

KENWOOD

SERVICE MANUAL

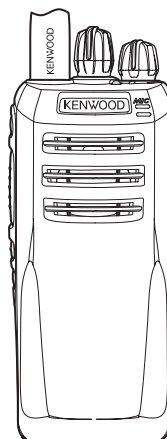
VHF DIGITAL TRANSCEIVER

TK-D200G, TK-D200

TK-D200G E
TK-D200 E



TK-D200G E2
TK-D200 E2



Note :

Lead free solder used in the board (material : Sn, Ag, In, Bi, melting point : 227 Centigrade)

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This product complies with the **RoHS** directive for the European market.



This product uses Lead Free solder.

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Transceivers containing AMBE+2™ Vocoder:

The AMBE+2™ voice coding technology is embedded in the firmware under the license of Digital Voice Systems, Inc.

SPECIFICATION

GENERAL		
Frequency Range		136~174MHz
Number of Channels		LCD models: 512ch, Non-LCD models: 64ch
Zones per Radio		LCD models: 128 zone (Max 250ch/zone), Non-LCD models: 4 zones (max. 16ch/zone)
Channel Spacing		Analog: 12.5 / 20 / 25 kHz, Digital: 12.5 kHz
Operating Voltage		7.5V DC ±20%
Battery Life (5-5-90): Digital (Save On)	with KNB-55L	More than 14 hours
	with KNB-57L	More than 19 hours
Operating Temperature Range		-30°C~+60°C
Frequency Stability		±1.5ppm
Antenna Impedance		50Ω
Dimensions (W x H x D) (Projections not included)	with KNB-55L	LCD models: 56.0 x 129.8 x 35.8 mm, Non-LCD models: 56.0 x 129.5 x 33.2 mm
	with KNB-57L	LCD models: 56.0 x 129.8 x 37.8 mm, Non-LCD models: 56.0 x 129.5 x 35.2 mm
Weight (net)	with KNB-55L	LCD models: Approx. 353 g, Non-LCD models: Approx. 343 g
	with KNB-57L	LCD models: Approx. 380 g, Non-LCD models: Approx. 370 g
RECEIVER		
Sensitivity	Digital @12.5kHz	0.3μV (5% BER)
		-4.5dBμ Vemf (5% BER)
		0.45μV (1% BER)
		-1dBμ Vemf (1% BER)
	Analog @25kHz	0.28μV (EIA 12dB SINAD)
		-3dBμ Vemf (EN 20dB SINAD)
	Analog @12.5kHz	0.32μV (EIA 12dB SINAD)
		-1dBμ Vemf (EN 20dB SINAD)
Adjacent Channel Selectivity	Analog @25kHz	76dB
	Analog @12.5kHz	68dB
Intermodulation	Analog	65dB
Spurious Response rejection	Analog	75dB
Audio Distortion		Less than 3%
Audio Output		500mW/8Ω
TRANSMITTER		
RF Power Output		5W/1W
Modulation Limiting	Analog	±5.0kHz at 25kHz, ±2.5kHz at 12.5kHz
Spurious Emission		-36dBm ≤ 1GHz, -30dBm > 1GHz
FM Noise (EIA)	Analog @25kHz	45dB
	Analog @12.5kHz	40dB
Modulation Distortion		Less than 3%
Vocoder Type		AMBE+2™
Modulation		16K0F3E, 14K0F2D, 14K0F3E, 12K0F2D, 8K50F3E, 7K50F2D, 7K60FXD, 7K60FXE
GPS		
TTFF Cold Start		< 1 minute
TTFF Hot Start		< 10 seconds
Horizontal Accuracy		< 10 meters

Analog measurement made per EN standards or TIA/EIA 603 and specifications shown are typical.

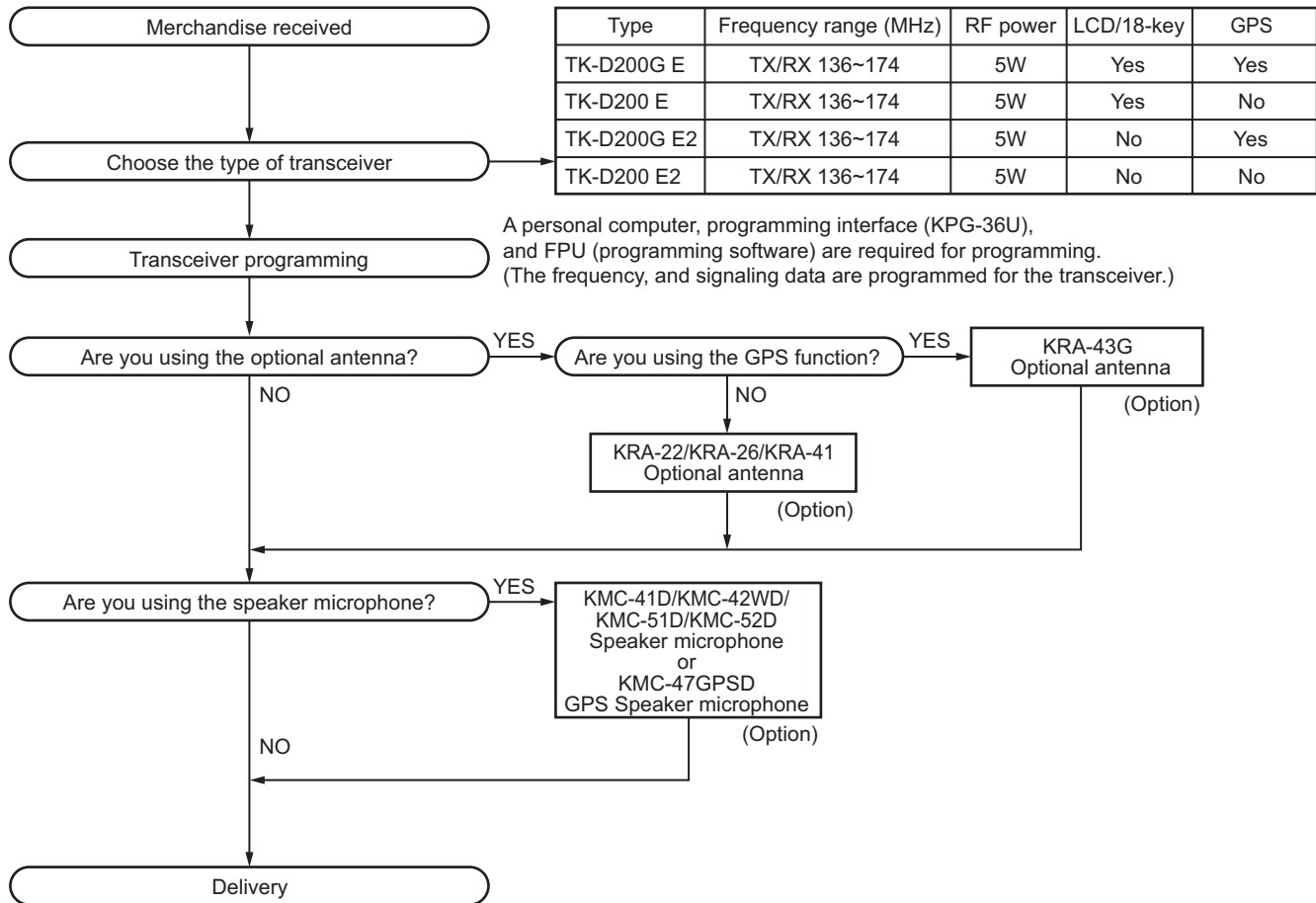
JVC KENWOOD Corporation reserves the right to change specifications without prior notice or obligation.

SECTION 1 PRECAUTION

This service manual does not describe PRECAUTION.

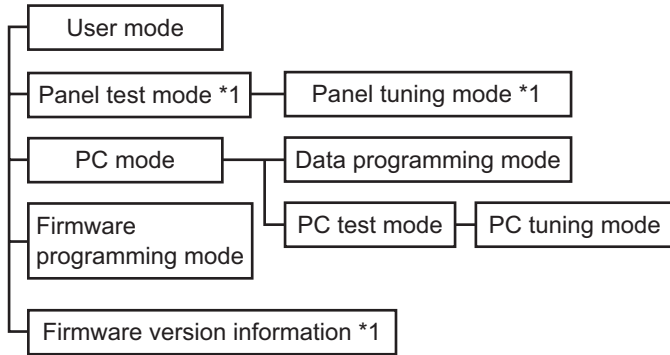
SECTION 2 SPECIFIC SERVICE INSTRUCTIONS

2.1 SYSTEM SET-UP



2.2 REALIGNMENT

2.2.1 Modes



Mode	Function
User mode	For normal use.
Panel test mode *1	Use by the dealer to check the fundamental characteristics.
Panel tuning mode *1	Used by the dealer to tune the transceiver.
PC mode	Used for communication between the transceiver and PC.
Data programming mode	Used to read and write frequency data and other features to and from the transceiver.
PC test mode	Used to check the transceiver using the PC. This feature is included in the FPU.
PC tuning mode	Used to tune the transceiver using the PC.
Firmware programming mode	Used when changing the main program of the flash memory.
Firmware version information *1	Used to confirm the internal firmware version.

*1: E models only

2.2.2 How to Enter Each Mode

Mode	Function
User mode	Power ON
Panel test mode *2	[] + Power ON
PC mode	Received commands from PC
Panel tuning mode *2	[Panel test mode] + []
Firmware programming mode	[] + Power ON (E models) [AUX (Orange)] + Power ON (E2 models)
Firmware version information *2	[Side1] + Power ON

*2: E models only

2.2.3 Panel Test Mode (E models only)

Setting method refer to ADJUSTMENT.

2.2.4 Panel Tuning Mode (E models only)

Setting method refer to ADJUSTMENT.

2.2.5 PC Mode

2.2.5.1 Preface

The transceiver is programmed by using a personal computer, programming interface (KPG-36U) and FPU (programming software).

The programming software can be used with a PC. Figure 1 shows the setup of a PC for programming.

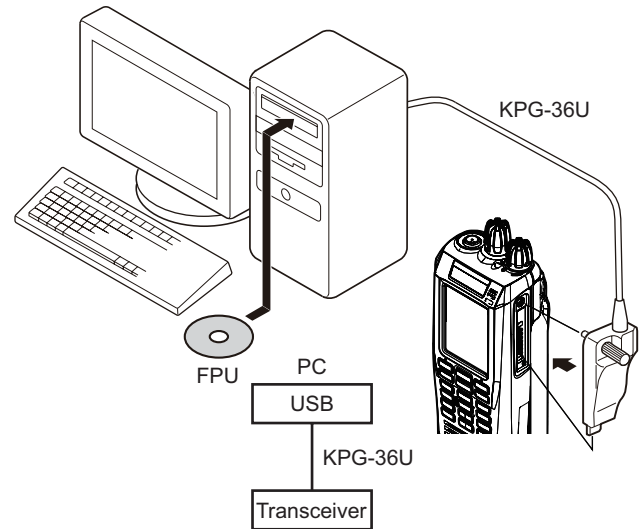


Fig.1

2.2.5.2 Connection procedure

- (1) Connect the transceiver to the computer using the interface cable.

Note:

*You must install the KPG-36U driver in the computer to use the USB programming interface cable (KPG-36U).

- (2) When the Power is switched on, you can immediately enter user mode. When the PC sends a command, the transceiver enters PC mode, and "PROGRAM" is displayed on the LCD.

When data is transmitting from the transceiver, the red LED lights.

When data is receiving by the transceiver, the green LED lights.

Note:

*The data stored in the computer must match the "Model Name" when it is written into the flash memory.

2.2.5.3 KPG-36U description (USB programming interface cable: Option)

The KPG-36U is a cable which connects to a USB port on a computer.

When using the KPG-36U, install the supplied CD-ROM (with driver software) in the computer. The KPG-36U driver runs under Windows XP, Vista, 7 or 8.

The latest version of the USB driver is available for download from the following URL:

<http://www.kenwood.com/usb-com/>

(This URL may change without notice.)

2.2.5.4 Programming software KPG-166D description

The FPU is the programming software for the transceiver supplied on a CD-ROM. This software runs under Windows XP, Vista, 7 or 8 on a PC.

The data can be input to or read from the transceiver and edited on the screen. The programmed or edited data can be printed out. It is also possible to tune the transceiver.

Note:

*When installing the KPG-166D on a PC, you must also install the Microsoft .NET Framework 4.0 onto the PC. If the Microsoft .NET Framework 4.0 is not already installed on your PC, you can download it from the Microsoft homepage.

2.2.6 Firmware Programming Mode

2.2.6.1 Preface

Flash memory is mounted on the transceiver. This allows the transceiver to be upgraded when new features are released in the future. (For details on how to obtain the firmware, contact Customer Service.)

2.2.6.2 Connection procedure

Connect the transceiver to the personal computer using the interface cable (KPG-36U). (Connection is the same as in the PC Mode.)

2.2.6.3 Programming

- (1) Start up the firmware programming software (Fpro.exe (version 6.20 or later)). The Fpro.exe exists in the KPG-166D installed folder.

- (2) Set the communications speed (normally, 115200 bps) and communications port in the configuration item.
- (3) Set the firmware to be updated by File name item.
- (4) Press and hold the [F] (E models) / [AUX (Orange)] (E2 models) key while turning the transceiver power ON. Then, the orange LED on the transceiver lights and "FIRMWARE PROG" is displayed.
- (5) Check the connection between the transceiver and the personal computer, and make sure that the transceiver is in the Firmware Programming mode.
- (6) Press "write" button in the window. When the transceiver starts to receive data, the [LOADING] display lights.
- (7) If writing ends successfully, the checksum is calculated and a result is displayed.
- (8) If you want to continue programming other transceivers, repeat steps 4 to 7.

2.2.6.4 Function

If you press the [Side1] key while "FIRMWARE PROG" is displayed, the checksum is calculated, and a result is displayed. If you press the [Side1] key again while the checksum is displayed, "FIRMWARE PROG" is redisplayed.

Note:

- *This mode cannot be entered if the Firmware Programming mode is set to Disable in the Programming software.
- *The text message are displayed for E models only.

2.2.7 Firmware Version Information (E models only)

Press and hold the [Side1] key while turning the transceiver power ON and then keep pressing and holding the [Side1] key, the firmware version information appears on the LCD.

2.3 CIRCUIT DESCRIPTION

2.3.1 Overview

The TK-D200 is a portable VHF transceiver designed to operate in the frequency range of 136 to 174MHz. The unit consists of a receiver, a transmitter, a phase-locked loop (PLL) frequency synthesizer, baseband parts, a power supply, and control circuits.

2.3.2 Frequency Configuration

The receiver is a double-conversion super-heterodyne using a first intermediate frequency (IF) of 49.95MHz and a second IF of 450kHz. Incoming signals from the antenna are mixed with the local signal from the RX PLL circuit to produce the first IF of 49.95MHz. This is then mixed with the 50.4MHz second local oscillator output to produce the 450kHz second IF. The transmit signal frequency is generated by the TX PLL VCO, and modulated by the signal from the DSP. It is then amplified and fed to the antenna.

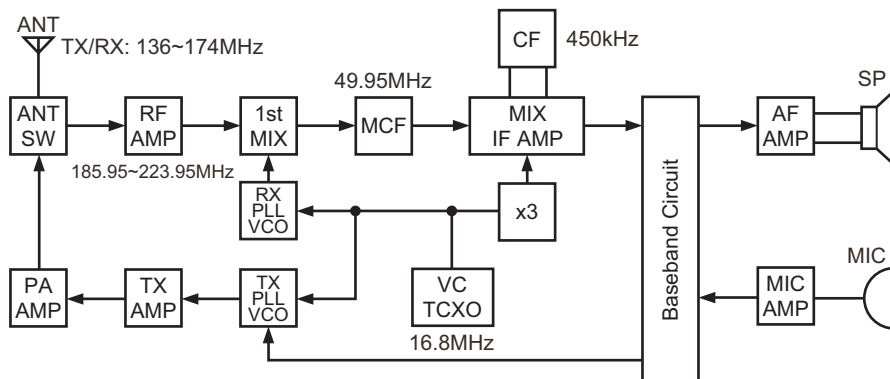


Fig. 1 Frequency configuration

2.3.3 Receiver System

2.3.3.1 RF Circuit

An incoming RF signal from the antenna terminal is passed through the antenna switch (D101, D102, D103 and D104) and then the bandpass filter (L213, L214). The bandpass filter is adjusted by a variable capacitor. The input voltage to the variable capacitor is regulated by the voltage output from the D/A converter (IC814). The signal is amplified by the RF amplifier (Q202), and passed through the bandpass filter (L208, L209, L212). The resulting signal is applied to the first mixer (Q201), where it is mixed with the first local oscillator signal output from the frequency synthesizer to produce the first IF (49.95MHz).

2.3.3.2 IF Circuit

The first IF signal is passed through a four-pole monolithic crystal filter (XF200) to reject adjacent channel signals. The filtered first IF signal is amplified by the first IF amplifier (Q200) and then applied to the IF system IC (IC203). The IF system IC provides a second mixer, AGC amplifier, and RSSI (Received Signal Strength Indicator).

The second mixer mixes the first IF signal with the 50.4 MHz of the second local oscillator output and produces the second IF signal of 450kHz.

The second IF signal is passed through a ceramic filter (CF201) to reject the adjacent channel signal. The filtered second IF signal is amplified by the AGC amplifier.

The signal from the AGC amplifier is passed through the ceramic filter (CF202) and amplified by IF amplifier (IC205). The amplified signal is input to A/D converter in IC105.

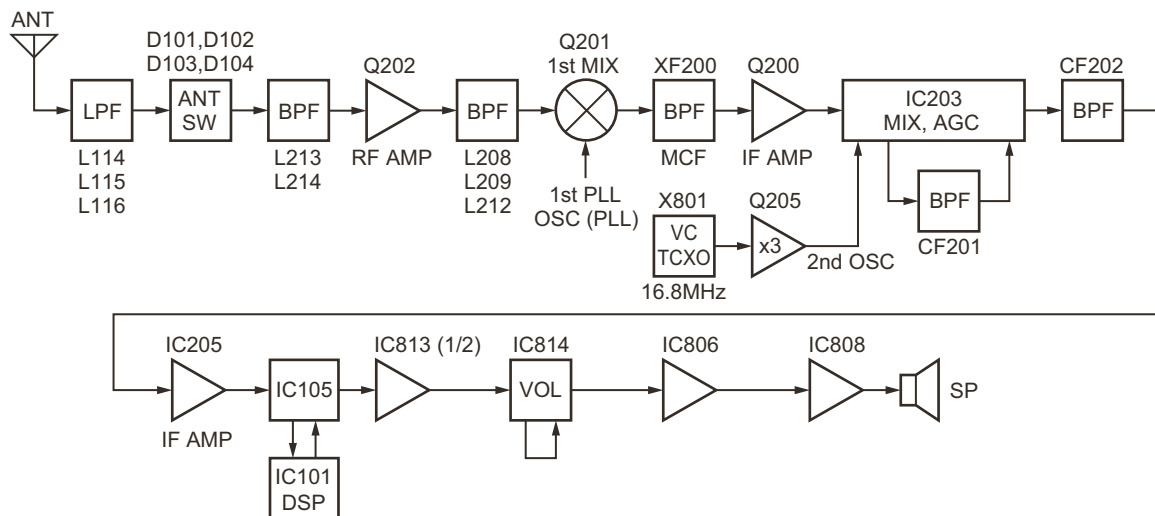


Fig. 2 RF and IF circuit

2.3.3.3 Audio Amplifier Circuit

Audio processing (high-pass filter, low-pass filter, de-emphasized, etc.) in FM mode and decoding in DMR mode are processed by the DSP. The audio signal from IC101 and IC105 goes through the amplifier (IC813 (1/2)). The signal then goes through the electronic volume control (IC814) and an amplifier (IC806).

While INAMT or EXAMT is High, the power supply of the audio power amplifier (IC808 or IC809) is activated, and the output to the speaker becomes ON.

2.3.3.4 Squelch Circuit

It amplifies the demodulated noise signal from IC105 after filtering through the LPF and HPF circuit. The amplified signal is then converted to a DC signal by the detection circuit. The converted signal is fed back to IC105.

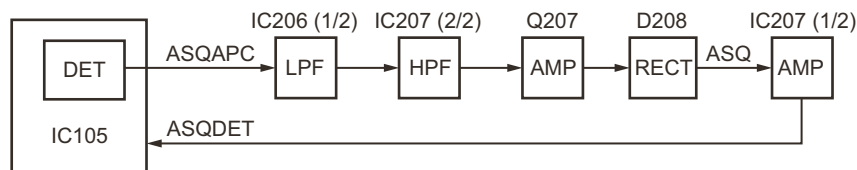


Fig. 3 Squelch circuit

2.3.4 Transmitter System

2.3.4.1 Audio Band Circuit

The signal from the microphone is amplified by IC811 (1/2) and limited by the AGC circuit composed of D812, D813, Q804 and Q805. IC811 (1/2) also works as an anti-aliasing LPF filter.

2.3.4.2 Baseband Circuit

The audio signal output from the audio band circuit is converted to digital data with a sampling frequency of 48 kHz. This digital data is sent to the DSP (IC101), and voice signals of 300Hz or lower and frequencies of 3kHz or higher are cut off and an audio range of 300Hz to 3kHz is extracted. The audio signal is then pre-emphasized in FM mode and synthesized with the signals, such as QT and DQT, as required, and is then output from IC105. In Digital mode, the audio signal is converted to a 4-Level FSK baseband signal and is output from IC105.

The LPF (IC813 (2/2)) works as a smoothing filter. The output level according to the transmit carrier is fine-adjusted according to each modulation method.

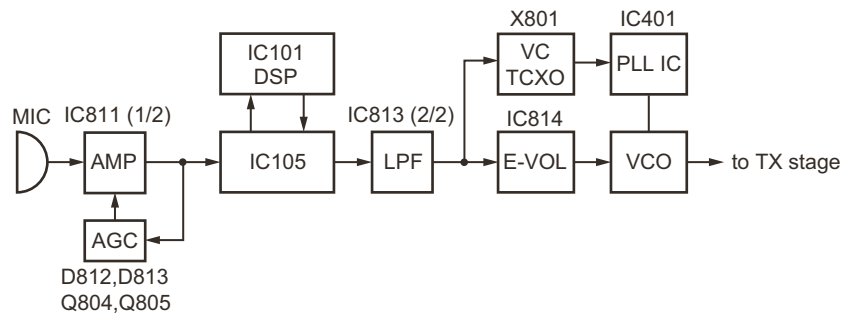


Fig. 4 Audio band and Baseband circuit

2.3.4.3 Drive and Final amplifier

The signal from the TX VCO is amplified by pre-drive amplifier (Q100). The output of the pre-drive amplifier is amplified by the drive and final amplifiers (Q101, Q102) to 5.0W (1.0W when the power is low). Q101 and Q102 is MOS FET. The output of the final amplifier is then passed through the harmonic filter (LPF) and antenna switch (D101, D102) and applied to the antenna terminal.

2.3.4.4 APC circuit

The APC circuit monitors the current flowing through the RF power amplifier (Q102) and keeps it constant. The voltage drop at R155, R157 and R158 is caused by the current flowing through the RF power amplifier and this voltage is applied to the differential amplifier (IC102 1/2). IC102 (2/2) compares the output voltage of IC102 (1/2) with the reference voltage from IC105. The output of IC102 (2/2) controls the VGG of Q100, Q101 and Q102 to make both currents constant. The change of power between high and low is carried out by the change of the reference voltage. Q108, Q109 and Q110 are turned on and Q106 and Q107 are turned off during transmission and the APC circuit is active.

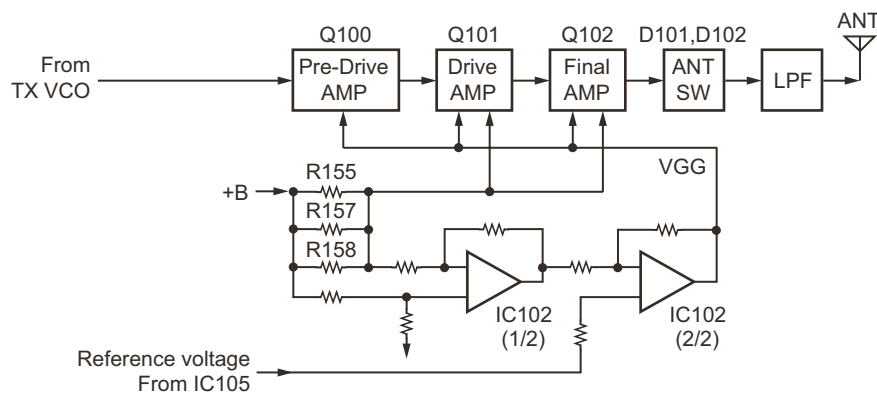


Fig. 5 Drive and final amplifier and APC circuit

2.3.5 PLL Frequency Synthesizer

2.3.5.1 VCTCXO (X801)

VCTCXO (X801) generates a reference frequency of 16.8MHz for the PLL frequency synthesizer. This reference frequency is applied to pin 9 of the TX PLL IC (IC401) and RX PLL IC (IC501) and is connected to the IF circuit as a 2nd local signal through the Tripler. The frequency adjustment is achieved by switching the ratio of the dividing frequency. The resolution of adjusting the frequency is approximately 11Hz.

2.3.5.2 VCO

There is an RX VCO and a TX VCO.

The TX VCO (Q402) generates a transmit carrier and the RX VCO (Q500) generates a 1st local signal. For the VCO oscillation frequency, the transmit carrier is 136 to 174 MHz and the 1st local signal is 185.95 to 223.95MHz.

The TX VCO oscillation frequency is determined by voltage control terminals "CV" and "TX ASSIST".

When the "TX" logic is high, the TX VCO outputs the transmit carrier.

The voltage control terminals, "CV" and "TX ASSIST", are controlled by the PLL IC (IC401) and ASIC (IC105) and the output frequency changes continuously according to the applied voltage. For the modulation input terminal, "VCO_MOD", the output frequency changes according to the applied voltage. This is used to modulate the TX VCO output.

The RX VCO oscillation frequency is determined by voltage control terminals "CV" and "RX ASSIST".

When the "RX" logic is high, the RX VCO outputs the transmit carrier.

2.3.5.3 PLL IC (IC401, IC501)

It involves 2 PLL ICs; one is for TX and the other one is for RX.

Each PLL IC compares the differences in phases of the each VCO oscillation frequency and the common VCTCXO reference frequency, returns the difference to the VCO CV terminal and realizes the "Phase Locked Loop" for the return control. This allows each VCO oscillation frequency to accurately match (lock) the desired frequency.

When the frequency is controlled by the PLL, the frequency convergence time increases as the frequency difference increases when the set frequency is changed. To supplement this, the ASIC is used before control by the PLL IC to bring the VCO oscillation frequency close to the desired frequency. As a result, the VCO CV voltage does not change and is always stable at approx. 2.5V.

The desired frequency is set for the PLL IC by the ASIC (IC105) through the 3-line "SDO0", "SCK0", "/PCS_T", "/PCS_R" serial bus. Whether the PLL IC is locked or not is monitored by the ASIC through the "PLD_T" and "PLD_R" signal line. If the VCO is not the desired frequency (unlock), the "PLD_T" or "PLD_R" logic is low.

Modulation signal of the Low-speed-Data is applied to pin 1 of the VCTCXO (X801).

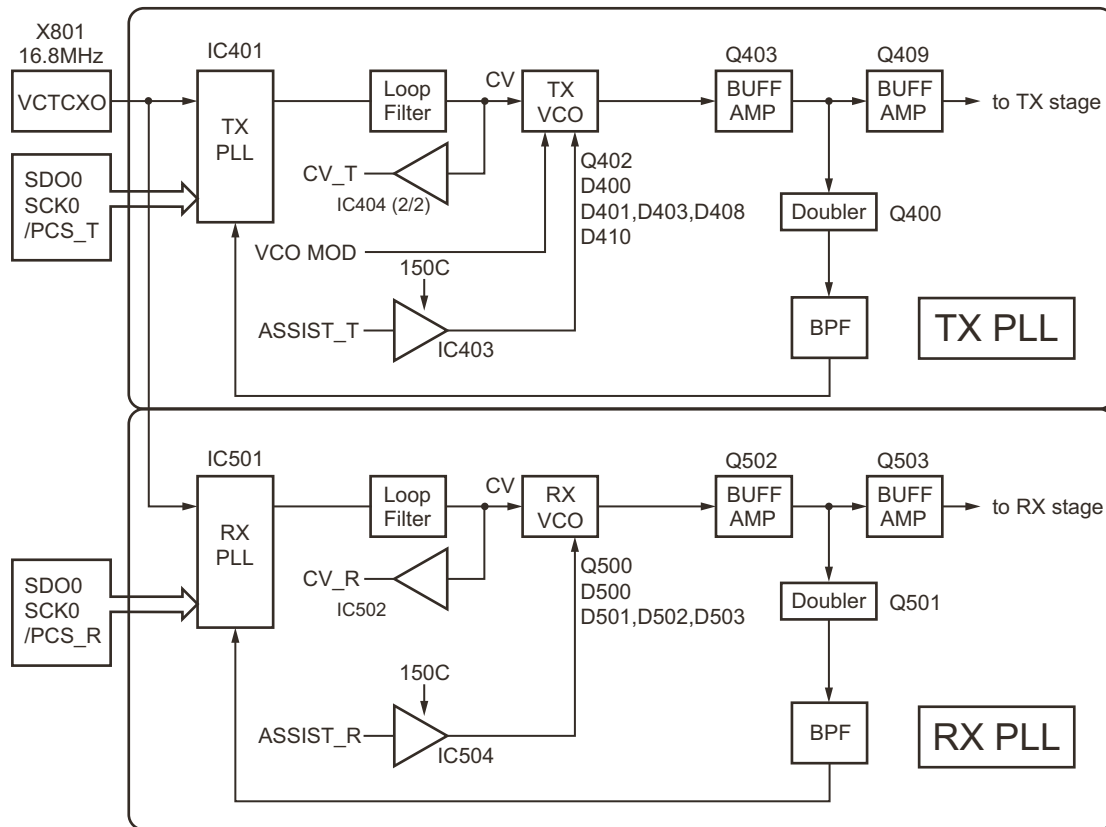


Fig. 6 PLL block diagram

2.3.6 Control Circuit

The control circuit consists of the ASIC (IC105) and its peripheral circuits. IC105 mainly performs the following:

- (1) Switching between transmission and reception via the PTT signal input.
- (2) Reading system, zone, frequency, and program data from the memory circuit.
- (3) Sending frequency program data to the PLL.
- (4) Controlling squelch on/off via the DC voltage from the squelch circuit.
- (5) Controlling the audio mute circuit via the decode data input.

2.3.6.1 ASIC

The ASIC (IC105) is a 32-bit RISC processor equipped with peripheral function and ADC/DAC.

This ASIC operates at a clock speed of 55.296MHz and 3.3V /1.5V DC. It controls the flash memory, SRAM, DSP, the receive circuit, the transmitter circuit, the control circuit, and the display circuit and transfers data to and from external devices.

2.3.6.2 Memory Circuit

The memory circuit consists of the ASIC (IC105) and the SRAM (IC102) and flash memory (IC100, IC111). The flash memory has a capacity of 64M-bit which contains the transceiver control program for the ASIC and stores the data. It also stores the data for the transceiver channels and operating parameters that are written by the FPU. This program can be easily written from external devices. The SRAM has a capacity of 2M-bit which contains the work area and data area.

■Flash memory

Note :

- * IC100: The flash memory stores the data that is written by the FPRO, firmware program (User mode, Test mode, Tuning mode, etc.).
- * IC111: The flash memory stores the data that is written by the FPU (KPG-166D), tuning data (Deviation, Squelch, etc.). This data must be rewritten when replacing the flash memory.

■SRAM (Static memory)

Note: The SRAM has a temporary data area and work area.

2.3.6.3 LCD

The LCD is controlled using the bus lines on the connector (CN2) of the Control unit (X53-457). It corrects the Brightness of the LCD using IC5.

2.3.6.4 Key Detection Circuit

Keys are detected using the key scan circuit in IC105. The /KEY1 signals that are normally pulled down go high when a key is pressed.

2.3.6.5 Low Battery Warning

The battery voltage is divided using R412 and R413 and is detected by the ASIC (IC105). When the battery voltage falls below the voltage set by the Low battery warning adjustment, the red LED blinks to notify the operator that it is time to replace the battery. If the battery voltage falls even more (approx. 5.8V), a beep sounds and transmission stops.

Low battery warning	Battery condition
The red LED blinks during transmission.	The battery voltage is low but the transceiver is still usable.
The red LED blinks and the warning tone beeps while the PTT switch is pressed.	The battery voltage is low and the transceiver is not usable to make calls.

2.3.6.6 DSP

The DSP circuit consists of a DSP (IC101) and processes the baseband signal. The DSP operates on an external clock of 18.432MHz (the same as the IC105), the I/O section operates at 3.3V, and the core section operates at 1.3V. The DSP carries out the following processes:

- *4 Level FSK processing
- *Analog FM pre-emphasis/de-emphasis
- *Vocoder processing between audio codec and modulation/demodulation
- *CAI processing, such as error correction encoding
- *QT/DQT encoding/decoding
- *Compressor/expander processing
- *Transmit/receive audio filtering processing
- *Microphone amplifier AGC processing
- *Audio mute processing
- *Modulation level processing

2.3.7 Power Supply Circuit

The battery voltage (+B) is provided from the battery terminal on the TX-RX unit (X57). The battery voltage passes through the 2.5A fuse (F801), and goes to the RF final amplifier, AVR ICs (IC702, IC705, IC603, IC805, IC401), DC/DC converter (IC402), and voltage detector IC (IC403). The voltage detector watches the battery voltage. If the battery voltage is 5.6V or higher, the detector outputs High.

When the VOL SW is turned on, SB1 becomes High (battery voltage). DC/DC (IC402) operates if both SB1 and the output of the detector are high. IC402 outputs 3.8V and activates IC108 (33M), IC107 (15M), IC113 (33A), IC708 (25G) and IC706 (33C). As a result, the ASIC and DSP operate.

The SBC signal becomes High after the ASIC operates, and Q402 (SB2) turns on. Switches (Q701, Q704) are controlled by the ASIC. Q701 (50T) is turned on in transmit mode. Q704 (50R) is turned on in receive mode.

When the VOL SW is turned off, the /PSW signal becomes Low. After detecting the /PSW signal, the ASIC changes the SBC signal to Low.

50C_R is fed to IC707 (150C). IC707, D702, D703, D704 and D705 consist of a voltage tripler.

C735 is charged to 5V by 50C_R and switched to C737, C736, C739, and C740 by the "DDCLK" control signal.

The 150C circuit then outputs approximately +15VDC.

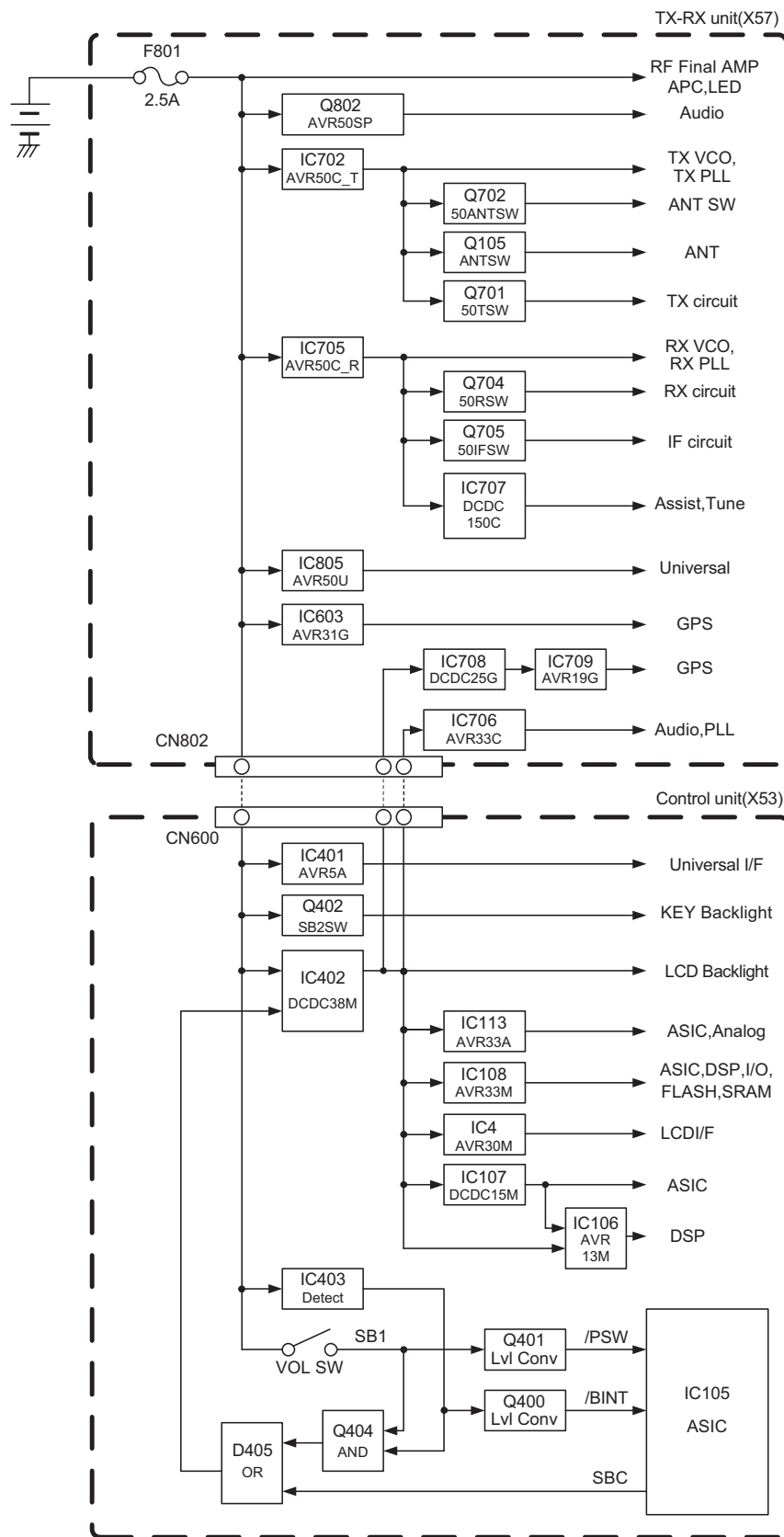


Fig. 7 Power supply circuit

2.3.8 Signaling Circuit

2.3.8.1 Encode (QT/DQT)

Each signaling data signal of QT and DQT is generated by the DSP circuit, superimposed on a modulation signal and output from IC105. The modulation balance of the QT/DQT signal is adjusted by the D/A converter (IC814) and the resulting signal is routed to the modulation input of the VCO and VCTCXO (X801). Each deviation of the TX QT and DQT tone is adjusted by changing the output level of IC105 and the resulting signal is routed to the VCO and VCTCXO.

2.3.8.2 Decode (QT/DQT)

The audio signal is removed from the FM detection signal sent to the DSP circuit and the resulting signal is decoded.

2.3.9 Compander Circuit

The term "compander" means compressor and expander. The compander reduces noise by utilizing a compressor and an expander. The transceiver contains a DSP (IC101) to perform this operation. The transceiver compander can be turned on or off using the FPU.

2.3.10 GPS Circuit (GPS model only)

The GPS information function can be used by setting it through the FPU. When the GPS information function is enabled, the AVR (IC709) for 19G (1.9V) is enabled by the GPS_SW, and is supplied to the GPS circuit. The GPS IC (IC602) operates after the /GRST (Reset signal for the GPS IC) is "High".

The GPS signal of 1575.42MHz received with the antenna (with GPS band) is passed by the HPF and BPF (L605) and is amplified by the LNA (IC601). The GPS signal is processed by the GPS IC (IC602) and input to the ASIC (IC105) through the UART port. The ASIC (IC105) processes the GPS data (NMEA) and sends the resulting information to the LCD.

This GPS IC (IC602) operates at a clock speed of 26MHz ($\pm 0.5\text{ppm}$ TCXO)/32.768kHz (CR) and 1.9V/3.1V DC. The 1.9V DC is supplied for GPS processing, the 3.1V DC is supplied to back up the BBR (Battery Backup RAM) and the RTC (Real Time Clock). When the transceiver power is off, the GPS IC will be backed up with the battery pack. When the battery pack is removed, the GPS IC will be backed up for a few minutes in a large capacitor (C629). But if the GPS IC has never had the position fixed, it will not be backed up. The RTC in the GPS IC is calibrated by the fixed position.

2.4 COMPONENTS DESCRIPTION

2.4.1 TX-RX unit (X57-878)

Ref. No.	Part Name	Description
IC102	IC	Auto power control
IC201	IC	DC AMP (BPF)
IC202	IC	DC AMP (BPF)
IC203	IC	FM IC
IC204	IC	OP AMP (RSSI/ASQL)
IC205	IC	2nd IF buffer
IC206	IC	OP AMP (ASQ LPF/APC SMF)
IC207	IC	OP AMP (ASQ HPF/ASQ DC AMP)
IC401	IC	TX PLL IC
IC402	IC	TX_CV HOLD
IC403	IC	OP AMP (TX Assist)
IC404	IC	OP AMP (MOD/TX_CV BUFF)
IC501	IC	RX PLL IC
IC502	IC	OP AMP (RX_CV BUFF)
IC503	IC	RX_CV HOLD
IC504	IC	OP AMP (RX Assist)
IC601	IC	GPS low noise AMP
IC602	IC	GPS receiver
IC603	IC	Voltage regulator (GPS Backup)
IC702	IC	Voltage regulator (50C_T)
IC705	IC	Voltage regulator (50C_R)
IC706	IC	Voltage regulator (33C)
IC707	IC	DC/DC converter (150C)
IC708	IC	DC/DC converter (25G)
IC709	IC	DC/DC converter (19G)
IC802	IC	Motion sensor

Ref. No.	Part Name	Description
IC803	IC	Temperature sensor
IC804	IC	OP AMP (TCXO MOD)
IC805	IC	Voltage regulator (5V)
IC806	IC	OP AMP (AF AMP)
IC807	IC	AF switch
IC808	IC	Audio AMP (Internal SP)
IC809	IC	Audio AMP (External SP)
IC810	IC	OP AMP (VREF)
IC811	IC	OP AMP (MIC AMP)
IC813	IC	OP AMP (RX AF/MOD)
IC814	IC	D/A converter
Q100	FET	TX pre-drive AMP
Q101	FET	TX drive AMP
Q102	FET	TX final AMP
Q105	Transistor	Antenna switch control
Q106	Transistor	APC switch
Q107	FET	APC switch
Q108	FET	APC switch
Q109	FET	APC switch
Q110	Transistor	DC switch
Q111	FET	APC switch
Q200	Transistor	IF AMP
Q201	FET	Mixer
Q202	FET	RF AMP
Q204	Transistor	Ripple filter
Q205	Transistor	Tripler (2nd local)

Ref. No.	Part Name	Description
Q207	Transistor	SQL noise AMP
Q400	Transistor	Fin doubler
Q402	FET	TX VCO oscillation
Q403	Transistor	Buffer AMP
Q405	Transistor	Ripple filter
Q406	FET	DC switch (TX)
Q407	FET	DC switch (TX)
Q409	Transistor	Buffer AMP
Q500	FET	RX VCO oscillation
Q501	Transistor	Fin doubler
Q502	Transistor	Buffer AMP
Q503	Transistor	Buffer AMP
Q504	Transistor	Ripple filter
Q505	FET	DC switch (RX)
Q506	FET	DC switch (RX)
Q701	Transistor	DC switch (50T)
Q702	Transistor	DC switch (50ANT)
Q703	FET	DC switch
Q704	FET	DC switch (50R)
Q705	FET	DC switch (50IF)
Q706	Transistor	DC switch
Q707	FET	DC switch
Q801	FET	DC switch
Q802	Transistor	DC switch
Q803	Transistor	DC switch
Q804	Transistor	MIC AGC
Q805	Transistor	MIC AGC
Q806	FET	MIC switch
Q808	Transistor	DC switch
Q811	FET	DC switch
D101	Diode	Antenna switch
D102	Diode	Antenna switch
D103	Diode	Antenna switch
D104	Diode	Antenna switch
D111	Zener diode	APC protection
D201	Variable capacitance diode	Vari-cap tune
D202	Variable capacitance diode	Vari-cap tune
D203	Variable capacitance diode	Vari-cap tune
D204	Variable capacitance diode	Vari-cap tune
D207	Diode	Ripple filter
D208	Diode	Noise detector
D400	Variable capacitance diode	Frequency control

Ref. No.	Part Name	Description
D401	Variable capacitance diode	Frequency control
D403	Variable capacitance diode	Frequency control
D406	Diode	Bypass diode
D407	Diode	Ripple filter
D408	Variable capacitance diode	Frequency control
D410	Variable capacitance diode	TX modulation
D500	Variable capacitance diode	Frequency control
D501	Variable capacitance diode	Frequency control
D502	Variable capacitance diode	Frequency control
D503	Variable capacitance diode	Frequency control
D506	Diode	Bypass diode
D507	Diode	Ripple filter
D602	Diode	Overload protection
D603	Diode	Overload protection
D604	Diode	Reverse current prevention
D702	Diode	DC/DC converter
D703	Diode	DC/DC converter
D704	Diode	DC/DC converter
D705	Diode	DC/DC converter
D801	Diode	Reverse connection protection
D802	Diode	Reverse current prevention
D803	Zener diode	Surge absorption
D804	Zener diode	Surge absorption
D805	Diode	Surge absorption
D806	Zener diode	Surge absorption
D807	Diode	Surge absorption
D808	Diode	Reverse current prevention
D809	Diode	Reverse current prevention
D810	Zener diode	Surge absorption
D811	Zener diode	Surge absorption
D812	Diode	MIC AGC detector
D813	Diode	MIC AGC detector
D814	LED	Red and green LED

2.5 TERMINAL FUNCTION

2.5.1 Control unit (X53-4572-XX)

Pin No.	Name	I/O	Function
CN1 (To KEY FPC)			
1	NC	-	No connection
2	F_KEYo3	O	Key matrix output (KEYO3)
3	Side_1	I	Key matrix input (KEYI0)
4	F_KEYo2	O	Key matrix output (KEYO2)
5	Side_2	I	Key matrix input (KEYI1)
6	F_LED_A_C	O	Key backlight LED voltage output
7	F_LEDK_0	I	Key backlight LED cathode
8	F_LEDK_1	I	Key backlight LED cathode
9	F_LEDK_2	I	Key backlight LED cathode
10	F_KEYo1	O	Key matrix output (KEYO1)
11	F_LEDK_3	I	Key backlight LED cathode
12	F_KEYi3	I	Key matrix input (KEYI3)
13	F_KEYi2	I	Key matrix input (KEYI2)
14	Side_G	O	Key matrix output (KEYO0)
15	F_KEYi4	I	Key matrix input (KEYI4)
CN2 (To LCD module)			
1	GND	-	GND
2	CABC	I	Backlight control PWM signal input
3	VCC	O	3.0V LCD power supply
4	VSYNC	O	Vertical synchronizing signal in RGB interface
5	HSYNC	O	Horizontal synchronizing signal in RGB interface
6	DOTCLK	O	Dot clock signal in RGB interface
7	DE	O	Data enable signal in RGB I/F mode
8	RESET	O	LCD reset output
9	CS	O	LCD chipselect output
10	DC	O	Command or display data selection pin
11	RD	O	LCD Read enable output
12	WR_SCL	O	LCD Write enable output
13	IM3	O	System interface select (16bit Bus is selected)
14	IM2	O	System interface select (16bit Bus is selected)
15	IM1	O	System interface select (16bit Bus is selected)
16	IM0	O	System interface select (16bit Bus is selected)
17	SDA	-	No connection
18	DB17	-	No connection

Pin No.	Name	I/O	Function
19	DB16	-	No connection
20	DB15	I/O	Data bus 15
21	DB14	I/O	Data bus 14
22	DB13	I/O	Data bus 13
23	DB12	I/O	Data bus 12
24	DB11	I/O	Data bus 11
25	DB10	I/O	Data bus 10
26	DB9	I/O	Data bus 9
27	DB8	I/O	Data bus 8
28	DB7	I/O	Data bus 7
29	DB6	I/O	Data bus 6
30	DB5	I/O	Data bus 5
31	DB4	I/O	Data bus 4
32	DB3	I/O	Data bus 3
33	DB2	I/O	Data bus 2
34	DB1	I/O	Data bus 1
35	DB0	I/O	Data bus 0
36	IOVCC	O	3.0V LCD power supply output
37	LEDK4	I	LCD backlight LED4 (Cathode)
38	LEDK3	I	LCD backlight LED3 (Cathode)
39	LEDK2	I	LCD backlight LED2 (Cathode)
40	LEDK1	I	LCD backlight LED1 (Cathode)
41	LEDA	O	LCD backlight power supply (Anode)
CN500 (To Volume and Encoder)			
1	+B	O	Power output after passing through the fuse
2	SB1	I	Power input after power switch
3	ENC1	I	Encoder pulse input
4	ENC2	I	Encoder pulse input
5	ENC4	I	Encoder pulse input
6	VOL_GND	-	GND for volume level
7	VOL	I	Volume level input for audio control
8	33A	O	3.3V for volume level
9	ENC_GND	-	GND for encoder
10	ENC3	I	Encoder pulse input
CN600 (To TX-RX unit CN802)			
1	RXC	O	50R switch control output
2	+B	I	Power input after passing through the fuse
3	SCK0	O	PLL and DAC serial clock output
4	+B	I	Power input after passing through the fuse
5	SDO0	O	PLL and DAC serial data output

Pin No.	Name	I/O	Function
6	+B	I	Power input after passing through the fuse
7	/PCS_R	O	RX PLL enable output
8	38M_1	O	38M output
9	TXD1	O	GPS Serial data output
10	NC	-	No connection
11	RXD1	I	GPS Serial data input
12	Side_1	I	Key matrix input (SIDE1 key)
13	/GRST	O	GPS Reset output
14	Side_2	I	Key matrix input (SIDE2 key)
15	GPS_SW	O	GPS power supply switch control output
16	Side_G	O	Key matrix output (SIDE1,2 key)
17	ASSIST_R	O	RX VCO tuning voltage control output
18	/PTT	I	PTT input
19	CV_R	I	RX CV voltage input
20	/EMG	I	Key matrix input (Emergency (Orange) key)
21	RX	O	RX control output
22	GND	-	GND
23	PLD_R	I	RX PLL lock detect input
24	S_DET	I	Battery select input
25	OPT_univ	I/O	Option interface I/O
26	DDCLK	O	Clock signal output for 150C
27	/PCS_T	O	TX PLL enable output
28	/APCSW	O	APC switch control output
29	TXD0_univ	O	Serial data output for universal connector
30	/DSW	O	APC voltage discharge switch control output
31	RXD0_univ	I	Serial data input for universal connector
32	ANTSW	O	Antenna switch control output
33	DSR_univ	I/O	Option interface I/O
34	SBC	O	SB switch control output
35	PFKEY_univ	I	Programmable function key input for universal connector
36	GND	-	GND
37	/UDET_univ	I	EXT/INT speaker switch input for universal connector
38	VIB	O	Reserved (Vibrator control output)
39	CTS0_univ	I	EXT/INT MIC switch input for universal connector
40	LED_G	O	Green LED control output
41	ASSIST_T	O	TX VCO tuning voltage control output

Pin No.	Name	I/O	Function
42	LED_R	O	Red LED control output
43	CV_T	I	TX CV voltage input
44	EXAMT	O	External audio amp control output
45	MIC	I	MIC AMP input
46	INAMT	O	Internal audio amp control output
47	RXAF	O	RX audio output
48	5UC	O	Universal 5V switch control output
49	BEEP	O	Beep signal output
50	MOD	O	Modulation signal output
51	AUD_VREF	O	Audio reference voltage output
52	ASQAPC	O	Analog squelch and APC signal output
53	TX	O	TX VCO control output
54	ASQDET	I	Analog squelch voltage input
55	PLD_T	I	TX PLL lock detect input
56	MIC_main	O	Internal MIC signal output
57	IFC	O	50IF switch control output
58	MIC_gnd	O	Internal MIC GND
59	I2CCK	O	Clock signal output for motion and temperature sensor
60	/EVCS	O	DAC enable output
61	I2CSDA	I/O	Data signal for motion and temperature sensor
62	/SQHLD	O	Squelch circuit control output
63	GND	-	GND
64	TXC	O	50T switch control output
65	RSSI	I	RSSI voltage input
66	THP	I	Thermistor voltage input
67	VAGC	I	AGC voltage input
68	38M_2	O	38M output
69	IF_DET	I	IF output
70	NC	-	No connection

2.5.2 TX-RX unit (X57-8782-XX)

Pin No.	Name	I/O	Function
CN801 (To SIDE key)			
1	/EMG	I	Key matrix input (Emergency (Orange) key)
2	GND	-	GND
3	Side_G	O	Key matrix output (SIDE1,2 key)
4	Side_2	I	Key matrix input (SIDE2 key)
5	Side_1	I	Key matrix input (SIDE1 key)
6	/PTT	I	Internal PTT input
CN802 (To Control unit CN600)			
1	+B	O	Power output after passing through the fuse
2	RXC	I	50R switch control input
3	+B	O	Power output after passing through the fuse
4	SCK0	I	Clock input for motion/temperature sensor and DAC
5	+B	O	Power output after passing through the fuse
6	SDO0	I	Data input for motion/temperature sensor and DAC
7	38M_1	I	38M input
8	/PCS_R	I	RX PLL enable input
9	NC	-	No connection
10	TXD1	I	GPS Serial data input
11	Side_1	O	Key matrix output (SIDE1 key)
12	RXD1	O	GPS Serial data output
13	Side_2	O	Key matrix output (SIDE2 key)
14	/GRST	I	GPS Reset input
15	Side_G	I	Key matrix input (SIDE1,2 key)
16	GPS_SW	I	GPS switch control input
17	/PTT	O	PTT output
18	ASSIST_R	I	RX VCO tuning voltage control input
19	/EMG	O	Key matrix output (Emergency (Orange) key)
20	CV_R	O	RX CV voltage output
21	GND	-	GND
22	RX	I	RX control input
23	S_DET	O	Battery select output
24	PLD_R	O	RX PLL lock detect output
25	DDCLK	I	Clock signal input for 150C
26	OPT_univ	I/O	Option interface I/O
27	/APCSW	I	APC switch control input
28	/PCS_T	I	TX PLL enable input
29	/DSW	I	APC voltage discharge switch control input

Pin No.	Name	I/O	Function
30	TXD0_univ	I	Serial data input for universal connector
31	ANTSW	I	Antenna switch control input
32	RXD0_univ	O	Serial data output for universal connector
33	SBC	I	SB switch control input
34	DSR_univ	I/O	Option interface I/O
35	GND	-	GND
36	PFKEY_univ	O	Programmable function key output for universal connector
37	VIB	I	Reserved (Vibrator control input)
38	/UDET_univ	O	EXT/INT speaker switch output for universal connector
39	LED_G	I	Green LED control input
40	CTS0_univ	O	EXT/INT MIC switch output for universal connector
41	LED_R	I	Red LED control input
42	ASSIST_T	I	TX VCO tuning voltage control input
43	EXAMT	I	External audio amp control input
44	CV_T	O	TX CV voltage output
45	INAMT	I	Internal audio amp mute control input
46	MIC	O	MIC AMP output
47	5UC	I	Universal 5V switch control
48	RXAF	I	RX audio input
49	MOD	I	Modulation signal input
50	BEEP	I	Beep signal input
51	ASQAPC	I	Analog squelch and APC signal input
52	AUD_VREF	I	Audio reference voltage input
53	ASQDET	O	Analog squelch voltage output
54	TX	I	TX VCO control input
55	MIC_main	I	Internal MIC signal input
56	PLD_T	O	TX PLL lock detect output
57	MIC_gnd	I	Internal MIC GND
58	IFC	I	50IF switch control input
59	/EVCS	I	DAC enable input
60	I2CCK	I	Clock signal for motion and temperature sensor
61	/SQHLD	I	Squelch circuit control input
62	I2CSDA	I/O	Data signal for motion and temperature sensor
63	TXC	I	50T switch control input
64	GND	-	GND
65	THP	O	Thermistor voltage output
66	RSSI	O	RSSI voltage output

Pin No.	Name	I/O	Function
67	38M_2	I	38M input
68	VAGC	O	AGC voltage output
69	NC	-	No connection
70	IF_DET	O	IF output
CN803 (To Universal connector)			
1	NC	I/O	Reserved (Option interface I/O)
2	RXD	I	Serial data input
3	TXD	O	Serial data output
4	5V	O	5V output
5	E	-	GND
6	OPT	I/O	Reserved (Option interface I/O)
7	PF	I	Programmable function key input
8	PTT	I	External PTT input
9	ME	-	External MIC GND
10	EMC	I	External MIC input
11	MSW	I	EXT/INT MIC switch input
12	SP-	O	BTL output - for external speaker
13	SP+	O	BTL output + for external speaker
14	SSW	I	EXT/INT speaker switch input
CN804 (To Speaker)			
1	SP+	O	BTL output + for internal speaker
2	SP-	O	BTL output - for internal speaker

2.5.3 Universal connector specification

Pin No.	Name	I/O	Signal Type	Function	Rating and Condition				
					Parameter	Min	Typ	Max	Unit
1	SSW	I	Digital	EXT/INT speaker switch input L: External speaker ON H: Internal speaker ON	VIH	2.8	-	5.3	V
					VIL	0.0	-	0.7	V
2	SP+	O	Analog	BTL output + for external speaker	[8Ω load]				
					Max output power (1kHz , Batt=7.5V)		1.3	1.8	W
					DC Bias		2.5		V
					Allowable Frequency	300		3000	Hz
3	SP-			BTL output + for external speaker	[16Ω load]				
					Max output power (1kHz , Batt=7.5V)		0.9	1.4	W
					DC Bias		2.5		V
					Allowable Frequency	300		3000	Hz
4	MSW	I	Digital	EXT/INT MIC switch input L: External MIC ON H: Internal MIC ON	VIH	2.8	-	5.3	V
					VIL	0.0	-	0.5	V
5	EMC	I	Analog	External MIC input	Audio Level (STD deviation)	7.7	12.5	17.3	mV
					DC Bias		3.3		V
					Allowable Frequency	300		3000	Hz
					Input impedance		1.8		kΩ
6	ME	-	-	External MIC GND	This is GND port for Microphone.				
7	PTT	I	Digital	External PTT input L: PTT ON	VIH	2.8	-	5.3	V
					VIL	0.0	-	0.7	V
8	PF	I	Analog	Programmable function key input	V(PF2)	2.2	-	2.8	V
					V(PF1)	1.7	-	2.2	V
9	OPT			Not used (reserved future option)					
10	GND	-	-	GND					
11	5U	-	Power	5V power supply output (Output control is FPU programmable)	Output Voltage (Iout = 100mA)	4.9	5.0	5.1	V
					Maximum Current	-	-	0.14	A
12	TXD	O	Digital	Serial data output	VOH(Io=-5mA)	4.0	-	5.3	V
					VOL(Io=5mA)	0.0	-	0.8	V
					Baud Rate			576000	bps
13	RXD	I	Digital	Serial data output	VIH	2.8	-	5.3	V
					VIL	0.0	-	0.8	V
					Baud Rate			576000	bps
14	NC	-	-	Not used (reserved for future option)					

SECTION 3 DISASSEMBLY

3.1 Precautions for Disassembly

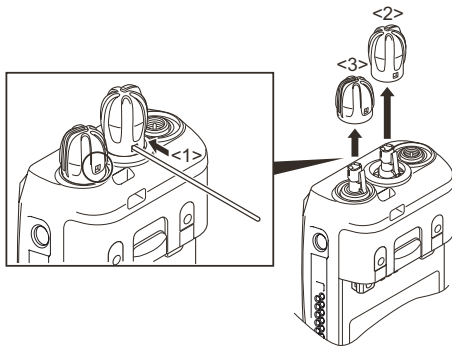
3.1.1 Removing the selector knob and volume knob

- (1) Using a thin tool, insert it in the hole on the selector knob side and push the knob spring. <1>

Note:

*When you push the knob spring, take care not to damage the resin of the knob.

- (2) Lift and remove the selector knob <2> while pushing the knob spring.
- (3) Repeat steps 1 and 2 for the volume knob, to remove the volume knob <3>.



Note:

*Perform the following procedures when installing the selector knob and volume knob.

- (1) Match the direction for the hole of the knob and the knob spring.
- (2) Push the knob onto the knob spring until a click sounds.

3.1.2 Removing the selector knob spring and volume knob spring

- (1) Lightly grasp the left and right sides of the selector knob spring together, and lift up as shown in the figure. <1>

Note:

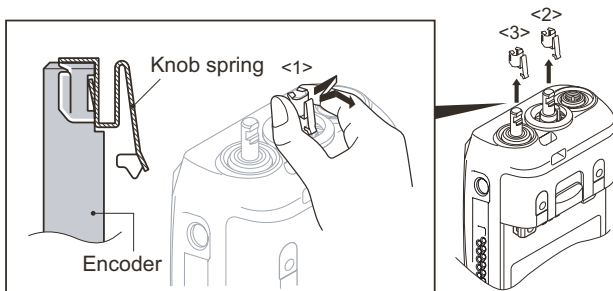
*Do not grasp the knob spring tightly.

- (2) Remove the selector knob spring <2>.

Note:

*Use minimal contact with your fingers on the knob spring.

- (3) Repeat steps 1 and 2 for the volume knob spring, to remove the volume knob spring <3>.



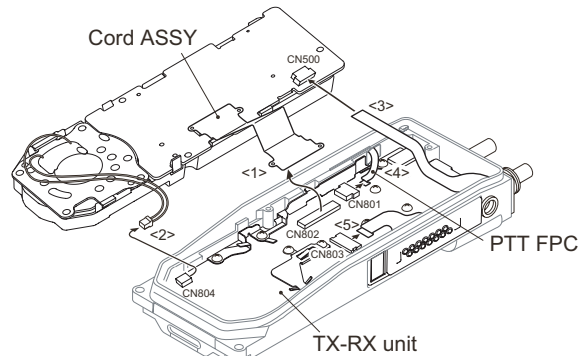
Note:

*Perform the following procedures when installing the selector knob spring and volume knob spring.

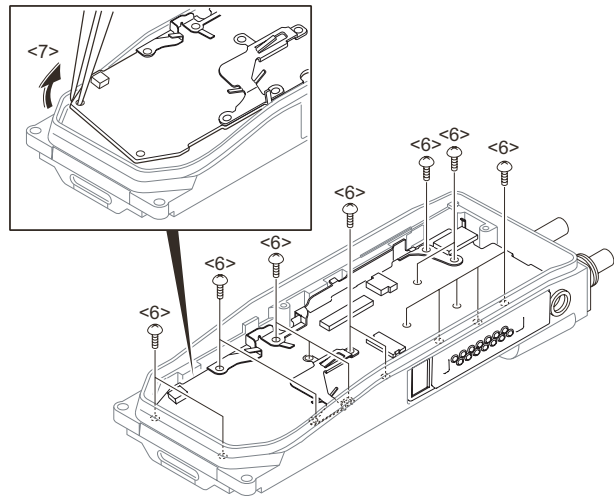
- (1) Match the direction for the knob spring and the encoder.
- (2) Insert the encoder onto the knob spring until a click sounds.

3.1.3 Removing the TX-RX unit from the chassis

- (1) Remove the cord ASSY from the connector (CN802). <1>
- (2) Remove the Speaker lead wire from the connector (CN804). <2>
- (3) Remove the VOL/SEL FPC from the connector (CN500). <3>
- (4) Remove the PTT FPC from the connector (CN801). <4>
- (5) Remove the Universal connector FPC from the connector (CN803). <5>



- (6) Remove the 17 screws <6>.
- (7) Anchor the screw hole of the TX-RX unit using the tip of a pair of tweezers as shown in the figure. Then lift the TX-RX unit to remove it and two earthing springs from the chassis. <7>

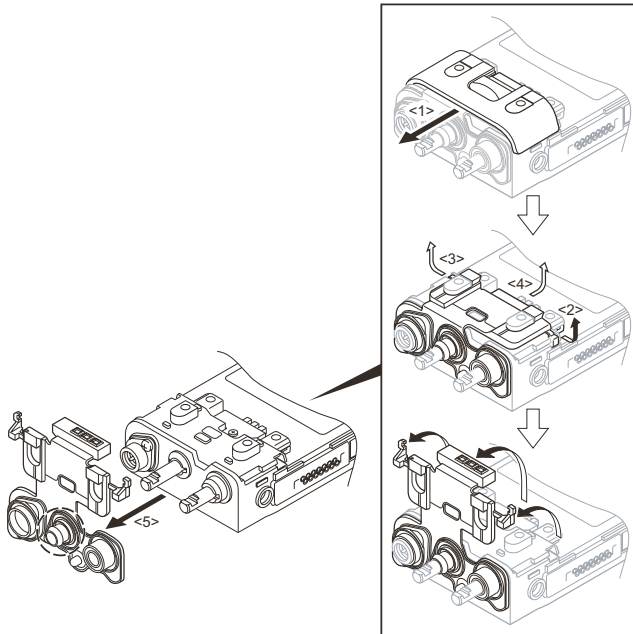


3.1.4 Removing the TOP packing

- (1) Remove the rear panel by sliding it upwards. <1>
- (2) Pull the TOP packing to the left to remove the packing that is fit into the left groove of the chassis. <2>
- (3) Pull the TOP packing to the right to remove the packing that is fit into the right groove of the chassis. <3>
- (4) Pull the TOP packing to the center to remove the packing that is fit into the center groove of the chassis. <4>
- (5) Remove the TOP packing. <5>

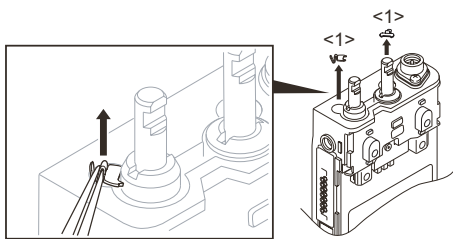
Note:

- *Remove the packing slowly, as the packing of the selector part might be overset when the TOP packing is removed.
- *If the packing is turned over, return it to the original position using a soft tipped item (e.g., your finger).

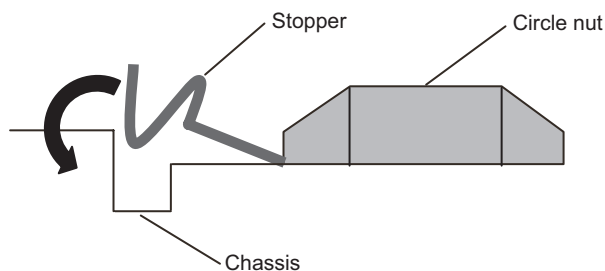


3.1.5 Removing the stopper of the selector circle nut and volume circle nut

- (1) Remove the stopper <1> using a pair of tweezers.



Note: when reassembling the stopper, install it as shown in the figure.



3.2 Precautions for Reassembly

3.2.1 Mounting the chassis onto the case

- (1) Place the key top on the chassis. Then, fit the chassis tightly into the groove of the key top. <1>

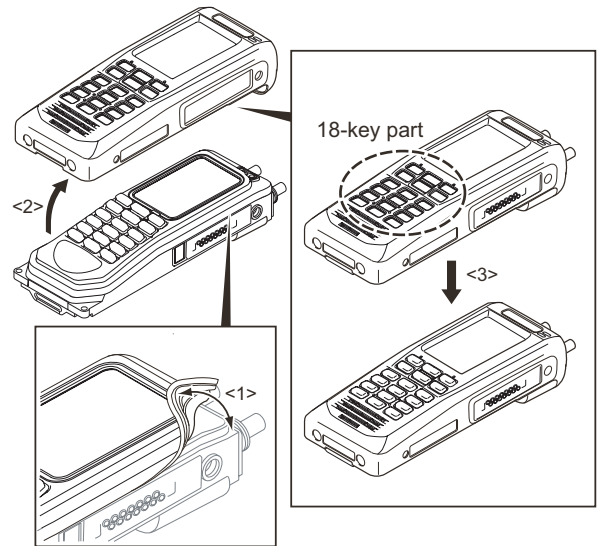
Note:

- *Confirm that the entire groove of the key top fits to the chassis tightly.

- (2) Mount the chassis onto the case. <2>

Note:

- *After mounting the chassis onto the case, if the 18-key part on the key top gets stuck inside the case as shown in the figure, return it to the normal position using a soft tipped item (e.g., your finger). <3>
- *Prying it with a pointed metal tool such as forceps, may damage the key top or packing.

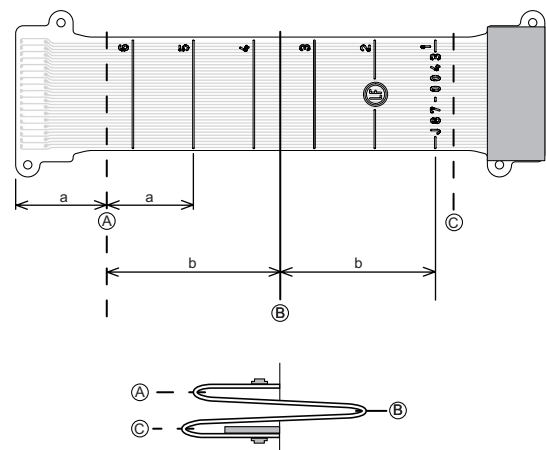


3.2.2 Forming the Cord ASSY

Fold indications are printed on the Cord ASSY.

"—" line shows creased line on the top.

"- - -" line shows creased line on the bottom.

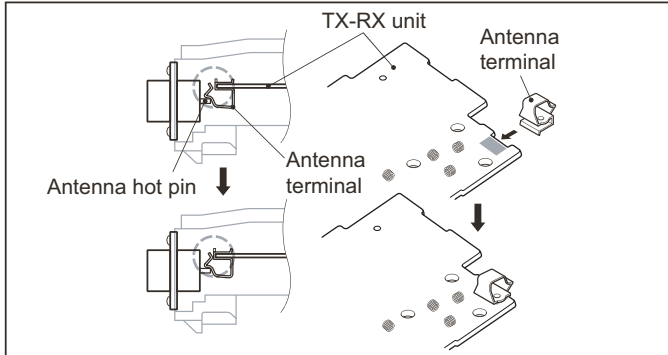


3.2.3 Connection place of the antenna hot pin and antenna terminal

An antenna hot pin is connected with the antenna terminal at the position shown in the figure.

Confirm that the antenna hot pin has firmly come in contact with the terminal when the TX-RX unit is tightened with the screw.

Additionally, refer to the following figures for the connection place of the antenna terminal and the TX-RX unit.



SECTION 4 ADJUSTMENT

4.1 Controls



4.1.1 Preparations for checking/tuning the transceiver

Before attempting to check/tune the transceiver, connect the unit to a suitable power supply.

Whenever the transmitter is turned on, the unit must be connected to a suitable dummy load (i.e. power meter).

The speaker output connector must be terminated with an 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during checking/tuning.

4.2 Panel Test Mode

4.2.1 Test mode operation features

This transceiver has a test mode. To enter test mode, press and hold the [↵] key while turning the transceiver power ON. Before the transceiver enters test mode, the frequency version information appears on the LCD momentarily. Test mode can be inhibited by programming. To exit test mode, turn the transceiver power OFF. The following functions are available in test mode.






4.2.2 Key operation

Key	"FNC" not appears on the sub LCD display	
	Function	Display
[Selector]	-	-
[↶]	Push: Test channel up Hold: Test channel up continuously	Channel No.
[↷]	Push: Test channel down Hold: Test channel down continuously	Channel No.
[Side1]	Push: Squelch level up *1 Hold: Squelch off	Squelch level Squelch off: [🔇] icon appears
[Side2]	Wide 5k/Wide 4k/Narrow/DMR *2	Wide 5k: "w" Wide 4k: "s" Narrow: "n" DMR: "n"
[📺]	Shift to panel tuning mode	-
[↵]	Function on	"FNC" appears on the sub LCD display

Key	"FNC" not appears on the sub LCD display	
	Function	Display
[<]	MSK 1200bps and 2400bps *1	2400bps: [☑] icon appears
[>]	Push: Test signaling up Hold: Test signaling up continuously	Signaling No.
[AUX (Orange)]	-	-
[PTT]	Transmit	-
[0] to [9] and [#], [*]	Use as the DTMF keypad. If a key is pressed during transmission, the DTMF corresponding to the key that was pressed is sent.	-

*1: When the mode is selected as Analog, this function is enabled.

*2: When the Mode is selected as DMR, bandwidth is fixed to Narrow.

Key	"FNC" appears on the sub LCD display	
	Function	Display
[Selector]	-	-
[^]	AFC on/off *3	On:  icon appears
[v]	Analog/DMR	Analog: "A" DMR: "D"
[Side1]	Function off	-
[Side2]	Key/LCD check	The position of the selector knob, etc., appear.
	High power/Low power	High: "H" Low: "L"
	Function off	-
[<]	Companer on/off	On:  icon appears
[>]	Beat shift on/off	On:  icon appears

Key	"FNC" appears on the sub LCD display	
	Function	Display
[AUX (Orange)]	Function off	-
[PTT]	Transmit	-
[0] to [9] and [#], [*]	Function off	-

*3: When the mode is selected as DMR, this function is enabled.

* LED indicator

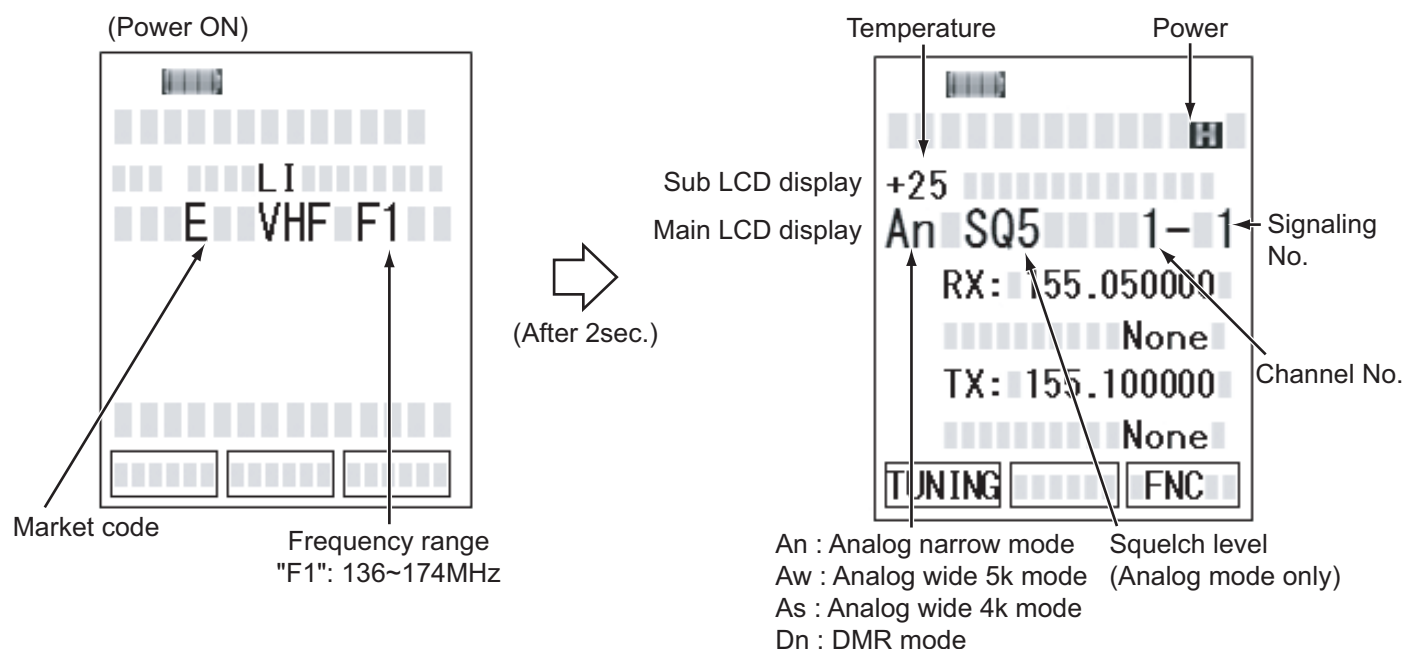
Red LED Lights during transmission.

Green LED Lights when there is carrier.

* Sub LCD indicator

"FNC" Appears at function on.

*LCD display in panel test mode



4.2.3 Frequency and Signaling

The transceiver has been adjusted for the frequencies shown in the following table. When required, readjust them following the adjustment procedure to obtain the frequencies you want in actual operation.

(1) Test frequency

CH	RX (MHz)	TX (MHz)
1	155.05000	155.10000
2	136.05000	136.10000
3	173.95000	173.90000
4	155.00000	155.00000
5	155.20000	155.20000
6	155.40000	155.40000
7 ~ 16	-	-

(2) Analog mode signaling

No.	RX	TX
1	None	None
2	None	100Hz Square Wave
3	QT:67.0Hz	QT:67.0Hz
4	QT:151.4Hz	QT:151.4Hz
5	QT:210.7Hz	QT:210.7Hz
6	QT:254.1Hz	QT:254.1Hz
7	DQT:D023N	DQT:D023N
8	DQT:D754I	DQT:D754I
11	Single Tone: 979.9Hz	Single Tone: 979.9Hz
12	None	Single Tone: 1000Hz

(3) DMR mode signaling

No.	RX	TX
1	CC 00 Burst	CC 00 Burst
2	PN9 Continuous Pattern	PN9 Continuous Pattern
3	CC 00 Burst	Maximum Deviation Continuous Pattern
6	SYNC (Each slot) + PN9 Burst Pattern	SYNC (Each slot) + PN9 Burst Pattern

PN9:Pseudo-Random Pattern (for production only)

4.3 Panel Tuning Mode

4.3.1 Transceiver tuning (To enter tuning mode)

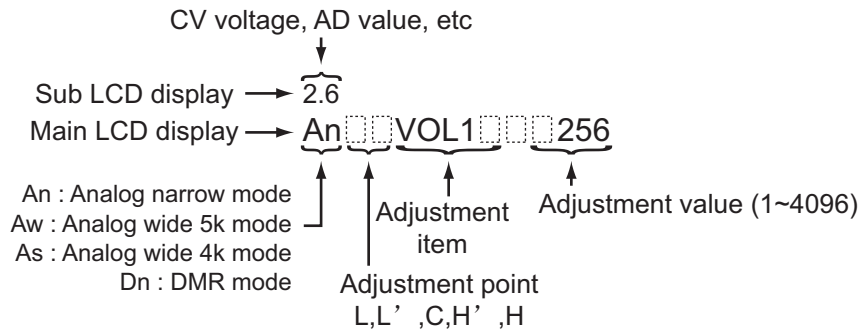
To enter tuning mode, press the [F] key while the transceiver is in test mode.

Use the [←] key to write tuning data through tuning modes, and the [^]/[v] key to adjust tuning requirements (1 to 4096 appears on the LCD).

Use the [F>] key to select the adjustment item through tuning modes.

Use the [5] key to adjust 5 reference level adjustments, and use the [Side2] key to switch between Wide 5k/Wide 4k/Narrow/DMR.

*LCD display in panel tuning mode



4.3.2 Key operation

Key	Function	
	Push	Hold (1 second)
[Selector]	-	
[^]	Adjustment value up	Continuation up
[v]	Adjustment value down	Continuation down
[Side1]	Auto adjustment start	-
[Side2]	Wide/Narrow/DMR	-
[F]	Shift to panel test mode	-
[5]	To enter 5 reference level adjustments	-
[←]	Writes the adjustment value	-
[F>]	Go to next adjustment item	Back to last adjustment item
[AUX (Orange)]	-	
[PTT]	Transmit	
[0] to [9] AND [#], [*]	-	

4.3.3 5 reference level adjustments frequency

Tuning point	RX (MHz)	TX (MHz)
Low	136.05000	136.10000
Low'	145.55000	145.60000
Center	155.05000	155.10000
High'	164.55000	164.60000
High	173.95000	173.90000

4.3.4 Adjustment item supplement

Adjustment Item	Description
Counterclockwise Volume	"Counterclockwise Volume" is adjusted at the minimum volume position.
Clockwise Volume	"Clockwise Volume" is adjusted at the maximum volume position. These adjustments can correct the volume variation. Both "Counterclockwise Volume" and "Clockwise Volume" must be adjusted. (The curve data of volume is applied.)
Receive Assist	The lock voltage of VCO (Receive) is adjusted. This item must be adjusted before all adjustment items for receiver section are adjusted.
Transmit Assist	The lock voltage of VCO (Transmit) is adjusted. This item must be adjusted before all adjustment items for transmitter section are adjusted.
Frequency	Frequency stability is adjusted under receiving condition with SSG. The SSG needs 0.003ppm accuracy so please use a standard oscillator if necessary. This item can be adjusted only in PC Test Mode so that the adjustment value is not changed easily.
Ramp Offset	Adjust this item to the optimal Ramp voltage.
High Transmit Power	High Transmit Power is adjusted.
Low Transmit Power	Low Transmit Power is adjusted.
Balance	The transmit audio frequency response is adjusted. This item is adjusted so that the deviation of 2kHz becomes the same deviation of 20Hz. This item must be adjusted before all adjustment items for deviations are adjusted.
Maximum Deviation (DMR)	Maximum Deviation of DMR is adjusted.
Maximum Deviation (Analog Wide 5k/Wide 4k/Narrow)	Maximum Deviation of Analog (Wide 5k/Wide 4k/Narrow) is adjusted. This item must be adjusted before all adjustment items for tone deviations are adjusted.
QT Deviation	QT tone deviation is adjusted.
DQT Deviation	DQT tone deviation is adjusted.
Single Tone Deviation	The deviation of Single Tone used in or "5-tone" is adjusted.
Sensitivity 1	Band-Pass Filter is adjusted. The performance of Receive Sensitivity is improved.
Sensitivity 2	Band-Pass Filter is adjusted. The performance of the interfering wave is improved.

Adjustment Item	Description
RSSI Reference	The minimum RSSI level for scan stop is adjusted.
Open Squelch	The squelch level at level "5" is adjusted.
Low RSSI	RSSI display level "Y " is adjusted.
High RSSI	Both "Low RSSI" and "High RSSI" must be adjusted. (The curve data of RSSI level is applied.)
Tight Squelch	The squelch level at level "9" is adjusted.
Battery Warning Level	Battery Warning Level (LED blinking level) is adjusted. Battery Warning Level minus 0.4V is the transmission inhibited level.

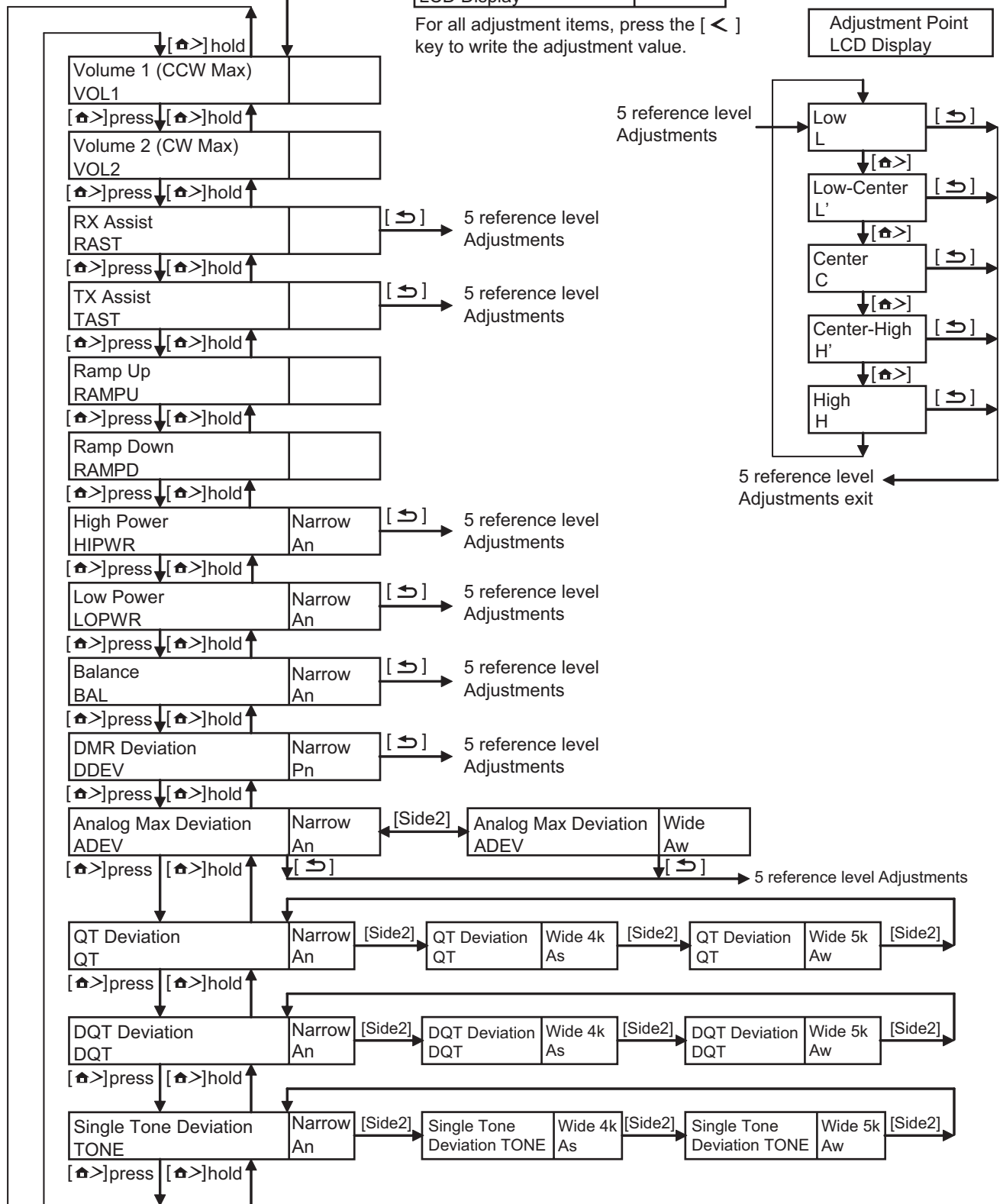
4.3.5 Adjustment item and Display

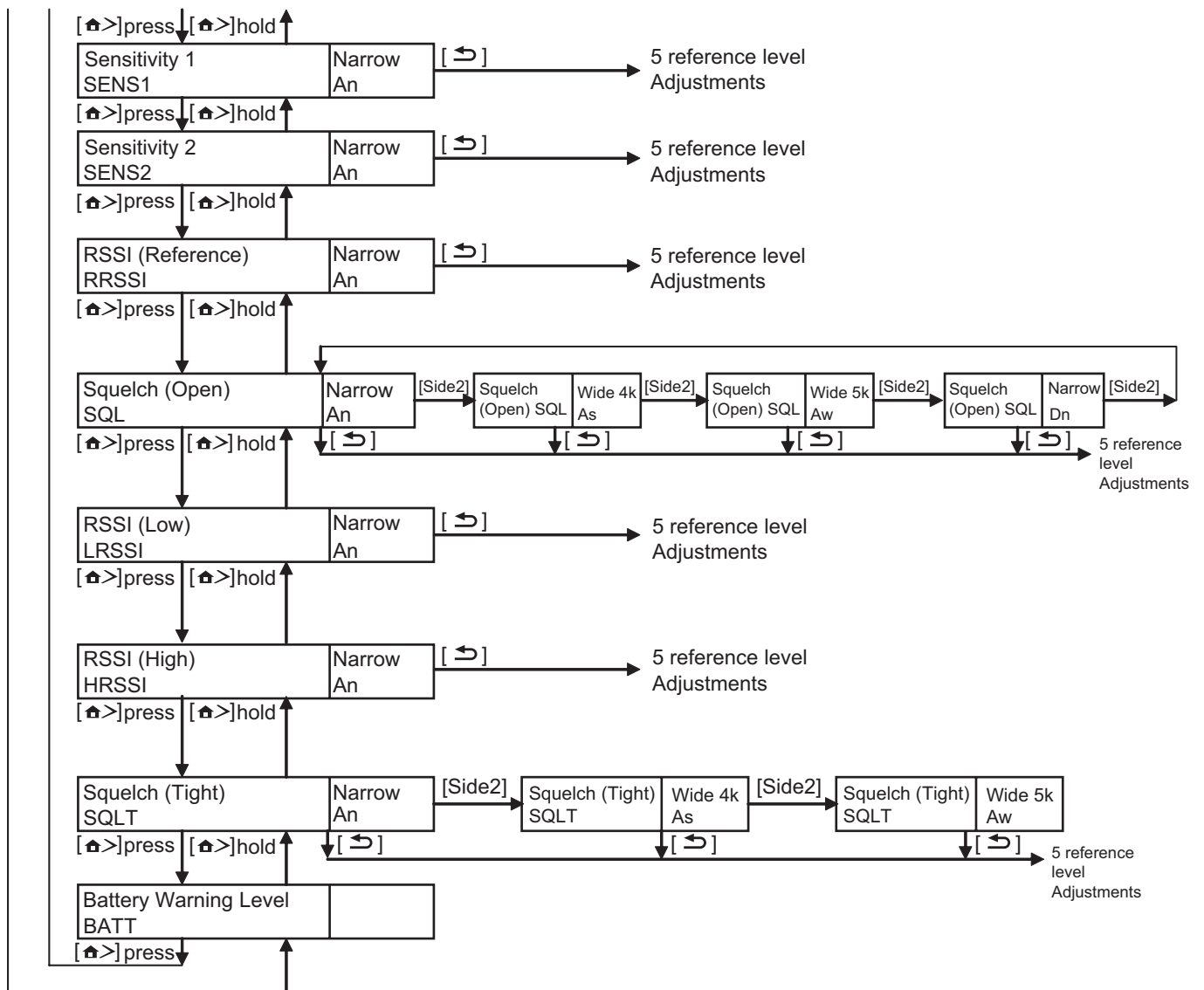
Order	Adjustment item	Main LCD display	Sub LCD display	Aw (Analog Wide 5k)	As (Analog Wide 4k)	An (Analog Narrow)	Dn (DMR)	Adjust item Number
				Adjustment range				
1	Counterclockwise Volume	VOL1	VOL measurement value	1 point ADJ				Common Section 2
				1 ~ 256				
2	Clockwise Volume	VOL2	VOL measurement value	1 point ADJ				Common Section 3
				1 ~ 256				
3	Receive Assist	RAST	(CV voltage)	5 point ADJ				Common Section 4
				1 ~ 256				
4	Transmit Assist	TAST	(CV voltage)	5 point ADJ				Common Section 5
				1 ~ 4096				
5	Ramp Offset (Ramp Up)	RAMPU	(THP voltage)	1 point ADJ				Transmitter Section 1
				1 ~ 1024				
6	Ramp Offset (Ramp Down)	RAMPD	(THP voltage)	1 point ADJ				Transmitter Section 1
				1 ~ 1024				
7	High Transmit Power	HIPWR	-	-	-	5	-	Transmitter Section 2
				1 ~ 1024				
8	Low Transmit Power	LOPWR	-	-	-	5	-	Transmitter Section 3
				1 ~ 1024				
9	Balance	BAL	(Encode frequency)	-	-	5	-	Transmitter Section 4
				1 ~ 256				
10	Maximum Deviation (DMR)	DDEV	-	-	-	-	5	Transmitter Section 5
				1 ~ 1024				
11	Maximum Deviation (Analog)	ADEV	-	5	5	5	-	Transmitter Section 6
				1 ~ 1024				
12	QT Deviation	QT	-	1	1	1	-	Transmitter Section 7
				1 ~ 1024				
13	DQT Deviation	DQT	-	1	1	1	-	Transmitter Section 8
				1 ~ 1024				
14	Single Tone Deviation	TONE	-	1	1	1	-	Transmitter Section 9
				1 ~ 1024				
15	Sensitivity 1	SENS1	(RSSI measurement value)	-	-	5	-	Receive Section 2
				1 ~ 256				
16	Sensitivity 2	SENS2	(RSSI measurement value)	-	-	5	-	Receive Section 3
				1 ~ 256				
17	RSSI Reference	RRSSI	(RSSI measurement value)	-	-	5	-	Receive Section 4
				1 ~ 256				
18	Open Squelch	SQL	(ASQDET measurement value)	5	5	5	5	Receive Section 5
				1 ~ 256				
19	Low RSSI	LRSSI	(RSSI measurement value)	-	-	5	-	Receive Section 6
				1 ~ 256				
20	High RSSI	HRSSI	(RSSI measurement value)	-	-	5	-	Receive Section 7
				1 ~ 256				
21	Tight Squelch	SQLT	(ASQDET measurement value)	5	5	5	-	Receive Section 8
				1 ~ 256				
22	Battery Warning Level	BATT	(BATT measurement value)	1 point ADJ				Transmitter Section 10
				1 ~ 256				

Note:

Panel Test Mode

For all adjustment items, press the [<] key to write the adjustment value.





4.4 Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range	100 to 520MHz
	Modulation	Frequency modulation and external modulation
	Output	- 127dBm/0.1 μ V to greater than - 20dBm/22.4mV
	When performing the Frequency adjustment, the following accuracy is necessary. 0.003ppm Use a standard oscillator for adjustments, if necessary.	
2. Power Meter	Input Impedance	50 Ω
	Operation Frequency	100 to 520MHz
	Measurement Capability	Vicinity of 10W
3. Deviation Meter	Frequency Range	100 to 520MHz
4. Digital Volt Meter (DVM)	Measuring Range	10mV to 10V DC
	Input Impedance	High input impedance for minimum circuit loading
5. Oscilloscope		DC through 30MHz
6. High Sensitivity Frequency Counter	Frequency Range	10Hz to 1000MHz
	Frequency Stability	0.2ppm or less
7. Ammeter		5A
8. AF Volt Meter (AF VM)	Frequency Range	50Hz to 10kHz
	Voltage Range	1mV to 10V
9. Audio Generator (AG)	Frequency Range	50Hz to 5kHz or more
	Output	0 to 1V
10. Distortion Meter	Capability	3% or less at 1kHz
	Input Level	50mV to 10Vrms
11. 8 Ω Dummy Load		Approx. 8 Ω , 3W
12. Regulated Power Supply		5V to 10V, approx. 3A
		Useful if ammeter equipped

■Antenna connector adapter

The antenna connector of this transceiver uses an SMA terminal.

Use an antenna connector adapter [SMA(f) - BNC(f) or SMA(f) - N(f)] for adjustment. (The adapter is not provided as an option, so buy a commercially-available one.)

■Nut wrench

In order to turn the volume nut and the channel selector nut, use a recommendation tool.

KENWOOD part No.: W05-1123-00

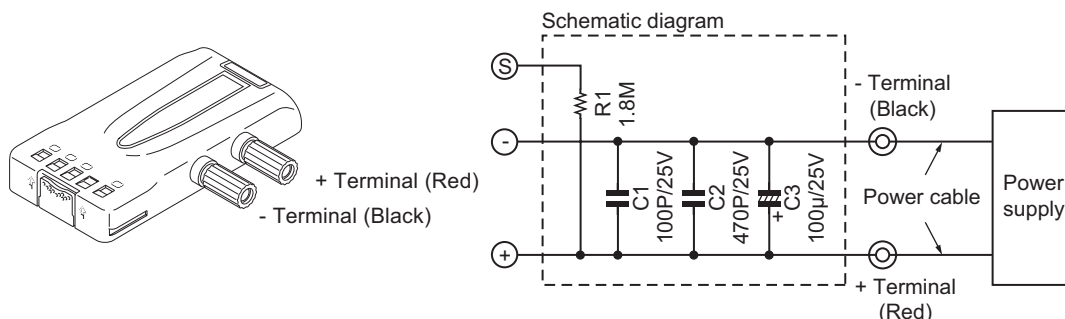
■Battery Jig (W05-0909-00)

Connect the power cable properly between the battery jig installed in the transceiver and the power supply, and be sure output voltage and the power supply polarity prior to switching the power supply ON, otherwise over voltage and reverse connection may damage the transceiver, or the power supply or both.

When using the battery jig in user mode, the transceiver assumes that a lithium-ion battery pack is attached to the transceiver. In adjustment mode, battery type detection is not performed.

Note:

*When using the battery jig, you must measure the voltage at the terminals of the battery jig. Otherwise, a slight voltage drop may occur within the power cable, between the power supply and the battery jig, especially while the transceiver transmits.



■Universal connector

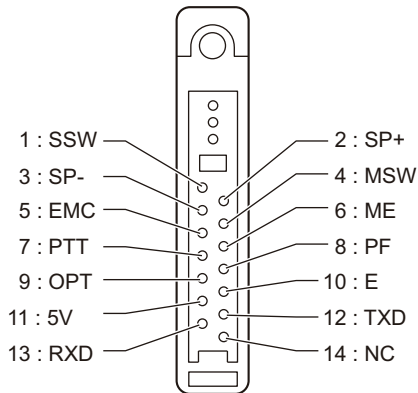
Use the interface cable (KPG-36U) for PC tuning or the lead wire with plug (E30-3287-28) and screw (N08-0535-08) for panel tuning. Connect the plug to the universal connector of the transceiver and tighten the screw.

The lead wire with plug (E30-3287-28) and screw (N08-0535-08) terminals are as follows. Numbers are universal connector terminal numbers.

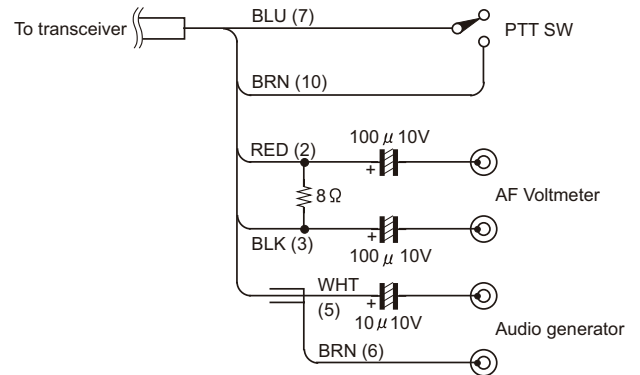
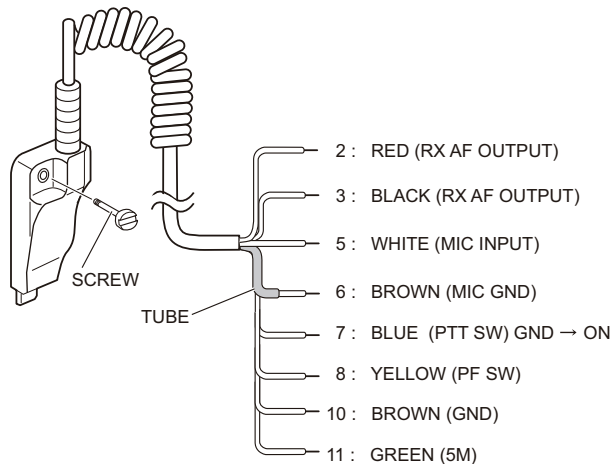
Caution

- (1) When connecting the plug to the universal connector of the transceiver, a short circuit may occur. To prevent this, be sure to turn the transceiver POWER switch off.
- (2) Since the RX AF output is a BTL output, there is a DC component. Isolate this with a capacitor or transformer as shown in the figure.
- (3) Do not connect an instrument between red or black and GND.

*Universal connector



*Panel tuning

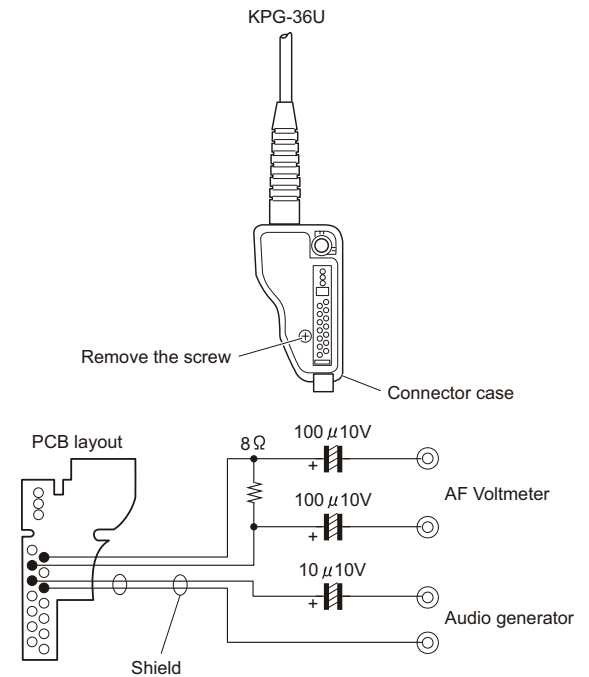


Note: Pin 1 (SSW) and Pin 4 (MSW) are connected to Pin 10 (GND) to active External SP and External MIC.

*PC tuning

Connect the wires to the PCB in the connector case of interface cable.

For output the wires out of the connector case, need to process the connector case.



4.5 Radio check Section

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel test mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Frequency check	1)CH-Sig: 1-1 PTT: ON	1)Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	f. counter	Panel	ANT			Check	155.099767~ 155.100233M Hz ($\pm 1.5\text{ppm}@$ 155.1MHz)
2. High power check (Battery voltage: 7.5V)	1)CH-Sig: 1-1 PTT: ON	1)Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter	Panel	ANT			Check	4.0W~6.0W 2.0A or less
	2)CH-Sig: 2-1 PTT: ON	2)Test Channel Channel: 2 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter	Panel	ANT			Check	4.0W~6.0W 2.0A or less
	3)CH-Sig: 3-1 PTT: ON	3)Test Channel Channel: 3 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter	Panel	ANT			Check	4.0W~6.0W 2.0A or less
3. Low power check (Battery voltage: 7.5V)	1)CH-Sig: 1-1 PTT: ON	1)Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter	Panel	ANT			Check	0.75W~1.25W 1.0A or less
	2)CH-Sig: 2-1 PTT: ON	2)Test Channel Channel: 2 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter	Panel	ANT			Check	0.75W~1.25W 1.0A or less
	3)CH-Sig: 3-1 PTT: ON	3)Test Channel Channel: 3 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter	Panel	ANT			Check	0.75W~1.25W 1.0A or less
4. MIC sensitivity check	1)CH-Sig: 1-1 AG: 1kHz PTT: ON	1)Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 AG: 1kHz PTT: Press [Transmit] button.	Deviation meter Oscilloscope AG AF VM	Panel	ANT Univer- sal con- nector			Adjust AG input to get a standard MOD.	12.5mV $\pm 5.8\text{mV}$

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel test mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
5. Sensitivity check	1)CH-Sig: 1-1 SSG output Wide 5k: -116dBm (0.35μV) (MOD: 1kHz/±3kHz) Wide 4k: -116dBm (0.35μV) (MOD: 1kHz/±2.4kHz) Narrow: -115dBm (0.40μV) (MOD: 1kHz/±1.5kHz)	1)Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 SSG output Wide 5k: -116dBm (0.35μV) (MOD: 1kHz/±3kHz) Wide 4k: -116dBm (0.35μV) (MOD: 1kHz/±2.4kHz) Narrow: -115dBm (0.40μV) (MOD: 1kHz/±1.5kHz)	SSG AF VTVM Oscilloscope Distortion meter 8Ω Dummy load	Panel	ANT Universal connector			Check	12dB SINAD or more

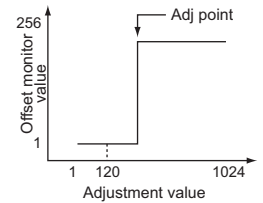
4.6 Common Section

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) BATT terminal voltage:7.5V 2) SSG standard modulation [Wide 5k] MOD:1kHz,DEV:3kHz [Wide 4k] MOD:1kHz,DEV:2.4kHz [Narrow] MOD:1kHz,DEV:1.5kHz								
2. Counter clock-wise Volume	1) Adj item: [VOL1] Adjust:[***]	1) Adj item: [Counter-clockwise Volume]						[Panel tuning mode] Turn the volume knob counterclockwise fully. Press [<] key to store the adjustment value. [PC test mode] Turn the volume knob counterclockwise fully. Press [Apply] button to store the adjustment value.	This item is needed when the variable resistor (R31-0685-05) is replaced.
3. Clock-wise Volume	1) Adj item: [VOL2] Adjust:[***]	1) Adj item: [Clock-wise Volume]						[Panel tuning mode] Turn the volume knob clockwise fully. Press [<] key to store the adjustment value. [PC test mode] Turn the volume knob clockwise fully. Press [Apply] button to store the adjustment value.	This item is needed when the variable resistor (R31-0685-05) is replaced.

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
4. Re-ceive Assist	1) Adj item: [RAST] Adjust:[***] 2) Adj item: [L RAST]→ [L' RAST]→ [C RAST]→ [H' RAST]→ [H RAST] Adjust:[***] Press [<] key to store the adjust-ment value.	[Manual Adjustment] 1) Adj item: [Receive Assist] 2) Adj item: [Low], [Low'], [Center], [High'], [High] Press [Apply All] button to store the adjustment value.				Panel	[Panel tuning mode] [\wedge], [\vee] [PC test mode] [◀], [▶]	The sub LCD display and [V] indicator on the PC window shows VCO lock voltage. Change the adjustment value to get VCO lock voltage within the limit of the specified voltage. Note: Confirm the VCO lock voltage approximately 3 seconds after the adjustment value is changed.	2.4~2.6V Press [Apply All] button to store the adjustment value after all adjustment point have been adjusted. Note: The assist adjustment value must be in the following range. Receive Assist [20~210], Transmit Assist [300~3300]
5. Transmit Assist	1) Adj item: [TAST] Adjust:[****] 2) Adj item: [L TAST]→ [L' TAST]→ [C TAST]→ [H' TAST]→ [H TAST] Adjust:[****] PTT : ON Press [<] key to store the adjust-ment value.	1) Adj item: [Transmit Assist] 2) Adj item: [Low], [Low'], [Center], [High'], [High] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.				Panel	[Panel tuning mode] [\wedge], [\vee] [PC test mode] [◀], [▶]	The sub LCD display and [V] indicator on the PC window shows VCO lock voltage. Change the adjustment value to get VCO lock voltage within the limit of the specified voltage. Note: Confirm the VCO lock voltage approximately 3 seconds after the adjustment value is changed.	2.4~2.6V Press [Apply All] button to store the adjustment value after all adjustment point have been adjusted. Note: The assist adjustment value must be in the following range. Receive Assist [20~210], Transmit Assist [300~3300]
6. Frequency	*The Frequency adjustment can be performed only in PC test mode.	1) Adj item: [Frequency] SSG output: -20dBm (22.4mV) (CW (without modulation)) • Use an accuracy of 0.003ppm for the SSG. (Use a standard oscillator if necessary.)	SSG	Panel	ANT			[PC test mode] Press [Start] button of "Auto Tuning". Press [Apply] button to store the adjustment value after the automatic adjustment was finished.	[PC test mode] The value of "IF20" will become around "0" (Target: \pm 60 digit) after the adjustment was finished. Remark: "Frequency" is adjusted under receiving condition with SSG.

4.7 Transmitter Section

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
1. Ramp Offset	[Ramp Up] 1) Adj item: [RAMPU] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Ramp Offset] CheckBox: [Ramp Up] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Power meter Ammeter	Panel	ANT	Panel	[Panel tuning mode] [^], [v] [PC test mode] [◀], [▶]	The sub LCD display and offset monitor value on the PC window shows offset monitor value. Set the adjustment value to "120". Next, increase the adjustment value slowly with monitoring the offset monitor value. Apply the lowest possible value to become the offset monitor value is not 120.	Offset monitor value will become around "256" after the adjustment was finished.
	[Ramp Down] 2) Adj item: [RAMPD] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	2) Adj item: [Ramp Offset] CheckBox: [Ramp Down] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Power meter Ammeter	Panel	ANT	Panel	[Panel tuning mode] [^], [v] [PC test mode] [◀], [▶]	Write the same adjustment value of "Ramp Offset [Ramp Up]".	Offset monitor value will become around "256" after the adjustment was finished.
2. High transmit power (Battery voltage : 7.5V)	1) Adj item: [An HIPWR] Adjust:[****] 2) Adj item: [AnL HIPWR]→ [AnL' HIPWR]→ [AnC HIPWR]→ [AnH' HIPWR]→ [AnH HIPWR] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [High Transmit Power] 2) Adj item: [Low], [Low'], [Center], [High'], [High] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Power meter Ammeter	Panel	ANT	Panel	[Panel tuning mode] [^], [v] [PC test mode] [◀], [▶]	5.0W	±1.0W 2.0A or less [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.



Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
3. Low transmit power (Battery voltage : 7.5V)	1) Adj item: [An LOPWR] Adjust:[****] 2) Adj item: [AnL LOPWR]→ [AnL' LOPWR]→ [AnC LOPWR]→ [AnH' LOPWR]→ [AnH LOPWR] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Low Transmit Power] 2) Adj item: [Low], [Low'], [Center], [High'], [High] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Power meter Ammeter	Panel	ANT	Panel	[Panel tuning mode] [↵], [↶] [PC test mode] [◀], [▶]	1.0W	±0.25W 1.0A or less [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
4. Balance *1	1) Adj item: [An BAL] Adjust:[***] Deviation meter LPF : 3kHz HPF : OFF 2) Adj item: [AnL BAL]→ [AnL' BAL]→ [AnC BAL]→ [AnH' BAL]→ [AnH BAL] Adjust:[***] PTT : ON Press [<] key to store the adjustment value. Sub LCD: Tone frequency [Side1] key: Press while transmitting to change 20Hz and 2kHz.	1) Adj item: [Balance] Deviation meter LPF : 3kHz HPF : OFF 2) Adj item: [Low], [Low'], [Center], [High'], [High] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value. [2kHz Sine Wave Check box]: Check while transmitting change to 2kHz.	Deviation meter Oscilloscope	Panel	ANT	Panel	[Panel tuning mode] [↵], [↶] [PC test mode] [◀], [▶]	The Deviation of 20Hz frequency is fixed. Change the 2kHz adjustment value to become the same deviation of 20Hz within the specified range.	2kHz Tone deviation is within ±1.0% of 20Hz tone deviation. [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
*1 : Refer to the "4.7.1 Necessary Deviation adjustment item for each signaling and mode" table. Balance adjustment is common with the adjustment of all signaling deviations.									
5. Maximum Deviation (DMR) *2	1) Adj item: [Dn DDEV] Adjust:[****] Deviation meter LPF : 3kHz HPF : OFF 2) Adj item: [DnL DDEV]→ [DnL' DDEV]→ [DnC DDEV]→ [DnH' DDEV]→ [DnH DDEV] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Maximum Deviation (DMR)] Deviation meter LPF : 3kHz HPF : OFF PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Deviation meter Oscilloscope	Panel	ANT	Panel	[Panel tuning mode] [↵], [↶] [PC test mode] [◀], [▶]	2749Hz	2695~2803Hz [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.

Item	Condition		Measurement			Adjustment			Specifica- tions /Remarks
	Panel tuning mode	PC test mode	Test- equip- ment	Unit	Ter- minal	Unit	Parts	Method	
6. Maximum deviation (Analog) *2	[Narrow] 1) Adj item: [An ADEV] Adjust:[****] Deviation meter LPF : 15kHz HPF : OFF 2) Adj item: [AnL ADEV]→ [AnL' ADEV]→ [AnC ADEV]→ [AnH' ADEV]→ [AnH ADEV] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Maximum Deviation (Analog Narrow)] Deviation meter LPF : 15kHz HPF : OFF PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [^], [v] [PC test mode] [◀], [▶]	Write the same adjustment value of "[Maximum Deviation (DMR)]" for each adjustment point. Transmit at each adjustment point and check that the Analog deviation is between 2050Hz and 2150Hz. Deviation meter LPF : 15kHz HPF : OFF [Panel tuning mode] PTT: ON [PC test mode] PTT: Press [Transmit] button	2050~2150Hz [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
	[Wide 4k] 1) Adj item: [As ADEV] Adjust:[****] 2) Adj item: [AsL ADEV]→ [AsL' ADEV]→ [AsC ADEV]→ [AsH' ADEV]→ [AsH ADEV] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Maximum Deviation (Analog Wide 4k)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [^], [v] [PC test mode] [◀], [▶]	Write the same adjustment value of "[Maximum Deviation (DMR)]" for each adjustment point. Transmit at each adjustment point and check that the Analog deviation is between 3310Hz and 3410Hz. Deviation meter LPF : 15kHz HPF : OFF [Panel tuning mode] PTT: ON [PC test mode] PTT: Press [Transmit] button	3310~3410Hz [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
	[Wide 5k] 1) Adj item: [Aw ADEV] Adjust:[****] 2) Adj item: [AwL ADEV]→ [AwL' ADEV]→ [AwC ADEV]→ [AwH' ADEV]→ [AwH ADEV] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Maximum Deviation (Analog Wide 5k)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [^], [v] [PC test mode] [◀], [▶]	Write the same adjustment value of "[Maximum Deviation (DMR)]" for each adjustment point. Transmit at each adjustment point and check that the Analog deviation is between 4150Hz and 4250Hz. Deviation meter LPF : 15kHz HPF : OFF [Panel tuning mode] PTT: ON [PC test mode] PTT: Press [Transmit] button	4150~4250Hz [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
*2: Refer to the "4.7.1 Necessary Deviation adjustment item for each signaling and mode" table. Regarding Maximum Deviation (Analog), it is common with the adjustment of all analog signalings.									

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
7. QT Deviation *3	[Narrow] 1) Adj item: [An QT] Adjust:[****] Deviation meter LPF : 3kHz HPF : OFF PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [QT Deviation (Analog Narrow)] Deviation meter LPF : 3kHz HPF : OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [<], [>] [PC test mode] [◀], [▶]	Write the value as followings. 513 (Reference value)	0.35kHz ±0.05kHz
	[Wide 4k] 1) Adj item: [As QT] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [QT Deviation (Analog Wide 4k)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [<], [>] [PC test mode] [◀], [▶]	Write the value as followings. 513 (Reference value)	0.60kHz ±0.05kHz
	[Wide 5k] 1) Adj item: [Aw QT] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [QT Deviation (Analog Wide 5k)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [<], [>] [PC test mode] [◀], [▶]	Write the value as followings. 513 (Reference value)	0.75kHz ±0.05kHz
8. DQT Deviation *3	[Narrow] 1) Adj item: [An DQT] Adjust:[****] Deviation meter LPF : 3kHz HPF : OFF PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [DQT Deviation (Analog Narrow)] Deviation meter LPF : 3kHz HPF : OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [<], [>] [PC test mode] [◀], [▶]	Write the value as followings. 415 (Reference value)	0.35kHz ±0.05kHz
	[Wide 4k] 1) Adj item: [As DQT] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [DQT Deviation (Analog Wide 4k)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [<], [>] [PC test mode] [◀], [▶]	Write the value as followings. 415 (Reference value)	0.60kHz ±0.05kHz

Item	Condition		Measurement			Adjustment			Specifica- tions /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter- minal	Unit	Parts	Method	
8. DQT Deviation *3	[Wide 5k] 1) Adj item: [Aw DQT] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [DQT Deviation (Analog Wide 5k)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [\wedge], [\vee] [PC test mode] [◀], [▶]	Write the value as followings. 415 (Reference value)	0.75kHz ±0.05kHz
9. Single Tone Deviation *3	[Narrow] 1) Adj item: [An TONE] Adjust:[****] Deviation meter LPF : 15kHz HPF : OFF PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Single Tone Deviation (Analog Narrow)] Deviation meter LPF : 15kHz HPF : OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [\wedge], [\vee] [PC test mode] [◀], [▶]	Write the value as followings. 513 (Reference value)	1.50kHz ±0.05kHz
	[Wide 4k] 1) Adj item: [As TONE] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Single Tone Deviation (Analog Wide 4k)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [\wedge], [\vee] [PC test mode] [◀], [▶]	Write the value as followings. 513 (Reference value)	2.40kHz ±0.05kHz
	[Wide 5k] 1) Adj item: [Aw TONE] Adjust:[****] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Single Tone Deviation (Analog Wide 5k)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Devia- tion meter Oscillo- scope	Panel	ANT	Panel	[Panel tuning mode] [\wedge], [\vee] [PC test mode] [◀], [▶]	Write the value as followings. 513 (Reference value)	3.00kHz ±0.05kHz
*3: Refer to the “4.7.1 Necessary Deviation adjustment item for each signaling and mode” table.									
10. Battery warning level writing	1) Adj item: [BATT] Adjust:[***] PTT : ON	1) Adj item: [Battery Warning Level] PTT: Press [Transmit] button.	Power meter DVM	Panel	ANT BATT terminal			Press the PTT switch or [Transmit] button on the PC window. Apply 6.20V to battery terminal. Confirm that one pre-de- termined numeric in the range 1 to 256 appears. [Panel tuning mode] Press [<] key to store the adjustment value. [PC test mode] Press [Apply] button to store the adjustment value.	

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
11. Battery warning level check	[Panel test mode] 1) CH-Sig: 1-1 BATT terminal voltage: 6.0V while transmitting	1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 BATT terminal voltage: 6.0V while transmitting	Power meter DVM	Panel	ANT BATT terminal			Check	The transceiver can transmit with causing the LED to blink.

4.7.1 Necessary Deviation adjustment item for each signaling and mode

The following shows the necessary adjustment items for each signaling deviation. Please read the following table like the following example. In the case of the signaling "QT (Analog Wide 5k)", this signaling is composed of three elements [Balance, Maximum Deviation (Analog Wide 5k) and QT Deviation (Analog Wide 5k)]. Please adjust Balance and Maximum Deviation (Analog Wide 5k) before adjusting QT Deviation (Analog Wide 5k).

Mode	Signaling	Necessary adjustment and order		
		Wide 5k	Wide 4k	Narrow
Analog	Audio	1. Balance 2. Maximum Deviation [Analog Wide 5k]	1. Balance 2. Maximum Deviation [Analog Wide 4k]	1. Balance 2. Maximum Deviation [Analog Narrow]
	QT	1. Balance 2. Maximum Deviation [Analog Wide 5k] 3. QT Deviation [Analog Wide 5k]	1. Balance 2. Maximum Deviation [Analog Wide 4k] 3. QT Deviation [Analog Wide 4k]	1. Balance 2. Maximum Deviation [Analog Narrow] 3. QT Deviation [Analog Narrow]
	DQT	1. Balance 2. Maximum Deviation [Analog Wide 5k] 3. DQT Deviation [Analog Wide 5k]	1. Balance 2. Maximum Deviation [Analog Wide 4k] 3. DQT Deviation [Analog Wide 4k]	1. Balance 2. Maximum Deviation [Analog Narrow] 3. DQT Deviation [Analog Narrow]
	5TONE	1. Balance 2. Maximum Deviation [Analog Wide 5k] 3. Single Tone Deviation [Analog Wide 5k]	1. Balance 2. Maximum Deviation [Analog Wide 4k] 3. Single Tone Deviation [Analog Wide 4k]	1. Balance 2. Maximum Deviation [Analog Narrow] 3. Single Tone Deviation [Analog Narrow]
DMR	Audio	-	-	1. Balance 2. Maximum Deviation [DMR]

- Balance is common with all the above deviation adjustments. If Balance (Transmitter Section 4) has already adjusted, please skip Step1 and adjust from Step2.
- Maximum Deviation (Analog Wide 5k/Analog Wide 4k/Analog Narrow) is common with all the analog signaling deviations. If Balance and Maximum Deviation (Analog Wide 5k/Analog Wide 4k/Analog Narrow) (Transmitter Section 6) have already adjusted, please skip Step2 and adjust from Step3.

4.8 Receiver Section

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
1. AF level setting	[Panel test mode] 1) CH-Sig: 1-1 SSG output: -47dBm (1mV) (MOD: 1kHz/±1.5kHz) Wide 5k/Wide 4k/ Narrow: Narrow Beat Shift: Uncheck Compander: Uncheck	1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 Wide 5k/Wide 4k/ Narrow: Narrow Beat Shift: Uncheck Compander: Uncheck SSG output: -47dBm (1mV) (MOD:1kHz/±1.5kHz)	SSG DVM AF VM Dummy load	Panel	ANT Uni-versal con- nector	Panel	Vol- ume knob	Turn the Volume knob to obtain 0.63V AF output.	0.63V ±0.1V
2. Sen-sitivity 1	1) Adj item: [An SENS1] Adjust:[***] 2) Adj item: [AnL SENS1]→ [AnL' SENS1]→ [AnC SENS1]→ [AnH' SENS1]→ [AnH SENS1] Adjust:[***] Press [<] key to store the adjustment value.	1) Adj item: [Sensitivity 1] 2) Adj item:[Low], [Low'], [Center], [High'], [High] Press [Apply All] button to store the adjustment value.	SSG DVM AF VM Dummy load	Panel	ANT Uni-versal con- nector	Panel	[Panel tuning mode] [∧], [∨] [PC test mode] [◀], [▶]	Write the preset value as followings. [L SENS1] / [Low]: 1 [L' SENS1] / [Low']: 15 [C SENS1] / [Center]: 30 [H' SENS1] / [High']: 60 [H SENS1] / [High]: 100 Increase the adjustment value from the preset value to the first 12dB SINAD point with SSG level -118dBm (0.28uV). (MOD:1kHz/±1.5kHz) Caution: Perform the adjustment of "3. Sensitivity 2" before performing this adjustment.	
3. Sen-sitivity 2	1) Adj item: [An SENS2] Adjust:[***] 2) Adj item: [AnL SENS2]→ [AnL' SENS2]→ [AnC SENS2]→ [AnH' SENS2]→ [AnH SENS2] Adjust:[***] Press [<] key to store the adjustment value.	1) Adj item: [Sensitivity 2] 2) Adj item:[Low], [Low'], [Center], [High'], [High] Press [Apply All] button to store the adjustment value.	SSG DVM AF VM Dummy load	Panel	ANT Uni-versal con- nector	Panel	[Panel tuning mode] [∧], [∨] [PC test mode] [◀], [▶]	Write the value as followings. [L SENS2] / [Low]: 50 [L' SENS2] / [Low']: 85 [C SENS2] / [Center]: 120 [H' SENS2] / [High']: 145 [H SENS2] / [High]: 170	

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
4. RSSI reference *4	[Analog Narrow] 1) Adj item: [An RRSSI] Adjust:[***] 2) Adj item: [AnL RRSSI]→ [AnL' RRSSI]→ [AnC RRSSI]→ [AnH' RRSSI]→ [AnH RRSSI] SSG output:12dB SINAD level -3dB (MOD:1kHz/ ±1.5kHz)	1) Adj item: [RSSI Reference (Analog Narrow)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level -3dB (MOD:1kHz/ ±1.5kHz)	SSG Distortion meter Oscilloscope	Panel	ANT Uni- versal con- nector	Panel	[Panel tuning mode] [∧], [∨] [PC test mode] [◀], [▶]	[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
*4: Because RSSI Reference (Analog Wide 5k, Analog Wide 4k and DMR) is adjusted by adjusting RSSI Reference (Analog Narrow), it is not necessary to adjust RSSI Reference (Analog Wide 5k, Analog Wide 4k and DMR).									
5. Open Squelch	[Analog Narrow] 1) Adj item: [An SQL] Adjust:[***] 2) Adj item: [AnL SQL]→ [AnL' SQL]→ [AnC SQL]→ [AnH' SQL]→ [AnH SQL] SSG output:12dB SINAD level +2dB (MOD:1kHz/ ±1.5kHz)	1) Adj item: [Open Squelch (Analog Narrow)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level +2dB (MOD:1kHz/ ±1.5kHz)	SSG Distortion meter Oscilloscope	Panel	ANT Uni- versal con- nector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
	[Analog Wide 4k] 1) Adj item: [As SQL] Adjust:[***] 2) Adj item: [AsL SQL]→ [AsL' SQL]→ [AsC SQL]→ [AsH' SQL]→ [AsH SQL] SSG output:12dB SINAD level +2dB (MOD:1kHz/ ±2.4kHz)	1) Adj item: [Open Squelch (An- analog Wide 4k)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level +2dB (MOD:1kHz/ ±2.4kHz)	SSG Distortion meter Oscilloscope	Panel	ANT Uni- versal con- nector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
	[Analog Wide 5k] 1) Adj item: [Aw SQL] Adjust:[***] 2) Adj item: [AwL SQL]→ [AwL' SQL]→ [AwC SQL]→ [AwH' SQL]→ [AwH SQL] SSG output:12dB SINAD level +2dB (MOD:1kHz/ ±3kHz)	1) Adj item: [Open Squelch (An- analog Wide 5k)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level +2dB (MOD:1kHz/±3kHz)	SSG Distortion meter Oscilloscope	Panel	ANT Uni- versal con- nector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
5. Open Squelch	[DMR] 1) Adj item: [Dn SQL] Adjust:[***] 2) Adj item: [DnL SQL]→ [DnL' SQL]→ [DnC SQL]→ [DnH' SQL]→ [DnH SQL] Reference SSG output : -121dBm (0.2uV) (CW (without modulation))	1) Adj item: [Open Squelch (DMR)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] Reference SSG output : -121dBm (0.2uV) (CW (without modulation))	SSG Distortion meter Oscilloscope	Panel	ANT Universal connector			[Panel tuning mode] Adjust the SSG level to get the current value within the limit of 150±5, press [<] key to store the value. [PC test mode] Adjust the SSG level to get the current value within the limit of 150±5, press [Apply] button to store the value.	
6. Low RSSI at -118 dBm *5	[Analog Narrow] 1) Adj item: [An LRSSI] Adjust:[***] 2) Adj item: [AnL LRSSI]→ [AnL' LRSSI]→ [AnC LRSSI]→ [AnH' LRSSI]→ [AnH LRSSI] SSG output : -118dBm (0.28uV) (MOD:1kHz/ ±1.5kHz)	1) Adj item: [Low RSSI (Analog Narrow)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output : -118dBm (0.28uV) (MOD:1kHz/ ±1.5kHz)	SSG	Panel	ANT Universal connector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
*5: Because Low RSSI at -118dBm (Analog Wide 5k, Wide 4k and DMR) is adjusted by adjusting Low RSSI at -118dBm (Analog Narrow), it is not necessary to adjust Low RSSI at -118dBm (Analog Wide 5k, Wide 4k and DMR).									
7. High RSSI at -80dBm *6	[Analog Narrow] 1) Adj item: [An HRSSI] Adjust:[***] 2) Adj item: [AnL HRSSI]→ [AnL' HRSSI]→ [AnC HRSSI]→ [AnH' HRSSI]→ [AnH HRSSI] SSG output : -80dBm (22.4uV) (MOD:1kHz/ ±1.5kHz)	1) Adj item: [High RSSI (Analog Narrow)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output : -80dBm (22.4uV) (MOD:1kHz/ ±1.5kHz)	SSG	Panel	ANT Universal connector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
*6: Because High RSSI at -80dBm (Analog Wide 5k, Wide 4k and DMR) is adjusted by adjusting High RSSI at -80dBm (Analog Narrow), it is not necessary to adjust High RSSI at -80dBm (Analog Wide 5k, Wide 4k and DMR).									

Item	Condition		Measurement			Adjustment			Specifications /Remarks
	Panel tuning mode	PC test mode	Test-equip-ment	Unit	Ter-minal	Unit	Parts	Method	
8. Squelch (Tight)	[Analog Narrow] 1) Adj item: [An SQLT] Adjust:[***] 2) Adj item: [AnL SQLT]→ [AnL' SQLT]→ [AnC SQLT]→ [AnH' SQLT]→ [AnH SQLT] SSG output:12dB SINAD level +6dB (MOD:1kHz/ ±1.5kHz)	1) Adj item: [Tight Squelch (Analog Narrow)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level +6dB (MOD:1kHz/ ±1.5kHz)	SSG	Panel	ANT Uni- versal con- nector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
	[Analog Wide 4k] 1) Adj item: [As SQLT] Adjust:[***] 2) Adj item: [AsL SQLT]→ [AsL' SQLT]→ [AsC SQLT]→ [AsH' SQLT]→ [AsH SQLT] SSG output:12dB SINAD level +6dB (MOD:1kHz/ ±2.4kHz)	1) Adj item: [Tight Squelch (Analog Wide 4k)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level +6dB (MOD:1kHz/ ±2.4kHz)	SSG	Panel	ANT Uni- versal con- nector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	
	[Analog Wide 5k] 1) Adj item: [Aw SQLT] Adjust:[***] 2) Adj item: [AwL SQLT]→ [AwL' SQLT]→ [AwC SQLT]→ [AwH' SQLT]→ [AwH SQLT] SSG output:12dB SINAD level +6dB (MOD:1kHz/ ±3kHz)	1) Adj item: [Tight Squelch (Analog Wide 5k)] 2) Adj item:[Low], [Low'], [Center], [High'], [High] SSG output:12dB SINAD level +6dB (MOD:1kHz/±3kHz)	SSG	Panel	ANT Uni- versal con- nector			[Panel tuning mode] After input signal from SSG, press [<] key to store the adjustment value. [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value.	

SECTION 5 TROUBLESHOOTING

5.1 Fault Diagnosis of the BGA (Ball Grid Array) IC

■Overview

A flowchart for determining whether or not the transceiver can be powered on (the LCD does not function even if the power switch is turned on) due to broken BGA parts.

■BGA parts

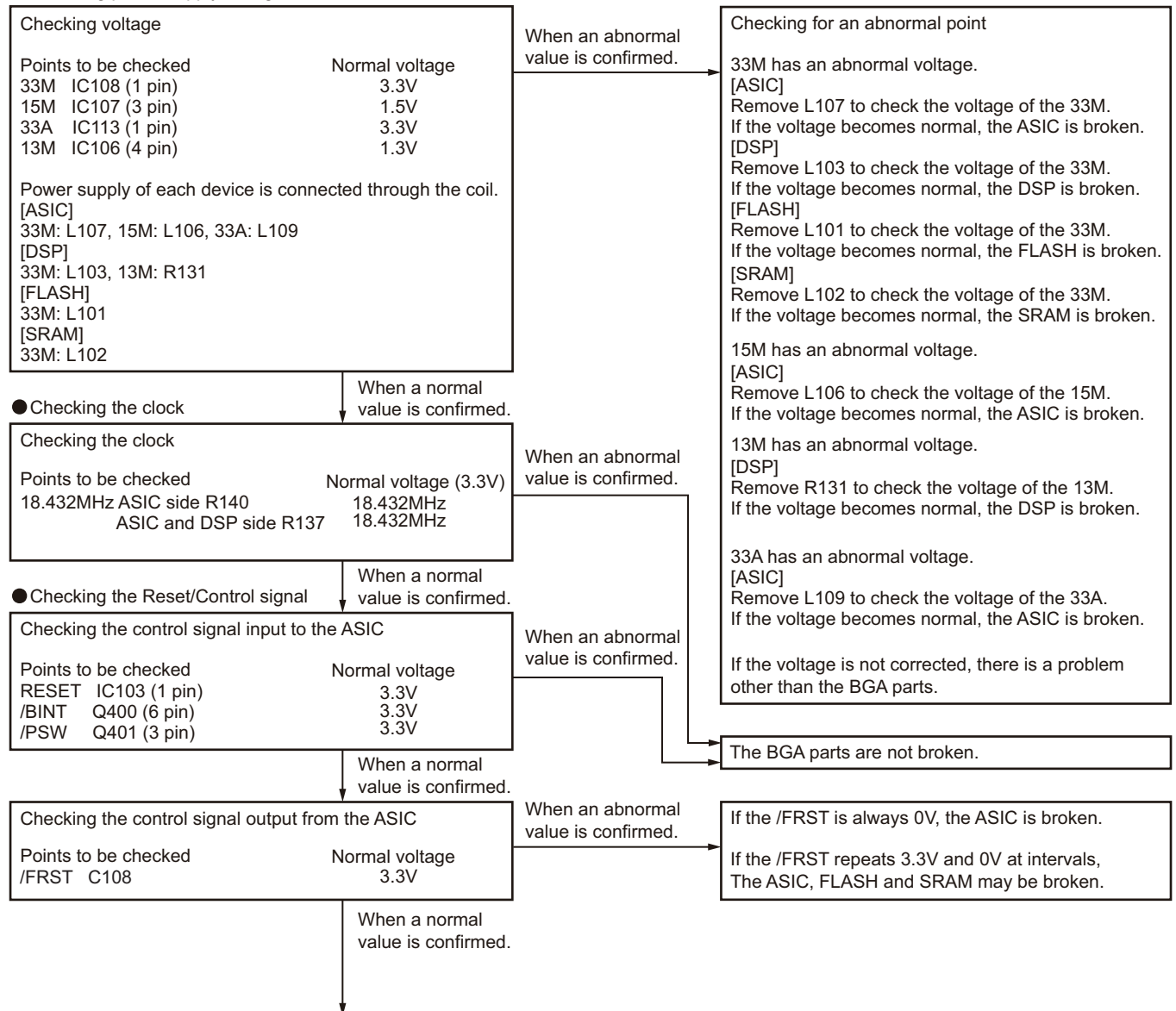
ASIC (IC105), DSP (IC101), FLASH (IC100), SRAM (IC102)

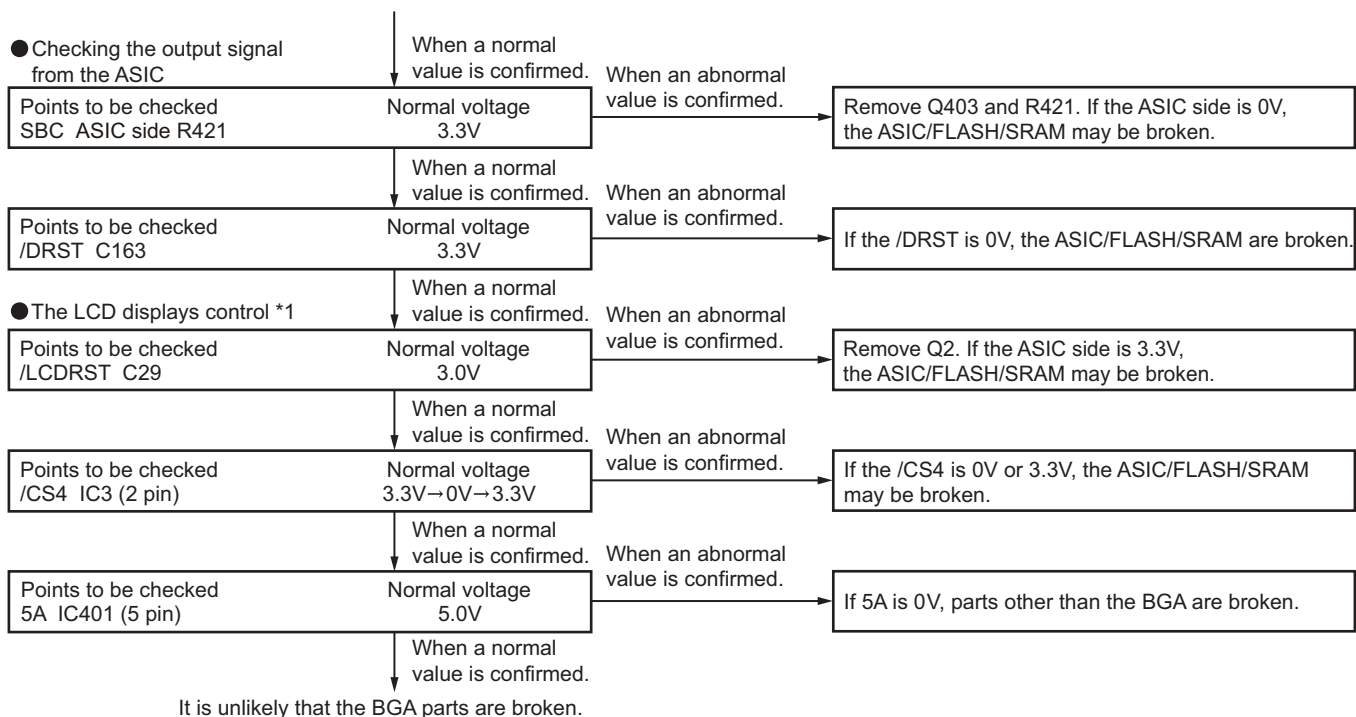
When the BGA IC is problematic, please bring the printed circuit board (X53-4572-72, X53-4572-73) in for service. Various ESN/default adjustment values are written on the printed circuit board for service.

Additionally various ESN stickers are included. (Please refer to "5.3 Replacing Control Unit".)

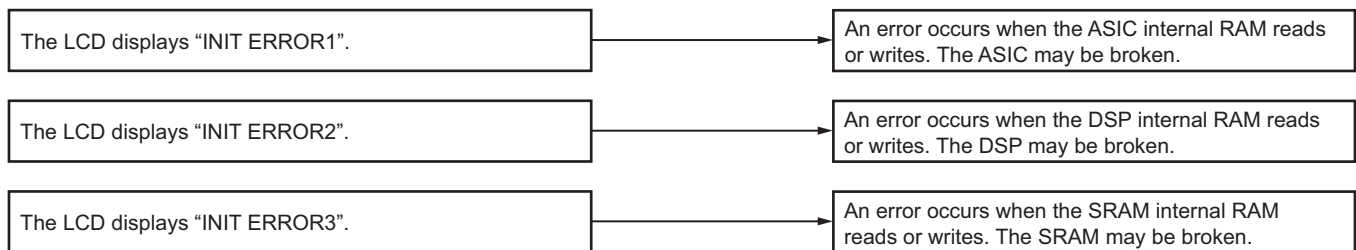
After the printed circuit board has been readjusted, please attach any ESN stickers to the chassis. When "ESN Validation" is used, you must modify the ESN register.

●Checking power supply voltage

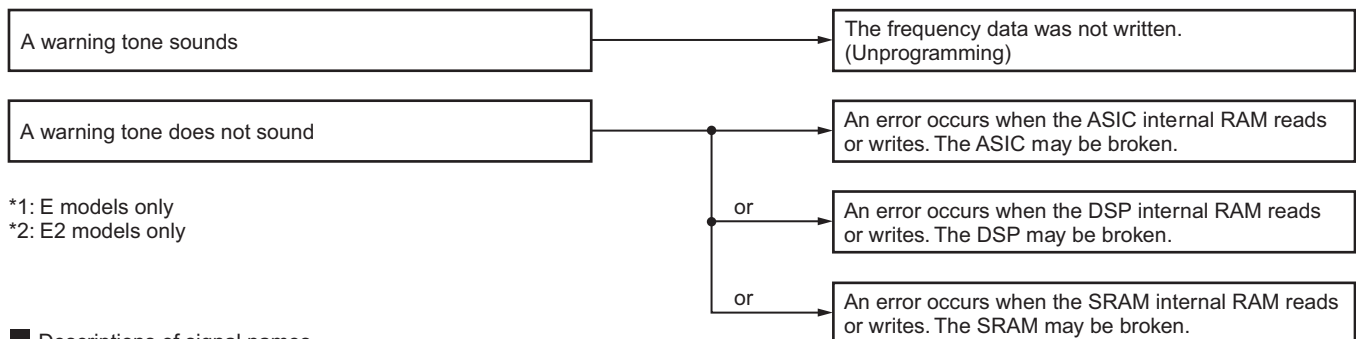




● When an error display appears on the LCD *1



I When the LED color changes red and orange alternately *2



*1: E models only

*2: E2 models only

■ Descriptions of signal names

- | | | |
|----------------|---|---------------------|
| 1) /RST(RESET) | : ASIC reset signal | LOW → Reset |
| 2) /BINT | : Battery final voltage monitoring | LOW → Final voltage |
| 3) /PSW | : Power switch signal | LOW → ON |
| 4) /FRST | : FLASH reset signal | LOW → Reset |
| 5) SBC | : Switch B control | HIGH → ON |
| 6) /DRST | : DSP reset signal | LOW → Reset |
| 7) /LCDRST | : LCD reset signal | LOW → Reset |
| 8) /CS4 | : LCD controller chip select signal | LOW → Active |
| 9) 5A | : Analog peripheral control 5.0V power supply | |

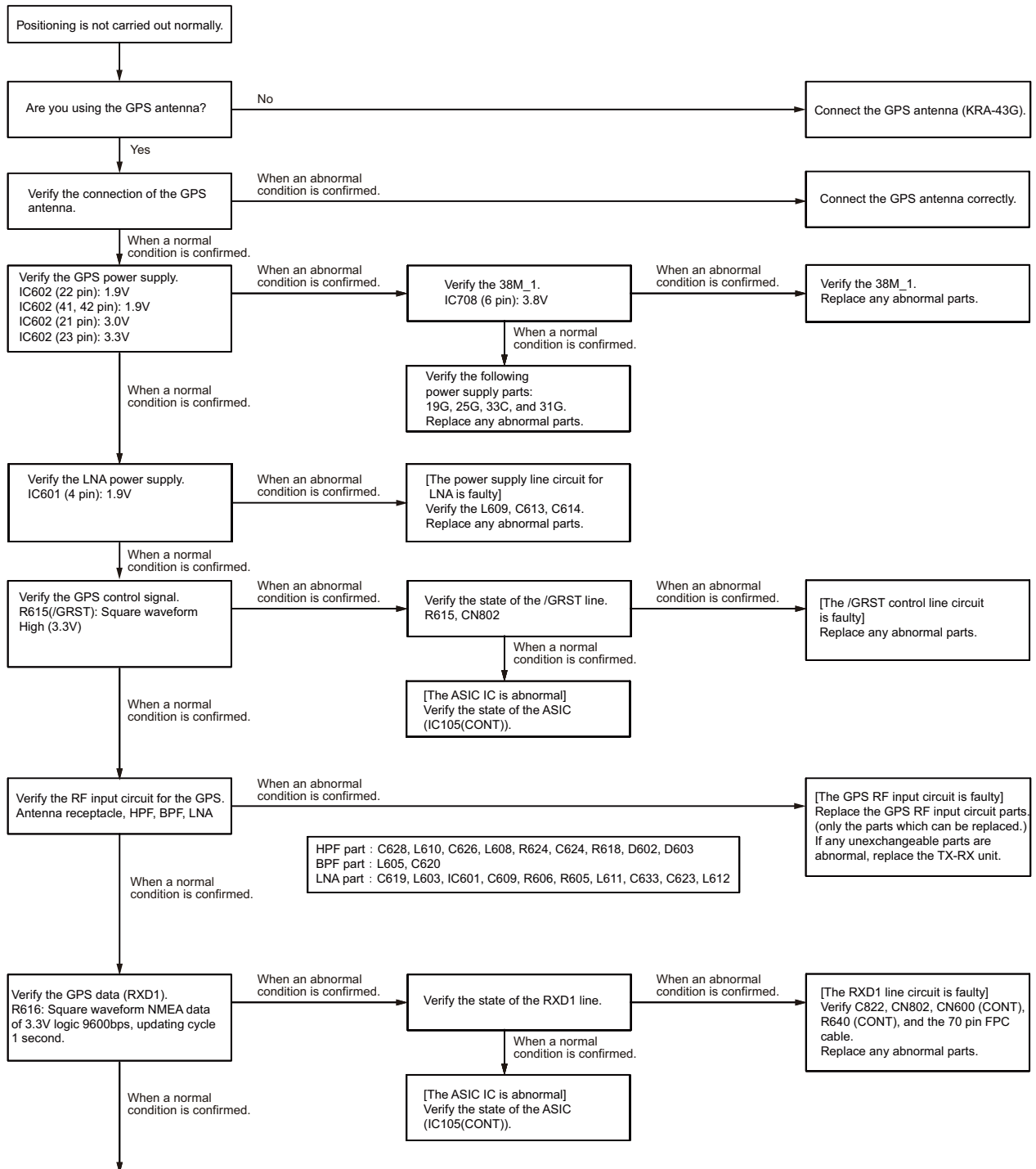
5.2 Failure diagnosis of the GPS section

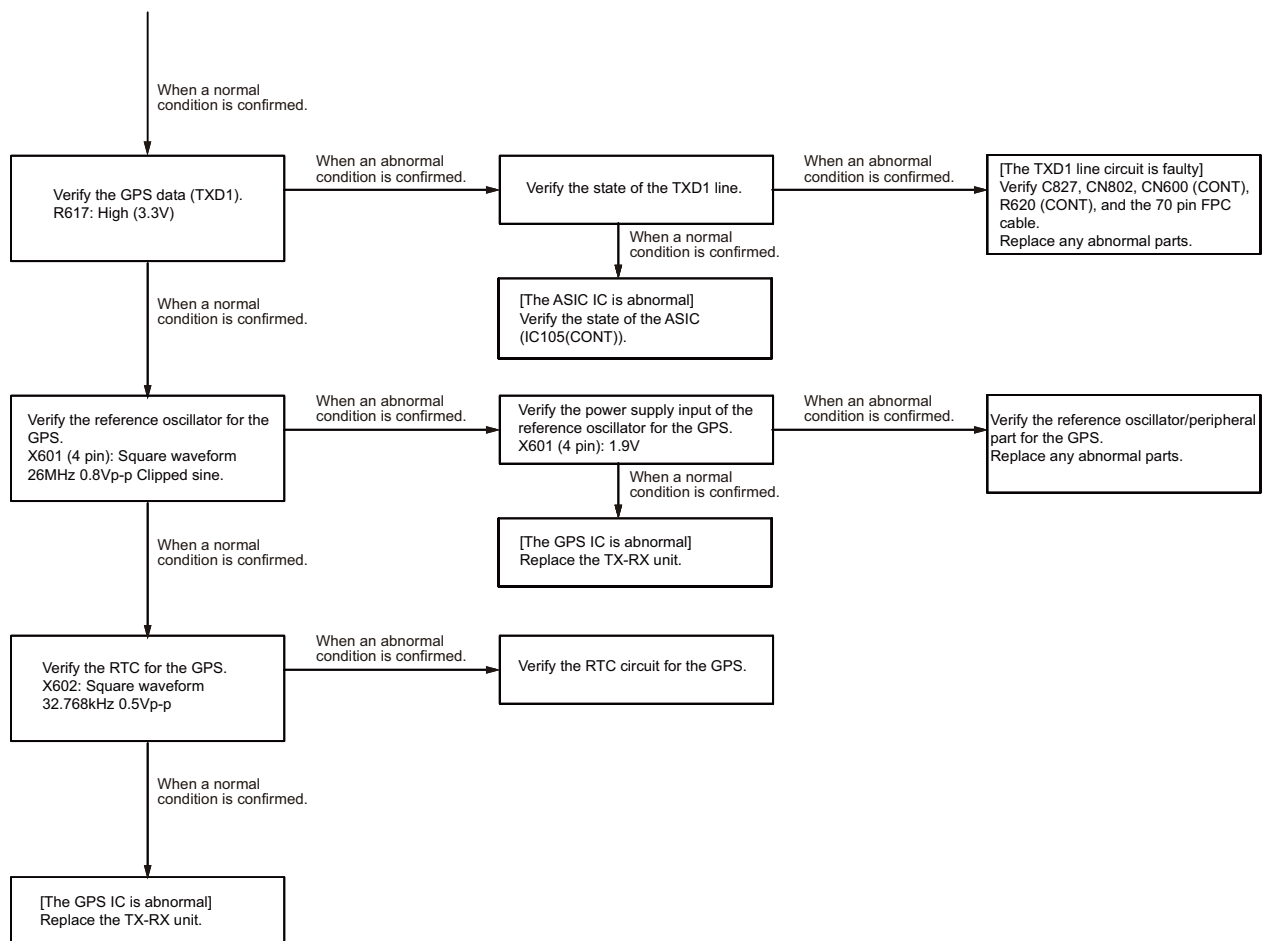
Overview:

When the GPS function does not operate, use this flowchart to determine the problem.

Major parts for a GPS circuit

- GPS IC (IC602)
- LNA IC (IC601)
- BPF (L605)
- BPF (L602)
- TCXO (X601)
- RTC CR (X602)
- 25G AVR (IC708)
- 19G AVR (IC709)





Descriptions of signal names

- 1) 38M_1 : GPS block peripheral control 3.8V power supply
- 2) 33C : GPS block host I/F 3.3V power supply
- 3) 25G : GPS block main DCDC 2.5V power supply
- 4) 19G : GPS block main LDO 1.9V power supply
- 5) 31G : GPS backup 3.1V power supply
- 6) GPS_SW : GPS main power supply control (ASIC to GPS AVR) HIGH → ON
- 7) /GRST : GPS master reset signal (ASIC to GPS IC) LOW → Reset
- 8) TXD1 : GPS control serial data (ASIC to GPS IC)
- 9) RXD1 : GPS NMEA serial data (GPS IC to ASIC)

5.3 Replacing Control Unit

■Control unit Information

Model Name	Original Control unit Number	For Service Control unit Number
TK-D200G/D200 (E)	X53-4572-70	X53-4572-72
TK-D200G/D200 (E2)	X53-4572-71	X53-4572-73

■Supplied Accessories of "Service Control unit"

Item (Including Parts Number)	Quantity
Control Unit (X53-457)	1
KENWOOD ESN Label	1

■"Service Control unit" Data

The following data is written on the service Control unit:

Data Type	Description
Firmware	TK-D200/D300 Firmware.
FPU Data (PC programming mode)	X53-457 (TK-D200/D300) data.
Various Adjustment Data (PC Test mode)	General adjustment values for the X53-457 (TK-D200/D300).
KENWOOD ESN	Model name: [X53-457] TK-D200/300S Type: Ex The same number as the KENWOOD ESN label is written.

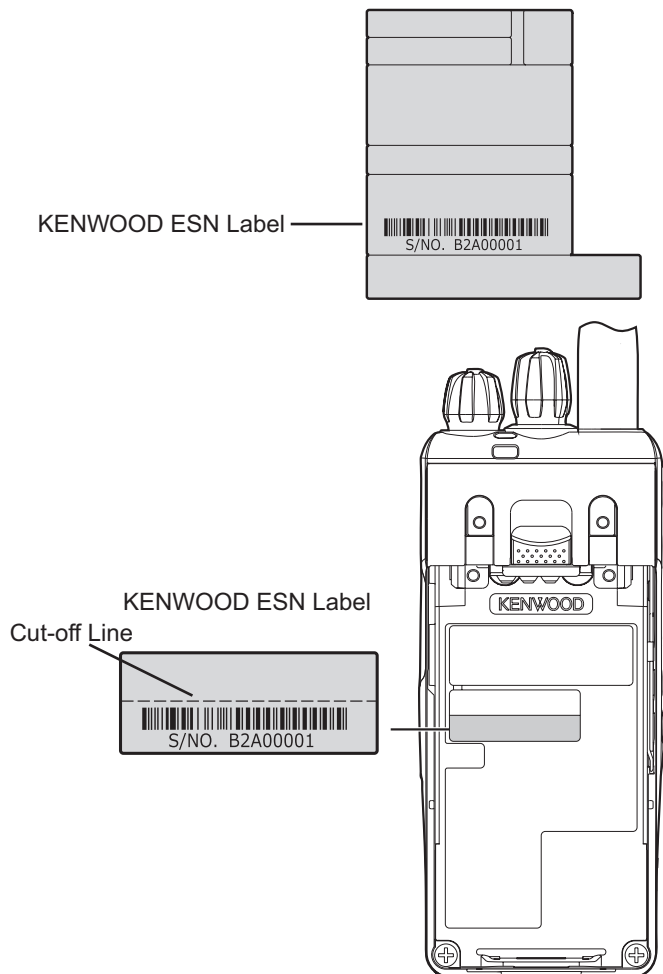
■After Changing the PCB

- (1) After changing the printed circuit board, write the up-to-date Firmware following the instructions in the "2.2 REALIGNMENT - 2.2.6 Firmware Programming Mode".
 - Write the Firmware in accordance to the Market. If you write different Market Firmware, there are times communication with the FPU is not possible.
- (2) Using the KPG-166D, select your desired item (Model Name and Frequency) from the Model> Product Information menu, then use Program> Write Data to the Transceiver to write the FPU data (PC Programming mode). When writing to the transceiver, a Warning Message, corresponding to the item selected, appears. Click [OK] to continue writing the data.
- (3) Enter Program> Test Mode, then adjust the various adjustment data (PC Test Mode) as described in the "SECTION 4 ADJUSTMENT"
- (4) Attach the new labels corresponding to the new printed circuit board. (Refer to the images right for label placement.)
- (5) If necessary, write the FPU data used by the customer with the KPG-166D.

Note:

- When a new printed circuit board is used, the KENWOOD ESN changes, as does the Transceiver Information display of the KPG-166D, but this does not have any effect on the operation of the transceiver.
- If changing to the original ESN, please contact our service center.

■ESN Label Layout



Note:

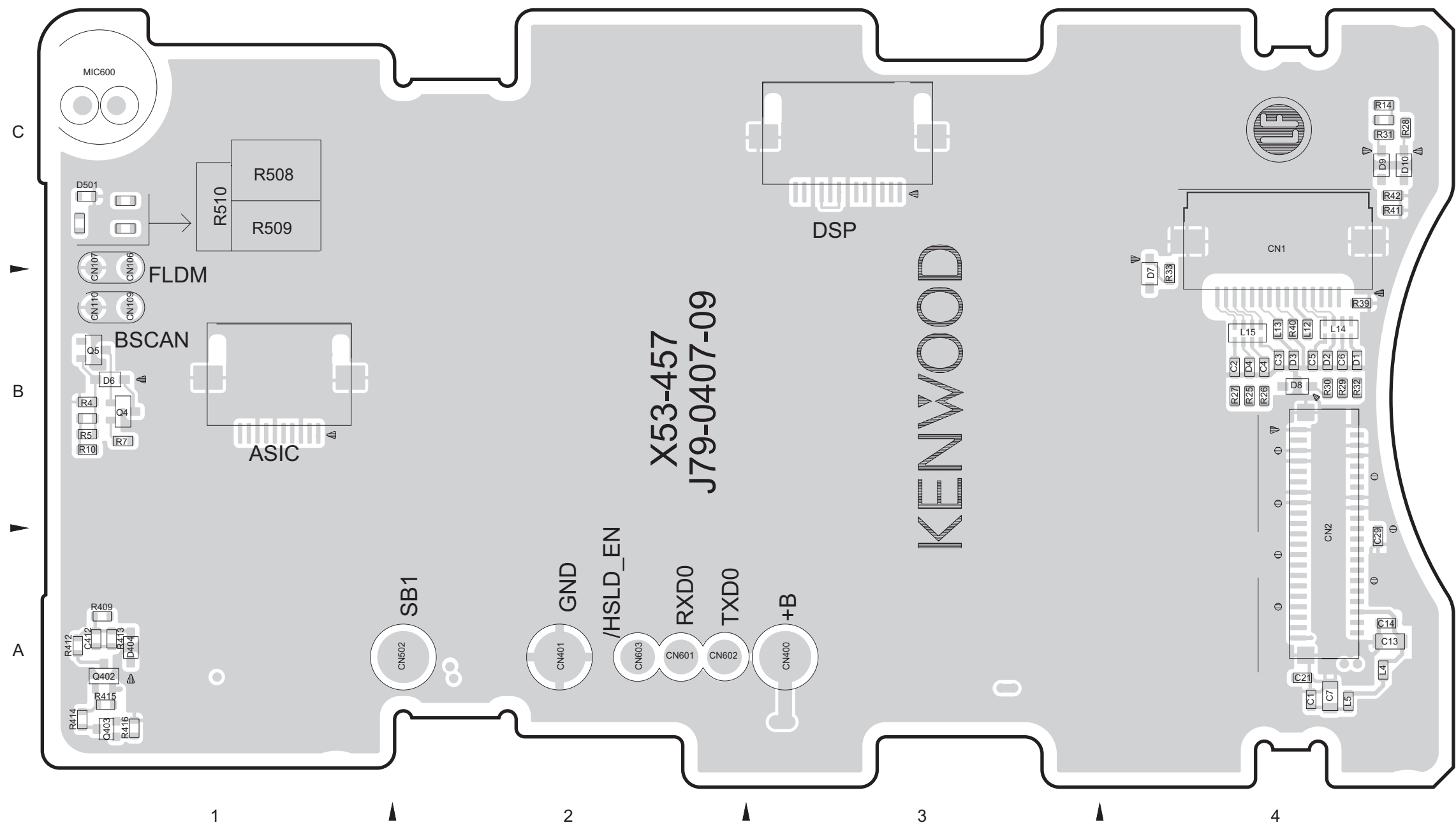
A UPC code and UPC barcode is not printed on the KENWOOD ESN Label. If necessary, cut the label at the cut-off line and attach only the serial number.

MEMO

PRINTED CIRCUIT BOARD

■ CONTROL UNIT (X53-4572-70 (TK-D200G_E, TK-D200_E), X53-4572-71 (TK-D200G_E2, TK-D200_E2))

--- Component side view (J79-0407-09) ---



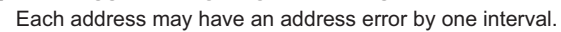
● ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.



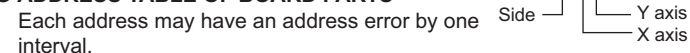
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TRANSISTOR		D3	A- 4B	RESISTOR		R27	A- 4B	R41	A- 4C	R509	A- 1C	C7	A- 4A	CN2	A- 4A	
Q4	A- 1B	D4	A- 4B	R28	A- 4B	R42	A- 4C	R409	A- 1A	CAPACITOR	C1	A- 4A	C13	A- 4A	L4	A- 4A
Q5	A- 1B	D6	A- 1B		R29	A- 4B	R412		A- 1A		C14	A- 4A	L5	A- 4A		
Q402	A- 1A	D7	A- 4B		R30	A- 4B	R413		A- 1A		C21	A- 4A	L12	A- 4B		
Q403	A- 1A	D8	A- 4B		R31	A- 4C	R414		A- 1A		C29	A- 4A	L13	A- 4B		
		D9	A- 4C		R32	A- 4B	R415		A- 1A		C412	A- 1A	L14	A- 4B		
		D10	A- 4C		R33	A- 4B	R416		A- 1A		C5	A- 4B	L15	A- 4B		
		D404	A- 1A		R39	A- 4B	R508		A- 1C				MIC600	A- 1C		
		D501	A- 1C		R40	A- 4B										
DIODE												OTHER				
D1	A- 4B											CN1	A- 4C			
D2	A- 4B															

--- Foil side view (J79-0407-09) ---



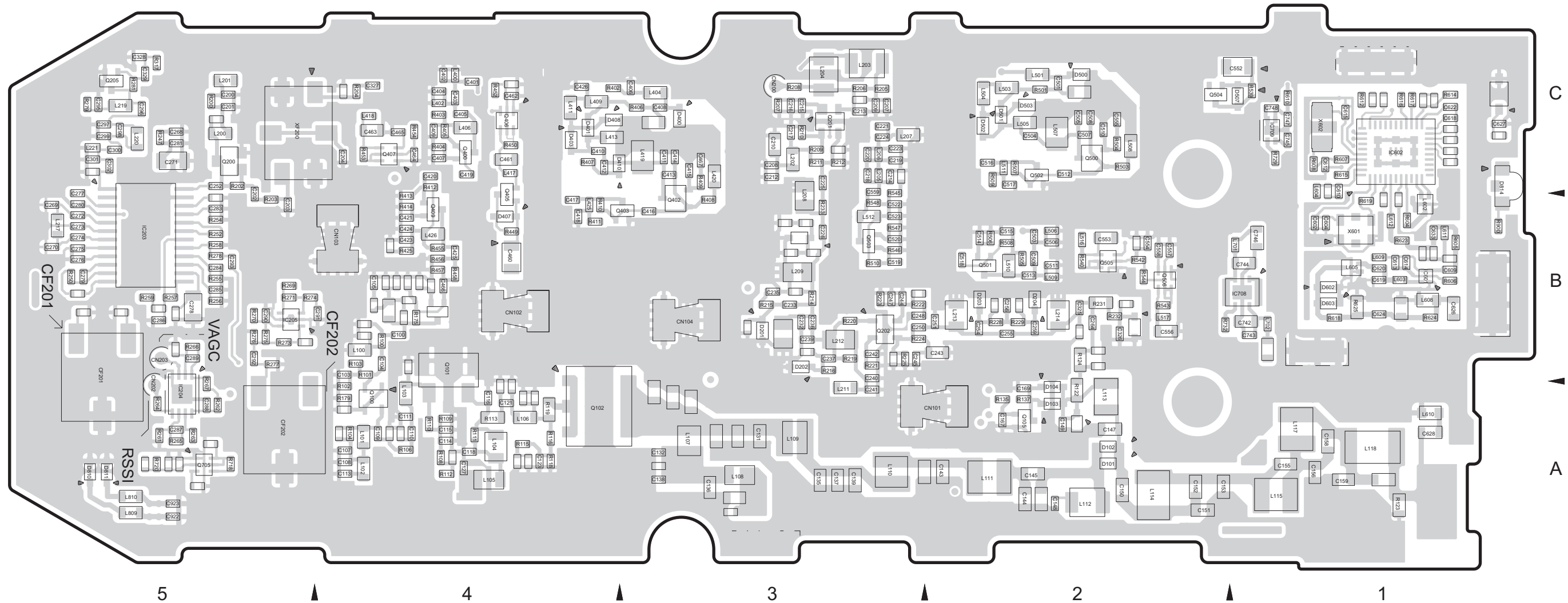
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--- Component side view (J79-0408-09) ---

2-3 (No.RA008<Rev.001>)

■ TX-RX UNIT (X57-8782-70 (TK-D200G_E, TK-D200G_E2), X57-8782-71 (TK-D200_E, TK-D200_E2))

--- Foil side view (J79-0408-09) ---



● ADDRESS TABLE OF BOARD PARTS

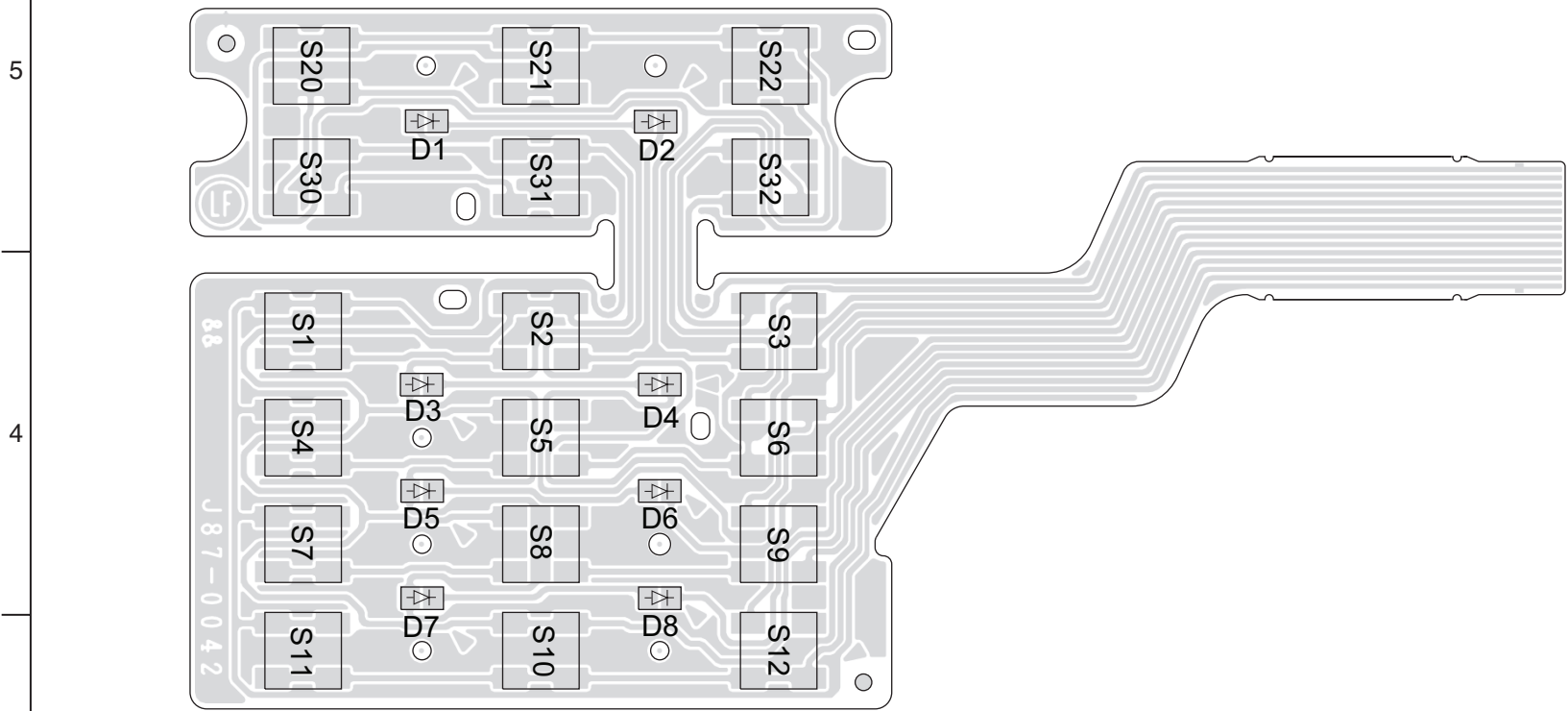
Each address may have an address error by one interval.



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IC	Q503 B- 3B	D810 B- 5A	R200 B- 5C	R250 B- 5B	R403 B- 4C	R508 B- 2B	R718 B- 5A	C137 B- 3A	C212 B- 3C	C250 B- 3B	C289 B- 5B	C411 B- 3C	C507 B- 2C	C612 B- 1C	CN103 B- 4B	L206 B- 3C	L505 B- 2C
IC203	B- 5B	Q504 B- 2C	R202 B- 5C	R252 B- 5B	R404 B- 4C	R509 B- 2C	R720 B- 5A	C138 B- 3A	C213 B- 3C	C251 B- 2B	C290 B- 5B	C412 B- 3B	C508 B- 2C	C613 B- 1B	CN104 B- 3B	L207 B- 3C	L506 B- 2B
IC204	B- 5A	Q505 B- 2B	D814 B- 1C	R203 B- 5B	R254 B- 5B	R405 B- 4C	R510 B- 3B	C139 B- 3A	C214 B- 3C	C252 B- 5C	C291 B- 4B	C413 B- 3C	C509 B- 2B	C614 B- 1B	CF201 B- 5B	L208 B- 3B	L507 B- 2C
IC205	B- 5B	Q506 B- 2B		R204 B- 4C	R255 B- 5B	R406 B- 3C	R539 B- 1C	C143 B- 2A	C215 B- 3C	C253 B- 2B	C292 B- 5B	C414 B- 3C	C510 B- 2C	C615 B- 1C	CF202 B- 5A	L209 B- 3B	L508 B- 2C
IC601	B- 1B	Q705 B- 5A	RESISTOR	R205 B- 3C	R256 B- 5B	R407 B- 4C	R540 B- 2B	C144 B- 2A	C216 B- 3C	C255 B- 2B	C293 B- 5B	C415 B- 3C	C511 B- 2B	C618 B- 1C	L100 B- 4B	L211 B- 3A	L509 B- 2B
IC602	B- 1C			R206 B- 3C	R257 B- 5B	R408 B- 3B	R542 B- 2B	C145 B- 2A	C217 B- 3C	C256 B- 2B	C295 B- 5C	C416 B- 3B	C512 B- 2C	C619 B- 1B	L101 B- 4A	L212 B- 3B	L510 B- 2B
IC708	B- 1B	DIODE		R207 B- 3C	R258 B- 5B	R409 B- 3C	R543 B- 2B	C147 B- 2A	C218 B- 3C	C259 B- 2B	C296 B- 5C	C417 B- 4B	C513 B- 2B	C620 B- 1B	L102 B- 4A	L213 B- 2B	L511 B- 2C
IC709	B- 1C	D101 B- 2A		R208 B- 3C	R259 B- 5B	R410 B- 4B	R544 B- 2B	C148 B- 2A	C219 B- 3C	C264 B- 2B	C297 B- 5C	C418 B- 4B	C514 B- 2B	C622 B- 1C	L103 B- 4A	L214 B- 2B	L512 B- 3B
		D102 B- 2A		R209 B- 3C	R261 B- 5A	R411 B- 4B	R545 B- 3C	C149 B- 2A	C220 B- 3C	C268 B- 5C	C298 B- 5C	C419 B- 4C	C515 B- 2B	C624 B- 1B	L104 B- 4A	L217 B- 5B	L516 B- 2B
		D103 B- 2A		R210 B- 3C	R262 B- 5A	R412 B- 4C	R546 B- 3B	C150 B- 2A	C221 B- 3C	C269 B- 5B	C299 B- 5C	C420 B- 4C	C516 B- 2C	C626 B- 1B	L105 B- 4A	L219 B- 5C	L517 B- 2B
TRANSISTOR	Q100 B- 4A	D104 B- 2A		R211 B- 3C	R263 B- 5A	R413 B- 4B	R547 B- 3B	C105 B- 4B	C223 B- 3C	C270 B- 5B	C300 B- 5C	C421 B- 4B	C517 B- 2C	C627 B- 1C	L106 B- 4A	L220 B- 5C	L602 B- 1B
	Q101 B- 4B	D201 B- 3B		R212 B- 3C	R264 B- 5A	R414 B- 4B	R548 B- 3B	C107 B- 4A	C224 B- 3C	C271 B- 5C	C301 B- 5C	C423 B- 4B	C518 B- 2B	C628 B- 1A	L107 B- 3A	L221 B- 5C	L603 B- 1B
	Q102 B- 4A	D202 B- 3B		R214 B- 3B	R265 B- 5A	R425 B- 4B	R604 B- 1B	C108 B- 4A	C225 B- 3C	C272 B- 5B	C302 B- 5C	C424 B- 4B	C519 B- 3B	C633 B- 1B	L108 B- 3A	L400 B- 4C	L604 B- 1C
	Q105 B- 2A	D203 B- 2B		R215 B- 3B	R266 B- 5B	R449 B- 4B	R605 B- 1B	C109 B- 4A	C226 B- 3C	C273 B- 5B	C325 B- 2B	C425 B- 4B	C520 B- 3B	C742 B- 1B	L109 B- 3A	L402 B- 4C	L605 B- 1B
	Q200 B- 5C	D204 B- 2B		R216 B- 3B	R267 B- 5A	R450 B- 4C	R606 B- 1B	C110 B- 4A	C232 B- 3B	C274 B- 5B	C326 B- 2B	C426 B- 4C	C522 B- 3B	C743 B- 1B	L110 B- 3A	L404 B- 3C	L608 B- 1B
	Q201 B- 3C	D400 B- 3C		R217 B- 3B	R269 B- 5B	R452 B- 4C	R607 B- 1C	C111 B- 4A	C233 B- 3B	C275 B- 5B	C327 B- 4C	C460 B- 4B	C523 B- 3B	C744 B- 1B	L111 B- 2A	L406 B- 4C	L609 B- 1B
	Q202 B- 3B	D401 B- 4C		R218 B- 3B	R270 B- 5B	R453 B- 4C	R608 B- 1C	C113 B- 4A	C235 B- 3B	C276 B- 5B	C328 B- 5C	C461 B- 4C	C552 B- 1C	C745 B- 1C	L112 B- 2A	L409 B- 4C	L610 B- 1A
	Q205 B- 5C	D403 B- 4C		R219 B- 3B	R271 B- 5B	R454 B- 4C	R610 B- 1C	C114 B- 4A	C236 B- 3B	C277 B- 5C	C329 B- 5C	C462 B- 4C	C553 B- 2B	C746 B- 1B	L113 B- 2A	L411 B- 4C	L611 B- 1B
	Q400 B- 4C	D407 B- 4B		R220 B- 3B	R272 B- 5B	R455 B- 4B	R612 B- 1C	C115 B- 4A	C237 B- 3B	C278 B- 5B	C330 B- 5C	C463 B- 4C	C554 B- 2B	C747 B- 1C	L114 B- 2A	L413 B- 4C	L612 B- 1B
	Q402 B- 3B	D408 B- 4C		R223 B- 3B	R274 B- 5B	R456 B- 4B	R614 B- 1C	C116 B- 4A	C239 B- 3B	C279 B- 5B	C331 B- 5C	C464 B- 4C	C555 B- 2C	C748 B- 1C	L115 B- 1A	L417 B- 4C	L701 B- 1B
	Q403 B- 3B	D410 B- 4C		R224 B- 3B	R275 B- 5B	R457 B- 4B	R615 B- 1C	C118 B- 4A	C240 B- 3B	C280 B- 5B	C332 B- 5C	C465 B- 4C	C556 B- 2B	C922 B- 5A	L117 B- 1A	L418 B- 4C	L702 B- 1B
	Q405 B- 4B	D500 B- 2C		R225 B- 3B	R276 B- 5B	R458 B- 4B	R616 B- 1C	C121 B- 4A	C241 B- 3A	C281 B- 5C	C333 B- 5C	C466 B- 4B	C557 B- 2B	C923 B- 5A	L118 B- 1A	L419 B- 3C	L809 B- 5A
	Q406 B- 4C	D501 B- 2C		R228 B- 2B	R277 B- 5B	R501 B- 2C	R617 B- 1C	C123 B- 4A	C242 B- 3B	C283 B- 5C	C334 B- 5C	C467 B- 3C	C558 B- 2B		L200 B- 5C	L420 B- 3C	L810 B- 5A
	Q407 B- 4C	D502 B- 2C		R229 B- 2B	R278 B- 5B	R503 B- 2C	R618 B- 1B	C127 B- 4A	C243 B- 2B	C284 B- 5B	C335 B- 5C	C468 B- 3C	C559 B- 3C	OTHER	L201 B- 5C	L425 B- 4B	XF200 B- 5C
	Q409 B- 4B	D503 B- 2C		R231 B- 2B	R279 B- 5C	R504 B- 2C	R619 B- 1B	C131 B- 3A	C244 B- 3B	C285 B- 5B	C336 B- 5C	C469 B- 4C	C560 B- 2B		L202 B- 3C	L426 B- 4B	
	Q500 B- 2C	D507 B- 1C		R232 B- 2B	R281 B- 5C	R505 B- 2B	R623 B- 1B	C132 B- 3A	C245 B- 3B	C286 B- 5B	C337 B- 5C	C470 B- 4C	C561 B- 2B		L203 B- 3C	L501 B- 2C	
	Q501 B- 2B	D602 B- 1B		R233 B- 3B	R317 B- 5C	R506 B- 2B	R624 B- 1B	C135 B- 3A	C247 B- 3B	C287 B- 5A	C338 B- 5C	C471 B- 4C	C562 B- 2B		L204 B- 3C	L503 B- 2C	
	Q502 B- 2C	D603 B- 1B		R247 B- 5C	R402 B- 4C	R507 B- 2C	R625 B- 1B	C136 B- 3A	C248 B- 3B	C288 B- 5A	C339 B- 5C	C472 B- 4C	C563 B- 2B		L205 B- 3C	L504 B- 2C	

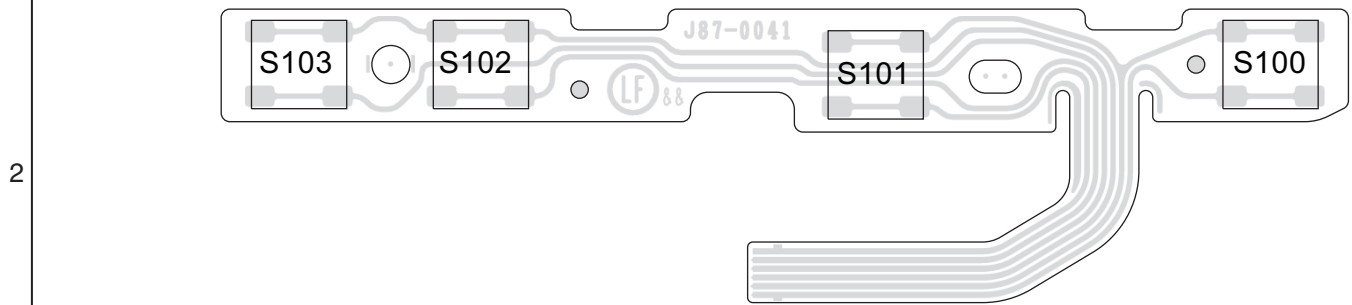
■ SWITCH UNIT (X41-3793-00) (DTMF KEY)

--- Component side view (J87-0042-05) ---



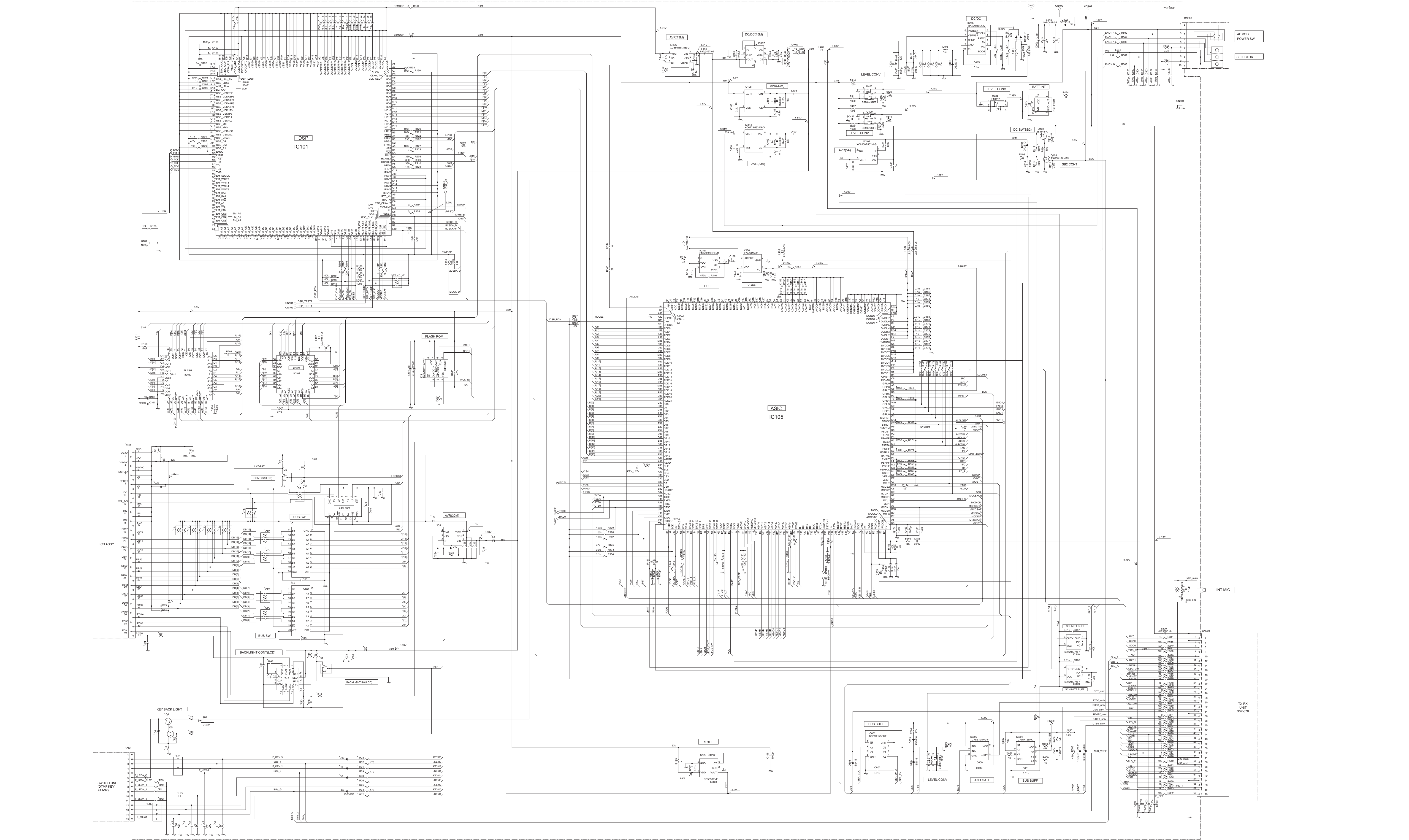
■ SWITCH UNIT (X41-3783-00) (PTT KEY)

--- Component side view (J87-0041-05) ---

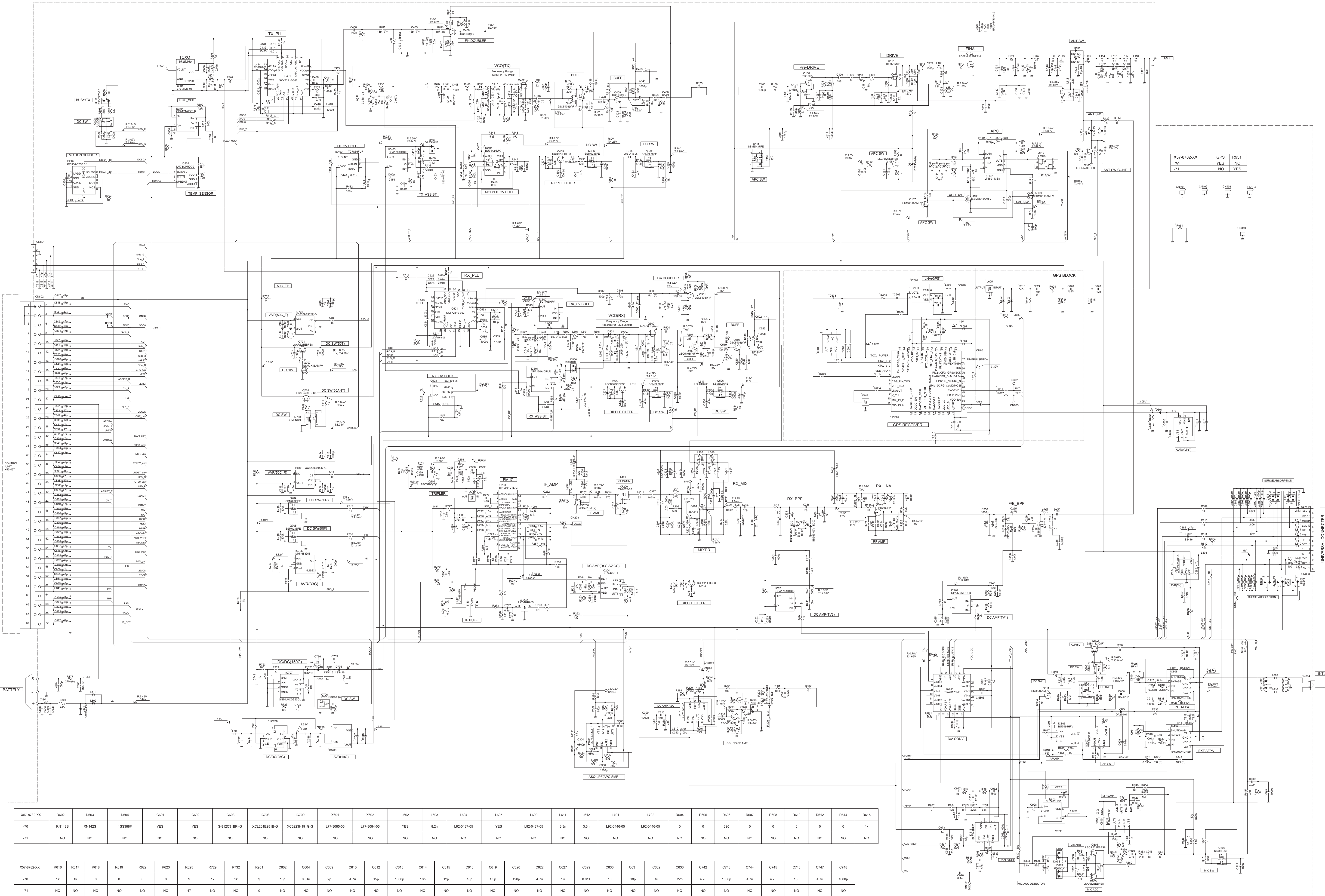


SCHEMATIC DIAGRAM

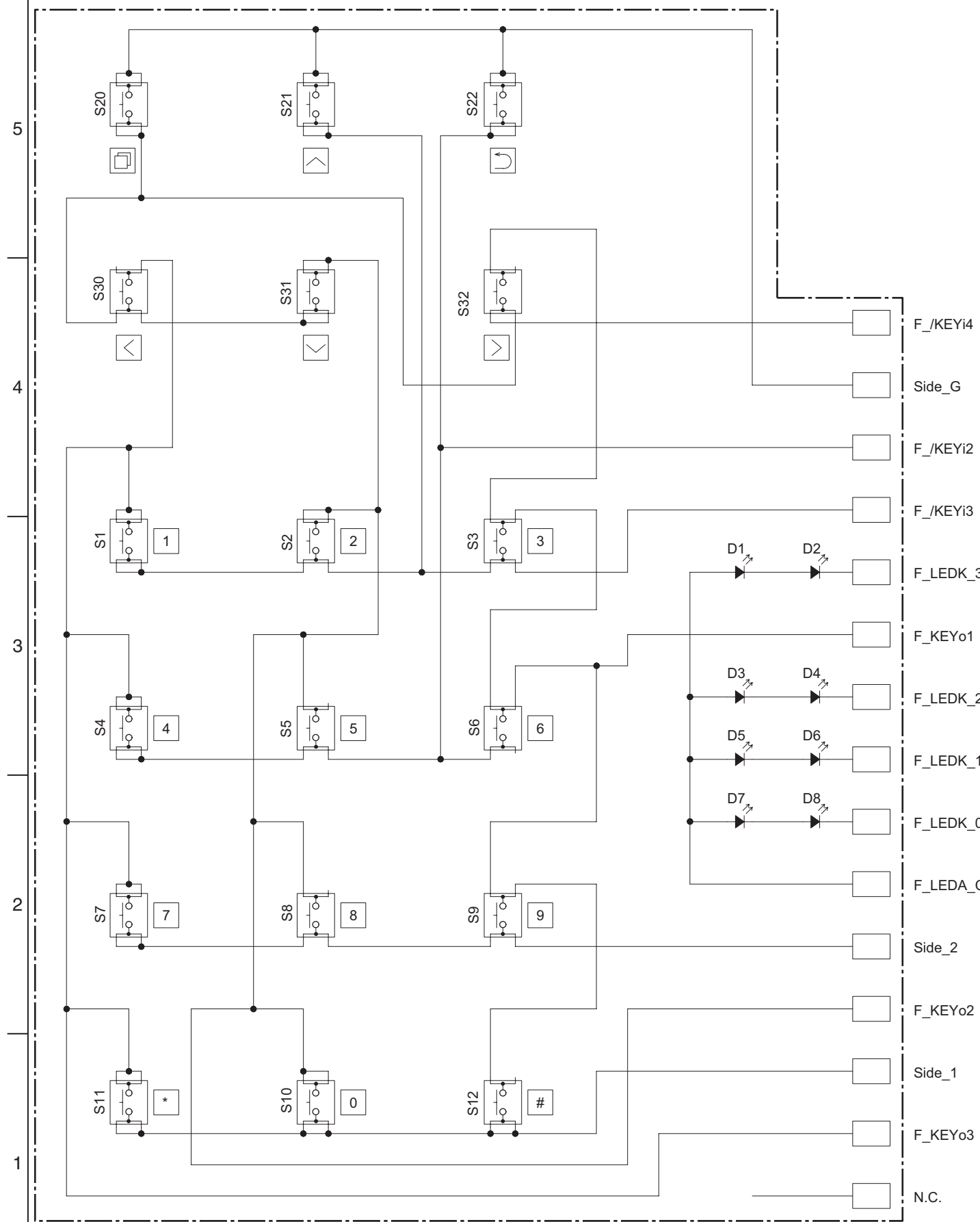
■ CONTROL UNIT (X53-4572-70 (TK-D200G_E, TK-D200_E), X53-4572-71 (TK-D200G_E2, TK-D200_E2))



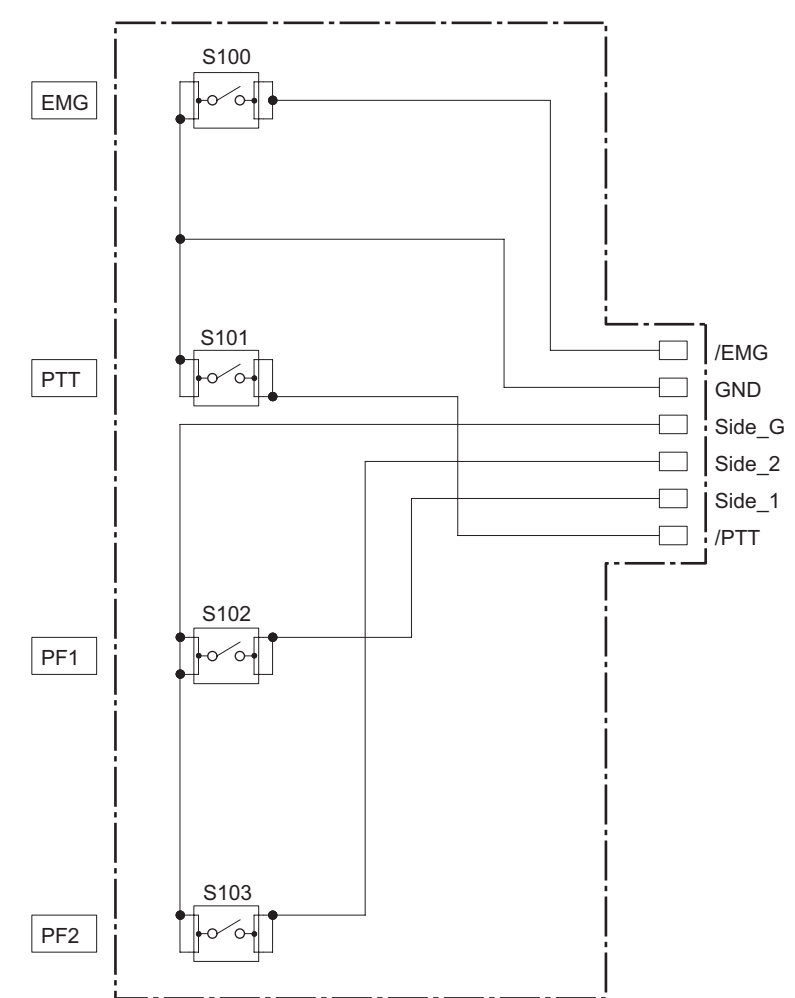
X53-4572-XX	CN1	CN2	CP1	CP2	CP3	CP4	CP5	CP6	CP7	CP8	CP9	CP10	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D12	IC1	IC2	IC3	IC4	IC5	Q1	Q2	Q4	Q5		X53-4572-XX	L2	L3	L4	L5	L6	L12	L13	L14	L15	R2	R3	R4	R5	R6	R7	R8	R9	R10	R13	R14	R15	R25	R26	R27	R28	R30	R31	R38	R39	R40	R41	R42	R138	R508																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
-70	E413186-5	E46-6945-5	10x	10x	10x	10x	10x	10x	560	560	560	560	VR105AAA000	VR105AAA000	VR105AAA000	VR105AAA000	D22306(M)	X53388F	X53388F	X53388F	X53388F	X53388F	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	IC74LCX245FK	I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SWITCH UNIT (X41-3793-00)(DTMF KEY)

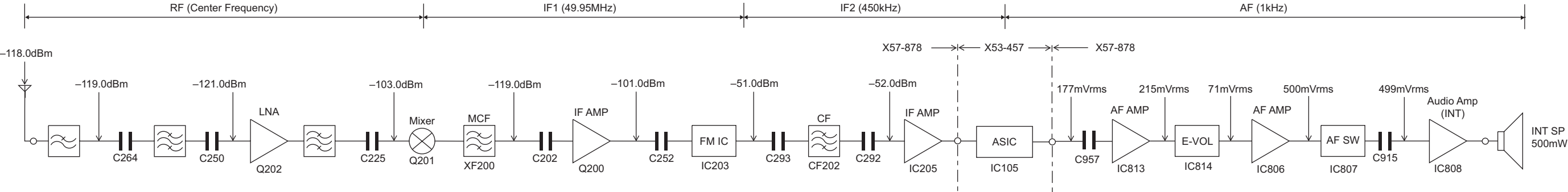


SWITCH UNIT (X41-3783-00)(PTT KEY)



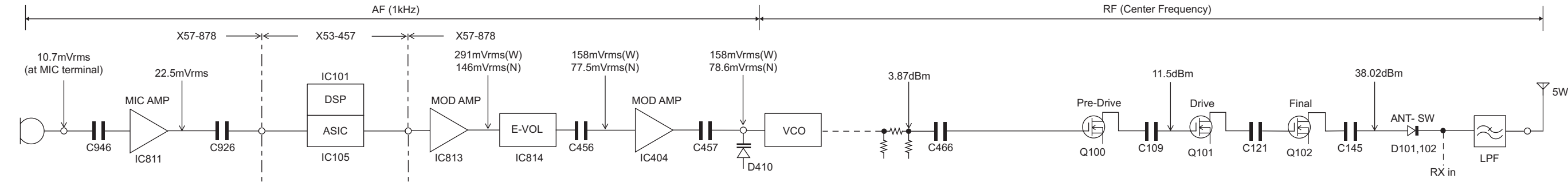
LEVEL DIAGRAM

Receiver Section



To make measurements in the AF section,connect the AC level meter. (ANT input:-53dBm, 1kHz FM, 3kHz DEV (Wide))
In the RF section, use a 1000pF coupling capacitor.
(The display shows the SSG input value required to obtain 12dB SINAD without local level.)

Transmitter Section



MIC input : 3kHz DEV.(Wide), 1.5kHz DEV.(Narrow) at 1kHz MOD.
Transmitting frequency : Center frequency

INTERCONNECTION DIAGRAM

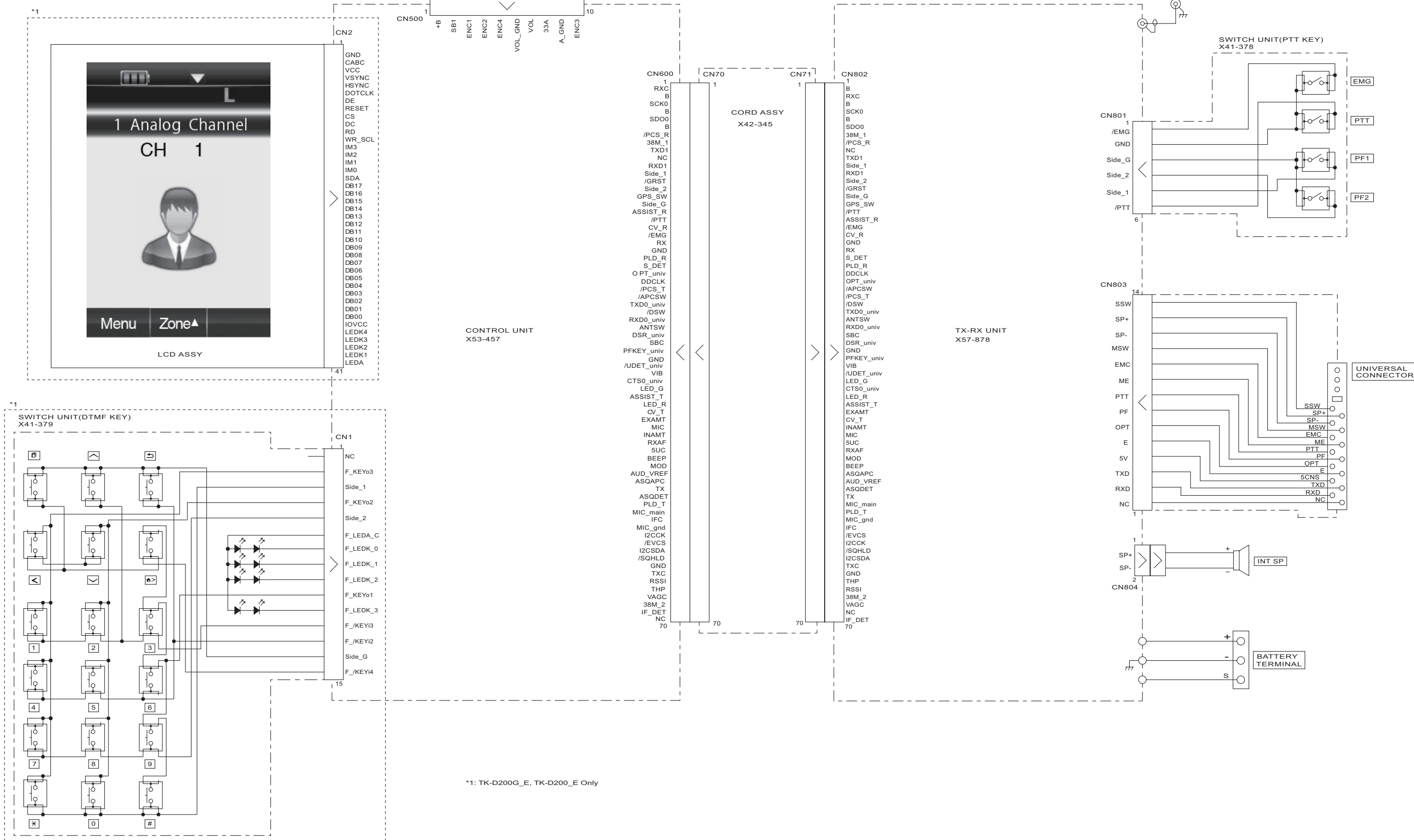
5

4

3

2

1



*1: TK-D200G_E, TK-D200_E Only

BLOCK DIAGRAM

■ CONTROL UNIT (X53-4572-XX)

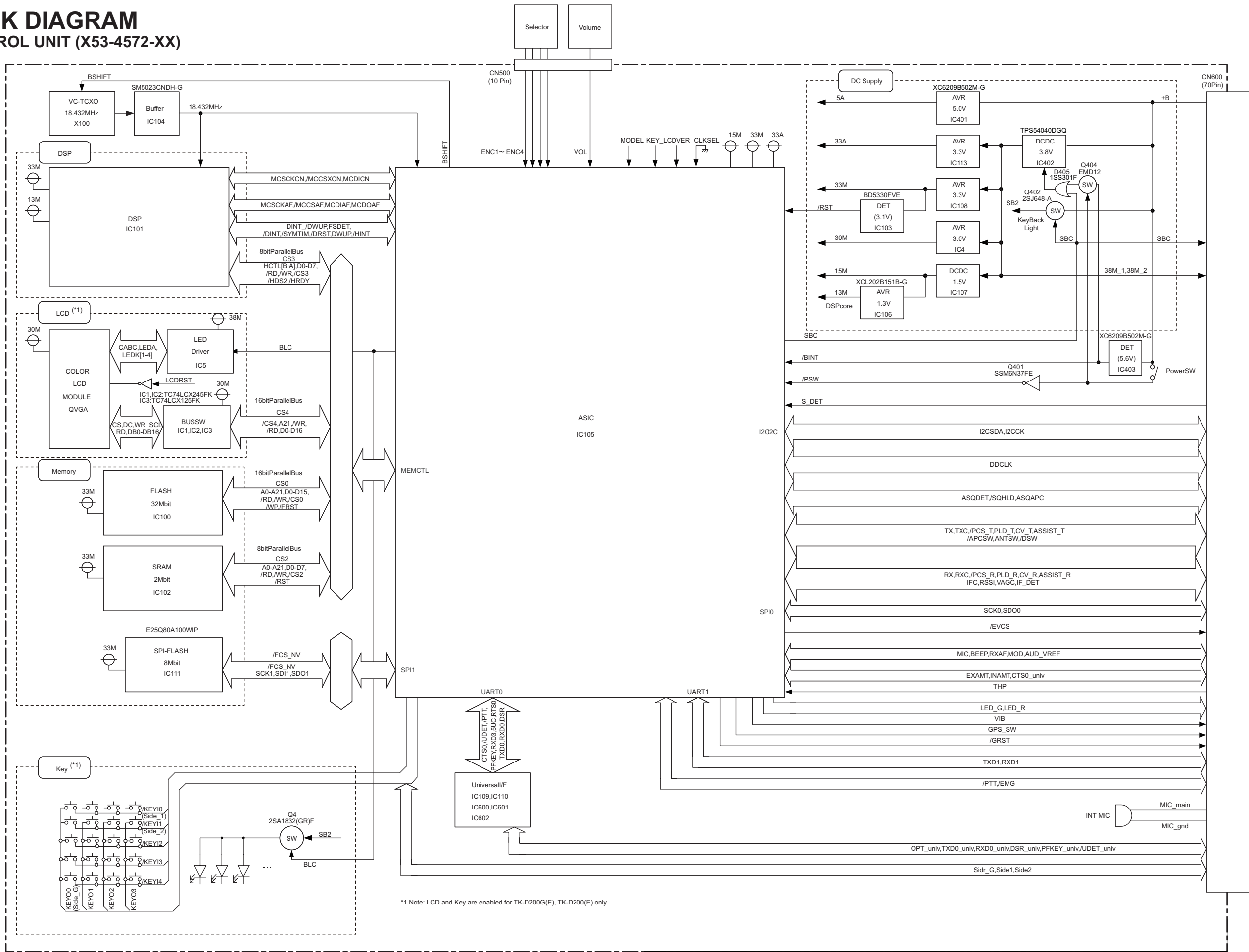
5

4

3

2

1



*1 Note: LCD and Key are enabled for TK-D200G(E), TK-D200(E) only.



PARTS LIST

[TK-D200G,TK-D200]

* SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

* BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine parts be used.

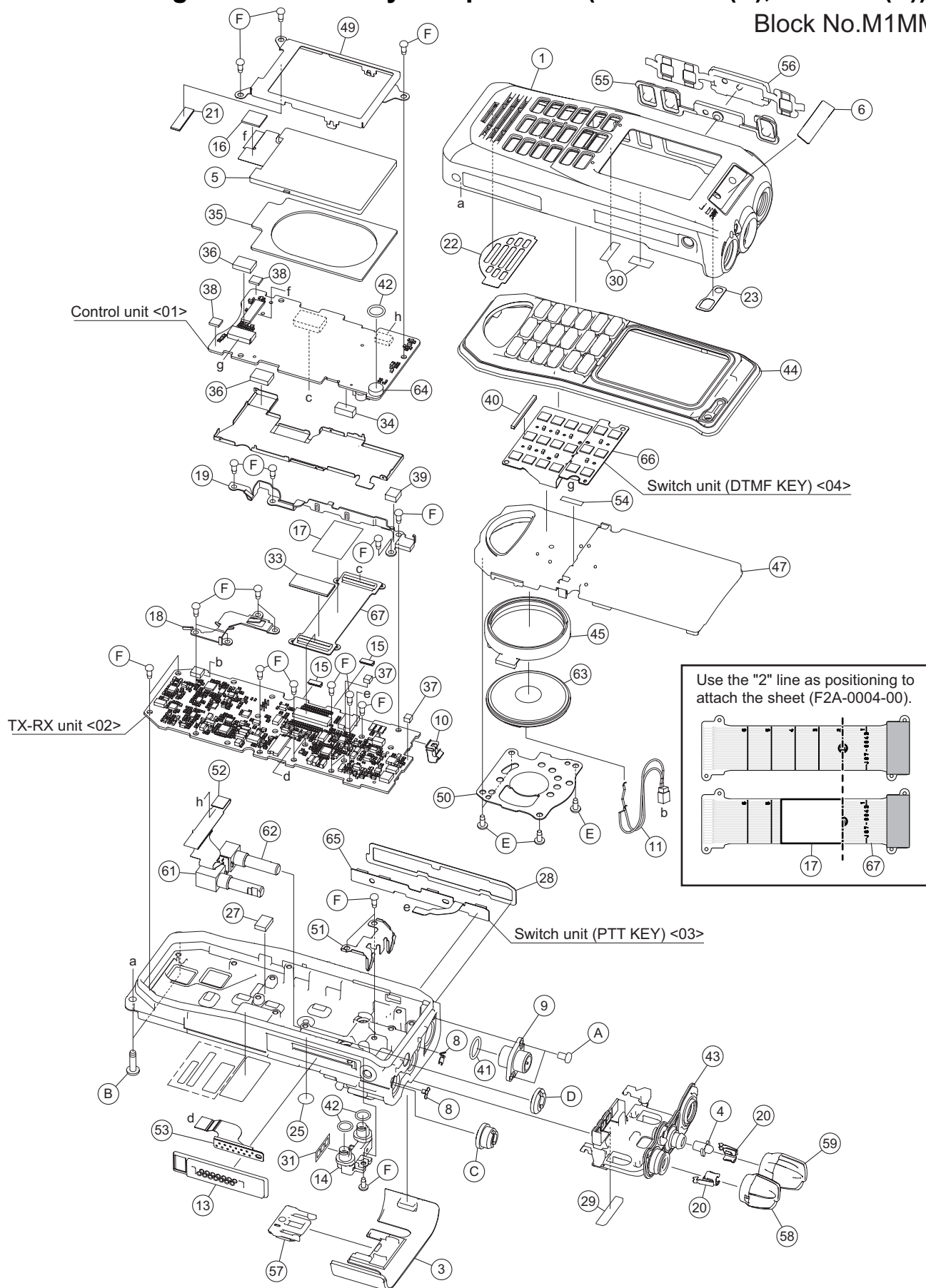
* (x_) in a description column shows the number of the used part.

- Contents -

Exploded view of general assembly and parts list	3-2
Electrical parts list	3-6
Packing materials and accessories parts list	3-17

Exploded view of general assembly and parts list (TK-D200G(E),TK-D200(E))

Block No.M1MM



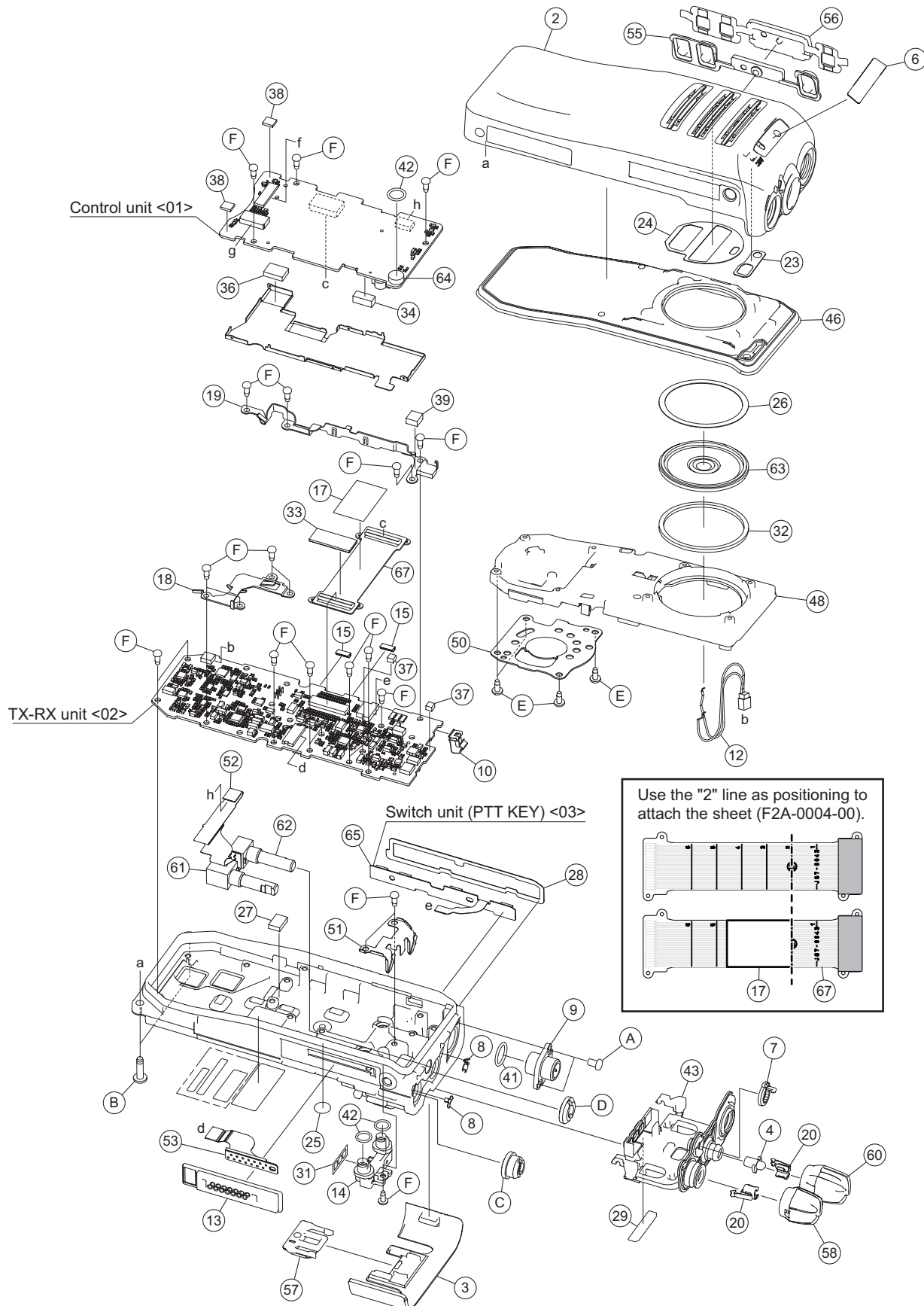
General assembly

Block No. [M][1][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
1	A02-4231-01	MAIN CABINET(18KEY)		
3	A82-0090-02	REAR PANEL		
4	B11-1906-04	ILLUMINATION GUIDE(TX/BUSY)		
5	B38-0950-05	LCD ASSY		
6	B43-1695-04	BADGE		
8	D32-0455-04	STOPPER(18KEY)	(x2)	
9	E04-0467-15	RF COAXIAL RECEPTACLE(SMA)		
10	E23-1394-04	TERMINAL(ANT)		
11	E37-1655-15	LEAD WIRE WITH CONNECTOR(SP)		
13	E58-0532-05	RECTANGULAR RECEPTACLE		
14	E72-0435-03	TERMINAL BLOCK		
15	F1C-0001-00	CONDUCTIVE SHEET(X57)	(x2)	
16	F2A-0003-00	INSULATING SHEET		
17	F2A-0004-00	INSULATING SHEET		
18	G02-1878-03	EARTH SPRING(VCO)		
19	G02-1879-02	EARTH SPRING(ANT)		
20	G09-0443-04	KNOB SPRING(VOL/SELECTOR)	(x2)	
21	G10-1813-04	FIBROUS SHEET(LCD)		
22	G10-1837-04	FIBROUS SHEET(SP/18KEY)		
23	G10-1844-04	FIBROUS SHEET(MIC)		
25	G11-4500-04	SHEET(AIR)		
27	G11-4564-04	RUBBER SHEET(FET)		
28	G11-4575-04	SHEET(PTT)		
29	G11-4630-14	SHEET(TERMIN BLOCK)		
30	G11-4633-04	SHEET(CABINET)	(x2)	
31	G11-4635-04	SHEET(TERMINAL)		
33	G13-2368-04	CUSHION(70PIN)		
34	G13-2397-14	CUSHION(X53-LOWER)		
35	G13-2402-04	CUSHION(LCD)		
36	G13-2405-04	CUSHION(X53-UPPER/LOWER)	(x2)	
37	G13-2414-04	CUSHION(X57-UPPER)	(x2)	
38	G13-2429-04	CUSHION(X53-UPPER)	(x2)	
39	G13-2430-04	CUSHION(X57-LEFT)		
40	G13-2432-04	CUSHION(DTMF FPC)		
41	G53-1603-04	PACKING(SMA)		
42	G53-1866-04	PACKING(TERMINAL)	(x3)	
43	G53-1890-01	PACKING(TOP/BATT)		
44	G53-1891-01	PACKING(18KEY)		
45	G53-1899-03	PACKING(SP)		
47	J19-5565-01	HOLDER(18KEY)		
49	J21-8664-03	MOUNTING HARDWARE(LCD)		
50	J21-8665-03	MOUNTING HARDWARE(SP)		
51	J21-8666-13	MOUNTING HARDWARE(VOL/SEL)		
52	J87-0045-05	FPC(VOL/SELECTOR)		
53	J87-0046-05	FPC(UNIVERSAL)		
54	J99-0759-04	ADHESIVE SHEET(DTMF FPC)		
55	K29-9584-03	BUTTON KNOB(PTT)		
56	K29-9585-03	KNOB(PTT)		
57	K29-9588-03	KNOB(REAR PANEL)		
58	K29-9603-03	KNOB(VOLUME)		
59	K29-9604-13	KNOB(SELECTOR/18KEY)		
61	R31-0685-15	VARIABLE RESISTOR(VOLUME)		
62	S60-0448-05	ROTARY SWITCH(SELECTOR)		
63	T07-0800-05	SPEAKER		
64	T91-0677-15	MIC ELEMENT		
65	X41-3783-00	SWITCH UNIT(PTT)		
66	X41-3793-00	SWITCH UNIT(DTMF)		
67	X42-3453-00	CORD ASSY(70PIN)		
A	N09-2438-05	BINDING HEAD SCREW(ANT)	(x2)	
B	N09-6619-05	SPECIAL SCREW(CASE/CHASSIS)	(x2)	
C	N14-0866-04	CIRCULAR NUT(VOLUME)		
D	N14-0868-04	CIRCULAR NUT(SELECTOR)		
E	N82-2005-43	BINDING HEAD TAPTITE SCREW(SP)	(x4)	
F	N83-2005-48	PAN HEAD TAPTITE SCREW(UNIT)	(x23)	
-	X53-4572-72	SERVICE CONTROL UNIT		

Exploded view of general assembly and parts list (TK-D200G(E2),TK-D200(E2))

Block No.M2MM



General assembly

Block No. [M][2][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
2	A02-4232-01	MAIN CABINET(NO KEY)		
3	A82-0090-02	REAR PANEL		
4	B11-1906-04	ILLUMINATION GUIDE(TX/BUSY)		
6	B43-1695-04	BADGE		
7	D32-0454-04	STOPPER(NO KEY)		
8	D32-0455-04	STOPPER(18KEY)	(x2)	
9	E04-0467-15	RF COAXIAL RECEPTACLE(SMA)		
10	E23-1394-04	TERMINAL(ANT)		
12	E37-1691-05	LEAD WIRE WITH CONNECTOR(SP)		
13	E58-0532-05	RECTANGULAR RECEPTACLE		
14	E72-0435-03	TERMINAL BLOCK		
15	F1C-0001-00	CONDUCTIVE SHEET(X57)	(x2)	
17	F2A-0004-00	INSULATING SHEET		
18	G02-1878-03	EARTH SPRING(VCO)		
19	G02-1879-02	EARTH SPRING(ANT)		
20	G09-0443-04	KNOB SPRING(VOL/SELECTOR)	(x2)	
23	G10-1844-04	FIBROUS SHEET(MIC)		
24	G10-1855-04	FIBROUS SHEET(SP/NO KEY)		
25	G11-4500-04	SHEET(AIR)		
26	G11-4527-04	SHEET(SP)		
27	G11-4564-04	RUBBER SHEET(FET)		
28	G11-4575-04	SHEET(PTT)		
29	G11-4630-14	SHEET(TERMIN BLOCK)		
31	G11-4635-04	SHEET(TERMINAL)		
32	G11-4639-04	RUBBER CUSHION(SP_CUSHION)		
33	G13-2368-04	CUSHION(70PIN)		
34	G13-2397-14	CUSHION(X53-LOWER)		
36	G13-2405-04	CUSHION(X53-LOWER)		
37	G13-2414-04	CUSHION(X57-UPPER)	(x2)	
38	G13-2429-04	CUSHION(X53-UPPER)	(x2)	
39	G13-2430-04	CUSHION(X57-LEFT)		
41	G53-1603-04	PACKING(SMA)		
42	G53-1866-04	PACKING(TERMINAL)	(x3)	
43	G53-1890-01	PACKING(TOP/BATT)		
46	G53-2225-01	PACKING(NO KEY)		
48	J19-5590-01	HOLDER(NO KEY)		
50	J21-8665-03	MOUNTING HARDWARE(SP)		
51	J21-8666-13	MOUNTING HARDWARE(VOL/SEL)		
52	J87-0045-05	FPC(VOL/SELECTOR)		
53	J87-0046-05	FPC(UNIVERSAL)		
55	K29-9584-03	BUTTON KNOB(PTT)		
56	K29-9585-03	KNOB(PTT)		
57	K29-9588-03	KNOB(REAR PANEL)		
58	K29-9603-03	KNOB(VOLUME)		
60	K29-9628-03	KNOB(SELECTOR/NO KEY)		
61	R31-0685-15	VARIABLE RESISTOR(VOLUME)		
62	S60-0448-05	ROTARY SWITCH(SELECTOR)		
63	T07-0800-05	SPEAKER		
64	T91-0677-15	MIC ELEMENT		
65	X41-3783-00	SWITCH UNIT(PTT)		
67	X42-3453-00	CORD ASSY(70PIN)		
A	N09-2438-05	BINDING HEAD SCREW(ANT)	(x2)	
B	N09-6619-05	SPECIAL SCREW(CASE/CHASSIS)	(x2)	
C	N14-0866-04	CIRCULAR NUT(VOLUME)		
D	N14-0868-04	CIRCULAR NUT(SELECTOR)		
E	N82-2005-43	BINDING HEAD TAPTITE SCREW(SP)	(x4)	
F	N83-2005-48	PAN HEAD TAPTITE SCREW(UNIT)	(x23)	
-	X53-4572-73	SERVICE CONTROL UNIT		

Electrical parts list

CONTROL UNIT

X53-4572-70(TK-D200G_E,TK-D200_E)

X53-4572-71(TK-D200G_E2,TK-D200_E2)

***Note : This part cannot be replaced. Therefore, this part is not supplied as a service part.**

Block No. [0][1]

△ Symbol No.	Part No.	Part Name	Description	Local
IC1	TC74LCX245FK	MOS-IC		GE,E
IC2	TC74LCX245FK	MOS-IC		GE,E
IC3	TC74LCX125FK	MOS-IC		GE,E
IC4	-----	MOS-IC	*Note	GE,E
IC5	-----	MOS-IC	*Note	GE,E
IC100	-----	MOS-IC	*Note	
IC101	-----	DSP	*Note	
IC102	-----	MOS-IC	*Note	
IC103	BD5330FVE	MOS-IC		
IC104	SM5023CNDH-G	MOS-IC		
IC105	-----	ASIC	*Note	
IC106	XC6601B131E-G	ANALOGUE IC		
IC107	-----	ANALOGUE IC	*Note	
IC108	-----	MOS-IC	*Note	
IC109	TC7SH17FU-F	MOS-IC		
IC110	TC7SH17FU-F	MOS-IC		
IC111	E25Q80A100WIP	ROM IC		
IC113	-----	MOS-IC	*Note	
IC401	XC6209B502M-G	MOS-IC		
IC402	TPS54040DGQ	ANALOGUE IC		
IC403	PST8156U	MOS-IC		
IC600	TC7SET08FU-F	MOS-IC		
IC601	TC7WH126FK	MOS-IC		
IC602	TC7WT125FUF	MOS-IC		
Q1	LTC014EEBFS8	TRANSISTOR		GE,E
Q2	LTC043ZEBFS8	TRANSISTOR		GE,E
Q4	2SA1832(GR)F	TRANSISTOR		GE,E
Q5	LSCR523EBFS8	TRANSISTOR		GE,E
Q400	SSM6N37FE	FET		
Q401	SSM6N37FE	FET		
Q402	2SJ648-A	FET		
Q403	SSM3K15AMFV	FET		
Q404	EMD12	TRANSISTOR		
Q600	SSM6N37FE	FET		
D1	VR1005AAA080	VARISTOR		GE,E
D2	VR1005AAA080	VARISTOR		GE,E
D3	VR1005AAA080	VARISTOR		GE,E
D4	VR1005AAA080	VARISTOR		GE,E
D6	DZ2S036(M)	ZENER DIODE		GE,E
D7	1SS388F	SCHOTTKY BARRIER DIODE		
D8	1SS388F	SCHOTTKY BARRIER DIODE		GE,E
D9	1SS388F	SCHOTTKY BARRIER DIODE		GE,E
D10	1SS388F	SCHOTTKY BARRIER DIODE		GE,E
D12	1SS388F	SCHOTTKY BARRIER DIODE		GE,E
D100	1SS388F	SCHOTTKY BARRIER DIODE		
D400	1SS388F	SCHOTTKY BARRIER DIODE		
D401	DB2J317	DIODE		
D402	DB2J317	DIODE		
D404	DA2S101	DIODE		
D405	1SS301F	DIODE		
D501	VR1005AAA080	VARISTOR		
D600	1SS416	DIODE		
D601	1SS416	DIODE		
D602	1SS416	DIODE		
D603	1SS416	DIODE		
D604	1SS416	DIODE		
D605	1SS416	DIODE		
C1	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C2	CC73HCH1H101J	C CAPACITOR	100PF J	GE,E
C3	CC73HCH1H101J	C CAPACITOR	100PF J	GE,E
C4	CC73HCH1H101J	C CAPACITOR	100PF J	GE,E
C5	CC73HCH1H101J	C CAPACITOR	100PF J	GE,E

△ Symbol No.	Part No.	Part Name	Description	Local
C6	CC73HCH1H101J	C CAPACITOR	100PF J	GE,E
C7	CK73GB1A105K	C CAPACITOR	1.0UF K	GE,E
C13	CK73GB1A105K	C CAPACITOR	1.0UF K	GE,E
C14	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C15	CK73GB1A105K	C CAPACITOR	1.0UF K	GE,E
C16	CK73GB1A105K	C CAPACITOR	1.0UF K	GE,E
C17	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C18	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C19	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C20	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C21	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,E
C22	CK73GB1A105K	C CAPACITOR	1.0UF K	GE,E
C23	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C24	CK73HBB1A104K	C CAPACITOR	0.10UF K	GE,E
C25	CK73GB0J475K	C CAPACITOR	4.7UF K	GE,E
C26	CK73HB0J105K	C CAPACITOR	1.0UF K	GE,E
C27	CK73GB0J475K	C CAPACITOR	4.7UF K	GE,E
C28	CK73GB1A105K	C CAPACITOR	1.0UF K	GE,E
C29	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,E
C30	CK73HB1A474K	C CAPACITOR	0.47UF K	GE,E
C31	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,E
C32	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,E
C33	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,E
C100	CK73HB0J105K	C CAPACITOR	1.0UF K	
C101	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C102	CK73HB0J105K	C CAPACITOR	1.0UF K	
C103	CK73HB0J105K	C CAPACITOR	1.0UF K	
C104	CK73HB0J105K	C CAPACITOR	1.0UF K	
C105	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C106	CK73HB0J105K	C CAPACITOR	1.0UF K	
C107	CK73HB0J105K	C CAPACITOR	1.0UF K	
C108	CK73HBB1H102K	C CAPACITOR	1000PF K	
C109	CK73HB0J105K	C CAPACITOR	1.0UF K	
C110	CK73HBB1H102K	C CAPACITOR	1000PF K	
C111	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C112	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C113	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C114	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C115	CK73GB1A105K	C CAPACITOR	1.0UF K	
C116	CK73GB1A105K	C CAPACITOR	1.0UF K	
C117	CK73FB0J106K	C CAPACITOR	10UF K	
C118	CK73HBB1H102K	C CAPACITOR	1000PF K	
C119	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C120	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C121	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C122	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C123	CK73HBB1H332K	C CAPACITOR	3300PF K	
C124	CK73GB1A105K	C CAPACITOR	1.0UF K	
C125	CK73GB1A105K	C CAPACITOR	1.0UF K	
C126	CK73FB0J106K	C CAPACITOR	10UF K	
C127	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C131	CK73HBB1H102K	C CAPACITOR	1000PF K	
C135	CK73HBB1H102K	C CAPACITOR	1000PF K	
C136	CK73HBB1H102K	C CAPACITOR	1000PF K	
C137	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C138	CK73HB1H682K	C CAPACITOR	6800PF K	
C139	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C140	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C141	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C142	CK73GB0J106K	C CAPACITOR	10UF K	
C144	CK73GB0J475K	C CAPACITOR	4.7UF K	
C145	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C146	CK73HBB1H102K	C CAPACITOR	1000PF K	
C147	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C148	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C149	CK73GB1A105K	C CAPACITOR	1.0UF K	
C150	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C151	CK73HB0J105K	C CAPACITOR	1.0UF K	
C152	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C153	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C154	CK73HBB1A104K	C CAPACITOR	0.10UF K	
C155	CK73HBB1H102K	C CAPACITOR	1000PF K	
C156	CK73GB1A105K	C CAPACITOR	1.0UF K	
C157	CK73HBB1E103K	C CAPACITOR	0.010UF K	
C158	CK73HB1H682K	C CAPACITOR	6800PF K	
C159	CK73HBB1A104K	C CAPACITOR	0.10UF K	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C160	CC73HCH1H101J	C CAPACITOR	100PF J		R15	RK73HB1J103J	MG RESISTOR	10K J 1/16W	GE,E
C161	CK73GB0J106K	C CAPACITOR	10UF K		R25	RK73HB1J471J	MG RESISTOR	470 J 1/16W	GE,E
C162	CC73HCH1H030C	C CAPACITOR	3.0PF C		R26	RK73HB1J471J	MG RESISTOR	470 J 1/16W	GE,E
C163	CK73HBB1H102K	C CAPACITOR	1000PF K		R27	RK73HB1J471J	MG RESISTOR	470 J 1/16W	GE,E
C164	CK73HBB1A104K	C CAPACITOR	0.10UF K		R28	RK73HB1J471J	MG RESISTOR	470 J 1/16W	GE,E
C165	CK73HBB1A104K	C CAPACITOR	0.10UF K		R29	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
C166	CK73HBB1E103K	C CAPACITOR	0.010UF K		R30	RK73HB1J471J	MG RESISTOR	470 J 1/16W	GE,E
C167	CK73HBB1A104K	C CAPACITOR	0.10UF K		R31	RK73HB1J471J	MG RESISTOR	470 J 1/16W	GE,E
C168	CK73HBB1E103K	C CAPACITOR	0.010UF K		R32	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
C169	CK73HBB1A104K	C CAPACITOR	0.10UF K		R33	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
C170	CK73HBB1A104K	C CAPACITOR	0.10UF K		R38	RK73HB1J683J	MG RESISTOR	68K J 1/16W	GE,E
C171	CK73HBB1A104K	C CAPACITOR	0.10UF K		R39	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	GE,E
C172	CK73HBB1A104K	C CAPACITOR	0.10UF K		R40	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	GE,E
C173	CK73GB1A105K	C CAPACITOR	1.0UF K		R41	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	GE,E
C174	CK73HBB1A104K	C CAPACITOR	0.10UF K		R42	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	GE,E
C175	CK73GB1A105K	C CAPACITOR	1.0UF K		R100	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
C176	CK73HBB1A104K	C CAPACITOR	0.10UF K		R101	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
C177	CK73HBB1A104K	C CAPACITOR	0.10UF K		R102	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
C178	CK73HBB1A104K	C CAPACITOR	0.10UF K		R103	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C179	CK73HBB1A104K	C CAPACITOR	0.10UF K		R104	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
C180	CK73HBB1A104K	C CAPACITOR	0.10UF K		R105	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
C181	CK73HBB1E103K	C CAPACITOR	0.010UF K		R106	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C182	CK73FB0J106K	C CAPACITOR	10UF K		R107	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
C183	CK73HBB1A104K	C CAPACITOR	0.10UF K		R108	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
C184	CK73FB1A475K	C CAPACITOR	4.7UF K		R109	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C185	CK73FB1A475K	C CAPACITOR	4.7UF K		R110	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C186	CK73HBB1E103K	C CAPACITOR	0.010UF K		R111	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C187	CK73HBB1E103K	C CAPACITOR	0.010UF K		R112	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
C188	CK73GB1C225K	C CAPACITOR	2.2UF K		R113	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C189	CK73HB0J105K	C CAPACITOR	1.0UF K		R118	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C190	CK73HBB1H102K	C CAPACITOR	1000PF K		R119	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C193	CK73HBB1H102K	C CAPACITOR	1000PF K		R120	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C194	CK73HB0J105K	C CAPACITOR	1.0UF K		R121	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C400	CK73GB1C225K	C CAPACITOR	2.2UF K		R122	RK73HB1J331J	MG RESISTOR	330 J 1/16W	
C401	CK73HBB1A104K	C CAPACITOR	0.10UF K		R123	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C402	CK73HB0J105K	C CAPACITOR	1.0UF K		R124	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
C403	CK73HBB1A104K	C CAPACITOR	0.10UF K		R125	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C404	CK73FB1A106K	C CAPACITOR	10UF K		R126	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C405	CK73HB1H182K	C CAPACITOR	1800PF K		R127	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C406	CK73FB1A106K	C CAPACITOR	10UF K		R128	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
C407	CK73GB1C225K	C CAPACITOR	2.2UF K		R129	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C408	CC73HCH1H020C	C CAPACITOR	2.0PF C		R130	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C409	CK73GB1E105K	C CAPACITOR	1.0UF K		R131	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
C410	CK73HBB1E103K	C CAPACITOR	0.010UF K		R132	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C411	CK73HBB1H102K	C CAPACITOR	1000PF K		R133	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
C412	CK73HB1H682K	C CAPACITOR	6800PF K		R134	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
C413	CK73HBB1H471K	C CAPACITOR	470PF K		R135	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
C414	CK73FB1E475K	C CAPACITOR	4.7UF K		R137	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C415	CK73HBB1A104K	C CAPACITOR	0.10UF K		R138	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE2,E2
C416	CK73FB1E475K	C CAPACITOR	4.7UF K		R139	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C500	CK73HBB1H471K	C CAPACITOR	470PF K		R140	RK73HB1J220J	MG RESISTOR	22 J 1/16W	
C501	CK73HBB1H471K	C CAPACITOR	470PF K		R141	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C502	CK73HBB1H471K	C CAPACITOR	470PF K		R142	RK73HB1J220J	MG RESISTOR	22 J 1/16W	
C503	CK73HBB1H471K	C CAPACITOR	470PF K		R143	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C504	CK73HBB1H471K	C CAPACITOR	470PF K		R144	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C505	CK73HB1H682K	C CAPACITOR	6800PF K		R145	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C506	CK73HBB1H471K	C CAPACITOR	470PF K		R146	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
C508	CK73HBB1H471K	C CAPACITOR	470PF K		R149	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C510	CK73HBB1H471K	C CAPACITOR	470PF K		R150	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C600	CK73HBB1E103K	C CAPACITOR	0.010UF K		R151	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
C601	CK73HBB1E103K	C CAPACITOR	0.010UF K		R152	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C602	CK73HBB1E103K	C CAPACITOR	0.010UF K		R153	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C603	CK73HB1H682K	C CAPACITOR	6800PF K		R154	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C604	CK73HB1H682K	C CAPACITOR	6800PF K		R155	RK73HH1J103D	MG RESISTOR	10K D 1/16W	
C605	CK73HBB1H102K	C CAPACITOR	1000PF K		R156	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C619	CK73HBB1H102K	C CAPACITOR	1000PF K		R158	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
					R159	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R2	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,E	R160	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R3	RK73HB1J103J	MG RESISTOR	10K J 1/16W	GE,E	R161	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R4	RK73HB1J331J	MG RESISTOR	330 J 1/16W	GE,E	R162	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R5	RK73HB1J474J	MG RESISTOR	470K J 1/16W	GE,E	R163	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R6	RK73HB1J473J	MG RESISTOR	47K J 1/16W	GE,E	R164	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R7	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,E	R165	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R8	RK73HH1J223D	MG RESISTOR	22K D 1/16W	GE,E	R166	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R9	RK73HB1J103J	MG RESISTOR	10K J 1/16W	GE,E	R167	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R10	RK73HB1J101J	MG RESISTOR	100 J 1/16W	GE,E	R168	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R13	RK73HH1J223D	MG RESISTOR	22K D 1/16W	GE,E	R169	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R14	RK73HH1J104D	MG RESISTOR	100K D 1/16W	GE,E	R170	RK73HB1J104J	MG RESISTOR	100K J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R171	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R608	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R172	RK73HB1J183J	MG RESISTOR	18K J 1/16W		R609	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R173	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R610	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R174	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R611	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R175	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R612	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R176	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R613	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R178	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R614	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R179	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R615	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R180	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R616	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R181	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R617	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R182	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R618	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R183	RK73HB1J683J	MG RESISTOR	68K J 1/16W		R619	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R184	RK73HH1J104D	MG RESISTOR	100K D 1/16W		R620	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R185	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R621	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R186	RK73GB2A100J	MG RESISTOR	10 J 1/10W		R622	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R187	RK73GB2A100J	MG RESISTOR	10 J 1/10W		R623	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R188	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R624	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R189	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R625	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R191	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R626	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R193	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R627	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R194	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R628	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R195	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R629	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R196	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R630	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R197	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R631	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R198	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R632	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R201	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R633	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R202	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R634	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R203	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R635	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R205	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W		R636	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R206	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W		R637	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R207	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R638	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R208	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R639	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R209	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R640	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R210	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R641	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R211	RK73HH1J333D	MG RESISTOR	33K D 1/16W		R642	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R400	RK73HB1J683J	MG RESISTOR	68K J 1/16W		R643	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R401	RK73HB1J184J	MG RESISTOR	180K J 1/16W		R644	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R402	RK73HB1J823J	MG RESISTOR	82K J 1/16W		R645	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R403	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R646	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R404	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R647	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R407	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R648	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R408	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R649	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R409	RK73HB1J471J	MG RESISTOR	470 J 1/16W		R651	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R410	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R652	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R411	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R653	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R412	RK73HH1J564D	MG RESISTOR	560K D 1/16W		R654	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R413	RK73HH1J154D	MG RESISTOR	150K D 1/16W		R655	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R414	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R656	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R415	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R657	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R416	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R658	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R417	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R659	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R418	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R660	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R419	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R661	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R420	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R662	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R421	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R663	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R422	RK73HB1J154J	MG RESISTOR	150K J 1/16W		R664	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R423	RK73HB1J823J	MG RESISTOR	82K J 1/16W		R665	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R424	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R667	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R425	RK73HB1J683J	MG RESISTOR	68K J 1/16W		R668	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R426	RK73HH1J183D	MG RESISTOR	18K D 1/16W		R669	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R427	RK73HH1J243D	MG RESISTOR	24K D 1/16W		R671	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R428	RK73HH1J393D	MG RESISTOR	39K D 1/16W		R683	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R501	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R684	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R502	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R685	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R503	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		L2	L92-0162-05	BEADS CORE		GE,E
R504	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		L3	L92-0162-05	BEADS CORE		GE,E
R505	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		L4	L92-0162-05	BEADS CORE		GE,E
R506	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		L5	L92-0162-05	BEADS CORE		GE,E
R507	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		L6	L92-0467-05	CHIP FERRITE		GE,E
R508	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE2,E2	L12	L92-0163-05	BEADS CORE		GE,E
R509	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L13	L92-0163-05	BEADS CORE		GE,E
R600	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L14	LB78Z0AB-001	CHIP FERRITE ARRAY		GE,E
R602	RK73HB1J822J	MG RESISTOR	8.2K J 1/16W		L15	LB78Z0AB-001	CHIP FERRITE ARRAY		GE,E
R603	RK73HB1J471J	MG RESISTOR	470 J 1/16W		L100	L92-0163-05	BEADS CORE		
R604	RK73HB1J473J	MG RESISTOR	47K J 1/16W		L101	L92-0444-05	CHIP FERRITE		
R605	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L102	L92-0163-05	BEADS CORE		
R606	RK73HB1J103J	MG RESISTOR	10K J 1/16W		L103	L92-0444-05	CHIP FERRITE		
R607	RK73HB1J103J	MG RESISTOR	10K J 1/16W						

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
L104	L92-0163-05	BEADS CORE			IC806	BU7465HFV	MOS-IC		
L105	L92-0467-05	CHIP FERRITE			IC807	TC7S66FUF	MOS-IC		
L106	L92-0162-05	BEADS CORE			IC808	TPA6201A1DRBR	ANALOGUE IC		
L107	L92-0163-05	BEADS CORE			IC809	TPA6201A1DRBR	ANALOGUE IC		
L108	L92-0444-05	CHIP FERRITE			IC810	BU7465HFV	MOS-IC		
L109	L92-0163-05	BEADS CORE			IC811	BU7442NUX	MOS-IC		
L400	L92-0162-05	BEADS CORE			IC813	BU7442NUX	MOS-IC		
L401	L92-0467-05	CHIP FERRITE			IC814	R2A20178NP	MICROCONTROLLER IC		
L402	L92-0467-05	CHIP FERRITE							
L403	L33-1530-05	SMALL FIXED INDUCTOR (15UH)			Q100	2SK3077F	FET		
L405	L92-0467-05	CHIP FERRITE			Q101	RFM01U7P	FET		
L504	L92-0163-05	BEADS CORE			Q102	RD07MUS2BT214	FET		
L600	L92-0467-05	CHIP FERRITE			Q105	LSCR523EBFS8	TRANSISTOR		
					Q106	LSCR523EBFS8	TRANSISTOR		
CN1	E41-3186-05	FLAT CABLE CONNECTOR		GE,E	Q107	SSM3K15AMFV	FET		
CN2	E40-6946-05	FLAT CABLE CONNECTOR		GE,E	Q108	SSM3K15AMFV	FET		
CN500	E40-6954-05	FLAT CABLE CONNECTOR			Q109	SSM3K15AMFV	FET		
CN501	E23-1325-05	TERMINAL			Q110	EMD5	TRANSISTOR		
CN600	E40-6926-05	PIN ASSY			Q111	SSM6N37FE	FET		
CP1	RK74HB1J103J	CHIP-COM	10k 1/16W J	GE,E	Q200	2SC4215-F(Y)	TRANSISTOR		
CP2	RK74HB1J103J	CHIP-COM	10k 1/16W J	GE,E	Q201	3SK318	FET		
CP3	RK74HB1J103J	CHIP-COM	10k 1/16W J	GE,E	Q202	3SK294-FP	FET		
CP4	RK74HB1J103J	CHIP-COM	10k 1/16W J	GE,E	Q204	LSCR523EBFS8	TRANSISTOR		
CP5	RK74HB1J103J	CHIP-COM	10k 1/16W J	GE,E	Q205	2SC5108(Y)F	TRANSISTOR		
CP6	RK74HB1J561J	CHIP-COM	560 J 1/16W	GE,E	Q207	2SC4617(S)	TRANSISTOR		
CP7	RK74HB1J561J	CHIP-COM	560 J 1/16W	GE,E	Q400	2SC5108(Y)F	TRANSISTOR		
CP8	RK74HB1J561J	CHIP-COM	560 J 1/16W	GE,E	Q402	MCH3914(8)-H	FET		
CP9	RK74HB1J561J	CHIP-COM	560 J 1/16W	GE,E	Q403	2SC5108(Y)F	TRANSISTOR		
CP10	RK74HB1J561J	CHIP-COM	560 J 1/16W	GE,E	Q405	LSCR523EBFS8	TRANSISTOR		
CP100	RK74HB1J104J	CHIP-COM	560 J 1/16W		Q406	SSM6L36FE	FET		
X100	L77-3015-05	TCXO	(18.432MHZ)		Q407	SSM6L36FE	FET		

TX-RX UNIT

X57-8782-70(TK-D200G_E,TK-D200G_E2)

X57-8782-71(TK-D200_E,TK-D200_E2)

***Note : This part cannot be replaced. Therefore, this part is not supplied as a service part.**

Block No. [0][2]

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
IC102	LT1801IMS8	MOS-IC			IC806	BU7465HFV	MOS-IC		
IC201	OPA170AIDRLR	MOS-IC			IC807	TC7S66FUF	MOS-IC		
IC202	OPA170AIDRLR	MOS-IC			IC808	TPA6201A1DRBR	ANALOGUE IC		
IC203	TK10931VTL-G	ANALOGUE IC			IC809	TPA6201A1DRBR	ANALOGUE IC		
IC204	BU7442NUX	MOS-IC			IC810	BU7465HFV	MOS-IC		
IC205	BU7465HFV	MOS-IC			IC811	BU7442NUX	MOS-IC		
IC206	BU7442NUX	MOS-IC			IC813	BU7442NUX	MOS-IC		
IC207	BU7442NUX	MOS-IC			IC814	R2A20178NP	MICROCONTROLLER IC		
IC401	SKY72310-362	MOS-IC							
IC402	TC7S66FUF	MOS-IC			Q100	2SK3077F	FET		
IC403	OPA170AIDRLR	MOS-IC			Q101	RFM01U7P	FET		
IC404	BU7442NUX	MOS-IC			Q102	RD07MUS2BT214	FET		
IC501	SKY72310-362	MOS-IC			Q105	LSCR523EBFS8	TRANSISTOR		
IC502	BU7465HFV	MOS-IC			Q106	LSCR523EBFS8	TRANSISTOR		
IC503	TC7S66FUF	MOS-IC			Q107	SSM3K15AMFV	FET		
IC504	OPA170AIDRLR	MOS-IC			Q108	SSM3K15AMFV	FET		
IC601	-----	MOS-IC	*Note	GE,GE2	Q109	SSM3K15AMFV	FET		
IC602	-----	MOS-IC	*Note	GE,GE2	Q110	EMD5	TRANSISTOR		
IC603	S-812C31BPI-G	ANALOGUE IC		GE,GE2	Q111	SSM6N37FE	FET		
IC702	XC6209B502P-G	MOS-IC			Q200	2SC4215-F(Y)	TRANSISTOR		
IC705	XC6209B502M-G	MOS-IC			Q201	3SK318	FET		
IC706	MM1683DN	ANALOGUE IC			Q202	3SK294-FP	FET		
IC707	SN74LVC2G53CU	MOS-IC			Q204	LSCR523EBFS8	TRANSISTOR		
IC708	XCL201B251B-G	MOS-IC		GE,GE2	Q205	2SC5108(Y)F	TRANSISTOR		
IC709	XC6223H191G-G	MOS-IC		GE,GE2	Q207	2SC4617(S)	TRANSISTOR		
IC802	KXUD9-2050	MOS-IC			Q400	2SC5108(Y)F	TRANSISTOR		
IC803	LM73CIMKX-0	MOS-IC			Q402	MCH3914(8)-H	FET		
IC804	OPA171AIDRLR	MOS-IC			Q403	2SC5108(Y)F	TRANSISTOR		
IC805	XC6209B502P-G	MOS-IC			Q405	LSCR523EBFS8	TRANSISTOR		
					Q406	SSM6L36FE	FET		
					Q407	SSM6L36FE	FET		
					Q409	2SC5108(Y)F	TRANSISTOR		
					Q500	MCH3914(8)-H	FET		
					Q501	2SC5108(Y)F	TRANSISTOR		
					Q502	2SC5108(Y)F	TRANSISTOR		
					Q503	2SC5108(Y)F	TRANSISTOR		
					Q504	LSCR523EBFS8	TRANSISTOR		
					Q505	SSM6L36FE	FET		
					Q506	SSM6L36FE	FET		
					Q701	LSAR523EBFS8	TRANSISTOR		
					Q702	LSAR523EBFS8	TRANSISTOR		
					Q703	SSM6N37FE	FET		
					Q704	SSM6L36FE	FET		
					Q705	SSM6L36FE	FET		
					Q706	LTC014EEBFS8	TRANSISTOR		
					Q707	SSM3K15AMFV	FET		
					Q801	SSM6N37FE	FET		
					Q802	2SB1132(Q,R)	TRANSISTOR		
					Q803	UMG3N	TRANSISTOR		
					Q804	LSCR523EBFS8	TRANSISTOR		
					Q805	LSAR523EBFS8	TRANSISTOR		
					Q806	SSM6L36FE	FET		
					Q808	UMG9N	TRANSISTOR		
					Q811	SSM3K15AMFV	FET		
					D101	RN142S	DIODE		
					D102	RN142S	DIODE		
					D103	RN142S	DIODE		
					D104	RN142S	DIODE		
					D111	DZ2J047(0)	ZENER DIODE		
					D201	BB565-02V	VARIABLE CAPACITANCE DIODE		
					D202	BB565-02V	VARIABLE CAPACITANCE DIODE		
					D203	BB565-02V	VARIABLE CAPACITANCE DIODE		
					D204	BB565-02V	VARIABLE CAPACITANCE DIODE		
					D207	DA2S101	DIODE		
					D208	RB706F-40	DIODE		
					D400	1SV325F	VARIABLE CAPACITANCE DIODE		
					D401	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D403	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D406	DA3S101F	DIODE		
					D407	DA2S101	DIODE		
					D408	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D410	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D500	1SV325F	VARIABLE CAPACITANCE DIODE		
					D501	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D502	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D503	BB664-02V	VARIABLE CAPACITANCE DIODE		
					D506	DA3S101F	DIODE		

△ Symbol No.	Part No.	Part Name	Description	Local
D507	DA2S101	DIODE		
D602	RN142S	DIODE		GE,GE2
D603	RN142S	DIODE		GE,GE2
D604	1SS388F	SCHOTTKY BARRIER DIODE		GE,GE2
D702	1SS416	DIODE		
D703	1SS416	DIODE		
D704	1SS416	DIODE		
D705	1SS416	DIODE		
D801	1SR154-400	DIODE		
D802	1SS416	DIODE		
D803	EMZ6.8N	ZENER DIODE		
D804	NNCD6.8G-A	ZENER DIODE		
D805	DA221	DIODE		
D806	NNCD6.8G-A	ZENER DIODE		
D807	DA221	DIODE		
D808	DA2S101	DIODE		
D809	DA2S101	DIODE		
D810	DZ2S068(M)	ZENER DIODE		
D811	DZ2S068(M)	ZENER DIODE		
D812	DA3S101F	DIODE		
D813	DA3S101F	DIODE		
D814	B30-2278-05	LED	(RED/YELLOW)	
C100	CK73HBB1H102K	C CAPACITOR	1000PF K	
C103	CK73HBB1H102K	C CAPACITOR	1000PF K	
C104	CC73HCH1H560J	C CAPACITOR	56PF J	
C105	CK73HBB1H102K	C CAPACITOR	1000PF K	
C107	CK73HB1A104K	C CAPACITOR	0.10UF K	
C108	CK73HBB1H102K	C CAPACITOR	1000PF K	
C109	CC73HCH1H150J	C CAPACITOR	15PF J	
C110	CK73HBB1H102K	C CAPACITOR	1000PF K	
C111	CC73HCH1H180J	C CAPACITOR	18PF J	
C113	CK73HBB1H102K	C CAPACITOR	1000PF K	
C114	CK73HBB1H102K	C CAPACITOR	1000PF K	
C115	CC73HCH1H220G	C CAPACITOR	22PF G	
C116	CC73HCH1H560J	C CAPACITOR	56PF J	
C118	CK73HBB1H102K	C CAPACITOR	1000PF K	
C121	CK73HBB1H102K	C CAPACITOR	1000PF K	
C123	CK73HBB1H102K	C CAPACITOR	1000PF K	
C126	CK73HBB1H102K	C CAPACITOR	1000PF K	
C127	CC73HCH1H151J	C CAPACITOR	150PF J	
C131	CC73GCH1H181J	C CAPACITOR	180PF J	
C132	CK73HBB1H102K	C CAPACITOR	1000PF K	
C135	CC73GCH1H220G	C CAPACITOR	22PF G	
C136	CK73GB1E104K	C CAPACITOR	0.10UF K	
C137	CC73GCH1H470G	C CAPACITOR	47PF G	
C138	CK73HB1H103K	C CAPACITOR	0.010UF K	
C139	CC73GCH1H030B	C CAPACITOR	3.0PF B	
C143	CC73GCH1H180G	C CAPACITOR	18PF G	
C144	CC73GCH1H070B	C CAPACITOR	7.0PF B	
C145	CC73GCH1H101J	C CAPACITOR	100PF J	
C147	CC73GCH1H180G	C CAPACITOR	18PF G	
C148	CK73HBB1H102K	C CAPACITOR	1000PF K	
C149	CC73HCH1H220J	C CAPACITOR	22PF J	
C150	CC73GCH1H470J	C CAPACITOR	47PF J	
C151	CC73GCH1H100C	C CAPACITOR	10PF C	
C152	CC73GCH1H100C	C CAPACITOR	10PF C	
C153	CC73GCH1H270G	C CAPACITOR	27PF G	
C155	CC73GCH1H150G	C CAPACITOR	15PF G	
C156	CC73GCH1H220G	C CAPACITOR	22PF G	
C158	CC73GCH1H120G	C CAPACITOR	12PF G	
C159	CC73GCH1H220G	C CAPACITOR	22PF G	
C167	CK73HBB1H102K	C CAPACITOR	1000PF K	
C169	CK73HBB1H102K	C CAPACITOR	1000PF K	
C173	CC73HCH1H560J	C CAPACITOR	56PF J	
C177	CC73HCH1H101J	C CAPACITOR	100PF J	
C180	CK73HBB1H102K	C CAPACITOR	1000PF K	
C181	CK73HBB1H102K	C CAPACITOR	1000PF K	
C184	CK73HBB1H102K	C CAPACITOR	1000PF K	
C189	CK73HBB1H102K	C CAPACITOR	1000PF K	
C192	CC73HCH1H101J	C CAPACITOR	100PF J	
C200	CK73HBB1H102K	C CAPACITOR	1000PF K	
C201	CK73HB1H103K	C CAPACITOR	0.010UF K	
C202	CK73HB1H103K	C CAPACITOR	0.010UF K	
C203	CC73HCH1H010B	C CAPACITOR	1.0PF B	
C204	CC73HCH1H180J	C CAPACITOR	18PF J	
C207	CK73HB1H103K	C CAPACITOR	0.010UF K	
C208	CK73HB1H103K	C CAPACITOR	0.010UF K	

△ Symbol No.	Part No.	Part Name	Description	Local
C209	CK73HBB1H102K	C CAPACITOR	1000PF K	
C210	CK73GB1E105K	C CAPACITOR	1.0UF K	
C212	CK73HBB1H102K	C CAPACITOR	1000PF K	
C213	CC73HCH1H120G	C CAPACITOR	12PF G	
C214	CC73HCH1H150G	C CAPACITOR	15PF G	
C215	CK73HBB1H102K	C CAPACITOR	1000PF K	
C216	CK73HB1H103K	C CAPACITOR	0.010UF K	
C217	CK73HBB1H102K	C CAPACITOR	1000PF K	
C218	CC73HCH1H070B	C CAPACITOR	7.0PF B	
C219	CC73HCH1H270G	C CAPACITOR	27PF G	
C220	CC73HCH1H070B	C CAPACITOR	7.0PF B	
C221	CK73HBB1H102K	C CAPACITOR	1000PF K	
C223	CC73HCH1H150G	C CAPACITOR	15PF G	
C224	CC73HCH1H040B	C CAPACITOR	4.0PF B	
C225	CK73HBB1H102K	C CAPACITOR	1000PF K	
C226	CC73HCH1H120G	C CAPACITOR	12PF G	
C231	CK73HBB1H102K	C CAPACITOR	1000PF K	
C232	CC73HCH1H040B	C CAPACITOR	4.0PF B	
C233	CC73HCH1H470J	C CAPACITOR	47PF J	
C235	CK73HBB1H102K	C CAPACITOR	1000PF K	
C236	CC73HCH1H020B	C CAPACITOR	2.0PF B	
C237	CC73HCH1H470J	C CAPACITOR	47PF J	
C239	CC73HCH1H030B	C CAPACITOR	3.0PF B	
C240	CK73HBB1H102K	C CAPACITOR	1000PF K	
C241	CK73HB1H103K	C CAPACITOR	0.010UF K	
C242	CK73HBB1H102K	C CAPACITOR	1000PF K	
C243	CK73GB1E105K	C CAPACITOR	1.0UF K	
C244	CK73HBB1H102K	C CAPACITOR	1000PF K	
C245	CK73HBB1H102K	C CAPACITOR	1000PF K	
C247	CK73HB1H103K	C CAPACITOR	0.010UF K	
C248	CK73HBB1H102K	C CAPACITOR	1000PF K	
C250	CK73HBB1H102K	C CAPACITOR	1000PF K	
C251	CC73HCH1H020B	C CAPACITOR	2.0PF B	
C252	CK73HB1H103K	C CAPACITOR	0.010UF K	
C254	CC73HCH1H220J	C CAPACITOR	22PF J	
C255	CC73HCH1H020B	C CAPACITOR	2.0PF B	
C256	CK73HBB1H102K	C CAPACITOR	1000PF K	
C259	CC73HCH1H220J	C CAPACITOR	22PF J	
C261	CK73GB1E105K	C CAPACITOR	1.0UF K	
C262	CK73HB1E104K	C CAPACITOR	0.10UF K	
C263	CK73HBB1H102K	C CAPACITOR	1000PF K	
C264	CC73HCH1H101J	C CAPACITOR	100PF J	
C265	CK73HB1E104K	C CAPACITOR	0.10UF K	
C266	CK73HBB1H102K	C CAPACITOR	1000PF K	
C267	CK73HBB1H102K	C CAPACITOR	1000PF K	
C268	CK73HB1E104K	C CAPACITOR	0.10UF K	
C269	CC73HCH1H270J	C CAPACITOR	27PF J	
C270	CC73HCH1H270J	C CAPACITOR	27PF J	
C271	CK73FB1A106K	C CAPACITOR	10UF K	
C272	CK73HB1E104K	C CAPACITOR	0.10UF K	
C273	CK73HB1E104K	C CAPACITOR	0.10UF K	
C274	CK73HB1E104K	C CAPACITOR	0.10UF K	
C275	CK73HB1E104K	C CAPACITOR	0.10UF K	
C276	CK73HB1E104K	C CAPACITOR	0.10UF K	
C277	CK73HB1E104K	C CAPACITOR	0.10UF K	
C278	CK73FB1A106K	C CAPACITOR	10UF K	
C279	CC73HCH1H100C	C CAPACITOR	10PF C	
C280	CK73HB1E104K	C CAPACITOR	0.10UF K	
C281	CK73HB1H103K	C CAPACITOR	0.010UF K	
C283	CK73HB1E104K	C CAPACITOR	0.10UF K	
C284	CK73HB1E104K	C CAPACITOR	0.10UF K	
C285	CK73HB1E104K	C CAPACITOR	0.10UF K	
C286	CK73HB1A474K	C CAPACITOR	0.47UF K	
C287	CC73HCH1H470J	C CAPACITOR	47PF J	
C288	CK73HB1H103K	C CAPACITOR	0.010UF K	
C289	CC73HCH1H470J	C CAPACITOR	47PF J	
C290	CK73HB1E104K	C CAPACITOR	0.10UF K	
C291	CK73HB1H103K	C CAPACITOR	0.010UF K	
C292	CK73HB1E104K	C CAPACITOR	0.10UF K	
C293	CK73HB1E104K	C CAPACITOR	0.10UF K	
C295	CK73HB1H103K	C CAPACITOR	0.010UF K	
C296	CC73HCH1H100B	C CAPACITOR	10PF B	
C297	CC73HCH1H101J	C CAPACITOR	100PF J	
C298	CC73HCH1H101J	C CAPACITOR	100PF J	
C299	CC73HCH1H151J	C CAPACITOR	150PF J	
C300	CC73HCH1H330J	C CAPACITOR	33PF J	
C301	CC73HCH1H680J	C CAPACITOR	68PF J	
C302	CK73HB1H103K	C CAPACITOR	0.010UF K	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C304	CK73HB1E682K	C CAPACITOR	6800PF K		C464	CK73HBB1H102K	C CAPACITOR	1000PF K	
C305	CC73HCH1H270J	C CAPACITOR	27PF J		C465	CK73HBB1H102K	C CAPACITOR	1000PF K	
C306	CK73HB1H122K	C CAPACITOR	1200PF K		C466	CK73HBB1H102K	C CAPACITOR	1000PF K	
C307	CC73HCH1H181J	C CAPACITOR	180PF J		C467	CK73HBB1H102K	C CAPACITOR	1000PF K	
C308	CK73HB1E104K	C CAPACITOR	0.10UF K		C500	CC73HCH1H101J	C CAPACITOR	100PF J	
C309	CK73HBB1H102K	C CAPACITOR	1000PF K		C501	CC73HCH1H101J	C CAPACITOR	100PF J	
C310	CC73HCH1H470J	C CAPACITOR	47PF J		C502	CC73HCH1H101J	C CAPACITOR	100PF J	
C312	CC73HCH1H101J	C CAPACITOR	100PF J		C503	CK73HBB1H471K	C CAPACITOR	470PF K	
C313	CC73HCH1H101J	C CAPACITOR	100PF J		C504	CC73HCH1H330G	C CAPACITOR	33PF G	
C314	CC73HCH1H470J	C CAPACITOR	47PF J		C505	CC73HCH1H040B	C CAPACITOR	4.0PF B	
C315	CK73HB1H103K	C CAPACITOR	0.010UF K		C506	CC73HCH1H220G	C CAPACITOR	22PF G	
C316	CK73HBB1H102K	C CAPACITOR	1000PF K		C507	CC73HCH1H080B	C CAPACITOR	8.0PF B	
C317	CK73HB1E104K	C CAPACITOR	0.10UF K		C508	CC73HCH1H100B	C CAPACITOR	10PF B	
C318	CK73HBB1H102K	C CAPACITOR	1000PF K		C509	CC73HCH1H080B	C CAPACITOR	8.0PF B	
C319	CK73HB1H103K	C CAPACITOR	0.010UF K		C510	CK73HB1H103K	C CAPACITOR	0.010UF K	
C320	CK73HB1A224K	C CAPACITOR	0.22UF K		C511	CC73HCH1H270G	C CAPACITOR	27PF G	
C321	CK73HB1A224K	C CAPACITOR	0.22UF K		C512	CC73HCH1H0R5B	C CAPACITOR	0.5PF B	
C324	CK73HBB1H681K	C CAPACITOR	680PF K		C513	CC73HCH1H150G	C CAPACITOR	15PF G	
C325	CC73HCH1H060B	C CAPACITOR	6.0PF B		C514	CK73HBB1H471K	C CAPACITOR	470PF K	
C326	CC73HCH1H120G	C CAPACITOR	12PF G		C515	CC73HCH1H100B	C CAPACITOR	10PF B	
C327	CK73HB1H103K	C CAPACITOR	0.010UF K		C516	CC73HCH1H120G	C CAPACITOR	12PF G	
C328	CC73HCH1H100B	C CAPACITOR	10PF B		C517	CK73HBB1H102K	C CAPACITOR	1000PF K	
C329	CK73HB1H103K	C CAPACITOR	0.010UF K		C518	CC73HCH1H040B	C CAPACITOR	4.0PF B	
C400	CC73HCH1H101J	C CAPACITOR	100PF J		C519	CC73HCH1H100B	C CAPACITOR	10PF B	
C401	CC73HCH1H180G	C CAPACITOR	18PF G		C520	CK73HBB1H102K	C CAPACITOR	1000PF K	
C402	CC73HCH1H330G	C CAPACITOR	33PF G		C522	CK73HB1A104K	C CAPACITOR	0.10UF K	
C403	CC73HCH1H150G	C CAPACITOR	15PF G		C523	CK73HBB1H102K	C CAPACITOR	1000PF K	
C404	CC73HCH1H330G	C CAPACITOR	33PF G		C524	CK73HBB1H102K	C CAPACITOR	1000PF K	
C405	CC73HCH1H100B	C CAPACITOR	10PF B		C525	CK73HB1H103K	C CAPACITOR	0.010UF K	
C406	CC73HCH1H101J	C CAPACITOR	100PF J		C526	CK73HB1H103K	C CAPACITOR	0.010UF K	
C407	CK73HBB1H471K	C CAPACITOR	470PF K		C527	CK73HB1H103K	C CAPACITOR	0.010UF K	
C408	CC73HCH1H101J	C CAPACITOR	100PF J		C528	CK73HB1H103K	C CAPACITOR	0.010UF K	
C409	CC73HCH1H100B	C CAPACITOR	10PF B		C533	CC73HCH1H101J	C CAPACITOR	100PF J	
C410	CC73HCH1H680G	C CAPACITOR	68PF G		C534	CK73HB1E104K	C CAPACITOR	0.10UF K	
C411	CC73HCH1H010B	C CAPACITOR	1.0PF B		C535	CK73HBB1H102K	C CAPACITOR	1000PF K	
C412	CC73HCH1HR75B	C CAPACITOR	0.75PF B		C537	CK73HB1E104K	C CAPACITOR	0.10UF K	
C413	CC73HCH1H120G	C CAPACITOR	12PF G		C538	CC73HCH1H101J	C CAPACITOR	100PF J	
C414	CC73HCH1H150G	C CAPACITOR	15PF G		C539	CK73HBB1H472K	C CAPACITOR	4700PF K	
C415	CK73HBB1H102K	C CAPACITOR	1000PF K		C540	CS77BA21VR33M	TA E CAPACITOR	0.33UF 35WV	
C416	CC73HCH1H0R5B	C CAPACITOR	0.5PF B		C541	CK73HB1H103K	C CAPACITOR	0.010UF K	
C417	CC73HCH1H120G	C CAPACITOR	12PF G		C542	CS77MA1C3R3M	TA E CAPACITOR	3.3UF 16WV	
C418	CK73HBB1H102K	C CAPACITOR	1000PF K		C543	CK73HB1E104K	C CAPACITOR	0.10UF K	
C419	CC73HCH1H050B	C CAPACITOR	5.0PF B		C544	C93-1906-05	PLASTIC FILM	0.047UF 35WV	
C420	CC73HCH1H100B	C CAPACITOR	10PF B		C545	CK73HB1H103K	C CAPACITOR	0.010UF K	
C421	CK73HBB1H102K	C CAPACITOR	1000PF K		C546	CK73GB1E105K	C CAPACITOR	1.0UF K	
C423	CK73HB1A104K	C CAPACITOR	0.10UF K		C548	CC73HCH1H101J	C CAPACITOR	100PF J	
C424	CK73HBB1H102K	C CAPACITOR	1000PF K		C549	CK73HBB1H102K	C CAPACITOR	1000PF K	
C425	CC73HCH1H120G	C CAPACITOR	12PF G		C550	CC73HCH1H101J	C CAPACITOR	100PF J	
C426	CK73HBB1H102K	C CAPACITOR	1000PF K		C551	C93-0787-05	C CAPACITOR	0.1UF J	
C429	CK73HBB1H102K	C CAPACITOR	1000PF K		C552	CS77LP1A100M	TA E CAPACITOR	10UF 10WV	
C430	CK73HB1H103K	C CAPACITOR	0.010UF K		C553	CK73GB0J475K	C CAPACITOR	4.7UF K	
C431	CK73HB1H103K	C CAPACITOR	0.010UF K		C554	CK73HBB1H102K	C CAPACITOR	1000PF K	
C432	CK73HB1H103K	C CAPACITOR	0.010UF K		C555	CK73HBB1H102K	C CAPACITOR	1000PF K	
C433	CK73HB1H103K	C CAPACITOR	0.010UF K		C556	CK73GB0J475K	C CAPACITOR	4.7UF K	
C438	CC73HCH1H101J	C CAPACITOR	100PF J		C557	CK73HBB1H102K	C CAPACITOR	1000PF K	
C439	CK73HB1E104K	C CAPACITOR	0.10UF K		C558	CK73HBB1H102K	C CAPACITOR	1000PF K	
C440	CK73HBB1H102K	C CAPACITOR	1000PF K		C559	CC73HCH1H090B	C CAPACITOR	9.0PF B	
C441	CK73HB1E104K	C CAPACITOR	0.10UF K		C602	CC73HCH1H180J	C CAPACITOR	18PF J	GE,GE2
C442	CK73HBB1H102K	C CAPACITOR	1000PF K		C604	CK73HB1H103K	C CAPACITOR	0.010UF K	GE,GE2
C443	CK73HBB1H472K	C CAPACITOR	4700PF K		C609	CC73HCH1H020B	C CAPACITOR	2.0PF B	GE,GE2
C445	CS77BA21VR33M	TA E CAPACITOR	0.33UF 35WV		C610	CK73HB0J475M	C CAPACITOR	4.7UF M	GE,GE2
C446	CS77MA1C3R3M	TA E CAPACITOR	3.3UF 16WV		C612	CC73HCH1H150G	C CAPACITOR	15PF G	GE,GE2
C447	C93-1906-05	PLASTIC FILM	0.047UF 35WV		C613	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,GE2
C448	CK73HB1H103K	C CAPACITOR	0.010UF K		C614	CC73HCH1H180J	C CAPACITOR	18PF J	GE,GE2
C450	CK73HBB1H102K	C CAPACITOR	1000PF K		C615	CC73HCH1H120G	C CAPACITOR	12PF G	GE,GE2
C451	CK73HBB1H102K	C CAPACITOR	1000PF K		C618	CC73HCH1H180J	C CAPACITOR	18PF J	GE,GE2
C452	CC73HCH1H101J	C CAPACITOR	100PF J		C619	CC73HCH1H1R5B	C CAPACITOR	1.5PF B	GE,GE2
C453	C93-0787-05	C CAPACITOR	0.1UF J		C620	CC73HCH1H121J	C CAPACITOR	120PF J	GE,GE2
C454	CC73HCH1H101J	C CAPACITOR	100PF J		C622	CK73HB0J475M	C CAPACITOR	4.7UF M	GE,GE2
C455	CC73HCH1H180J	C CAPACITOR	18PF J		C624	CC73HCH1H100B	C CAPACITOR	10PF B	
C456	CK73HB1A105K	C CAPACITOR	1.0UF K		C626	CC73GCH1H010B	C CAPACITOR	1.0PF B	
C457	CK73HB1A105K	C CAPACITOR	1.0UF K		C627	CK73HB1A105K	C CAPACITOR	1.0UF K	GE,GE2
C458	CK73HB1E104K	C CAPACITOR	0.10UF K		C628	CC73GCH1H120J	C CAPACITOR	12PF J	
C459	CK73HB1H103K	C CAPACITOR	0.010UF K		C629	C92-0983-05	COMPOSITION	11MF 3.3WV	GE,GE2
C460	CS77LP1A100M	TA E CAPACITOR	10UF 10WV		C630	CK73HB1A105K	C CAPACITOR	1.0UF K	GE,GE2
C461	CK73GB0J475K	C CAPACITOR	4.7UF K		C631	CC73HCH1H180J	C CAPACITOR	18PF J	GE,GE2
C462	CK73HBB1H102K	C CAPACITOR	1000PF K		C632	CK73GB1E105K	C CAPACITOR	1.0UF K	GE,GE2
C463	CK73GB0J475K	C CAPACITOR	4.7UF K		C633	CC73HCH1H220J	C CAPACITOR	22PF J	GE,GE2

△ Symbol No.	Part No.	Part Name	Description	Local
C703	CK73GB1E105K	C CAPACITOR	1.0UF K	
C704	CK73HBB1H102K	C CAPACITOR	1000PF K	
C705	CK73HBB1H102K	C CAPACITOR	1000PF K	
C706	CK73HBB1H102K	C CAPACITOR	1000PF K	
C707	CK73GB1E105K	C CAPACITOR	1.0UF K	
C708	CK73GB0J475K	C CAPACITOR	4.7UF K	
C710	CK73HBB1H102K	C CAPACITOR	1000PF K	
C713	CK73HBB1H102K	C CAPACITOR	1000PF K	
C717	CK73GB1E105K	C CAPACITOR	1.0UF K	
C718	CK73HBB1H102K	C CAPACITOR	1000PF K	
C719	CK73HBB1H102K	C CAPACITOR	1000PF K	
C720	CK73GB0J475K	C CAPACITOR	4.7UF K	
C721	CK73GB1E105K	C CAPACITOR	1.0UF K	
C722	CK73HBB1H102K	C CAPACITOR	1000PF K	
C729	CK73HBB1H102K	C CAPACITOR	1000PF K	
C730	CK73HB1A105K	C CAPACITOR	1.0UF K	
C731	CK73HB1H103K	C CAPACITOR	0.010UF K	
C732	CK73HB1A105K	C CAPACITOR	1.0UF K	
C733	CK73HBB1H102K	C CAPACITOR	1000PF K	
C734	CK73HB1A105K	C CAPACITOR	1.0UF K	
C735	CK73GB1E105K	C CAPACITOR	1.0UF K	
C736	CK73GB1E105K	C CAPACITOR	1.0UF K	
C737	CK73GB1E105K	C CAPACITOR	1.0UF K	
C738	CK73HBB1H102K	C CAPACITOR	1000PF K	
C739	CK73GB1E105K	C CAPACITOR	1.0UF K	
C740	CK73GB1E105K	C CAPACITOR	1.0UF K	
C742	CK73GB0J475K	C CAPACITOR	4.7UF K	GE,GE2
C743	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,GE2
C744	CK73GB0J475K	C CAPACITOR	4.7UF K	GE,GE2
C745	CK73HB0J475M	C CAPACITOR	4.7UF M	GE,GE2
C746	CK73GB0J106K	C CAPACITOR	10UF K	GE,GE2
C747	CK73HB0J475M	C CAPACITOR	4.7UF M	GE,GE2
C748	CK73HBB1H102K	C CAPACITOR	1000PF K	GE,GE2
C749	CK73HB1A105K	C CAPACITOR	1.0UF K	
C801	CK73HB1E104K	C CAPACITOR	0.10UF K	
C802	CK73HBB1H102K	C CAPACITOR	1000PF K	
C803	CK73HB1H103K	C CAPACITOR	0.010UF K	
C806	CK73HB1E104K	C CAPACITOR	0.10UF K	
C808	CK73HBB1H102K	C CAPACITOR	1000PF K	
C809	CC73HCH1H100C	C CAPACITOR	10PF C	
C810	CK73HB1H103K	C CAPACITOR	0.010UF K	
C811	CC73HCH1H100C	C CAPACITOR	10PF C	
C812	CC73HCH1H470J	C CAPACITOR	47PF J	
C813	CC73HCH1H470J	C CAPACITOR	47PF J	
C814	CC73HCH1H470J	C CAPACITOR	47PF J	
C815	CC73HCH1H470J	C CAPACITOR	47PF J	
C816	CC73HCH1H470J	C CAPACITOR	47PF J	
C817	CC73HCH1H470J	C CAPACITOR	47PF J	
C818	CC73HCH1H470J	C CAPACITOR	47PF J	
C819	CC73HCH1H470J	C CAPACITOR	47PF J	
C820	CC73HCH1H470J	C CAPACITOR	47PF J	
C821	CC73HCH1H470J	C CAPACITOR	47PF J	
C822	CC73HCH1H470J	C CAPACITOR	47PF J	
C823	CC73HCH1H470J	C CAPACITOR	47PF J	
C824	CC73HCH1H470J	C CAPACITOR	47PF J	
C825	CC73HCH1H470J	C CAPACITOR	47PF J	
C826	CC73HCH1H470J	C CAPACITOR	47PF J	
C827	CC73HCH1H470J	C CAPACITOR	47PF J	
C828	CC73HCH1H470J	C CAPACITOR	47PF J	
C829	CC73HCH1H470J	C CAPACITOR	47PF J	
C830	CC73HCH1H470J	C CAPACITOR	47PF J	
C831	CC73HCH1H470J	C CAPACITOR	47PF J	
C832	CC73HCH1H470J	C CAPACITOR	47PF J	
C833	CC73HCH1H470J	C CAPACITOR	47PF J	
C834	CC73HCH1H470J	C CAPACITOR	47PF J	
C835	CC73HCH1H470J	C CAPACITOR	47PF J	
C836	CC73HCH1H470J	C CAPACITOR	47PF J	
C837	CC73HCH1H470J	C CAPACITOR	47PF J	
C838	CC73HCH1H470J	C CAPACITOR	47PF J	
C839	CC73HCH1H470J	C CAPACITOR	47PF J	
C840	CC73HCH1H470J	C CAPACITOR	47PF J	
C841	CC73HCH1H470J	C CAPACITOR	47PF J	
C842	CC73HCH1H470J	C CAPACITOR	47PF J	
C843	CC73HCH1H470J	C CAPACITOR	47PF J	
C844	CC73HCH1H470J	C CAPACITOR	47PF J	
C845	CC73HCH1H470J	C CAPACITOR	47PF J	
C846	CC73HCH1H470J	C CAPACITOR	47PF J	
C847	CC73HCH1H470J	C CAPACITOR	47PF J	

△ Symbol No.	Part No.	Part Name	Description	Local
C848	CC73HCH1H470J	C CAPACITOR	47PF J	
C849	CC73HCH1H470J	C CAPACITOR	47PF J	
C850	CC73HCH1H470J	C CAPACITOR	47PF J	
C851	CC73HCH1H470J	C CAPACITOR	47PF J	
C852	CC73HCH1H470J	C CAPACITOR	47PF J	
C853	CC73HCH1H470J	C CAPACITOR	47PF J	
C854	CC73HCH1H470J	C CAPACITOR	47PF J	
C855	CC73HCH1H470J	C CAPACITOR	47PF J	
C856	CC73HCH1H470J	C CAPACITOR	47PF J	
C857	CC73HCH1H470J	C CAPACITOR	47PF J	
C858	CC73HCH1H470J	C CAPACITOR	47PF J	
C859	CC73HCH1H470J	C CAPACITOR	47PF J	
C860	CC73HCH1H470J	C CAPACITOR	47PF J	
C861	CC73HCH1H470J	C CAPACITOR	47PF J	
C862	CC73HCH1H470J	C CAPACITOR	47PF J	
C863	CC73HCH1H470J	C CAPACITOR	47PF J	
C864	CC73HCH1H470J	C CAPACITOR	47PF J	
C865	CC73HCH1H470J	C CAPACITOR	47PF J	
C866	CC73HCH1H470J	C CAPACITOR	47PF J	
C867	CC73HCH1H470J	C CAPACITOR	47PF J	
C868	CC73HCH1H470J	C CAPACITOR	47PF J	
C869	CC73HCH1H470J	C CAPACITOR	47PF J	
C870	CC73HCH1H470J	C CAPACITOR	47PF J	
C871	CC73HCH1H470J	C CAPACITOR	47PF J	
C872	CC73HCH1H470J	C CAPACITOR	47PF J	
C873	CC73HCH1H470J	C CAPACITOR	47PF J	
C874	CC73HCH1H470J	C CAPACITOR	47PF J	
C875	CC73HCH1H470J	C CAPACITOR	47PF J	
C876	CC73HCH1H470J	C CAPACITOR	47PF J	
C877	CC73HCH1H470J	C CAPACITOR	47PF J	
C878	CK73HBB1H102K	C CAPACITOR	1000PF K	
C879	CK73HBB1H102K	C CAPACITOR	1000PF K	
C880	CK73HBB1H102K	C CAPACITOR	1000PF K	
C882	CC73HCH1H470J	C CAPACITOR	47PF J	
C884	CK73GB1E105K	C CAPACITOR	1.0UF K	
C886	CK73GB0J475K	C CAPACITOR	4.7UF K	
C887	CK73HBB1H102K	C CAPACITOR	1000PF K	
C888	CC73HCH1H470J	C CAPACITOR	47PF J	
C889	CK73HBB1H102K	C CAPACITOR	1000PF K	
C890	CC73HCH1H101J	C CAPACITOR	100PF J	
C891	CC73HCH1H101J	C CAPACITOR	100PF J	
C892	CK73HBB1H102K	C CAPACITOR	1000PF K	
C893	CC73HCH1H101J	C CAPACITOR	100PF J	
C894	CK73HBB1H102K	C CAPACITOR	1000PF K	
C895	CC73HCH1H101J	C CAPACITOR	100PF J	
C896	CC73HCH1H101J	C CAPACITOR	100PF J	
C897	CC73HCH1H101J	C CAPACITOR	100PF J	
C898	CK73HB1E682K	C CAPACITOR	6800PF K	
C899	CC73HCH1H101J	C CAPACITOR	100PF J	
C901	CK73HBB1H102K	C CAPACITOR	1000PF K	
C902	CK73HBB1H102K	C CAPACITOR	1000PF K	
C903	CK73HB1H103K	C CAPACITOR	0.010UF K	
C904	CC73HCH1H100C	C CAPACITOR	10PF C	
C909	CK73HB1H103K	C CAPACITOR	0.010UF K	
C910	CK73HB1E104K	C CAPACITOR	0.10UF K	
C911	CK73HB1E104K	C CAPACITOR	0.10UF K	
C912	CK73HB1A563K	C CAPACITOR	0.056UF K	
C913	CK73HB1A563K	C CAPACITOR	0.056UF K	
C914	CK73HB1A563K	C CAPACITOR	0.056UF K	
C915	CK73HB1A563K	C CAPACITOR	0.056UF K	
C916	CK73HB1E104K	C CAPACITOR	0.10UF K	
C917	CK73HB1E104K	C CAPACITOR	0.10UF K	
C918	CK73HBB1H102K	C CAPACITOR	1000PF K	
C919	CK73HBB1H102K	C CAPACITOR	1000PF K	
C920	CK73HB1A105K	C CAPACITOR	1.0UF K	
C921	CK73HB1A105K	C CAPACITOR	1.0UF K	
C922	CC73HCH1H101J	C CAPACITOR	100PF J	
C923	CC73HCH1H101J	C CAPACITOR	100PF J	
C924	CK73HBB1H102K	C CAPACITOR	1000PF K	
C925	CK73HBB1H102K	C CAPACITOR	1000PF K	
C926	CK73HB1E104K	C CAPACITOR	0.10UF K	
C927	CK73HB1H103K	C CAPACITOR	0.010UF K	
C928	CK73HB1A105K	C CAPACITOR	1.0UF K	
C929	CK73HB1E104K	C CAPACITOR	0.10UF K	
C930	CK73HB1E104K	C CAPACITOR	0.10UF K	
C936	CK73HB1A105K	C CAPACITOR	1.0UF K	
C937	CK73HB1A105K	C CAPACITOR	1.0UF K	
C939	CK73HBB1H102K	C CAPACITOR	1000PF K	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C940	CK73HB1H103K	C CAPACITOR	0.010UF K		R207	RK73HH1J331D	MG RESISTOR	330 D 1/16W	
C941	CC73HCH1H101J	C CAPACITOR	100PF J		R208	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C942	CK73HBB1H102K	C CAPACITOR	1000PF K		R209	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C943	CK73HB1E104K	C CAPACITOR	0.10UF K		R210	RK73HB1J154J	MG RESISTOR	150K J 1/16W	
C944	CK73HB1E104K	C CAPACITOR	0.10UF K		R211	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C945	CK73HB1A105K	C CAPACITOR	1.0UF K		R212	RK73HB1J224J	MG RESISTOR	220K J 1/16W	
C946	CK73HB1A105K	C CAPACITOR	1.0UF K		R214	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C947	CS77LP1A100M	TA E CAPACITOR	10UF 10WV		R215	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
C949	CK73HBB1H102K	C CAPACITOR	1000PF K		R216	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W	
C950	CK73HBB1H102K	C CAPACITOR	1000PF K		R217	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C952	CK73HBB1H102K	C CAPACITOR	1000PF K		R218	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C954	CK73HB1A105K	C CAPACITOR	1.0UF K		R219	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
C956	CK73HB1H103K	C CAPACITOR	0.010UF K		R220	RK73HB1J680J	MG RESISTOR	68 J 1/16W	
C957	CK73HB1A105K	C CAPACITOR	1.0UF K		R221	RK73HH1J391D	MG RESISTOR	390 D 1/16W	
C959	CK73HB1E104K	C CAPACITOR	0.10UF K		R222	RK73HH1J124D	MG RESISTOR	120K D 1/16W	
C960	CK73HB1H122K	C CAPACITOR	1200PF K		R223	RK73HH1J274D	MG RESISTOR	270K D 1/16W	
C961	CC73HCH1H680J	C CAPACITOR	68PF J		R224	RK73HB1J823J	MG RESISTOR	82K J 1/16W	
C962	CC73HCH1H181J	C CAPACITOR	180PF J		R225	RK73HB1J154J	MG RESISTOR	150K J 1/16W	
C963	CK73HBB1H102K	C CAPACITOR	1000PF K		R228	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C964	CK73HB1E104K	C CAPACITOR	0.10UF K		R229	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
C965	CC73HCH1H470J	C CAPACITOR	47PF J		R231	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	
C966	CK73HB1H103K	C CAPACITOR	0.010UF K		R232	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C967	CC73HCH1H680J	C CAPACITOR	68PF J		R233	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C968	CC73HCH1H331J	C CAPACITOR	330PF J		R235	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
C969	CK73HBB1H102K	C CAPACITOR	1000PF K		R237	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
C972	CC73HCH1H331J	C CAPACITOR	330PF J		R238	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
C973	CK73HB1A105K	C CAPACITOR	1.0UF K		R240	RK73HB1J684J	MG RESISTOR	680K J 1/16W	
R100	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R241	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R101	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R242	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R102	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R243	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R103	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R244	RK73HB1J684J	MG RESISTOR	680K J 1/16W	
R104	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R245	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R106	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R246	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R108	RK73HB1J392J	MG RESISTOR	3.9K J 1/16W		R247	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R109	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W		R250	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R110	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R252	RK73HB1J274J	MG RESISTOR	270K J 1/16W	
R111	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R254	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R112	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R255	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R113	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W		R256	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W	
R115	RK73HB1J392J	MG RESISTOR	3.9K J 1/16W		R257	RK73HB1J223J	MG RESISTOR	22K J 1/16W	
R116	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R258	RK73HB1J183J	MG RESISTOR	18K J 1/16W	
R118	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W		R259	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R119	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W		R261	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R120	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R262	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R121	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R263	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R122	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W		R264	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R123	RK73GB2A823J	MG RESISTOR	82K J 1/10W		R265	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R124	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W		R266	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R135	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R267	RK73HB1J272J	MG RESISTOR	2.7K J 1/16W	
R137	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R269	RK73HB1J470J	MG RESISTOR	47 J 1/16W	
R139	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R270	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R150	RK73HB1J472J	MG RESISTOR	4.7K J 1/16W		R271	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R151	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R273	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R152	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R274	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R154	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R275	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R155	RK73EB2ER39K	MG RESISTOR	0.39 K 1/4W		R276	RK73HB1J183J	MG RESISTOR	18K J 1/16W	
R156	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R277	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R157	RK73EB2ER39K	MG RESISTOR	0.39 K 1/4W		R278	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R158	RK73EB2ER39K	MG RESISTOR	0.39 K 1/4W		R279	RK73HB1J561J	MG RESISTOR	560 J 1/16W	
R159	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R281	RK73HB1J334J	MG RESISTOR	330K J 1/16W	
R160	RK73HH1J472D	MG RESISTOR	4.7K D 1/16W		R282	RK73HB1J822J	MG RESISTOR	8.2K J 1/16W	
R161	RK73HH1J472D	MG RESISTOR	4.7K D 1/16W		R283	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R162	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R284	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R163	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R285	RK73HB1J562J	MG RESISTOR	5.6K J 1/16W	
R164	RK73HB1J471J	MG RESISTOR	470 J 1/16W		R286	RK73HB1J153J	MG RESISTOR	15K J 1/16W	
R167	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R288	RK73HB1J333J	MG RESISTOR	33K J 1/16W	
R170	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R289	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R171	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R290	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R172	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R291	RK73HB1J334J	MG RESISTOR	330K J 1/16W	
R175	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R292	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R179	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R293	RK73HB1J682J	MG RESISTOR	6.8K J 1/16W	
R200	RK73HH1J221D	MG RESISTOR	220 D 1/16W		R294	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R202	RK73HB1J564J	MG RESISTOR	560K J 1/16W		R295	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R203	RK73HB1J271J	MG RESISTOR	270 J 1/16W		R296	RK73HB1J334J	MG RESISTOR	330K J 1/16W	
R204	RK73HB1J820J	MG RESISTOR	82 J 1/16W		R297	RK73HB1J332J	MG RESISTOR	3.3K J 1/16W	
R205	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R298	RK73HB1J564J	MG RESISTOR	560K J 1/16W	
R206	RK73HB1J681J	MG RESISTOR	680 J 1/16W		R299	RK73HB1J823J	MG RESISTOR	82K J 1/16W	
					R300	RK73HB1J104J	MG RESISTOR	100K J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R301	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R517	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R302	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R518	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R309	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R519	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R310	RK73HB1J333J	MG RESISTOR	33K J 1/16W		R520	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R311	RK73HB1J683J	MG RESISTOR	68K J 1/16W		R521	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R312	RK73HB1J823J	MG RESISTOR	82K J 1/16W		R522	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R313	RK73HB1J393J	MG RESISTOR	39K J 1/16W		R523	RK73HB1J683J	MG RESISTOR	68K J 1/16W	
R317	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R524	RN73HH1J101D	MG RESISTOR	100 D 1/16W	
R401	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R525	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R402	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R526	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R403	RK73HB1J560J	MG RESISTOR	56 J 1/16W		R527	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R404	RK73HB1J331J	MG RESISTOR	330 J 1/16W		R528	RN73HH1J221D	MG RESISTOR	220 D 1/16W	
R405	RK73HB1J563J	MG RESISTOR	56K J 1/16W		R529	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R406	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R530	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R407	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R532	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R408	RK73HH1J331D	MG RESISTOR	330 D 1/16W		R533	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R409	RK73HB1J220J	MG RESISTOR	22 J 1/16W		R534	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R410	RK73HB1J224J	MG RESISTOR	220K J 1/16W		R535	RK73HH1J224D	MG RESISTOR	220K D 1/16W	
R411	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R536	RK73HH1J473D	MG RESISTOR	47K D 1/16W	
R412	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R537	RK73HH1J474D	MG RESISTOR	470K D 1/16W	
R413	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R538	RK73HB1J106J	MG RESISTOR	10M J 1/16W	
R414	RK73HB1J221J	MG RESISTOR	220 J 1/16W		R539	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W	
R416	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R540	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R417	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R542	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R418	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R543	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R419	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R544	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R420	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R545	RK73HB1J470J	MG RESISTOR	47 J 1/16W	
R421	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R546	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R422	RK73HB1J100J	MG RESISTOR	10 J 1/16W		R547	RK73HB1J561J	MG RESISTOR	560 J 1/16W	
R423	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R548	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W	
R424	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R604	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R425	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R605	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R426	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R606	RK73HB1J391J	MG RESISTOR	390 J 1/16W	GE,GE2
R427	RN73HH1J101D	MG RESISTOR	100 D 1/16W		R607	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R428	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R608	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R429	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R610	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R430	RN73HH1J221D	MG RESISTOR	220 D 1/16W		R612	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R431	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R614	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R432	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R615	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	GE,GE2
R434	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R616	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	GE,GE2
R435	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R617	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	GE,GE2
R436	RK73HH1J224D	MG RESISTOR	220K D 1/16W		R618	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R437	RK73HH1J473D	MG RESISTOR	47K D 1/16W		R619	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R438	RK73HH1J474D	MG RESISTOR	470K D 1/16W		R622	RK73GB2A000J	MG RESISTOR	0.0 J 1/10W	GE,GE2
R439	RK73HB1J106J	MG RESISTOR	10M J 1/16W		R623	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	GE,GE2
R440	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R624	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R441	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R625	RK73GB2A470J	MG RESISTOR	47 J 1/10W	E,E2
R442	RK73HB1J104J	MG RESISTOR	100K J 1/16W		R702	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R443	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R704	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R444	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R708	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R446	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R709	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R447	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R711	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R448	RK73HB1J683J	MG RESISTOR	68K J 1/16W		R714	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R449	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W		R715	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R450	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R717	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R452	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R718	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R453	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R720	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R454	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R722	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R455	RK73HB1J222J	MG RESISTOR	2.2K J 1/16W		R723	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R456	RK73HB1J151J	MG RESISTOR	150 J 1/16W		R724	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R457	RK73HB1J151J	MG RESISTOR	150 J 1/16W		R725	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R458	RK73HB1J390J	MG RESISTOR	39 J 1/16W		R726	RK73HB1J103J	MG RESISTOR	10K J 1/16W	
R500	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R727	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R501	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R729	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	GE,GE2
R502	RK73HB1J470J	MG RESISTOR	47 J 1/16W		R732	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	GE,GE2
R503	RK73HH1J331D	MG RESISTOR	330 D 1/16W		R733	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R504	RK73HB1J220J	MG RESISTOR	22 J 1/16W		R801	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R505	RK73HB1J560J	MG RESISTOR	56 J 1/16W		R802	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R506	RK73HB1J561J	MG RESISTOR	560 J 1/16W		R805	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R507	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R806	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R508	RK73HB1J563J	MG RESISTOR	56K J 1/16W		R807	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R509	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R808	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	
R510	RK73HB1J103J	MG RESISTOR	10K J 1/16W		R809	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R511	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R810	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R512	RK73HB1J473J	MG RESISTOR	47K J 1/16W		R811	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R514	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R812	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R515	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R813	RK73HB1J101J	MG RESISTOR	100 J 1/16W	
R516	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R814	RK73HB1J101J	MG RESISTOR	100 J 1/16W	

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R815	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R903	RK73HB1J100J	MG RESISTOR	10 J 1/16W	
R816	RK73HB1J101J	MG RESISTOR	100 J 1/16W		R904	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W	
R817	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		R905	RK73HB1J474J	MG RESISTOR	470K J 1/16W	
R818	RK73HB1J393J	MG RESISTOR	39K J 1/16W		R906	RK73HB1J473J	MG RESISTOR	47K J 1/16W	
R819	RK73HB1J153J	MG RESISTOR	15K J 1/16W		R907	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R820	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		R908	RK73HB1J104J	MG RESISTOR	100K J 1/16W	
R821	RK73HB1J474J	MG RESISTOR	470K J 1/16W		R909	RK73HB1J471J	MG RESISTOR	470 J 1/16W	
R822	RK73HB1J274J	MG RESISTOR	270K J 1/16W		R951	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W	E,E2
R823	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L100	L40-6875-92	SMALL FIXED INDUCTOR (68NH)		
R824	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L101	L40-8275-92	SMALL FIXED INDUCTOR (82NH)		
R826	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L102	L92-0138-05	CHIP FERRITE		
R827	RK73HB1J474J	MG RESISTOR	470K J 1/16W		L103	L40-4775-92	SMALL FIXED INDUCTOR (47NH)		
R828	RK73HB1J152J	MG RESISTOR	1.5K J 1/16W		L104	L41-1085-43	SMALL FIXED INDUCTOR (100NH)		
R829	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		L105	L92-0149-05	CHIP FERRITE		
R830	RK73HB1J102J	MG RESISTOR	1.0K J 1/16W		L106	L40-1275-92	SMALL FIXED INDUCTOR (12NH)		
R831	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L107	L34-4574-05	AIR-CORE COIL		
R832	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L108	L92-0149-05	CHIP FERRITE		
R833	RK73HB1J223J	MG RESISTOR	22K J 1/16W		L109	L34-4563-05	AIR-CORE COIL		
R834	RK73HB1J333J	MG RESISTOR	33K J 1/16W		L110	L34-4564-05	AIR-CORE COIL		
R835	RK73HB1J333J	MG RESISTOR	33K J 1/16W		L111	L34-4565-05	AIR-CORE COIL		
R836	RK73HB1J223J	MG RESISTOR	22K J 1/16W		L112	L41-2295-39	SMALL FIXED INDUCTOR (2.2UH)		
R837	RK73HH1J223D	MG RESISTOR	22K D 1/16W		L113	L34-4577-05	AIR-CORE COIL		
R838	RK73HH1J223D	MG RESISTOR	22K D 1/16W		L114	L34-4567-05	AIR-CORE COIL		
R839	RK73HH1J223D	MG RESISTOR	22K D 1/16W		L115	L34-4566-05	AIR-CORE COIL		
R840	RK73HH1J223D	MG RESISTOR	22K D 1/16W		L117	L34-4566-05	AIR-CORE COIL		
R841	RK73HH1J104D	MG RESISTOR	100K D 1/16W		L118	L34-4569-05	AIR-CORE COIL		
R842	RK73HH1J104D	MG RESISTOR	100K D 1/16W		L200	L40-1591-86	SMALL FIXED INDUCTOR (1.5UH)		
R843	RK73HH1J104D	MG RESISTOR	100K D 1/16W		L201	L92-0138-05	CHIP FERRITE		
R844	RK73HH1J104D	MG RESISTOR	100K D 1/16W		L202	L92-0138-05	CHIP FERRITE		
R845	RK73HB1J471J	MG RESISTOR	470 J 1/16W		L203	L41-5685-39	SMALL FIXED INDUCTOR (0.56UH)		
R846	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L204	L41-2785-39	SMALL FIXED INDUCTOR (0.27UH)		
R847	RK73HB1J103J	MG RESISTOR	10K J 1/16W		L205	L40-2775-71	SMALL FIXED INDUCTOR (27NH)		
R848	RK73HB1J682J	MG RESISTOR	6.8K J 1/16W		L206	L40-2775-71	SMALL FIXED INDUCTOR (27NH)		
R851	RK73HB1J103J	MG RESISTOR	10K J 1/16W		L207	L41-8275-53	SMALL FIXED INDUCTOR (82NH)		
R852	RK73HB1J103J	MG RESISTOR	10K J 1/16W		L208	L41-2285-14	SMALL FIXED INDUCTOR (220NH)		
R853	RK73HB1J683J	MG RESISTOR	68K J 1/16W		L209	L41-8278-14	SMALL FIXED INDUCTOR (82NH)		
R854	RK73HB1J683J	MG RESISTOR	68K J 1/16W		L211	L92-0138-05	CHIP FERRITE		
R855	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L212	L41-8278-14	SMALL FIXED INDUCTOR (82NH)		
R856	RK73HB1J154J	MG RESISTOR	150K J 1/16W		L213	L41-8278-43	SMALL FIXED INDUCTOR (82NH)		
R857	RK73HB1J563J	MG RESISTOR	56K J 1/16W		L214	L41-8278-43	SMALL FIXED INDUCTOR (82NH)		
R858	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L217	L40-2702-86	SMALL FIXED INDUCTOR (27UH)		
R859	RK73HB1J223J	MG RESISTOR	22K J 1/16W		L219	L40-5681-86	SMALL FIXED INDUCTOR (0.56UH)		
R860	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L220	L40-5675-92	SMALL FIXED INDUCTOR (56NH)		
R861	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L221	L40-1085-57	SMALL FIXED INDUCTOR (100NH)		
R862	RK73HB1J100J	MG RESISTOR	10 J 1/16W		L400	L40-5663-71	SMALL FIXED INDUCTOR (5.6NH)		
R863	RK73HB1J223J	MG RESISTOR	22K J 1/16W		L401	L92-0163-05	BEADS CORE		
R864	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L402	L40-5663-71	SMALL FIXED INDUCTOR (5.6NH)		
R865	RK73HB1J105J	MG RESISTOR	1.0M J 1/16W		L404	L40-3391-86	SMALL FIXED INDUCTOR (3.3UH)		
R868	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L406	L41-8275-53	SMALL FIXED INDUCTOR (82NH)		
R869	RK73HB1J471J	MG RESISTOR	470 J 1/16W		L409	L41-2285-53	SMALL FIXED INDUCTOR (0.22UH)		
R870	RK73HB1J182J	MG RESISTOR	1.8K J 1/16W		L411	L41-2285-53	SMALL FIXED INDUCTOR (0.22UH)		
R872	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L413	L41-2285-53	SMALL FIXED INDUCTOR (0.22UH)		
R873	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L414	L92-0163-05	BEADS CORE		
R874	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L415	L92-0163-05	BEADS CORE		
R876	RK73HB1J101J	MG RESISTOR	100 J 1/16W		L417	L92-0446-05	BEADS CORE		
R877	RK73HH1J274D	MG RESISTOR	270K D 1/16W		L418	L92-0446-05	BEADS CORE		
R878	RK73HB1J101J	MG RESISTOR	100 J 1/16W		L419	L40-4778-67	SMALL FIXED INDUCTOR (47NH)		
R879	RK73HB1J101J	MG RESISTOR	100 J 1/16W		L420	L40-3391-86	SMALL FIXED INDUCTOR (3.3UH)		
R880	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L425	L40-1285-71	SMALL FIXED INDUCTOR (120NH)		
R881	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L426	L41-1085-53	SMALL FIXED INDUCTOR (0.1UH)		
R882	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L500	L92-0163-05	BEADS CORE		
R884	RK73HB1J103J	MG RESISTOR	10K J 1/16W		L501	L40-1891-86	SMALL FIXED INDUCTOR (1.8UH)		
R885	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L503	L41-2285-53	SMALL FIXED INDUCTOR (0.22UH)		
R886	RK73HB1J563J	MG RESISTOR	56K J 1/16W		L504	L41-2285-53	SMALL FIXED INDUCTOR (0.22UH)		
R887	RK73HB1J224J	MG RESISTOR	220K J 1/16W		L505	L41-2285-53	SMALL FIXED INDUCTOR (0.22UH)		
R888	RK73HH1J184D	MG RESISTOR	180K D 1/16W		L506	L40-4763-71	SMALL FIXED INDUCTOR (4.7NH)		
R889	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L507	L40-2778-67	SMALL FIXED INDUCTOR (27NH)		
R890	RK73HB1J563J	MG RESISTOR	56K J 1/16W		L508	L40-3391-86	SMALL FIXED INDUCTOR (3.3UH)		
R891	RK73HB1J683J	MG RESISTOR	68K J 1/16W		L509	L40-4763-71	SMALL FIXED INDUCTOR (4.7NH)		
R892	RK73HB1J100J	MG RESISTOR	10 J 1/16W		L510	L41-8275-53	SMALL FIXED INDUCTOR (82NH)		
R893	RK73HB1J100J	MG RESISTOR	10 J 1/16W		L511	L40-1285-71	SMALL FIXED INDUCTOR (120NH)		
R894	RK73HB1J000J	MG RESISTOR	0.0 J 1/16W		L512	L41-6875-53	SMALL FIXED INDUCTOR (68NH)		
R895	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L513	L92-0163-05	BEADS CORE		
R896	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L514	L92-0163-05	BEADS CORE		
R897	RK73HB1J104J	MG RESISTOR	100K J 1/16W		L516	L92-0446-05	BEADS CORE		
R898	RK73HB1J391J	MG RESISTOR	390 J 1/16W		L517	L92-0446-05	BEADS CORE		
R899	RK73HB1J821J	MG RESISTOR	820 J 1/16W		L602	-----	FILTER(1575.42MHz) *Note		GE,GE2
R900	RK73HB1J100J	MG RESISTOR	10 J 1/16W						

△ Symbol No.	Part No.	Part Name	Description	Local
L603	L40-8265-71	SMALL FIXED INDUCTOR (8.2NH)		GE,GE2
L604	L92-0487-05	CHIP FERRITE		GE,GE2
L605	-----	FILTER(1575.42MHz) *Note		GE,GE2
L608	L41-3965-55	SMALL FIXED INDUCTOR (3.9NH)		
L609	L92-0487-05	CHIP FERRITE		GE,GE2
L610	L41-1561-55	SMALL FIXED INDUCTOR (1.5NH)		
L611	L40-3363-71	SMALL FIXED INDUCTOR (3.3NH)		GE,GE2
L612	L40-3363-71	SMALL FIXED INDUCTOR (3.3NH)		GE,GE2
L701	L92-0446-05	BEADS CORE		GE,GE2
L702	L92-0446-05	BEADS CORE		GE,GE2
L801	L41-4795-39	SMALL FIXED INDUCTOR (4.7UH)		
L802	L92-0149-05	CHIP FERRITE		
L803	L92-0140-05	CHIP FERRITE		
L804	L92-0408-05	CHIP FERRITE		
L805	L92-0408-05	CHIP FERRITE		
L806	L92-0408-05	CHIP FERRITE		
L807	L92-0408-05	CHIP FERRITE		
L808	L92-0140-05	CHIP FERRITE		
L809	L92-0408-05	CHIP FERRITE		
L810	L92-0408-05	CHIP FERRITE		
L811	L92-0149-05	CHIP FERRITE		
L813	L92-0446-05	BEADS CORE		
L814	L92-0446-05	BEADS CORE		
L815	L92-0446-05	BEADS CORE		
L816	L92-0446-05	BEADS CORE		
L817	L92-0446-05	BEADS CORE		
L818	L92-0446-05	BEADS CORE		
L819	L92-0446-05	BEADS CORE		
L820	L92-0140-05	CHIP FERRITE		
L821	L92-0446-05	BEADS CORE		
L822	L92-0446-05	BEADS CORE		
L823	L92-0446-05	BEADS CORE		
CF201	L72-1017-05	CERAMIC FILTER (450KHZ)		
CF202	L72-1040-05	CERAMIC FILTER (450KHZ)		
CN101	E23-1262-05	TERMINAL		
CN102	E23-1262-05	TERMINAL		
CN103	E23-1262-05	TERMINAL		
CN104	E23-1262-05	TERMINAL		
CN801	E40-6953-05	FLAT CABLE CONNECTOR		
CN802	E40-6926-05	PIN ASSY		
CN803	E40-6758-05	PIN ASSY		
CN804	E41-1486-05	PIN ASSY		
CN810	E23-1262-05	TERMINAL		
F801	F53-0324-15	FUSE (2.5A)		
TH101	ERTJ0EV104H	THERMISTOR		
TH201	ERTJ0EV104H	THERMISTOR		
X601	L77-3085-05	TCXO (26.0MHZ)		GE,GE2
X602	L77-3084-05	CRYSTAL RESONATOR (32.768KHZ)		GE,GE2
X801	L77-3128-05	TCXO (16.8MHZ)		
XF200	L71-0678-05	MCF (49.95MHZ)		

SWITCH UNIT(DTMF KEY)

X41-3793-00(TK-D200G_E,TK-D200_E)

Block No. [0][4]

△ Symbol No.	Part No.	Part Name	Description	Local
D1	B30-2337-05	LED	(YELLOW)	
D2	B30-2337-05	LED	(YELLOW)	
D3	B30-2337-05	LED	(YELLOW)	
D4	B30-2337-05	LED	(YELLOW)	
D5	B30-2337-05	LED	(YELLOW)	
D6	B30-2337-05	LED	(YELLOW)	
D7	B30-2337-05	LED	(YELLOW)	
D8	B30-2337-05	LED	(YELLOW)	
OT1	J87-0042-05	FPC	(DTMF KEY)	
S1	S70-0528-05	TACT SWITCH		
S2	S70-0528-05	TACT SWITCH		
S3	S70-0528-05	TACT SWITCH		
S4	S70-0528-05	TACT SWITCH		
S5	S70-0528-05	TACT SWITCH		
S6	S70-0528-05	TACT SWITCH		
S7	S70-0528-05	TACT SWITCH		
S8	S70-0528-05	TACT SWITCH		
S9	S70-0528-05	TACT SWITCH		
S10	S70-0528-05	TACT SWITCH		
S11	S70-0528-05	TACT SWITCH		
S12	S70-0528-05	TACT SWITCH		
S20	S70-0528-05	TACT SWITCH		
S21	S70-0528-05	TACT SWITCH		
S22	S70-0528-05	TACT SWITCH		
S30	S70-0528-05	TACT SWITCH		
S31	S70-0528-05	TACT SWITCH		
S32	S70-0528-05	TACT SWITCH		

SWITCH UNIT(PTT KEY)

X41-3783-00

Block No. [0][3]

△ Symbol No.	Part No.	Part Name	Description	Local
OT1	J87-0041-05	FPC	(PTT KEY)	
S100	S70-0516-05	TACT SWITCH		
S101	S70-0516-05	TACT SWITCH		
S102	S70-0516-05	TACT SWITCH		
S103	S70-0516-05	TACT SWITCH		

Packing and accessories

				Block No. [M][3][M][M]	
△ Symbol No.	Part No.	Part Name	Description	Local	
1	B09-0756-03	CAP			
2	B5A-0004-00	INSTRUCTION MANUAL			
3	B62-2567-00	QUICK REFERENCE GUIDE			
4	G13-2303-04	CUSHION(PACKING FIX)	(x2)		
5	G53-2208-14	PACKING(CAP)			
6	J29-0734-15	BELT CLIP			
7	N08-0574-04	DRESSED SCREW(CAP)			
8	N09-6620-05	SPECIAL SCREW(BELT CLIP)	(x2)		



KENWOOD

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