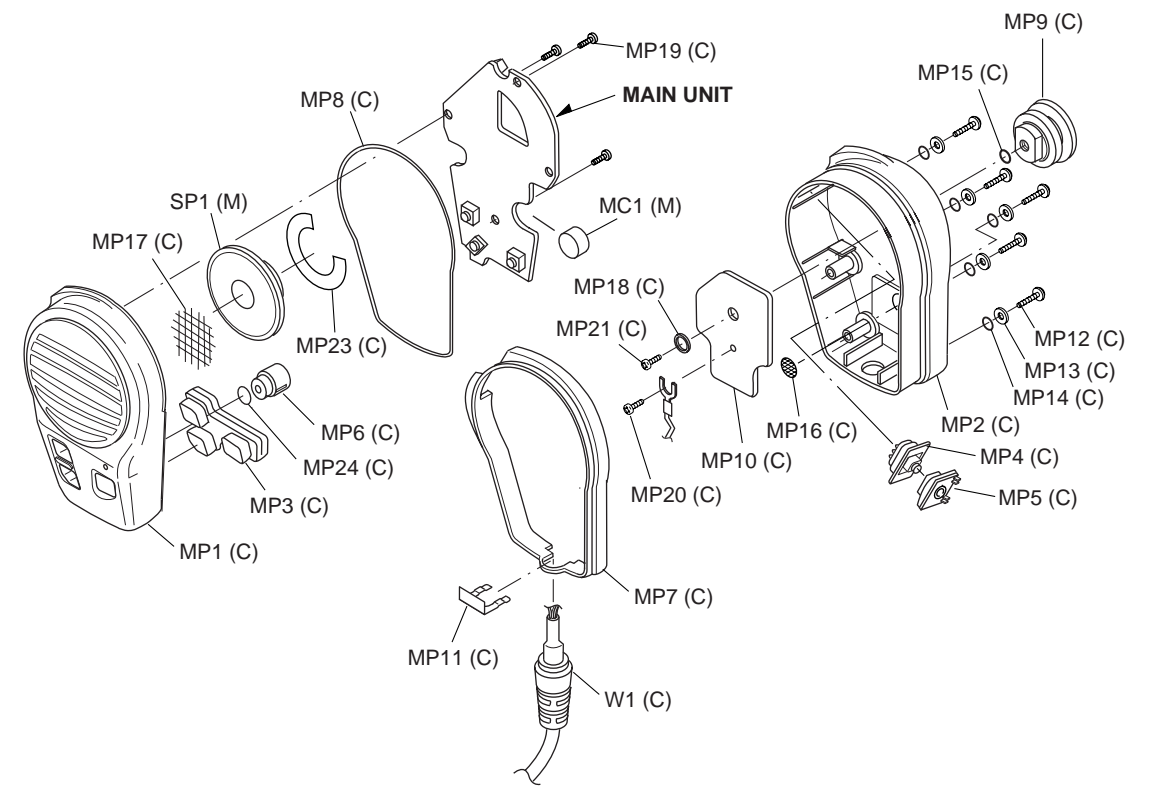
### [MAIN UNIT]

| 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    |

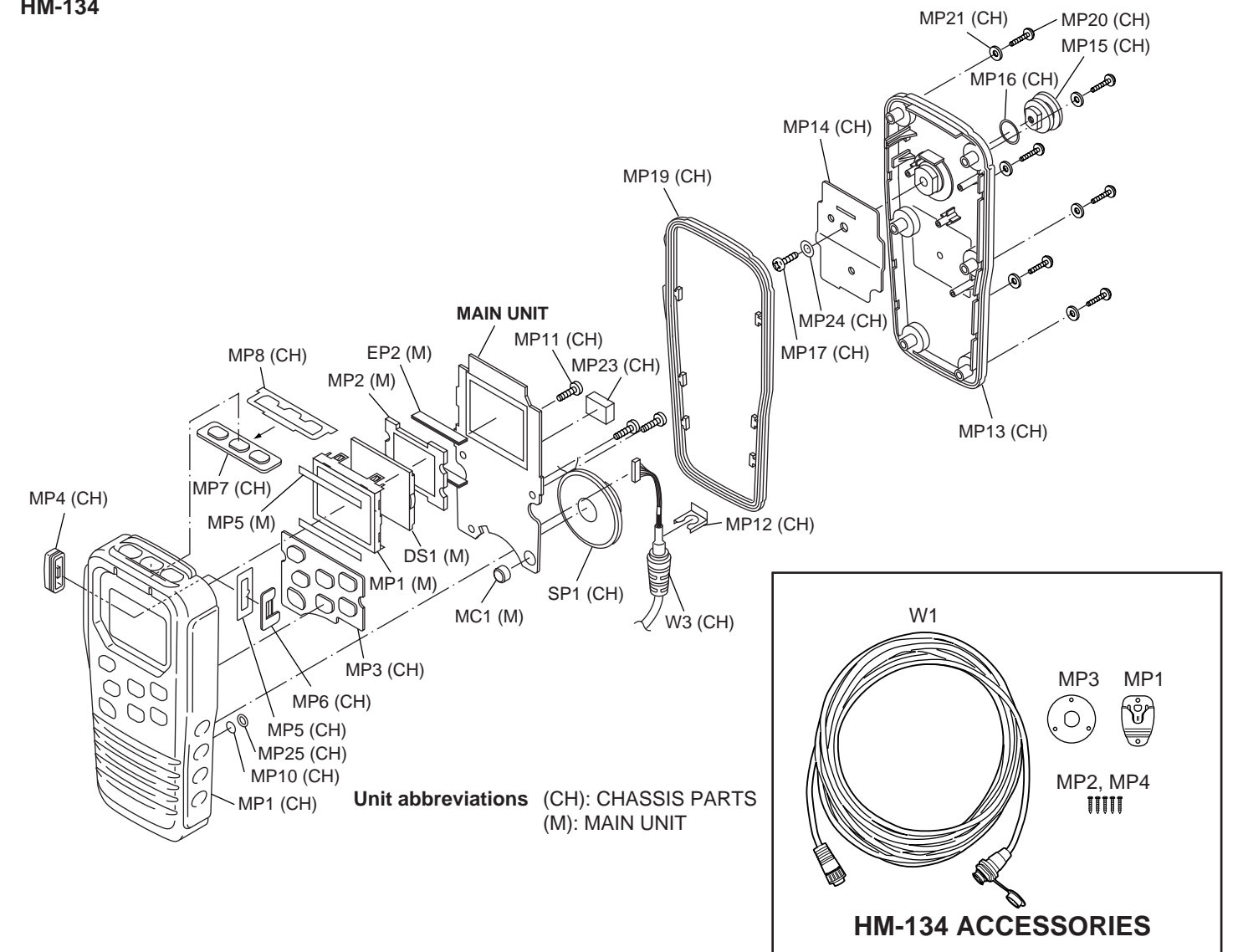
### [ACCESSORIES]

| 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    |

## HM-137

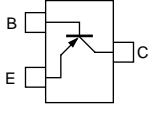
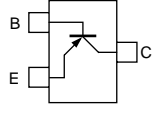
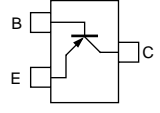
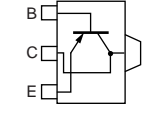
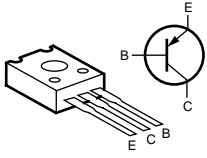
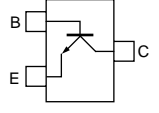
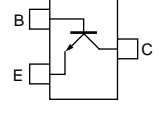
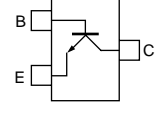
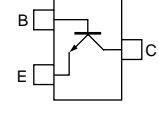
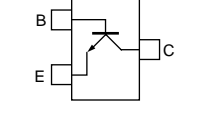
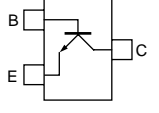
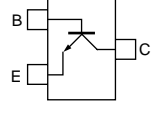
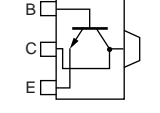
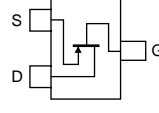
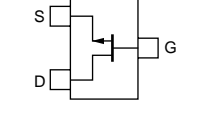
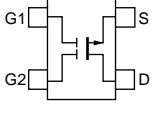
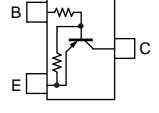
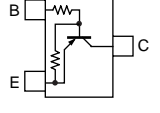
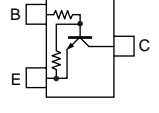
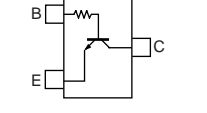
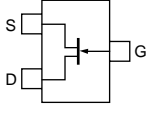


## HM-134



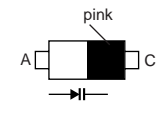
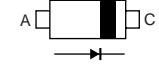
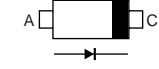
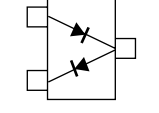
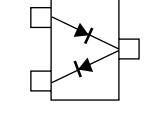
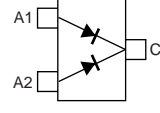
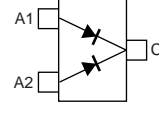
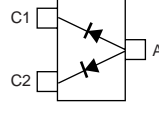
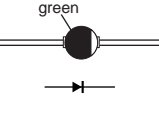
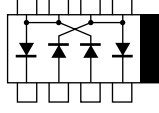
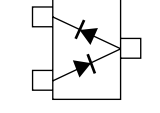
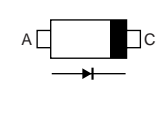
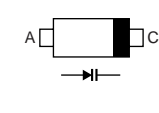


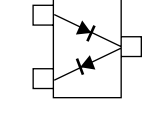
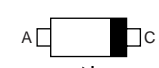
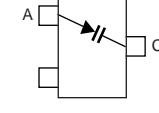



# SECTION 8 SEMI-CONDUCTOR INFORMATION

## • TRANSISTORS AND FET'S

|   |  |   |  |   |
|---|--|---|--|---|
| <b>2SA1362 GR</b><br>(Symbol: AEG)<br> | <b>2SA1576A T106 R</b><br>(Symbol: FR)<br>  | <b>2SA1577 T106 Q</b><br>(Symbol: HQ)<br>    | <b>2SB1132 T100 R</b><br>(Symbol: BAR)<br>   | <b>2SB1143 S</b><br>(Symbol: B1143)<br>    |
| <b>2SC3326 B</b><br>(Symbol: CCB)<br>  | <b>2SC3775 3 TB</b><br>(Symbol: OY3)<br>    | <b>2SC4081 T106 R</b><br>(Symbol: BR)<br>    | <b>2SC4081 T106 S</b><br>(Symbol: BS)<br>    | <b>2SC4116 BL</b><br>(Symbol: LL)<br>      |
| <b>2SC4215 O</b><br>(Symbol: QO)<br>  | <b>2SC5110 O</b><br>(Symbol: MGO)<br>      | <b>2SD1664 Q</b><br>(Symbol: DAQ)<br>       | <b>2SJ144 Y</b><br>(Symbol: VY)<br>         | <b>2SK1069 4 TL</b><br>(Symbol: FJ)<br>   |
| <b>3SK294</b><br>(Symbol: UV)<br>    | <b>DTA144EUA T106</b><br>(Symbol: 16)<br> | <b>DTB123 EK T146</b><br>(Symbol: F12)<br> | <b>DTC144EUA T106</b><br>(Symbol: 26_)<br> | <b>DTC144TU T106</b><br>(Symbol: 06)<br> |
| <b>PMBFJ310</b><br>(Symbol: M10)<br> |  |   |  |   |

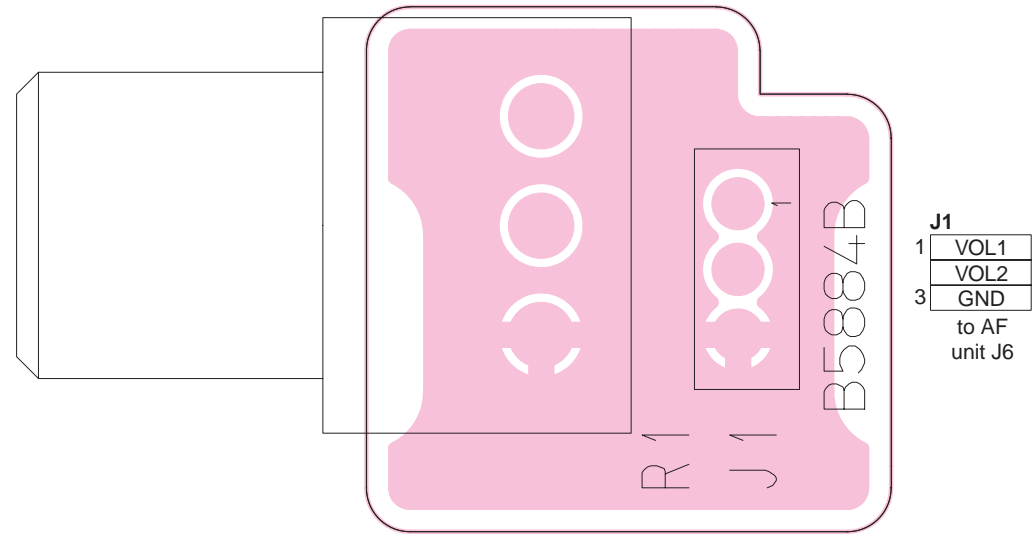
## • DIODES

|   |   |  |  |   |
|---|---|--|--|---|
| <b>1SS355</b><br>(Symbol: A)<br>       | <b>1SV214</b><br>(Symbol: T1)<br>              | <b>1SV288</b><br>(Symbol: TJ)<br>       | <b>1SV307</b><br>(Symbol: TX)<br>       | <b>1SV308</b><br>(Symbol: TX)<br>      |
| <b>DA204 K T146</b><br>(Symbol: K)<br> | <b>DA204 U T106</b><br>(Symbol: K)<br>         | <b>DAN202 K T146</b><br>(Symbol: N)<br> | <b>DAN202 U T106</b><br>(Symbol: N)<br> | <b>DAP202K T146</b><br>(Symbol: P)<br> |
| <b>DSA3A1</b><br>(Color: Green)<br>   | <b>HSB88WSTR</b><br>(Symbol: Silver line)<br> | <b>HSM88ASR TR</b><br>(Symbol: C3)<br> | <b>HSU88TRF</b><br>(Symbol: 9)<br>     | <b>HVC358B</b><br>(Symbol: B2)<br>    |
| <b>MA2S111</b><br>(Symbol: A)<br>    | <b>MA77</b><br>(Symbol: 4B)<br>              | <b>MA742</b><br>(Symbol: M1U)<br>     | <b>MA8036 L</b><br>(Symbol: 3_6)<br>  | <b>MA8051 M</b><br>(Symbol: 5-1)<br> |
| <b>MA8062 M</b><br>(Symbol: 6-2)<br> |   |  |  |   |

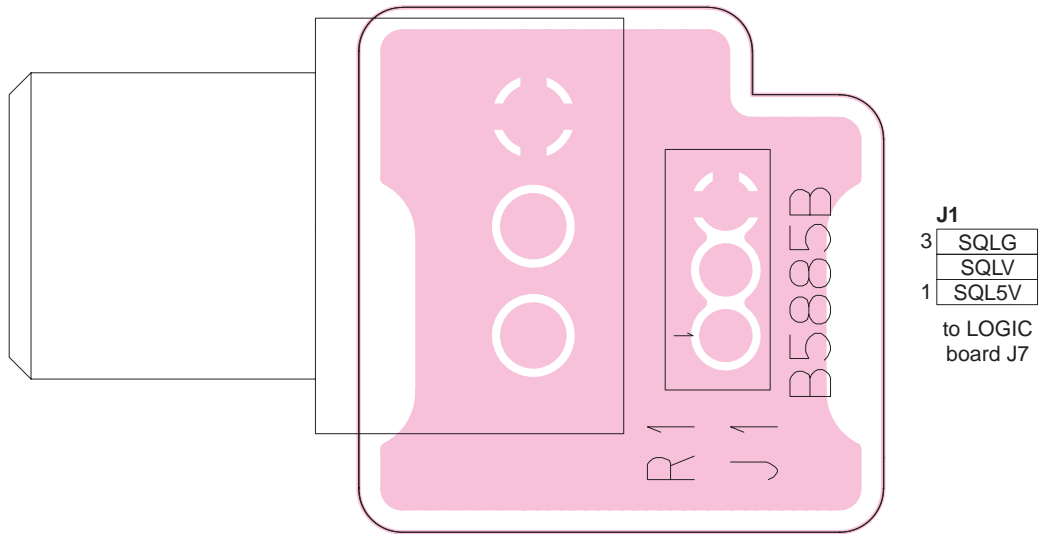


# SECTION 9 BOARD LAYOUTS

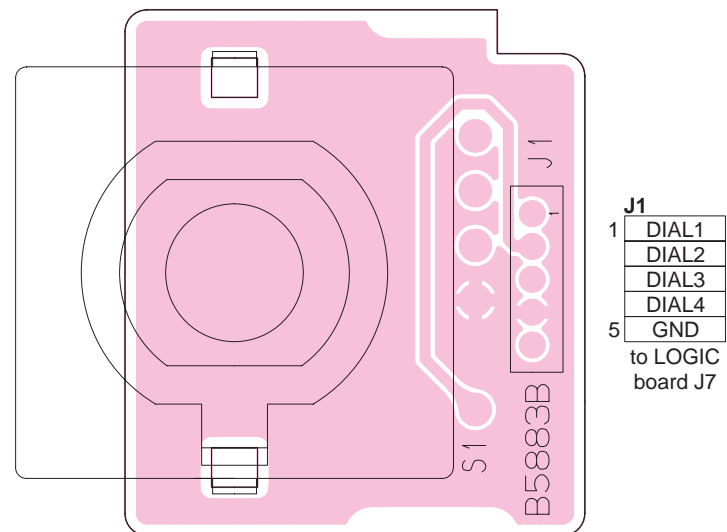
## 9-1 VR BOARD



## 9-2 SQL BOARD

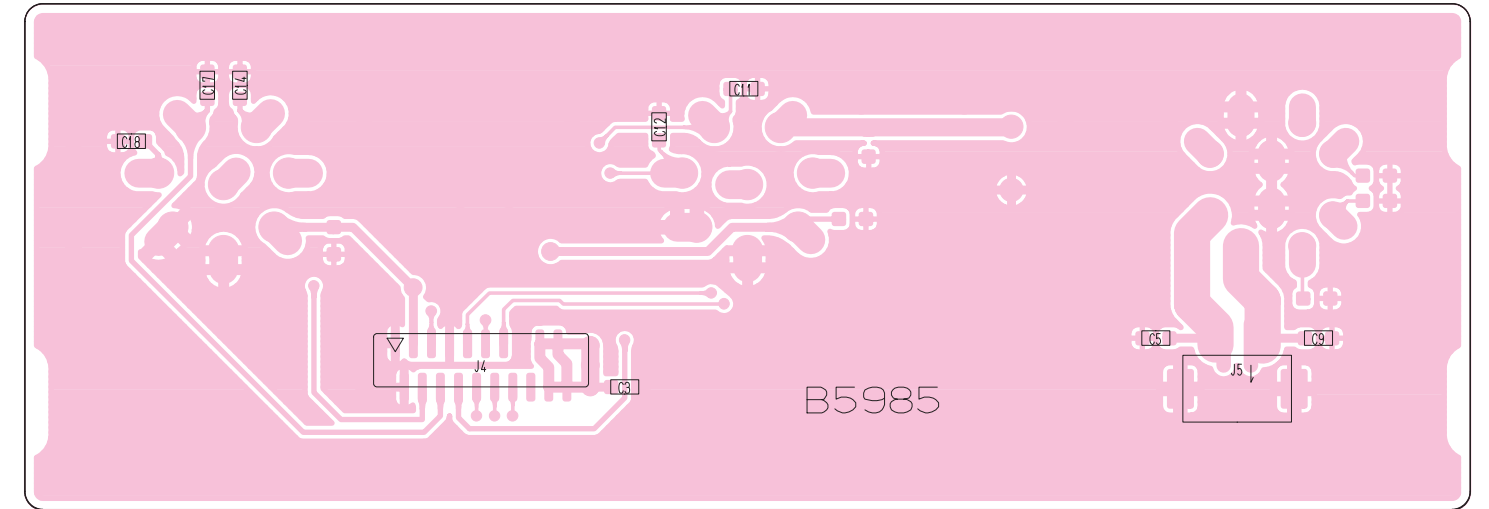


## 9-3 DIAL BOARD



## 9-4 CONNECT-A UNIT

### • TOP VIEW



**J4**

|    |          |         |
|----|----------|---------|
| 1  | GND      | 19      |
| 2  | MICG     | RRXDA2  |
| 3  | AF/MIC2  | RTXDA2  |
| 4  | RRXDA2   | PTTC    |
| 5  | AF/MIC1  | ICF3    |
| 6  | RTADA1   | RRXDA1  |
| 7  | NMEAOUT+ | NMEAIN- |
| 8  | NMEAOUT- | GND     |
| 9  | NC       | NC      |
| 10 | VCC      | VCC     |
| 11 | VCC      | VCC     |
| 12 | VCC      | VCC     |
| 13 | VCC      | VCC     |
| 14 | VCC      | VCC     |
| 15 | VCC      | VCC     |
| 16 | VCC      | VCC     |
| 17 | VCC      | VCC     |
| 18 | VCC      | VCC     |
| 19 | VCC      | VCC     |
| 20 | VCC      | VCC     |

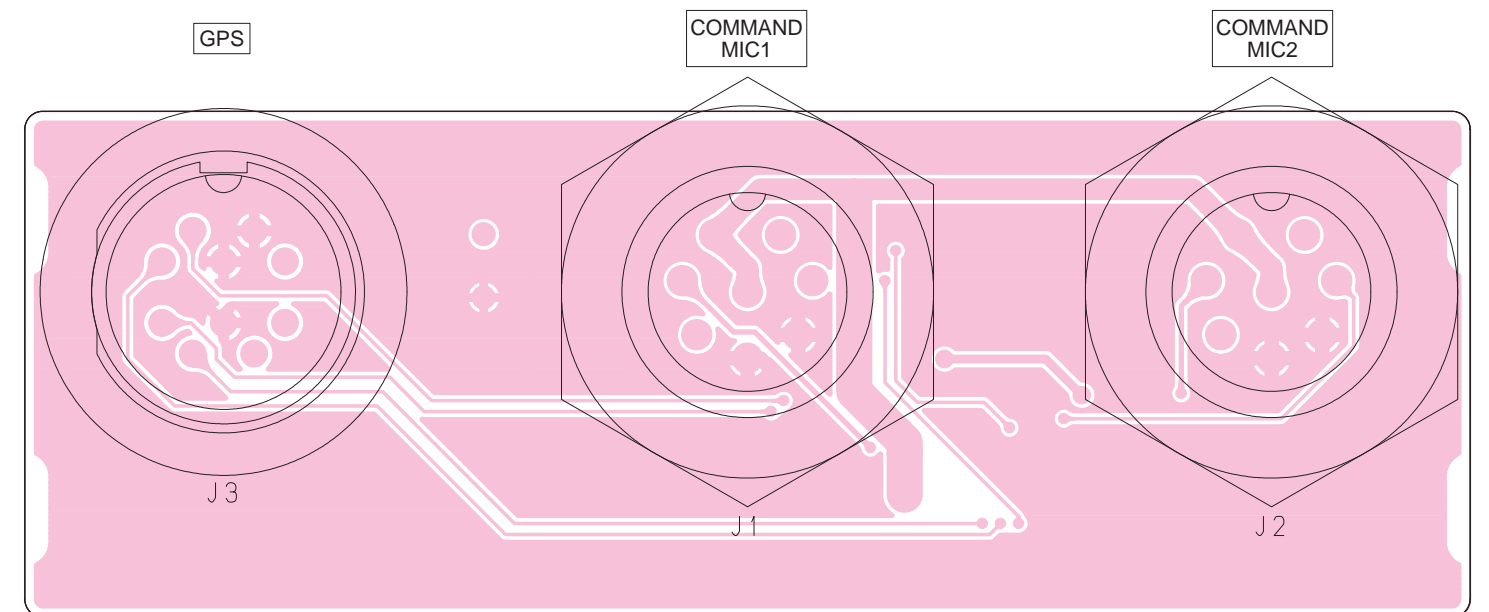
to AF unit J4

**J5**

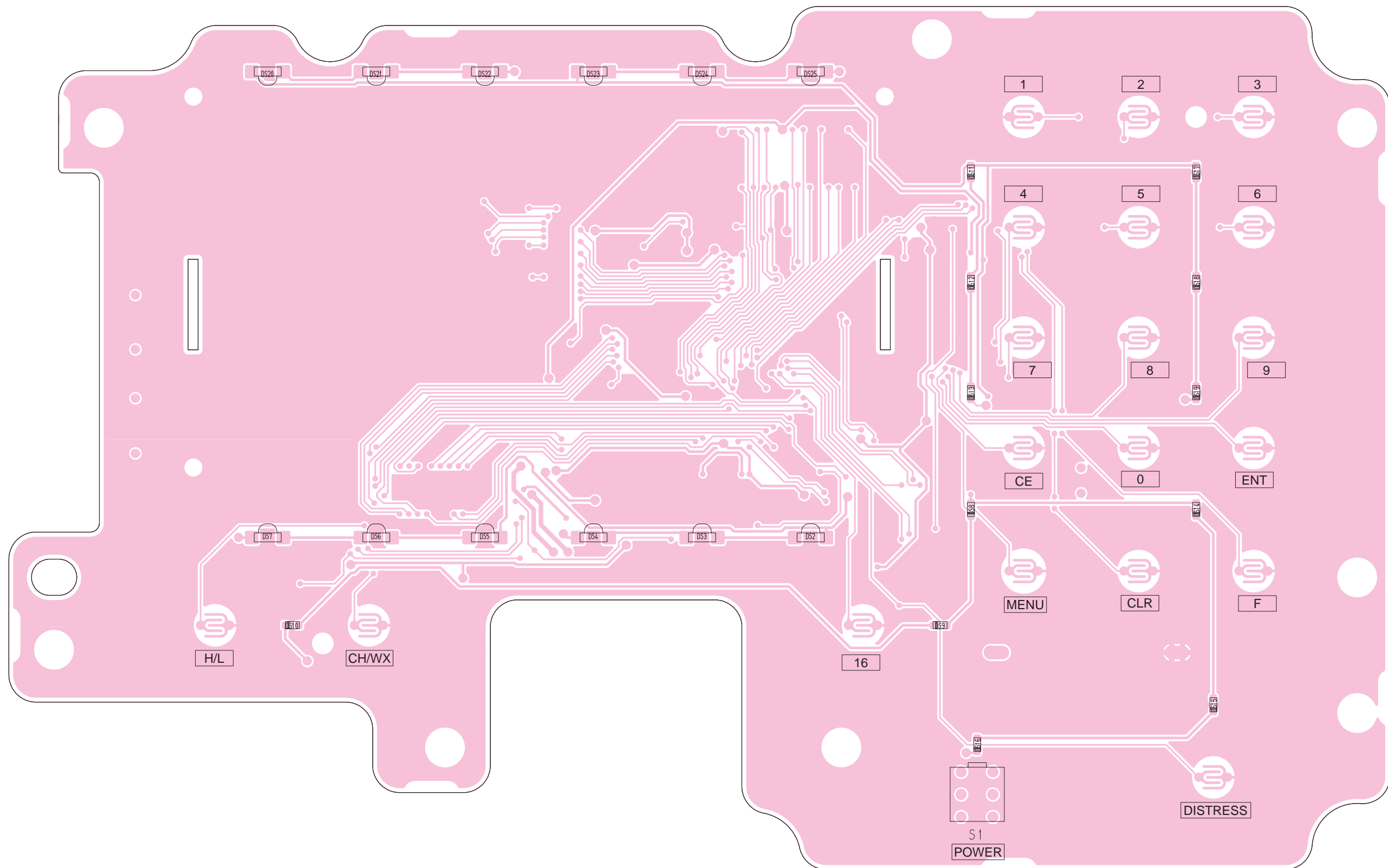
|   |     |
|---|-----|
| 2 | SP- |
| 1 | SP+ |

to AF unit W6

### • BOTTOM VIEW (CONNECT-A UNIT)

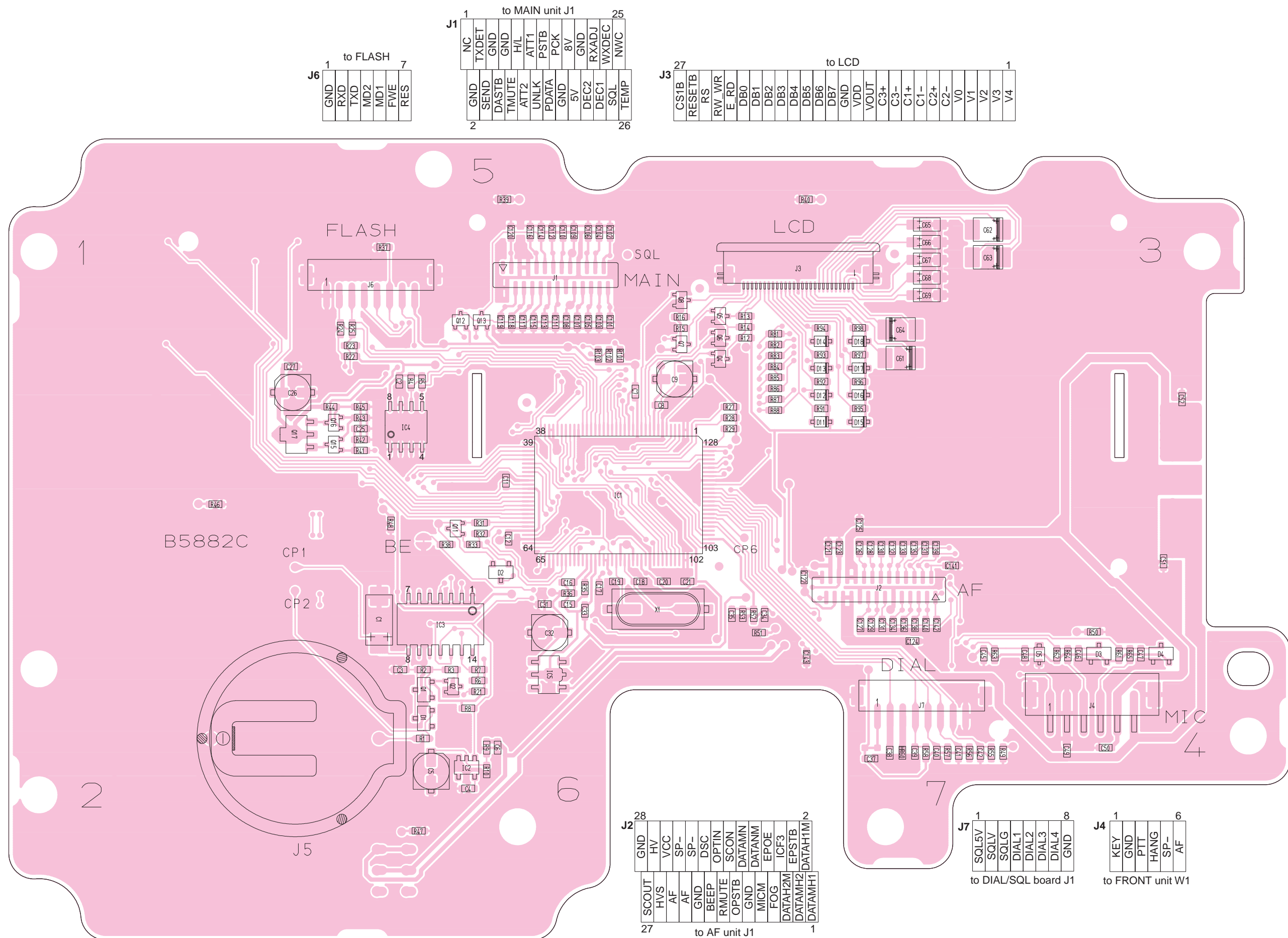


9-5 LOGIC BOARD  
• TOP VIEW

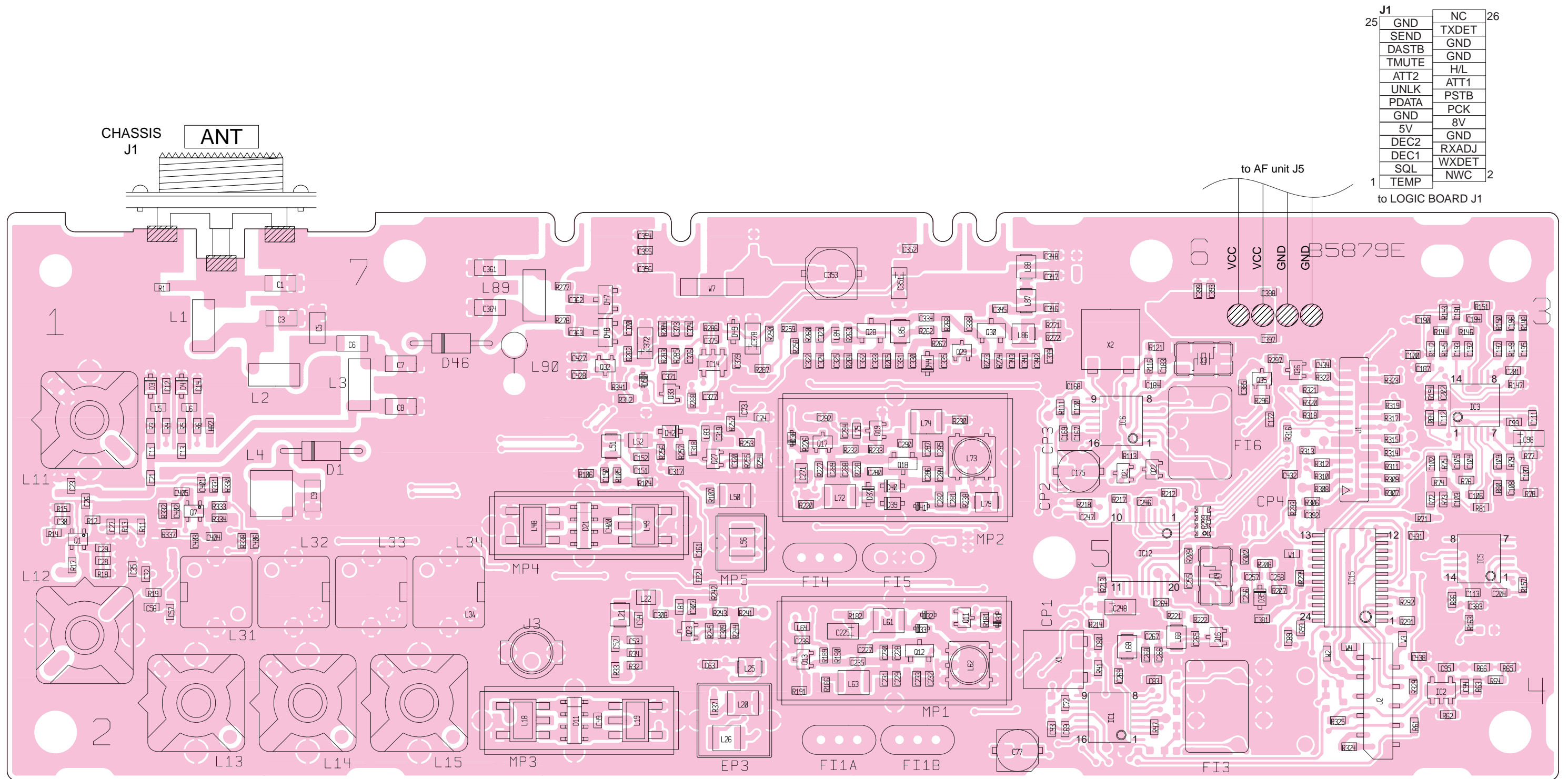




• BOTTOM VIEW (LOGIC BOARD)



**9-6 MAIN UNIT**  
• TOP VIEW



**J1**

|    |       |       |    |
|----|-------|-------|----|
| 25 | GND   | NC    | 26 |
|    | SEND  | TXDET |    |
|    | DASTB | GND   |    |
|    | TMUTE | GND   |    |
|    | ATT2  | ATT1  |    |
|    | UNLK  | PSTB  |    |
|    | PDATA | PCK   |    |
|    | GND   | 8V    |    |
|    | 5V    | GND   |    |
|    | DEC2  | RXADJ |    |
|    | DEC1  | WXDET |    |
|    | SQL   | NWC   |    |
| 1  | TEMP  |       | 2  |

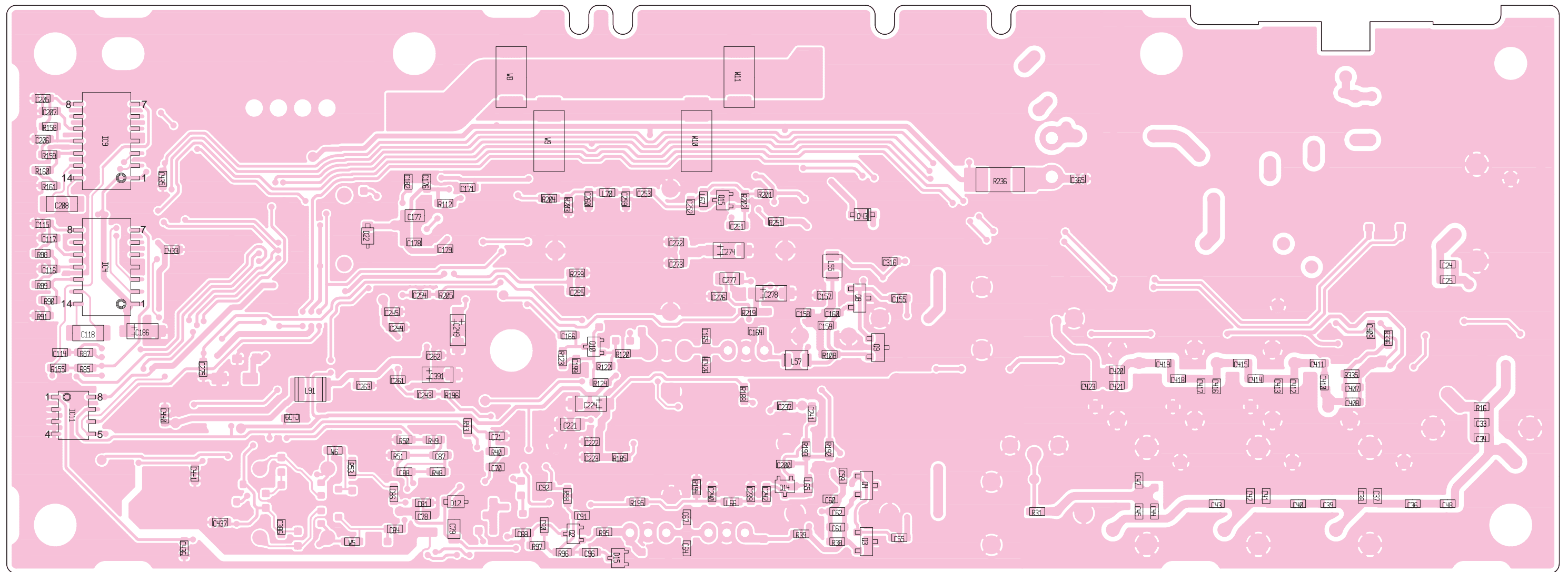
to LOGIC BOARD J1

**J2**

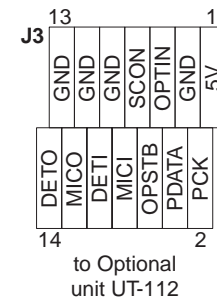
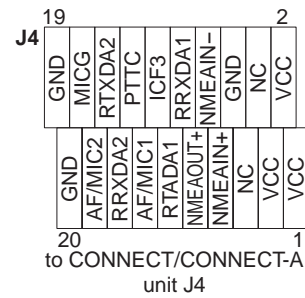
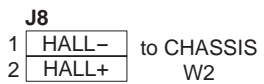
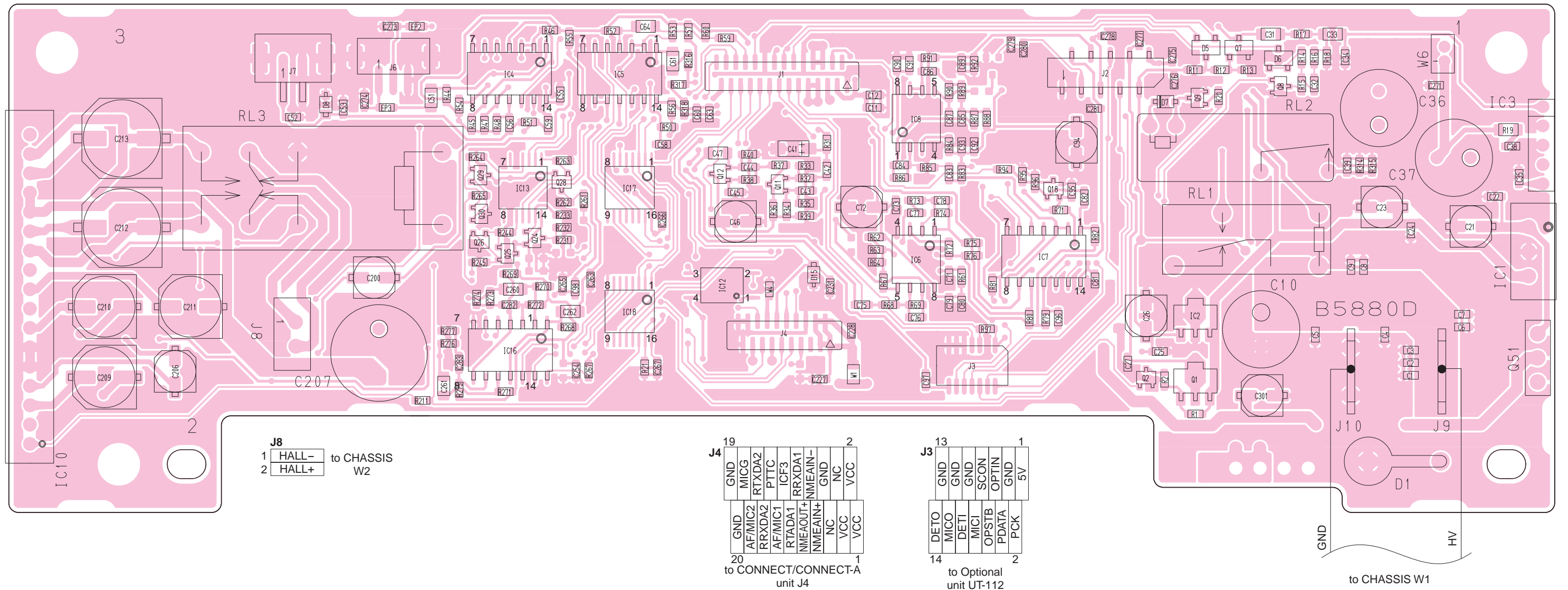
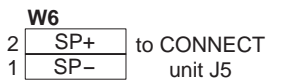
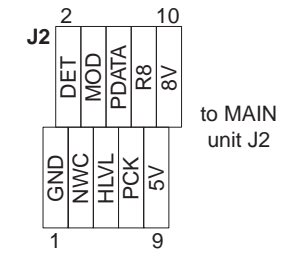
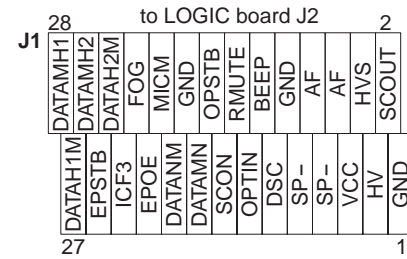
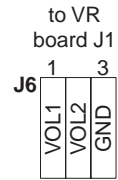
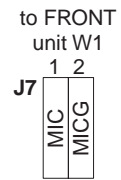
|   |       |      |    |
|---|-------|------|----|
| 1 | 8V    | 5V   | 2  |
|   | R8    | PCK  |    |
|   | PDATA | HLVL |    |
|   | MOD   | NWC  |    |
| 9 | DET   | GND  | 10 |

to AF unit J2

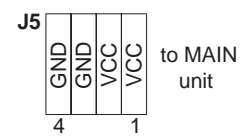
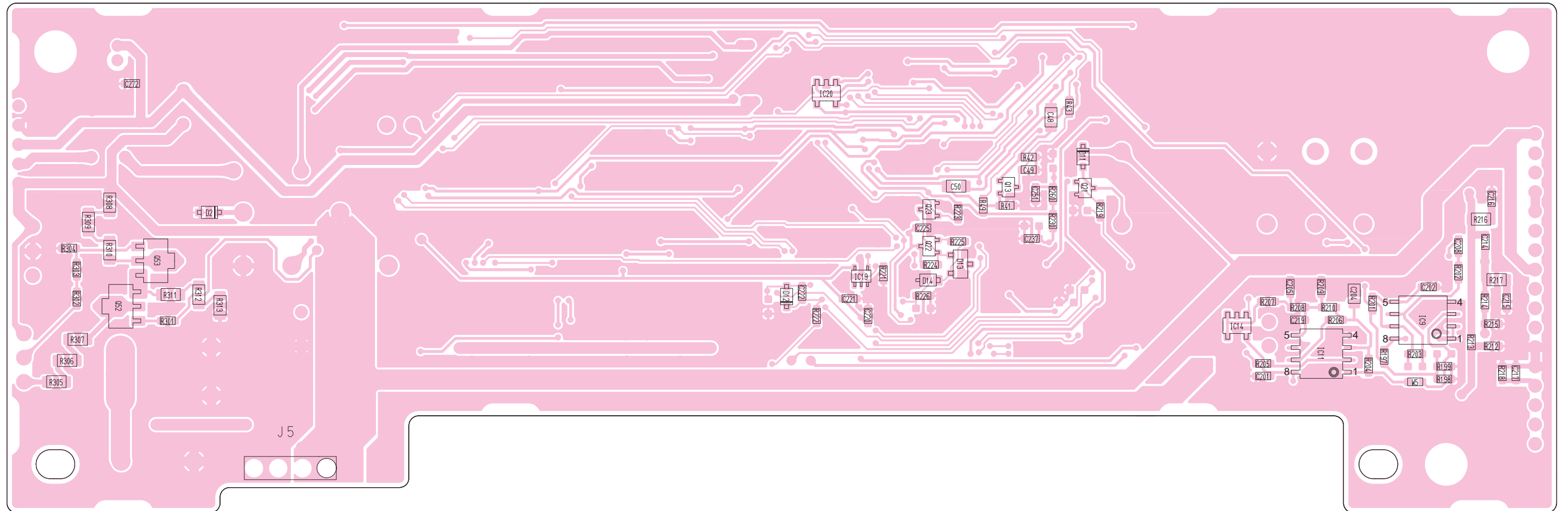
• BOTTOM VIEW (MAIN UNIT)



**9-7 AF UNIT**  
• TOP VIEW

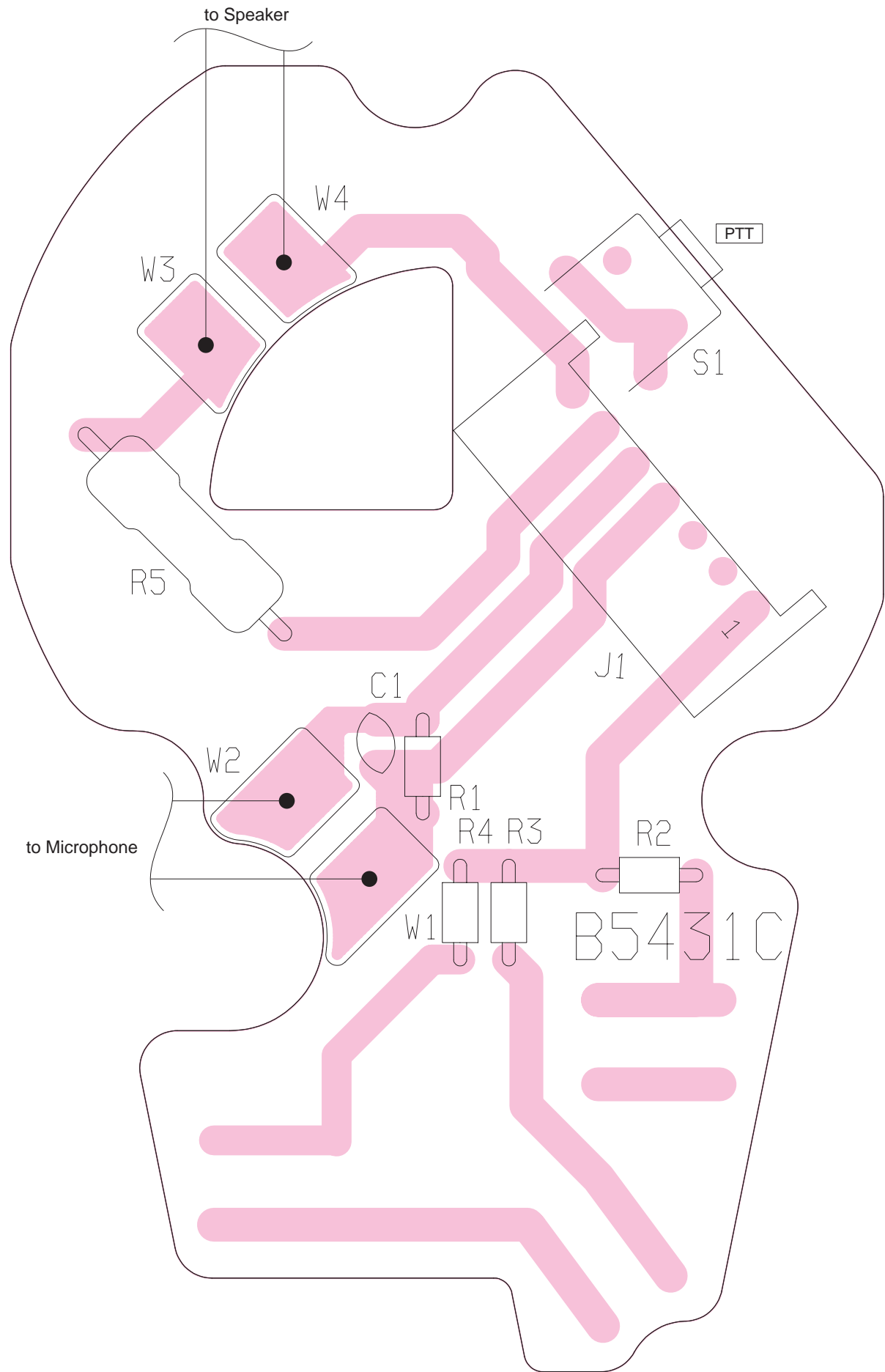


• BOTTOM VIEW (AF UNIT)





**9-8 HM-137**  
• TOP VIEW

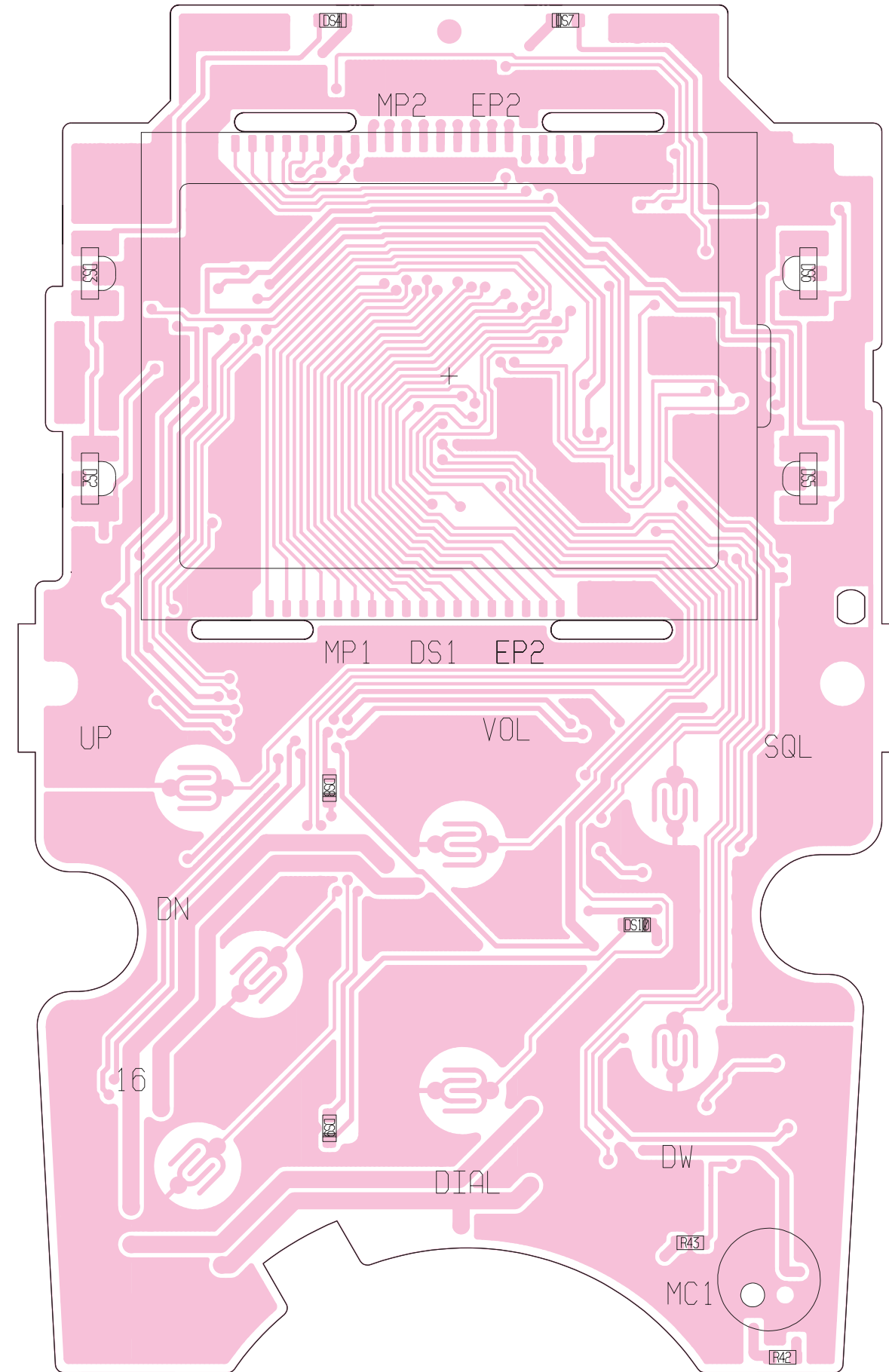


**J1**

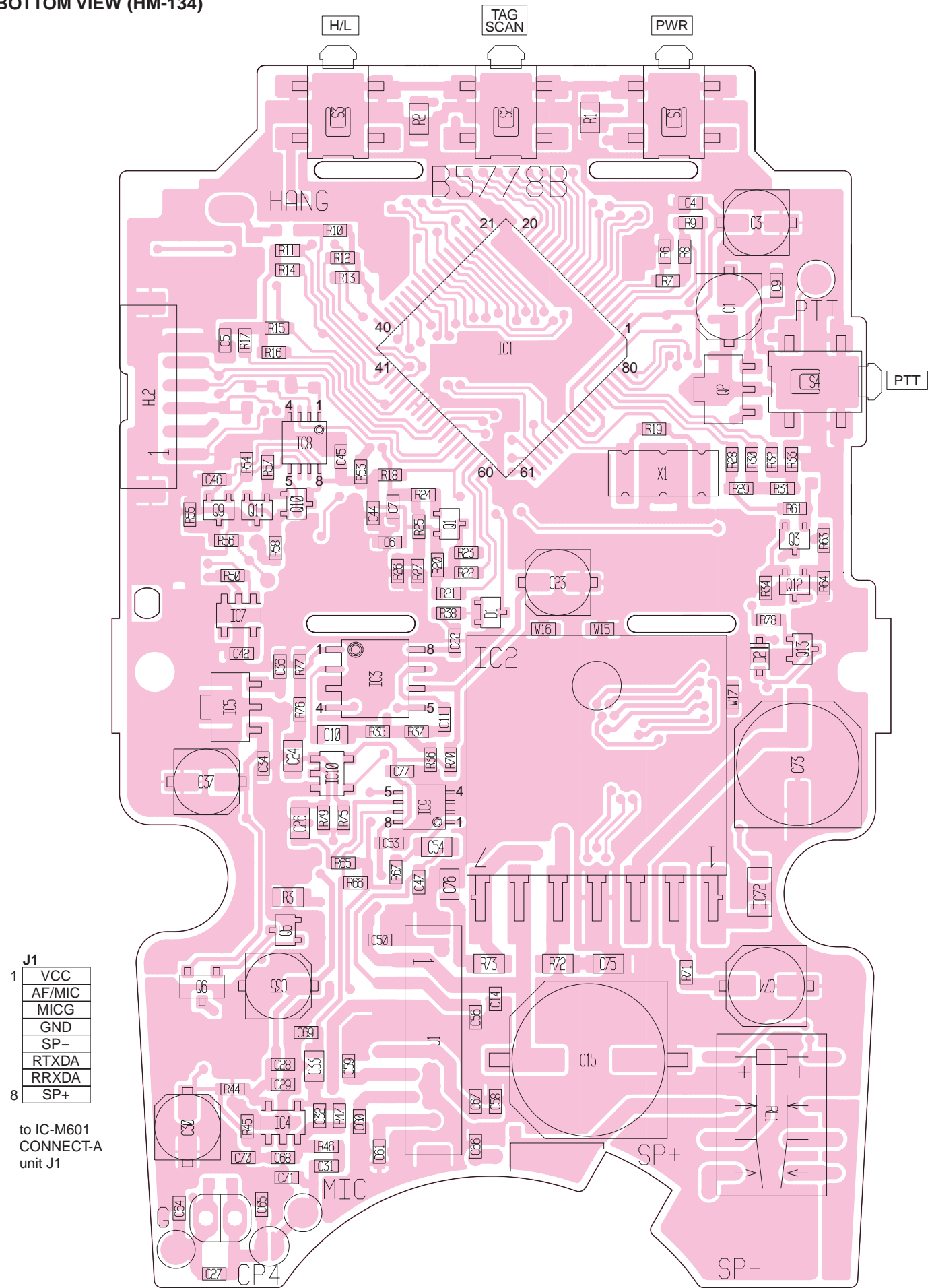
|   |      |
|---|------|
| 7 | SP-  |
|   | SP+  |
|   | MICE |
|   | MIC  |
|   | PTT  |
|   | GND  |
| 1 | KEY  |

to IC-M601/M602  
FRONT unit W1

**9-9 HM-134 (OPTIONAL UNIT)**  
• TOP VIEW



• BOTTOM VIEW (HM-134)

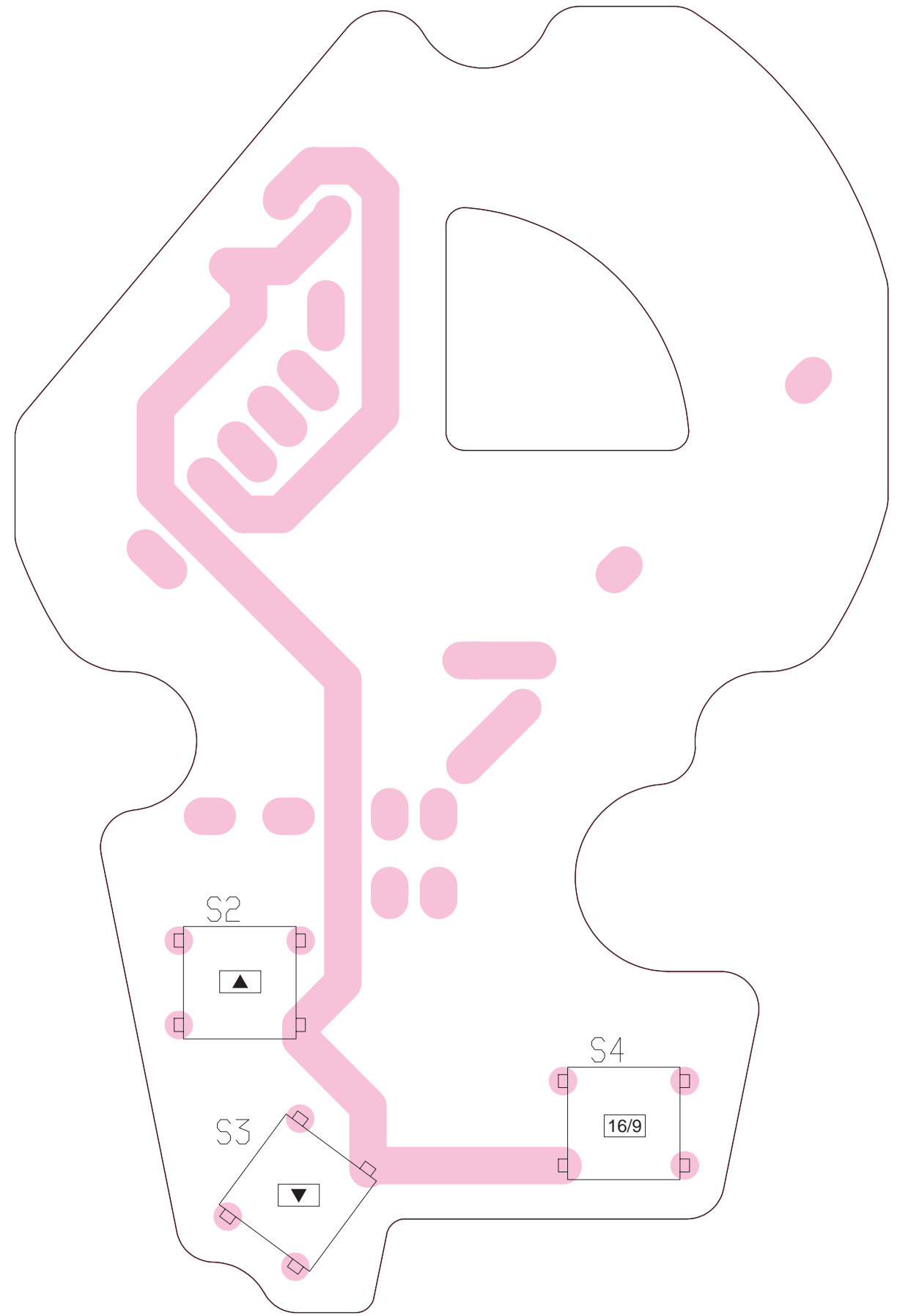


J1

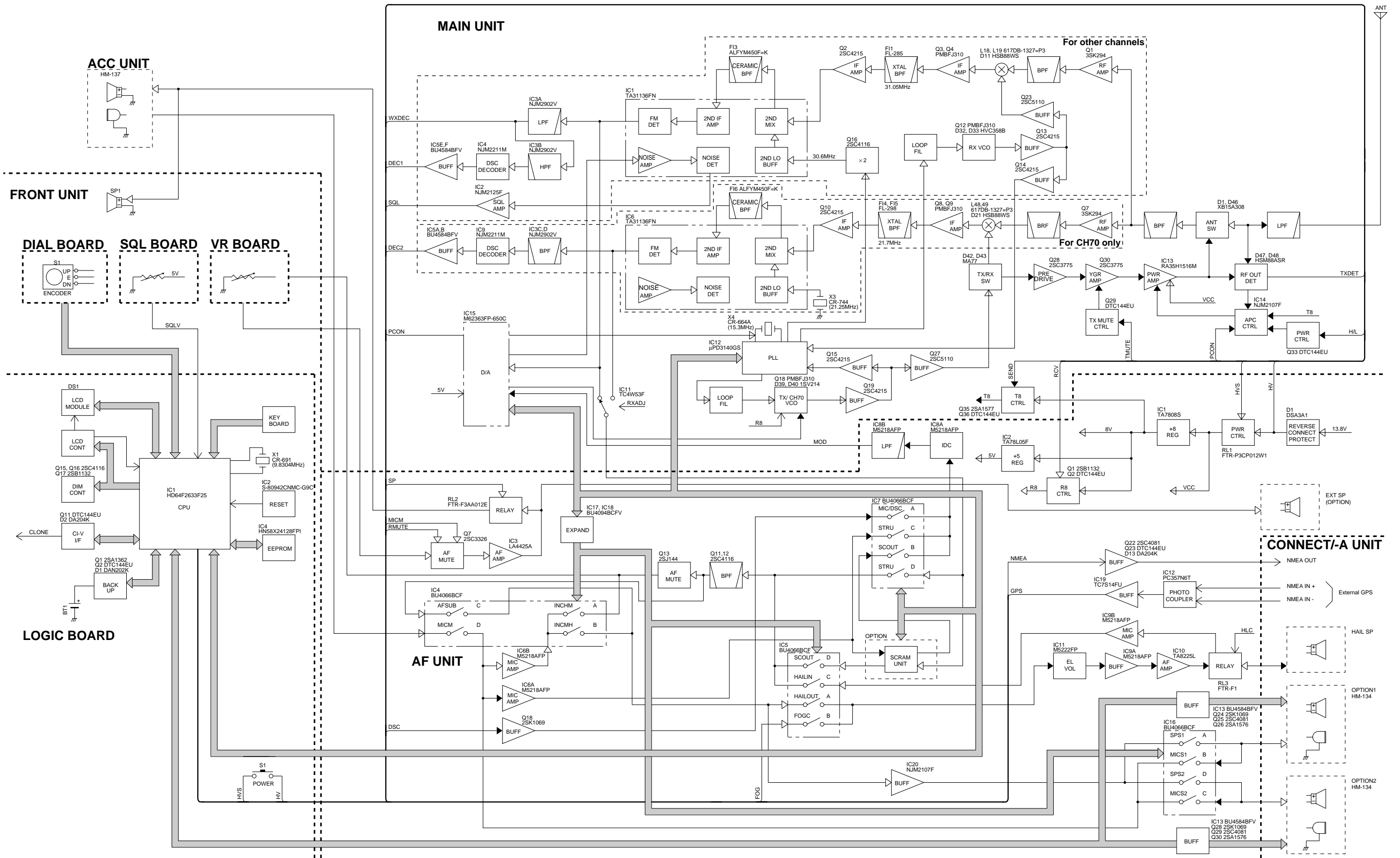
|   |        |
|---|--------|
| 1 | VCC    |
| 2 | AF/MIC |
| 3 | MICG   |
| 4 | GND    |
| 5 | SP-    |
| 6 | RTXDA  |
| 7 | RRXDA  |
| 8 | SP+    |

to IC-M601  
CONNECT-A  
unit J1

• BOTTOM VIEW (HM-137)

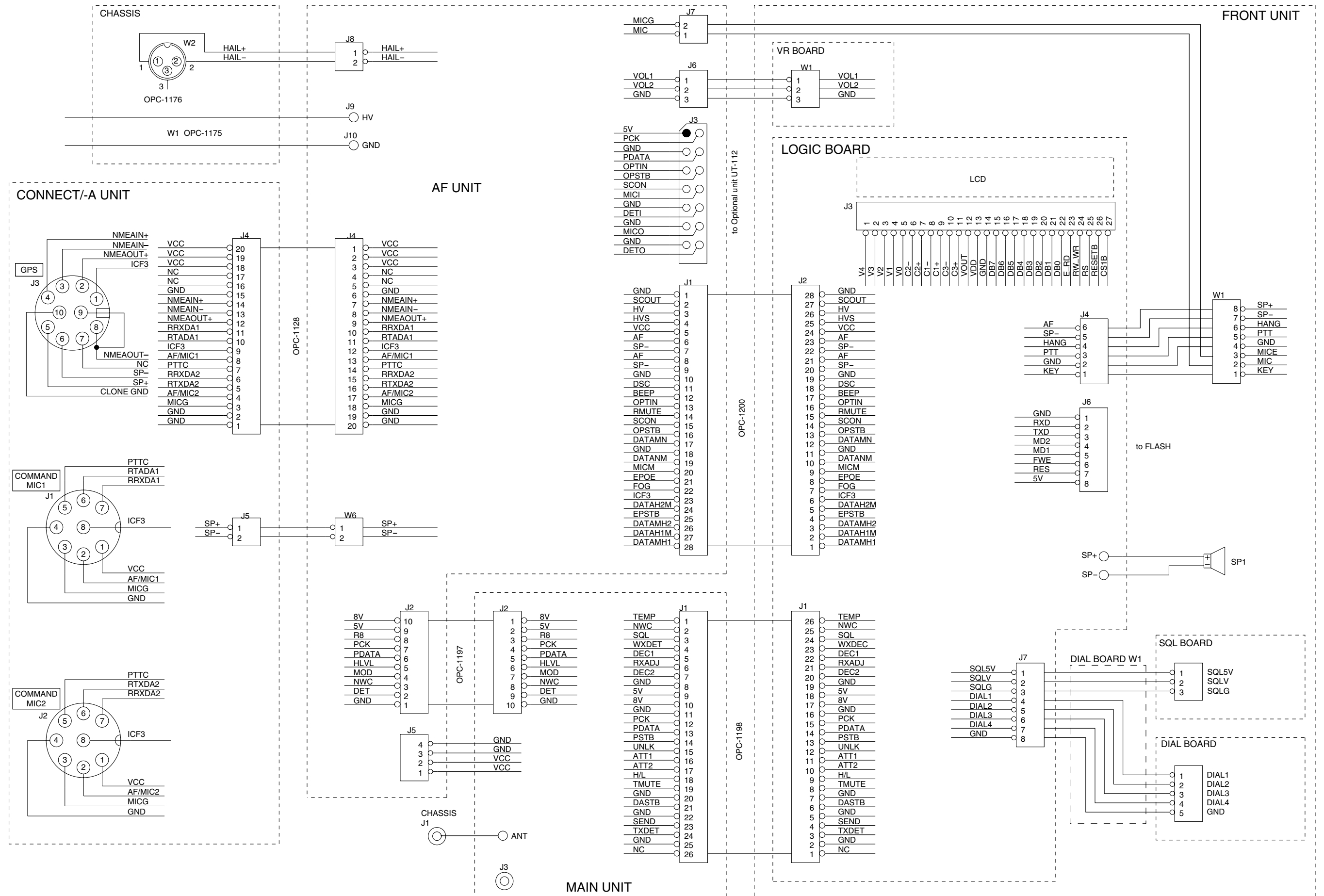


# SECTION 10 BLOCK DIAGRAM



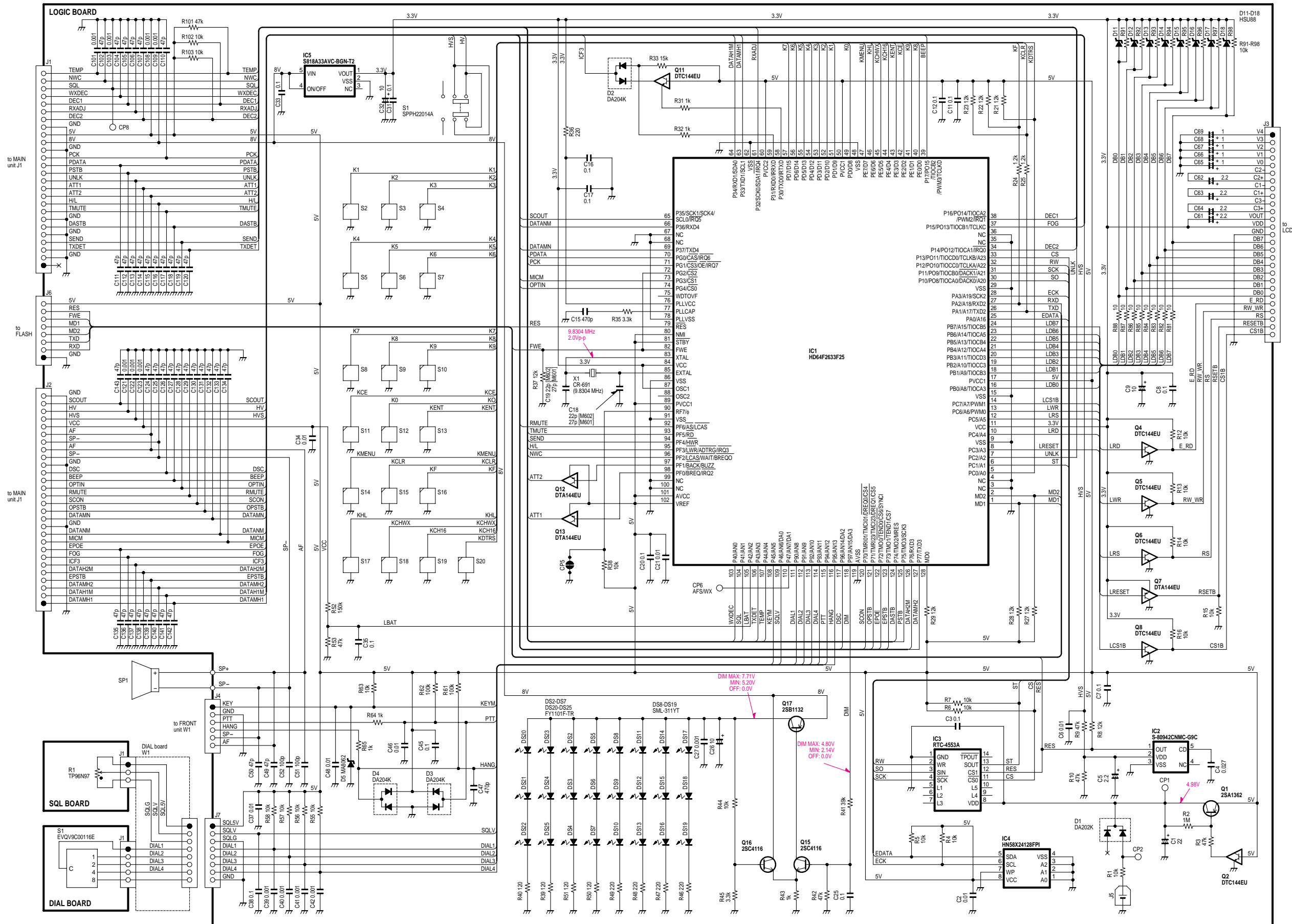


# SECTION 11 WIRING DIAGRAM

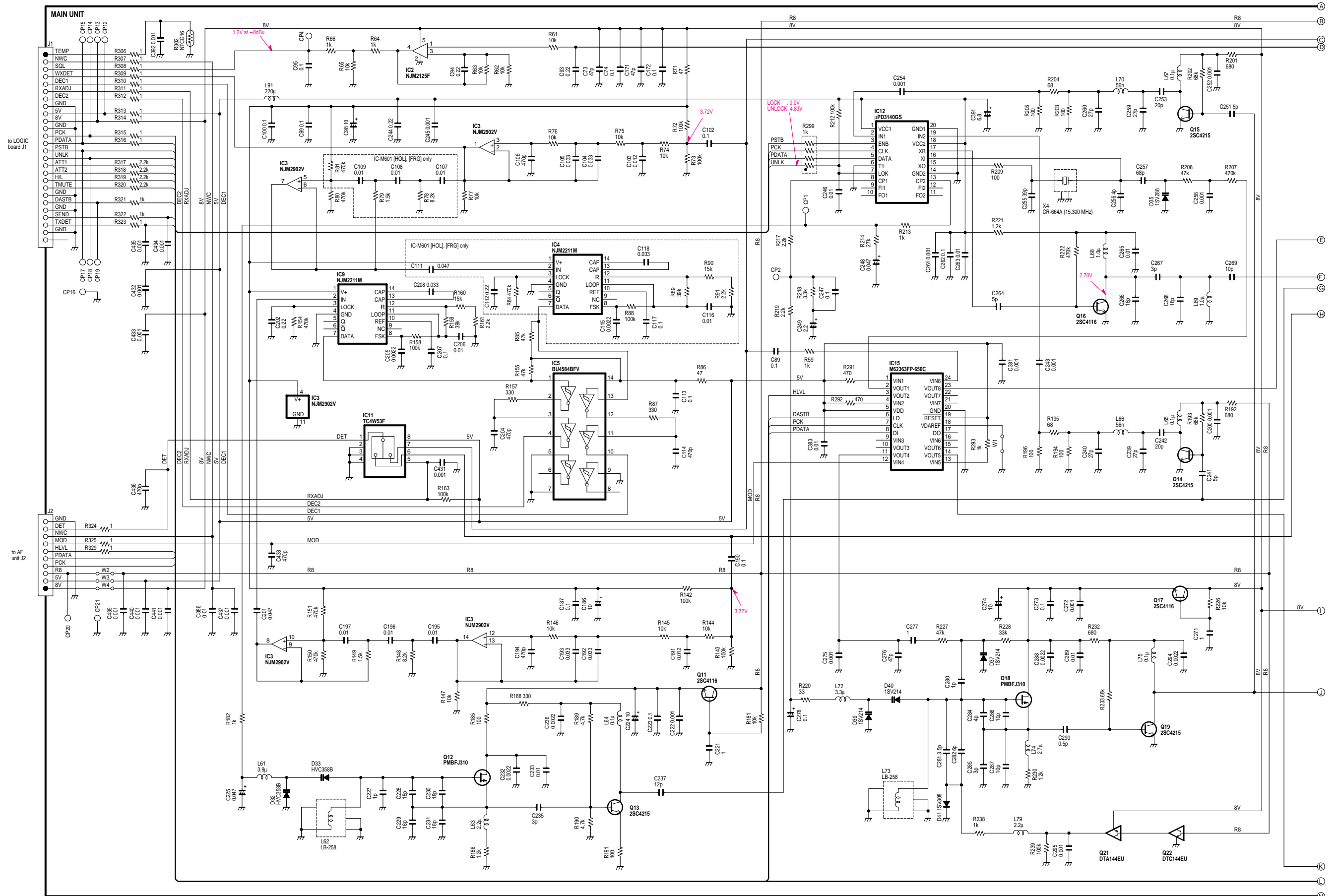


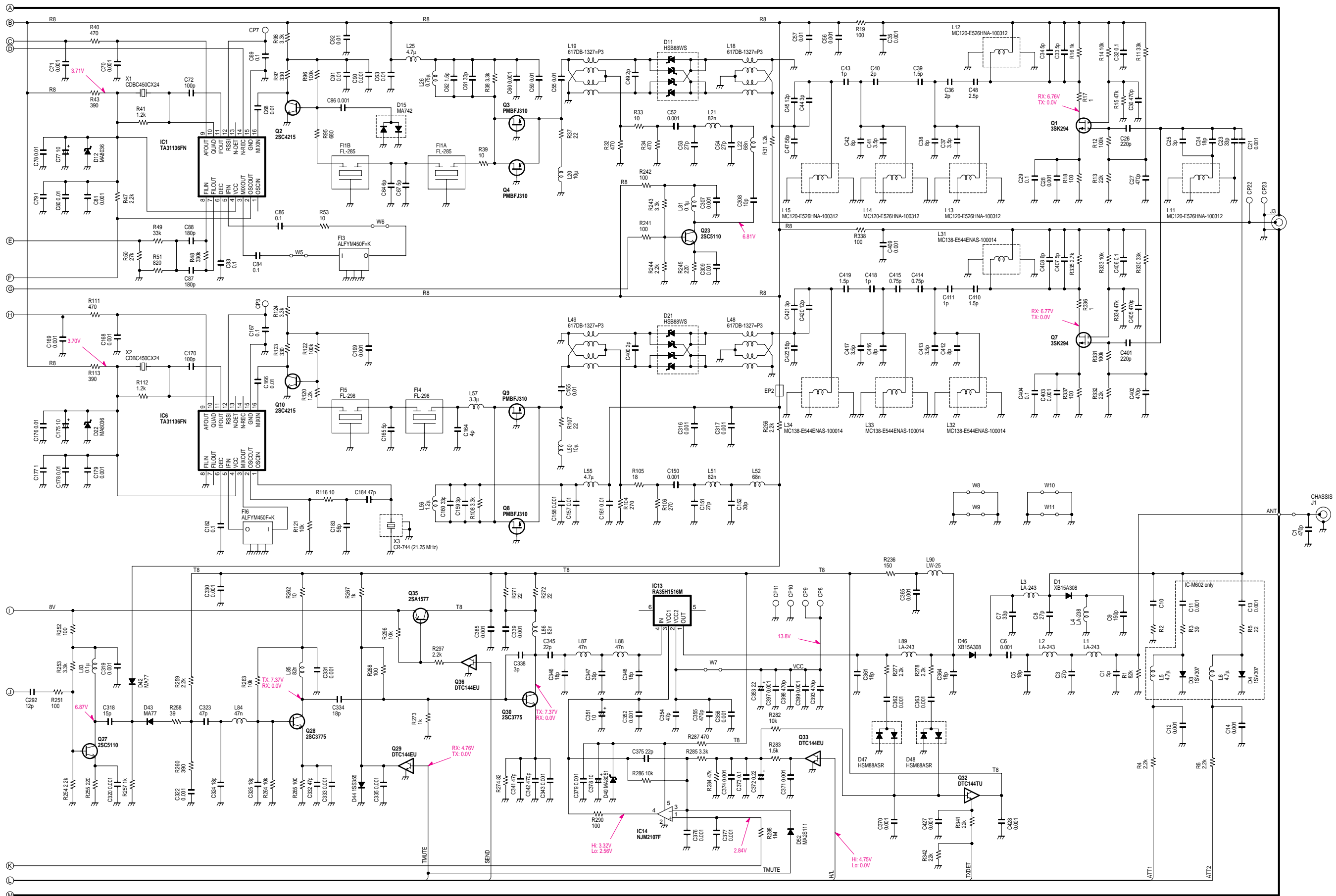
# SECTION 12 VOLTAGE DIAGRAMS

## 12-1 LOGIC BOARD

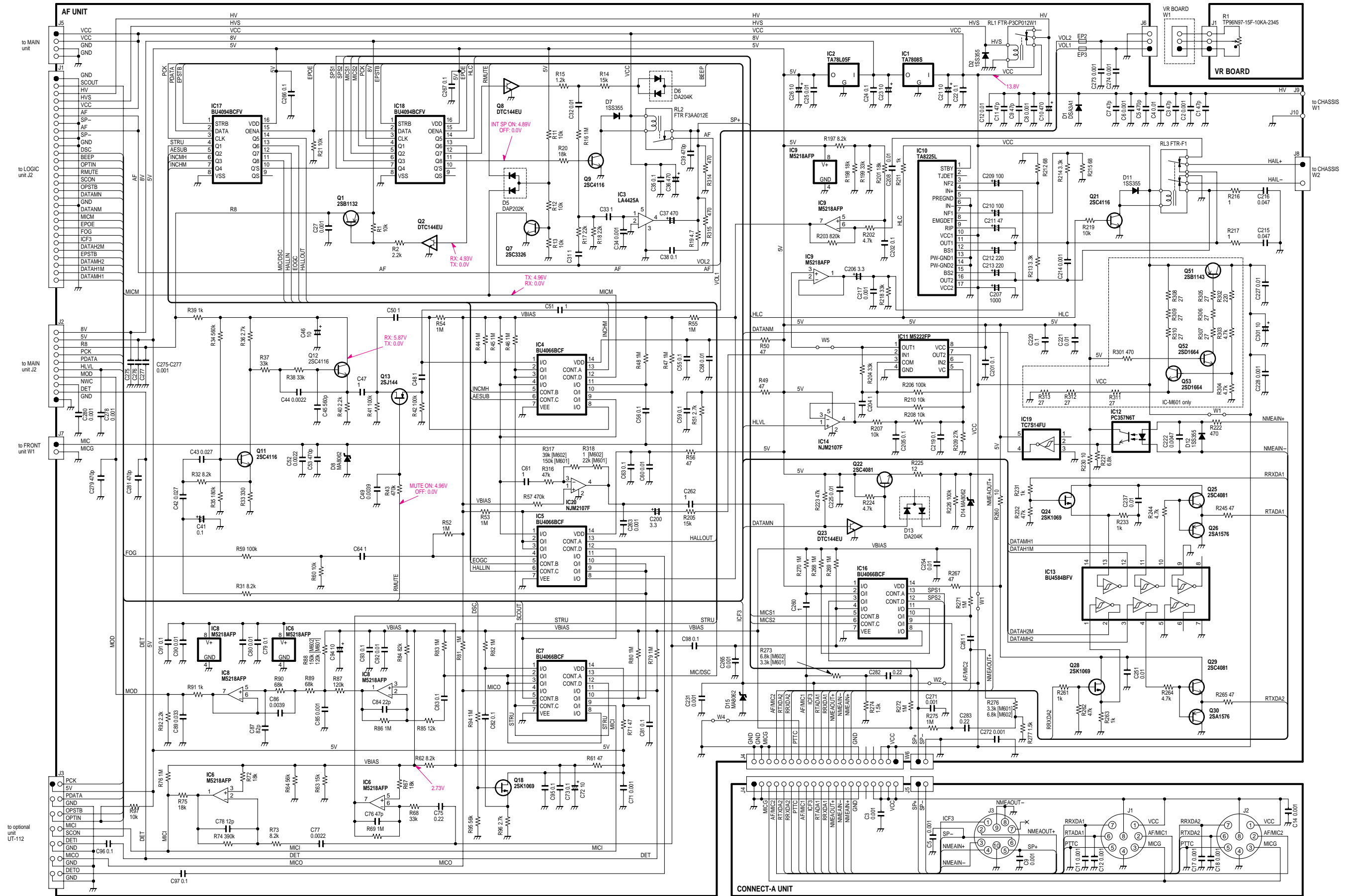


# 12-2 MAIN UNIT

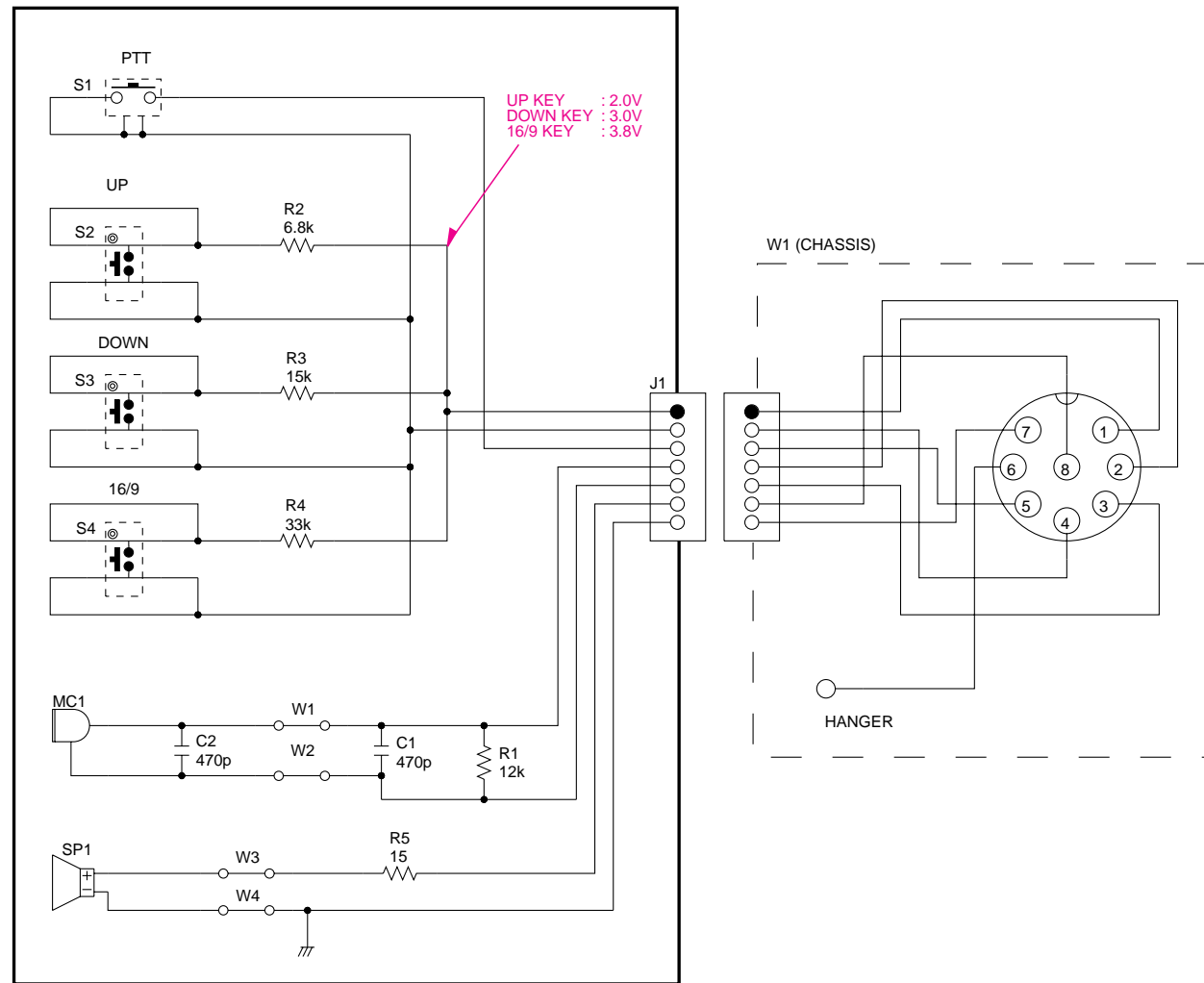




# 12-3 AF UNIT



12-4 HM-137







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