

ICOM[®]

**SERVICE
MANUAL**

UHF TRUNKED RADIO

IC-F43TR

INTRODUCTION

This service manual describes the latest service information for the **IC-F43TR** UHF TRUNKED RADIO at the time of publication.

| MODEL | VERSION | SYMBOL | FREQUENCY |
|----------|---------|--------|-------------|
| IC-F43TR | 10 KEY | TRU-02 | 400-470 MHz |
| | | TRU-82 | |
| | 4 KEY | SRU-02 | |
| | | SRU-82 | |
| | 10 KEY | TRU-03 | 450-512 MHz |
| | | TRU-83 | |
| 4 KEY | SRU-03 | | |
| | SRU-83 | | |

To upgrade quality, all 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 8 V. Such a connection could cause a fire or electric hazard.

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 (100mW) 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>

5030002610 LCD FX-2721 LCD IC-F43TR Main unit 5 pieces
8810009220 Screw BO 2x8 ZK IC-F43TR Chassis 10 pieces

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

REPAIR NOTES

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated turning 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 30 dB to 40 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.


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SECTION 1 SPECIFICATIONS

■ GENERAL

- Frequency coverage : 400.000–470.000 MHz [H]
450.000–512.000 MHz [L]
- Mode : FM
- Type of emission : 16K0F3E (25.0 kHz) WIDE
11K0F3E (12.5 kHz) NARROW
- Number of conventional channels : 250 ch
- Antenna connector : 50 Ω
- Operating temperature range : –30°C to +60°C (–22°F to +140°F)
- Power supply requirement : 7.2 V DC nominal (negative ground)
- Current drain (at 7.2 V DC) :

| RECEIVING | | TRANSMITTING | |
|-----------|------------|--------------|-----------|
| Stand-by | Max. audio | High (4 W) | Low (1 W) |
| 85 mA | 300 mA | 1.7 A | 0.8 A |

- Dimensions (projections not included): 53.0(W)×120.0(H)×32.5(D) mm / 2³/₃₂(W) × 3²³/₃₂(H) × 1⁹/₃₂(D) in
- Weight (Including BP-232) : Approximately 320 g (11⁹/₃₂ oz)

■ TRANSMITTER

- Output power (at 7.2 V DC) : High: 4 W, Low: 1 W
- Modulation : Variable reactance frequency modulation
- Maximum permissible deviation : ±5.0 kHz (Wide), ±2.5 kHz (Narrow)
- Frequency error : ±2.5 ppm
- Spurious emissions : 70 dB (typical)
- Adjacent channel power : 70 dB min. (Wide), 60 dB min. (Narrow)
- Audio harmonic distortion : 3% typical (AF 1kHz, 40% deviation)
- Hum and Noise : 40 dB min (46 dB typical) for Wide
34 dB min (40 dB typical) for Narrow
- Limiting charact of modulator : 60–100 % of maximum deviation
- Microphone impedance : 2.2 kΩ

■ RECEIVER

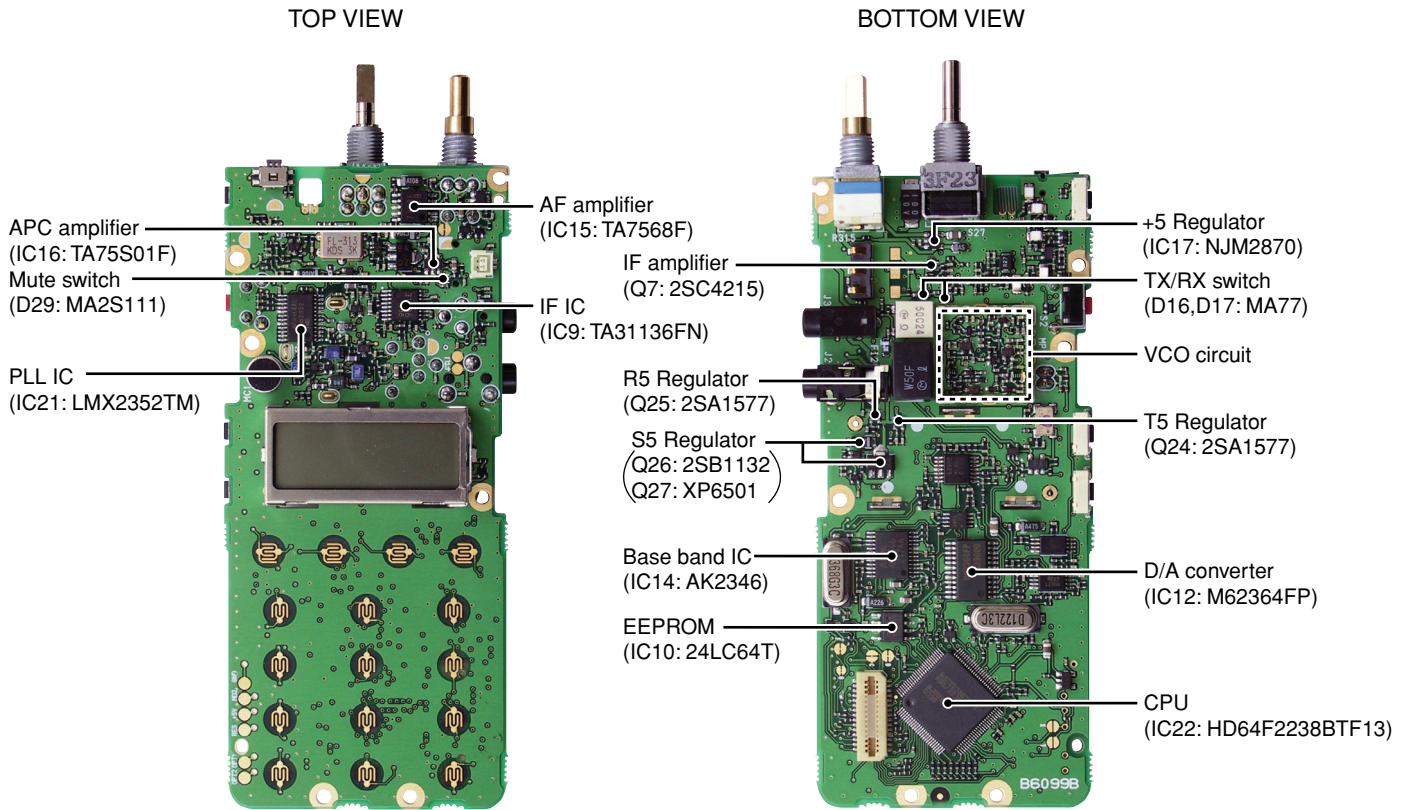
- Receive system : Double conversion superheterodyne system
- Intermediate frequencies : 1st: 46.35 MHz, 2nd: 450 kHz
- Sensitivity : 0.25 μV (–119 dBm) typical at 12 dB SINAD
- Adjacent channel selectivity : 70 dB min (75 dB typical) for Wide
60 dB min (65 dB typical) for Narrow
- Spurious response : 70 dB
- Intermodulation rejection ratio : 70 dB min (74 dB typical)
- Hum and Noise : 40 dB min (45 dB typical) for Wide
34 dB min (40 dB typical) for Narrow
- Audio output power : 0.5 W typical at 5% distortion with an 8 Ω load
- Squelch sensitivity (at threshold) : 0.25 μV typical
- Output impedance (Audio) : 8 Ω

Specifications are measured in accordance with EIA-152-C/204D, TIA-603.

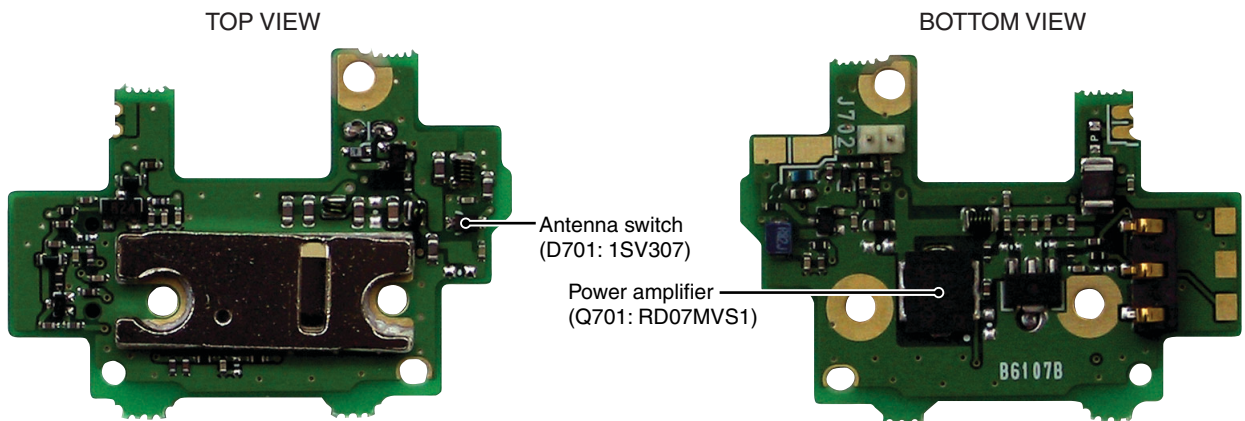
All stated specifications are subject to change without notice or obligation.

SECTION 2 INSIDE VIEWS

• MAIN UNIT



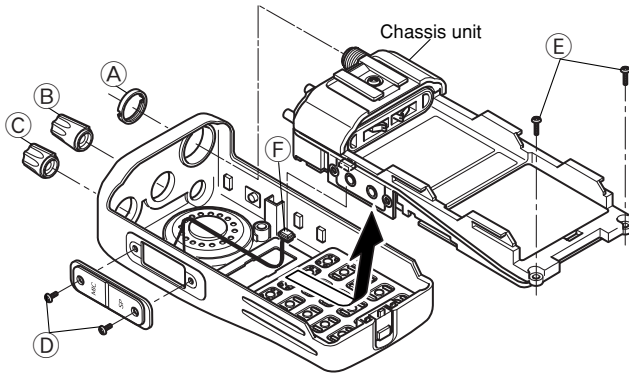
• PA UNIT



SECTION 3 DISASSEMBLY INSTRUCTIONS

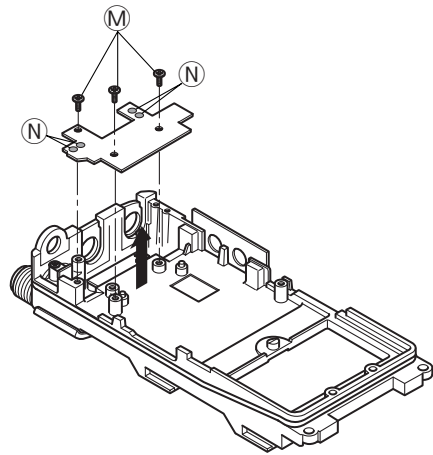
• REMOVING THE CHASSIS UNIT

- ① Unscrew 1 nut (A), and remove 2 knobs (B,C).
- ② Unscrew 2 screws (D).
- ③ Unscrew 2 screws (E).
- ④ Take off the chassis unit in the direction of the arrow.
- ⑤ Unplug the connector (F) from the chassis unit.



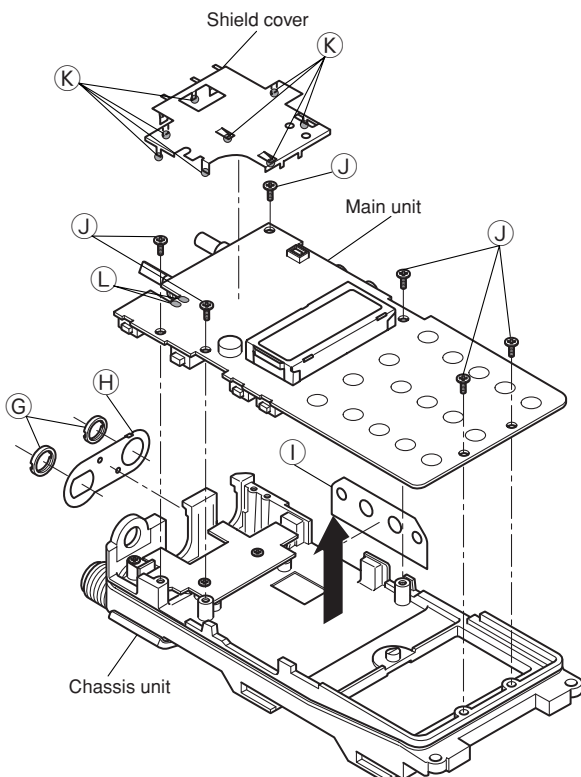
• REMOVING THE PA UNIT

- ① Unscrew 3 screws (M).
- ② Unsolder 4 points (N), and take off the PA unit in the direction of the arrow.



• REMOVING THE MAIN UNIT

- ① Unscrew 2 nuts (G), and remove the top plate (H).
- ② Remove the side plate (I).
- ③ Unscrew 6 screws (J).
- ④ Unsolder 8 points (K), and remove the shield cover.
- ⑤ Unsolder 2 points (L), and take off the main unit in the direction of the arrow.



SECTION 4 CIRCUIT DESCRIPTION

4-1 RECEIVER CIRCUITS

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

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

Received signals enter the antenna connector (CHASSIS; J1) and pass through the low-pass filter (ANT unit). The filtered signals are passed through the $\lambda/4$ type antenna switching circuit (D701, D704, L712) and then applied to the RF circuit.

4-1-2 RF CIRCUIT (MAIN UNIT)

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

The signals from the antenna switching circuit pass through the two-stage tunable bandpass filters (D19, D20, D24, D25, L7, L8, C27, C369). The filtered signals are amplified at the RF amplifier (Q5) and then passed through the another two-stage tunable bandpass filters (D14, D15, C39, C45) to suppress unwanted signals. The filtered signals are applied to the 1st mixer circuit.

D14, D15, D19, D20, D24, D25 employ varactor diodes, that are controlled by the CPU via the D/A converter (IC12), to track the bandpass filter. These varactor diodes tune the center frequency of an RF pass band for wide bandwidth receiving and good image response rejection.

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

The 1st mixer circuit converts the received signal into fixed frequency of the 1st IF signal with the PLL output frequency. By changing the PLL frequency, only the desired frequency passes through a crystal filter at the next stage of the 1st mixer.

The RF signals from the bandpass filter are mixed with the 1st LO signals, where come from the RX VCO circuit via the low-pass filter (L46, C396, C397), at the 1st mixer circuit (Q6) to produce a 46.35 MHz 1st IF signal. The 1st IF signal is passed through a monolithic filter (F11) in order to obtain selection capability and to pass only the desired signals. The filtered signal is applied to the 2nd IF circuit after being amplified at the 1st IF amplifier (Q7).

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

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

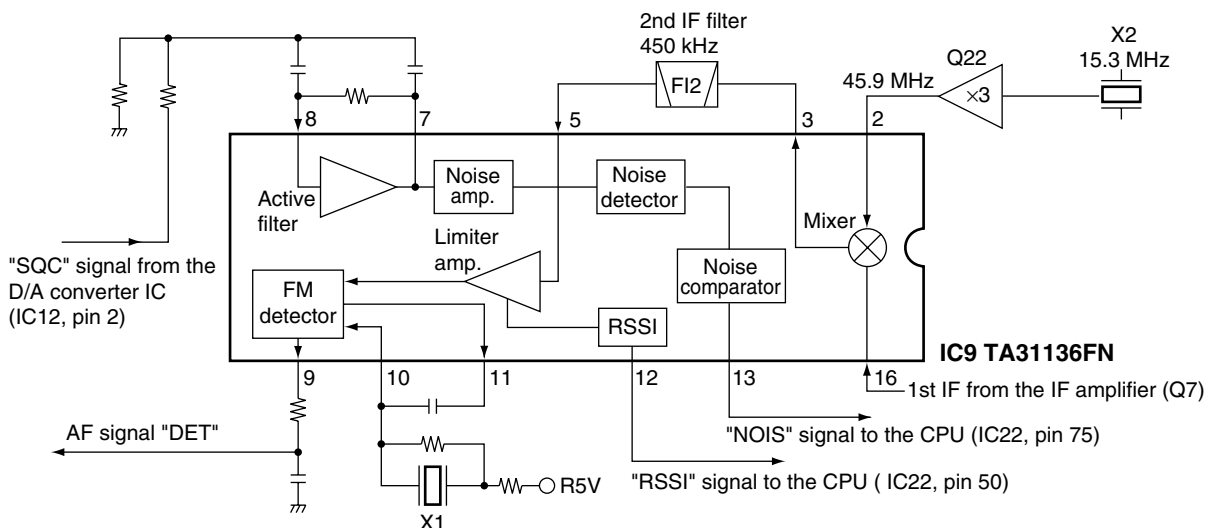
The 1st IF signal from the IF amplifier (Q7) is applied to the 2nd mixer section of the FM IF IC (IC9, pin 16), and is mixed with the 2nd LO signal to be converted into a 450 kHz 2nd IF signal.

The FM IF IC (IC9) contains the 2nd mixer, 2nd local oscillator, limiter amplifier, quadrature detector, active filter and noise amplifier circuits. A 2nd LO signal (45.9 MHz) is produced at the PLL circuit by tripling its reference frequency (15.3 MHz).

The 2nd IF signal from the 2nd mixer (IC9, pin 3) passes through the ceramic filter (F12) to remove unwanted heterodyned frequencies. It is then amplified at the limiter amplifier section (IC9, pin 5) and applied to the quadrature detector section (IC9, pins 10, 11) to demodulate the 2nd IF signal into AF signals.

The demodulated AF signals are output from pin 9 (IC9) and applied to the AF circuit via the receiver mute circuit.

• 2ND IF DEMODULATOR CIRCUITS



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

The AF amplifier circuit amplifies the demodulated AF signals to drive a speaker. This transceiver employs the base band IC which is composed of pre-amplifier, expander, scrambler, MSK de-modulator, etc. at the AF amplifier section.

The AF signals from the FM IF IC (IC9, pin 9) are amplified at the AF amplifier section of the base band IC (IC14, pin 23) and are then applied to the low-pass filter section of it.

The filtered signals pass through the high-pass filter to suppress unwanted harmonic components. The signals pass through (or bypass) scrambler and expander sections. The signals are amplified at the amplifier section of the base band IC (IC14).

The amplified signals pass through the AF volume (R315), and are then applied to the AF power amplifier (IC15) to drive the speaker.

4-1-6 RECEIVE MUTE CIRCUITS (MAIN UNIT)

• NOISE SQUELCH

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.

Some noise components in the AF signals from the FM IF IC (IC9, pin 9) are passed through the D/A converter (IC12, pin 1). The signals are applied to the active filter section in the FM IF IC (IC9, pin 8). The active filter section filters and amplifies noise components. The amplified signals are converted into the pulse-type signals at the noise detector section. The detected signals output from pin 13 (NOIS) via the noise comparator section.

The "NOIS" signal from the FM IF IC is applied to the CPU (IC22, pin 75). Then the CPU analyzes the noise condition and outputs the AF mute signal as "AFON" from the pin 70 to the AF power controller (Q41, Q42).

• CTCSS AND DTCS

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

A portion of the "DET" AF signals from the FM IF IC (IC9, pin 9) passes through the low-pass filter (IC19, pin 5) to remove AF (voice) signals, and are then applied to the amplifier (IC19, pin 3). The amplified signals are applied to the CTCSS or DTCS decoder inside of the CPU (IC22, pin 46) via the "CDEC" line. The CPU outputs AF mute control signal and AF power supply circuits (Q41, Q42) control signals via the "AFON" line.

4-2 TRANSMITTER CIRCUITS

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

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

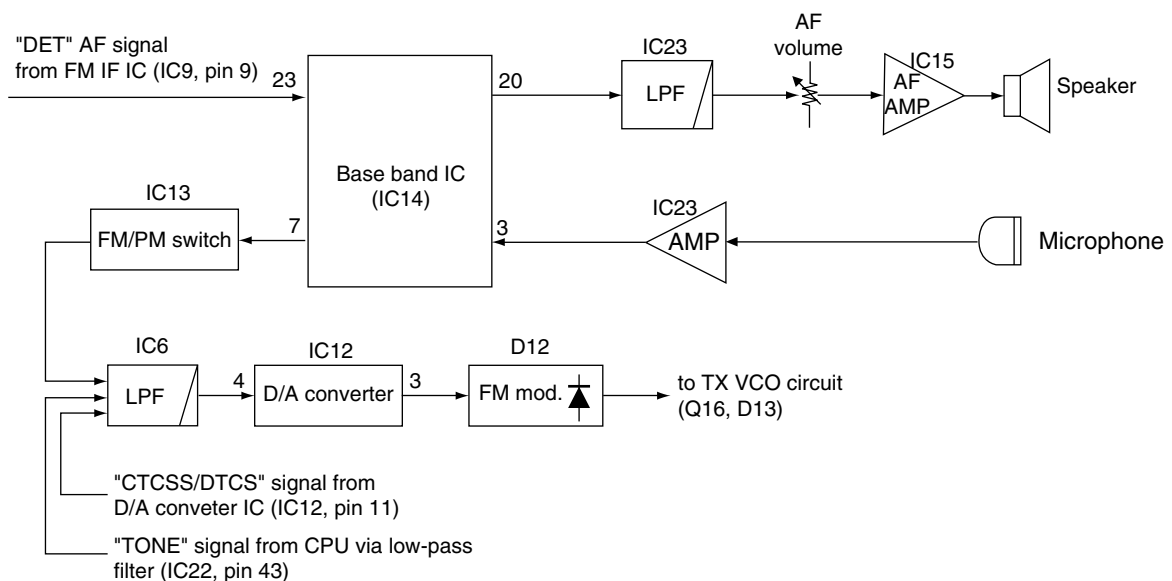
This transceiver employs the base band IC which is composed of microphone amplifier, compressor, scrambler, limiter, splatter filter, MSK modulator, etc. at the microphone amplifier section.

The AF signals (MIC) from the microphone (MC1) are applied to the amplifier (IC23, pins 6, 7). The amplified signals are applied to the microphone amplifier section of the base band IC (IC14, pins 3, 4). The amplified signals are passed through or bypass the compressor, scrambler sections of IC14, and are then passed through the high-pass, limiter amplifier, splatter filter sections of IC14.

The filtered AF signals are applied to the FM/PM switch (IC13, pin 6), and pass through the low-pass filter (IC6, pin 2).

The filtered signals are applied to the D/A converter (IC12, pin 4). The output signals from the D/A converter (IC12, pin 3) are applied to the modulation circuit (D12).

• AF AND MIC AMPLIFIER CIRCUIT



4-2-2 MODULATION CIRCUIT (MAIN UNIT)

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

The AF signals from the D/A converter (IC12, pin 3) change the reactance of varactor diode (D12) to modulate the oscillated signal at the TX VCO circuit (Q16, D10). The modulated VCO signal is amplified at the buffer amplifiers (Q15, Q29) and is then applied to the drive amplifier circuit via the T/R switch (D16).

The CTCSS/DTCS signals ("CENC0", "CENC1", "CENC2" from the CPU (IC22, pins 13, 15, 16) pass through the low-pass filter (IC6, pins 12, 14), and are then applied to the D/A converter via the "TONC" line (IC12, pin 12). The output signal from the D/A converter (IC12, pin 11) are mixed with "MOD" signal at the low-pass filter (IC6), and are then applied to the D/A converter again (IC12, pin 4).

4-2-3 DRIVE/POWER AMPLIFIER CIRCUITS (PA UNIT)

The drive/power amplifier circuits amplify the VCO oscillating signal to an output power level.

The signal from the VCO circuit passes through the T/R switch (MAIN unit; D16), and is amplified at the YGR (Q703, Q704), drive (Q702), power (Q701) amplifiers to obtain 4 W of RF power (at 7.2 V DC).

The amplified signal is passed through the low-pass filter (L704, C711, C712, C713, C755), power detector (D702, D703), antenna switching circuit (D701) and other low-pass filters (PA unit; L709, C744, C745), (ANT unit; L801, L802, C802, C803, C804, C805), and is then applied to the antenna connector (CHASSIS unit; J1).

The bias current of the drive (Q702) and power (Q701) amplifiers are controlled by the APC circuit.

4-2-4 APC CIRCUIT (PA AND MAIN UNITS)

The APC circuit protects the drive and power amplifiers from excessive current drive, and selects output power of HIGH or LOW.

The power detector circuit (PA unit; D702, D703) detects the transmit power output level and converts it into DC voltage. The output voltage is at a minimum level when the antenna impedance is matched at 50 Ω and is increased when it is mismatched.

The detected voltage is applied to the differential amplifier (MAIN unit; IC16; pin 3), and the "T2" signal from the D/A converter (MAIN unit; IC12, pin 23), controlled by the CPU (MAIN unit; IC22), is applied to the other input for reference. When antenna impedance is mismatched, the detected voltage exceeds the power setting voltage. Then the output voltage of the differential amplifier (MAIN unit; IC16, pin 4) controls the input current of the drive (PA unit; Q702) and power (PA unit; Q701) amplifiers to reduce the output power.

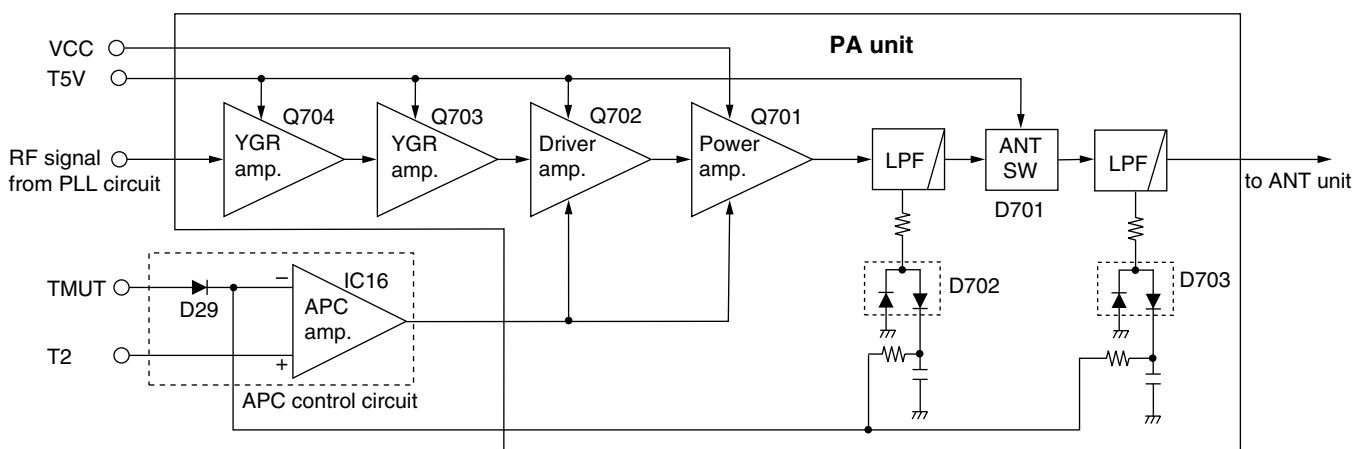
4-3 PLL CIRCUITS

4-3-1 PLL CIRCUIT (MAIN UNIT)

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

The PLL circuit contains the TX/RX VCO circuits (Q16, Q17, D9-D13). The oscillated signal is amplified at the buffer amplifiers (Q14, Q15) and then applied to the PLL IC (IC21, pin 6) after being passed through the low-pass filter (L32, C206, C208).

• APC CIRCUIT



The PLL IC contains a prescaler, programmable counter, programmable divider and phase detector, etc. The entered signal is divided at the prescaler and programmable counter section by the N-data ratio from the CPU. The divided signal is detected on phase at the phase detector using the reference frequency.

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

4-3-2 VCO CIRCUIT (MAIN UNIT)

The VCO circuit contains a separate RX VCO (Q17, D9) and TX VCO (Q16, D10, D13). The oscillated signal is amplified at the buffer amplifiers (Q15, Q29) and is then applied to the T/R switch (D16, D17). Then the receive 1st LO (Rx) signal is applied to the 1st mixer (Q6) and the transmit (Tx) signal to the YGR amplifier circuit (PA unit; Q704).

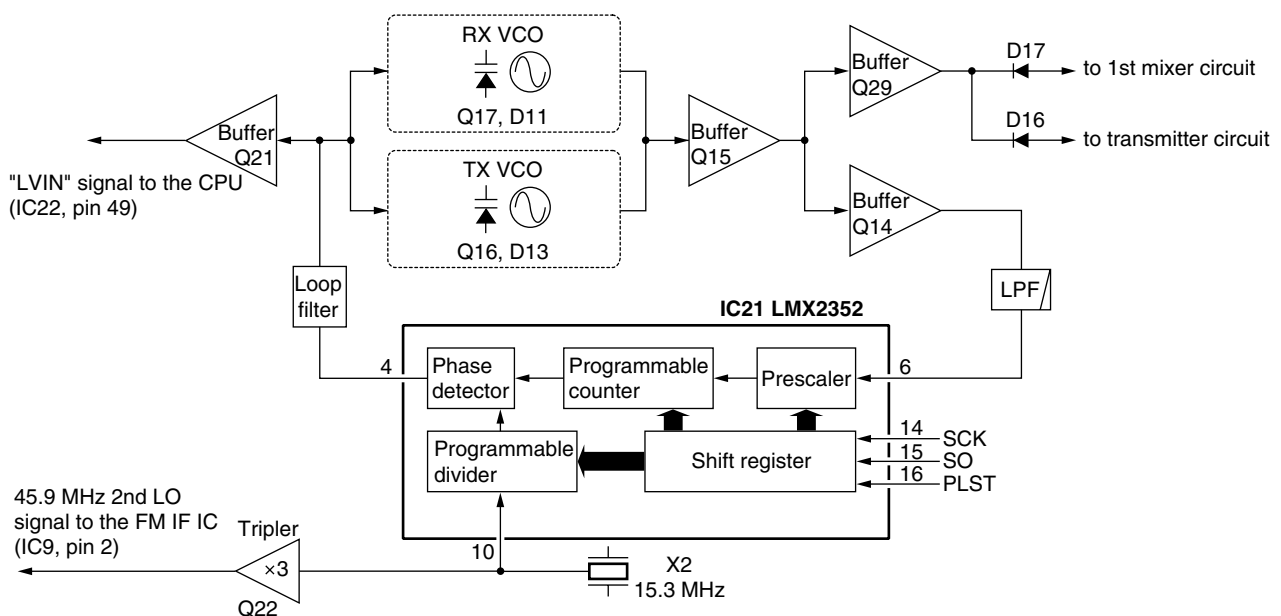
A portion of the signal from the buffer amplifier (Q15) is feed back to the PLL IC (IC21, pin 6) via the buffer amplifier (Q14) as the comparison signal.

4-4 POWER SUPPLY CIRCUIT

4-4-1 MAIN UNIT VOLTAGE LINE

| LINE | DESCRIPTION |
|------|--|
| VCC | The voltage from the connected battery pack. |
| +5V | Common 5 V converted from the VCC line at the +5 regulator circuit (IC7). The output voltage is supplied to buffer amplifiers (Q21), PLL IC (IC21), etc. |
| S5V | Common 5 V converted from the VCC line at the S5 regulator circuit (Q26–Q28). The output voltage is supplied to the ripple filter (Q20), etc. |
| R5V | Receive 5 V converted from the S5V line at the R5 regulator circuit (Q25). The output voltage is supplied to the tripler (Q22), FM IF IC (IC9), IF amplifier (Q7), 1st mixer (Q6), RF amplifier (Q5), etc. |
| T5V | Transmit 5 V converted from the S5V line at the T5 regulator circuit (Q24). The output voltage is supplied to the APC amplifier (IC16), PA unit etc. |

• PLL CIRCUIT



4-5 OTHER CIRCUITS

4-5-1 COMPOUNDER CIRCUIT (MAIN UNIT)

IC-F43TR have compounder circuit which can improve S/N ratio and become wide dynamic range to suppress the transmitting signal and to extend receiving signal. The circuit is composed of the base band IC (IC14).

(1) IN CASE OF TRANSMITTING

The audio signals from the microphone are applied to the base band IC (IC14, pin 3) via microphone amplifier (IC23). The signals are amplified at the amplifier section, and are then applied to the compressor circuit to compress the audio signals. The signals pass through (or bypass) scrambler section, and are then amplified at limiter amplifier section after being passed through the high-pass filter. The amplified signals pass through the low-pass filter section, and are then applied to the modulation circuit (D12) via the FM/PM switch (IC13), low-pass filter (IC6) and D/A converter (IC12).

(2) IN CASE OF RECEIVING

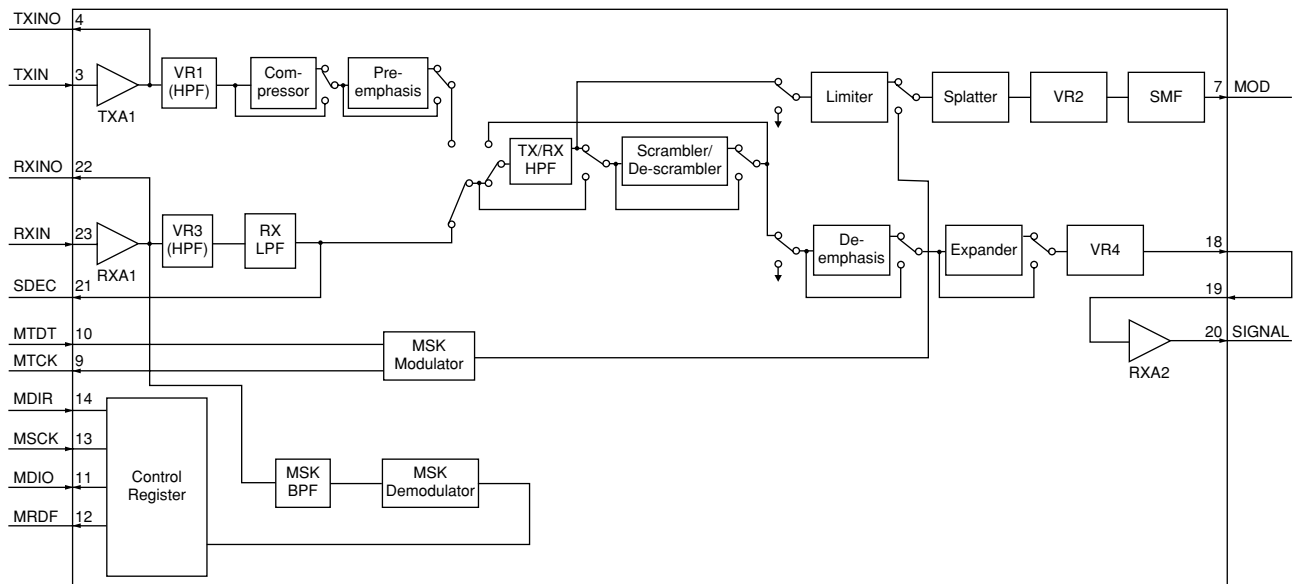
The demodulated AF signals from the IF IC are applied to the amplifier section of base band IC (IC14, pin 23), and then pass through the low-pass and high-pass filter section to suppress unwanted signals. The filtered signals pass through (or bypass) scrambler section, and are then applied to the expander circuit to expand AF signals. The signals are applied to the base band IC's amplifier section (IC14, pins 19, 20), and are then applied to the AF amplifier circuit.

4-6 PORT ALLOCATIONS

4-6-1 D/A CONVERTOR IC (IC12)

| Pin number | Port name | Description |
|------------|-----------|--|
| 10 | BAL | Outputs the modulation balance level control signal. The signal is applied to the buffer amplifier (IC24, pin 1). |
| 14 | TLVA | Outputs the TX VCO lock voltage control signal. |
| 15 | RLVA | Outputs the RX VCO lock voltage control signal. |
| 22 | T1 | Outputs the bandpass filter tuning signal. The output signal is applied to the bandpass filters (D19, D20, D24, D25). |
| 23 | T2 | <ul style="list-style-type: none"> Outputs the bandpass filter tuning signal. The output signal is applied to the bandpass filters (D14, D15). Outputs the TX power control signal. The output signal is applied to the APC amplifier (IC16, pin 1). |

• BASE BAND IC BLOCK DIAGRAM



4-6-2 CPU (MAIN unit; IC22)

| Pin number | Port name | Description |
|------------|-------------|---|
| 13, 15, 16 | CENC0-CENC2 | Output the CTCSS/DTCS signals. |
| 29 | REF | Outputs the reference oscillator correcting voltage. The voltage is applied to the buffer amplifier (IC24, pin3). |
| 30 | PLST | Outputs strobe signals to the PLL IC (IC21, pin 16). |
| 34 | PMFM | Outputs the FM/PM modulation switching signal to the FM/PM switch (IC13, pin 5). High: PM is selected. |
| 35 | MDIO | I/O port for the serial data signals from/to the base band IC (IC14, pin 11). |
| 36 | MSCK | Outputs clock signal to the base band IC (IC14, pin 13). |
| 37 | MDIR | Outputs serial data control signal to the base band IC (IC14, pin 14). |
| 38 | MTCK | Input port for the transmitting MSK clock signal from the base band IC (IC14, pin 9). |
| 39 | MTDT | Outputs MSK data for transmitting to the base band IC (IC14, pin 10). |
| 40 | MRDF | Input port for the receiving MSK detection signal from the base band IC (IC14, pin 12). |
| 41 | DAST | Outputs strobe signals to the D/A convertor (IC12, pin 6). |
| 43 | SENC | Output single tone encoder signal. |
| 44 | BEEP | Outputs beep audio signals. |
| 45 | SDEC | Input port for single tone decode signal from the base band IC (IC14, pin 21). |
| 46 | CDEC | Input port for CTCSS/DTCS signal from the amplifier (IC19, pin 1). |
| 48 | BATV | Input port for the detect signal for connecting battery pack's voltage. |
| 49 | LVIN | Input port for the PLL lock voltage. |
| 50 | RSSI | Input port for the S-meter signal from the FM IF IC (IC9, pin 12). |
| 51 | TEMP | Input port for the transceiver's internal temperature detecting signal. |
| 69 | CSFT | Outputs shift signal for reference oscillator's frequency. |
| 70 | AF | Outputs audio control signal. Low: Outputs audio signals from speaker. |
| 74 | PTT | Input port for the PTT switch detection signal. Low: While the PTT switch is pushed. |

| Pin number | Port name | Description |
|------------|-----------|--|
| 75 | NOIS | Input port for the noise signal from the FM IF IC (IC9, pin 13). |
| 76 | SO | Outputs serial data to the PLL IC (IC21, pin 15) and D/A convertor (IC12, pin 8). |
| 78 | SCK | Outputs serial clock signal to the PLL IC (IC21 pin 14), D/A convertor (IC12, pin 7), etc. |
| 79 | CLI | Input port for the cloning data signal. |
| 80 | CLO | Outputs the cloning data signal. |
| 82 | ESDA | I/O port for data signals from/to the EEPROM (IC10, pin 5). |
| 85 | ESCL | Outputs clock signal to the EEPROM (IC10, pin 6). |
| 86 | S5C | Outputs the S5 regulator (Q26-Q28) control signal. Low: While the S5 regulator outputs 5 V voltage. |
| 86 | T5C | Outputs the T5 regulator (Q24) control signal. Low: While transmitting. |
| 87 | R5C | Outputs the R5 regulator (Q25) control signal. Low: While receiving. |
| 88 | TMUT | Outputs the transmitting mute switch control signal to the mute switch (D29). High: While muting. |
| 90 | ULCK | Input port for the PLL unlock signal. Low: The PLL circuit is unlocked. |

SECTION 5 ADJUSTMENT PROCEDURES

5-1 PREPARATION

When adjusting IC-F43TR, the optional CS-F43TR ADJ ADJUSTMENT SOFTWARE (Rev. 1.0 or later), OPC-478 CLONING CABLE and a JIG CABLE (see illustration at page 5-3) are required.

■ REQUIRED TEST EQUIPMENT

| EQUIPMENT | GRADE AND RANGE | EQUIPMENT | GRADE AND RANGE |
|-------------------------------------|--|---------------------------------|---|
| DC power supply | Output voltage : 7.5 V DC Current capacity : 5 A or more | Audio generator | Frequency range : 300–3000 Hz Output level : 1–500 mV |
| FM deviation meter | Frequency range : DC–800 MHz Measuring range : 0 to ±10 kHz | Attenuator | Power attenuation : 40 or 50 dB Capacity : 10 W or more |
| Frequency counter | Frequency range : 0.1–800 MHz Frequency accuracy : ±1 ppm or better Sensitivity : 100 mV or better | Standard signal generator (SSG) | Frequency range : 100–800 MHz Output level : 0.1 μV–32 mV (–127 to –17 dBm) |
| Digital multimeter | Input impedance : 10 MΩ/V DC or better | DC voltmeter | Input impedance : 50 kΩ/V DC or better |
| RF power meter (terminated type) | Measuring range : 1–10 W Frequency range : 100–800 MHz Impedance : 50 Ω SWR : Less than 1.2 : 1 | Oscilloscope | Frequency range : DC–20 MHz Measuring range : 0.01–20 V |
| | | AC millivoltmeter | Measuring range : 10 mV–10 V |

■ SYSTEM REQUIREMENTS

- Microsoft® Windows® 95 or Windows 98®
- RS-232C serial port (D-sub 9 pin)

■ ADJUSTMENT SOFTWARE INSTALLATION

- ① Boot up Windows.
 - Quit all applications when Windows is running.
- ② Insert the cloning software CD into the appropriate CD drive.
- ③ Select 'Run' from the [Start] menu.
- ④ Type the setup program name using the full path name, then push [Enter] key.
(For example; D:\Setup.exe)
- ⑤ Follow the prompts.
- ⑥ Program group 'CS-F43TR ADJ' appears in the 'Programs' folder of the [Start] menu.

■ BEFORE STARTING SOFTWARE ADJUSTMENT

Program the adjustment frequencies, listed in page 5-2, into the transceiver using with the CS-F43TR before starting the software adjustment. Otherwise, the transceiver can not start software adjustment.

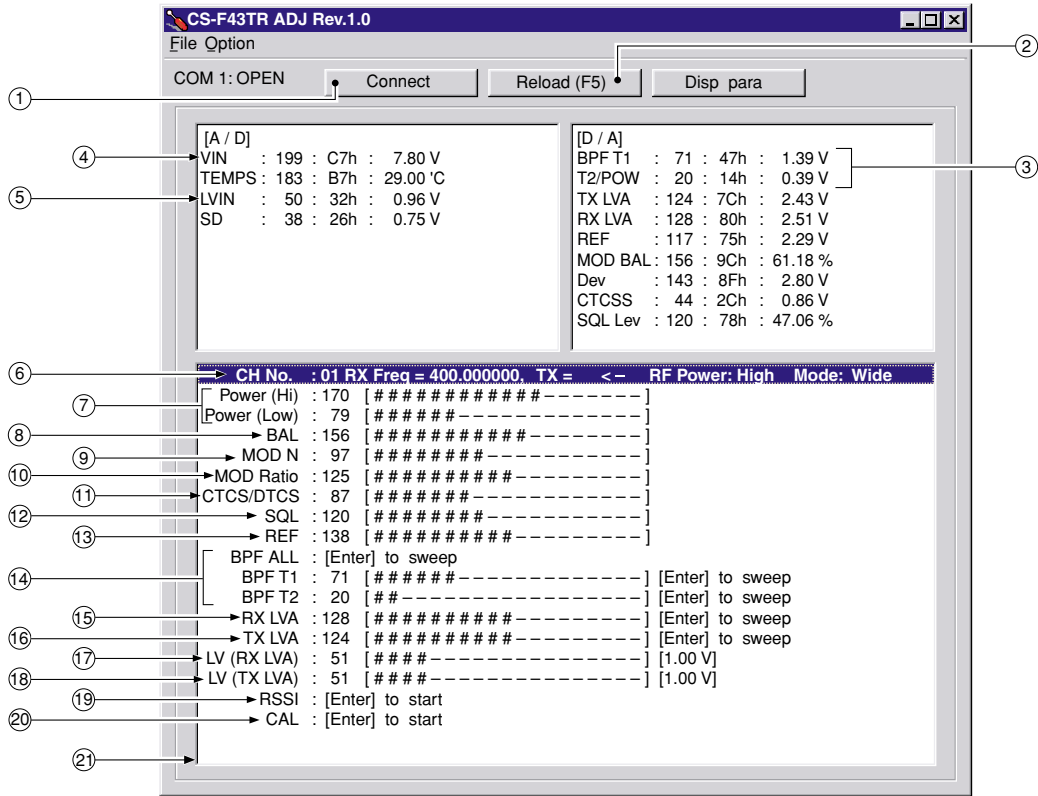
CAUTION!: BACK UP the originally programmed memory data in the transceiver before programming the adjustment frequencies.
When program the adjustment frequencies into the transceiver, the transceiver's memory data will be overwritten and lose original memory data at the same time.

■ STARTING SOFTWARE ADJUSTMENT

- ① Connect IC-F43TR and PC with the OPC-478 and JIG CABLE.
- ② Turn the transceiver power ON.
- ③ Boot up Windows, and click the program group 'CS-F43TR ADJ' in the 'Programs' folder of the [Start] menu, then CS-F43TR ADJ's window appears.
- ④ Click 'Connect' on the CS-F43TR's window, then appears IC-F43TR's up-to-date condition.
- ⑤ Set or modify adjustment data as desired.

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• SCREEN DISPLAY EXAMPLE



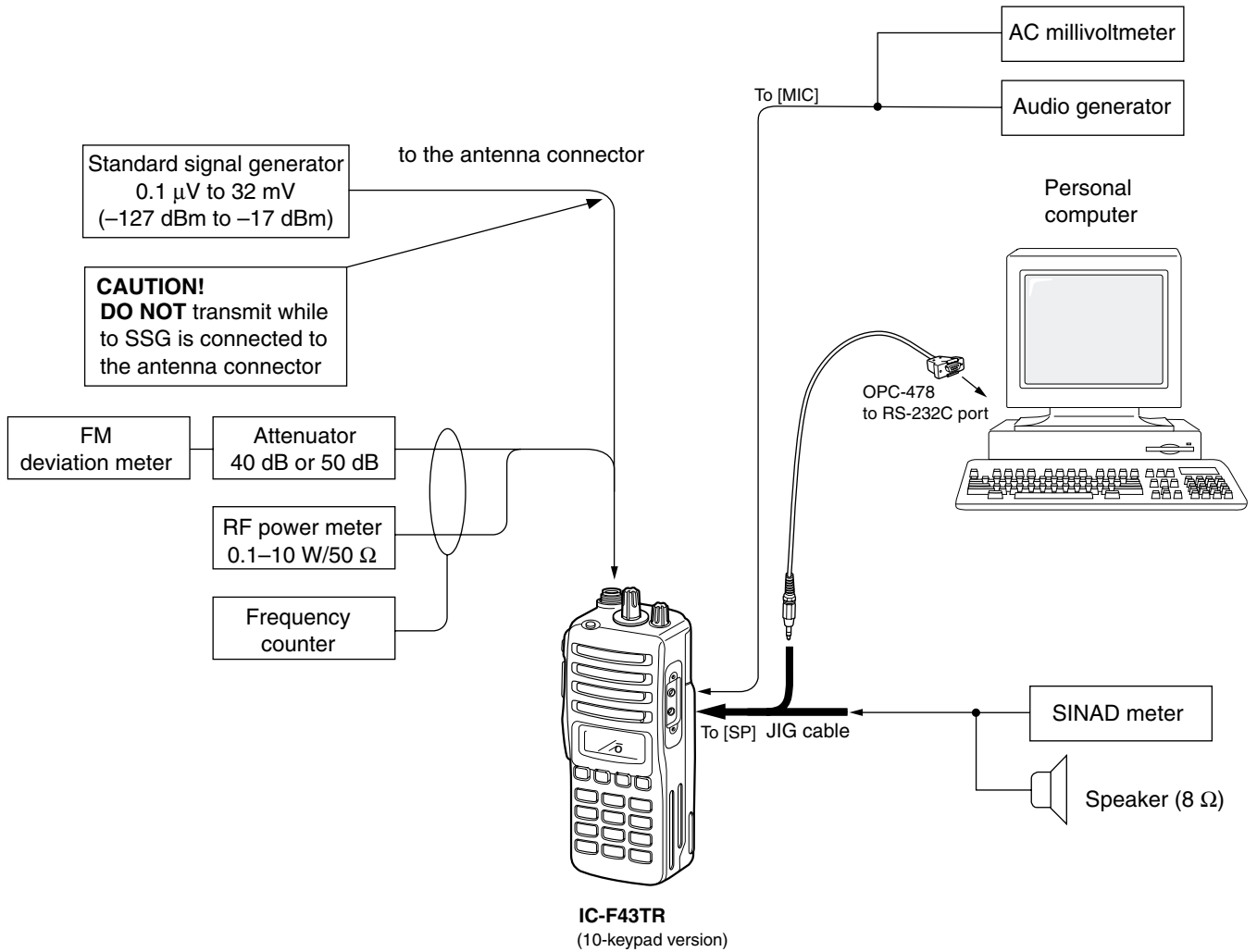
NOTE: The above values for settings are example only.
Each transceiver has its own specific values for each setting.

- ① : Transceiver's connection state
- ② : Reload adjustment data
- ③ : Receive sensitivity measurement
- ④ : Connected DC voltage measurement
- ⑤ : PLL lock voltage measurement
- ⑥ : Operating channel select
- ⑦ : RF output power
- ⑧ : FM deviation balance (Narrow)
- ⑨ : FM deviation (Narrow)
- ⑩ : FM deviation (Wide)
- ⑪ : CTCSS/DTCS deviation
- ⑫ : Squelch level
- ⑬ : Reference frequency
- ⑭ : Receive sensitivity (automatically)
- ⑮ : PLL lock voltage for RX (automatically)
- ⑯ : PLL lock voltage for TX (automatically)
- ⑰ : PLL lock voltage for RX (manually)
- ⑱ : PLL lock voltage for TX (manually)
- ⑲ : S-meter adjustment
- ⑳ : CAL adjustment
- ㉑ : Adjustment items

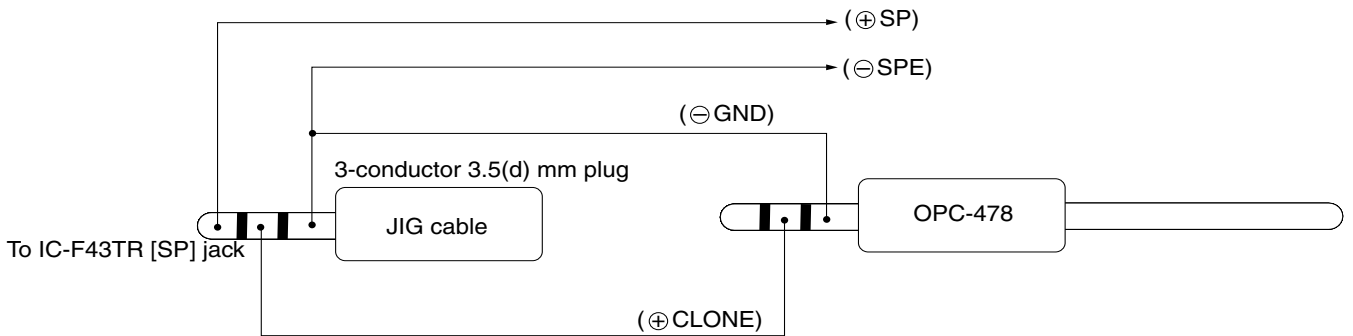
• ADJUSTMENT FREQUENCY LIST

| CH | FREQUENCY | | ADJUSTMENT ITEM | CH | FREQUENCY | | ADJUSTMENT ITEM |
|----|-------------|-------------|---------------------------------------|----|-------------|-------------|--|
| | LOW BAND | HIGH BAND | | | LOW BAND | HIGH BAND | |
| 1 | 400.000 MHz | 450.000 MHz | TX power : Hi Band width : Wide | 5 | 435.000 MHz | 485.000 MHz | TX power : Low CTCSS : 151.4 Hz DTCS code : 007 Band width : Wide |
| 2 | 400.000 MHz | 450.000 MHz | TX power : Low Band width : Wide | | | | |
| 3 | 435.000 MHz | 485.000 MHz | TX power : Low Band width : Narrow | 6 | 470.000 MHz | 520.000 MHz | TX power : Low Band width : Wide |
| 4 | 435.000 MHz | 485.000 MHz | TX power : Low Band width : Wide | | | | |

• CONNECTION



• JIG CABLE



5-2 SOFTWARE ADJUSTMENT (TRANSMITTING)

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

| ADJUSTMENT | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE | |
|--|----------------------|---|-----------|--|--|
| | | UNIT | LOCATION | | |
| PLL LOCK VOLTAGE [LV (RX LVA)] [LV (TX LVA)] | 1 | <ul style="list-style-type: none"> Operating CH. : CH2 Receiving | MAIN | Check the "LV" item on the CS-F43TR ADJ's display. | 1.0 V |
| | 2 | <ul style="list-style-type: none"> Operating CH. : CH2 Transmitting | | | 1.0 V |
| | 3 | <ul style="list-style-type: none"> Operating CH. : CH6 Receiving | MAIN | Check the "LV" item on the CS-F43TR ADJ's display. | 3.3–4.5 V (Verify) |
| | 4 | <ul style="list-style-type: none"> Operating CH. : CH6 Transmitting | | | 3.3–4.5 V (Verify) |
| REFERENCE FREQUENCY [REF] | 1 | <ul style="list-style-type: none"> Operating CH. : CH6 Connect an RF power meter or 50 Ω dummy load to the antenna connector. Transmitting | Top panel | Loosely couple a frequency counter to the antenna connector. | 470.0000 MHz [L] 520.0000 MHz [H] |
| OUTPUT POWER [Power (Hi)] [Power (Low)] | 1 | <ul style="list-style-type: none"> Operating CH. : CH1 Transmitting | Top panel | Connect an RF power meter to the antenna connector. | 4.0 W |
| | 2 | <ul style="list-style-type: none"> Operating CH. : CH1 Transmitting | | | 1.0 W |
| MODULATION BALANCE [BAL N] | 1 | <ul style="list-style-type: none"> Operating freq. : CH3 No audio applied to the [MIC] input. Set an FM deviation meter as: <ul style="list-style-type: none"> HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 IF bandwidth : Narrow Push the [P0] while transmitting | | Connect an FM deviation meter with an oscilloscope to the antenna connector through an attenuator. | Set to square wave form  |
| FM DEVIATION [MOD N] (Narrow) [MOD Ratio] (Middle) | 1 | <ul style="list-style-type: none"> Operating freq. : CH3 Set the FM deviation meter as: <ul style="list-style-type: none"> HPF : OFF LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 Connect the audio generator to the [MIC] connector and set as : 1.0 kHz/150 mVrms Transmitting | Top panel | Connect an FM deviation meter to the antenna connector through the attenuator. | ±2.10 kHz |
| | 2 | <ul style="list-style-type: none"> Operating freq. : CH4 Transmitting | | | ±4.10 kHz |
| CTCSS/DTCS DEVIATION [CTCS/DTCS] | | <ul style="list-style-type: none"> Operating freq. : CH5 No audio applied to the [MIC] input. Transmitting | Top panel | Connect an FM deviation meter to the antenna connector through the attenuator. | ±0.70 kHz |

SOFTWARE ADJUSTMENT (RECEIVING)

- Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard.
- Need to adjust "S-METER ADJUSTMENT" after "RX SENSITIVITY ADJUSTMENT" is adjusted.
Otherwise, "S-METER ADJUSTMENT" will not be adjusted properly.

| ADJUSTMENT | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE |
|---|--|--|---|--|
| | | UNIT | LOCATION | |
| RX SENSITIVITY [BPF T1], [BPF T2] | 1 <ul style="list-style-type: none"> • Operating CH. : CH2 • Connect a standard signal generator to the antenna connector and set as: <ul style="list-style-type: none"> Frequency : 400.000 MHz [L] 450.000 MHz [H] Level : 10 μV* (-87 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz • Receiving | MAIN | Connect a SINAD meter with an 8 Ω load to the [SP] JACK. | Minimum distortion level |
| | CONVENIENT: The BPF T1, BPF T2 can be adjusted automatically. ①-1: Set the cursor to "BPF ALL" on the adjustment program and then push [ENTER] key. ①-2: The connected PC tunes BPF T1, BPF T2 to peak levels. or ②-1: Set the cursor to one of BPF T1, T2 as desired. ②-2: Push [ENTER] key to start tuning. ②-3: Repeat ②-1 and ②-2 to perform additional BPF tuning. | | | |
| S-METER [S-METER] | 1 <ul style="list-style-type: none"> • Operating freq. : CH2 • Connect an SSG to the antenna connector and set as: <ul style="list-style-type: none"> Frequency : 400.000 MHz [L] 450.000 MHz [H] Level : 4.5 μV* (-94 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz • Receiving | Push the [ENTER] key on the connected computer's keyboard to set "S6 level". | | |
| | 2 <ul style="list-style-type: none"> • Set an SSG as : <ul style="list-style-type: none"> Level : 0.25 μV* (-119 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz • Receiving | Push the [ENTER] key on the connected computer keyboard to set "S1 level". | | |
| SQUELCH LEVEL [SQL] | 1 <ul style="list-style-type: none"> • Operating freq. : CH6 • Connect an SSG to the antenna connector and set as: <ul style="list-style-type: none"> Frequency : 470.000 MHz [L] 520.000 MHz [H] Level : 0.2 μV* (-121 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz • Receiving | Front panel | Speaker | Set "SQL level" to close squelch. Then set "SQL level" at the point where the audio signals just appears. |

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

SECTION 6 PARTS LIST

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|---------------------------------|----|
| IC6 | 1110006350 | S.IC LM2902PWR | B |
| IC8 | 1110005770 | S.IC S-80942CNMC-G9C-T2 | B |
| IC9 | 1110003200 | S.IC TA31136FN (EL) | T |
| IC10 | 1130011580 | S.IC 24LC64T-I/SN | B |
| IC12 | 1190001350 | S.IC M62364FP 600D | B |
| IC13 | 1130006220 | S.IC TC4W53FU (TE12L) | B |
| IC14 | 1110006220 | S.IC AK2346-E2 | B |
| IC15 | 1110001810 | S.IC TA7368F (ER) | T |
| IC16 | 1110002750 | S.IC TA75S01F (TE85R) | T |
| IC17 | 1110005350 | S.IC NJM2870F05-TE1 | T |
| IC19 | 1110006380 | S.IC LM2904PWR | B |
| IC20 | 1130009090 | S.IC LC75834W-TLM | T |
| IC21 | 1130010100 | S.IC LMX2352 | T |
| IC22 | 1140011510 | S.IC HD64F2238BTF13 | B |
| IC23 | 1110006380 | S.IC LM2904PWR | B |
| IC24 | 1110002750 | S.IC TA75S01F (TE85R) | B |
| IC25 | 1130007020 | S.IC TC7S66FU (TE85R) | B |
| Q2 | 1590003320 | S.FET TPC6103 (TE85L) | T |
| Q3 | 1590003290 | S.TRANSISTOR UNR9213J-(TX) | T |
| Q4 | 1560000840 | S.FET 25K1829 (TE85R) | T |
| Q5 | 1580000730 | S.FET 3SK293 (TE85L) | B |
| Q6 | 1580000760 | S.FET 3SK299-T1 U73 | B |
| Q7 | 1530002600 | S.TRANSISTOR 2SC4215-O (TE85R) | B |
| Q14 | 1530003260 | S.TRANSISTOR 2SC5006-T1 | B |
| Q15 | 1530003260 | S.TRANSISTOR 2SC5006-T1 | B |
| Q16 | 1530002920 | S.TRANSISTOR 2SC4226-T1 R25 | B |
| Q17 | 1530002920 | S.TRANSISTOR 2SC4226-T1 R25 | B |
| Q18 | 1590001400 | S.TRANSISTOR XP1214 (TX) | T |
| Q19 | 1590003290 | S.TRANSISTOR UNR9213J-(TX) | T |
| Q20 | 1530002850 | S.TRANSISTOR 2SC4116-BL (TE85R) | T |
| Q21 | 1560000540 | S.FET 2SK880-Y (TE85R) | T |
| Q22 | 1530002850 | S.TRANSISTOR 2SC4116-BL (TE85R) | T |
| Q24 | 1510000920 | S.TRANSISTOR 2SA1577 T106 Q | B |
| Q25 | 1510000920 | S.TRANSISTOR 2SA1577 T106 Q | B |
| Q26 | 1520000450 | S.TRANSISTOR 2SB1132 T100 Q | B |
| Q27 | 1590001190 | S.TRANSISTOR XP6501-(TX) .AB | T |
| Q28 | 1590003230 | S.TRANSISTOR UNR9113J-(TX) | B |
| Q29 | 1530003260 | S.TRANSISTOR 2SC5006-T1 | B |
| Q38 | 1590003290 | S.TRANSISTOR UNR9213J-(TX) | B |
| Q40 | 1590003290 | S.TRANSISTOR UNR9213J-(TX) | B |
| Q41 | 1590001190 | S.TRANSISTOR XP6501-(TX) .AB | T |
| Q42 | 1520000450 | S.TRANSISTOR 2SB1132 T100 Q | T |
| Q43 | 1590003400 | S.TRANSISTOR UNR9112J | T |
| Q44 | 1590003270 | S.TRANSISTOR UNR9210J-(TX) | B |
| Q45 | 1590003230 | S.TRANSISTOR UNR9113J-(TX) | T |
| D5 | 1160000060 | S.DIODE DAN202U T106 | T |
| D6 | 1790001260 | S.DIODE MA2S077-(TX) | B |
| D8 | 1790001250 | S.DIODE MA2S111-(TX) | T |
| D9 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D10 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D11 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D12 | 1720000570 | S.VARICAP MA368 (TX) | B |
| D13 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D14 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D15 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D16 | 1750000580 | S.DIODE 1SV307 (TPH3) | B |
| D17 | 1790001260 | S.DIODE MA2S077-(TX) | T |
| D18 | 1790001250 | S.DIODE MA2S111-(TX) | T |
| D19 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D20 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D21 | 1160000060 | S.DIODE DAN202U T106 | B |
| D24 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D25 | 1750000710 | S.VARICAP HVC350BTRF | B |
| D28 | 1790001670 | S.DIODE RB706F-40T106 | B |
| D29 | 1790001250 | S.DIODE MA2S111-(TX) | T |
| Fl1 | 2010002450 | S.XTAL FL-313 (46.35 MHz) | T |
| Fl2 | 2020001530 | CERAMIC CFWLB450KFFA-B0 | B |
| X1 | 6070000190 | S.DISCRIMINATOR CDBC450KAY24-R0 | B |
| X2 | 6050011930 | S.XTAL CR-781 (15.3 MHz) | B |
| X5 | 6050011730 | S.XTAL CR-765 (3.6864 MHz) | B |
| X6 | 6050011830 | S.XTAL CR-774 (12.288 MHz) | B |

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-----------------------------------|----|
| L7 | 6200007700 | S.COIL LQW2BHN22NJ01L | B |
| L8 | 6200007700 | S.COIL LQW2BHN22NJ01L | B |
| L9 | 6200007680 | S.COIL LQW2BHN12NJ01L | B |
| L11 | 6200007680 | S.COIL LQW2BHN12NJ01L | B |
| L12 | 6200007920 | S.COIL ELJRF 15NJF2 (15) | B |
| L13 | 6200003350 | S.COIL ELJNC R27K-F | B |
| L21 | 6200007920 | S.COIL ELJRF 15NJF2 (15) | B |
| L22 | 6200007900 | S.COIL ELJRF 22NJF2 (22) | B |
| L25 | 6200008490 | S.COIL 0.30-0.9-3TR 7.5N | B |
| L27 | 6200004950 | S.COIL NL 252018T-1R8J | T |
| L28 | 6200002710 | S.COIL ELJFC 1R8K-F | T |
| L31 | 6200007720 | S.COIL LQW2BHN33NJ01L | B |
| L32 | 6200007910 | S.COIL ELJRF 18NJF2 (18) | B |
| L33 | 6200004480 | S.COIL MLF1608D R82K-T | T |
| L35 | 6200003540 | S.COIL MLF1608D R22K-T | T |
| L37 | 6200009710 | S.COIL 0.30-0.9-4TL 10.5N | B |
| L41 | 6200007880 | S.COIL ELJRF 33NJF2 (33) | B |
| L42 | 6200004660 | S.COIL MLF1608A 1R8K-T | T |
| L43 | 6200004660 | S.COIL MLF1608A 1R8K-T | T |
| L46 | 6200007590 | S.COIL LL1608-FH27NJ | B |
| L47 | 6200002850 | S.COIL NL 252018T-R82J | T |
| L48 | 6200002850 | S.COIL NL 252018T-R82J | T |
| R1 | 7030004970 | S.RESISTOR ERJ2GEJ 470 X (47 Ω) | T |
| R2 | 7030009140 | S.RESISTOR ERJ2GEJ 272 X (2.7 kΩ) | T |
| R4 | 7030008370 | S.RESISTOR ERJ2GEJ 561 X (560 Ω) | T |
| R5 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | T |
| R6 | 7030008300 | S.RESISTOR ERJ2GEJ 184 X (180 kΩ) | T |
| R7 | 7030005310 | S.RESISTOR ERJ2GEJ 124 X (120 kΩ) | T |
| R8 | 7030005170 | S.RESISTOR ERJ2GEJ 474 X (470 kΩ) | T |
| R9 | 7030008280 | S.RESISTOR ERJ2GEJ 271 X (270 Ω) | T |
| R12 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (100 Ω) | B |
| R13 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R15 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | T |
| R16 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | B |
| R17 | 7030004970 | S.RESISTOR ERJ2GEJ 470 X (47 Ω) | T |
| R18 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | T |
| R19 | 7030005080 | S.RESISTOR ERJ2GEJ 823 X (82 kΩ) | T |
| R21 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | T |
| R22 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R23 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | T |
| R24 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R25 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R29 | 7030007270 | S.RESISTOR ERJ2GEJ 151 X (150 Ω) | T |
| R31 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | T |
| R32 | 7030010040 | S.RESISTOR ERJ2GE-JPW | T |
| R33 | 7030007270 | S.RESISTOR ERJ2GEJ 151 X (150 Ω) | B |
| R34 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | B |
| R35 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | B |
| R36 | 7030005030 | S.RESISTOR ERJ2GEJ 152 X (1.5 kΩ) | B |
| R38 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | T |
| R39 | 7030004970 | S.RESISTOR ERJ2GEJ 470 X (47 Ω) | B |
| R40 | 7030007270 | S.RESISTOR ERJ2GEJ 151 X (150 Ω) | T |
| R43 | 7030004970 | S.RESISTOR ERJ2GEJ 470 X (47 Ω) | T |
| R44 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | T |
| R45 | 7030008290 | S.RESISTOR ERJ2GEJ 183 X (18 kΩ) | T |
| R46 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | T |
| R48 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | B |
| R50 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | B |
| R68 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R69 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R70 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | B |
| R71 | 7030005600 | S.RESISTOR ERJ2GEJ 273 X (27 kΩ) | B |
| R72 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R73 | 7030008010 | S.RESISTOR ERJ2GEJ 123 X (12 kΩ) | B |
| R74 | 7030006610 | S.RESISTOR ERJ2GEJ 394 X (390 kΩ) | B |
| R75 | 7030005100 | S.RESISTOR ERJ2GEJ 154 X (150 kΩ) | B |
| R76 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | B |
| R77 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | B |
| R78 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R79 | 7030006020 | S.RESISTOR RR0510P-682-D (6.8 kΩ) | T |
| R80 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R81 | 7030008290 | S.RESISTOR ERJ2GEJ 183 X (18 kΩ) | B |
| R82 | 7030010040 | S.RESISTOR ERJ2GE-JPW | B |
| R83 | 7030006020 | S.RESISTOR RR0510P-682-D (6.8 kΩ) | B |
| R84 | 7030006020 | S.RESISTOR RR0510P-682-D (6.8 kΩ) | B |
| R85 | 7030006020 | S.RESISTOR RR0510P-682-D (6.8 kΩ) | B |
| R86 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | T |
| R87 | 7030009280 | S.RESISTOR ERJ2GE 391 X | T |
| R88 | 7030005010 | S.RESISTOR ERJ2GEJ 681 X (680 Ω) | T |

[H]: High-band. [L]: Low-band.

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

S.=Surface mount

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-----------------------------------|----|
| R89 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R90 | 7030005170 | S.RESISTOR ERJ2GEJ 474 X (470 kΩ) | T |
| R91 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | T |
| R92 | 7030005310 | S.RESISTOR ERJ2GEJ 124 X (120 kΩ) | T |
| R93 | 7030005060 | S.RESISTOR ERJ2GEJ 333 X (33 kΩ) | B |
| R95 | 7030005030 | S.RESISTOR ERJ2GEJ 152 X (1.5 kΩ) | T |
| R96 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R97 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R98 | 7030007290 | S.RESISTOR ERJ2GEJ 222 X (2.2 kΩ) | T |
| R100 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R101 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R103 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | B |
| R104 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R106 | 7030005160 | S.RESISTOR ERJ2GEJ 105 X (1 MΩ) | B |
| R107 | 7030005060 | S.RESISTOR ERJ2GEJ 333 X (33 kΩ) | B |
| R108 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | B |
| R110 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | T |
| R111 | 7030005170 | S.RESISTOR ERJ2GEJ 474 X (470 kΩ) | T |
| R114 | 7030005080 | S.RESISTOR ERJ2GEJ 823 X (82 kΩ) | B |
| R115 | 7030007570 | S.RESISTOR ERJ2GEJ 122X (1.2 kΩ) | T |
| R116 | 7030007060 | S.RESISTOR ERJ2GEJ 684X (680 kΩ) | T |
| R117 | 7030005160 | S.RESISTOR ERJ2GEJ 105 X (1 MΩ) | B |
| R118 | 7030005060 | S.RESISTOR ERJ2GEJ 333 X (33 kΩ) | B |
| R119 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R120 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R121 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | B |
| R122 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R123 | 7030005060 | S.RESISTOR ERJ2GEJ 333 X (33 kΩ) | B |
| R124 | 7030005170 | S.RESISTOR ERJ2GEJ 474 X (470 kΩ) | T |
| R127 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | T |
| R130 | 7030007300 | S.RESISTOR ERJ2GEJ 332 X (3.3 kΩ) | T |
| R131 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R147 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R148 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R151 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R152 | 7030005230 | S.RESISTOR ERJ2GEJ 334 X (330 kΩ) | B |
| R154 | 7030005310 | S.RESISTOR ERJ2GEJ 124 X (120 kΩ) | B |
| R156 | 7030010040 | S.RESISTOR ERJ2GE-JPW | B |
| R157 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R161 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R162 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R163 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R164 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R165 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R166 | 7030007290 | S.RESISTOR ERJ2GEJ 222 X (2.2 kΩ) | B |
| R172 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R173 | 7030008400 | S.RESISTOR ERJ2GEJ 182 X (1.8 kΩ) | T |
| R174 | 7030005170 | S.RESISTOR ERJ2GEJ 474 X (470 kΩ) | T |
| R175 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | T |
| R181 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | B |
| R182 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | B |
| R183 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | B |
| R184 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R185 | 7030005170 | S.RESISTOR ERJ2GEJ 474 X (470 kΩ) | B |
| R186 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | B |
| R203 | 7030005110 | S.RESISTOR ERJ2GEJ 224 X (220 kΩ) | B |
| R204 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R205 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R209 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R210 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R211 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R213 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R214 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R215 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R216 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R217 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R218 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R219 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R220 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R221 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | B |
| R222 | 7030008300 | S.RESISTOR ERJ2GEJ 184 X (180 kΩ) | B |
| R223 | 7030005720 | S.RESISTOR ERJ2GEJ 563 X (56 kΩ) | B |
| R224 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | B |
| R225 | 7030007260 | S.RESISTOR ERJ2GEJ 330 X (33 Ω) | T |
| R226 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | T |
| R227 | 7030009140 | S.RESISTOR ERJ2GEJ 272 X (2.7 kΩ) | T |
| R228 | 7030007300 | S.RESISTOR ERJ2GEJ 332 X (3.3 kΩ) | T |
| R229 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R231 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R233 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | T |
| R234 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | T |
| R235 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | T |
| R236 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R237 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | B |
| R238 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | B |
| R239 | 7030007340 | S.RESISTOR ERJ2GEJ 153 X (15 kΩ) | B |
| R240 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | B |
| R241 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |

[H]: High-band. [L]: Low-band.

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-----------------------------------|----|
| R242 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R243 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R244 | 7030007350 | S.RESISTOR ERJ2GEJ 393 X (39 kΩ) | B |
| R245 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R246 | 7030005290 | S.RESISTOR ERJ2GEJ 682 X (6.8 kΩ) | T |
| R247 | 7030005000 | S.RESISTOR ERJ2GEJ 471 X (470 Ω) | B |
| R256 | 7510001730 | S.THEMISTOR ERTJOEP 473J | B |
| R257 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R258 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | B |
| R259 | 7030005160 | S.RESISTOR ERJ2GEJ 105 X (1 MΩ) | B |
| R260 | 7030008010 | S.RESISTOR ERJ2GEJ 123 X (12 kΩ) | B |
| R261 | 7030008010 | S.RESISTOR ERJ2GEJ 123 X (12 kΩ) | B |
| R262 | 7030008010 | S.RESISTOR ERJ2GEJ 123 X (12 kΩ) | B |
| R263 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R264 | 7030006010 | S.RESISTOR RR0510P-472-D (4.7 kΩ) | B |
| R265 | 7030006010 | S.RESISTOR RR0510P-472-D (4.7 kΩ) | B |
| R266 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R267 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R269 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R270 | 7030007290 | S.RESISTOR ERJ2GEJ 222 X (2.2 kΩ) | B |
| R272 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | T |
| R273 | 7030007300 | S.RESISTOR ERJ2GEJ 332 X (3.3 kΩ) | B |
| R275 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R282 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R283 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R288 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R289 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R291 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R292 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R293 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R295 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | T |
| R300 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | T |
| R301 | 7030005070 | S.RESISTOR ERJ2GEJ 683 X (68 kΩ) | B |
| R302 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R303 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R304 | 7030010040 | S.RESISTOR ERJ2GE-JPW | B |
| R305 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | T |
| R306 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | B |
| R307 | 7030005580 | S.RESISTOR ERJ2GEJ 560 X (56 Ω) | B |
| R308 | 7030007340 | S.RESISTOR ERJ2GEJ 153 X (15 kΩ) | T |
| R309 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R315 | 7210003060 | VARIABLE TP76N00N-15F-10KA-2251 | B |
| R318 | 7030005700 | S.RESISTOR ERJ2GEJ 274 X (270 kΩ) | T |
| R319 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | T |
| R320 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R321 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R323 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R325 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R327 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R329 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R331 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R333 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R335 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | B |
| R336 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R337 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R338 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R339 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R340 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R341 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R342 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R343 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R344 | 7030009710 | S.RESISTOR ERJ2GEJ 203 X (20 kΩ) | B |
| R345 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R346 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R347 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R348 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R349 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R350 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R351 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R352 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R353 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R354 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R355 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R356 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R357 | 7030006610 | S.RESISTOR ERJ2GEJ 394 X (390 kΩ) | B |
| R358 | 7030006610 | S.RESISTOR ERJ2GEJ 394 X (390 kΩ) | B |
| R359 | 7030010040 | S.RESISTOR ERJ2GE-JPW | T |
| R360 | 7030005050 | S.RESISTOR ERJ2GEJ 103 X (10 kΩ) | T |
| R361 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R362 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |
| R507 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | T |
| R508 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R509 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R510 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R511 | 7030005210 | S.RESISTOR ERJ2GEJ 822 X (8.2 kΩ) | B |
| R512 | 7030005210 | S.RESISTOR ERJ2GEJ 822 X (8.2 kΩ) | B |
| R513 | 7030005240 | S.RESISTOR ERJ2GEJ 473 X (47 kΩ) | B |
| R514 | 7030005090 | S.RESISTOR ERJ2GEJ 104 X (100 kΩ) | B |

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

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | | M. |
|---------|------------|-------------|------------------------|-------|
| R515 | 7030005120 | S.RESISTOR | ERJ2GEJ 102 X (1 kΩ) | T |
| R516 | 7030005090 | S.RESISTOR | ERJ2GEJ 104 X (100 kΩ) | B |
| C17 | 4550007120 | S.TANTALUM | F92 1D 224MPA | T |
| C18 | 4030017510 | S.CERAMIC | ECJ0EC1H680J | B |
| C19 | 4030017350 | S.CERAMIC | ECJ0EC1H020B | B |
| C21 | 4030017590 | S.CERAMIC | ECJ0EC1H070C | B |
| C22 | 4030017350 | S.CERAMIC | ECJ0EC1H020B | B |
| C24 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C25 | 4030017580 | S.CERAMIC | ECJ0EC1H060C | B |
| C26 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C27 | 4030017660 | S.CERAMIC | ECJ0EC1H330J | B |
| C28 | 4030017590 | S.CERAMIC | ECJ0EC1H070C | B |
| C29 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | B |
| C30 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C31 | 4030017910 | S.CERAMIC | ECJ0EB1H152K | B |
| C32 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C33 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | B |
| C34 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C35 | 4030017760 | S.CERAMIC | ECJ0EB1H222K | B |
| C36 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C37 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C39 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | B |
| C40 | 4030017520 | S.CERAMIC | ECJ0EC1H0R3B | B |
| C41 | 4030017640 | S.CERAMIC | ECJ0EC1H150J | B |
| C42 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C43 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C44 | 4030017560 | S.CERAMIC | ECJ0EC1H2R5B | B |
| C45 | 4030017630 | S.CERAMIC | ECJ0EC1H120J | B |
| C46 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | B |
| C47 | 4030016970 | S.CERAMIC | ECJ0EB1C223K | B |
| C48 | 4030017400 | S.CERAMIC | ECJ0EC1H220J | B |
| C49 | 4030017380 | S.CERAMIC | ECJ0EC1H050B | B |
| C50 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C51 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C52 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | B |
| C53 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C54 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C56 | 4030017390 | S.CERAMIC | ECJ0EC1H180J | T |
| C57 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C58 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C59 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C60 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C61 | 4030017430 | S.CERAMIC | ECJ0EC1H101J | B |
| C62 | 4030017680 | S.CERAMIC | ECJ0EC1H820J | T |
| C63 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C64 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C65 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C66 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C67 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C69 | 4030017750 | S.CERAMIC | ECJ0EB1E122K | T |
| C70 | 4030017740 | S.CERAMIC | ECJ0EB1E821K | T |
| C71 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | T |
| C72 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C73 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C74 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C75 | 4550007040 | S.TANTALUM | ECST0JZ106R | B |
| C76 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C77 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C78 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C79 | 4030011600 | S.CERAMIC | C1608 JB 1E 104K-T | T |
| C80 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | T |
| C90 | 4030017400 | S.CERAMIC | ECJ0EC1H220J | B |
| C95 | 4030017710 | S.CERAMIC | ECJ0EC1H181J | B |
| C98 | 4030017400 | S.CERAMIC | ECJ0EC1H220J | B |
| C100 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | B |
| C102 | 4030017380 | S.CERAMIC | ECJ0EC1H050B | B |
| C103 | 4030017350 | S.CERAMIC | ECJ0EC1H020B | B |
| C104 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C105 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C106 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | B |
| C107 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C108 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C109 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C110 | 4030017730 | S.CERAMIC | ECJ0EB1E471K | B |
| C111 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C112 | 4030017750 | S.CERAMIC | ECJ0EB1E122K | B |
| C113 | 4030017540 | S.CERAMIC | ECJ0EC1HR75B | B |
| C114 | 4030017380 | S.CERAMIC | ECJ0EC1H050B | B |
| C115 | 4030017630 | S.CERAMIC | ECJ0EC1H120J | B |
| C116 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C117 | 4030017730 | S.CERAMIC | ECJ0EB1E471K | B |
| C118 | 4030017520 | S.CERAMIC | ECJ0EC1H0R3B | B |
| C119 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C120 | 4030017730 | S.CERAMIC | ECJ0EB1E471K | B |
| C121 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | [L] B |
| | 4030017630 | S.CERAMIC | ECJ0EC1H120J | [H] B |

[H]: High-band. [L]: Low-band.

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | | M. |
|---------|------------|-------------|--------------------|-------|
| C122 | 4030017580 | S.CERAMIC | ECJ0EC1H060C | [L] B |
| | 4030017600 | S.CERAMIC | ECJ0EC1H080C | [H] B |
| C123 | 4030017390 | S.CERAMIC | ECJ0EC1H180J | [L] B |
| | 4030017640 | S.CERAMIC | ECJ0EC1H150J | [H] B |
| C124 | 4030017540 | S.CERAMIC | ECJ0EC1HR75B | B |
| C125 | 4030017760 | S.CERAMIC | ECJ0EB1H222K | B |
| C126 | 4030017630 | S.CERAMIC | ECJ0EC1H120J | B |
| C128 | 4030017330 | S.CERAMIC | ECJ0EB1C104Z | B |
| C129 | 4030017530 | S.CERAMIC | ECJ0EC1H0R5B | B |
| C130 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C131 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C132 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C133 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | B |
| C134 | 4030017630 | S.CERAMIC | ECJ0EC1H120J | B |
| C135 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C136 | 4030017430 | S.CERAMIC | ECJ0EC1H101J | B |
| C137 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | T |
| C138 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C139 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C140 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C141 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C142 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C143 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C144 | 4030016950 | S.CERAMIC | ECJ0EB1A473K | T |
| C144 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C145 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C147 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | B |
| C148 | 4550006250 | S.TANTALUM | TEESVA 1A 106M8L | T |
| C149 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C150 | 4030017490 | S.CERAMIC | C1608 JB 1A 105K-T | T |
| C151 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C152 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C153 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C154 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C155 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C156 | 4030017430 | S.CERAMIC | ECJ0EC1H101J | B |
| C157 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | B |
| C158 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C159 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C160 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C161 | 4030017620 | S.CERAMIC | ECJ0EC1H100C | T |
| C162 | 4030017500 | S.CERAMIC | ECJ0EB1H560J | T |
| C163 | 4030017570 | S.CERAMIC | ECJ0EC1H040B | T |
| C164 | 4030017590 | S.CERAMIC | ECJ0EC1H070C | T |
| C165 | 4030016790 | S.CERAMIC | ECJ0EC1C103K | T |
| C166 | 4030017360 | S.CERAMIC | ECJ0EC1H030B | T |
| C167 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C168 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C169 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | T |
| C170 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C171 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C172 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C174 | 4030017710 | S.CERAMIC | ECJ0EC1H181J | B |
| C175 | 4030017420 | S.CERAMIC | ECJ0EC1H470J | B |
| C176 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | T |
| C177 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | T |
| C180 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C182 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C183 | 4030017640 | S.CERAMIC | ECJ0EC1H150J | B |
| C184 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C185 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C186 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | T |
| C188 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | T |
| C191 | 4030018120 | S.CERAMIC | ECJ0EC1H110J | B |
| C192 | 4030017610 | S.CERAMIC | ECJ0EC1H090C | B |
| C205 | 4030017380 | S.CERAMIC | ECJ0EC1H050B | B |
| C206 | 4030017590 | S.CERAMIC | ECJ0EC1H070C | B |
| C208 | 4030017590 | S.CERAMIC | ECJ0EC1H070C | B |
| C209 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C211 | 4030017260 | S.CERAMIC | C2012 JB 0J 475KT | B |
| C221 | 4030016940 | S.CERAMIC | ECJ0EB1A393K | B |
| C222 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C223 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C224 | 4550005980 | S.TANTALUM | TEESVA 1A 475M8L | B |
| C225 | 4030017730 | S.CERAMIC | ECJ0EB1E471K | B |
| C226 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C231 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C232 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C233 | 4550007090 | S.TANTALUM | TEESVA 1A 226M8R | B |
| C234 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C235 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C236 | 4030018560 | S.CERAMIC | C2012 JB 1A 475K-T | B |
| C237 | 4030016790 | S.CERAMIC | ECJ0EB1C103K | B |
| C238 | 4550007070 | S.TANTALUM | TEESVP 1A 475M8R | B |
| C239 | 4030017330 | S.CERAMIC | ECJ0EF1C104Z | B |
| C240 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C241 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |
| C242 | 4030017460 | S.CERAMIC | ECJ0EB1E102K | B |

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

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|------------------------------|----|
| C302 | 4030016790 | S.CERAMIC ECJ0EB1C103K | T |
| C303 | 4030017490 | S.CERAMIC C1608 JB 1A 105K-T | T |
| C308 | 4550007090 | S.TANTALUM TEESVA 1A 226M8R | B |
| C309 | 4030017490 | S.CERAMIC C1608 JB 1A 105K-T | B |
| C310 | 4030017490 | S.CERAMIC C1608 JB 1A 105K-T | B |
| C312 | 4030016780 | S.CERAMIC ECJ0EB1C153K | B |
| C314 | 4030017740 | S.CERAMIC ECJ0EB1E821K | B |
| C315 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C316 | 4030017420 | S.CERAMIC ECJ0EC1H470J | B |
| C317 | 4030017770 | S.CERAMIC ECJ0EB1E332K | B |
| C318 | 4030017690 | S.CERAMIC ECJ0EC1H121J | B |
| C319 | 4030017760 | S.CERAMIC ECJ0EB1H222K | B |
| C320 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C321 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C322 | 4030017420 | S.CERAMIC ECJ0EC1H470J | T |
| C323 | 4030016950 | S.CERAMIC ECJ0EB1A473K | T |
| C324 | 4550007110 | S.TANTALUM SY6-1A107M-RC | B |
| C325 | 4550006250 | S.TANTALUM TEESVA 1A 106M8L | T |
| C326 | 4550007080 | S.TANTALUM TEESVA 1C 106M8R | T |
| C327 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C328 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C329 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C330 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C331 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C332 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C333 | 4550007040 | S.TANTALUM ECST0JZ106R | T |
| C334 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C335 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C336 | 4030017730 | S.CERAMIC ECJ0EB1E471K | B |
| C337 | 4030017490 | S.CERAMIC C1608 JB 1A 105K-T | T |
| C338 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C339 | 4030016790 | S.CERAMIC ECJ0EB1C103K | B |
| C340 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C345 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C346 | 4030017600 | S.CERAMIC ECJ0EC1H080C | B |
| C347 | 4030017640 | S.CERAMIC ECJ0EC1H150J | B |
| C348 | 4030017400 | S.CERAMIC ECJ0EC1H220J | B |
| C349 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C350 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C351 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C352 | 4030017030 | S.CERAMIC ECJ0EB1A273K | B |
| C353 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C354 | 4030016790 | S.CERAMIC ECJ0EB1C103K | B |
| C355 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C356 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C357 | 4030018560 | S.CERAMIC C2012 JB 1A 475K-T | B |
| C359 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C360 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C368 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C369 | 4030017660 | S.CERAMIC ECJ0EC1H330J | B |
| C371 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C375 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C376 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C377 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C378 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C379 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C380 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C384 | 4030018100 | S.CERAMIC ECJ0EB1H681K | T |
| C386 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C387 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C388 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C390 | 4030017420 | S.CERAMIC ECJ0EC1H470J | T |
| C393 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C394 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C395 | 4030017420 | S.CERAMIC ECJ0EC1H470J | B |
| C396 | 4030017360 | S.CERAMIC ECJ0EC1H030B | B |
| C397 | 4030017580 | S.CERAMIC ECJ0EC1H060C | B |
| C398 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C399 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C400 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C401 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C402 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C403 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C404 | 4030016790 | S.CERAMIC ECJ0EB1C103K | B |
| C405 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C406 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C407 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C408 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C409 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C411 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C412 | 4030017420 | S.CERAMIC ECJ0EC1H470J | T |
| C413 | 4030017780 | S.CERAMIC ECJ0EB1E472K | T |
| C414 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | B |
| C415 | 4030017520 | S.CERAMIC ECJ0EC1H0R3B | B |
| J2 | 6450001690 | CONNECTOR HSJ1456-01-220 | B |
| J3 | 6450001680 | CONNECTOR HSJ1122-010010 | B |

[H]: High-band. [L]: Low-band.

[MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-------------------------------|----|
| J4 | 6510021900 | S.CONNECTOR BM02B-ASRS-TF | T |
| J5 | 6510018430 | S.CONNECTOR AXN330C038P | B |
| J6 | 6510024390 | S.CONNECTOR IMSA-6176S-03Y900 | B |
| DS1 | 5010000160 | S.LED LNJ310M6URA | T |
| DS2 | 5010000160 | S.LED LNJ310M6URA | T |
| DS3 | 5030002610 | LCD L3-0200HAY | T |
| MC1 | 7700002480 | MICROPHONE SKB-2746 LPC | T |
| S1 | 2230001060 | S.SWITCH EVQ-PUL 02K | T |
| S2 | 2260002840 | SWITCH SKHLLFA010 | B |
| S3 | 2260002800 | S.SWITCH SW-167 (SKQTLAE010) | B |
| S4 | 2260002800 | S.SWITCH SW-167 (SKQTLAE010) | B |
| S5 | 2260002800 | S.SWITCH SW-167 (SKQTLAE010) | B |
| S27 | 2250000180 | ENCODER EC10SP16-47 | B |
| EP1 | 6910015370 | S.BEAD ACZ1005Y-102-T | B |
| EP3 | 6910015370 | S.BEAD ACZ1005Y-102-T | B |
| EP4 | 6910015370 | S.BEAD ACZ1005Y-102-T | B |
| EP5 | 6910015370 | S.BEAD ACZ1005Y-102-T | B |
| EP6 | 6910015370 | S.BEAD ACZ1005Y-102-T | T |
| EP7 | 8930063020 | LCD CONTACT SRCN-2721-SP-N-W | T |
| EP10 | 0910057142 | PCB B 6099B | T |
| EP11 | 6910015370 | S.BEAD ACZ1005Y-102-T | T |

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

[PA UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|-------------|-----------------------------------|----|
| Q701 | 1560001230 | S.FET RD07MVS1 | B |
| Q702 | 1560001240 | S.FET RD01MUS1 | B |
| Q703 | 1530000370 | S.TRANSISTOR 2SC3356-T1B | T |
| Q704 | 15300003260 | S.TRANSISTOR 2SC5006-T1 | T |
| D701 | 1750000580 | S.DIODE 1SV307 (TPH3) | T |
| D702 | 1790001670 | S.DIODE RB706F-40T106 | T |
| D703 | 1790001670 | S.DIODE RB706F-40T106 | B |
| D704 | 1790001260 | S.DIODE MA2S077-(TX) | B |
| D705 | 1790001240 | S.DIODE MA2S728-(TX) | T |
| L701 | 6200002850 | S.COIL NL 252018T-R82J | B |
| L703 | 6200009470 | S.COIL 0.40-0.9-2TL | T |
| L704 | 6200009470 | S.COIL 0.40-0.9-2TL | T |
| L705 | 6200008240 | S.COIL 0.30-0.9-5TL 14N | B |
| L706 | 6200003590 | S.COIL EXCCL3225U1 | B |
| L707 | 6200005690 | S.COIL ELJRE 18NG-F | T |
| L708 | 6200005740 | S.COIL ELJRE 47NG-F | T |
| L709 | 6200008240 | S.COIL 0.30-0.9-5TL 14N | T |
| L712 | 6200009070 | S.COIL LQW18AN18NG00D | B |
| R701 | 7030004980 | S.RESISTOR ERJ2GEJ 101 X (100 Ω) | B |
| R702 | 7030009140 | S.RESISTOR ERJ2GEJ 272 X (2.7 kΩ) | T |
| R703 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R704 | 7030005530 | S.RESISTOR ERJ2GEJ 100 X (10 Ω) | T |
| R706 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | T |
| R708 | 7030004990 | S.RESISTOR ERJ2GEJ 221 X (220 Ω) | B |
| R710 | 7030005040 | S.RESISTOR ERJ2GEJ 472 X (4.7 kΩ) | B |
| R712 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | T |
| R715 | 7030005220 | S.RESISTOR ERJ2GEJ 223 X (22 kΩ) | T |
| R726 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R727 | 7030005120 | S.RESISTOR ERJ2GEJ 102 X (1 kΩ) | B |
| R728 | 7030010040 | S.RESISTOR ERJ2GE-JPW | B |
| C701 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C702 | 4030017420 | S.CERAMIC ECJ0EC1H470J | B |
| C703 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C705 | 4030006990 | S.CERAMIC C1608 CH 1H 080D-T | T |
| C707 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C708 | 4030006860 | S.CERAMIC C1608 JB 1H 102K-T | T |
| C711 | 4030009920 | S.CERAMIC C1608 CH 1H 050B-T | T |
| C712 | 4030007020 | S.CERAMIC C1608 CH 1H 120J-T | T |
| C713 | 4030008560 | S.CERAMIC C1608 CH 1H 300J-T | B |
| C715 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C716 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C718 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C719 | 4030016790 | S.CERAMIC ECJ0EB1C103K | B |
| C720 | 4030017670 | S.CERAMIC ECJ0EC1H390J | B |
| C722 | 4030017420 | S.CERAMIC ECJ0EC1H470J | B |
| C723 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C724 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C725 | 4030017420 | S.CERAMIC ECJ0EC1H470J | T |
| C726 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C727 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C729 | 4030017360 | S.CERAMIC ECJ0EC1H030B | T |
| C731 | 4030017360 | S.CERAMIC ECJ0EC1H030B | T |
| C732 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C733 | 4030017360 | S.CERAMIC ECJ0EC1H030B | T |
| C734 | 4030017730 | S.CERAMIC ECJ0EB1E471K | T |
| C735 | 4030017360 | S.CERAMIC ECJ0EC1H030B | T |
| C742 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C744 | 4030009910 | S.CERAMIC C1608 CH 1H 040B-T | T |
| C745 | 4030009550 | S.CERAMIC C1608 CH 1H 2R5B-T | T |
| C750 | 4030006980 | S.CERAMIC C1608 CH 1H 070D-T | B |
| C751 | 4030017380 | S.CERAMIC ECJ0EC1H050B | B |
| C752 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C753 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C754 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C755 | 4030007030 | S.CERAMIC C1608 CH 1H 150J-T | T |
| C756 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C757 | 4030017460 | S.CERAMIC ECJ0EB1E102K | B |
| C758 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C759 | 4030017330 | S.CERAMIC ECJ0EF1C104Z | T |
| C760 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| C761 | 4030017530 | S.CERAMIC ECJ0EC1H0R5B | T |
| C762 | 4030017530 | S.CERAMIC ECJ0EC1H0R5B | T |
| C763 | 4030017420 | S.CERAMIC ECJ0EC1H470J | T |
| J701 | 6510024390 | S.CONNECTOR IMSA-6176S-03Y900 | B |
| J702 | 6910015890 | CONNECTOR IMSA-9230B-1-02Z140-T | B |

[H]: High-band. [L]: Low-band.

[PA UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-----------------------|----|
| F701 | 5210000900 | S.FUSE 0434003.NRP | B |
| EP710 | 0910057152 | PCB B 6107B | |
| EP711 | 6910015370 | S.BEAD ACZ1005Y-102-T | T |
| EP712 | 6910015370 | S.BEAD ACZ1005Y-102-T | T |

[FUSE UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|---------------------------------|----|
| L901 | 6200006190 | S.COIL BLM21PG300SN1D | T |
| C901 | 4030017460 | S.CERAMIC ECJ0EB1E102K | T |
| J901 | 6910015880 | CONNECTOR IMSA-9230B-1-02Z141-T | T |
| EP910 | 0910057162 | PCB B 6101B | |

[ANT UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-----------------------------------|----|
| L801 | 6200010920 | S.COIL 0.30-1.2-4TR 15.0N | T |
| L802 | 6200010930 | S.COIL 0.30-1.2-5TR 21.0N | T |
| R801 | 7030003670 | S.RESISTOR ERJ3GEYJ 823 V (82 kΩ) | T |
| C803 | 4030007000 | S.CERAMIC C1608 CH 1H 090D-T | T |
| C804 | 4030006950 | S.CERAMIC C1608 CH 1H 040C-T | T |
| C805 | 4030006940 | S.CERAMIC C1608 CH 1H 030C-T | T |
| C806 | 4030009510 | S.CERAMIC C1608 CH 1H 010B-T | T |
| EP810 | 0910057752 | PCB B 6140B | |

[CHASSIS UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. |
|---------|------------|-----------------------------|----|
| J1 | 6910015910 | CONNECTOR ANT CONNECTOR-104 | |
| J2 | 6910015860 | CONNECTOR IMSA-6277S-02A-G | |
| SP1 | 2510001060 | SPEAKER K036NA500-47 | |
| W1 | 8900009640 | CABLE OPC-963 | |

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

SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

7-1 CABINET PARTS [MAIN UNIT]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|----------|------------|------------------------|------|
| DS3 | 5030002610 | FX-2721 LCD | 1 |
| EP7 | 8930063020 | SRCN-2721-SP-N-W | 2 |
| J2 | 6450001690 | HSJ1456-01-220 | 1 |
| J3 | 6450001680 | HSJ1120-010010 | 1 |
| R315 | 7210003060 | TP76N00N-15F-10KA-2251 | 1 |
| S2 | 2260002840 | SKHLLFA010 | 1 |
| S27 | 2250000180 | EC10SP16-47 | 1 |
| MC1 | 7700002480 | SKB-2746LPC | 1 |
| MP3 | 8930061890 | 2721 LCD holder | 1 |
| MP4 | 8210020570 | 2721 reflector | 1 |

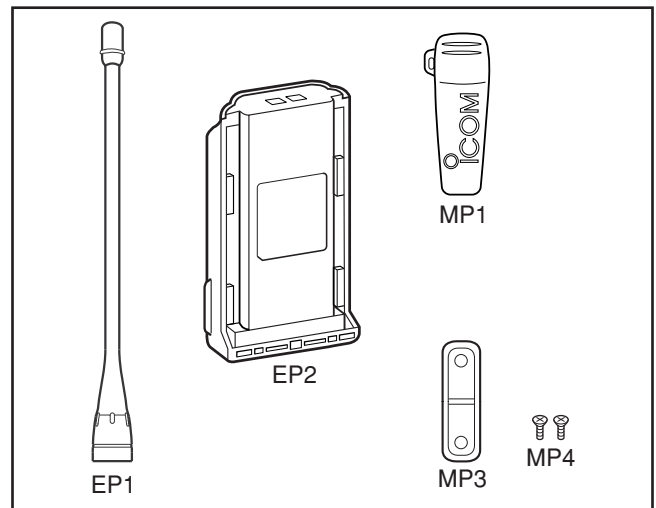
[CHASSIS PARTS]

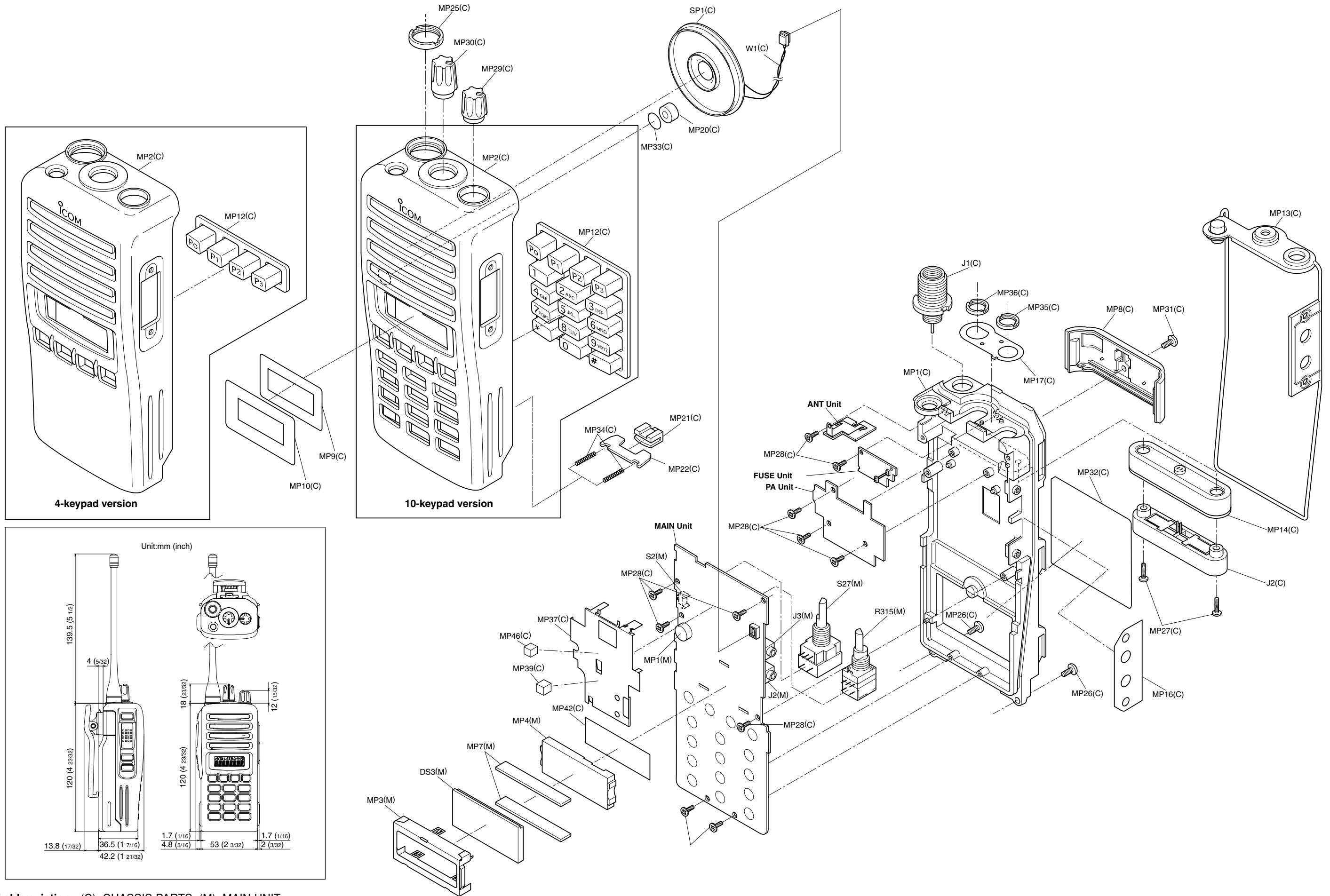
| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|----------|------------|---------------------------|------------|
| SP1 | 2510001060 | K036NA500-47 | 1 |
| W1 | 8900009640 | OPC-963 | 1 |
| J1 | 6910015910 | Antenna connector | 1 |
| J2 | 6910015860 | IMSA-6277S-02A-G | 1 |
| MP1 | 8010019451 | 2721 chassis-1 | 1 |
| MP2 | 8210020530 | 2721 T-front panel | [10 KEY] 1 |
| | 8210020730 | 2721 S-front panel | [4 KEY] 1 |
| MP8 | 8210020550 | 2721 rear panel | 1 |
| MP9 | 8310060760 | 2721 window plate | 1 |
| MP10 | 8930062620 | 2721 window sheet | 1 |
| MP12 | 8930061790 | 2721 keyboard | [10 KEY] 1 |
| | 8930062760 | 2721 4-Key | [4 KEY] 1 |
| MP13 | 8930061710 | 2721 main seal | 1 |
| MP14 | 8930063060 | 2721 terminal rubber | 1 |
| MP16 | 8930061870 | 2721 side plate | 1 |
| MP17 | 8930061860 | 2721 top plate | 1 |
| MP20 | 8930061880 | 2721 mic sponge | 1 |
| MP21 | 8930059360 | 2600 release button | 1 |
| MP22 | 8930063030 | 2721 release plate | 1 |
| MP25 | 8830001720 | 2721 antenna nut | 1 |
| MP26 | 8810009220 | Screw B0 2 x 8 ZK (BT) | 2 |
| MP27 | 8810009560 | Screw M2 x 6 ZK | 2 |
| MP28 | 8810008970 | Screw M2 x 3.5 NI-ZU (BT) | 11 |
| MP29 | 8610011930 | Knob N-318 | 1 |
| MP30 | 8610011920 | Knob N-319 | 1 |
| MP31 | 8810010160 | Screw M3 x 5 SUS ZK | 1 |
| MP32 | 8930063050 | 2721 plate-1 | 1 |
| MP33 | 8930046020 | 1123 sheet(A)-1 | 1 |
| MP34 | 8930056540 | Spring (AH) | 2 |
| MP35 | 8830001700 | VR nut (Q) | 1 |
| MP36 | 8830001690 | VR nut (R) | 1 |
| MP37 | 8510016360 | 2721 main shield | 1 |
| MP39 | 8930062230 | Sponge(HN) | 1 |
| MP42 | 8930062960 | White sheet (R) | 1 |
| MP46 | 8930055690 | Sponge(GT) | 1 |

Screw abbreviations B0, BT: Self-tapping
 ZK: Black
 SUS: Stainless
 NI-ZU: Nickel-zinc

[ACCESSORIES]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|----------|------------|------------------------|------|
| EP1 | 3310002311 | FA-SC25U-1 [Low-band] | 1 |
| | 3310002291 | FA-SC57U-1 [High-band] | 1 |
| EP2 | 0800007550 | BP-232 ACC | 1 |
| MP1 | 8010019540 | MB-94 ACC | 1 |
| MP3 | 8210020560 | 2721 JACK PANEL | 1 |
| MP4 | 8810004860 | Screw M2 x 6 ZK | 2 |

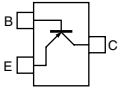
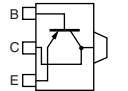
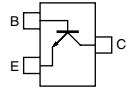
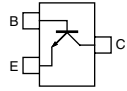
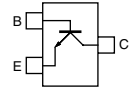
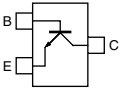
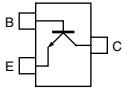
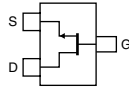
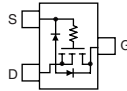
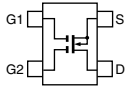
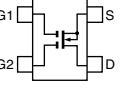
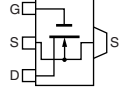
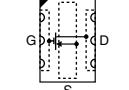
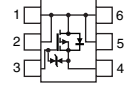
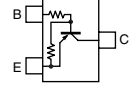
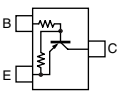
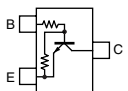
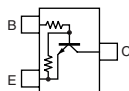
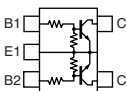
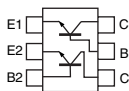





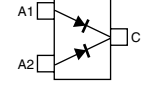
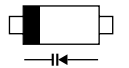
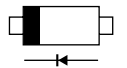
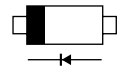


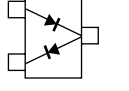
UNIT abbreviation (C): CHASSIS PARTS, (M): MAIN UNIT

SECTION 8 SEMI-CONDUCTOR INFORMATION

• TRANSISTOR AND FET'S

| | | | | |
|--|--|--|--|---|
| 2SA1577 Q (Symbol: HP)  | 2SB1132 Q (Symbol: BAQ)  | 2SC3356 (Symbol: R22)  | 2SC4116 BL (Symbol: LL)  | 2SC4215 O (Symbol: QO)  |
| 2SC4226 R25 (Symbol: R25)  | 2SC5006 (Symbol: 24)  | 2SK680 Y (Symbol: XY)  | 2SK1829 (Symbol: K1)  | 3SK293 (Symbol: UF)  |
| 3SK299 U73 (Symbol: U73)  | RD01MUS1 (Symbol: K2)  | RD07MVS1 (Symbol: RD07MVS1)  | TPC6103 (Symbol: S3C)  | UNR9112J (Symbol: 6B)  |
| UNR9113J (Symbol: 6C)  | UNR9210J (Symbol: 8L)  | UNR9213J (Symbol: 8C)  | XP1214 (Symbol: 9H)  | XP6501 AB (Symbol: 5N)  |

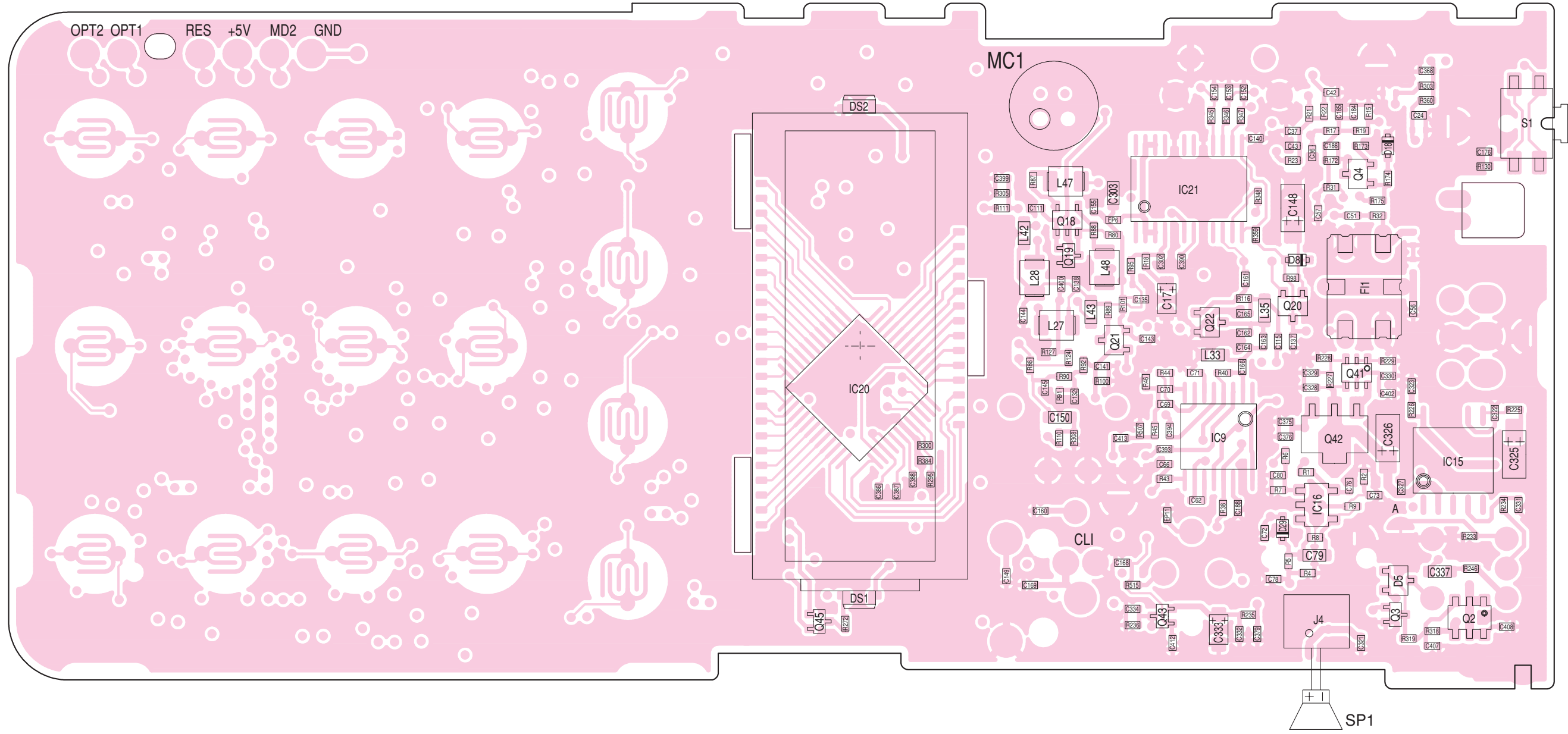
• DIODES

| | | | | |
|--|---|--|--|--|
| 1SV307 (Symbol: TX)  | DAN202 U (Symbol: N)  | HVC350B (Symbol: B0)  | MA2S077 (Symbol: S)  | MA2S111 (Symbol: A)  |
| MA2S728 (Symbol: B)  | MA368 (Symbol: 6L)  | RB706F- 40 (Symbol: 3J)  | | |

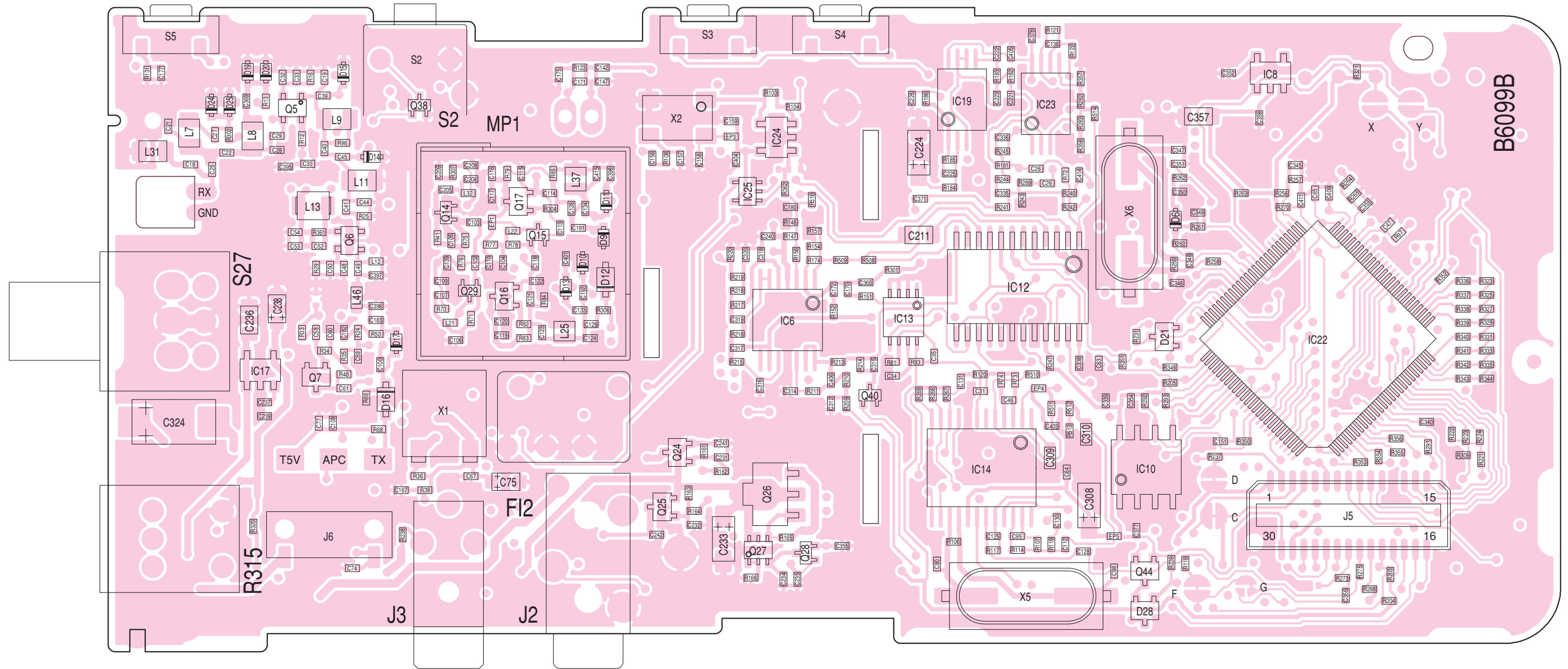
SECTION 9 BOARD LAYOUTS

9-1 MAIN UNIT

- TOP VIEW



• BOTTOM VIEW



J6
to the PA unit

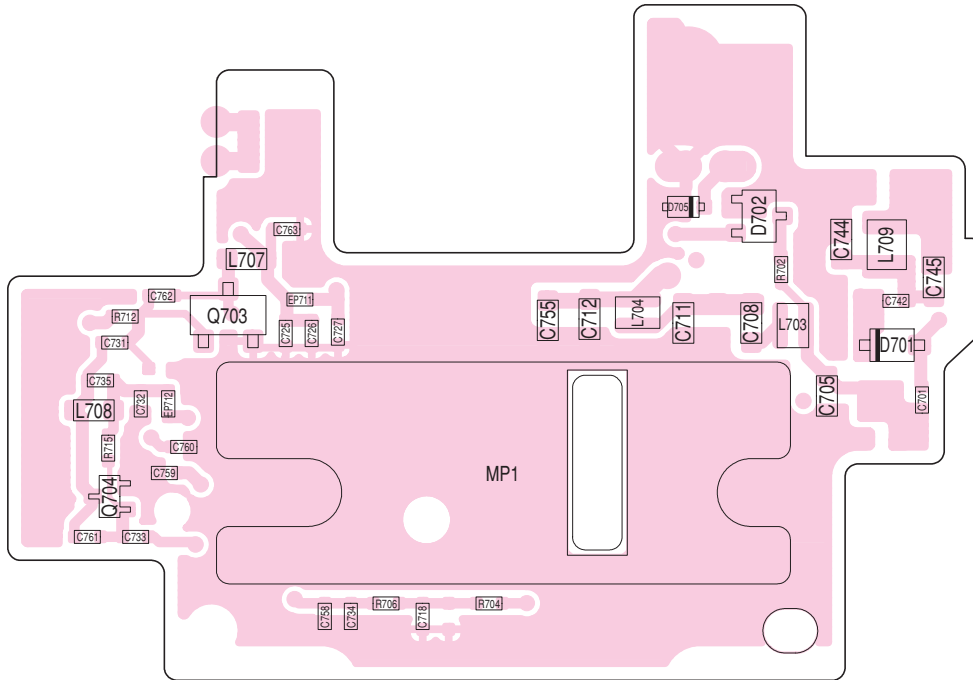
| | |
|-------|---|
| VCC | 1 |
| GND | 3 |
| P_DET | |

J5
to the OPTIONAL unit

| | | | | |
|----|---------|---|--------|----|
| 30 | GND | 1 | PTTIN | 15 |
| | +5V | | PTTOUT | |
| | VCC | | MICOUT | |
| | MICMUTE | | MICIN | |
| | AFONOP | | NC | |
| | BEEPOUT | | BUSY | |
| | RXMUTE | | NC | |
| | DISCIN | | SIGOUT | |
| | AFOUT | | OPT1 | |
| | REM | | OPT2 | |
| | CCS | | OPT3 | |
| | CIRQ | | GND | |
| | SO | | OPV3 | |
| | SI | | OPV2 | |
| 16 | SCK | | OPV1 | |

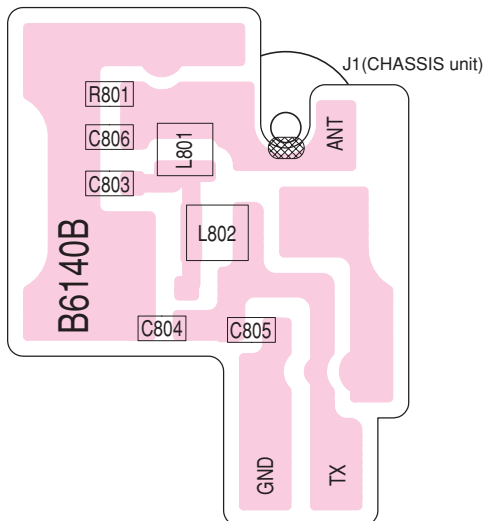
9-2 PA UNIT

- TOP VIEW



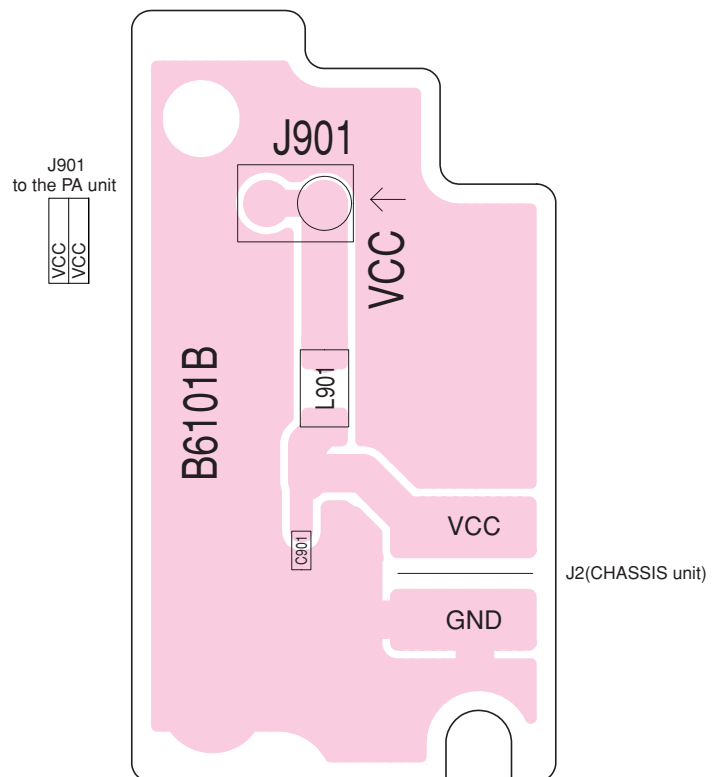
9-3 ANT UNIT

- TOP VIEW

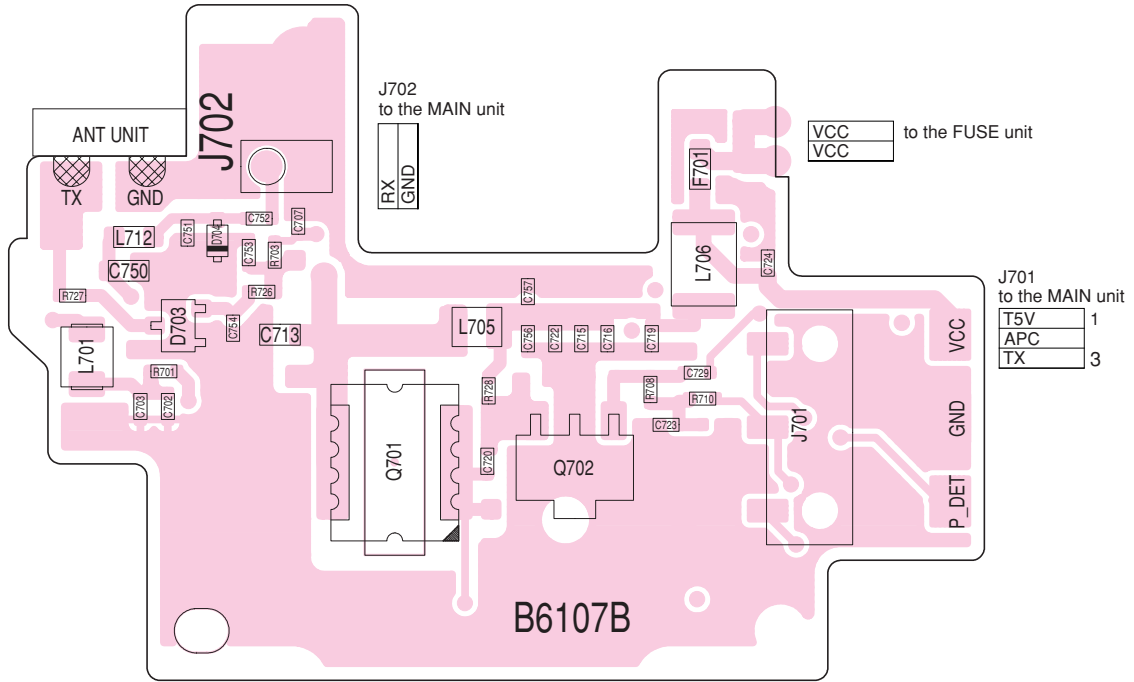


9-4 FUSE UNIT

- TOP VIEW



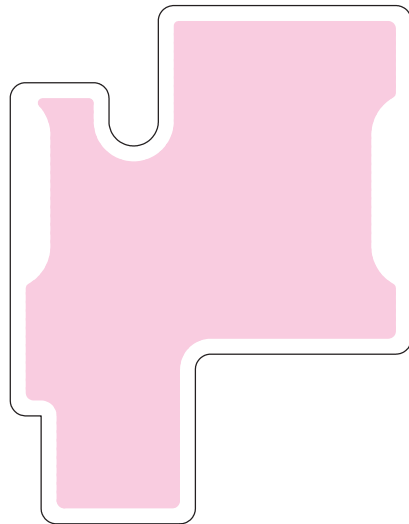
• BOTTOM VIEW



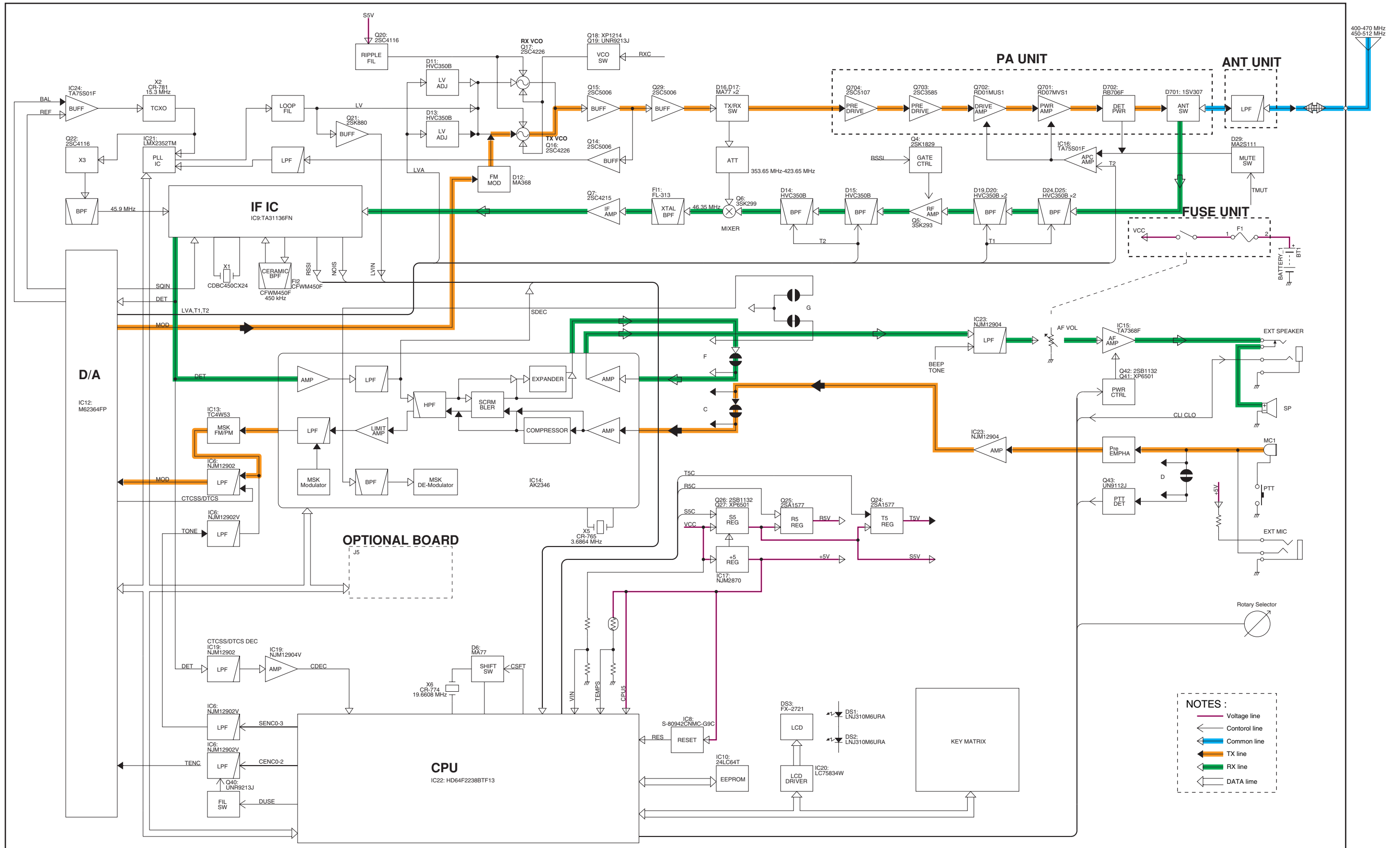
• BOTTOM VIEW



• BOTTOM VIEW



SECTION 10 BLOCK DIAGRAM

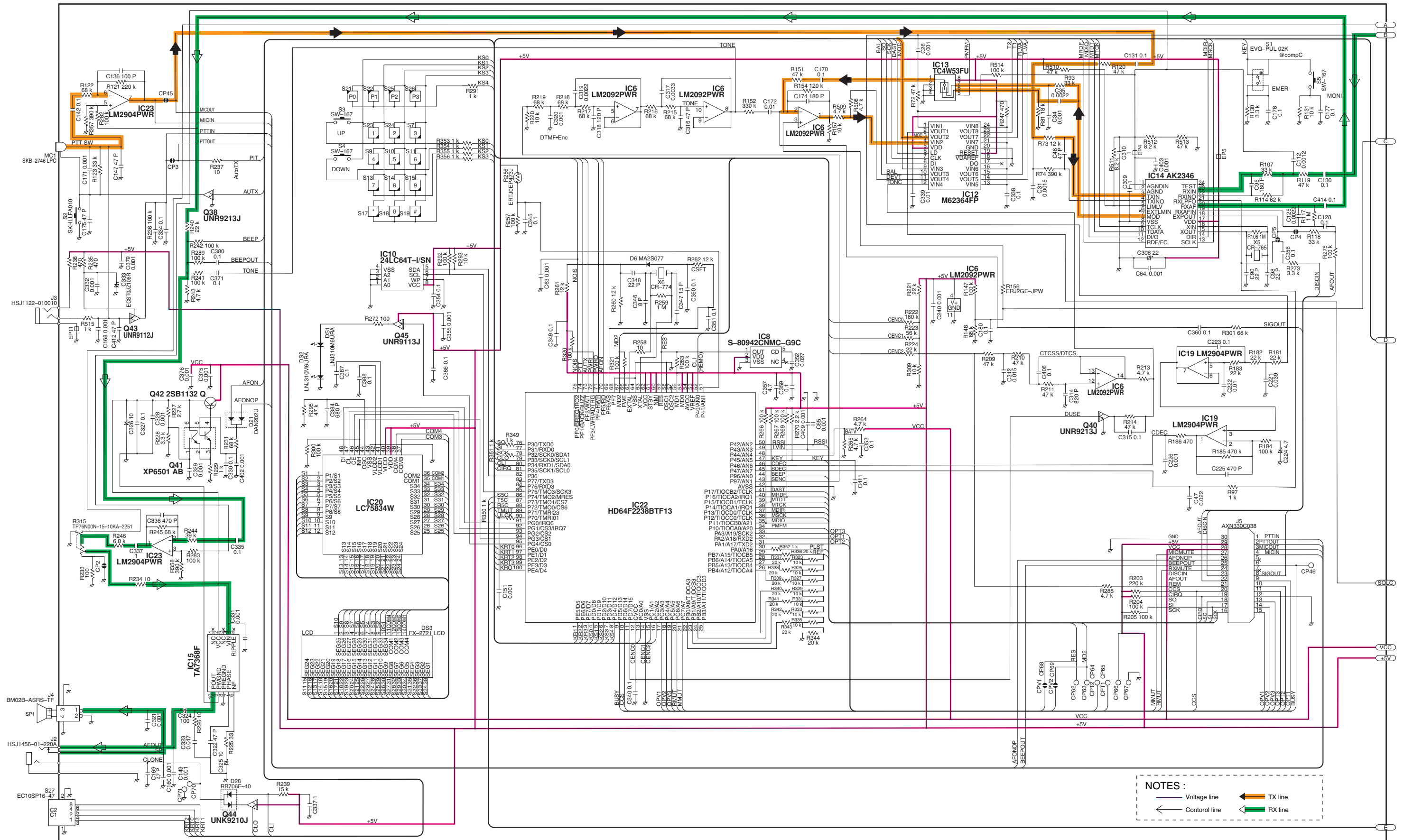


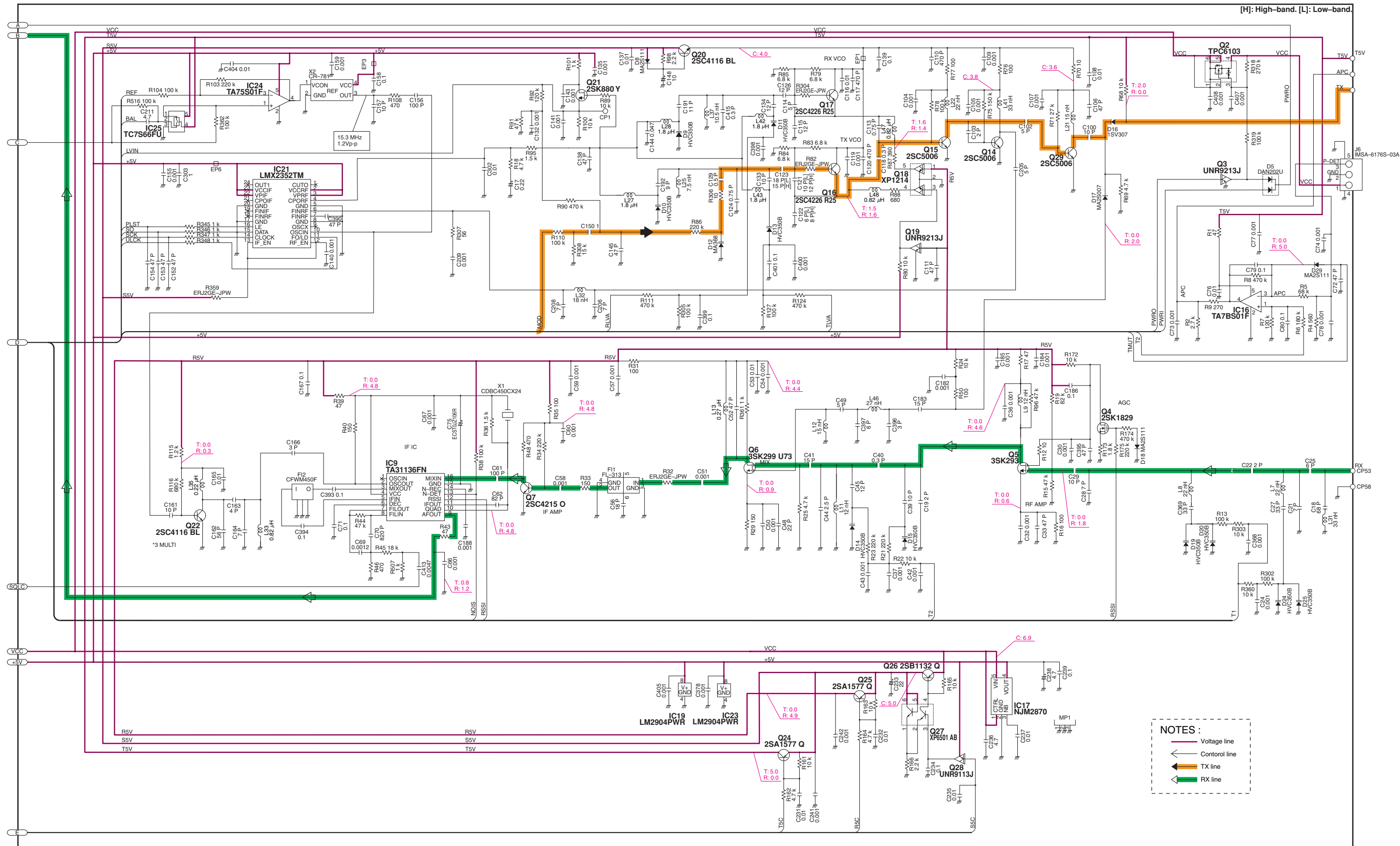
NOTES :

- Voltage line
- Control line
- Common line
- TX line
- RX line
- DATA line

SECTION 11 VOLTAGE DIAGRAM

11-1 MAIN UNIT



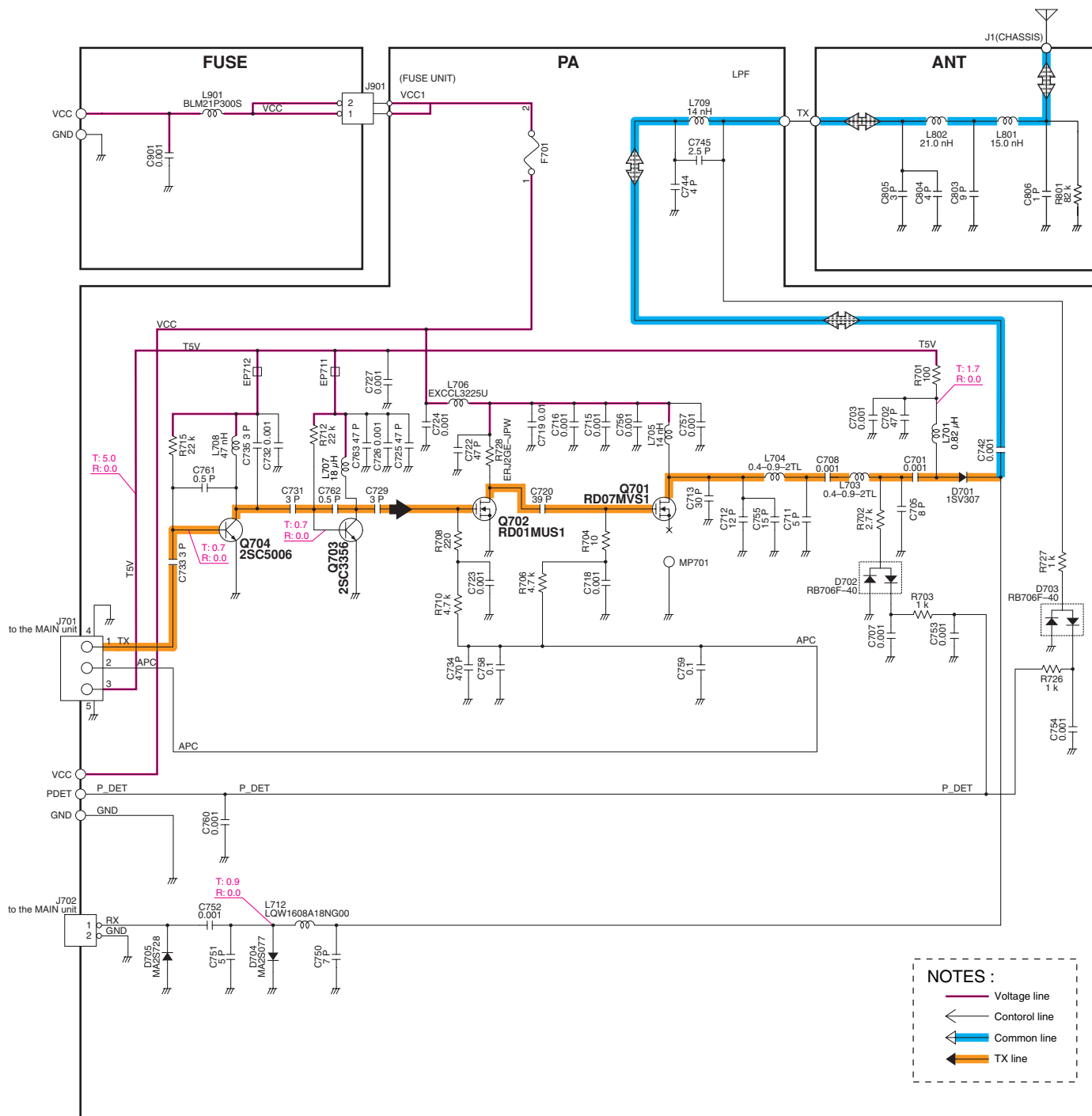


[H]: High-band, [L]: Low-band

NOTES :

- Voltage line
- Control line
- TX line
- RX line

11-2 PA / ANT / FUSE UNITS



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