

Does not come with antenna. Antenna is available as an option.

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NX-210

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NXDN Transceivers:

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

GENERAL

INTRODUCTION

SCOPE OF THIS MANUAL

This manual is intended for use by experienced technicians familiar with similar types of commercial grade communications equipment. It contains all required service information for the equipment and is current as of the publication date. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions. These are issued as required.

ORDERING REPLACEMENT PARTS

When ordering replacement parts or equipment information, the full part identification number should be included. This applies to all parts : components, kits, or chassis. If the part number is not known, include the chassis or kit number of which it is a part, and a sufficient description of the required component for proper identification.

PERSONAL SAFETY

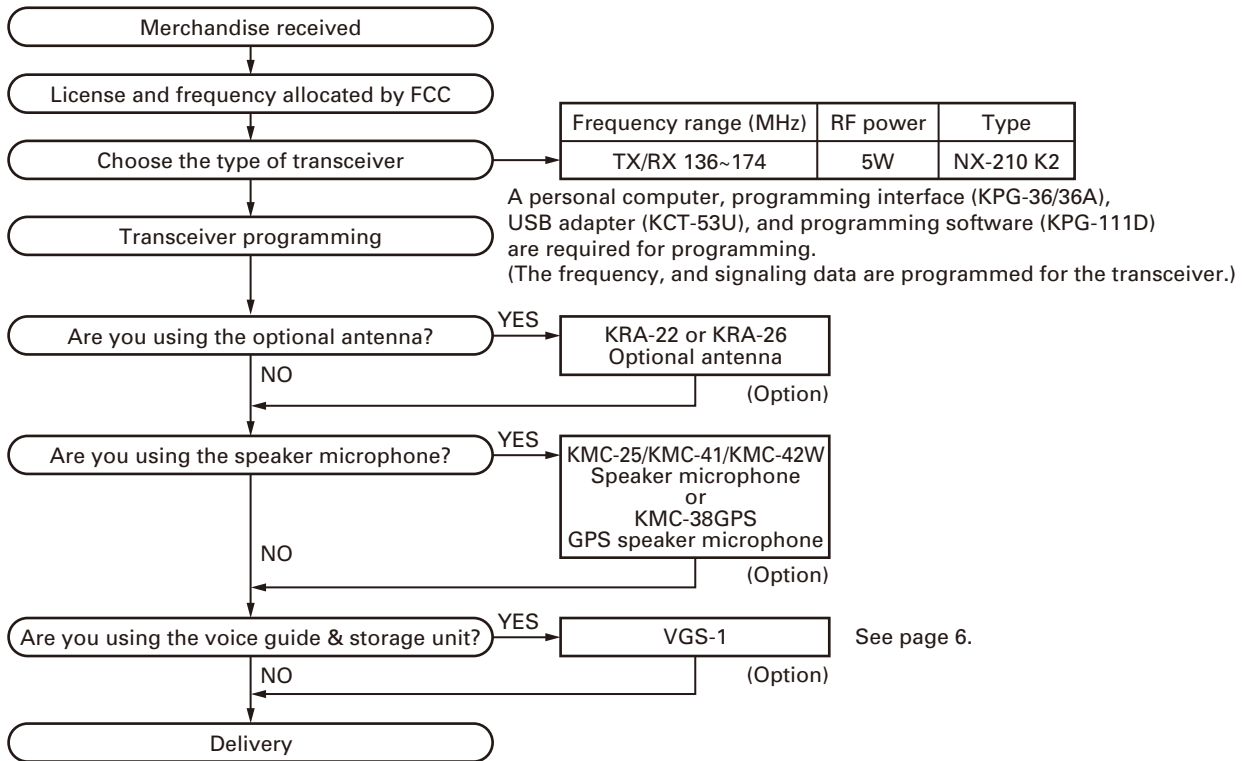
The following precautions are recommended for personal safety:

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

SERVICE

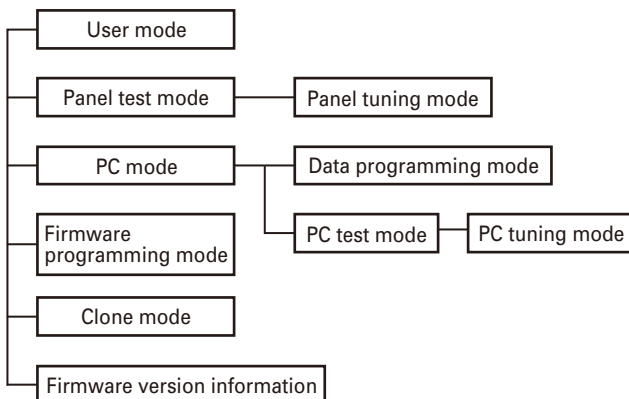
This transceiver is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

SYSTEM SET-UP



REALIGNMENT

1. Modes



| Mode | Function |
|------------------------------|--|
| User mode | For normal use. |
| Panel test mode | Used by the dealer to check the fundamental characteristics. |
| Panel tuning mode | 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. See pages 45 to 57. |
| Firmware programming mode | Used when changing the main program of the flash memory. |
| Clone mode | Used to transfer programming data from one transceiver to another. |
| Firmware version information | Used to confirm the internal firmware version. |

REALIGNMENT

2. How to Enter Each Mode

| Mode | Operation |
|------------------------------|---------------------------|
| User mode | Power ON |
| Panel test mode | [>] + Power ON |
| PC mode | Received commands from PC |
| Panel tuning mode | [Panel test mode] + [0] |
| Firmware programming mode | [0] + Power ON |
| Clone mode | [<] + Power ON |
| Firmware version information | [Side1] + Power ON |

3. Panel Test Mode

Setting method refer to ADJUSTMENT.

4. Panel Tuning Mode

Setting method refer to ADJUSTMENT.

5. PC Mode

5-1. Preface

The transceiver is programmed by using a personal computer, programming interface (KPG-36/36A), USB adapter (KCT-53U) and programming software (KPG-111D).

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

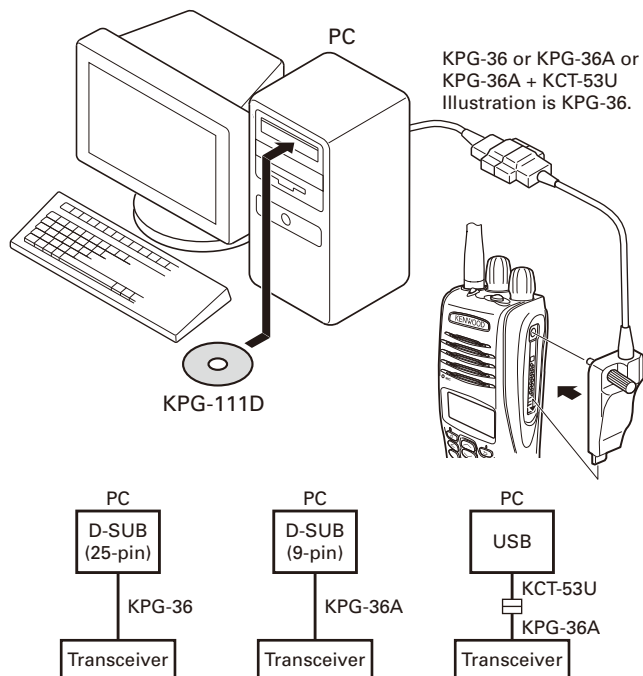


Fig. 1

5-2. Connection procedure

1. Connect the transceiver to the computer using the interface cable and USB adapter (When the interface cable is KPG-36A, the KCT-53U can be used.).

Note:

- You must install the KCT-53U driver in the computer to use the USB adapter (KCT-53U).
- When using the USB adapter (KCT-53U) for the first time, plug the KCT-53U into a USB port on the computer with the computer power ON.

2. When the POWER switch on, user mode can be entered immediately. When PC sends command the transceiver enter PC mode, and "PROGRAM" is displayed on the LCD.

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

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

Note:

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

5-3. KPG-36/KPG-36A description

(PC programming interface cable: Option)

The KPG-36/36A is required to interface the transceiver to the computer. It has a circuit in its D-sub connector (KPG-36: 25-pin, KPG-36A: 9-pin) case that converts the RS-232C logic level to the TTL level.

The KPG-36/36A connects the universal connector of the transceiver to the RS-232C serial port of the computer.

5-4. KCT-53U description (USB adapter: Option)

The KCT-53U is a cable which connects the KPG-36A to a USB port on a computer.

When using the KCT-53U, install the supplied CD-ROM (with driver software) in the computer. The KCT-53U driver runs under Windows 2000, XP or Vista (32-bit).

5-5. Programming software KPG-111D description

The KPG-111D is the programming software for the transceiver supplied on a CD-ROM. This software runs under MS-Windows 2000, XP or Vista (32-bit) on a PC or compatible machine.

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.

6. Firmware Programming Mode

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.)

REALIGNMENT

6-2. Connection procedure

Connect the transceiver to the personal computer using the interface cable (KPG-36/36A) and USB adapter (KCT-53U: when the interface cable is KPG-36A, the KCT-53U can be used.). (Connection is the same as in the PC Mode.)

6-3. Programming

1. Start up the firmware programming software (Fpro.exe (ver. 4.0 or later)). The Fpro.exe exists in the KPG-111D installed holder.
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 [⏏] key while turning the transceiver power ON. Then, the orange LED on the transceiver lights and "PROGRAM 115200" is displayed.
5. Check the connection between the transceiver and the personal computer, and make sure that the transceiver is in the Program 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.

Note:

This mode cannot be entered if the Firmware Programming mode is set to Disable in the Programming software.

6-4. Function

1. If you press the [Side2] key while "PROGRAM 115200" is displayed, the display changes to "PROGRAM 19200" (The LED blinks green) to indicate that the write speed is low speed (19200 bps). If you press the [Side2] key again while "PROGRAM 19200" is displayed, the display changes to "PROGRAM 38400" (The LED lights red and orange alternatively). If you press the [Side2] key again while "PROGRAM 38400" is displayed, the display changes to "PROGRAM 57600" (The LED blinks orange). If you press the [Side2] key again while "PROGRAM 57600" is displayed, the display returns to "PROGRAM 115200" (The LED lights orange).
2. If you press the [Side1] key while "PROGRAM 115200" is displayed, the checksum is calculated, and a result is displayed. If you press the [Side1] key again while the checksum is displayed, "PROGRAM 115200" is redisplayed.

Note:

Normally, write in the high-speed mode.

7. Clone Mode

Programming data can be transferred from one transceiver to another by connecting them via their external universal connectors. The operation is as follows (the transmit transceiver is the source and the receive transceiver is a target).

The following data cannot be cloned.

- Tuning data
- Embedded message with password
- Model name data
- ESN (Electronic Serial Number) data

Note:

The following data can be cloned.

- Fleet (own)/ID (own) for FleetSync
- Unit ID (own) for NXDN

Key guide on the Read authorization password input screen.

- CONFIRM ([↵] key): The password confirmation
- DELETE ([←] key): Delete the least digit from the current password number (Press and hold to delete all password numbers)
- SELECT ([↵] key): Determine the least digit of the password number

1. Press and hold the [◀] key while turning the transceiver power ON. If the Read authorization password is set to the transceiver, the transceiver displays "CLONE LOCK". If the password is not set, the transceiver displays "CLONE MODE".
2. When you enter the correct password, and "CLONE MODE" is displayed, the transceiver can be used as the cloning source. The following describes how to enter the password.
- 3.

• How to enter the password using the keypad;

If one of keys 0 to 9 is pressed while the "CLONE LOCK" is displayed, the pressed number is displayed on the LCD.

Each press of the key shifts the display in order to the left.

When you enter the password and press the [↵] or [✱] key, "CLONE MODE" is displayed if the entered password is correct. If the password is incorrect, "CLONE LOCK" is redisplayed.

• How to enter the password using the [↵] and [↵] keys;

If the [↵] / [↵] key is pressed while "CLONE LOCK" is displayed, the Read authorization password input screen is displayed.

If the [↵] key or [↵] key is pressed while the Read authorization password input screen is displayed, the number (0 to 9) blinks on the LCD. When you press the [↵] key, the currently selected number is determined. If you press the [↵] key after entering the password in

REALIGNMENT

this procedure, "CLONE MODE" is displayed if the entered password is correct. If the password is incorrect, "CLONE LOCK" is redisplayed.

4. Power ON the target transceiver.
5. Connect the cloning cable (part No. E30-3325-05) to the universal connectors on the source and target.
6. Press the [⏻] key on the source while the source displays "CLONE MODE". The data of the source is sent to the target. While the target is receiving the data, "PROGRAM" is displayed. When cloning of data is completed, the source displays "END", and the target automatically operates in the User mode. The target can then be operated by the same program as the source.
7. The other target can be continuously cloned. When the [⏻] key on the source is pressed while the source displays "END", the source displays "CLONE MODE". Carry out the operation in step 4 to 6.

Note:

- Cannot be cloned if the password (overwrite password) is programmed to the target.
- "Model Name" must be same to clone the transceiver.

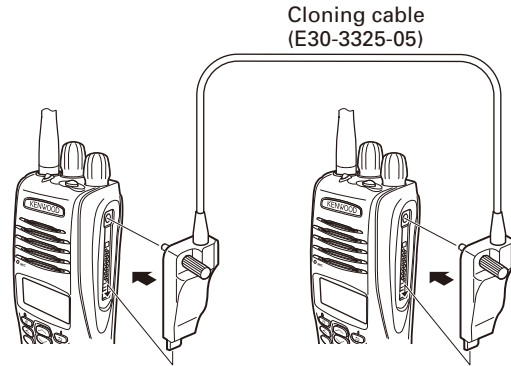


Fig. 2

8. Firmware Version Information

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.

INSTALLATION

Voice Guide & Storage Unit (VGS-1: Option)

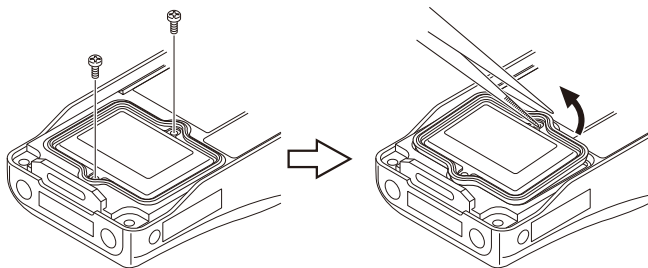
■ Installing the VGS-1 (Voice Guide & Storage Unit) in the transceiver

1. Remove the two screws from the cover.
2. Remove the cover by inserting the tip of a pair of tweezers into the screw hole of the cover and prying it open.

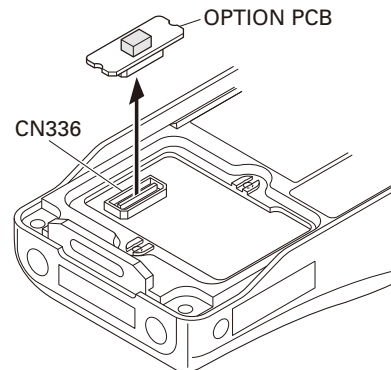
Note:

Take care that the tip of tweezers is not inserted into the screw hole of the chassis.

The tip of tweezers must come in contact with the surface of the chassis.



3. Remove the OPTION PCB from the connector (CN336) of the TX-RX PCB.



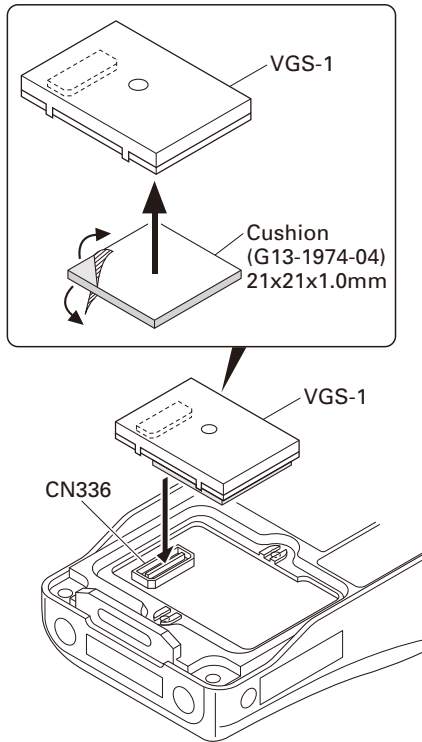
INSTALLATION

- Attach the cushion (G13-1974-04) to the VGS-1 as shown in the figure.

Note:

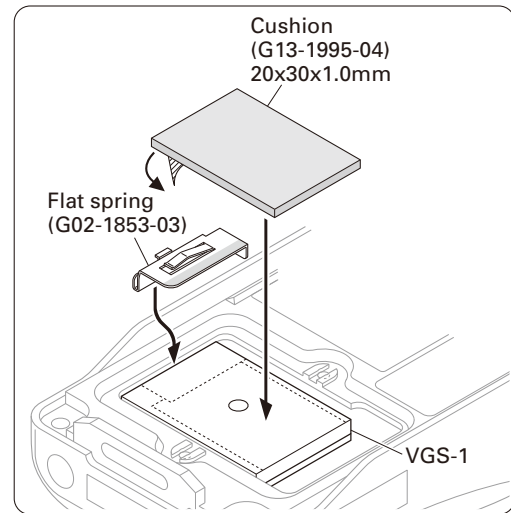
Be sure not to cover the VGS-1 connector with the cushion.

- Insert the VGS-1 connector into the connector (CN336) of the TX-RX PCB.



Note:

Be sure not to cover the spring part of the flat spring with the cushion.



Spring part

Be sure not to cover the spring part of the flat spring with the cushion.

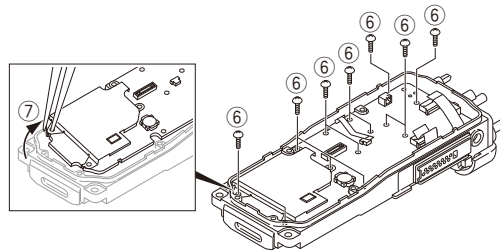
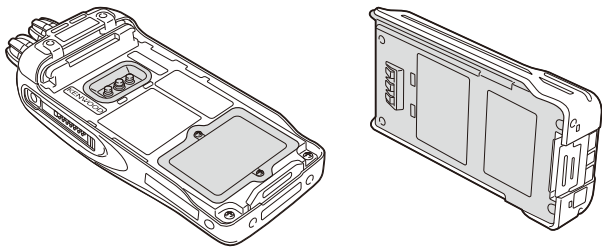
- Insert the flat spring (G02-1853-03) between the VGS-1 and the chassis as shown in the figure.
- Attach the cushion (G13-1995-04) on the VGS-1 so that it is attached to a part (shaded region) of the flat spring.

- Reinstall the cover using the two screws removed in step 1.

DISASSEMBLY FOR REPAIR

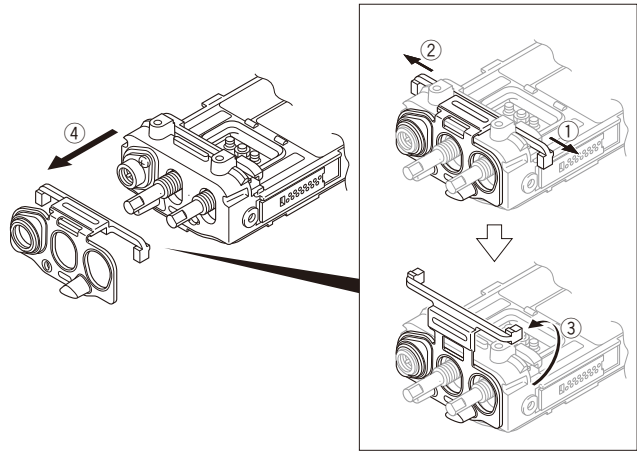
1. Precautions for Waterproof

- The orange packing material on the reverse side of the transceiver is important with respect to the waterproof efficiency of the transceiver. Do not place stickers or other materials on or around the packing material shown in the figure, or on the reverse side of the battery pack. Doing so will impair the waterproof efficiency of the transceiver and may cause it to break down. Additionally, in order to prevent damage to the packing material, do not allow it to come in contact with foreign materials.



■ Removing the TOP packing (G53-1600-12)

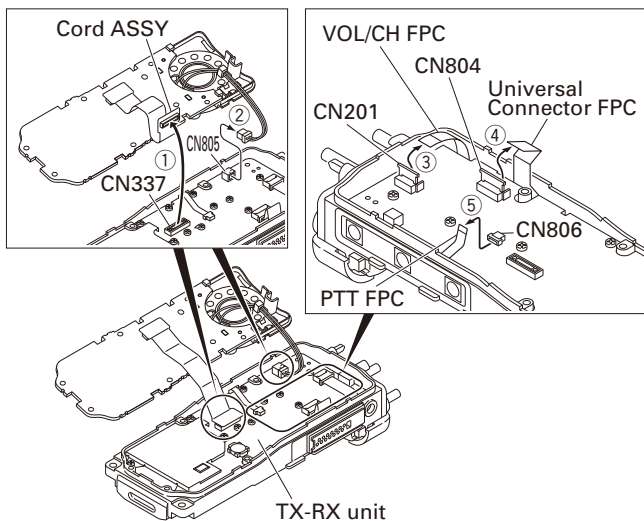
- Pull the TOP packing to the left to remove the packing that is fit into the left groove of the chassis ①.
- Pull the TOP packing to the right to remove the packing that is fit into the right groove of the chassis ②.
- Turn back the TOP packing as shown in the figure ③.
- Remove the TOP packing ④.



2. Precautions for Disassembly

■ Removing the TX-RX unit from the chassis

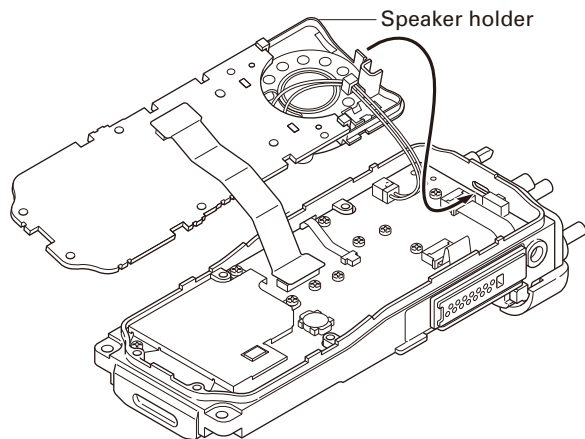
- Remove the Cord ASSY from the connector (CN337) of the TX-RX unit ①.
- Remove the Speaker lead wire from the connector (CN805) of the TX-RX unit ②.
- Remove the VOL/CH FPC from the connector (CN201) of the TX-RX unit ③.
- Remove the Universal connector FPC from the connector (CN804) of the TX-RX unit ④.
- Remove the PTT FPC from the connector (CN806) of the TX-RX unit ⑤.
- Remove the 14 screws ⑥.
- 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 from the chassis ⑦.



3. Precautions for Reassembly

■ Mounting the Display unit onto the chassis

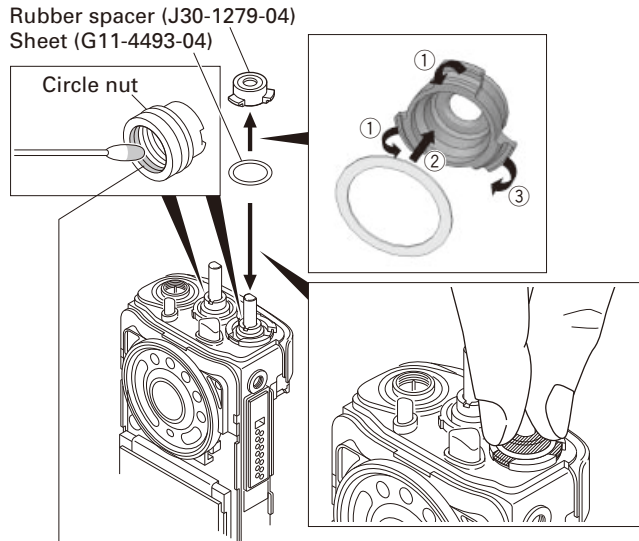
Insert the tab of the speaker holder into the hole in the upper part of the chassis.



DISASSEMBLY FOR REPAIR

■ Inserting the rubber spacer (J30-1279-04) onto the rear panel

1. Bend the two convex parts of the rubber spacer inward ①, then fit the sheet into the space ②.
Next, bend the one convex part of the rubber spacer inward ③, and insert the sheet into the rubber spacer.
2. Press the rubber spacer, using your fingers, to insert it between the rubber spacer and the rear panel without crevice.



Apply the bond (W05-0019-00) or "THREE BOND 1401B" around the inside of the circle nut before tightening the circle nut.

■ 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. Press the microphone part of the key top using your finger ②.

Note:

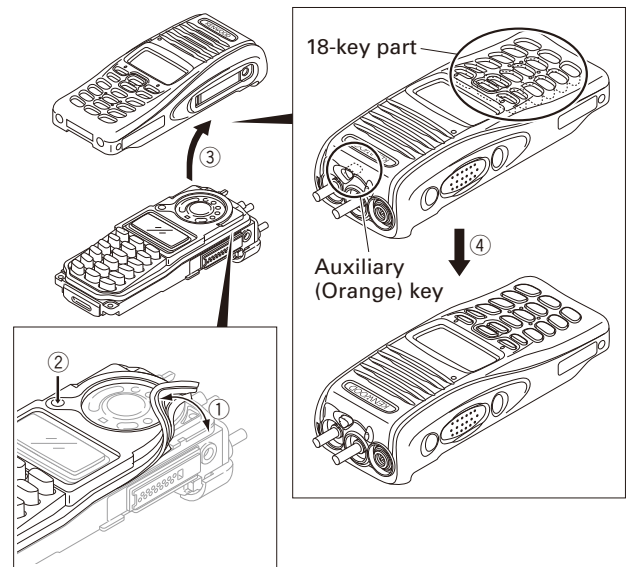
Confirm that the microphone part of the key top fits tightly with the element microphone.

3. Mount the chassis onto the case ③.

Note:

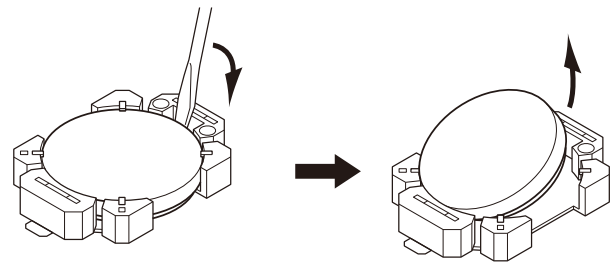
After mounting the chassis onto the case, if the 18-key part on the key top or the Auxiliary (Orange) key part of the VOL/CH packing gets stuck inside the case as shown in the figure, return it to the normal position using a soft tipped item (e.g., your finger) ④.

Prying it with a pointed metal tool such as forceps, may damage the key top or packing.



■ Removing the lithium cell (W09-0971-05)

Insert a non-conductive screwdriver to groove of one side of the socket (CN203) and pry the lithium cell up from the socket.



■ Installing the lithium cell (W09-0971-05)

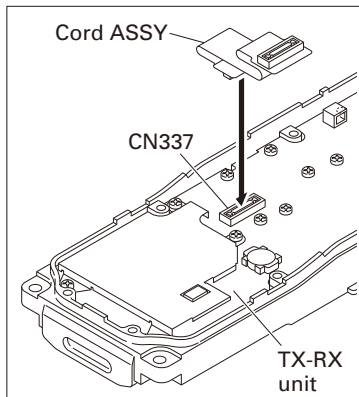
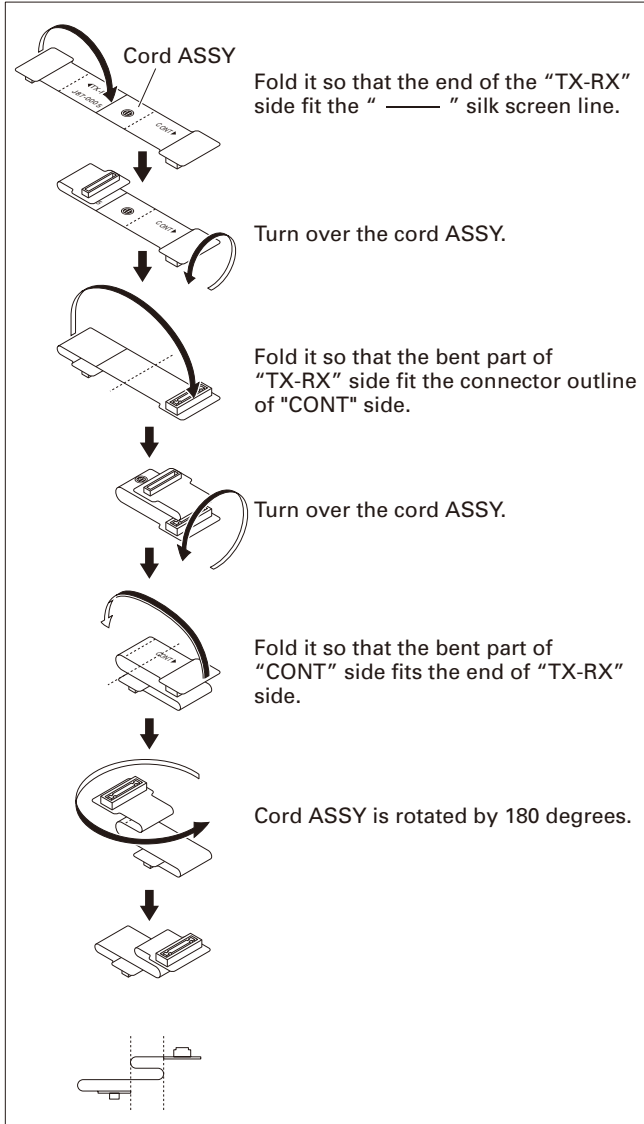
Insert a lithium cell into one side of the socket (CN203). Push the lithium cell to insert the lithium cell into the socket.



DISASSEMBLY FOR REPAIR

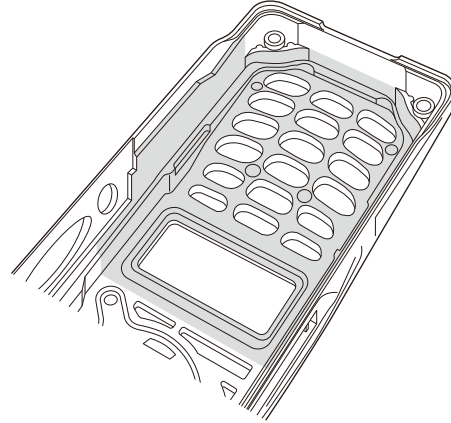
■ Forming the Cord ASSY

Form the Cord ASSY according to the procedure shown in the figure.



■ Correspondence when replacing the case (A02-4076-01)

Apply the dry-surf (410-0019-05) around the LCD and 18-key part of the case when replacing the case.



DISASSEMBLY FOR REPAIR

■ Assembly information (Sheet/Cushion)

When "Main Parts" is changed (ordered), "Assembled Sheet/Cushion" should also be changed (ordered) together.

The Sticker and Sheet etc are non-reusable parts. It requires the new one to get the radio's performance after repairs.

For example, when "Main Cabinet (A02-4076-01)" is changed, "Sticker (B42-7296-04)", "Badge (B43-1606-04)" and "Fibrous Sheet (G10-1400-04)" should be ordered and changed together because Sticker (B42-7296-04), Badge (B43-1606-04) and Fibrous Sheet (G10-1400-04) are non-reusable.

| Main Parts | | Assembled Sheet/ Cushion | | |
|--------------------------|-------------|--------------------------|-------------|---|
| Part Name | Part Number | Part Name | Part Number | Remark |
| Main Cabinet | A02-4076-01 | Sticker | B42-7296-04 | "NXDN" is printed. |
| | | Badge | B43-1606-04 | "KENWOOD" is printed. |
| | | Fibrous Sheet (SP) | G10-1400-04 | |
| LCD ASSY | B38-0923-05 | Adhesive Sheet (LCD) | J99-0714-04 | Used for fixing the LCD ASSY on the Illumination Guide (LCD). Also used for fixing the Illumination Guide (LCD) on the Control Unit. |
| Speaker | T07-0749-25 | Rubber Cushion (SP) | G11-4272-14 | |
| Chassis | A10-4132-03 | Rubber Sheet (FET) | G11-4308-14 | Used for stabilizing the radiation performance of the FET. |
| Illumination Guide (LCD) | B11-1854-02 | Sheet (LCD-Holder) | G11-4495-04 | |
| Packing (18-key) | G53-1823-11 | Sheet (18-key Packing) | G11-4494-04 | |

CIRCUIT DESCRIPTION

1. Overview

The NX-210 is a VHF portable transceiver designed to operate in the frequency range of 136 to 174MHz. The unit consists of receiver, transmitter, phase-locked loop (PLL) frequency synthesizer, base band parts, power supply, and control circuits.

2. Frequency Configuration

The receiver is a double-conversion superheterodyne using the first intermediate frequency (IF) of 58.05MHz and the second IF of 450kHz. Incoming signals from the antenna are mixed with the local signal from the PLL circuit to produce the first IF of 58.05MHz. This is then mixed with the 57.6MHz second local oscillator output to produce the 450kHz second IF. The transmit signal frequency is generated by the PLL VCO, and modulated by the signal from the DSP. It is then amplified and fed to the antenna.

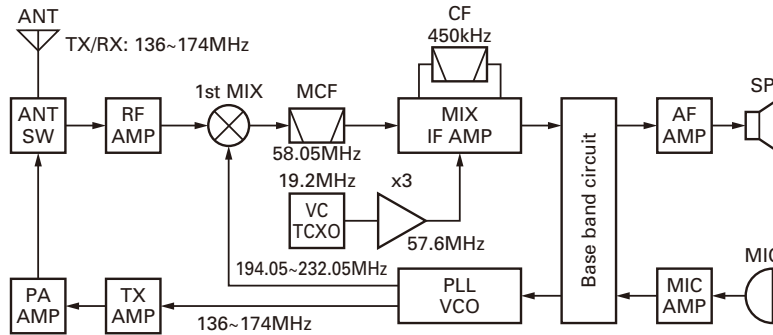


Fig. 1 Frequency configuration

3. Receiver System

3-1. RF Circuit

An incoming RF signal from the antenna terminal is passed through the antenna switch (D529, D530, D531 and D532) and then the bandpass filter (L559, L564). 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 (IC801). The signal is amplified by an RF amplifier (Q522), and passed through the bandpass filter (L546, L553). The resulting signal is applied to the first mixer (Q517), where it is mixed with the first local oscillator signal output from the frequency synthesizer to produce the first IF (58.05MHz).

3-2. IF Circuit

The first IF signal is passed through a four-pole monolithic crystal filter (XF501) to reject adjacent channel signals. The filtered first IF signal is amplified by the first IF amplifier (Q515) and then applied to the IF system IC (IC507). 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 57.6MHz of second local oscillator output and produces the second IF signal of 450kHz.

The second IF signal is passed through the ceramic filter (CF501) to reject the adjacent channel signal. The filtered second IF signal is amplified by the AGC amplifier.

The signal from the AGC amplifier is input to the ASIC (IC308) through the ceramic filter (CF502) and operational amplifier (IC506).

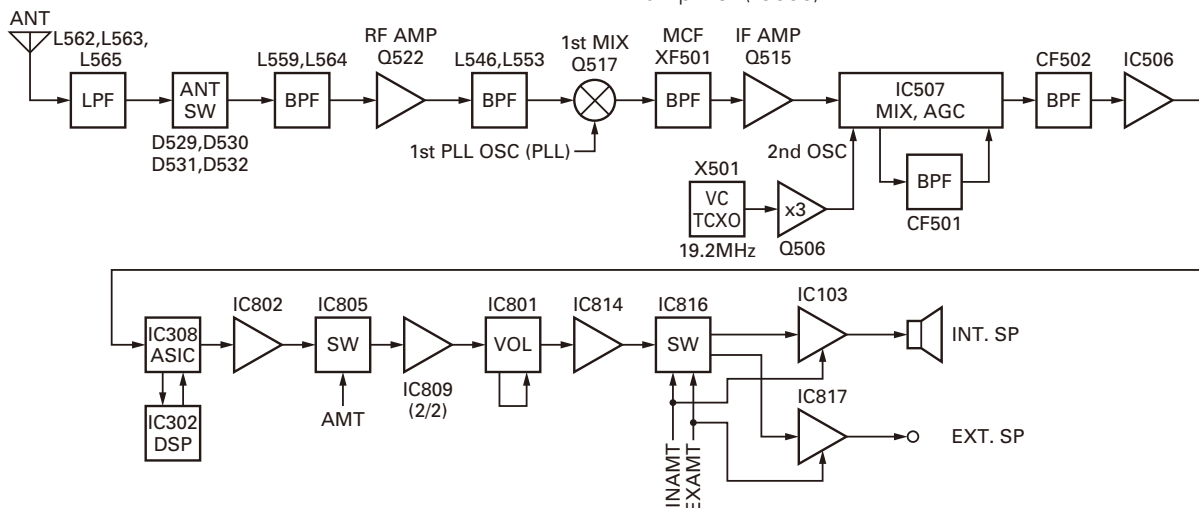


Fig. 2 RF and IF circuit

CIRCUIT DESCRIPTION

3-3. Audio Amplifier Circuit

Audio processing (high-pass filter, low-pass filter, de-emphasized and so on) at FM mode and decoding at NXDN mode are processed by DSP. The audio signal from IC308 and IC302 goes through the amplifier (IC802). The signal then goes through a mute switch (IC805), amplifier (IC809), electronic volume control (IC801), and AF amplifier (IC814).

While busy, AMT becomes Low to turn IC805 on, and the signal is fed to the AF switch. While INAMT is High, the AF switch (IC816) selects the internal speaker, and the audio signal is fed to the internal audio power amplifier (IC103), and output to the internal speaker. While EXAMT is High, the AF switch (IC816) selects the external speaker, and the audio signal is fed to the external audio power amplifier (IC817), and output to the external speaker. The power supply for IC103 and IC817 is turned on while INAMT or EX-AMT is High.

The speaker is switched by the logic of the speaker switching terminal SSW on the universal connector. When the SP-MIC is not attached, SSW becomes High. IC308 detects the logic of SSW and activates either INAMT or EX-AMT.

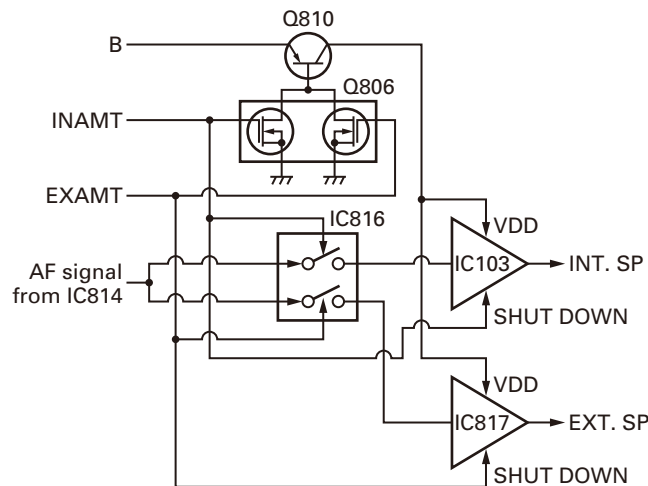


Fig. 3 Audio amplifier circuit

3-4. Squelch Circuit

It amplifies the demodulated noise signal from IC308 after filtering through the BPF circuit. Then, the amplified signal is converted to a DC signal by the detection circuit. The converted signal is fed back to IC308.

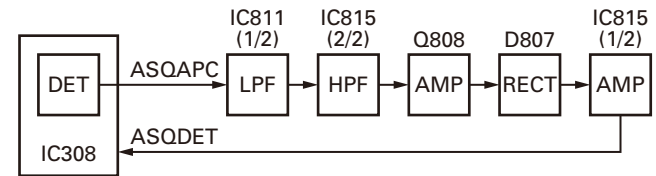


Fig. 4 Squelch circuit

4. Transmitter System

4-1. Audio Band Circuit

The signal from the internal microphone goes through the mute switch (Q812). When the SP-MIC is not attached, the microphone switching terminal (MSW) on the universal connector becomes High, and the mute switch (Q812) is turned on. When the SP-MIC is attached, MSW is connected to GND inside the SP-MIC. For this reason, Q812 is turned off, the internal microphone is muted, and only the input of the external microphone is supplied to the microphone amplifier. The signal from the microphone goes through the mute switch (Q807), and is amplified by IC813 (1/2) and limited by the AGC circuit which is composed of D801, D802, Q803 and Q804.

4-2. Base Band Circuit

The audio signal output from the base band circuit is converted to digital data with a sampling frequency of 48kHz. This digital data is sent to the DSP (IC302), 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 IC308. In Digital mode, the audio signal is converted to the 4-Level FSK base band signal and output from IC308. The DTMF and MSK base band signals are also generated by the DSP and output by IC308.

LPF (IC803) works as a smoothing filter. The DAC (IC801) assigns the base band signal to the VCO and VCTCXO (X501). At this time, the level output according to the transmit carrier is fine-adjusted according to each modulation method.

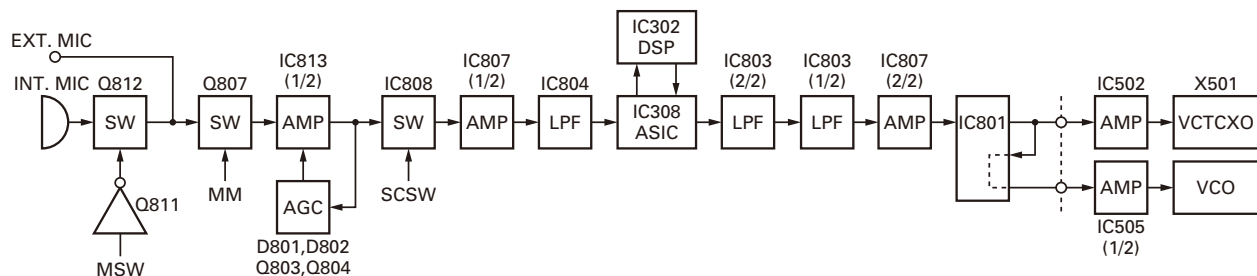


Fig. 5 Audio band and Base band circuit

CIRCUIT DESCRIPTION

4-3. VOX

IC813 (2/2) amplifies the audio signal captured in the microphone. The signal is then converted into the DC voltage, rectified by D803. The DC voltage activates the ASIC (IC308), and the VOX starts.

4-4. Drive and Final Amplifier

The signal from the T/R switch (D520 is on) is amplified by the drive amplifier (Q516 and Q518) to 23~26dBm. The output of the drive amplifier is amplified by the RF power amplifier (Q520) to 5.0W (1W when the power is low). The RF power amplifier is MOS FET. The output of the RF power amplifier is then passed through the harmonic filter (LPF) and antenna switch (D529, D530 are on) and applied to the antenna terminal.

4-5. APC Circuit

The APC circuit always monitors the current flowing through the RF power amplifier (Q520) and keeps a constant current. The voltage drop at R685, R689 and R690 is caused by the current flowing through the RF power amplifier and this voltage is applied to the differential amplifier (IC511 1/2). IC511 (2/2) compares the output voltage of IC511 (1/2) with the reference voltage from IC308, and the output of IC511 (2/2) controls the VGG of Q516, Q518 and Q520 to make the both voltages the same. The change of power high/low is carried out by the change of the reference voltage. Q523, Q525 and Q526 are turned on and Q519 and Q521 are turned off in transmit and the APC circuit is active.

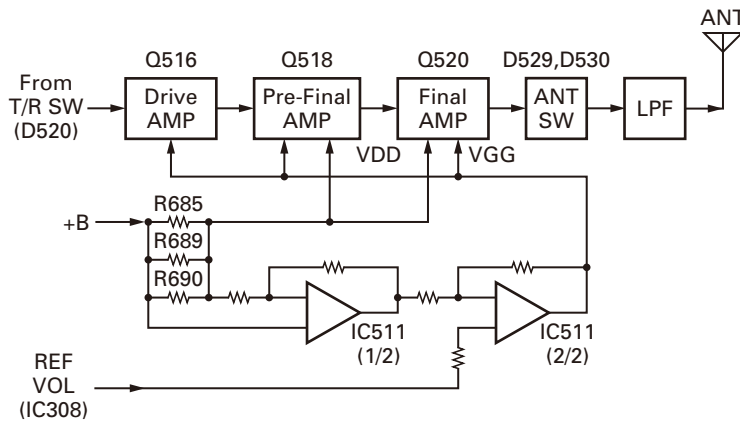


Fig. 6 Drive and final amplifier and APC circuit

5. PLL Frequency Synthesizer

5-1. VCTCXO (X501)

VCTCXO (X501) generates a reference frequency of 19.2MHz for the PLL frequency synthesizer. This reference frequency is applied to pin 9 of the PLL IC (IC503) and is connected to the IF circuit as a 2nd local signal through the Tripler (Q506). The VCTCXO oscillation frequency is determined by the DC voltage of the VC terminal. The VC voltage is fixed to 1.65V by R501 and R502, and supplied to the VC terminal through IC502. The modulation signal is also fed to VC terminal through IC502.

The frequency adjustment is achieved by switching the ratio of dividing frequency that is not adjusted by the DC voltage impressed to VC. The resolution of the adjusting frequency is approximately 8Hz. Because twice the VCO output are input for the input frequency of PLL IC, the sending and receiving frequency can be adjusted by approximately 4Hz resolution.

5-2. VCO

There is a RX VCO and a TX VCO.

The TX VCO (Q509) generates a transmit carrier and the RX VCO (Q508) generates a 1st local signal. For the VCO oscillation frequency, the transmit carrier is 136 to 174 MHz and the 1st local receive signal is 194.05 to 232.05MHz.

The VCO oscillation frequency is determined by one system of operation switching terminal "/T_R" and two systems of voltage control terminals "CV" and "ASSIST".

The operation switching terminal, "/T_R", is controlled by the control line (/T_R) output from the ASIC (IC308). When the /T_R logic is low, the VCO outputs the transmit carrier and when it is high, it outputs a 1st local receive signal.

The voltage control terminals, "CV" and "ASSIST", are controlled by the PLL IC (IC503) and ASIC (IC308) 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 VCO output. "VCO_MOD" works only when "/T_R" is low.

CIRCUIT DESCRIPTION

5-3. PLL IC (IC503)

The PLL IC compares the differences in phases of the VCO oscillation frequency and the VCTCXO reference frequency, returns the difference to the VCO CV terminal and realizes the "Phase Locked Loop" for the return control. This allows the 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 approximately 2.5V.

The desired frequency is set for the PLL IC by the ASIC (IC308) through the 3-line "SDO1", "SCK1", "/PCS_RF" serial bus. Whether the PLL IC is locked or not is monitored by the ASIC through the "PLD" signal line. If the VCO is not the desired frequency (unlock), the "PLD" logic is low.

5-4. Doubler (Q513)

The doubler (Q513) extracts the twice harmonic component from the signal from the VCO. This twice harmonic component is then fed into PLL (IC503) through band pass filter.

Band pass filter is consists of two filter. One is for TX (L513,L517,L523) and pass band is 272.0 to 348.0MHz. The other is for RX 1st local (L522,L527,L528) and pass band is 388.1 to 464.1MHz.

5-5. Local Switch (D519, D520)

The connection destination of the signal output from the buffer amplifier (Q514) is changed with the diode switch (D520) that is controlled by the transmission power supply, 50T, and the diode switch (D519) that is controlled by the receive power supply, 50R. If the 50T logic is high, it is connected to a send-side pre-drive (Q516). If the 50T logic is low, it is connected to a receive-side mixer (Q517).

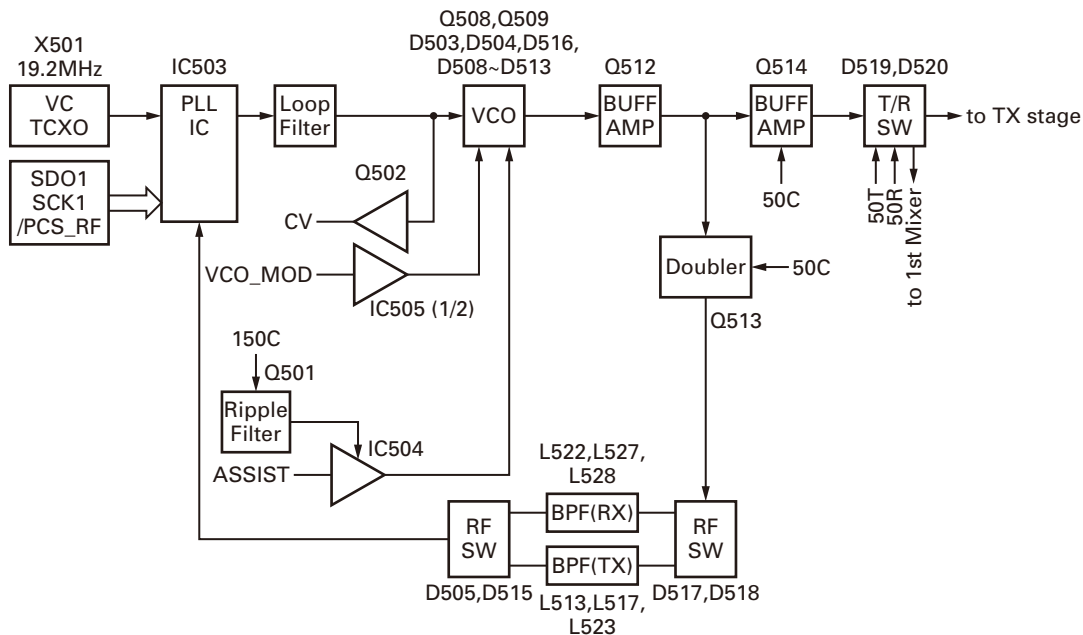


Fig. 7 PLL block diagram

6. Control Circuit

The control circuit consists of the ASIC (IC308) and its peripheral circuits. IC308 mainly performs the following;

- 1) Switching between transmission and reception by 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 by the DC voltage from the squelch circuit.
- 5) Controlling the audio mute circuit by decode data input.

6-1. ASIC

The ASIC (IC308) is a 32-bit RISC processor, equipped with peripheral function and ADC/DAC.

This ASIC operates at 18.432MHz clock 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 or from an external device.

CIRCUIT DESCRIPTION

6-2. Memory Circuit

The memory circuit consists of the ASIC (IC308) and the SRAM (IC303) and flash memory (IC301). The flash memory has capacity of 32M-bit that contains the transceiver control program for the ASIC and stores the data. It also stores the data for transceiver channels and operating parameter that are written by the FPU. This program can be easily written from external devices. The SRAM has capacity of 1M-bit that contains work area and data area.

■ Flash memory

Note: The flash memory stores the data that is written by the FPU (KPG-111D), tuning data (Deviation, Squelch, etc.) ,and firmware program (User mode, Test mode, Tuning mode, etc.). This data must be rewritten when replacing the flash memory.

■ SRAM (Static memory)

Note: The SRAM has temporary data area and work area. When the power supply is off, it is backed up by an internal secondary lithium battery. Therefore, the saved data is not lost.

■ Real-time clock

The clock function is based on real-time clock IC (IC306). When the power supply is off, it is backed up by an internal secondary lithium battery.

6-3. LCD

The LCD is controlled using the bus lines on the connector (CN3) of the Display unit (X54-366). It corrects the LCD contrast voltage using IC102.

6-4. Key Detection Circuit

Keys are detected using the key scan circuit in IC308. The /KEYI signals that are normally pulled down go high when any key is pressed.

6-5. Low Battery Warning

The battery voltage is divided using R231 and R232 and is detected by the ASIC (IC308). 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. |

6-6. DSP

The DSP circuit consists of a DSP (IC302) and processes the base band signal. The DSP operates on an external clock of 18.432MHz (the same as the IC308), the I/O section operates at 3.3V and the core section operates at 1.5V. 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
- LTR encoding/decoding
- DTMF encoding/decoding
- MSK encoding/decoding
- 2-tone encoding/decoding
- Compressor/expander processing
- Voice scrambler processing
- Transmit/receive audio filtering processing
- Microphone amplifier AGC processing
- Audio mute processing
- Modulation level processing

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 (F201), and goes to the RF final amplifier, AVR ICs (IC204, IC205, IC210, IC818), DC/DC (IC206) and voltage detector IC (IC209).

The voltage detector watches the battery voltage. If the battery voltage is 5.6V or higher, the detector outputs High. While the output of IC209 is High, IC210 and Q208 provide 3.1V (31BU) to the backup-section.

When the VOL SW is turned on, SB1 becomes high (battery voltage). The DC/DC (IC206) operates if both SB1 and the output of the detector are high. IC206 outputs 3.8V and it activates IC203 (33M), IC202 (15M), and IC201 (33A). As a result, the ASIC and DSP operate.

The SBC signal becomes High after the ASIC operates, IC205 (5A), Q201 are turned on. IC211 and IC207 operate by turning on these AVR ICs and FET switches.

The 5UC signal becomes High when an option is installed on the universal connector. Then IC818 (50U) operates.

When the /SAVE signal becomes High, IC204 (50C) operates. The output of IC204 is connected to two FET switches (Q205, Q206). When the SBC signal becomes High, IC207 (33C) operates. The FET switches are controlled by the ASIC. Q206 (50T) is turned on in transmit mode. Q205 (50R) are 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. Then the power supplies except IC210 (31BU) stop.

CIRCUIT DESCRIPTION

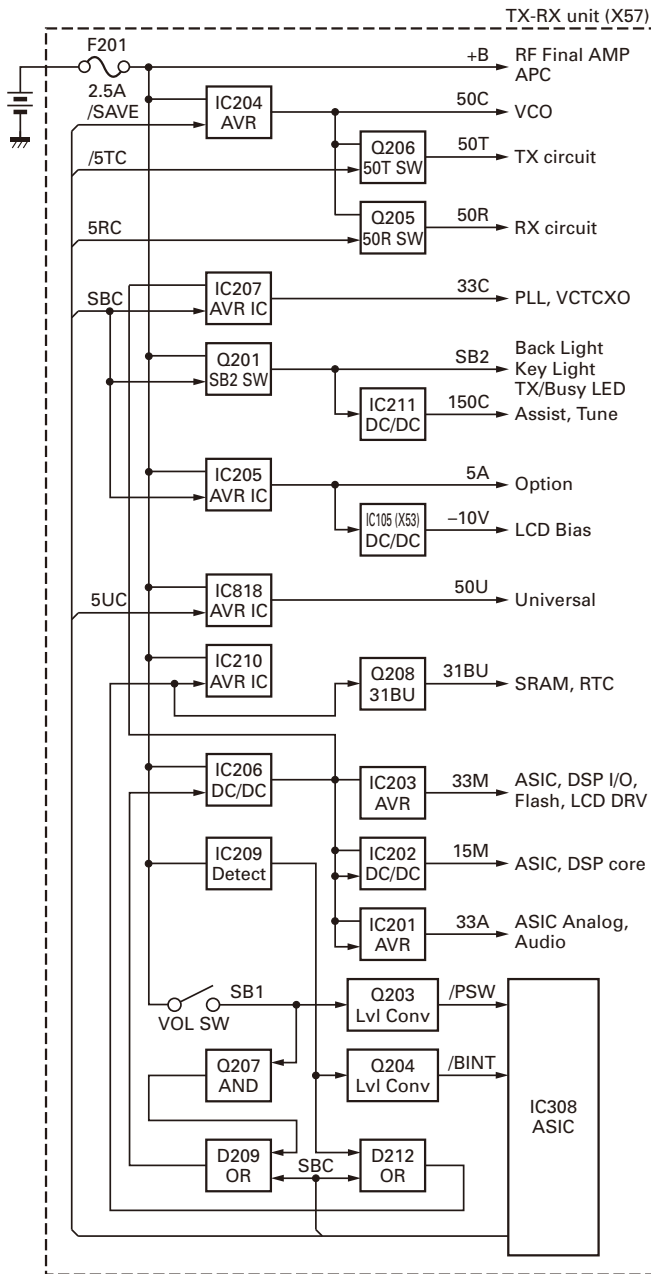


Fig. 8 Power supply circuit

8. Signaling Circuit

8-1. Encode (QT/DQT/LTR/DTMF/2-tone/MSK)

Each signaling data signal of QT, DQT, LTR, DTMF, 2-tone and MSK is generated by the DSP circuit, superposed on a modulation signal and output from IC308. The modulation balance of the QT/DQT/LTR signal is adjusted by the D/A converter (IC801) and the resulting signal is routed to the modulation input of the VCO and VCXO (X501). Each deviation of the TX QT, DQT, LTR, DTMF, 2-tone and MSK tone is adjusted by changing the output level of IC308 and the resulting signal is routed to the VCO and VCXO. The RX DTMF tone is routed to the receive audio signal system, and is output from the speaker.

8-2. Decode (QT/DQT/LTR/DTMF/2-tone/MSK)

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

9. Componder Circuit

The term "componder" means compressor and expander. The compander reduces noise by utilizing a compressor and an expander. The transceiver contains a DSP (IC302) to perform this operation. The transceiver compander can be turned on or off using the FPU.

COMPONENTS DESCRIPTION

Display unit (X54-3660-10)

| Ref. No. | Part Name | Description |
|----------|-----------|---------------------------|
| IC102 | IC | LCD contrast |
| IC105 | IC | Voltage doubling inverter |
| D1~4 | LED | 6key backlight |
| D5~10 | LED | 12key backlight |
| D11~14 | Diode | 12key control |
| D15~18 | LED | LCD backlight |

TX-RX unit (X57-7710-10)

| Ref. No. | Part Name | Description |
|----------|-----------|-------------------------|
| IC101 | IC | Bus switch |
| IC103 | IC | Audio AMP |
| IC104 | IC | Bus switch |
| IC201 | IC | Voltage regulator (33A) |
| IC202 | IC | DC/DC Converter (15M) |
| IC203 | IC | Voltage regulator (33M) |
| IC204 | IC | Voltage regulator (50C) |
| IC205 | IC | Voltage regulator (5A) |
| IC206 | IC | DC/DC converter (38M) |
| IC207 | IC | Voltage regulator (33C) |
| IC208 | IC | 50T control |
| IC209 | IC | Reset |
| IC210 | IC | Voltage regulator |
| IC211 | IC | DC/DC converter |
| IC301 | IC | FLASH ROM |
| IC302 | IC | DSP |
| IC303 | IC | SRAM |
| IC304 | IC | 2 input AND gate |
| IC305 | IC | Reset |
| IC306 | IC | RTC |
| IC307 | IC | Buffer |
| IC308 | IC | ASIC |
| IC309 | IC | I/O control |
| IC310 | IC | 2 input AND gate |
| IC501 | IC | Temperature sensor |
| IC502 | IC | DC AMP for TCXO MOD |
| IC503 | IC | PLL IC |
| IC504 | IC | DC AMP for VCO tune |
| IC505 | IC | OP AMP (VCO MOD/APC) |
| IC506 | IC | Buffer |
| IC507 | IC | FM IC |

| Ref. No. | Part Name | Description |
|-----------|------------|--------------------------|
| IC508 | IC | OP AMP (RSSI/VAGC) |
| IC509,510 | IC | DC AMP for BPF |
| IC511 | IC | Auto power control |
| IC801 | IC | D/A converter |
| IC802 | IC | RX AF LPF |
| IC803 | IC | Modulation LPF |
| IC804 | IC | MIC AMP |
| IC805 | IC | RX AF switch |
| IC806 | IC | Sidetone mute |
| IC807 | IC | MOD/MIC summing AMP |
| IC808 | IC | MIC switch |
| IC809 | IC | 1.65V REF/RX summing AMP |
| IC810 | IC | OPT switch |
| IC811 | IC | APC LPF |
| IC812,813 | IC | VOX AMP |
| IC814 | IC | AF AMP |
| IC815 | IC | SQL BPF/SQL DC AMP |
| IC816 | IC | AF switch |
| IC817 | IC | Audio AMP |
| IC818 | IC | Voltage regulator (50U) |
| IC819 | IC | 2 input AND gate |
| IC820,821 | IC | Dual bus buffer |
| Q101 | Transistor | 12key backlight switch |
| Q102 | Transistor | LCD backlight switch |
| Q103 | Transistor | 12key backlight switch |
| Q104 | Transistor | LCD backlight switch |
| Q105 | FET | 12key backlight switch |
| Q201 | Transistor | SB2 switch |
| Q202 | FET | SB2 switch control |
| Q203,204 | FET | Level converter |
| Q205 | FET | 50R switch |
| Q206 | Transistor | 50T switch |
| Q207,208 | Transistor | DC switch |
| Q209,210 | FET | DC switch |
| Q211 | Transistor | DC switch |
| Q212 | FET | DC/DC converter switch |
| Q213 | Transistor | DC switch |
| Q214 | Transistor | TX/RX LED switch |
| Q215 | Transistor | DC switch |
| Q501 | Transistor | Ripple filter |
| Q502 | FET | Buffer AMP |
| Q503 | Transistor | Buffer AMP switch |
| Q504 | FET | Buffer AMP switch |
| Q505 | Transistor | Buffer AMP switch |
| Q506 | Transistor | 2nd Local buffer AMP |

COMPONENTS DESCRIPTION

| Ref. No. | Part Name | Description |
|----------|-------------|----------------------------|
| Q507 | Transistor | Ripple filter |
| Q508,509 | FET | VCO oscillation |
| Q510,511 | FET | T/R switch |
| Q512~514 | Transistor | Buffer AMP |
| Q515 | Transistor | IF AMP |
| Q516 | FET | RF AMP |
| Q517 | FET | Mixer |
| Q518 | FET | RF drive AMP |
| Q519 | Transistor | APC switch |
| Q520 | FET | RF final AMP |
| Q521 | FET | APC switch |
| Q522 | FET | RF AMP |
| Q523 | Transistor | APC switch |
| Q525 | FET | APC switch |
| Q526 | Transistor | APC switch |
| Q801 | FET | Tone switch |
| Q802 | Transistor | OPT switch |
| Q803,804 | Transistor | MIC AGC |
| Q805 | FET | W/N noise switch |
| Q806 | FET | Voltage regulator switch |
| Q807 | FET | MIC mute |
| Q808 | Transistor | SQL noise AMP |
| Q809,810 | Transistor | Voltage regulator (AF AMP) |
| Q811 | FET | MIC switch control |
| Q812 | FET | MIC switch |
| Q813 | FET | Level converter |
| D101,102 | Zener diode | Surge absorption |
| D107 | Diode | 12key backlight switch |
| D108 | Diode | LCD backlight switch |
| D113 | Diode | SP control |
| D201 | Diode | Reverse current prevention |
| D202,203 | Diode | Surge absorption |
| D204 | Diode | DC/DC converter |
| D205 | Diode | 5A switch |
| D206 | Diode | DC/DC converter |
| D207 | Diode | Over voltage protection |
| D208 | Diode | Speed up diode |
| D209 | Diode | DC/DC converter control |
| D210 | Diode | Reverse current prevention |
| D211 | Diode | RTC BATT control |
| D212 | Diode | DC switch control |
| D213 | Diode | RTC BATT control |

| Ref. No. | Part Name | Description |
|----------|----------------------------|----------------------------|
| D214 | LED | TX/RX LED |
| D301 | Diode | Reverse current prevention |
| D501,502 | Diode | Speed up diode |
| D503 | Variable capacitance diode | Frequency control |
| D504 | Variable capacitance diode | Frequency control |
| D505 | Diode | Buffer AMP switch |
| D508~513 | Variable capacitance diode | Frequency control |
| D514 | Diode | Speed up diode |
| D515 | Diode | Buffer AMP switch |
| D516 | Variable capacitance diode | TX modulation |
| D517,518 | Diode | Buffer AMP switch |
| D519,520 | Diode | Local switch |
| D523 | Zener diode | Constant current circuit |
| D524,525 | Variable capacitance diode | Vari-cap tune |
| D526 | Zener diode | APC protect |
| D527 | Diode | Reverse current prevention |
| D528 | Variable capacitance diode | Vari-cap tune |
| D529~532 | Diode | Antenna switch |
| D533 | Variable capacitance diode | Vari-cap tune |
| D801~803 | Diode | Detector |
| D804 | Diode | VOX AMP |
| D805 | Diode | PLD control |
| D806 | Diode | SP control |
| D807 | Diode | Noise detector |
| D808~814 | Diode | Reverse current prevention |
| D815,816 | Zener diode | Surge absorption |
| D817 | Diode | Surge absorption |
| D818 | Zener diode | Surge absorption |
| D819 | Diode | Surge absorption |
| D820 | Zener diode | Surge absorption |

NX-210

PARTS LIST

* New Parts. Δ indicates safety critical components.

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

L : Scandinavia

Y : PX (Far East, Hawaii)

Y : AAFES (Europe)

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

NX-210 (Y50-6480-10)

DISPLAY UNIT (X54-3660-10)

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---------------|---------|-----------|-------------|---------------------------------|-------------|
| NX-210 | | | | | |
| 1 | 1B | * | A02-4076-01 | MAIN CABINET (18KEY) | |
| 2 | 3A | * | A10-4132-03 | CHASSIS | |
| 3 | 3B | | A62-1093-12 | PANEL (TOP) | |
| 5 | 2D | | B09-0625-03 | CAP ACCESSORY | |
| 6 | 1A | * | B10-2795-02 | FRONT GLASS | |
| 7 | 3B | | B11-1820-04 | ILLUMINATION GUIDE (TX/BUSY) | |
| 8 | 2A | | B11-1853-24 | FILTER (LCD) | |
| 9 | 2A | | B11-1854-02 | ILLUMINATION GUIDE (LCD) | |
| 11 | 1A | | B38-0923-05 | LCD ASSY | |
| 12 | 1A | | B42-7296-04 | STICKER | |
| 13 | 1B | | B43-1606-04 | BADGE | |
| 14 | 2D | * | B62-2152-00 | INSTRUCTION MANUAL | |
| 16 | 2B | | E04-0416-25 | RF COAXIAL RECEPTACLE (SMA) | |
| 17 | 2B | | E23-1104-04 | TERMINAL (ANT) | |
| 18 | 2A | * | E37-1462-05 | LEAD WIRE WITH CONNECTOR (SP) | |
| 19 | 3B | | E58-0511-15 | RECTANGULAR RECEPTACLE (SP/MIC) | |
| 20 | 3B | | E72-0419-23 | TERMINAL BLOCK | |
| 22 | 3A | | F07-1880-04 | COVER (OP BOARD) | |
| 23 | 3B | | F20-3350-04 | INSULATING SHEET (TX-RX PCB) | |
| 25 | 1B | * | G10-1400-04 | FIBROUS SHEET (SP) | |
| 26 | 1A | | G11-4272-14 | RUBBER CUSHION (SP) | |
| 27 | 3A | | G11-4273-24 | SHEET (PTT) | |
| 28 | 3A | | G11-4308-14 | RUBBER SHEET (FET) | |
| 29 | 1A | | G11-4458-14 | SHEET (SP) | |
| 31 | 3B | * | G11-4493-04 | SHEET (VOL-RING) | |
| 32 | 1B | * | G11-4494-04 | SHEET (18KEY PACKING) | |
| 33 | 2A | * | G11-4495-04 | SHEET (LCD-HOLDER) | |
| 34 | 3A | | G13-2020-04 | CUSHION (OP BOARD) | |
| 35 | 2A | | G13-2068-04 | CUSHION (DISPLAY PCB) | |
| 37 | 2A | | G13-2258-04 | CUSHION (50PIN FPC) | |
| 38 | 3A | * | G13-2288-04 | CUSHION (DC-DC) | |
| 39 | 3B | | G53-1600-12 | PACKING (TOP) | |
| 40 | 3B | | G53-1601-04 | PACKING (TERMINAL BLOCK) | |
| 41 | 3A | | G53-1602-14 | PACKING (OP BOARD COVER) | |
| 43 | 2B,3B | | G53-1603-04 | PACKING (SMA/SELECTOR O-RING) | |
| 44 | 1B | * | G53-1823-11 | PACKING (18KEY) | |
| 46 | 3C | * | H52-2316-02 | ITEM CARTON CASE | |
| 48 | 2B | | J19-5478-03 | HOLDER (VOL/SELECTOR) | |
| 49 | 1A | * | J19-5529-02 | HOLDER (SP) | |
| 50 | 2C | | J29-0730-05 | BELT CLIP ACCESSORY | |
| 51 | 3B | | J30-1279-04 | SPACER (VOL) | |
| 52 | 2B | | J82-0089-05 | FPC (VOL/SELECTOR) | |
| 54 | 3B | | J82-0090-25 | FPC (UNIVERSAL) | |
| 55 | 3A | | J82-0091-35 | FPC (PTT) | |
| 56 | 2A | | J99-0714-04 | ADHESIVE SHEET (LCD) | |
| 58 | 1A | | K29-9302-33 | KNOB (PTT) | |
| 59 | 1B | | K29-9303-03 | BUTTON KNOB (SIDE) | |
| 60 | 1B | | K29-9304-03 | KNOB (VOLUME) | |
| 61 | 1B | | K29-9305-03 | KNOB (SELECTOR) | |
| A | 2D | | N08-0548-24 | DRESSED SCREW ACCESSORY | |
| B | 3B | | N09-2426-14 | HEXAGON HEAD SCREW (BATT-) | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|-------------|----------------------------------|-------------|
| C | 3A | | N09-6565-05 | PAN HEAD SCREW (CASE/CHASSIS) | |
| D | 3B | | N14-0806-04 | CIRCULAR NUT (VOL) | |
| E | 3B | | N14-0810-04 | CIRCULAR NUT (SELECTOR) | |
| F | 2B,3A | | N30-2004-43 | PAN HEAD MACHINE SCREW (OPB/FET) | |
| G | 2B | | N30-2604-48 | PAN HEAD MACHINE SCREW (ANT) | |
| H | 2C | | N30-3008-60 | PAN HEAD MACHINE SCREW (CLIP) | |
| J | 2A,2B | | N83-2005-48 | PAN HEAD TAPTITE SCREW (PCB) | |
| K | 2B | | N83-2006-43 | PAN HEAD TAPTITE SCREW (HOLDER) | |
| 63 | 2B | | R31-0652-15 | VARIABLE RESISTOR (VOL) | |
| 65 | 2B | | S60-0430-05 | ROTARY SWITCH (SELECTOR) | |
| 67 | 1A | | T07-0749-25 | SPEAKER | |
| 68 | 2A | | T91-0579-05 | MIC ELEMENT | |
| 70 | 3A | | W09-0971-05 | LITHIUM CELL | |
| 72 | 2A | | X42-3340-10 | CORD ASSY (50PIN FPC) | |

DISPLAY UNIT (X54-3660-10)

| | | | | | |
|----------|--|---------------|----------------------|--------|---------|
| D1-10 | | B30-2215-05 | LED | | |
| D15-18 | | B30-2215-05 | LED | | |
| C1 | | CK73HB1A104K | CHIP C | 0.10UF | K |
| C6-10 | | CK73GB1E105K | CHIP C | 1.0UF | K |
| C11,12 | | CK73HB1A104K | CHIP C | 0.10UF | K |
| C14 | | CC73HCH1H221J | CHIP C | 220PF | J |
| C15 | | CK73HB1A104K | CHIP C | 0.10UF | K |
| C16,17 | | CK73HB1H471K | CHIP C | 470PF | K |
| C20-29 | | CC73HCH1H470J | CHIP C | 47PF | J |
| C33-44 | | CC73HCH1H470J | CHIP C | 47PF | J |
| C119 | | CK73HB1A104K | CHIP C | 0.10UF | K |
| C122 | | CC73HCH1H101J | CHIP C | 100PF | J |
| C123 | | CS77AP1C2R2M | CHIP TNTL | 2.2UF | 16WV |
| C125 | | CS77AP1C2R2M | CHIP TNTL | 2.2UF | 16WV |
| C133 | | CS77AP1C2R2M | CHIP TNTL | 2.2UF | 16WV |
| C135 | | CK73HBOJ105K | CHIP C | 1.0UF | K |
| C136,137 | | CK73HB1H102K | CHIP C | 1000PF | K |
| C138 | | CC73HCH1H470J | CHIP C | 47PF | J |
| CN3 | | E40-6755-05 | FLAT CABLE CONNECTOR | | |
| CN8 | | E40-6421-15 | PIN ASSY | | |
| R1,2 | | RK73HB1J122J | CHIP R | 1.2K | J 1/16W |
| R3-5 | | RK73HB1J152J | CHIP R | 1.5K | J 1/16W |
| R6-14 | | RK73HB1J471J | CHIP R | 470 | J 1/16W |
| R15 | | RK73HB1J000J | CHIP R | 0.0 | J 1/16W |
| R16-23 | | RK73HB1J103J | CHIP R | 10K | J 1/16W |
| R24 | | RK73HB1J104J | CHIP R | 100K | J 1/16W |
| R25 | | RK73HB1J000J | CHIP R | 0.0 | J 1/16W |
| R26,27 | | RK73HB1J151J | CHIP R | 150 | J 1/16W |
| R112 | | RK73HB1J123J | CHIP R | 12K | J 1/16W |
| R113 | | RK73HB1J105J | CHIP R | 1.0M | J 1/16W |
| R115 | | RK73HB1J104J | CHIP R | 100K | J 1/16W |
| R133 | | RK73HB1J470J | CHIP R | 47 | J 1/16W |
| R134 | | RK73HB1J000J | CHIP R | 0.0 | J 1/16W |

PARTS LIST

DISPLAY UNIT (X54-3660-10)

TX-RX UNIT (X57-7710-10)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---------------------------------|---------|-----------|---------------|---------------------|-------------|----------|---------|-----------|---------------|----------------------|-------------|
| S1-18 | | | S70-0509-05 | TACT SWITCH | | C249 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| D11-14 | | | 1SS388F | DIODE | | C250 | | | CK73HB1H471K | CHIP C 470PF K | |
| IC102 | | | NJM2130F3-ZB | BI-POLAR IC | | C252,253 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| IC105 | | | LM2682MMX | MOS-IC | | C254 | | | CK73HB1H102K | CHIP C 1000PF K | |
| TH101 | | | ERTJ0EV104H | THERMISTOR | | C255,256 | | | CK73FB0J106K | CHIP C 10UF K | |
| TX-RX UNIT (X57-7710-10) | | | | | | C257 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| D214 | | | B30-2278-05 | LED (RED/YELLOW) | | C258 | | | CK73HB1H471K | CHIP C 470PF K | |
| C2-5 | | | CC73HCH1H470J | CHIP C 47PF J | | C259 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C106,107 | | | CC73HCH1H101J | CHIP C 100PF J | | C260 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C116 | | | CK73HB1A104K | CHIP C 0.10UF K | | C261 | | | C92-0765-05 | CHIP TNTL 4.7UF 16WV | |
| C118 | | | CK73HB1H102K | CHIP C 1000PF K | | C262 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C121 | | | CK73HB0J105K | CHIP C 1.0UF K | | C263 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C124 | | | CK73HB0J105K | CHIP C 1.0UF K | | C264 | | | CC73HCH1E181J | CHIP C 180PF J | |
| C126 | | | CK73HB1A104K | CHIP C 0.10UF K | | C265 | | | CK73HB1H471K | CHIP C 470PF K | |
| C127 | | | CK73HB0J105K | CHIP C 1.0UF K | | C266 | | | CC73HCH1H220J | CHIP C 22PF J | |
| C129 | | | CK73HB1A104K | CHIP C 0.10UF K | | C267,268 | | | CK73HB1H471K | CHIP C 470PF K | |
| C131,132 | | | CK73HB1A563K | CHIP C 0.056UF K | | C269,270 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C134 | | | CK73HB1A104K | CHIP C 0.10UF K | | C271 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C142 | | | CC73HCH1H470J | CHIP C 47PF J | | C272 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C201 | | | CC73GCH1H220J | CHIP C 22PF J | | C273 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C202 | | | CK73HB1H471K | CHIP C 470PF K | | C301,302 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C204,205 | | | CK73HB1H471K | CHIP C 470PF K | | C305 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C206 | | | CK73HB1E682K | CHIP C 6800PF K | | C314-316 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C207 | | | CK73HB1H471K | CHIP C 470PF K | | C318-327 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C209,210 | | | CK73HB1H471K | CHIP C 470PF K | | C328-331 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C212 | | | CK73HB1H471K | CHIP C 470PF K | | C332 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C213 | | | CK73HB0J105K | CHIP C 1.0UF K | | C333 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C214-216 | | | CK73HB1H471K | CHIP C 470PF K | | C334 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C218 | | | CK73GB0J475K | CHIP C 4.7UF K | | C335,336 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C219,220 | | | CK73HB1A104K | CHIP C 0.10UF K | | C337-341 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C221,222 | | | CK73HB0J105K | CHIP C 1.0UF K | | C342 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C223 | | | CK73GB1C224K | CHIP C 0.22UF K | | C343 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C224 | | | CK73HB0J105K | CHIP C 1.0UF K | | C344 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C225 | | * | CK73GB0J106K | CHIP C 10UF K | | C345 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C226 | | | CK73HB1H471K | CHIP C 470PF K | | C346 | | | CC73HCH1H220J | CHIP C 22PF J | |
| C227 | | * | CK73HB1A105K | CHIP C 1.0UF K | | C347,348 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C228 | | | CK73HB1H102K | CHIP C 1000PF K | | C349 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C229 | | | CS77AP1A100M | CHIP TNTL 10UF 10WV | | C350 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C230 | | | CK73FB0J106K | CHIP C 10UF K | | C353 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C231 | | * | CK73HB1A105K | CHIP C 1.0UF K | | C355 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C232 | | | CK73GB1E105K | CHIP C 1.0UF K | | C356 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C233 | | | CC73HCH1H221J | CHIP C 220PF J | | C357 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C234 | | | CK73GB1E105K | CHIP C 1.0UF K | | C359 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C235,236 | | | CK73HB1H102K | CHIP C 1000PF K | | C360 | | | CS77CP0J100M | CHIP TNTL 10UF 6.3WV | |
| C237 | | | CK73HB1E103K | CHIP C 0.010UF K | | C361 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C238,239 | | | CK73GB1E105K | CHIP C 1.0UF K | | C362 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C240 | | | CK73HB1H102K | CHIP C 1000PF K | | C363 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C241 | | | CK73GB1C224K | CHIP C 0.22UF K | | C364 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C242 | | | CK73HB1H102K | CHIP C 1000PF K | | C365 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C243 | | | CK73FB1E475K | CHIP C 4.7UF K | | C366,367 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C244,245 | | | CK73GB1C224K | CHIP C 0.22UF K | | C368 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C246 | | | CK73HB1H102K | CHIP C 1000PF K | | C369 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C247 | | | CK73HB1E682K | CHIP C 6800PF K | | C370 | | | CS77CP0J100M | CHIP TNTL 10UF 6.3WV | |
| C248 | | | CK73GB1C224K | CHIP C 0.22UF K | | C371 | | | CC73HCH1H101J | CHIP C 100PF J | |
| | | | | | | C372 | | | CC73HCH1H030C | CHIP C 3.0PF C | |
| | | | | | | C373 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| | | | | | | C374 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| | | | | | | C375 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| | | | | | | C376-379 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| | | | | | | C380 | | | CK73HB1E103K | CHIP C 0.010UF K | |

PARTS LIST

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| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|------------------------|-------------|----------|---------|-----------|---------------|------------------|-------------|
| C381 | | | CK73GB1E105K | CHIP C 1.0UF K | | C573 | | | CK73HB1H471K | CHIP C 470PF K | |
| C382-386 | | | CK73HB1A104K | CHIP C 0.10UF K | | C574 | | | CC73HCH1HR75B | CHIP C 0.75PF B | |
| C387 | | | CK73HB1E103K | CHIP C 0.010UF K | | C575 | | | CK73FB0J106K | CHIP C 10UF K | |
| C389 | | | CK73GB0J475K | CHIP C 4.7UF K | | C576 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C390,391 | | | CK73HB1H102K | CHIP C 1000PF K | | C577 | | | CC73HCH1H180G | CHIP C 18PF G | |
| C392 | | | CK73HB1E103K | CHIP C 0.010UF K | | C578 | | | CC73HCH1H080B | CHIP C 8.0PF B | |
| C393 | | | CK73HB1H102K | CHIP C 1000PF K | | C579 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C501 | | | CK73HB1A104K | CHIP C 0.10UF K | | C580 | | | CC73HCH1H680J | CHIP C 68PF J | |
| C502 | | | CK73HB1H471K | CHIP C 470PF K | | C581,582 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C503,504 | | | CC73HCH1H101J | CHIP C 100PF J | | C583 | | | CK73GB0J475K | CHIP C 4.7UF K | |
| C505 | | | CK73HB1A104K | CHIP C 0.10UF K | | C584 | | | CC73HCH1H1R5B | CHIP C 1.5PF B | |
| C506 | | | CK73HB1C103K | CHIP C 0.010UF K | | C585 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C507 | | | CC73HCH1H100B | CHIP C 10PF B | | C586 | | | CK73HB1H471K | CHIP C 470PF K | |
| C508 | | | CK73HB1C103K | CHIP C 0.010UF K | | C587 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C509 | | | CC73HCH1H100B | CHIP C 10PF B | | C588 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C510 | | | CK73FB0J106K | CHIP C 10UF K | | C589 | | | CC73HCH1H820J | CHIP C 82PF J | |
| C511 | | | CK73HB1C103K | CHIP C 0.010UF K | | C590 | | | CC73HCH1H020B | CHIP C 2.0PF B | |
| C512 | | | CC73HCH1H101J | CHIP C 100PF J | | C591 | | | CC73HCH1H180G | CHIP C 18PF G | |
| C514 | | | CK73HB1C103K | CHIP C 0.010UF K | | C592 | | | CK73HB1H471K | CHIP C 470PF K | |
| C515 | | | CC73HCH1H101J | CHIP C 100PF J | | C593,594 | | | CC73HCH1H0R5B | CHIP C 0.5PF B | |
| C516 | | | CK73GB1E105K | CHIP C 1.0UF K | | C595-597 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C517-522 | | | CC73HCH1H101J | CHIP C 100PF J | | C598 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C523 | | | CK73HB1A104K | CHIP C 0.10UF K | | C599 | | | CK73HB1H471K | CHIP C 470PF K | |
| C524 | | | CC73HCH1H101J | CHIP C 100PF J | | C600 | | | CK73FB0J106K | CHIP C 10UF K | |
| C525 | | | CK73HB1A104K | CHIP C 0.10UF K | | C601-603 | | | CK73HB1H471K | CHIP C 470PF K | |
| C526 | | | CC73HCH1H101J | CHIP C 100PF J | | C604 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C527 | | | CK73HB1E682K | CHIP C 6800PF K | | C605 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C528,529 | | | CC73HCH1H101J | CHIP C 100PF J | | C606 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C530 | | | CK73HB1H471K | CHIP C 470PF K | | C607 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C531 | | | CC73HCH1H101J | CHIP C 100PF J | | C608 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C532 | | | CS77AA1VR15M | CHIP TNTL 0.15UF 35WV | | C609 | | | CK73HB1H471K | CHIP C 470PF K | |
| C533 | | | C93-0787-05 | CERAMIC 0.1UF 50WV | | C611 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C535 | | | CS77BA1D100M | CHIP TNTL 10UF 20WV | | C612 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C538 | | | C92-0863-05 | CHIP TNTL 0.047UF 35WV | | C613 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C539 | | | CK73HB1H472K | CHIP C 4700PF K | | C614-616 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C540 | | | CC73HCH1H470J | CHIP C 47PF J | | C617 | | | CC73HCH1H050B | CHIP C 5.0PF B | |
| C541 | | | CK73HB0J105K | CHIP C 1.0UF K | | C618 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C542 | | | CK73HB1H102K | CHIP C 1000PF K | | C619 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C543,544 | | | CC73HCH1H101J | CHIP C 100PF J | | C620 | | | CK73HB1H471K | CHIP C 470PF K | |
| C545 | | | CK73HB0J105K | CHIP C 1.0UF K | | C621 | | | CK73FB1E474K | CHIP C 0.47UF K | |
| C546 | | | CK73HB1A104K | CHIP C 0.10UF K | | C622 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C547,548 | | | CK73HB1H471K | CHIP C 470PF K | | C623 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C549 | | | CC73HCH1H101J | CHIP C 100PF J | | C625 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C550,551 | | | CK73HB1H471K | CHIP C 470PF K | | C626 | | | CK73HB1H471K | CHIP C 470PF K | |
| C552 | | | CC73HCH1H070B | CHIP C 7.0PF B | | C627 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C553 | | | CK73HB1A104K | CHIP C 0.10UF K | | C628 | | | CC73HCH1H470G | CHIP C 47PF G | |
| C554 | | | CC73HCH1H220G | CHIP C 22PF G | | C629 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C555 | | | CK73HB1C103K | CHIP C 0.010UF K | | C630,631 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C556 | | | CC73HCH1H030B | CHIP C 3.0PF B | | C633 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C557 | | | CC73HCH1H270J | CHIP C 27PF J | | C635 | | | CC73HCH1H050B | CHIP C 5.0PF B | |
| C558 | | | CC73HCH1H470J | CHIP C 47PF J | | C636 | | | CC73HCH1H220G | CHIP C 22PF G | |
| C559 | | | CK73HB1A104K | CHIP C 0.10UF K | | C637 | | | CC73HCH1H060B | CHIP C 6.0PF B | |
| C560,561 | | | CC73HCH1H030B | CHIP C 3.0PF B | | C638 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C562 | | | CK73FB0J106K | CHIP C 10UF K | | C639 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C563 | | | CC73HCH1H100B | CHIP C 10PF B | | C640 | | | CC73HCH1H470G | CHIP C 47PF G | |
| C564 | | | CK73HB1A104K | CHIP C 0.10UF K | | C641 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C566 | | | CC73HCH1H680J | CHIP C 68PF J | | C642 | | | CC73HCH1H270J | CHIP C 27PF J | |
| C567 | | | CK73HB1H471K | CHIP C 470PF K | | C643 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C568-570 | | | CK73HB1A104K | CHIP C 0.10UF K | | C644 | | | CC73HCH1H270J | CHIP C 27PF J | |
| C572 | | | CC73HCH1H180G | CHIP C 18PF G | | C645 | | | CK73FB1A475K | CHIP C 4.7UF K | |

PARTS LIST

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| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation |
|----------|---------|-----------|---------------|---------------------|--------------|----------|---------|-----------|---------------|------------------|--------------|
| C646 | | | CK73HB1C103K | CHIP C 0.010UF K | | C735 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C647,648 | | | CK73HB1H102K | CHIP C 1000PF K | | C736 | | | CC73GCH1H220G | CHIP C 22PF G | |
| C649 | | | CC73HCH1H560J | CHIP C 56PF J | | C741 | | | CC73GCH1H070B | CHIP C 7.0PF B | |
| C650 | | | CK73HB1H471K | CHIP C 470PF K | | C742 | | | CC73HCH1H330J | CHIP C 33PF J | |
| C651 | | | CC73HCH1H120G | CHIP C 12PF G | | C743 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C652 | | | CC73HCH1H100B | CHIP C 10PF B | | C744 | | | CC73GCH1H680G | CHIP C 68PF G | |
| C653 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C745 | | | CC73HCH1H030B | CHIP C 3.0PF B | |
| C655 | | | CK73HB1A104K | CHIP C 0.10UF K | | C748 | | | CK73HB1H471K | CHIP C 470PF K | |
| C656 | | | CK73HB1H471K | CHIP C 470PF K | | C749 | | | CC73HCH1H180J | CHIP C 18PF J | |
| C657 | | | CC73HCH1H220G | CHIP C 22PF G | | C750 | | | CC73GCH1H220G | CHIP C 22PF G | |
| C658 | | | CK73HB1H102K | CHIP C 1000PF K | | C751 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C659 | | | CC73HCH1H030B | CHIP C 3.0PF B | | C753 | | | CC73HCH1H020B | CHIP C 2.0PF B | |
| C660 | | | CK73HB1C103K | CHIP C 0.010UF K | | C754 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C661-663 | | | CK73HB1H102K | CHIP C 1000PF K | | C755 | | | CK73HB1H471K | CHIP C 470PF K | |
| C664 | | | CC73HCH1H100B | CHIP C 10PF B | | C756 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C665 | | | CK73HB1A104K | CHIP C 0.10UF K | | C758 | * | | CC73GCH1H820G | CHIP C 82PF G | |
| C666 | | | CC73HCH1H040B | CHIP C 4.0PF B | | C759 | | | CC73GCH1H050B | CHIP C 5.0PF B | |
| C667 | | | CK73HB1H102K | CHIP C 1000PF K | | C763 | | | CC73GCH1H060B | CHIP C 6.0PF B | |
| C668 | | | CC73HCH1H270J | CHIP C 27PF J | | C764 | | | CC73HCH1H180J | CHIP C 18PF J | |
| C669 | | | CK73HB1H102K | CHIP C 1000PF K | | C766 | | | CC73GCH1H100C | CHIP C 10PF C | |
| C670 | | | CC73HCH1H070B | CHIP C 7.0PF B | | C767 | | | CC73GCH1H090B | CHIP C 9.0PF B | |
| C671 | | | CC73HCH1H220J | CHIP C 22PF J | | C768 | | | CC73GCH1H180G | CHIP C 18PF G | |
| C678 | | | CK73HB1H102K | CHIP C 1000PF K | | C769 | | | CC73HCH1H120J | CHIP C 12PF J | |
| C679 | | | CK73HB1H471K | CHIP C 470PF K | | C772 | | | CC73HCH1H080B | CHIP C 8.0PF B | |
| C681 | | | CC73HCH1H220J | CHIP C 22PF J | | C773 | | | CC73GCH1H150G | CHIP C 15PF G | |
| C682 | | | CC73HCH1H100B | CHIP C 10PF B | | C774 | | | CC73GCH1H020B | CHIP C 2.0PF B | |
| C683 | | | CK73HB1H102K | CHIP C 1000PF K | | C775 | | | CC73HCH1H180J | CHIP C 18PF J | |
| C684 | | | CC73HCH1H040B | CHIP C 4.0PF B | | C776 | | | CC73HCH1H390J | CHIP C 39PF J | |
| C685 | | | CC73HCH1H390J | CHIP C 39PF J | | C778 | | | CC73HCH1H120J | CHIP C 12PF J | |
| C686 | | | CK73GB1E105K | CHIP C 1.0UF K | | C779 | | | CC73GCH1H270G | CHIP C 27PF G | |
| C687 | | | CK73HB1H102K | CHIP C 1000PF K | | C780 | | | CC73GCH1H100C | CHIP C 10PF C | |
| C688 | | | CC73HCH1H470J | CHIP C 47PF J | | C781 | | | CC73GCH1H470G | CHIP C 47PF G | |
| C690 | | | CK73HB1H471K | CHIP C 470PF K | | C782 | | | CC73GCH1H330G | CHIP C 33PF G | |
| C691 | | | CK73HB1A104K | CHIP C 0.10UF K | | C801 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C692 | | | CK73HB1H102K | CHIP C 1000PF K | | C802 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C693 | | | CK73GB1H104K | CHIP C 0.10UF K | | C803-806 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C695 | | | CC73HCH1H1R5B | CHIP C 1.5PF B | | C807,808 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C696 | | | CC73HCH1H470J | CHIP C 47PF J | | C809 | | | CK73HB1H122K | CHIP C 1200PF K | |
| C698 | | | CC73HCH1H270J | CHIP C 27PF J | | C810 | | | CK73HB1H152K | CHIP C 1500PF K | |
| C700 | | | CK73HB1H471K | CHIP C 470PF K | | C811 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C701 | | | CS77AA1A6R8M | CHIP TNL 6.8UF 10WV | | C812-814 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C702 | | | CK73HB1H102K | CHIP C 1000PF K | | C815 | | | CK73HB1H152K | CHIP C 1500PF K | |
| C703 | | | CC73HCH1H020B | CHIP C 2.0PF B | | C816,817 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C704 | | | CK73HB1H102K | CHIP C 1000PF K | | C818 | | | CC73HCH1E181J | CHIP C 180PF J | |
| C706 | | | CK73HB1C103K | CHIP C 0.010UF K | | C819 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C707 | | | CC73HCH1H330J | CHIP C 33PF J | | C820 | | | CK73HB1H331K | CHIP C 330PF K | |
| C710 | | | CC73GCH1H151J | CHIP C 150PF J | | C821 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C712,713 | | | CK73HB1H471K | CHIP C 470PF K | | C823 | | | CK73HB1H331K | CHIP C 330PF K | |
| C714 | | | CK73HB1H102K | CHIP C 1000PF K | | C824 | | | CK73HB1H122K | CHIP C 1200PF K | |
| C716 | | | CK73HB1H102K | CHIP C 1000PF K | | C825,826 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C717 | | | CK73HB1C103K | CHIP C 0.010UF K | | C827 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C718 | | | CK73GB1E105K | CHIP C 1.0UF K | | C828 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C719,720 | | | CK73HB1H102K | CHIP C 1000PF K | | C829 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C721 | | | CK73GB1C104K | CHIP C 0.10UF K | | C830 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C722 | | | CK73GB1E105K | CHIP C 1.0UF K | | C832 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C725 | | | CK73HB1C103K | CHIP C 0.010UF K | | C833 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C727 | | | CK73HB1H471K | CHIP C 470PF K | | C834-836 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C729 | | | CK73GB1H104K | CHIP C 0.10UF K | | C837,838 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C731 | | | CK73GB1H104K | CHIP C 0.10UF K | | C839,840 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C734 | | | CC73HCH1H101J | CHIP C 100PF J | | C842 | | | CK73HB1A104K | CHIP C 0.10UF K | |

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| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|---------------------|-------------|----------|---------|-----------|---------------|-------------------------------|-------------|
| C843,844 | | | CK73GB0J475K | CHIP C 4.7UF K | | C920 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C845 | | | CK73HB1E103K | CHIP C 0.010UF K | | C921 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C846 | | | CC73HCH1H100B | CHIP C 10PF B | | C922 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C847 | | | CK73HB1A104K | CHIP C 0.10UF K | | C923 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C848 | | | CC73HCH1H680J | CHIP C 68PF J | | C924-927 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C849 | | | CC73HCH1H270J | CHIP C 27PF J | | C928 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C850 | | | CK73HB1H332K | CHIP C 3300PF K | | C929,930 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C851 | | | CK73HB1H681K | CHIP C 680PF K | | C931,932 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C852 | | | CK73HB1E103K | CHIP C 0.010UF K | | C933 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C853-855 | | | CK73HB1A104K | CHIP C 0.10UF K | | CN201 | | | E40-6452-05 | FLAT CABLE CONNECTOR | |
| C856 | | | CK73HB1C223K | CHIP C 0.022UF K | | CN202 | | | E23-1263-05 | TERMINAL | |
| C859 | | | CK73HB1A104K | CHIP C 0.10UF K | | CN313 | | | E40-6586-05 | SOCKET FOR PIN ASSY | |
| C860 | | | CK73HB1E103K | CHIP C 0.010UF K | | CN336 | | | E40-6389-05 | PIN ASSY | |
| C863 | | | CC73HCH1H470J | CHIP C 47PF J | | CN337 | | | E40-6422-15 | SOCKET FOR PIN ASSY | |
| C865 | | | CK73HB1H102K | CHIP C 1000PF K | | CN505 | | | E23-1262-05 | TERMINAL | |
| C866 | | | CK73HB0J105K | CHIP C 1.0UF K | | CN804 | | | E40-6453-05 | FLAT CABLE CONNECTOR | |
| C867 | | | CK73HB1E103K | CHIP C 0.010UF K | | CN805 | | | E41-1486-05 | PIN ASSY | |
| C868,869 | | | CK73HB0J105K | CHIP C 1.0UF K | | CN806 | * | | E40-6853-05 | FLAT CABLE CONNECTOR | |
| C870 | | | CK73HB1H102K | CHIP C 1000PF K | | CN923 | | | E40-6358-05 | SOCKET FOR PIN ASSY | |
| C872 | | | CK73HB1A224K | CHIP C 0.22UF K | | F201 | | | F53-0324-05 | FUSE (2.5A) | |
| C873 | | | CC73HCH1H470J | CHIP C 47PF J | | F301 | | | F53-0360-05 | FUSE (0.25A) | |
| C874 | | | CK73HB1E103K | CHIP C 0.010UF K | | CN203 | | | J19-5386-05 | HOLDER (LITHIUM CELL) | |
| C875 | | | CK73HB1H102K | CHIP C 1000PF K | | CF501 | | | L72-1017-05 | CERAMIC FILTER | |
| C876 | | | CK73HB1E103K | CHIP C 0.010UF K | | CF502 | * | | L72-1040-05 | CERAMIC FILTER | |
| C877 | | | CK73HB0J105K | CHIP C 1.0UF K | | L101,102 | | | L92-0408-05 | CHIP FERRITE | |
| C878 | | | CC73HCH1H150J | CHIP C 15PF J | | L103 | | | L92-0162-05 | BEADS CORE | |
| C879 | | | CC73HCH1H680J | CHIP C 68PF J | | L201,202 | | | L92-0444-05 | CHIP FERRITE | |
| C880 | | | CC73HCH1H100B | CHIP C 10PF B | | L203 | | | L92-0408-05 | CHIP FERRITE | |
| C881,882 | | | CC73HCH1H101J | CHIP C 100PF J | | L204 | | | L92-0149-05 | CHIP FERRITE | |
| C883 | | | CK73HB1A104K | CHIP C 0.10UF K | | L205 | | | L33-1494-05 | SMALL FIXED INDUCTOR | |
| C884 | | | CC73HCH1H470J | CHIP C 47PF J | | L206 | | | L92-0466-05 | CHIP FERRITE | |
| C886 | | | CK73HB1A104K | CHIP C 0.10UF K | | L207,208 | | | L92-0162-05 | BEADS CORE | |
| C887 | | | CK73HB1A393K | CHIP C 0.039UF K | | L209 | | | L92-0467-05 | CHIP FERRITE | |
| C888 | | | CK73HB0J105K | CHIP C 1.0UF K | | L211 | | | L92-0408-05 | CHIP FERRITE | |
| C889,890 | | | CK73HB1A104K | CHIP C 0.10UF K | | L212 | | | L92-0467-05 | CHIP FERRITE | |
| C891,892 | | | CK73HB1E103K | CHIP C 0.010UF K | | L213 | * | | L33-1530-05 | SMALL FIXED INDUCTOR | |
| C893 | | | CK73HB1H102K | CHIP C 1000PF K | | L214,215 | | | L92-0467-05 | CHIP FERRITE | |
| C894 | | | CK73HB1E103K | CHIP C 0.010UF K | | L216 | | | L33-1462-05 | SMALL FIXED INDUCTOR | |
| C896,897 | | | CK73HB1A104K | CHIP C 0.10UF K | | L217 | | | L92-0408-05 | CHIP FERRITE | |
| C898 | | | CK73HB1H102K | CHIP C 1000PF K | | L301-303 | | | L92-0444-05 | CHIP FERRITE | |
| C899 | | | CK73HB1E103K | CHIP C 0.010UF K | | L304,305 | | | L92-0162-05 | BEADS CORE | |
| C900 | | | CK73HB1A224K | CHIP C 0.22UF K | | L306 | | | L92-0444-05 | CHIP FERRITE | |
| C901 | | | CK73HB0J105K | CHIP C 1.0UF K | | L307 | | | L92-0163-05 | BEADS CORE | |
| C902 | | | CS77AP1A100M | CHIP TNTL 10UF 10WV | | L308 | | | L92-0444-05 | CHIP FERRITE | |
| C903 | | | CK73HB1A104K | CHIP C 0.10UF K | | L309 | | | L92-0140-05 | CHIP FERRITE | |
| C904 | | | CK73HB1H471K | CHIP C 470PF K | | L310,311 | | | L92-0162-05 | BEADS CORE | |
| C905 | | | CK73HB1A104K | CHIP C 0.10UF K | | L501 | | | L41-4795-39 | SMALL FIXED INDUCTOR (4.7UH) | |
| C906 | | | CK73HB1A563K | CHIP C 0.056UF K | | L502-504 | | | L92-0163-05 | BEADS CORE | |
| C907 | | | CK73HB1A224K | CHIP C 0.22UF K | | L505 | | | L40-1891-86 | SMALL FIXED INDUCTOR (1.8UH) | |
| C908 | | | CK73HB1A104K | CHIP C 0.10UF K | | L506 | | | L40-3391-86 | SMALL FIXED INDUCTOR (3.3UH) | |
| C909 | | | CK73HB1A563K | CHIP C 0.056UF K | | L509-512 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| C910 | | | CK73HB1H102K | CHIP C 1000PF K | | L513 | | | L40-1575-92 | SMALL FIXED INDUCTOR (15NH) | |
| C911 | | | CK73HB0J105K | CHIP C 1.0UF K | | L514 | | | L40-5681-86 | SMALL FIXED INDUCTOR (0.56UH) | |
| C912 | | | CK73GB1E105K | CHIP C 1.0UF K | | L515 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| C913 | | | CK73HB1E103K | CHIP C 0.010UF K | | L516 | | | L40-1285-92 | SMALL FIXED INDUCTOR (120NH) | |
| C914 | | | CK73GB1E105K | CHIP C 1.0UF K | | L517 | | | L40-8275-92 | SMALL FIXED INDUCTOR (82NH) | |
| C915,916 | | | CK73HB1E103K | CHIP C 0.010UF K | | L518 | | | L40-5678-67 | SMALL FIXED INDUCTOR (56NH) | |
| C917 | | | CK73HB1H102K | CHIP C 1000PF K | | L519 | | | L40-2778-67 | SMALL FIXED INDUCTOR (27NH) | |
| C918 | | | CC73HCH1H470J | CHIP C 47PF J | | | | | | | |
| C919 | | | CK73HB1H102K | CHIP C 1000PF K | | | | | | | |

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| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|--------------|-------------------------------|-------------|----------|---------|-----------|--------------|---------------------|-------------|
| L520 | | | L92-0446-05 | BEADS CORE | | R131 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L521 | | | L41-4778-45 | SMALL FIXED INDUCTOR (47NH) | | R132 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| L522 | | | L40-6865-92 | SMALL FIXED INDUCTOR (6.8NH) | | R134 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L523 | | | L40-1878-92 | SMALL FIXED INDUCTOR (18NH) | | R201 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L524,525 | | | L40-3391-86 | SMALL FIXED INDUCTOR (3.3UH) | | R202 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| L526 | | | L40-1085-57 | SMALL FIXED INDUCTOR (100NH) | | R203 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L527 | | | L40-8275-92 | SMALL FIXED INDUCTOR (82NH) | | R204 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| L528 | | | L40-6865-92 | SMALL FIXED INDUCTOR (6.8NH) | | R205-208 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L529 | | | L40-1285-71 | SMALL FIXED INDUCTOR (120NH) | | R210,211 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| L530 | | | L40-3975-92 | SMALL FIXED INDUCTOR (39NH) | | R212 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L531 | | | L40-1891-86 | SMALL FIXED INDUCTOR (1.8UH) | | R213 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| L532 | | | L92-0138-05 | CHIP FERRITE | | R216 | | | RK73HB1J683D | CHIP R 68K D 1/16W | |
| L533 | | | L40-1285-92 | SMALL FIXED INDUCTOR (120NH) | | R217 | | | RK73HB1J333D | CHIP R 33K D 1/16W | |
| L534 | | | L40-2702-86 | SMALL FIXED INDUCTOR (27UH) | | R218 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L535 | | | L92-0138-05 | CHIP FERRITE | | R219 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L536 | | | L40-6875-92 | SMALL FIXED INDUCTOR (68NH) | | R220 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| L537 | | | L41-2785-39 | SMALL FIXED INDUCTOR (0.27UH) | | R221 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L538 | | | L41-5685-39 | SMALL FIXED INDUCTOR (0.56UH) | | R222 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L539,540 | | | L40-3375-92 | SMALL FIXED INDUCTOR (33NH) | | R224 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L541 | | | L40-1085-92 | SMALL FIXED INDUCTOR (100NH) | | R226 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| L542 | | | L92-0138-05 | CHIP FERRITE | | R227-230 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| L543 | | | L40-1085-92 | SMALL FIXED INDUCTOR (100NH) | | R231 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| L544 | | | L41-2285-14 | SMALL FIXED INDUCTOR (220NH) | | R232 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| L545 | | | L40-3975-92 | SMALL FIXED INDUCTOR (39NH) | | R233 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| L546 | | | L41-6878-14 | SMALL FIXED INDUCTOR (68NH) | | R234 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L548 | | | L41-1085-43 | SMALL FIXED INDUCTOR (100NH) | | R235 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L549 | | | L92-0149-05 | CHIP FERRITE | | R236-242 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L550 | | | L40-3375-92 | SMALL FIXED INDUCTOR (33NH) | | R243 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L551 | | | L92-0138-05 | CHIP FERRITE | | R244,245 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| L553 | | | L41-6878-14 | SMALL FIXED INDUCTOR (68NH) | | R246 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L554 | | | L34-4576-05 | AIR-CORE COIL | | R247 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L555 | | | L92-0149-05 | CHIP FERRITE | | R248 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L556 | | | L34-4563-05 | AIR-CORE COIL | | R249 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L557 | | | L34-4564-05 | AIR-CORE COIL | | R250 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L558 | | | L34-4565-05 | AIR-CORE COIL | | R251 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L559 | | | L41-6878-14 | SMALL FIXED INDUCTOR (68NH) | | R253 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L560 | | | L41-2295-39 | SMALL FIXED INDUCTOR (2.2UH) | | R254 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L561 | | | L34-4577-05 | AIR-CORE COIL | | R255 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| L562,563 | | | L34-4568-05 | AIR-CORE COIL | | R256 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L564 | | | L41-6878-14 | SMALL FIXED INDUCTOR (68NH) | | R257 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L565 | | | L34-4566-05 | AIR-CORE COIL | | R258 | | | RK73GB2A100J | CHIP R 10 J 1/10W | |
| L566 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | | R259 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L801 | | | L92-0408-05 | CHIP FERRITE | | R260 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| L802 | | | L92-0140-05 | CHIP FERRITE | | R261 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| L803-806 | | | L92-0408-05 | CHIP FERRITE | | R263 | | | RK73HB1J391J | CHIP R 390 J 1/16W | |
| L807 | | | L92-0140-05 | CHIP FERRITE | | R264 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| X301 | | | L77-1802-05 | CRYSTAL RESONATOR (32768HZ) | | R265 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| X302 | | | L77-3015-05 | TCXO (18.432MHZ) | | R266 | | | RK73HB1J821J | CHIP R 820 J 1/16W | |
| X501 | | | L77-3014-05 | TCXO (19.2MHZ) | | R267 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| XF501 | | | L71-0640-05 | MCF (58.05MHZ) | | R268 | | | RK73HB1J334D | CHIP R 330K D 1/16W | |
| R117,118 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R269 | | | RK73HB1J223D | CHIP R 22K D 1/16W | |
| R119,120 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R271 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R121,122 | | | RK73HB1J104D | CHIP R 100K D 1/16W | | R272,273 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R123 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R301,302 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R124 | | | RK73HB1J331J | CHIP R 330 J 1/16W | | R303 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R125,126 | | | RK73HB1J223D | CHIP R 22K D 1/16W | | R304,305 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R128 | | | RK73HB1J331J | CHIP R 330 J 1/16W | | R306 | | | RK73HB1J121J | CHIP R 120 J 1/16W | |
| R129 | | | RK73HB1J333J | CHIP R 33K J 1/16W | | R310,311 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R130 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R312,313 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| | | | | | | R314 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |

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| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
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| R315-317 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R507 | | | RK73HB1J124J | CHIP R 120K J 1/16W | |
| R318,319 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R508 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R320-322 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R509 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R323 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R511 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R324 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R512,513 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R326-329 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R515 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R330 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R516 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R331 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R517-520 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R332 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R521 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R333-340 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R524 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R341 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R525 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R342 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R526 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R343 | | | RK73HB1J151J | CHIP R 150 J 1/16W | | R528 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R344-350 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R530 | | | RK73HH1J184D | CHIP R 180K D 1/16W | |
| R352,353 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R531 | | | RK73HH1J473D | CHIP R 47K D 1/16W | |
| R354 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R532 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R355 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | | R533 | | | RK73HB1J106J | CHIP R 10M J 1/16W | |
| R356 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R534 | | | RK73HH1J474D | CHIP R 470K D 1/16W | |
| R357 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R535 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R358 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R536 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R359,360 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R537 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R361,362 | | | RK73HB1J220J | CHIP R 22 J 1/16W | | R538,539 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R363-368 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R540 | | | RK73HB1J121J | CHIP R 120 J 1/16W | |
| R369 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R542 | | | RK73HH1J391D | CHIP R 390 D 1/16W | |
| R370 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R543 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R371 | | | RK73HH1J104D | CHIP R 100K D 1/16W | | R544 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R372 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R545,546 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R374 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R547 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R375 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R549,550 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R376 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R551 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R377 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R552 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R378 | | | RK73HH1J103D | CHIP R 10K D 1/16W | | R553 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R379 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R554 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R380-382 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R555,556 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R384-390 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R557,558 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R391 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R559 | | | RK73HB1J183J | CHIP R 18K J 1/16W | |
| R392 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R560 | | | RK73HB1J124J | CHIP R 120K J 1/16W | |
| R393 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R561 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R394 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R562 | | | RK73HB1J561J | CHIP R 560 J 1/16W | |
| R395 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R563 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R396 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R564 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R397 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R565 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R398 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R566 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R400 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R567 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | |
| R401 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R568,569 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R402,403 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R570 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R404,405 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R572 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R406 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R573 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R407 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R575 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R408 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R576 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R409 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R579 | | | RK73HH1J331D | CHIP R 330 D 1/16W | |
| R410,411 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R580 | | | RK73HH1J271D | CHIP R 270 D 1/16W | |
| R412-414 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R581 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R415 | | | RK73HB1J471J | CHIP R 470 J 1/16W | | R582 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R416,417 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R583 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R419 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R584,585 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R501,502 | | | RN73HH1J104D | CHIP R 100K D 1/16W | | R586 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R503 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R587 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R505 | | | RK73HB1J153J | CHIP R 15K J 1/16W | | R588 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R506 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R590 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |

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| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation |
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| R591 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R662 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R592,593 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R663 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R594 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R664 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R595 | | | RK73HB1J154J | CHIP R 150K J 1/16W | | R665 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| R596 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R666 | | | RK73HB1J561J | CHIP R 560 J 1/16W | |
| R597 | | | RK73HB1J274J | CHIP R 270K J 1/16W | | R667 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| R598 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R669 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R599 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R670 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R600 | | | RK73HB1J560J | CHIP R 56 J 1/16W | | R671 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R601 | | | RK73HB1J331J | CHIP R 330 J 1/16W | | R672 | | | RK73HB1J561J | CHIP R 560 J 1/16W | |
| R603 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R674 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R604 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R675 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R605 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R677 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R606 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R678 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R607 | | | RK73HB1J563J | CHIP R 56K J 1/16W | | R682 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R608 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | | R683 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R609 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R685 | | | RK73EB2ER39K | CHIP R 0.39 K 1/4W | |
| R610 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R686 | | | RK73HB1J680J | CHIP R 68 J 1/16W | |
| R611 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R687 | | | RK73HB1J221J | CHIP R 220 J 1/16W | |
| R613 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R688 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R614 | | | RK73HB1J271J | CHIP R 270 J 1/16W | | R689,690 | | | RK73EB2ER39K | CHIP R 0.39 K 1/4W | |
| R615 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R691,692 | | | RK73HH1J154D | CHIP R 150K D 1/16W | |
| R617 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R695 | | | RK73HH1J184D | CHIP R 180K D 1/16W | |
| R618 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R696 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R619 | | | RK73HB1J123J | CHIP R 12K J 1/16W | | R697 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R620 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R698 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R621 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | | R699 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R622 | | | RK73HB1J564J | CHIP R 560K J 1/16W | | R700 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R623 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R701 | | | RK73HH1J184D | CHIP R 180K D 1/16W | |
| R624 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R705 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R625 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R706,707 | | | RK73HH1J184D | CHIP R 180K D 1/16W | |
| R626 | | | RK73HB1J470J | CHIP R 47 J 1/16W | | R713 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R628 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R714 | | | RK73HB1J271J | CHIP R 270 J 1/16W | |
| R630 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R715 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R631 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R716 | | | RK73HB1J271J | CHIP R 270 J 1/16W | |
| R632 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R717 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R633 | | | RK73HB1J272J | CHIP R 2.7K J 1/16W | | R718 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R634 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R719 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R635 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R720 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R637 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | | R721 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R638 | | | RK73HB1J470J | CHIP R 47 J 1/16W | | R722 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R640 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R724 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | |
| R641 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R725 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R642 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R726,727 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R643 | | | RK73HB1J681J | CHIP R 680 J 1/16W | | R729 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R644 | | | RK73HB1J151J | CHIP R 150 J 1/16W | | R730 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R645 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R731 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R646 | | | RK73HB1J331J | CHIP R 330 J 1/16W | | R732 | | | RK73EB2E823J | CHIP R 82K J 1/4W | |
| R647 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R733 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R648,649 | | | RK73HB1J823J | CHIP R 82K J 1/16W | | R801-804 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R650 | | | RK73HB1J331J | CHIP R 330 J 1/16W | | R805 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R651,652 | | | RK73HB1J823J | CHIP R 82K J 1/16W | | R806 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R653 | | | RK73HB1J180J | CHIP R 18 J 1/16W | | R807 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R654 | | | RK73HB1J331J | CHIP R 330 J 1/16W | | R808 | | | RK73HB1J563J | CHIP R 56K J 1/16W | |
| R655 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R809 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R656 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R810 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R657 | | | RK73HB1J470J | CHIP R 47 J 1/16W | | R811 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R658 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R812 | | | RK73HB1J563J | CHIP R 56K J 1/16W | |
| R660 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R813 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R661 | | | RK73HB1J273J | CHIP R 27K J 1/16W | | R814 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |

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|----------|---------|-----------|--------------|---------------------|-------------|----------|---------|-----------|--------------|---------------------|-------------|
| R815 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R889 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| R816 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R890 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R817,818 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R891 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R819 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R892 | | | RK73HB1J684J | CHIP R 680K J 1/16W | |
| R820 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R893 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R821 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R894 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R822 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R896 | | | RK73HB1J274J | CHIP R 270K J 1/16W | |
| R823 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R897 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R824 | | | RK73HB1J334J | CHIP R 330K J 1/16W | | R898 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R825 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R899 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R826 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R900 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R827,828 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R901 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R829 | | | RK73HB1J564J | CHIP R 560K J 1/16W | | R902 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R830 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R903 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R831 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R904 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R832 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R905 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R833 | | | RK73HB1J224J | CHIP R 220K J 1/16W | | R906 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R834,835 | | | RK73HB1J334J | CHIP R 330K J 1/16W | | R907 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R836 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R908 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R837 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R909,910 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R838-840 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R911 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R841 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R912 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R842 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R913 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R843 | | | RK73HB1J124J | CHIP R 120K J 1/16W | | R914 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R844 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R915 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R845 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R916 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R846 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R917 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R847 | | | RK73HB1J154J | CHIP R 150K J 1/16W | | R918 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R848 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R919 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R849 | | | RK73HB1J333J | CHIP R 33K J 1/16W | | R920 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R850 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R921 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R851,852 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R922 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R853 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R923 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R854 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R924 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R855 | | | RK73HB1J823J | CHIP R 82K J 1/16W | | R925 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R856 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R926 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R857 | | | RK73HB1J564J | CHIP R 560K J 1/16W | | R927 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | |
| R858 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R928 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R859 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R929 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R860 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R930,931 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R861,862 | | | RK73HB1J823J | CHIP R 82K J 1/16W | | R932 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R863 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R933 | | | RK73HB1J223D | CHIP R 22K D 1/16W | |
| R864 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R934 | | | RK73HB1J393J | CHIP R 39K J 1/16W | |
| R865 | | | RK73HB1J562J | CHIP R 5.6K J 1/16W | | R935 | | | RK73HB1J223D | CHIP R 22K D 1/16W | |
| R866 | | | RK73HB1J333J | CHIP R 33K J 1/16W | | R936 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R867 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R937 | | | RK73HB1J184J | CHIP R 180K J 1/16W | |
| R868 | | | RK73HB1J273J | CHIP R 27K J 1/16W | | R938,939 | | | RK73HB1J104D | CHIP R 100K D 1/16W | |
| R869 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R940 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R871 | | | RK73HB1J683J | CHIP R 68K J 1/16W | | R941 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R872 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R942 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| R873 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R943 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R874-876 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R944,945 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R877 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R946 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R878,879 | | | RK73HB1J683J | CHIP R 68K J 1/16W | | R947 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R880 | | | RK73HB1J153J | CHIP R 15K J 1/16W | | R948 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R883 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R949,950 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R885 | | | RK73HB1J393J | CHIP R 39K J 1/16W | | R951 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R886 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R952,953 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R887 | | | RK73HB1J333J | CHIP R 33K J 1/16W | | R954,955 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R888 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | | R956 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |

PARTS LIST

TX-RX UNIT (X57-7710-10)

| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation |
|----------|---------|-----------|---------------|----------------------------|--------------|-----------|---------|-----------|----------------|-------------------|--------------|
| R957 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | IC208 | | | TC75S51FE (F) | MOS-IC | |
| R958-961 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | IC209 | | | XC61CC5602NR | MOS-IC | |
| R962 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | IC210 | | | S-812C31BPI-G | ANALOGUE IC | |
| S201 | | | S70-0483-05 | TACT SWITCH | | IC211 | | | XC9101D09AKR | ANALOGUE IC | |
| D101,102 | | | HZC6.8-E | ZENER DIODE | | IC301 | | | Note 1 | ROM IC | |
| D107,108 | | | MA2S111-F | DIODE | | IC302 | | | Note 1 | MICROPROCESSOR IC | |
| D113 | | | MA2S111-F | DIODE | | IC303 | | | Note 1 | SRAM IC | |
| D201 | | | 1SR154-400 | DIODE | | IC304 | | | TC7SH08FU-F | MOS-IC | |
| D202-204 | | | 1SS388F | DIODE | | IC305 | | | XC6109C29ANN | ANALOGUE IC | |
| D205 | | | 1SS301F | DIODE | | IC306 | | | RV5C386A | MOS-IC | |
| D206 | | | HRB0502A | DIODE | | IC307 | | | SM5023CNDH-G | MOS-IC | |
| D207 | | | MA2S111-F | DIODE | | IC308 | | | Note 1 | MOS-IC | |
| D208 | | | HSC119 | DIODE | | IC309 | | | PCA9535BS | MOS-IC | |
| D209 | | | 1SS301F | DIODE | | IC310 | | | TC7SH08FU-F | MOS-IC | |
| D210 | | | 1SS388F | DIODE | | IC501 | | | LM73CIMKX-0 | MOS-IC | |
| D211 | | | 1SS416 | DIODE | | IC502 | | | TLV2381IDBV | MOS-IC | |
| D212 | | | 1SS301F | DIODE | | IC503 | | | SKY72300-362 | MOS-IC | |
| D213 | | | 1SS388F | DIODE | | IC504 | | | LMC7101BIM5 | MOS-IC | |
| D301 | | | 1SS416 | DIODE | | IC505 | | | TC75W51FK (F) | MOS-IC | |
| D501 | | | HSC119 | DIODE | | IC506 | | | MCP6021-E/OT | MOS-IC | |
| D502 | | | DA221 | DIODE | | IC507 | | | TK10931VTL-G | ANALOGUE IC | |
| D503 | | | HVC376B | VARIABLE CAPACITANCE DIODE | | IC508 | | | TC75W51FK (F) | MOS-IC | |
| D504 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | | IC509,510 | | | TLV2381IDBV | MOS-IC | |
| D505 | | | HVC131 | DIODE | | IC511 | | | TA75W01FUF | MOS-IC | |
| D508-513 | | | 1SV282-F | VARIABLE CAPACITANCE DIODE | | IC801 | * | | AK2330 | MOS-IC | |
| D514 | | | HSC119 | DIODE | | IC802 | | | TC75S51FE (F) | MOS-IC | |
| D515 | | | HVC131 | DIODE | | IC803 | | | TC75W51FK (F) | MOS-IC | |
| D516 | | | 1SV278F | VARIABLE CAPACITANCE DIODE | | IC804 | | | TC75S51FE (F) | MOS-IC | |
| D517,518 | | | HVC131 | DIODE | | IC805,806 | | | TC7W53FK (F) | MOS-IC | |
| D519,520 | | | HSC277 | DIODE | | IC807 | | | TC75W51FK (F) | MOS-IC | |
| D523 | | | HZU2ALL | ZENER DIODE | | IC808 | | | TC7S66FUF | MOS-IC | |
| D524,525 | | | 1SV305F | VARIABLE CAPACITANCE DIODE | | IC809 | | | TC75W51FK (F) | MOS-IC | |
| D526 | | | HZU5CLL | ZENER DIODE | | IC810 | | | TC7W53FK (F) | MOS-IC | |
| D527 | | | HVC131 | DIODE | | IC811 | | | TC75W51FK (F) | MOS-IC | |
| D528 | | | 1SV305F | VARIABLE CAPACITANCE DIODE | | IC812 | | | TC75S51FE (F) | MOS-IC | |
| D529-532 | | | HVC131 | DIODE | | IC813 | | | TC75W51FK (F) | MOS-IC | |
| D533 | | | 1SV305F | VARIABLE CAPACITANCE DIODE | | IC814 | | | TC75S51FE (F) | MOS-IC | |
| D801-803 | | | RB706F-40 | DIODE | | IC815 | | | TC75W51FK (F) | MOS-IC | |
| D804 | | | DA221 | DIODE | | IC816 | | | TC7W66FK-F | MOS-IC | |
| D805,806 | | | MA2S111-F | DIODE | | IC817 | | | TPA6201A1DRBR | ANALOGUE IC | |
| D807 | | | RB706F-40 | DIODE | | IC818 | | | NJM2880U105ZB | ANALOGUE IC | |
| D808-814 | | | 1SS416 | DIODE | | IC819 | | | TC7SET08FU-F | MOS-IC | |
| D815 | | | EMZ6.8N | ZENER DIODE | | IC820 | | | TC7WH126FK | MOS-IC | |
| D816 | | | NNCD6.8G-A | ZENER DIODE | | IC821 | | | TC7WT125FUF | MOS-IC | |
| D817 | | | DA221 | DIODE | | Q101 | | | 2SA1832 (GR)F | TRANSISTOR | |
| D818 | | | NNCD6.8G-A | ZENER DIODE | | Q102 | | | 2SA1362-F (GR) | TRANSISTOR | |
| D819 | | | DA221 | DIODE | | Q103,104 | | | 2SC4617 (S) | TRANSISTOR | |
| D820 | | | EMZ6.8N | ZENER DIODE | | Q105 | | | SSM3K15TE (F) | FET | |
| IC101 | | | TC74LCX245FK | MOS-IC | | Q201 | | | 2SJ648-A | FET | |
| IC103 | | | TPA6201A1DRBR | ANALOGUE IC | | Q202 | | | SSM3K15TE (F) | FET | |
| IC104 | | | TC7WZ245FK-F | MOS-IC | | Q203,204 | | | SSM6N16FE-F | FET | |
| IC201 | | | XC6204B332D | MOS-IC | | Q205 | | | SSM6L05FU-F | FET | |
| IC202 | | | XC9235A15CM1 | MOS-IC | | Q206 | | | 2SA1955A-F | TRANSISTOR | |
| IC203 | | | XC6204B332D | MOS-IC | | Q207 | | | EMD12 | TRANSISTOR | |
| IC204 | | | TK11250CUCB | MOS-IC | | Q208 | | | 2SA1955A-F | TRANSISTOR | |
| IC205 | | | XC6204B502PR | MOS-IC | | Q209,210 | | | SSM3K15TE (F) | FET | |
| IC206 | | | LT1616ES6-PBF | ANALOGUE IC | | Q211 | | | 2SA1955A-F | TRANSISTOR | |
| IC207 | | | TK71733S | BI-POLAR IC | | Q212 | | | SSM5H01TU-F | FET | |
| | | | | | | Q213 | | | EMD12 | TRANSISTOR | |

Note 1: This part cannot be replaced. Therefore, this part is not supplied as a service part.

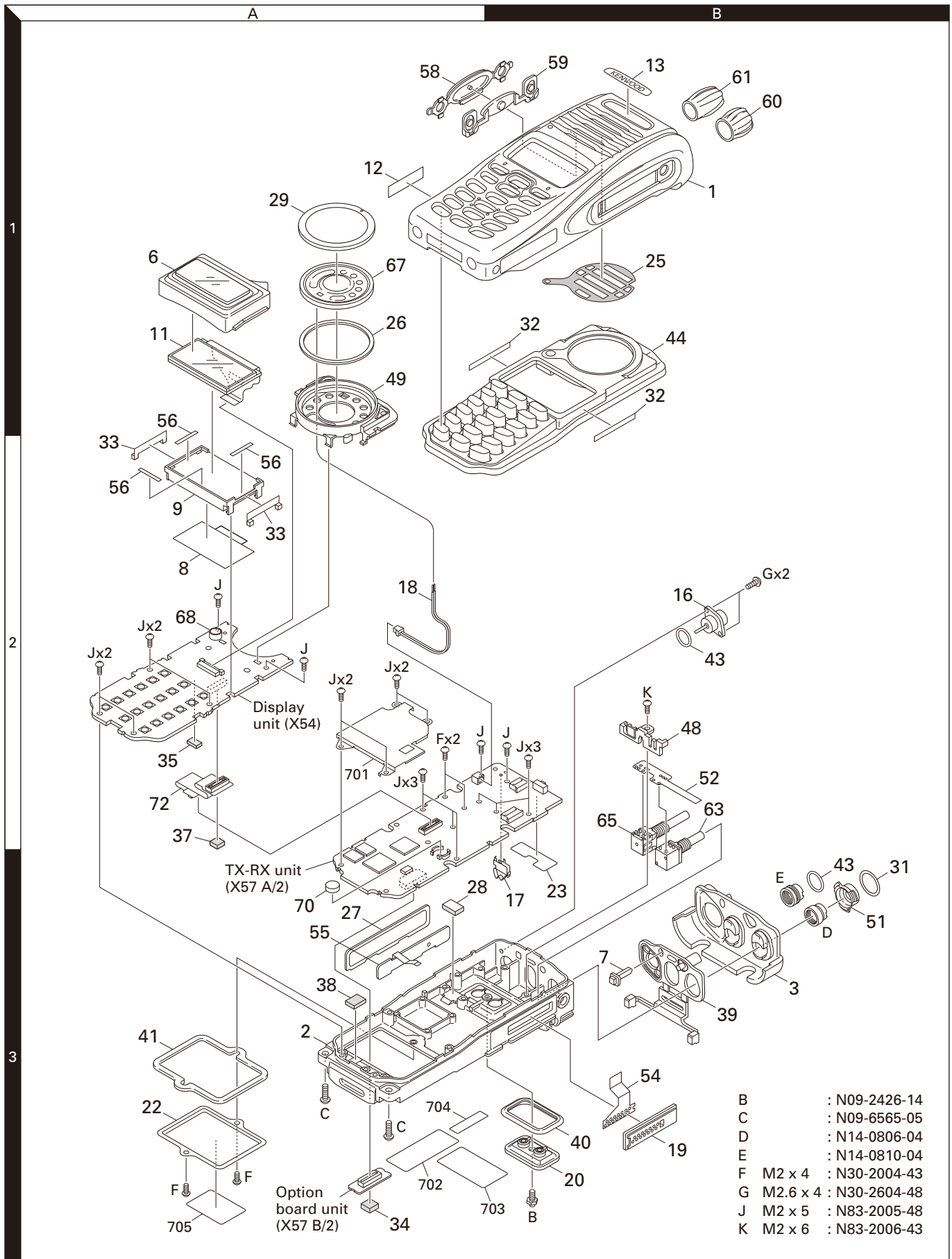
NX-210

PARTS LIST

TX-RX UNIT (X57-7710-10)

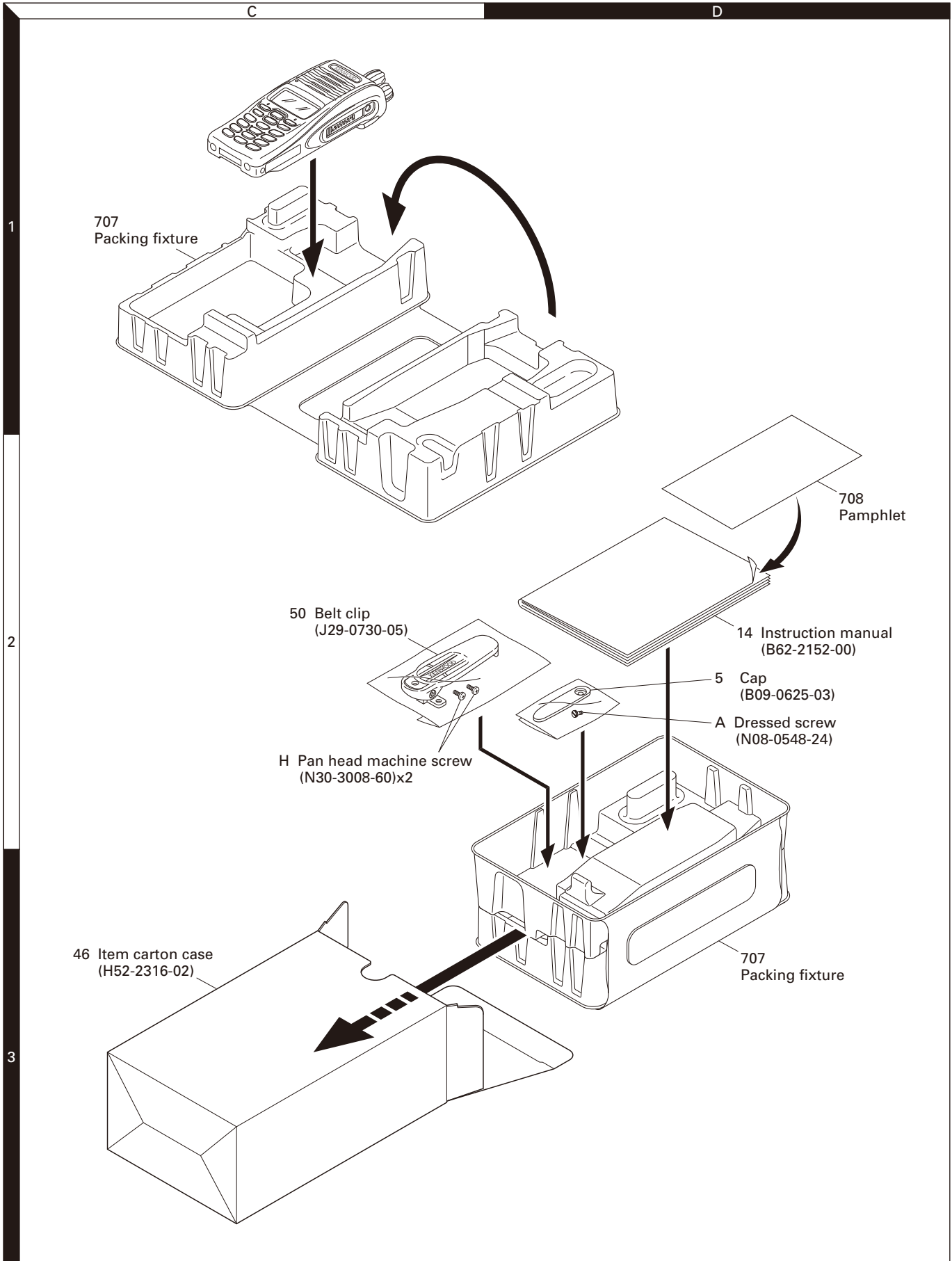
| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|----------------|--------------------|-------------|----------|---------|-----------|-----------|-------------|-------------|
| Q214 | | | UMG9N | TRANSISTOR | | | | | | | |
| Q215 | | | EMD12 | TRANSISTOR | | | | | | | |
| Q501 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q502 | | | 2SK879-F (Y) | FET | | | | | | | |
| Q503 | | | DTA114YEB | DIGITAL TRANSISTOR | | | | | | | |
| Q504 | | | SSM3K15TE (F) | FET | | | | | | | |
| Q505 | | | EMD9 | TRANSISTOR | | | | | | | |
| Q506 | | | 2SC5108 (Y)F | TRANSISTOR | | | | | | | |
| Q507 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q508,509 | | | 2SK508NV (K52) | FET | | | | | | | |
| Q510 | | | SSM6L05FU-F | FET | | | | | | | |
| Q511 | | | 2SJ347F | FET | | | | | | | |
| Q512-514 | | | 2SC5636 | TRANSISTOR | | | | | | | |
| Q515 | | | 2SC4215-F (Y) | TRANSISTOR | | | | | | | |
| Q516 | | | 2SK3077F | FET | | | | | | | |
| Q517 | | | 3SK318 | FET | | | | | | | |
| Q518 | | | RD01MUS1-T113 | FET | | | | | | | |
| Q519 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q520 | | | RD07MVS1BT122 | FET | | | | | | | |
| Q521 | | | SSM3K15TE (F) | FET | | | | | | | |
| Q522 | | | 3SK294-FP | FET | | | | | | | |
| Q523 | | | DTC144EEB | DIGITAL TRANSISTOR | | | | | | | |
| Q525 | | | 2SK1824-A | FET | | | | | | | |
| Q526 | | | EMD5 | TRANSISTOR | | | | | | | |
| Q801 | | | SSM3K15TE (F) | FET | | | | | | | |
| Q802 | | | 2SA1832 (GR)F | TRANSISTOR | | | | | | | |
| Q803 | | | 2SC4738 (GR)F | TRANSISTOR | | | | | | | |
| Q804 | | | 2SA1832 (GR)F | TRANSISTOR | | | | | | | |
| Q805 | | | SSM3K15TE (F) | FET | | | | | | | |
| Q806 | | | SSM6N16FE-F | FET | | | | | | | |
| Q807 | | | 2SJ243-A | FET | | | | | | | |
| Q808 | | | 2SC4617 (S) | TRANSISTOR | | | | | | | |
| Q809 | | | UMG3N | TRANSISTOR | | | | | | | |
| Q810 | | | 2SB1132 (Q,R) | TRANSISTOR | | | | | | | |
| Q811 | | | SSM3K15TE (F) | FET | | | | | | | |
| Q812 | | | 2SJ347F | FET | | | | | | | |
| Q813 | | | SSM6N16FE-F | FET | | | | | | | |
| TH504 | | | ERTJ0EV104H | THERMISTOR | | | | | | | |
| TH801 | | | ERTJ0EV104H | THERMISTOR | | | | | | | |
| - | | * | X57-7710-11 | SERVICE TX-RX UNIT | | | | | | | |

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PACKING



TROUBLE SHOOTING

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

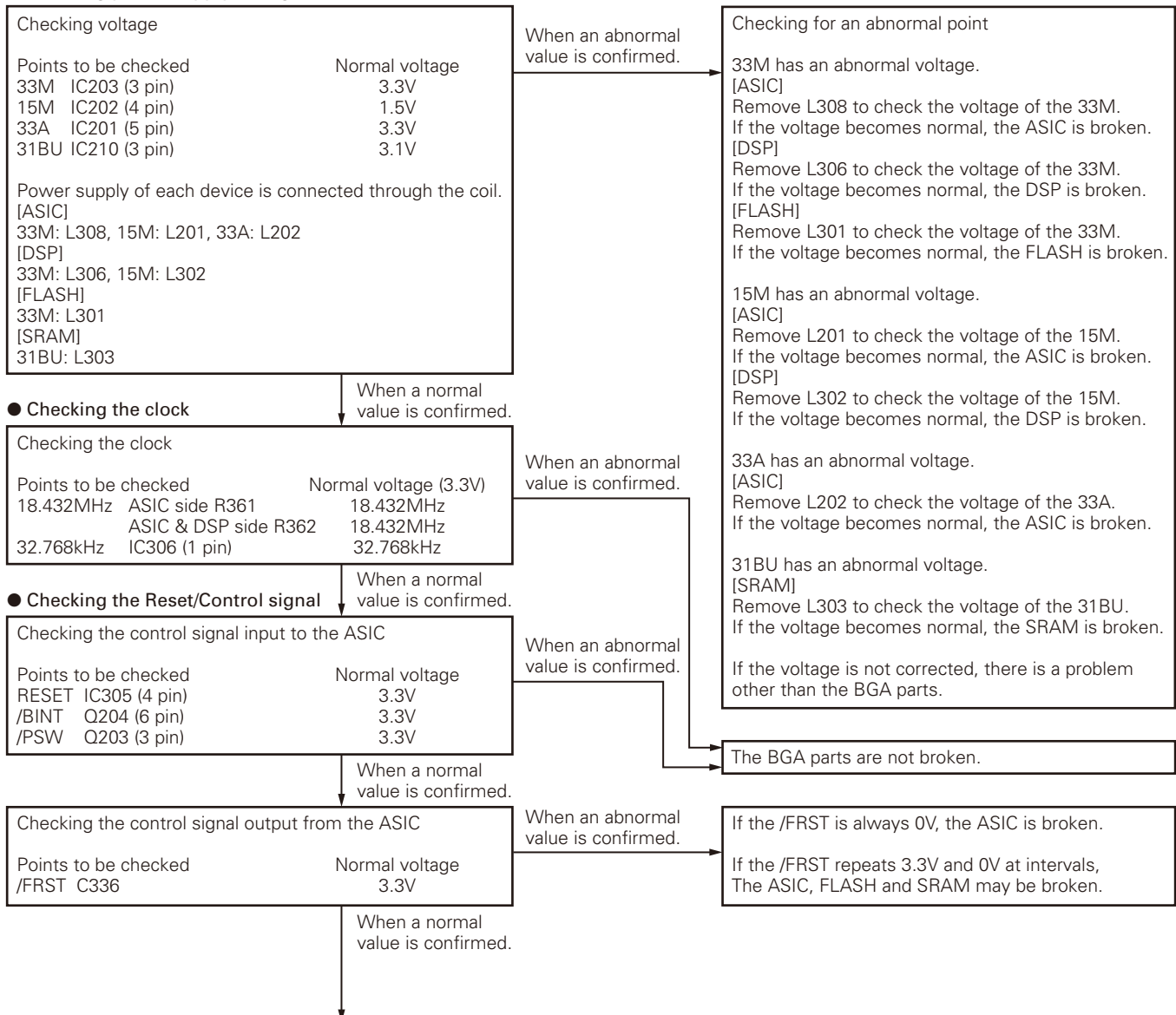
ASIC (IC308), DSP (IC302), FLASH ROM (IC301), SRAM (IC303)

When the BGA IC is problematic, please bring the printed circuit board (X57-7710-11) in for service. Various ESN/default adjustment values are written on the printed circuit board for service.

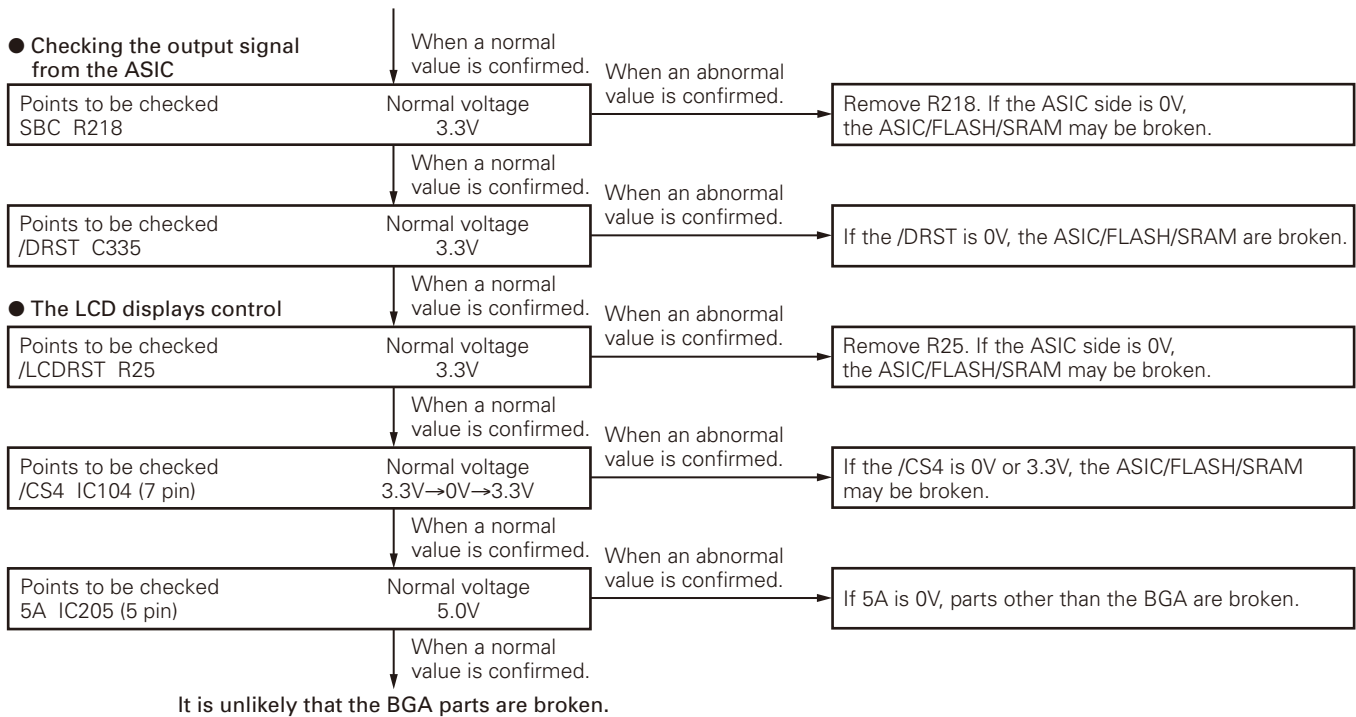
Additionally various ESN stickers are included. (Please refer to pages 35 and 36.)

Button type lithium battery (W09-0971-05) does not belong to the printed circuit board for service. Please use the part which has been attached to the printed circuit board. After the printed circuit board has been readjusted, please attach any ESN stickers to the chassis. When "ESN Validation" is used with NXDN Trunking, you must modify the ESN register.

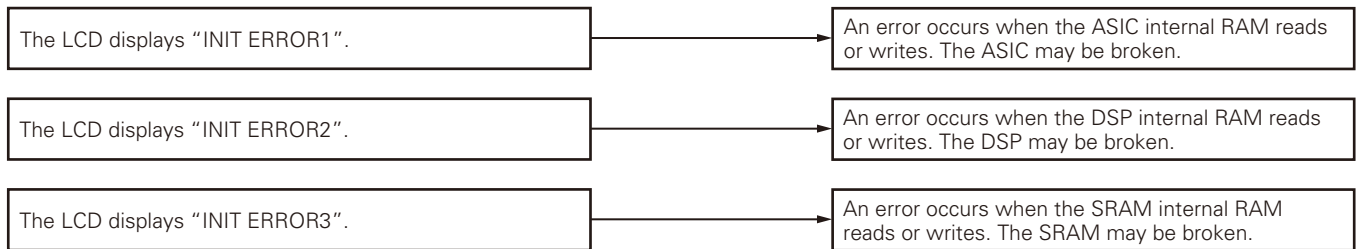
● Checking power supply voltage



TROUBLE SHOOTING



● **When an error display appears on the LCD.**



■ **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 | |

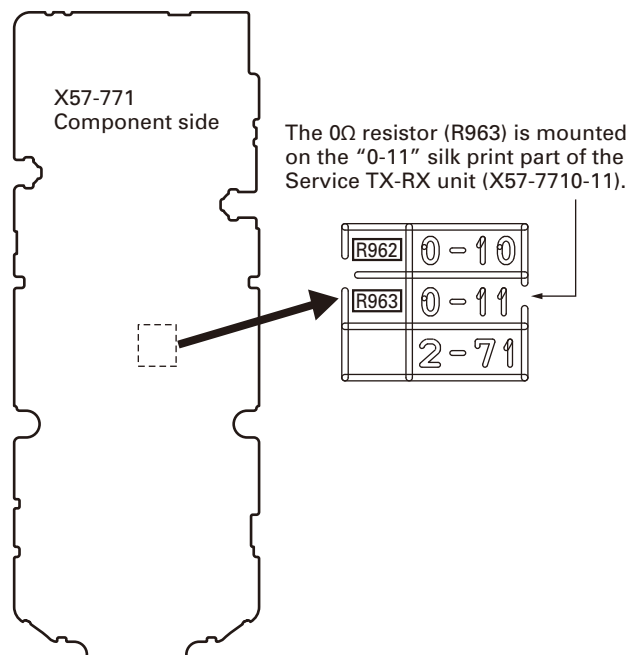
TROUBLE SHOOTING

Replacing TX-RX Unit

■ TX-RX unit Information

| Model Name | Original TX-RX unit Number | For Service TX-RX unit Number |
|---------------------|----------------------------|-------------------------------|
| NX-210 (K2: 18-key) | X57-7710-10 | X57-7710-11 |

■ Method of confirming “Original TX-RX unit” and “Service TX-RX unit”



| X57-771 | R962 | R963 |
|---------|--------|--------|
| 0-10 | 0Ω | (None) |
| 0-11 | (None) | 0Ω |

Note:

- The 0Ω resistor (R962 and R963) is used to differentiate the destination with a visual check. These are not connected with any PCB pattern; they are specifically for production control. There is no need to change the mount of two resistors.
- There is no difference between the schematic diagram of the Service TX-RX unit (X57-7710-11) and the schematic diagram of the original TX-RX unit (X57-7710-10). (R962 and R963 are connected with GND (ground) only.)

■ Supplied Accessories of “Service TX-RX unit”

| Item (Including Parts Number) | Quantity |
|-------------------------------|----------|
| NX-210 TX-RX Unit (X57-771) | 1 |
| Kenwood ESN Label | 1 |
| NXDN ESN Label | 1 |
| Addendum (B59-2586-XX) | 1 |

■ “Service TX-RX unit” Data

The following data is written on the service TX-RX unit:

| Data Type | Description |
|--|---|
| Firmware | NX-200/210/300 Firmware. |
| FPU Data (PC programming mode) | X57-771 (NX-210) K2 type data. |
| Various Adjustment Data (PC Test mode) | General adjustment values for the X57-771 (NX-210). |
| Kenwood ESN | Model name: NX-210S Type: K2 The same number as the Kenwood ESN label is written. |
| NXDN ESN | The same number as the NXDN ESN label is written. |

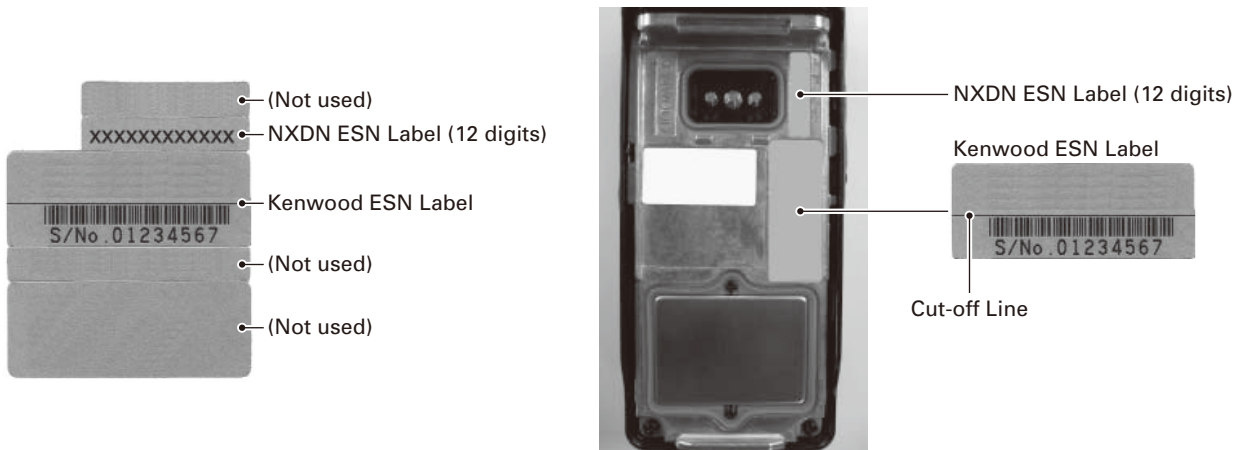
■ After Changing the PCB

1. After changing the printed circuit board, write the up-to-date Firmware following the instructions in the “REALIGNMENT - 6.Firmware Programming Mode”.
2. Using the KPG-111D, 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 “ADJUSTMENT”.
4. Attach the new labels corresponding to the new printed circuit board. (Refer to the images on page 36 for label placement.)
5. If necessary, write the FPU data used by the customer with the KPG-111D.

Note:

- When using the ESN Validation function of NXDN Trunking, the NXDN ESN number changes when the circuit board is changed (the number is written on the circuit board); the NXDN Trunking System cannot be accessed. Use the KPG-110SM on the NXDN Trunking System side to reprogram the NXDN ESN number.
- When a new printed circuit board is used, the Kenwood ESN changes, as does the Transceiver Information display of the KPG-111D, but this does not have any effect on the operation of the transceiver.
- If changing to the original Kenwood ESN and NXDN ESN, please contact our service center.

TROUBLE SHOOTING

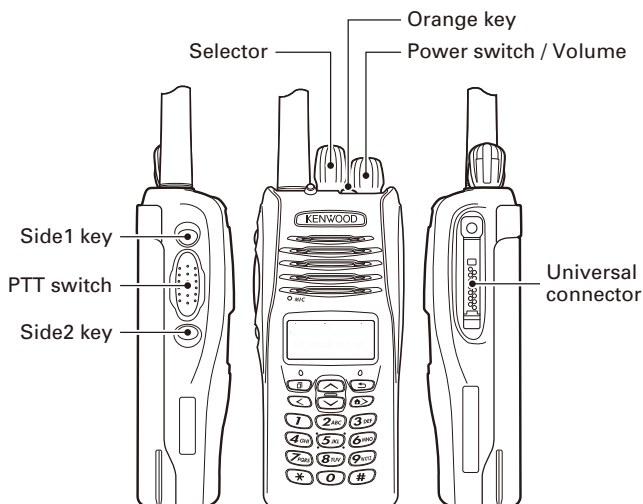


Note:

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.

ADJUSTMENT

Controls



Panel Test Mode

■ 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.

ADJUSTMENT

■ 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. |
| [v] | Push: Test channel down Hold: Test channel down continuously | Channel No. |
| [Side1] | Push: Squelch level up Hold: Squelch off | Squelch level Squelch off: [S] icon appears |
| [Side2] | Wide/Narrow/Very narrow | Wide: "w" Narrow: "n" Very narrow: "v" |
| [@] | Shift to panel tuning mode | - |
| [>] | Function on | "FNC" appears on the sub LCD display |
| [<] | MSK 1200bps and 2400bps | 2400bps: [M] icon appears |
| [<=>] | Push: Test signaling up Hold: Test signaling up continuously | Signaling No. |
| [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. | - |

| Key | "FNC" appears on the sub LCD display | |
|-------------------------|--------------------------------------|--------------------------|
| | Function | Display |
| [Selector] | - | - |
| [^] | Function off | - |
| [v] | Analog/NXDN | Analog: "A" NXDN: "N" |
| [Side1] | Function off | - |
| [Side2] | LCD all lights | LCD all point appears |
| [@] | High power/Low power | High: "H" Low: "L" |
| [>] | Function off | - |
| [<] | Compander on/off | On: [C] icon appears |
| [<=>] | Beat shift on/off | On: [B] icon appears |
| [Orange] | Function off | - |
| [PTT] | Transmit | - |
| [0] to [9] and [#], [*] | Function off | - |

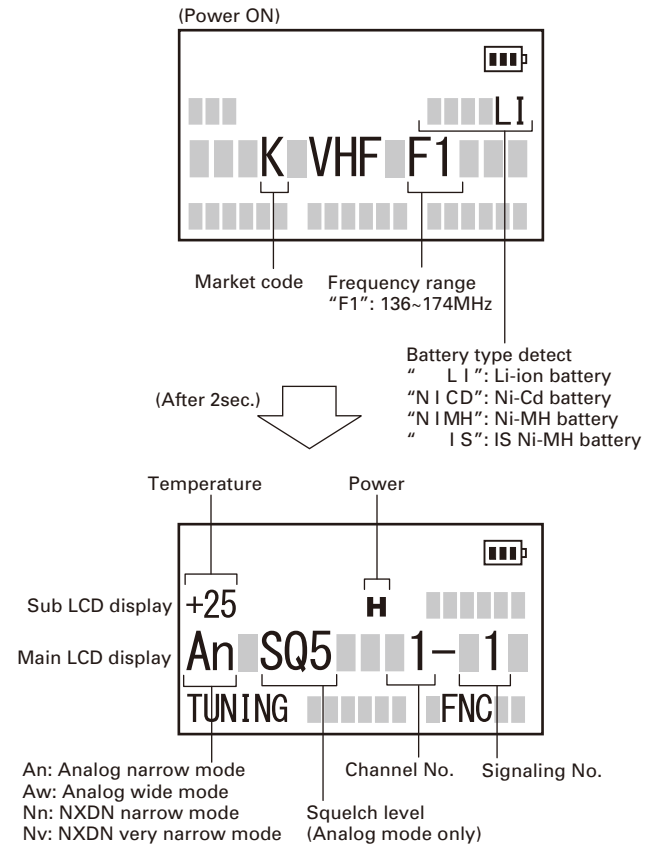
• LED indicator

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



■ 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.

• 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 | - | - |

ADJUSTMENT

• Analog mode signaling

| No. | RX | TX |
|-----|---|---|
| 1 | None | None |
| 2 | None | 100Hz Square Wave |
| 3 | LTR Data: AREA=0, GOTO=12 HOME=12 ID=47, FREE=25 | LTR Data: AREA=0, GOTO=12 HOME=12 ID=47, FREE=25 |
| 4 | QT: 67.0Hz | QT: 67.0Hz |
| 5 | QT: 151.4Hz | QT: 151.4Hz |
| 6 | QT: 210.7Hz | QT: 210.7Hz |
| 7 | QT: 254.1Hz | QT: 254.1Hz |
| 8 | DQT: D023N | DQT: D023N |
| 9 | DQT: D754I | DQT: D754I |
| 10 | DTMF: 159D | DTMF: 159D |
| 11 | None | DTMF Code 9 |
| 12 | 2-tone: A: 304.7Hz B: 3106.0Hz | 2-tone: A: 304.7Hz B: 3106.0Hz |
| 13 | Single Tone: 979.9Hz | Single Tone: 979.9Hz |
| 14 | None | Single Tone: 1000Hz |
| 15 | None | MSK |
| 16 | MSK | MSK |

• NXDN mode signaling

| No. | RX | TX |
|-----|------|---------------------------|
| 1 | RAN1 | RAN1 |
| 2 | None | PN9 |
| 3 | RAN1 | Maximum deviation pattern |

RAN: Radio Access Number

PN9: Pseudo-Random Pattern (for production only)

Panel Tuning Mode

■ Preparations for tuning the transceiver

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

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

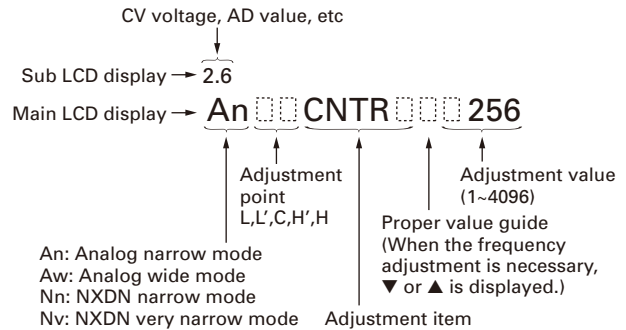
The speaker output connector must be terminated with a 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during tuning.

■ Transceiver tuning (To enter tuning mode)

To enter tuning mode, press the [a] 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 [a>] key to select the adjustment item through tuning modes. Use the [b>] key to adjust 5 reference level adjustments, and use the [Side2] key to switch between Wide/Narrow/Very narrow.

• LCD display in panel tuning mode



■ 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/Very narrow | - |
| [a] | Shift to panel test mode | - |
| [b>] | To enter 5 reference level adjustments | - |
| [<] | Writes the adjustment value | - |
| [a>] | Go to next adjustment item | Back to last adjustment item |
| [Orange] | - | - |
| [PTT] | Transmit | |
| [0] to [9] and [#], [*] | - | - |

■ 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 |

ADJUSTMENT

■ Adjustment item supplement

| Adjustment Item | Description |
|--|--|
| LCD contrast | The contrast of LCD display can be changed. |
| Counterclockwise Volume | “Counterclockwise Volume” is adjusted at the minimum volume position. “Clockwise Volume” is adjusted at the maximum volume position. |
| Clockwise Volume | 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 0.001ppm 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. |
| RTC | Real-Time Clock (RTC) is adjusted. This item uses the internal clock. (Any measurement equipment is not required.) |
| 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 (NXDN Narrow/Very Narrow) | Maximum Deviation of NXDN (Narrow/Very Narrow) is adjusted. |
| Maximum Deviation (Analog Wide/Narrow) | Maximum Deviation of Analog (Wide/Narrow) is adjusted. This item must be adjusted before all adjustment items for tone deviations are adjusted. Note: “Maximum Deviation (Analog Narrow)” must be adjusted before “CWID Deviation (NXDN Very Narrow)” is adjusted. |
| QT Deviation | QT tone deviation is adjusted. |
| DQT Deviation | DQT tone deviation is adjusted. |
| LTR Deviation | LTR tone deviation is adjusted. |
| DTMF Deviation | DTMF tone deviation is adjusted. |
| Single Tone Deviation | The deviation of Single Tone used in “2-tone” is adjusted. |
| MSK Deviation | MSK tone deviation is adjusted. |
| CWID Deviation | CWID tone deviation is adjusted. CWID is used to inform the others who is transmitting on a 6.25-kHz spacing channel. (In FCC rule, Analog mode or CWID is required for each channel-spacing.) |
| VOX 1 | VOX sensitivity at “VOX 1” is adjusted. |
| VOX 10 | VOX sensitivity at “VOX 10” is adjusted. |
| Sensitivity 1 | Band-Pass Filter is adjusted. The performance of Receive Sensitivity is improved. |
| Sensitivity 2 | The gain of RF amplifier is adjusted. The performance of the interfering wave is improved. |
| 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 “  ” 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. |

ADJUSTMENT

■ Adjustment item and Display

| Order | Adjustment item | Main LCD display | Sub LCD display | Aw (Analog Wide) | An (Analog Narrow) | Nn (NXDN Narrow) | Nv (NXDN Very Narrow) | Adjust item Number |
|-------|----------------------------|------------------|--------------------------|------------------|--------------------|------------------|-----------------------|------------------------|
| | | | | Adjustment range | | | | |
| 1 | LCD contrast | CNTR | - | 1 point ADJ | | | | Common Section 2 |
| | | | | 1~256 | | | | |
| 2 | Counterclockwise Volume | VOL1 | VOL measurement value | 1 point ADJ | | | | Common Section 3 |
| | | | | 1~256 | | | | |
| 3 | Clockwise Volume | VOL2 | VOL measurement value | 1 point ADJ | | | | Common Section 4 |
| | | | | 1~256 | | | | |
| 4 | Receive Assist | RAST | (CV voltage) | 5 point ADJ | | | | Common Section 5 |
| | | | | 1~4096 | | | | |
| 5 | Transmit Assist | TAST | (CV voltage) | 5 point ADJ | | | | Common Section 5 |
| | | | | 1~4096 | | | | |
| 6 | RTC (Real-time clock) | RTC | - | 1 point ADJ | | | | Common Section 6 |
| | | | | -62~-1/0/+1~+62 | | | | |
| 7 | High Transmit Power | HIPWR | - | - | 5 | - | - | Transmitter Section 1 |
| | | | | 1~1024 | | | | |
| 8 | Low Transmit Power | LOPWR | - | - | 5 | - | - | Transmitter Section 2 |
| | | | | 1~1024 | | | | |
| 9 | Balance | BAL | (Encode frequency) | - | 5 | - | - | Transmitter Section 3 |
| | | | | 1~256 | | | | |
| 10 | Maximum Deviation (NXDN) | NDEV | - | - | - | 5 | 5 | Transmitter Section 4 |
| | | | | 1~1024 | | | | |
| 11 | Maximum Deviation (Analog) | ADEV | - | 5 | 5 | - | - | Transmitter Section 5 |
| | | | | 1~1024 | | | | |
| 12 | QT Deviation | QT | - | 1 | 1 | - | - | Transmitter Section 6 |
| | | | | 1~1024 | | | | |
| 13 | DQT Deviation | DQT | - | 1 | 1 | - | - | Transmitter Section 7 |
| | | | | 1~1024 | | | | |
| 14 | LTR Deviation | LTR | - | 1 | 1 | - | - | Transmitter Section 8 |
| | | | | 1~1024 | | | | |
| 15 | DTMF Deviation | DTMF | - | 1 | 1 | - | - | Transmitter Section 9 |
| | | | | 1~1024 | | | | |
| 16 | Single Tone Deviation | TONE | - | 1 | 1 | - | - | Transmitter Section 10 |
| | | | | 1~1024 | | | | |
| 17 | MSK Deviation | MSK | - | 1 | 1 | - | - | Transmitter Section 11 |
| | | | | 1~1024 | | | | |
| 18 | CWID Deviation | CWID | - | - | - | - | 1 | Transmitter Section 12 |
| | | | | 1~1024 | | | | |
| 19 | VOX1 | VOX1 | VOX measurement value | 1 point ADJ | | | | Transmitter Section 13 |
| | | | | 1~256 | | | | |
| 20 | VOX10 | VOX10 | VOX measurement value | 1 point ADJ | | | | Transmitter Section 14 |
| | | | | 1~256 | | | | |
| 21 | Sensitivity 1 | SENS1 | (RSSI measurement value) | - | 5 | - | - | Receive Section 2 |
| | | | | 1~256 | | | | |

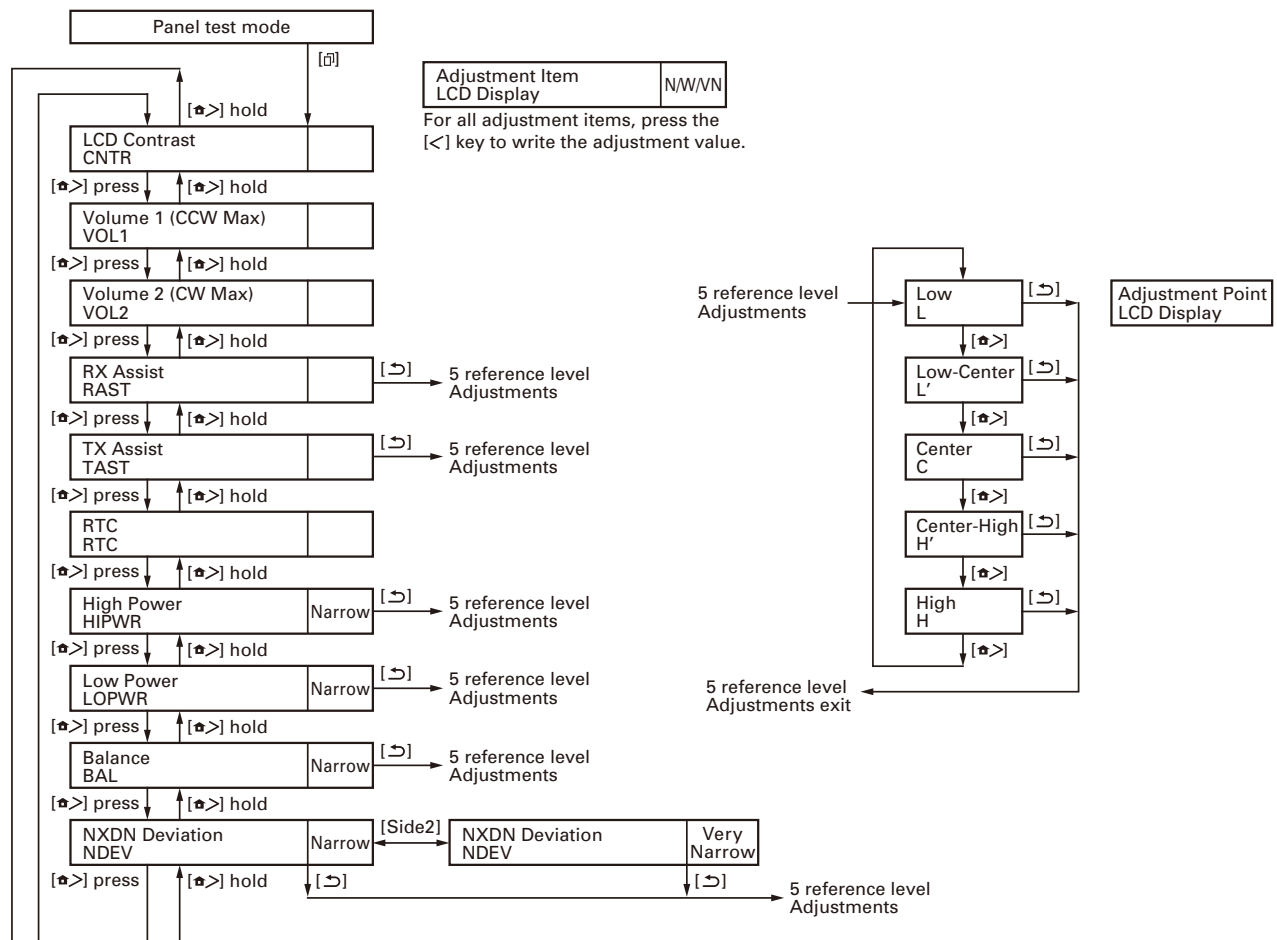
ADJUSTMENT

| Order | Adjustment item | Main LCD display | Sub LCD display | Aw (Analog Wide) | An (Analog Narrow) | Nn (NXDN Narrow) | Nv (NXDN Very Narrow) | Adjust item Number |
|-------|-----------------------|------------------|----------------------------|------------------|--------------------|------------------|-----------------------|------------------------|
| | | | | Adjustment range | | | | |
| 22 | Sensitivity 2 | SENS2 | (RSSI measurement value) | - | 5 | - | - | Receive Section 3 |
| | | | | 1~256 | | | | |
| 23 | RSSI Reference | RRSSI | (RSSI measurement value) | 5 | 5 | - *1 | 5 | Receive Section 4 |
| | | | | 1~256 | | | | |
| 24 | Open Squelch | SQL | (ASQDET measurement value) | 5 | 5 | - *1 | 5 | Receive Section 5 |
| | | | | 1~256 | | | | |
| 25 | Low RSSI | LRSSI | (RSSI measurement value) | 5 | 5 | - *1 | 5 | Receive Section 6 |
| | | | | 1~256 | | | | |
| 26 | High RSSI | HRSSI | (RSSI measurement value) | 5 | 5 | - *1 | 5 | Receive Section 7 |
| | | | | 1~256 | | | | |
| 27 | Tight Squelch | SQLT | (ASQDET measurement value) | 5 | 5 | - | - | Receive Section 8 |
| | | | | 1~256 | | | | |
| 28 | Battery Warning Level | BATT | (BATT measurement value) | 1 point ADJ | | | | Transmitter Section 15 |
| | | | | 1~256 | | | | |

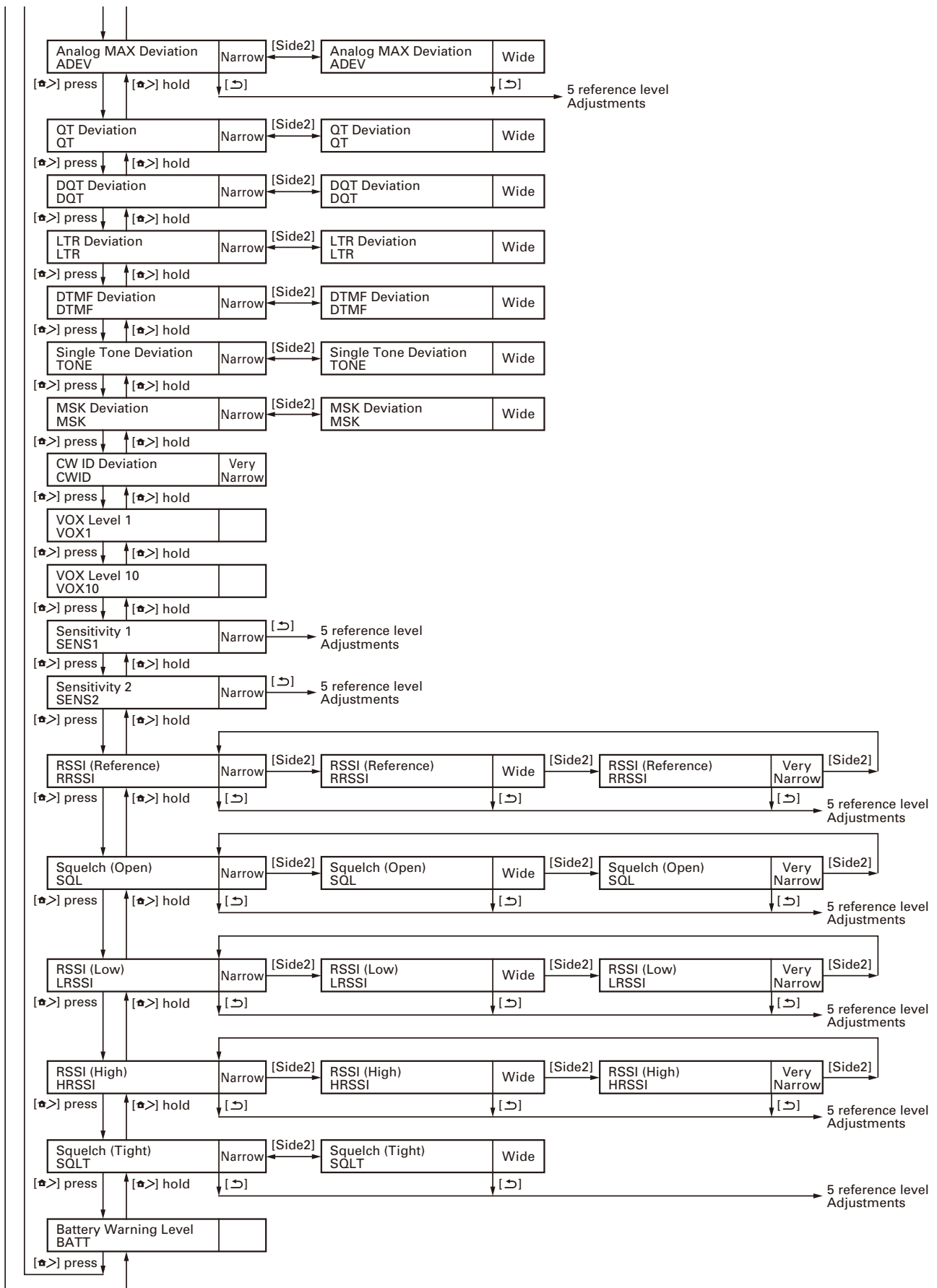
*1: Because NXDN Narrow is adjusted by adjusting Analog Narrow, it is not necessary to adjust NXDN Narrow.

■ Panel tuning mode flow chart

Note: In this Panel tuning mode flow chart, the Adjustment item name is modified.



ADJUSTMENT



ADJUSTMENT

Test Equipment Required for Alignment

| Test Equipment | Major Specifications | |
|---------------------------------------|---|--|
| 1. Standard Signal Generator (SSG) | Frequency Range Modulation Output When performing the Frequency adjustment, the following accuracy is necessary. • 0.003ppm Use a standard oscillator for adjustments, if necessary. | 136 to 174MHz Frequency modulation and external modulation -127dBm/0.1μV to greater than -20dBm/22.4mV |
| 2. Power Meter | Input Impedance Operation Frequency Measurement Capability | 50Ω 136 to 174MHz Vicinity of 10W |
| 3. Deviation Meter | Frequency Range | 136 to 174MHz |
| 4. Digital Volt Meter (DVM) | Measuring Range Input Impedance | 10mV to 10V DC High input impedance for minimum circuit loading |
| 5. Oscilloscope | | DC through 30MHz |
| 6. High Sensitivity Frequency Counter | Frequency Range Frequency Stability | 10Hz to 1000MHz 0.2ppm or less |
| 7. Ammeter | | 5A |
| 8. AF Volt Meter (AF VTVM) | Frequency Range Voltage Range | 50Hz to 10kHz 1mV to 10V |
| 9. Audio Generator (AG) | Frequency Range Output | 50Hz to 5kHz or more 0 to 1V |
| 10. Distortion Meter | Capability Input Level | 3% or less at 1kHz 50mV to 10Vrms |
| 11. 8Ω Dummy Load | | Approx. 8Ω, 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

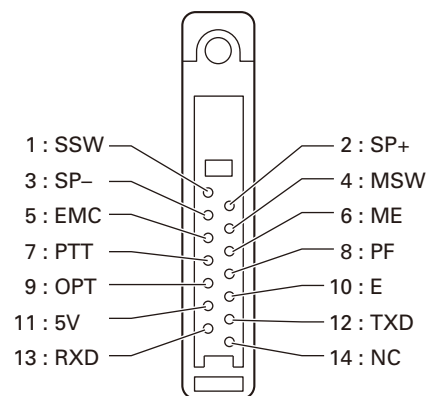
■ Universal connector

Use the interface cable (KPG-36/36A) 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.

- Do not connect an instrument between red or black and GND.

• Universal connector

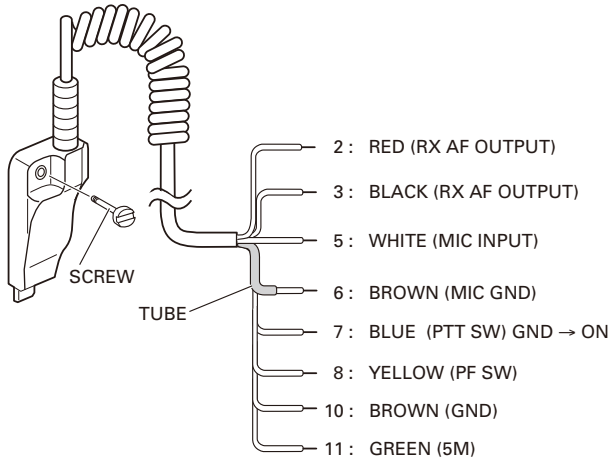


Caution

- 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.
- 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.

ADJUSTMENT

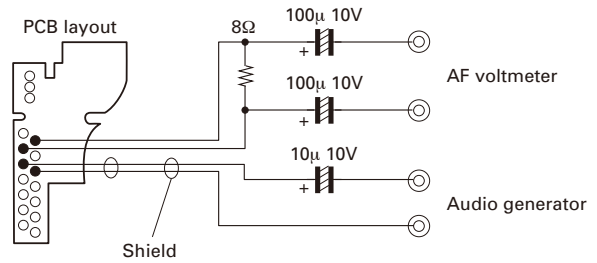
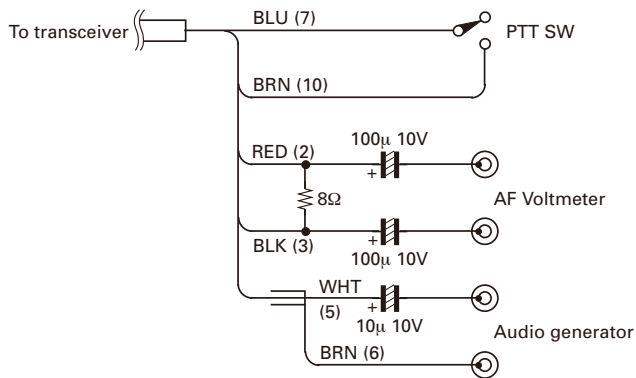
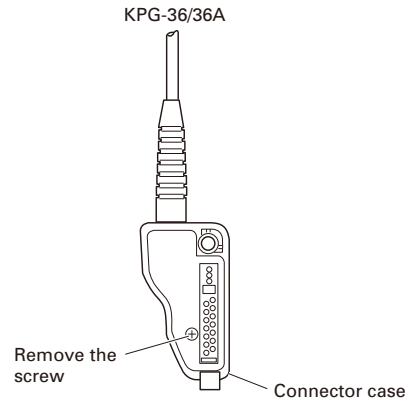
• Panel tuning



• 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.



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

ADJUSTMENT

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 an internal temperature of radio within 25°C ± 2°C. | ±0.5ppm -75.55Hz~ +77.55Hz~ @155.1MHz |
| 2. High power check (Batt: 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 | | | | | Check | 4.5W~5.5W 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. | | | | | | | |
| | 3) CH-Sig: 3-1 PTT: ON | 3) Test Channel Channel: 3 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button. | | | | | | | |
| 3. Low power check (Batt: 7.5V) | 1) CH-Sig: 1-1 PTT: ON | 1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button. | | | | | | | 0.7W~1.2W 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. | | | | | | | |
| | 3) CH-Sig: 3-1 PTT: ON | 3) Test Channel Channel: 3 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button. | | | | | | | |
| 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 VTVM | | ANT Universal connector | | | Adjust AG input to get a standard MOD. | 12.5mV±5.8mV |

ADJUSTMENT

| 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: -117dBm (0.32μV) (MOD: 1kHz/±3kHz) Narrow: -117dBm (0.32μV) (MOD: 1kHz/±1.5kHz) | 1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 SSG output Wide: -117dBm (0.32μV) (MOD: 1kHz/±3kHz) Narrow: -117dBm (0.32μV) (MOD: 1kHz/±1.5kHz) | SSG AF VTVM Oscilloscope Distortion meter 8Ω Dummy load | | ANT Universal connector | | | Check | 12dB SINAD or more |

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] MOD: 1kHz, DEV: 3kHz [Narrow] MOD: 1kHz, DEV: 1.5kHz | | | | | | | | |
| 2. LCD contrast | 1) Adj item: [CNTR] Adjust: [***] Press [<] key to store the adjustment value. | 1) Adj item: [LCD Contrast] Press [Apply] button to store the adjustment value. | | | | Panel | [Panel tuning mode] [<], [>] [PC test mode] [<], [>] | Adjust the LCD contrast by looking. | This item is needed when the LCD ASSY (B38-0923-05) is replaced. |
| 3. Counterclockwise Volume | 1) Adj item: [VOL1] Adjust: [***] | 1) Adj item: [Counterclockwise 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 (R31-0652-15) is replaced. |
| 4. Clockwise Volume | 1) Adj item: [VOL2] Adjust: [***] | 1) Adj item: [Clockwise 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. | |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|-------------------------------------|--|---|----------------|-------|----------|------------|---|---|--|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 5. Receive 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 adjustment value. | 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] [∧], [∨] [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. | 2.5V±0.1V [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment point was adjusted. |
| Transmit Assist | 1) Adj item: [TAST] Adjust: [****] 2) Adj item: [L TAST]→ [L' TAST]→[C TAST]→ [H' TAST]→[H TAST] Adjust: [****] PTT : ON (RF power is not output.) Press [◀] key to store the adjustment 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. | | | | | | | |
| 6. RTC oscillation frequency adjust | 1) Adj item: [RTC] Adjust: [***] | 1) Adj item: [RTC (Real-time clock)] | | | | | [Side1] | [Panel tuning mode] Press [Side1] key. After automatic adjustment adjusted value is displayed on the LCD. Press [◀] key to store the adjustment value. [PC test mode] Press [Start] button of "Auto Tuning". Press [Apply] button to store the adjustment value after the automatic adjustment was finished. | |
| 7. Frequency adjust | * The Frequency adjustment can be performed only in PC test mode. | 1) Adj item: [Frequency] SSG output : -20dBm (22.4mV) (CW (without modulation)) Caution: Perform the frequency adjustment under the following conditions. • Temperature range of +23°C to +27°C (+73.4°F to +80.6°F). (The temperature is displayed on the Frequency adjustment screen of the KPG-111D and the LCD of the transceiver.) • 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" after the adjustment was finished. Remark: "Frequency" is adjusted under receiving condition with SSG. |

ADJUSTMENT

Transmitter Section

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|--|---------------------------------|-------|----------|------------|---|---|--|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 1. High Transmit Power adjust (Batt: 7.5V) | 1) Adj item: [HIPWR] Adjust: [****] 2) Adj item: [L' HIPWR]→ [L' HIPWR]→ [C HIPWR]→ [H' HIPWR]→ [H 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] [∧], [∨] [PC test mode] [◀],[▶] | 5.0W | ±0.2W 2.0A or less [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment point was adjusted. |
| 2. Low Transmit Power adjust (Batt: 7.5V) | 1) Adj item: [LOPWR] Adjust: [****] 2) Adj item: [L LOPWR]→ [L' LOPWR]→ [C LOPWR]→ [H' LOPWR]→ [H 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. | | | | | | 0.8W | ±0.1W 1.0A or less [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment point was adjusted. |
| 3. Balance adjust *2 | 1) Adj item: [BAL] Adjust: [***] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [L BAL]→ [L' BAL]→[C BAL]→ [H' BAL]→[H 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 | | | | | 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 point was adjusted. |
| *2: Refer to the "Necessary Deviation adjustment item for each signaling and mode" table on pages 52 and 53. Balance adjustment is common with the adjustment of all signaling deviations. | | | | | | | | | |
| 4. Maximum Deviation (NXDN) adjust *3 [Narrow] | 1) Adj item: [Nn NDEV] Adjust: [****] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [NnL NDEV]→ [NnL' NDEV]→ [NnC NDEV]→ [NnH' NDEV]→ [NnH NDEV] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [Maximum Deviation (NXDN Narrow)] 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. | Deviation meter Oscilloscope | Panel | ANT | Panel | [Panel tuning mode] [∧], [∨] [PC test mode] [◀],[▶] | 3056Hz | 2995~3117Hz [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment point was adjusted. |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|--|---|--|---------------------------------|-------|----------|------------|---|---|--|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| Maximum Deviation (NXDN) adjust *3 [Very Narrow] | 1) Adj item: [Nv NDEV] Adjust: [*****] 2) Adj item: [NvL NDEV]→ [NvL' NDEV]→ [NvC NDEV]→ [NvH' NDEV]→ [NvH NDEV] Adjust: [*****] PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [Maximum Deviation (NXDN Very Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] 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] [◀], [▶] | 1337Hz | 1311~1363Hz [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment point was adjusted. |
| 5. Maximum Deviation (Analog) adjust *3 [Narrow] | 1) Adj item: [An ADEV] Adjust: [*****] 2) Adj item: [AnL ADEV]→ [AnL' ADEV]→ [AnC ADEV]→ [AnH' ADEV]→ [AnH ADEV] Adjust: [*****] Press [◀] key to store the adjustment value. | 1) Adj item: [Maximum Deviation (Analog Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] Press [Apply All] button to store the adjustment value. | | | | | Write the same adjustment value of "NXDN Deviation [Narrow]" 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 point was adjusted. |
| [Wide] | 1) Adj item: [Aw ADEV] Adjust: [*****] 2) Adj item: [AwL ADEV]→ [AwL' ADEV]→ [AwC ADEV]→ [AwH' ADEV]→ [AwH ADEV] Adjust: [*****] Press [◀] key to store the adjustment value. | 1) Adj item: [Maximum Deviation (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] Press [Apply All] button to store the adjustment value. | | | | | Write the same adjustment value of "NXDN Deviation [Narrow]" 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 point was adjusted. |
| *3: Refer to the "Necessary Deviation adjustment item for each signaling and mode" table on pages 52 and 53. Regarding Maximum Deviation (Analog), it is common with the adjustment of all analog signalings. | | | | | | | | | |
| 6. QT Deviation adjust *4 [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. | Deviation meter Oscilloscope | Panel | ANT | Panel | [Panel tuning mode] [∧], [∨] [PC test mode] [◀], [▶] | Write the value as followings. 513 (Reference value) | 0.35kHz±0.05kHz |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|--|---|---------------------------------|-------|----------|------------|---|---|--------------------------|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| QT Deviation adjust *4 [Wide] | 1) Adj item: [Aw QT] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [QT Deviation (Analog Wide)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | Deviation meter Oscilloscope | Panel | ANT | Panel | [Panel tuning mode] [∧], [∨] [PC test mode] [◀],[▶] | Write the value as followings. 513 (Reference value) | 0.75kHz±0.05kHz |
| 7. DQT Deviation adjust *4 [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. | | | | | | Write the value as followings. 415 (Reference value) | 0.35kHz±0.05kHz |
| [Wide] | 1) Adj item: [Aw DQT] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [DQT Deviation (Analog Wide)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | | 0.75kHz±0.05kHz |
| 8. LTR Deviation adjust *4 [Narrow] | 1) Adj item: [An LTR] Adjust: [****] Deviation meter LPF: 3kHz HPF: OFF PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [LTR Deviation (Analog Narrow)] Deviation meter LPF: 3kHz HPF: OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | Write the value as followings. 465 (Reference value) | 0.75kHz±0.05kHz |
| [Wide] | 1) Adj item: [Aw LTR] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [LTR Deviation (Analog Wide)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | | 1.00kHz±0.05kHz |
| 9. DTMF Deviation adjust *4 [Narrow] | 1) Adj item: [An DTMF] Adjust: [****] Deviation meter LPF: 15kHz HPF: OFF PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [DTMF Deviation (Analog Narrow)] Deviation meter LPF: 15kHz HPF: OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | Write the value as followings. 540 (Reference value) | 1.25kHz±0.05kHz |
| [Wide] | 1) Adj item: [Aw DTMF] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [DTMF Deviation (Analog Wide)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | | 2.50kHz±0.05kHz |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|--|--|---|---------------------------------|-------|---------------------|------------|---|--|--|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 10. Single Tone Deviation adjust *4 [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. | Deviation meter Oscilloscope | Panel | ANT | Panel | [Panel tuning mode] [∧], [∨] [PC test mode] [◀],[▶] | Write the value as followings. 513 (Reference value) | 1.50kHz±0.05kHz |
| | [Wide] | 1) Adj item: [Aw TONE] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | | | | | | | 1) Adj item: [Single Tone Deviation (Analog Wide)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. |
| 11. MSK Deviation adjust *4 [Narrow] | 1) Adj item: [An MSK] Adjust: [****] Deviation meter LPF: 15kHz HPF: OFF PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [MSK Deviation (Analog Narrow)] Deviation meter LPF: 15kHz HPF: OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | Write the value as followings. 513 (Reference value) | 1.50kHz±0.05kHz |
| | [Wide] | 1) Adj item: [Aw MSK] Adjust: [****] PTT: ON Press [◀] key to store the adjustment value. | | | | | | | 1) Adj item: [MSK Deviation (Analog Wide)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. |
| 12. CWID Deviation adjust *4 [Very Narrow] | 1) Adj item: [Nv CWID] Adjust: [****] Deviation meter LPF: 15kHz HPF: OFF PTT: ON Press [◀] key to store the adjustment value. | 1) Adj item: [CW ID Deviation (NXDN Very Narrow)] Deviation meter LPF: 15kHz HPF: OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value. | | | | | | Write the value as followings. 376 (Reference value) | 1.10kHz±0.10kHz |
| *4: Refer to the "Necessary Deviation adjustment item for each signaling and mode" table on pages 52 and 53. | | | | | | | | | |
| 13. VOX1 adjust | 1) Adj item: [VOX1] Adjust: [****] AG: 1kHz/45mV at MIC terminal | 1) Adj item: [VOX1] AG: 1kHz/45mV at MIC terminal | AG | Panel | Universal connector | | | [Panel tuning mode] After apply signal from AG, press [◀] key to store the adjustment value. [PC test mode] After apply signal from AG, press [Apply] button to store the adjustment value. | |
| 14. VOX10 adjust | 1) Adj item: [VOX10] Adjust: [****] AG: 1kHz/3mV at MIC terminal | 1) Adj item: [VOX10] AG: 1kHz/3mV at MIC terminal | | | | | | | |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|----------------------------|--|--|--------------------|-------|----------------------|------------|-------|---|---|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 15. BATT detection 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-determined 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. | |
| 16. BATT detection 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 | | | | | | Check | The transceiver can transmit with causing the LED to blink. |

■ 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 (Wide)", this signaling is composed of three elements [Balance, Maximum Deviation (Analog Wide) and QT Deviation (Wide)]. Please adjust Balance and Maximum Deviation (Analog Wide) before adjusting QT Deviation (Wide).

| Mode | Signaling | Necessary adjustment and order | | |
|--------|-----------------|---|---|-------------|
| | | Wide | Narrow | Very Narrow |
| Analog | Audio | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) | - |
| | QT | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) Step3. QT Deviation (Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. QT Deviation (Narrow) | - |
| | DQT | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) Step3. DQT Deviation (Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. DQT Deviation (Narrow) | - |
| | LTR | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) Step3. LTR Deviation (Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. LTR Deviation (Narrow) | - |
| | DTMF | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) Step3. DTMF Deviation (Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. DTMF Deviation (Narrow) | - |
| | 2TONE | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) Step3. Single Tone Deviation (Analog Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. Single Tone Deviation (Analog Narrow) | - |
| | MSK (FleetSync) | Step1. Balance adjust Step2. Maximum Deviation (Analog Wide) Step3. MSK Deviation (Analog Wide) | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. MSK Deviation (Analog Narrow) | - |

ADJUSTMENT

| Mode | Signaling | Necessary adjustment and order | | |
|------|-----------|--------------------------------|---|---|
| | | Wide | Narrow | Very Narrow |
| NXDN | Audio | - | Step1. Balance adjust Step2. Maximum Deviation (NXDN Narrow) | Step1. Balance adjust Step2. Maximum Deviation (NXDN Very Narrow) |
| | CWID | - | - | Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. CWID Deviation (NXDN Very Narrow) |

- Balance is common with all the above deviation adjustments. If Balance (Transmitter Section 3) has already adjusted, please skip Step1 and adjust from Step2.
- Maximum Deviation (Analog Wide/Narrow) is common with all the analog signaling deviations and CWID Deviation (NXDN Very Narrow). If Balance and Maximum Deviation (Analog Wide/Narrow) (Transmitter Section 5) have already adjusted, please skip Step2 and adjust from Step3.

Receiver Section

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|-------------------------|---|--|-------------------------------------|-------|----------------------------|------------|---|--|--------------------------|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 1. AF level setting | [Panel test mode] 1) CH-Sig: 1-1 SSG output: -47dBm (1mV) (MOD: 1kHz/±1.5kHz) Wide/Narrow: Narrow Beat Shift: Uncheck Companer: Uncheck | 1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 Wide/Narrow: Narrow Beat Shift: Uncheck Companer: Uncheck SSG output: -47dBm (1mV) (MOD: 1kHz/±1.5kHz) | SSG DVM AF VTVM Dummy load | Panel | ANT Universal connector | Panel | Volume knob | Turn the Volume knob to obtain 0.63V AF output. | 0.63V±0.1V |
| 2. Sensitivity 1 adjust | 1) Adj item: [SENS1] Adjust: [***] 2) Adj item: [L SENS1]→ [L' SENS1]→ [C SENS1]→ [H' SENS1]→ [H 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. | | | | | [Panel tuning mode] [∧], [∨] [PC test mode] [←],[→] | Write the value as followings. [L SENS1] / [Low] : 8 (Preset) [L' SENS1] / [Low'] : 45 (Fixed) [C SENS1] / [Center] : 95 (Fixed) [H' SENS1] / [High'] : 135 (Fixed) [H SENS1] / [High] : 180 (Fixed) | |
| | 3) Adj item: [L SENS1] Adjust: [***] | 3) Adj item: [Low] | SSG AF VTVM Oscilloscope | Panel | ANT Universal connector | | | Increase the adjustment value from step 2 adjustment value (preset value) of "2. Sensitivity 1 adjust". | |
| | Caution: Perform the step 3 adjustments of "3. Sensitivity 2 adjust" before performing the [L SENS1] adjustment. | | | | | | | | |
| | SSG output: -90dBm (7.08μV) (MOD: 1kHz/±1.5kHz) Press [←] key to store the adjustment value. | SSG output: -90dBm (7.08μV) (MOD: 1kHz/±1.5kHz) Press [Apply All] button to store the adjustment value. | | | | | | | |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks | |
|--|---|---|---|-------|----------------------------|------------|---|--|--------------------------|---|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | | |
| 3. Sensitivity 2 adjust | 1) Adj item: [SENS2] Adjust: [***] 2) Adj item: [L SENS2]→ [L' SENS2]→ [C SENS2]→ [H' SENS2]→ [H 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 AF VTVM Oscilloscope | Panel | ANT Universal connector | Panel | [Panel tuning mode] [∧], [∨] [PC test mode] [◀],[▶] | Write the value as followings. [L SENS2] / [Low] : 180 (Fixed) [L' SENS2] / [Low'] : 180 (Fixed) [C SENS2] / [Center] : 180 (Fixed) [H' SENS2] / [High'] : 180 (Fixed) [H SENS2] / [High] : 180 (Fixed) | | |
| | 3) Adj item: [L SENS2] Adjust: [***] Press [◀] key to store the adjustment value. | 3) Adj item: [Low] Press [Apply All] button to store the adjustment value. | | | | | | Write the value as followings. [L SENS2]/[Low] : 256 | | Caution: This is the preadjustment for the adjustment of "2. Sensitivity 1 adjust". Perform adjustment steps 1 and 2 of "3. Sensitivity 2 adjust" after performing the adjustment of "2. Sensitivity 1 adjust". |
| 4. RSSI reference adjust *5 [Analog Narrow] | 1) Adj item: [An RRSSI] Adjust: [***] 2) Adj item: [AnL RRSSI]→ [AnL' RRSSI]→ [AnC RRSSI]→ [AnH' RRSSI]→ [AnH RRSSI] Adjust: [***] 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 Universal connector | | | [Panel tuning mode] After input signal from SSG, press [◀] key to store the adjustment value. | | |
| | [Analog Wide] | 1) Adj item: [Aw RRSSI] Adjust: [***] 2) Adj item: [AwL RRSSI]→ [AwL' RRSSI]→ [AwC RRSSI]→ [AwH' RRSSI]→ [AwH RRSSI] Adjust: [***] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±3kHz) | | | | | | 1) Adj item: [RSSI Reference (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±3kHz) | | [PC test mode] After input signal from SSG, press [Apply] button to store the adjustment value. |
| | [NXDN Very Narrow] | 1) Adj item: [Nv RRSSI] Adjust: [***] 2) Adj item: [NvL RRSSI]→ [NvL' RRSSI]→ [NvC RRSSI]→ [NvH' RRSSI]→ [NvH RRSSI] Adjust: [***] SSG output: 12dB SINAD level for Analog Narrow -3dB (MOD: 1kHz/±1.5kHz) | | | | | | 1) Adj item: [RSSI Reference (NXDN Very Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level for Analog Narrow -3dB (MOD: 1kHz/±1.5kHz) | | Adjust with the analog signal. |

*5: Because RSSI reference (NXDN Narrow) is adjusted by adjusting RSSI reference (Analog Narrow), it is not necessary to adjust RSSI reference (NXDN Narrow).

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks | |
|---|---|---|---|-------|----------------------------|------------|-------|--|---|--|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | | |
| 5. Open Squelch adjust *6 (Squelch level 5 adjust) [Analog Narrow] | 1) Adj item: [An SQL] Adjust: [***] 2) Adj item: [AnL SQL]→ [AnL' SQL]→ [AnC SQL]→ [AnH' SQL]→ [AnH SQL] Adjust: [***] SSG output: 12dB SINAD level (MOD: 1kHz/±1.5kHz) | 1) Adj item: [Open Squelch (Analog Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level (MOD: 1kHz/±1.5kHz) | SSG Distortion meter Oscilloscope | 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. | "Open Squelch" will not be adjusted correctly if MOD and Deviation are wrong. | |
| | 1) Adj item: [Aw SQL] Adjust: [***] 2) Adj item: [AwL SQL]→ [AwL' SQL]→ [AwC SQL]→ [AwH' SQL]→ [AwH SQL] Adjust: [***] SSG output: 12dB SINAD level (MOD: 1kHz/±3kHz) | 1) Adj item: [Open Squelch (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level (MOD: 1kHz/±3kHz) | | | | | | | | |
| | [NXDN Very Narrow] | 1) Adj item: [Nv SQL] Adjust: [***] 2) Adj item: [NvL SQL]→ [NvL' SQL]→ [NvC SQL]→ [NvH' SQL]→ [NvH SQL] Adjust: [***] SSG output: 12dB SINAD level for Analog Narrow -4dB (MOD: 400Hz/±1.1kHz) | | | | | | | | 1) Adj item: [Open Squelch (NXDN Very Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level for Analog Narrow -4dB (MOD: 400Hz/±1.1kHz) |

*6: Because Open Squelch (NXDN Narrow) is adjusted by adjusting Open Squelch (Analog Narrow), it is not necessary to adjust Open Squelch (NXDN Narrow).

| | | | | | | | | | |
|---|--|--|-----|-------|----------------------------|--|--|--|--|
| 6. Low RSSI at -118dBm adjust *7 [Analog Narrow] | 1) Adj item: [An LRSSI] Adjust: [***] 2) Adj item: [AnL LRSSI]→ [AnL' LRSSI]→ [AnC LRSSI]→ [AnH' LRSSI]→ [AnH LRSSI] Adjust: [***] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz) | 1) Adj item: [Low RSSI (Analog Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -118dBm (0.28μV) (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. | |
|---|--|--|-----|-------|----------------------------|--|--|--|--|

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|--|--|---|----------------|-------|----------------------------|------------|-------|--|--------------------------------|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| Low RSSI at 118dBm adjust *7 [Analog Wide] | 1) Adj item: [Aw LRSSI] Adjust: [***] 2) Adj item: [AwL LRSSI]→ [AwL' LRSSI]→ [AwC LRSSI]→ [AwH' LRSSI]→ [AwH LRSSI] Adjust: [***] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±3kHz) | 1) Adj item: [Low RSSI (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±3kHz) | 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. | Adjust with the analog signal. |
| [NXDN Very Narrow] | 1) Adj item: [Nv LRSSI] Adjust: [***] 2) Adj item: [NvL LRSSI]→ [NvL' LRSSI]→ [NvC LRSSI]→ [NvH' LRSSI]→ [NvH LRSSI] Adjust: [***] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz) | 1) Adj item: [Low RSSI (NXDN Very Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz) | | | | | | | |
| *7: Because Low RSSI at -118dBm (NXDN Narrow) is adjusted by adjusting Low RSSI at -118dBm (Analog Narrow), it is not necessary to adjust Low RSSI at -118dBm (NXDN Narrow). | | | | | | | | | |
| 7. High RSSI at -80dBm adjust *8 [Analog Narrow] | 1) Adj item: [An HRSSI] Adjust: [***] 2) Adj item: [AnL HRSSI]→ [AnL' HRSSI]→ [AnC HRSSI]→ [AnH' HRSSI]→ [AnH HRSSI] Adjust: [***] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±1.5kHz) | 1) Adj item: [High RSSI (Analog Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -80dBm (22.4μV) (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. | |
| [Analog Wide] | 1) Adj item: [Aw HRSSI] Adjust: [***] 2) Adj item: [AwL HRSSI]→ [AwL' HRSSI]→ [AwC HRSSI]→ [AwH' HRSSI]→ [AwH HRSSI] Adjust: [***] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±3kHz) | 1) Adj item: [High RSSI (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±3kHz) | | | | | | | |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|--|---|--|----------------|-------|----------------------------|------------|-------|--|--------------------------------|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| High RSSI at -80dBm adjust *8 [NXDN Very Narrow] | 1) Adj item: [Nv HRSSI] Adjust: [***] 2) Adj item: [NvL HRSSI]→ [NvL' HRSSI]→ [NvC HRSSI]→ [NvH' HRSSI]→ [NvH HRSSI] Adjust: [***] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±1.5kHz) | 1) Adj item: [High RSSI (NXDN Very Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -80dBm (22.4μV) (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. | Adjust with the analog signal. |
| *8: Because High RSSI at -80dBm (NXDN Narrow) is adjusted by adjusting High RSSI at -80dBm (Analog Narrow), it is not necessary to adjust High RSSI at -80dBm (NXDN Narrow). | | | | | | | | | |
| 8. Tight Squelch adjust (Squelch level 9 adjust) [Analog Narrow] | 1) Adj item: [An SQLT] Adjust: [***] 2) Adj item: [AnL SQLT]→ [AnL' SQLT]→ [AnC SQLT]→ [AnH' SQLT]→ [AnH SQLT] Adjust: [***] SSG output: 12dB SINAD level +5dB (MOD: 1kHz/±1.5kHz) | 1) Adj item: [Tight Squelch (Analog Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level +5dB (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. | |
| [Analog Wide] | 1) Adj item: [Aw SQLT] Adjust: [***] 2) Adj item: [AwL SQLT]→ [AwL' SQLT]→ [AwC SQLT]→ [AwH' SQLT]→ [AwH SQLT] Adjust: [***] SSG output: 12dB SINAD level +5dB (MOD: 1kHz/±3kHz) | 1) Adj item: [Tight Squelch (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level +5dB (MOD: 1kHz/±3kHz) | | | | | | | |

TERMINAL FUNCTION

Display unit (X54-3660-10)

| Pin No. | Name | I/O | Function |
|------------|---------|-----|------------------------------|
| CN3 | | | |
| 1 | /CS | O | Chip select output |
| 2 | /RES | O | LCD reset output |
| 3 | A0 | O | Address bus 0 output |
| 4 | /WR | O | WR bus output |
| 5 | D0 | I/O | Data bus 0 |
| 6 | D1 | I/O | Data bus 1 |
| 7 | D2 | I/O | Data bus 2 |
| 8 | D3 | I/O | Data bus 3 |
| 9 | D4 | I/O | Data bus 4 |
| 10 | D5 | I/O | Data bus 5 |
| 11 | D6 | I/O | Data bus 6 |
| 12 | D7 | I/O | Data bus 7 |
| 13 | VDD | O | 3.3V LCD power supply output |
| 14 | VSS | - | GND |
| 15 | VDD | O | 3.3V LCD power supply output |
| 16 | V1 | - | LCD drive power supply |
| 17 | V2 | - | LCD drive power supply |
| 18 | V3 | - | LCD drive power supply |
| 19 | V4 | - | LCD drive power supply |
| 20 | V5 | O | LCD drive power supply |
| CN8 | | | |
| 1 | GND | - | GND |
| 2 | GND | - | GND |
| 3 | NC | - | No connection |
| 4 | /LCDRST | I | LCD reset input |
| 5 | VLCDLED | I | 6key backlight voltage (SB2) |
| 6 | /WR | I | WR bus input |
| 7 | VLCDLED | I | 6key backlight voltage (SB2) |
| 8 | A0 | I | Address bus 0 input |
| 9 | 33M | I | 3.3V input |
| 10 | 33M | I | 3.3V input |
| 11 | NC | - | No connection |
| 12 | D0 | I/O | Data bus 0 |
| 13 | NC | - | No connection |
| 14 | D1 | I/O | Data bus 1 |
| 15 | NC | - | No connection |
| 16 | D2 | I/O | Data bus 2 |
| 17 | NC | - | No connection |
| 18 | D3 | I/O | Data bus 3 |
| 19 | NC | - | No connection |
| 20 | D4 | I/O | Data bus 4 |
| 21 | NC | - | No connection |
| 22 | D5 | I/O | Data bus 5 |
| 23 | NC | - | No connection |

| Pin No. | Name | I/O | Function |
|---------|--------|-----|-------------------------------|
| 24 | D6 | I/O | Data bus 6 |
| 25 | NC | - | No connection |
| 26 | D7 | I/O | Data bus 7 |
| 27 | NC | - | No connection |
| 28 | LCDCNT | I | LCD contrast input |
| 29 | KEYO1 | I | Key matrix input (Ko1) |
| 30 | KEYO0 | I | Key matrix input (Ko0) |
| 31 | KEYO3 | I | Key matrix input (Ko3) |
| 32 | KEYO2 | I | Key matrix input (Ko2) |
| 33 | /KEYI1 | O | Key matrix output (Ki1) |
| 34 | /KEYI0 | O | Key matrix output (Ki0) |
| 35 | /KEYI3 | O | Key matrix output (Ki3) |
| 36 | /KEYI2 | O | Key matrix output (Ki2) |
| 37 | NC | - | No connection |
| 38 | KEYI4 | O | Key matrix output (Ki4) |
| 39 | VKEY | I | 12key backlight voltage (SB2) |
| 40 | VKEY | I | 12key backlight voltage (SB2) |
| 41 | NC | - | No connection |
| 42 | NC | - | No connection |
| 43 | 5A | I | 5V input |
| 44 | 5A | I | 5V input |
| 45 | NC | - | No connection |
| 46 | INTMIC | O | Internal MIC output |
| 47 | NC | - | No connection |
| 48 | ME | - | Internal MIC GND |
| 49 | GND | - | GND |
| 50 | GND | - | GND |

TX-RX unit (X57-7710-10 A/2)

| Pin No. | Name | I/O | Function |
|--------------|------|-----|---|
| CN201 | | | |
| 1 | SB1 | I | Power input after power switch |
| 2 | +B | O | Power output after passing through the fuse |
| 3 | EN3 | I | Encoder pulse input |
| 4 | EN4 | I | Encoder pulse input |
| 5 | GND | - | GND |
| 6 | EN2 | I | Encoder pulse input |
| 7 | EN1 | I | Encoder pulse input |
| 8 | VOL- | - | GND |
| 9 | VOL | I | Volume level input for audio control |
| 10 | VOL+ | O | 3.3V |

TERMINAL FUNCTION

| Pin No. | Name | I/O | Function |
|-------------------------------|---------|-----|--|
| CN313 (for production) | | | |
| 1~20 | | | |
| CN336 | | | |
| 1 | OPT1 | I/O | Refer to "CN336 26-pin connector specification" described on pages 62 to 64. |
| 2 | OPT3 | I/O | |
| 3 | 26P_RD | I | |
| 4 | 26P_TD | O | |
| 5 | CK | - | |
| 6 | OPT4 | O | |
| 7 | OPT10 | O | |
| 8 | OPT5 | O | |
| 9 | DGND | - | |
| 10 | AGND | - | |
| 11 | AI | I | |
| 12 | AO | O | |
| 13 | AGND | - | |
| 14 | 5V | O | |
| 15 | OPT9 | I | |
| 16 | DTI | I | |
| 17 | OPT8 | I/O | |
| 18 | OPT11 | O | |
| 19 | OPT7 | I/O | |
| 20 | OPT2 | I/O | |
| 21 | TXO | O | |
| 22 | RXEO | O | |
| 23 | RXEI | I | |
| 24 | TXI | I | |
| 25 | OPT6 | O | |
| 26 | POW | O | |
| CN337 | | | |
| 1 | GND | - | GND |
| 2 | GND | - | GND |
| 3 | NC | - | No connection |
| 4 | /LCDRST | O | LCD reset output |
| 5 | VLCDLED | O | 6key backlight voltage (SB2) |
| 6 | /WR | O | WR bus output |
| 7 | VLCDLED | O | 6key backlight voltage (SB2) |
| 8 | A0 | O | Address bus 0 output |
| 9 | 33M | O | 3.3V output |
| 10 | 33M | O | 3.3V output |
| 11 | NC | - | No connection |
| 12 | D0 | I/O | Data bus 0 |
| 13 | NC | - | No connection |
| 14 | D1 | I/O | Data bus 1 |
| 15 | NC | - | No connection |
| 16 | D2 | I/O | Data bus 2 |

| Pin No. | Name | I/O | Function |
|--------------|--------|-----|---------------------------------|
| 17 | NC | - | No connection |
| 18 | D3 | I/O | Data bus 3 |
| 19 | NC | - | No connection |
| 20 | D4 | I/O | Data bus 4 |
| 21 | NC | - | No connection |
| 22 | D5 | I/O | Data bus 5 |
| 23 | NC | - | No connection |
| 24 | D6 | I/O | Data bus 6 |
| 25 | NC | - | No connection |
| 26 | D7 | I/O | Data bus 7 |
| 27 | NC | - | No connection |
| 28 | LDCNT | O | LCD contrast output |
| 29 | KEYO1 | O | Key matrix output (Ko1) |
| 30 | KEYO0 | O | Key matrix output (Ko0) |
| 31 | KEYO3 | O | Key matrix output (Ko3) |
| 32 | KEYO2 | O | Key matrix output (Ko2) |
| 33 | /KEYI1 | I | Key matrix input (Ki1) |
| 34 | /KEYI0 | I | Key matrix input (Ki0) |
| 35 | /KEYI3 | I | Key matrix input (Ki3) |
| 36 | /KEYI2 | I | Key matrix input (Ki2) |
| 37 | /PTT | O | PTT output |
| 38 | KEYI4 | I | Key matrix input (Ki4) |
| 39 | VKEY | O | 12key backlight voltage (SB2) |
| 40 | VKEY | O | 12key backlight voltage (SB2) |
| 41 | NC | - | No connection |
| 42 | NC | - | No connection |
| 43 | 5A | O | 5V output |
| 44 | 5A | O | 5V output |
| 45 | NC | - | No connection |
| 46 | INTMIC | I | Internal MIC input |
| 47 | NC | - | No connection |
| 48 | ME | - | Internal MIC GND |
| 49 | GND | - | GND |
| 50 | GND | - | GND |
| CN804 | | | |
| 1 | NC | - | No connection |
| 2 | RXD | I | Serial data input |
| 3 | TXD | O | Serial data output |
| 4 | 5V | O | 5V output |
| 5 | E | - | GND |
| 6 | OPT | I/O | 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 |

TERMINAL FUNCTION

| Pin No. | Name | I/O | Function |
|--------------|--------|-----|-----------------------------------|
| 12 | SP- | O | BTL output – for external speaker |
| 13 | SP+ | O | BTL output + for external speaker |
| 14 | SSW | I | EXT/INT speaker switch input |
| CN805 | | | |
| 1 | SP- | O | BTL output – for internal speaker |
| 2 | SP+ | O | BTL output + for internal speaker |
| CN806 | | | |
| 1 | SW1 | I | Key matrix input (SIDE1 key) |
| 2 | PTT | I | Internal PTT input |
| 3 | GND | - | GND |
| 4 | Side_G | O | Key matrix output (SIDE1,2 key) |
| 5 | SW2 | I | Key matrix input (SIDE2 key) |

Option board unit (X57-7710-10 B/2)

| Pin No. | Name | I/O | Function |
|--------------|--------|-----|---|
| CN923 | | | |
| 1 | OPT1 | I/O | Refer to “CN923 Option board connector specification” described on page 65. |
| 2 | OPT3 | I/O | |
| 3 | 26P_RD | O | |
| 4 | 26P_TD | I | |
| 5 | NC | - | |
| 6 | OPT4 | I | |
| 7 | OPT10 | I | |
| 8 | OPT5 | I | |
| 9 | DGND | - | |
| 10 | AGND | - | |
| 11 | NC | - | |
| 12 | NC | - | |
| 13 | AGND | - | |
| 14 | 5V | I | |
| 15 | OPT9 | O | |
| 16 | DTI | O | |
| 17 | OPT8 | I/O | |
| 18 | OPT11 | I | |
| 19 | OPT7 | I/O | |
| 20 | OPT2 | I/O | |
| 21 | TXO | I | |
| 22 | RXEO | I | |
| 23 | RXEI | O | |
| 24 | TXI | O | |
| 25 | OPT6 | I | |
| 26 | POW | I | |

Solder Pad

| Name | I/O | Signal Type | Function | Rating and Condition | | | | |
|------|-----|-------------|-----------------------|----------------------------|-----|-----|-------|------|
| | | | | Parameter | Min | Typ | Max | Unit |
| PTT2 | O | Digital | PTT output | [Output] Output Impedance | | | 10k | Ω |
| PTT1 | I | Digital | PTT input | [Input] VIH | 2.8 | | 3.3 | V |
| | | | | [Input] VIL | 0 | | 0.5 | V |
| MDSW | I | Digital | Man-down switch input | [Input] VIH | 2.8 | | 3.3 | V |
| | | | | [Input] VIL | 0 | | 0.5 | V |
| GND | - | GND | GND | Allowable current value | | | | mA |
| TXD | O | Digital | Serial data output | VOH (I _o =-5mA) | 4.0 | - | 5.3 | V |
| | | | | VOL (I _o =5mA) | 0 | - | 0.8 | V |
| | | | | Baud Rate | | | 19200 | bps |
| RXD | I | Digital | Serial data input | VIH | 2.8 | - | 5.3 | V |
| | | | | VIL | 0 | - | 0.8 | V |
| | | | | Baud Rate | | | 19200 | bps |
| RSSI | O | Analog | RSSI output | Output Impedance | | | 10k | Ω |

TERMINAL FUNCTION

Universal connector

| 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 | - | 0.7 | V |
| 2 | SP+ | O | Analog | BTL output + for external speaker | [8Ω load] Max output power (1kHz, Batt=7.5V) | | 1.3 | 1.8 | W |
| | | | | | [8Ω load] DC Bias | | 2.5 | | V |
| | | | | | [8Ω load] Allowable Frequency | 300 | | 3000 | Hz |
| 3 | SP- | O | Analog | BTL output - for external speaker | [16Ω load] Max output power (1kHz, Batt=7.5V) | | 0.9 | 1.4 | W |
| | | | | | [16Ω load] DC Bias | | 2.5 | | V |
| | | | | | [16Ω load] 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 | - | 0.5 | 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 | | | | | |
| 7 | PTT | I | Digital | External PTT input L: PTT ON | VIH | 2.8 | - | 5.3 | V |
| | | | | | VIL | 0 | - | 0.7 | V |
| 8 | PF | I | Analog | Programmable function key input | V (PF2 key ON) | 2.2 | - | 2.8 | V |
| | | | | | V (PF1 key ON) | 1.7 | - | 2.2 | V |
| | | | | | V (PF1, PF2 key ON) | 1.3 | - | 1.7 | V |
| 9 | OPT | I | Digital | Man-down input Programmable active H/L | VIH | 2.8 | - | 5.3 | V |
| | | | | | VIL | 0 | - | 0.7 | V |
| 10 | E | - | - | GND | | | | | |
| 11 | 5V | - | Power | 5V power supply output (Output control is FPU programmable) | Output Voltage (Iout=100mA) | 4.9 | 5.0 | 5.1 | V |
| | | | | | Maximum Current | - | - | 0.2 | A |
| 12 | TXD | O | Digital | Serial data output | VOH (Io=-5mA) | 4.0 | - | 5.3 | V |
| | | | | | VOL (Io=5mA) | 0 | - | 0.8 | V |
| | | | | | Baud Rate | | | 19200 | bps |
| 13 | RXD | I | Digital | Serial data input | VIH | 2.8 | - | 5.3 | V |
| | | | | | VIL | 0 | - | 0.8 | V |
| | | | | | Baud Rate | | | 115200 | bps |
| 14 | NC | - | - | Not used (reserved for future option) | | | | | |

TERMINAL FUNCTION

CN336 26-pin connector specification

| Pin No. | Name | I/O | Signal Type | Rating and Condition | | | | |
|---------|--------|-----|----------------|---|-----|------|-------|-------------------|
| | | | | Parameter | Min | Typ | Max | Unit |
| 1 | OPT1 | I/O | Digital | [Input] VIH | 2.8 | | 3.3 | V |
| 6 | OPT4 | | | [Input] VIL | 0 | | 0.5 | V |
| 8 | OPT5 | | | [Output] VOH | 2.8 | | 3.5 | V |
| 17 | OPT8 | | | [Output] VOL | 0 | | 0.5 | V |
| 18 | OPT11 | | | | | | | |
| 2 | OPT3 | I/O | Digital | [Input] VIH | 2.8 | | 3.3 | V |
| 19 | OPT7 | | | [Input] VIL | 0 | | 0.5 | V |
| 20 | OPT2 | | | [Output] VOH | 2.8 | | 3.5 | V |
| 25 | OPT6 | | | [Output] VOL | 0 | | 0.5 | V |
| 3 | 26P_RD | I | Digital | [Input] VIH | 2.8 | | 3.3 | V |
| | | | | [Input] VIL | 0 | | 0.5 | V |
| | | | | Baud Rate | | | 19200 | bps |
| 4 | 26P_TD | O | Digital | [Output] VOH | 2.8 | | 3.5 | V |
| | | | | [Output] VOL | 0 | | 0.5 | V |
| | | | | Baud Rate | | | 19200 | bps |
| 15 | OPT9 | I | Analog | Input Amplitude (Square wave) | - | 3.3 | - | V _{p-p} |
| | | | | Coupling Capacitor | - | 0.01 | - | μF |
| | | | | Input Impedance | 22k | - | - | Ω |
| | | | | Allowable Frequency | 300 | - | 3000 | Hz |
| 7 | OPT10 | O | Analog/Digital | Output Amplitude (1kHz, 60% deviation) | 0.9 | 1.3 | 1.7 | V _{p-p} |
| | | | | Coupling Capacitor | | 0.1 | | μF |
| | | | | Output Impedance | | | 22k | Ω |
| | | | | Allowable Frequency | 300 | | 3000 | Hz |
| 11 | AI | I | Analog | Input Amplitude (1kHz, 60% deviation) | 0.3 | 0.5 | 0.7 | V _{p-p} |
| | | | | Coupling Capacitor | - | 0.1 | - | μF |
| | | | | Input Impedance | - | 12k | - | Ω |
| | | | | Allowable Frequency | 300 | - | 3000 | Hz |
| 12 | AO | O | Analog | Output Amplitude (1kHz, 60% deviation) | 30 | 50 | 70 | mV _{p-p} |
| | | | | Coupling Capacitor | - | 0.1 | - | μF |
| | | | | Output Impedance | - | 35k | - | Ω |
| | | | | Allowable Frequency | 300 | | 3000 | Hz |
| 16 | DTI | I | Analog | Input Amplitude (1kHz, 60% deviation) | 0.8 | 1.1 | 1.4 | V _{p-p} |
| | | | | Coupling Capacitor | - | 0.1 | - | μF |
| | | | | Input Impedance | 22k | - | - | Ω |
| | | | | Allowable Frequency | 300 | - | 3000 | Hz |
| 21 | TXO | O | Analog | Output Amplitude (1kHz, 60% deviation) while external MIC | 160 | 260 | 360 | mV _{p-p} |
| | | | | Output Amplitude (1kHz, 60% deviation) while internal MIC | - | 130 | - | mV _{p-p} |
| | | | | Coupling Capacitor | - | 0.1 | - | μF |
| | | | | Output Impedance | - | - | 2.2k | Ω |
| | | | | Allowable Frequency | 300 | | 3000 | Hz |

TERMINAL FUNCTION

| Pin No. | Name | I/O | Signal Type | Rating and Condition | | | | |
|---------|------|-----|-------------|--|-----|-----|------|-------|
| | | | | Parameter | Min | Typ | Max | Unit |
| 22 | RXEO | O | Analog | Output Amplitude (1kHz, 60% deviation) | 450 | 640 | 830 | mVp-p |
| | | | | Coupling Capacitor | - | 0.1 | - | μF |
| | | | | Output Impedance | - | - | 2.2k | Ω |
| | | | | Allowable Frequency | 300 | - | 3000 | Hz |
| 23 | RXEI | I | Analog | Input Amplitude (1kHz, 60% deviation) | 450 | 640 | 830 | mVp-p |
| | | | | Coupling Capacitor | | 0.1 | | μF |
| | | | | Input Impedance | 22k | | | Ω |
| | | | | Allowable Frequency | 300 | | 3000 | Hz |
| 24 | TXI | I | Analog | Input Amplitude (1kHz, 60% deviation) while external MIC | 160 | 260 | 360 | mVp-p |
| | | | | Input Amplitude (1kHz, 60% deviation) while internal MIC | - | 130 | - | mVp-p |
| | | | | Coupling Capacitor | - | 0.1 | - | μF |
| | | | | Input Impedance | 22k | - | - | Ω |
| | | | | Allowable Frequency | 300 | - | 3000 | Hz |
| 14 | 5V | O | Power | Output Voltage | | 5 | | V |
| | | | | Output Current | | | 78 | mA |
| 26 | POW | O | Power | Output Voltage | | 7.5 | | V |
| | | | | Output Current | | | 100 | mA |
| 9 | DGND | - | GND | Allowable current value (Total current of 3 pins) | | | 100 | mA |
| 10 | AGND | | | | | | | |
| 13 | | | | | | | | |
| 5 | NC | - | - | - | | | | |

CN336 26-pin connector specification

| Pin No. | Name | Device | I/O | Connection | Function |
|---------|--------|-----------|-----|------------|---|
| 1 | OPT1 | ANI board | O | Aux Input | [COR] Conv/LTR L: Activity receiving H: Not activity receiving [TOR] Conv/LTR L: Activity receiving (Sub Tone or LTR ID is OK) H: Not activity receiving [LOK] Conv L: TX Complete H: Not TX Complete LTR L: TX Link Complete (until TX finishes) H: Not TX Link Complete |
| | | VGS-1 | I | BUSY | BUSY indication |
| 2 | OPT3 | ANI board | I | KEY | TX requirement input |
| | | VGS-1 | I | PLAY | PLAY indication |
| 3 | 26P_RD | ANI board | - | - | - |
| | | VGS-1 | I | SO | Serial data input |

TERMINAL FUNCTION

| Pin No. | Name | Device | I/O | Connection | Function |
|---------|--------|-----------|-----|--------------|--|
| 4 | 26P_TD | ANI board | - | - | - |
| | | VGS-1 | O | SI | Serial data output |
| 5 | CK | - | - | - | - |
| 6 | OPT4 | ANI board | O | PTT | PTT signal output |
| | | VGS-1 | O | EN | Enable |
| 7 | OPT10 | ANI board | - | - | - |
| | | VGS-1 | O | USEL | UART speed select output |
| 8 | OPT5 | ANI board | O | Emergency | Emergency signal output |
| | | VGS-1 | O | RST | Reset output |
| 9 | DGND | ANI board | - | A- | GND |
| | | VGS-1 | - | DGND | DGND |
| 10 | AGND | ANI board | - | A- | GND |
| | | VGS-1 | - | AGND | AGND |
| 11 | AI | ANI board | - | - | - |
| | | VGS-1 | I | AO | VGS Audio input |
| 12 | AO | ANI board | - | - | - |
| | | VGS-1 | O | AI | VGS Audio output |
| 13 | AGND | ANI board | - | A- | GND |
| | | VGS-1 | - | AGND | AGND |
| 14 | 5V | ANI board | - | - | Note: POW and 5V can not be used simultaneously. |
| | | VGS-1 | O | 5C | 5V power supply |
| 15 | OPT9 | ANI board | I | Sidetone | Sidetone input |
| | | VGS-1 | - | - | - |
| 16 | DTI | ANI board | I | Data Out | Data signal input |
| | | VGS-1 | - | - | - |
| 17 | OPT8 | ANI board | I | Tone Control | Speaker mute signal input |
| | | VGS-1 | - | - | - |
| 18 | OPT11 | ANI board | O | Man-Down | Man-Down output |
| | | VGS-1 | - | - | - |
| 19 | OPT7 | ANI board | I | MIC Mute | MIC mute signal input |
| | | VGS-1 | - | - | - |
| 20 | OPT2 | ANI board | I | Aux Output | Emergency signal input |
| | | VGS-1 | - | - | - |
| 21 | TXO | ANI board | - | - | - |
| | | VGS-1 | - | - | - |
| 22 | RXEO | ANI board | - | - | - |
| | | VGS-1 | - | - | - |
| 23 | RXEI | ANI board | - | - | - |
| | | VGS-1 | - | - | - |
| 24 | TXI | ANI board | - | - | - |
| | | VGS-1 | - | - | - |
| 25 | OPT6 | ANI board | - | - | - |
| | | VGS-1 | - | - | - |
| 26 | POW | ANI board | O | A+ | Switched B output |
| | | VGS-1 | - | - | Note: POW and 5V can not be used simultaneously. |

TERMINAL FUNCTION

CN923 Option board connector specification

| Pin No. | Name | Device | I/O | Connection | Function |
|---------|--------|-----------|-----|--------------|---|
| 1 | OPT1 | ANI board | I | Aux Output | [COR] Conv/LTR L: Activity receiving H: Not activity receiving [TOR] Conv/LTR L: Activity receiving (Sub Tone or LTR ID is OK) H: Not activity receiving [LOK] Conv L: TX Complete H: Not TX Complete LTR L: TX Link Complete (until TX finishes) H: Not TX Link Complete |
| 2 | OPT3 | ANI board | O | KEY | TX requirement output |
| 3 | 26P_RD | ANI board | - | - | - |
| 4 | 26P_TD | ANI board | - | - | - |
| 5 | NC | - | - | - | - |
| 6 | OPT4 | ANI board | I | PTT | PTT signal input |
| 7 | OPT10 | ANI board | - | - | - |
| 8 | OPT5 | ANI board | I | Emergency | Emergency signal input |
| 9 | DGND | ANI board | - | A- | GND |
| 10 | AGND | ANI board | - | A- | GND |
| 11 | NC | - | - | - | - |
| 12 | NC | - | - | - | - |
| 13 | AGND | ANI board | - | A- | GND |
| 14 | 5V | ANI board | - | - | Note: POW and 5V can not be used simultaneously. |
| 15 | OPT9 | ANI board | O | Sidetone | Sidetone output |
| 16 | DTI | ANI board | O | Data Out | Data signal output |
| 17 | OPT8 | ANI board | O | Tone Control | Speaker mute signal output |
| 18 | OPT11 | ANI board | I | Man-Down | Man-Down input |
| 19 | OPT7 | ANI board | O | MIC Mute | MIC mute signal output |
| 20 | OPT2 | ANI board | O | Aux Output | Emergency signal output |
| 21 | TXO | ANI board | - | - | - |
| 22 | RXEO | ANI board | - | - | - |
| 23 | RXEI | ANI board | - | - | - |
| 24 | TXI | ANI board | - | - | - |
| 25 | OPT6 | ANI board | - | - | - |
| 26 | POW | ANI board | I | A+ | Switched B input |

NX-210 PC BOARD

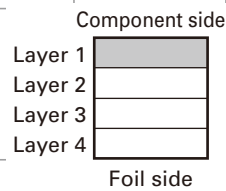
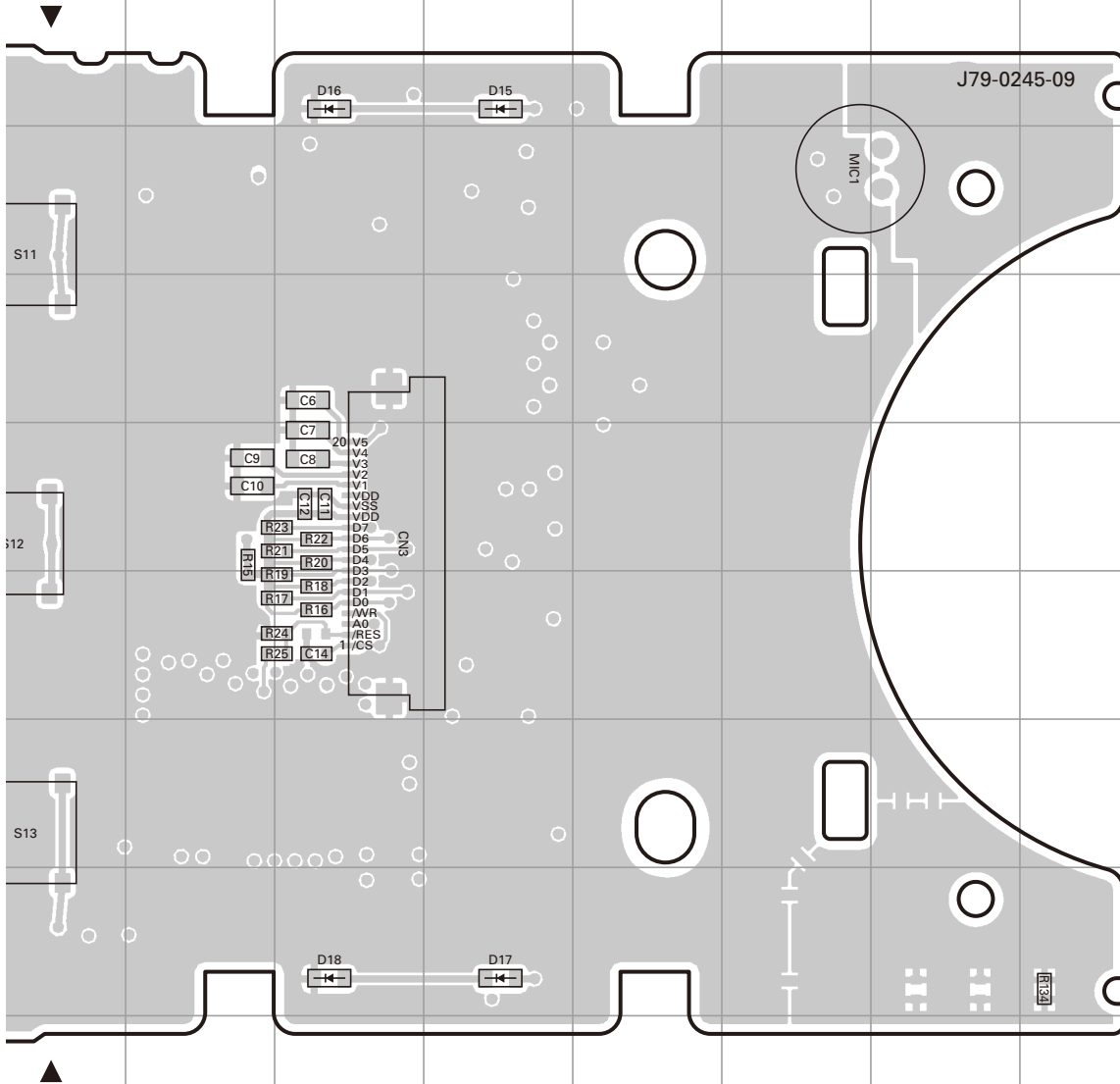
DISPLAY UNIT (X54-3660-10)
Component side view (J79-0245-09)



| Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|
| D1 | 5I | D8 | 7F |
| D2 | 7I | D9 | 5E |
| D3 | 5H | D10 | 7E |
| D4 | 7H | D15 | 3M |
| D5 | 5G | D16 | 3L |
| D6 | 7G | D17 | 9M |
| D7 | 5F | D18 | 9L |

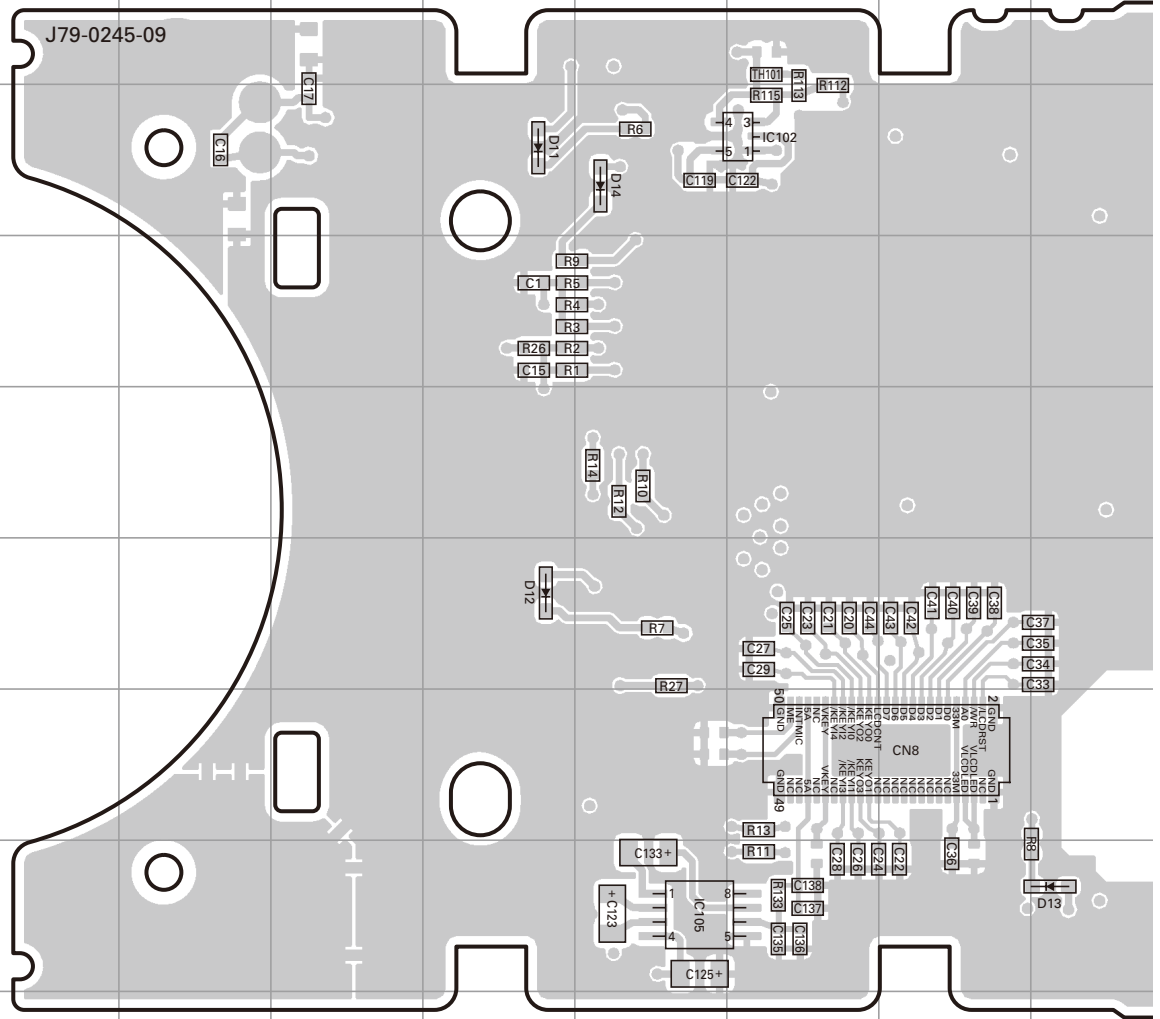
PC BOARD NX-210

DISPLAY UNIT (X54-3660-10) Component side view (J79-0245-09)



NX-210 PC BOARD

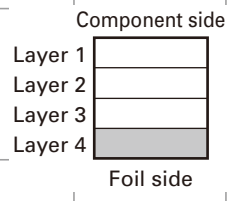
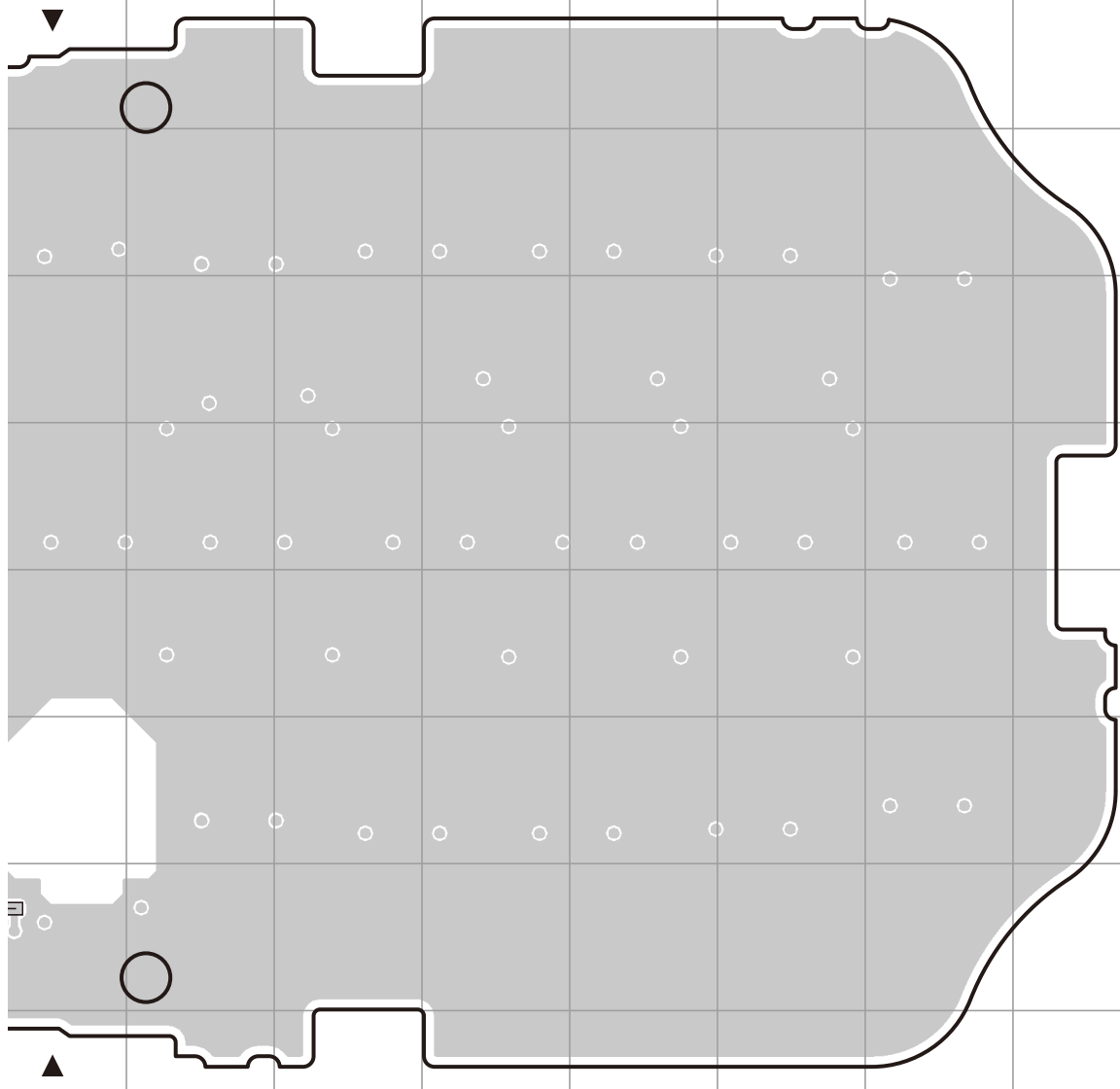
DISPLAY UNIT (X54-3660-10) Foil side view (J79-0245-09)



| Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|
| IC102 | 4H | D12 | 7F |
| IC105 | 9G | D13 | 9J |
| D11 | 4F | D14 | 4G |

PC BOARD NX-210

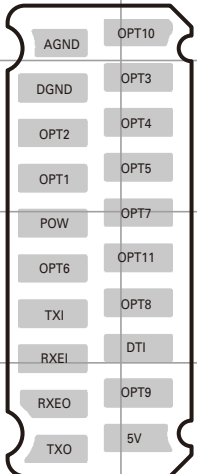
DISPLAY UNIT (X54-3660-10)
Foil side view (J79-0245-09)



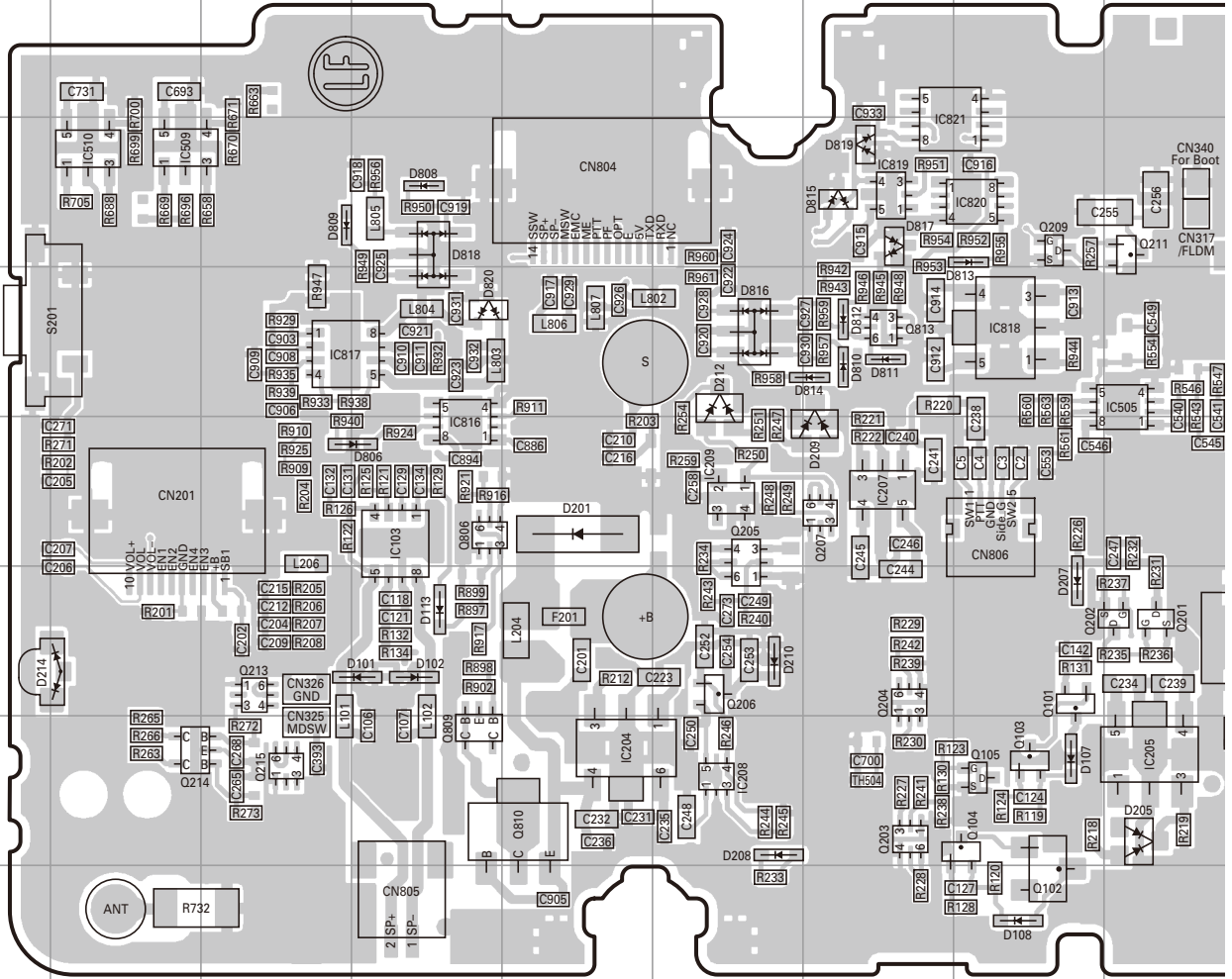
NX-210 PC BOARD

TX-RX UNIT (X57-7710-10) (A/2) Component side view (J79-0246-09 A/2)

TX-RX UNIT (X57-7710-10) (B/2)



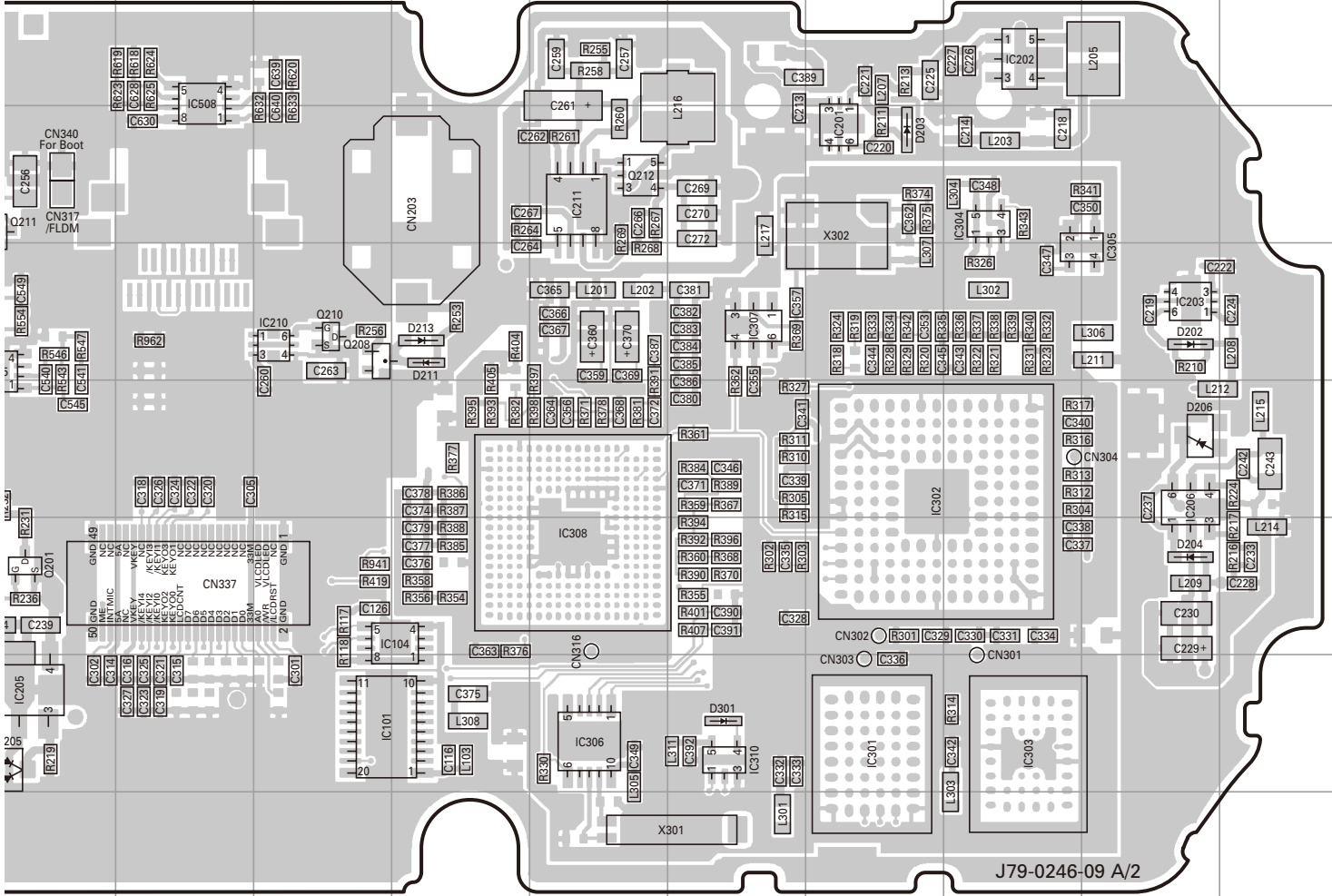
J79-0246-09 B/2



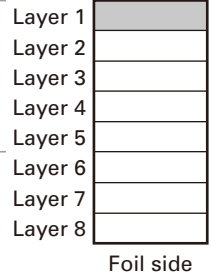
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|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC101 | 8L | IC211 | 4N | IC510 | 4C | Q202 | 7I | Q215 | 8D | D204 | 7R | D808 | 4E |
| IC103 | 6E | IC301 | 8P | IC816 | 6E | Q203 | 8H | Q806 | 6E | D205 | 8J | D809 | 4D |
| IC104 | 7M | IC302 | 6P | IC817 | 5D | Q204 | 7H | Q809 | 8E | D206 | 6R | D810 | 5H |
| IC201 | 4P | IC303 | 8Q | IC818 | 5I | Q205 | 6G | Q810 | 8F | D207 | 7I | D811 | 5H |
| IC202 | 3Q | IC304 | 4Q | IC819 | 4H | Q206 | 7G | Q813 | 5H | D208 | 8G | D812 | 5H |
| IC203 | 5R | IC305 | 5R | IC820 | 4I | Q207 | 6H | D101 | 7E | D209 | 6H | D813 | 4I |
| IC204 | 8F | IC306 | 8N | IC821 | 4H | Q208 | 5L | D102 | 7E | D210 | 7G | D814 | 5H |
| IC205 | 8J | IC307 | 5O | Q101 | 7I | Q209 | 4I | D107 | 8I | D211 | 5M | D815 | 4H |
| IC206 | 6R | IC308 | 7N | Q102 | 9I | Q210 | 5L | D108 | 9I | D212 | 5G | D816 | 5G |
| IC207 | 6H | IC310 | 8O | Q103 | 8I | Q211 | 4J | D113 | 7E | D213 | 5M | D817 | 4H |
| IC208 | 8G | IC505 | 5J | Q104 | 8I | Q212 | 4N | D201 | 6F | D214 | 7B | D818 | 4E |
| IC209 | 6G | IC508 | 3K | Q105 | 8I | Q213 | 7D | D202 | 5R | D301 | 8O | D819 | 4H |
| IC210 | 5L | IC509 | 4C | Q201 | 7I | Q214 | 8C | D203 | 4P | D806 | 6E | D820 | 5E |

TX-RX UNIT (X57-7710-10) (A/2)

Component side view (J79-0246-09 A/2)

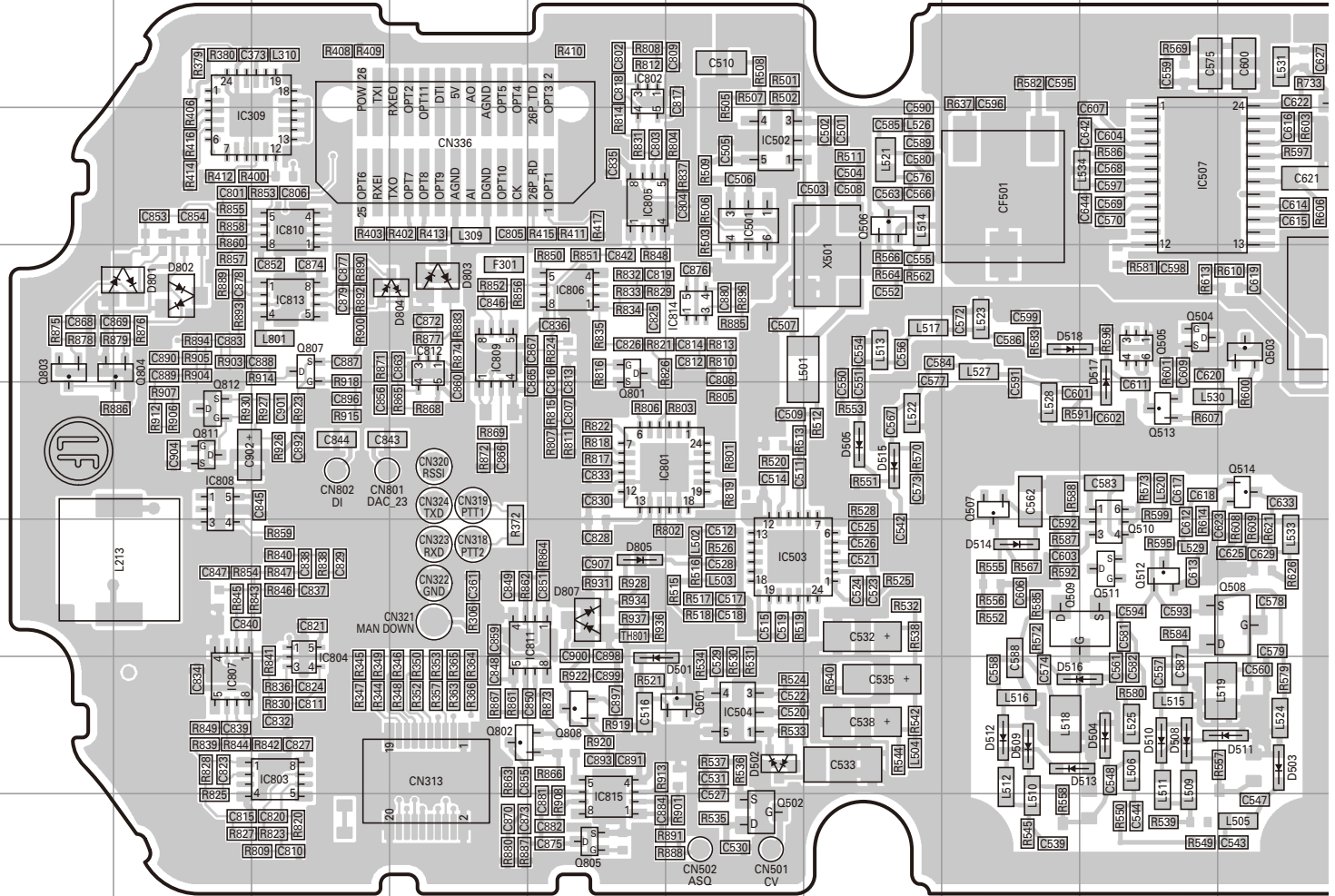


Component side



NX-210 PC BOARD

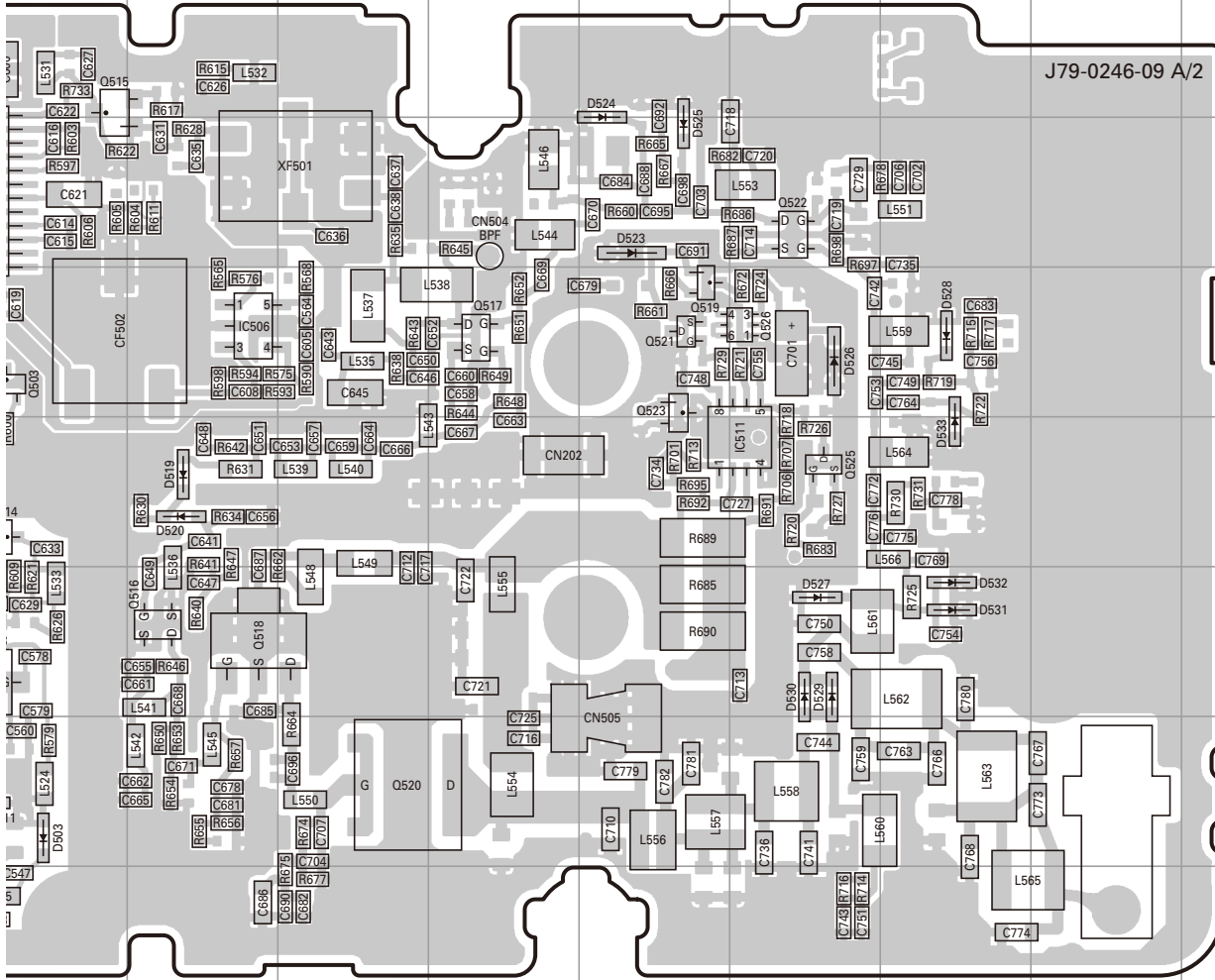
TX-RX UNIT (X57-7710-10) (A/2) Foil side view (J79-0246-09 A/2)



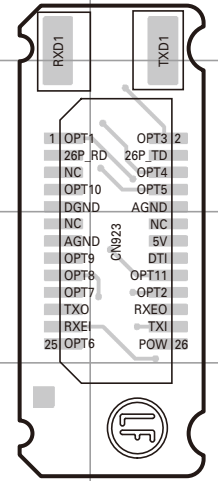
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|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC309 | 4C | IC807 | 8B | Q506 | 4G | Q520 | 8L | Q812 | 6B | D516 | 8H | D532 | 7P |
| IC501 | 4F | IC808 | 6B | Q507 | 6H | Q521 | 5N | D501 | 8E | D517 | 5I | D533 | 6P |
| IC502 | 4F | IC809 | 5D | Q508 | 7J | Q522 | 4O | D502 | 8F | D518 | 5H | D801 | 5B |
| IC503 | 7F | IC810 | 4C | Q509 | 7H | Q523 | 5N | D503 | 8J | D519 | 6K | D802 | 5B |
| IC504 | 8F | IC811 | 7E | Q510 | 7I | Q525 | 6O | D504 | 8I | D520 | 6K | D803 | 5D |
| IC506 | 5K | IC812 | 5D | Q511 | 7I | Q526 | 5O | D505 | 6G | D523 | 4N | D804 | 5D |
| IC507 | 4I | IC813 | 5C | Q512 | 7I | Q801 | 5E | D508 | 8I | D524 | 3N | D805 | 7E |
| IC511 | 6O | IC814 | 5F | Q513 | 6I | Q802 | 8D | D509 | 8H | D525 | 4N | D807 | 7E |
| IC801 | 6E | IC815 | 9E | Q514 | 6J | Q803 | 5A | D510 | 8I | D526 | 5O | | |
| IC802 | 3E | Q501 | 8F | Q515 | 3J | Q804 | 5B | D511 | 8J | D527 | 7O | | |
| IC803 | 8C | Q502 | 9F | Q516 | 7K | Q805 | 9E | D512 | 8H | D528 | 5P | | |
| IC804 | 8C | Q503 | 5J | Q517 | 5M | Q807 | 5C | D513 | 8H | D529 | 7O | | |
| IC805 | 4E | Q504 | 5I | Q518 | 7K | Q808 | 8E | D514 | 7H | D530 | 7O | | |
| IC806 | 5E | Q505 | 5I | Q519 | 5N | Q811 | 6B | D515 | 6G | D531 | 7P | | |

PC BOARD NX-210

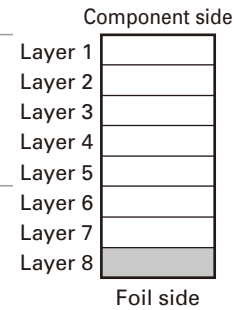
TX-RX UNIT (X57-7710-10) (A/2) Foil side view (J79-0246-09 A/2)



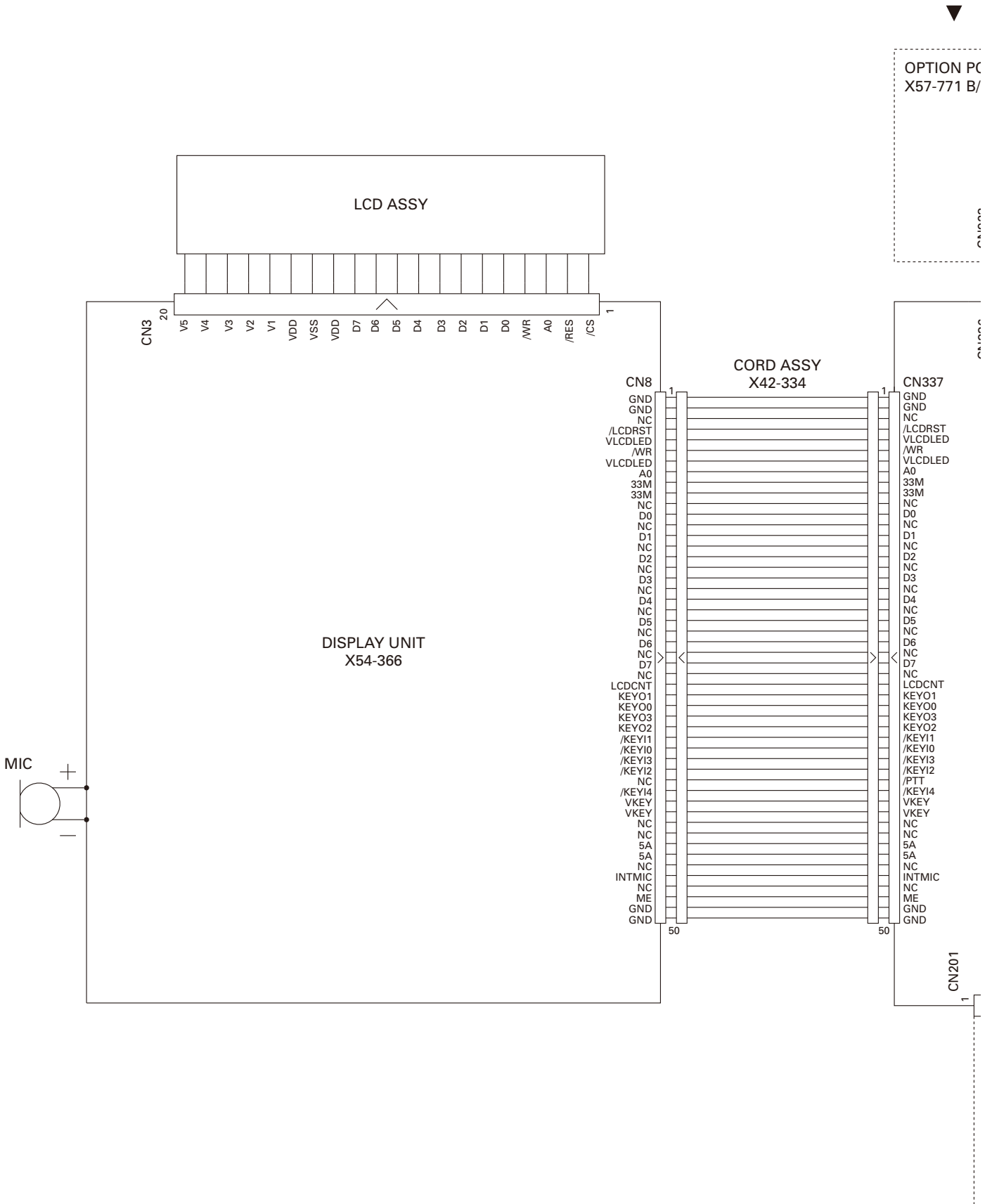
TX-RX UNIT (X57-7710-10) (B/2)



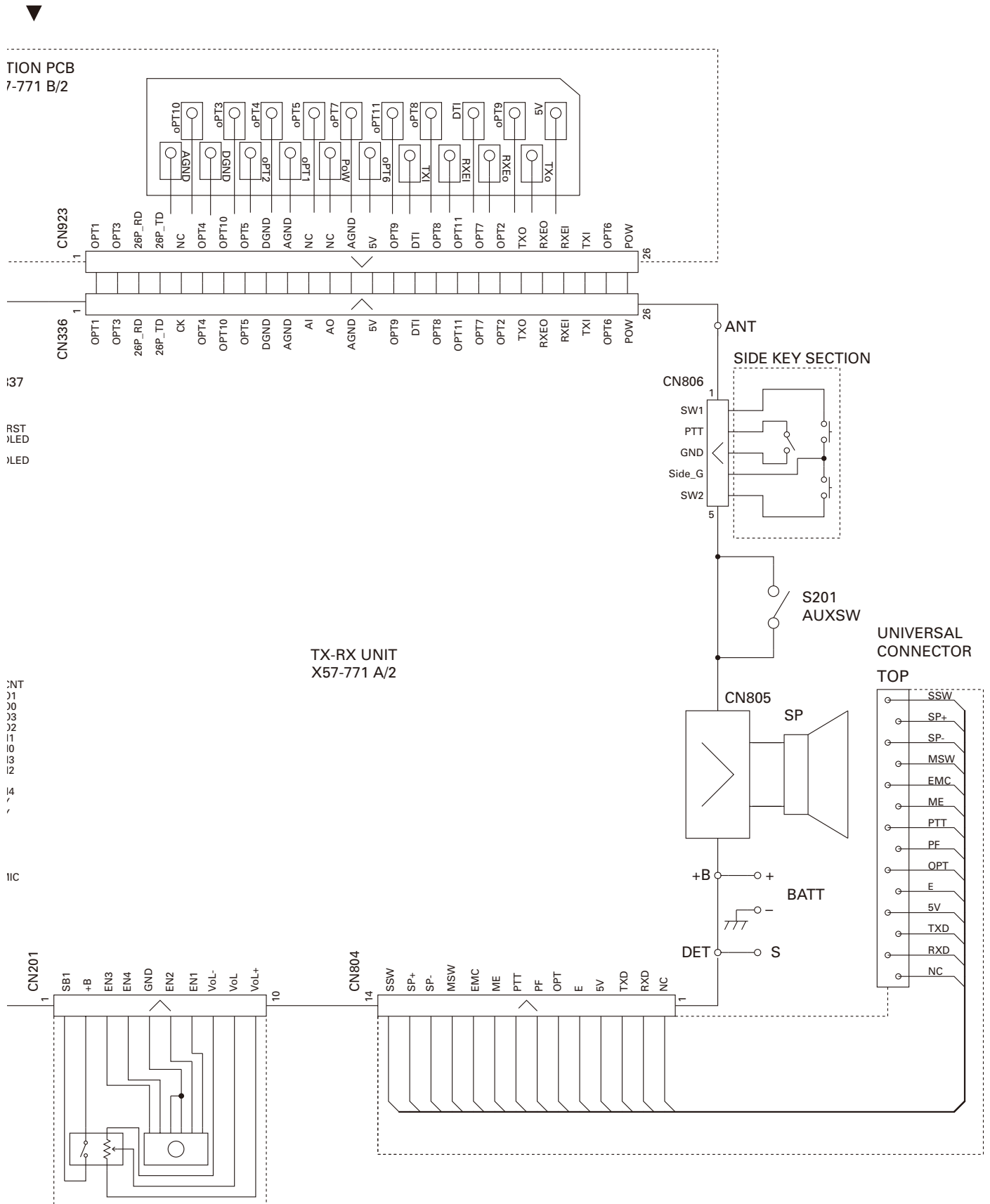
J79-0246-09 B/2



INTERCONNECTION DIAGRAM



INTERCONNECTION DIAGRAM

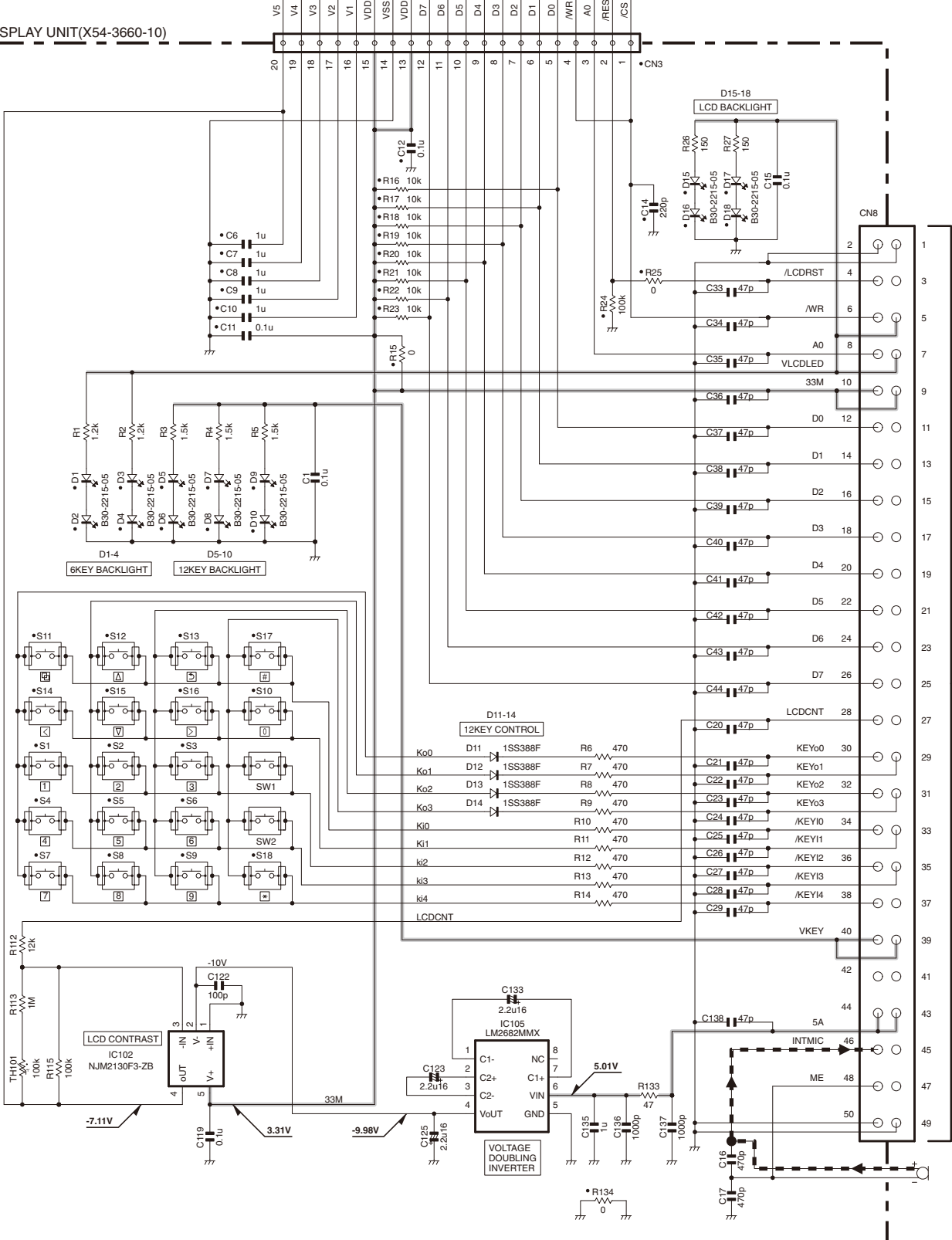


NX-210 SCHEMATIC DIAGRAM

LCD ASSY(B38-0923-05)

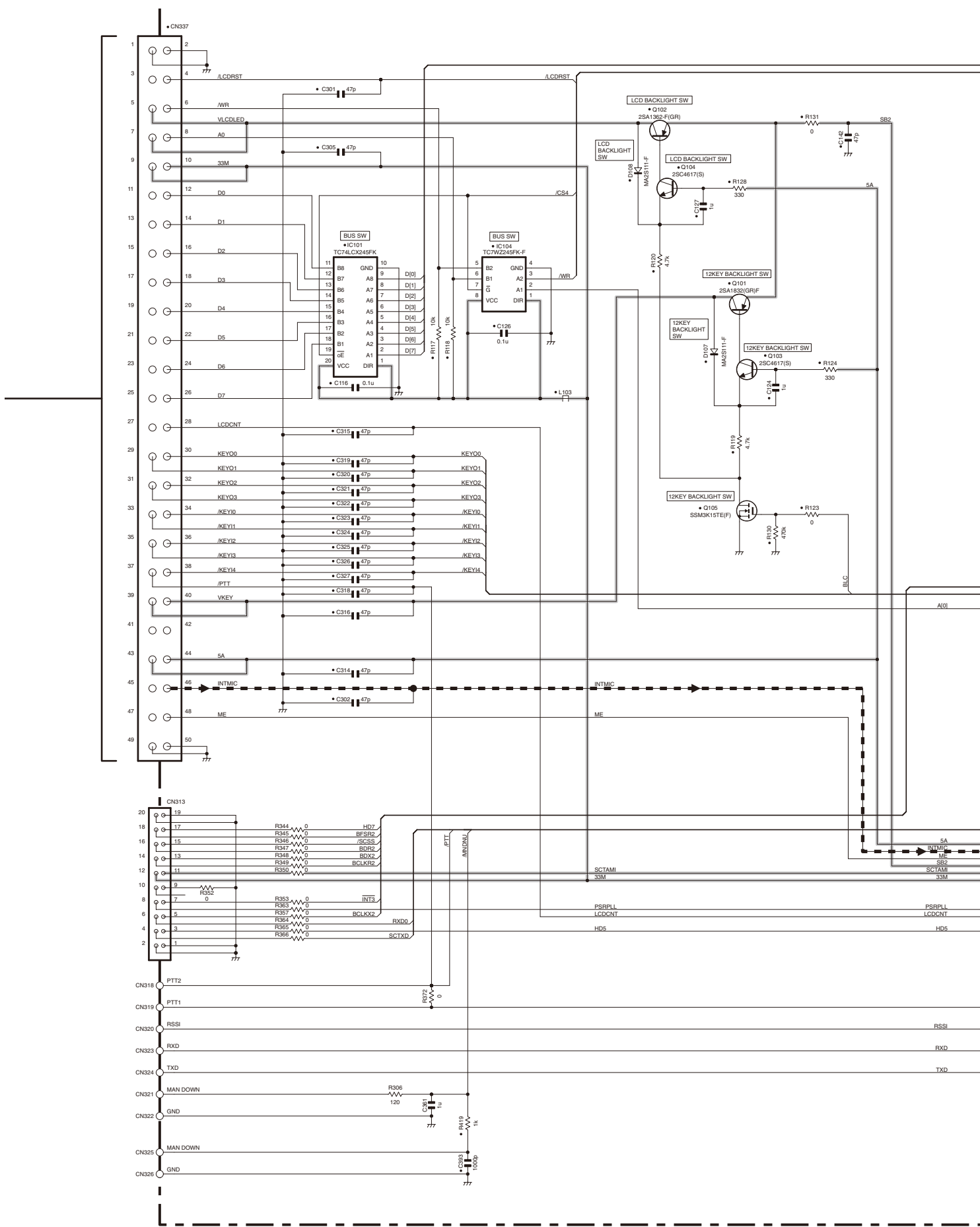


DISPLAY UNIT(X54-3660-10)



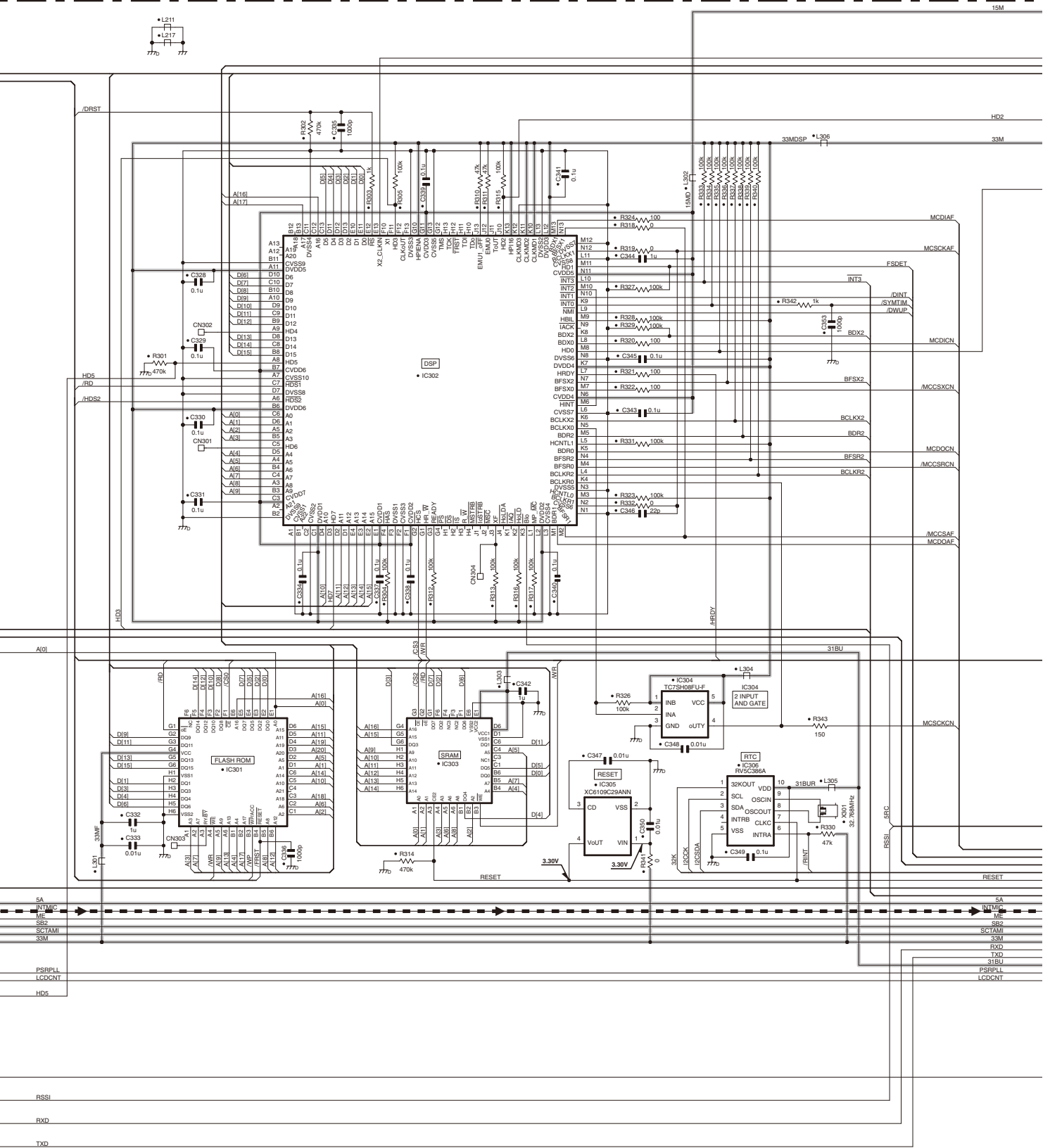
SCHEMATIC DIAGRAM NX-210

TX-RX UNIT(X57-7710-10)(A/2)



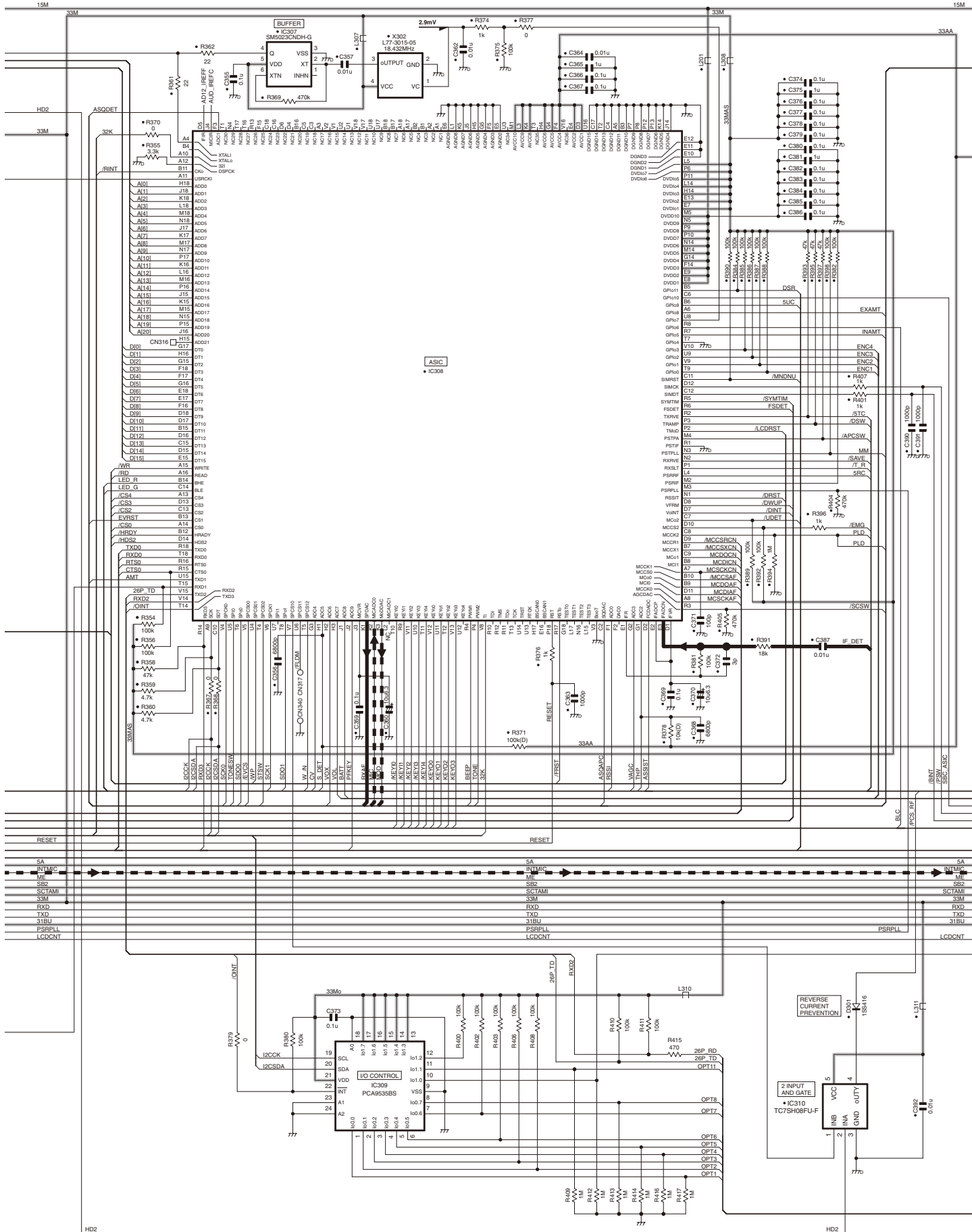
NX-210 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-7710) (A/2)



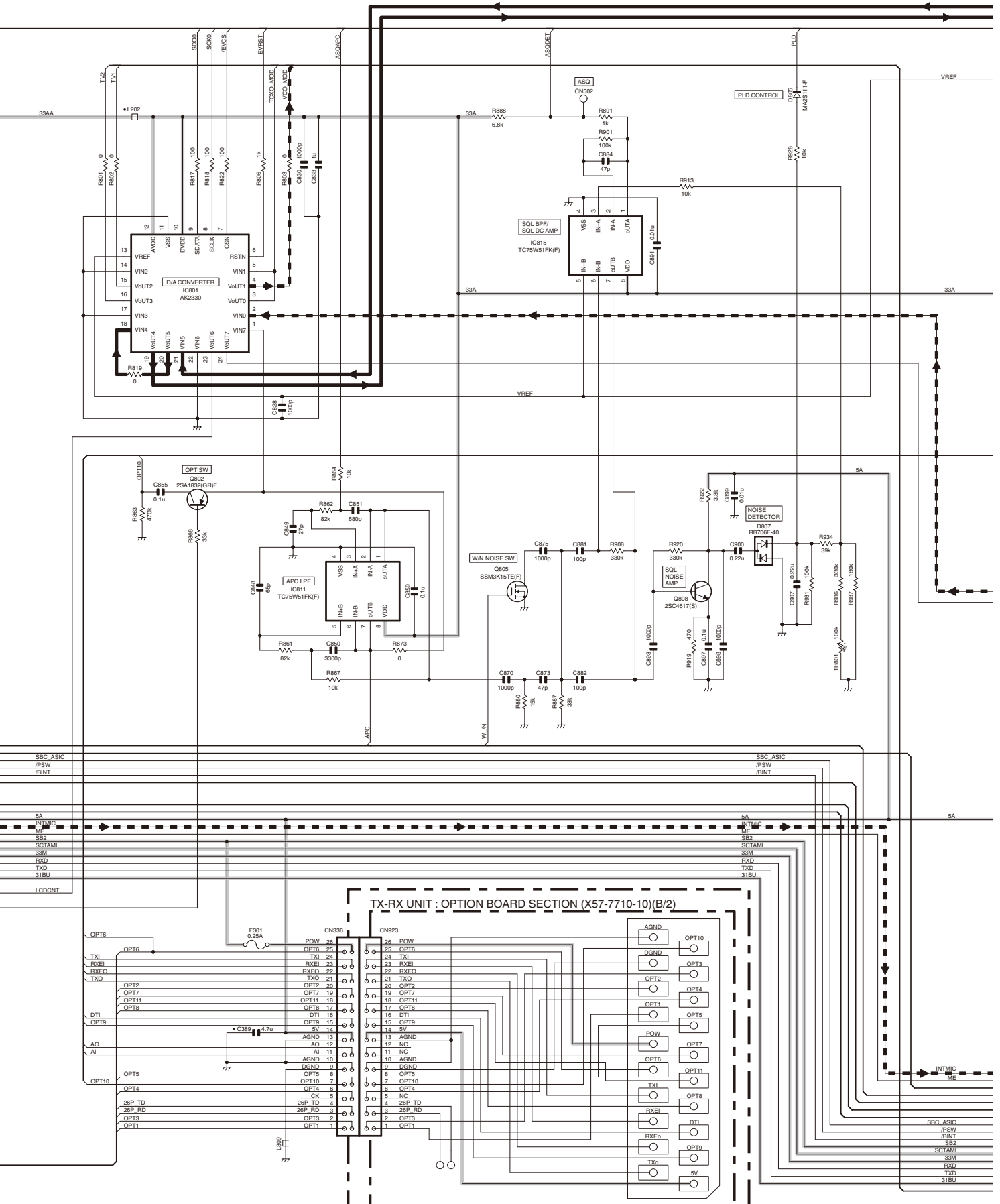
SCHEMATIC DIAGRAM NX-210

TX-RX UNIT (X57-7710-10) (A/2)



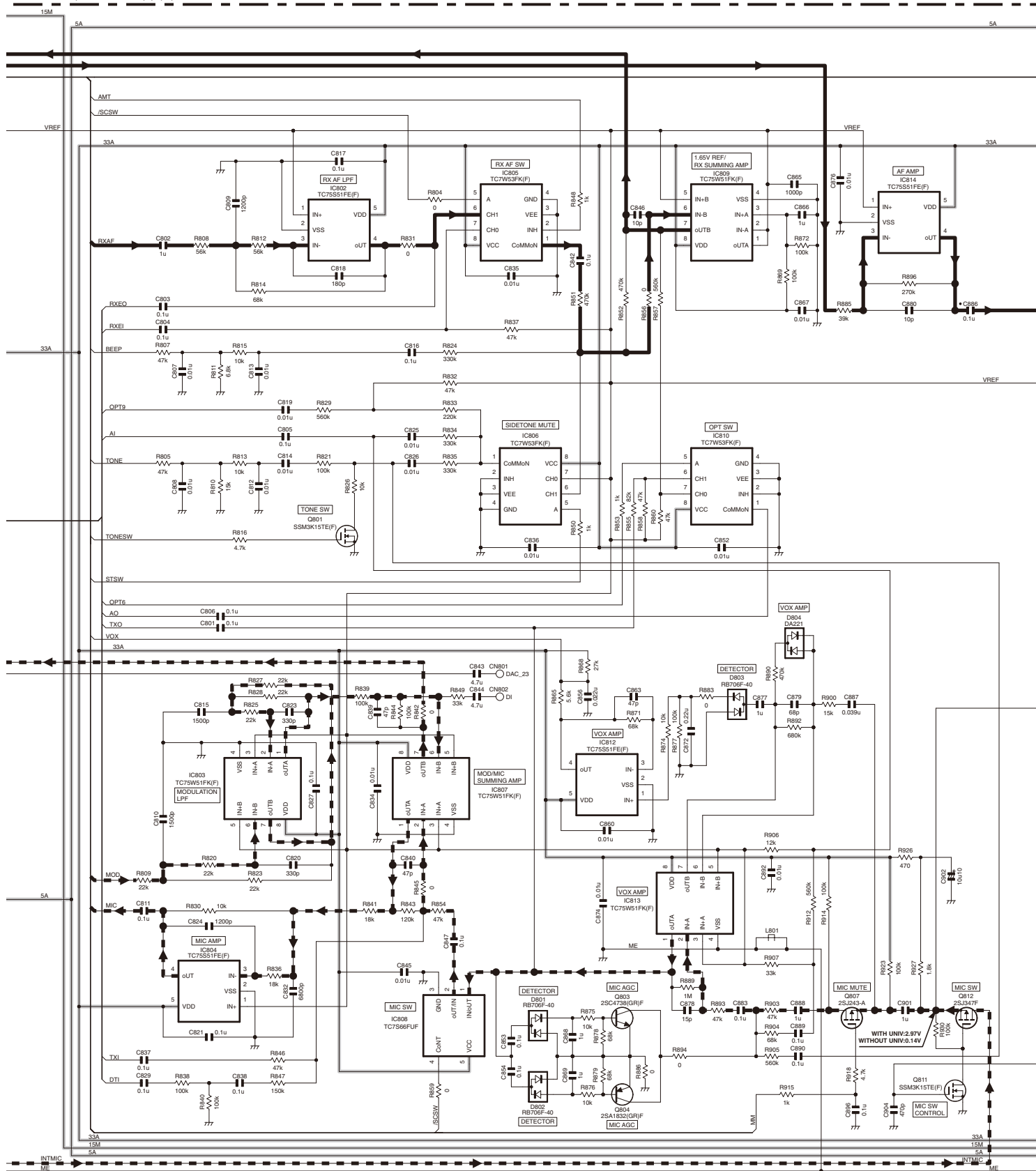
NX-210 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-7710-10) (A/2)



SCHEMATIC DIAGRAM NX-210

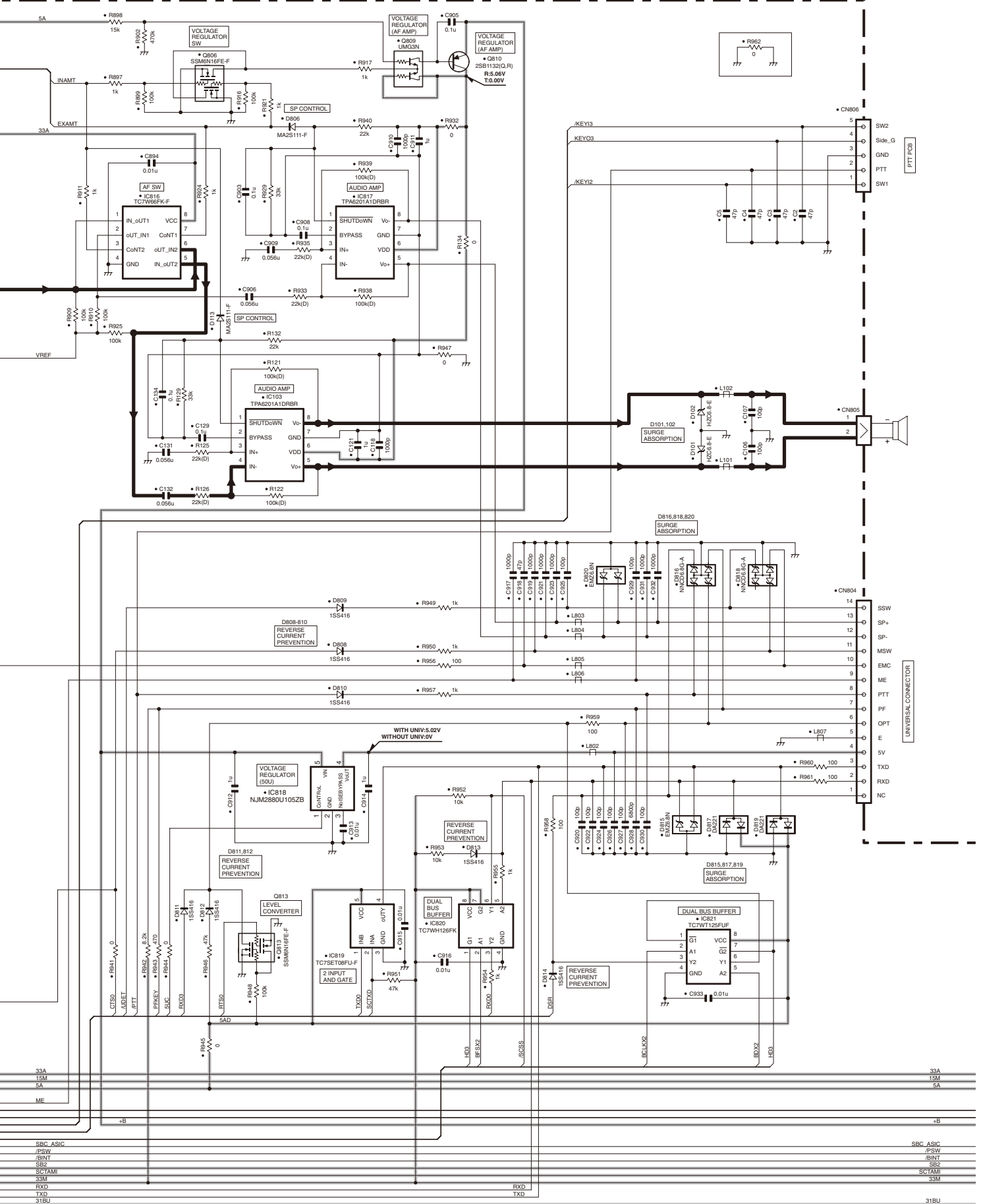
TX-RX UNIT (X57-7710-10) (A/2)



| | |
|----------|----------|
| SBC_ASIC | SBC_ASIC |
| /PSW | /PSW |
| /BINT | /BINT |
| S82 | S82 |
| SC-TAMI | SC-TAMI |
| 33M | 33M |
| RXD | RXD |
| TXD | TXD |
| 31BU | 31BU |

NX-210 SCHEMATIC DIAGRAM

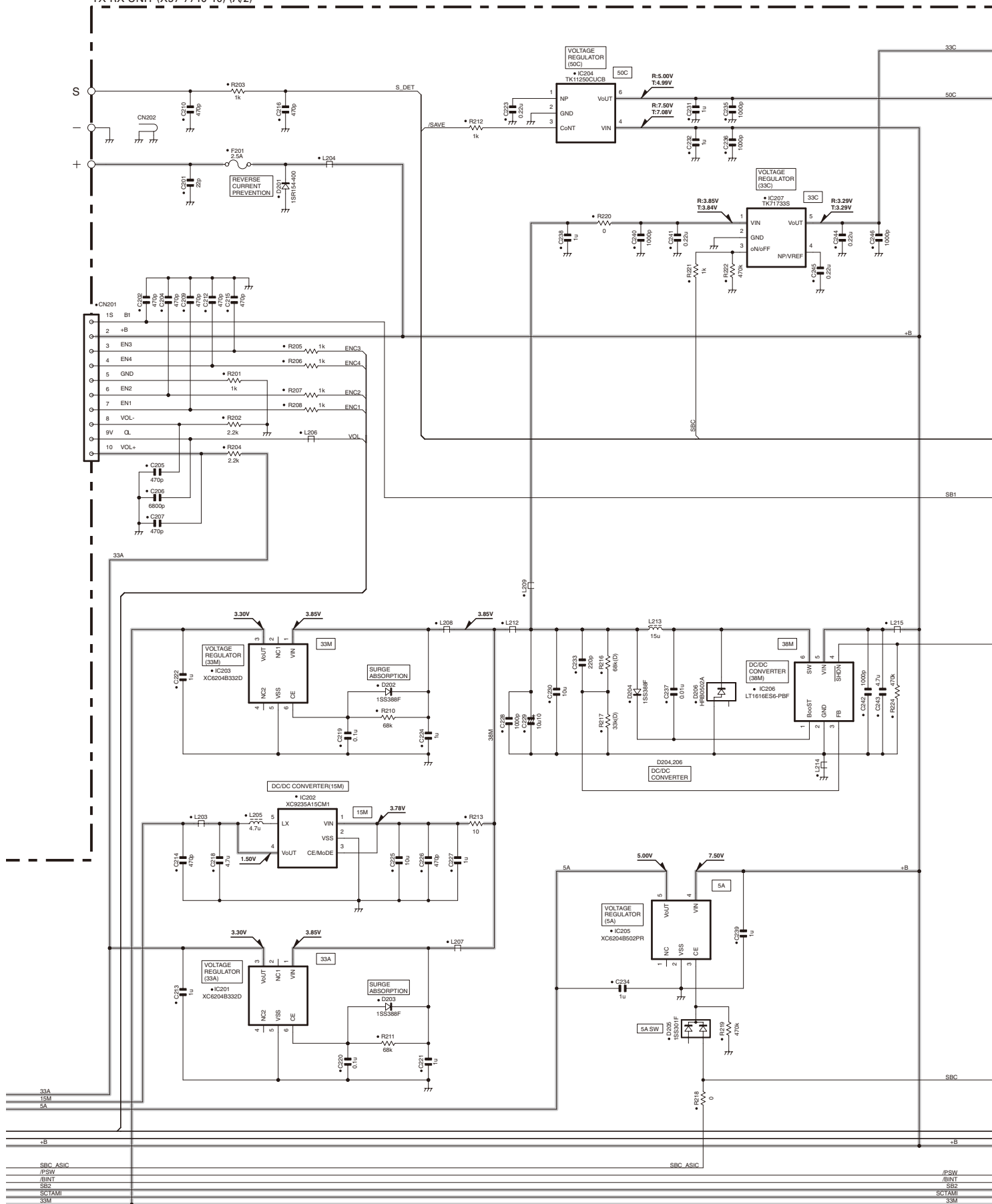
TX-RX UNIT (X57-7710) (A/2)



| | |
|------|----------|
| 33A | SBC ASIC |
| 15M | PSW |
| 5A | /BINT |
| ME | SRZ |
| | SCTAMI |
| | 33M |
| RXD | |
| TXD | |
| 31BU | |

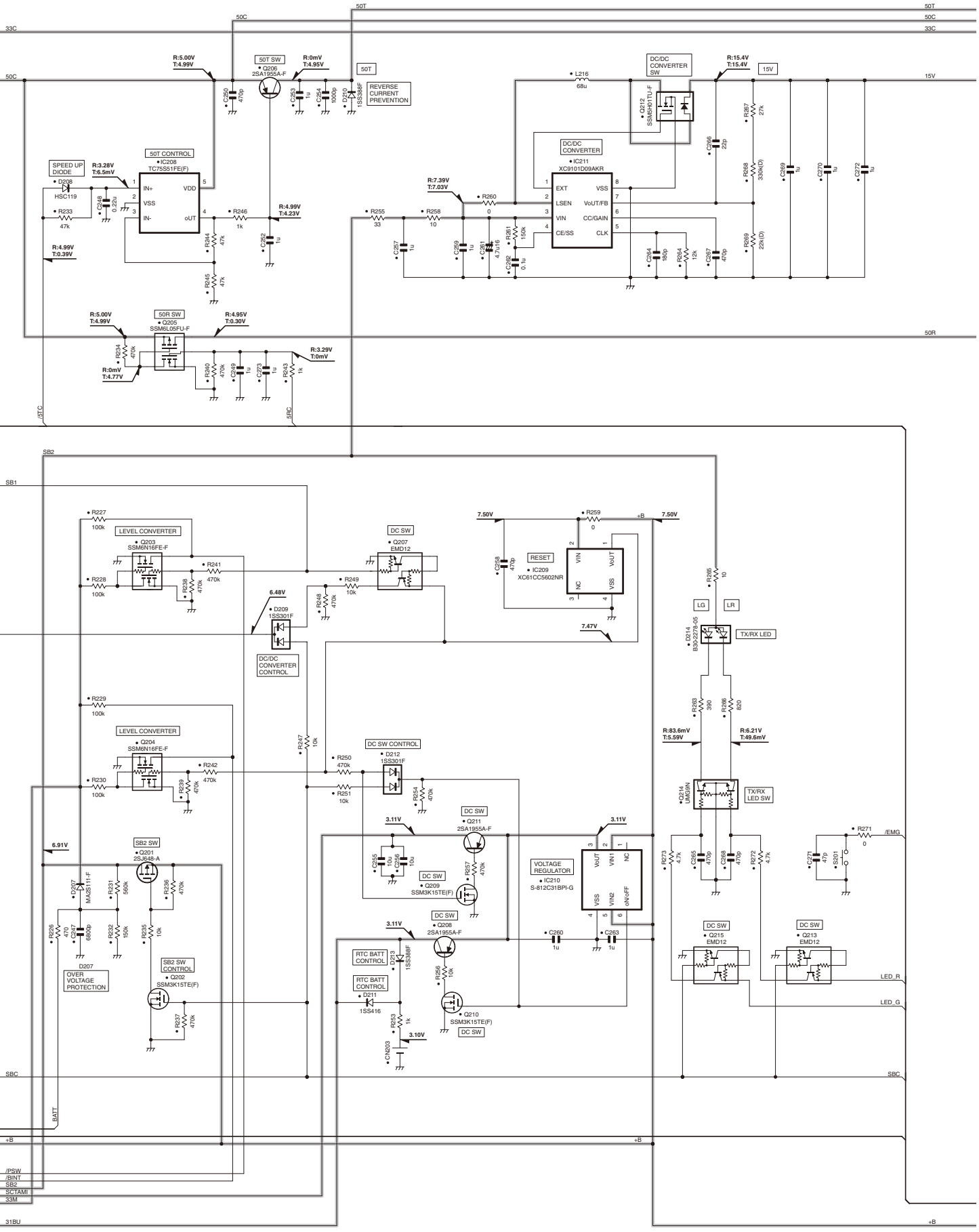
SCHEMATIC DIAGRAM NX-210

TX-RX UNIT (X57-7710-10) (A/2)



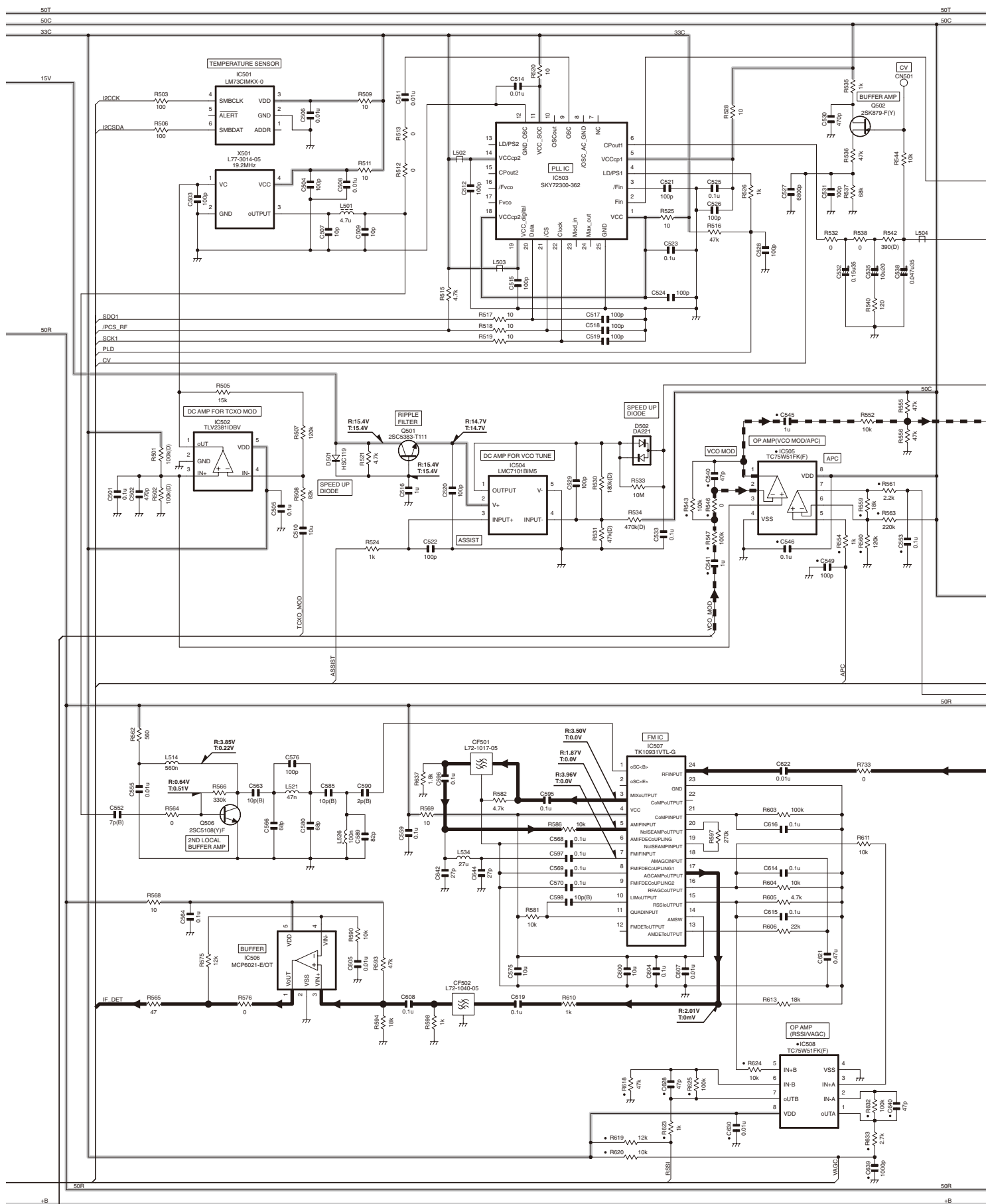
NX-210 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-7710-10) (A/2)



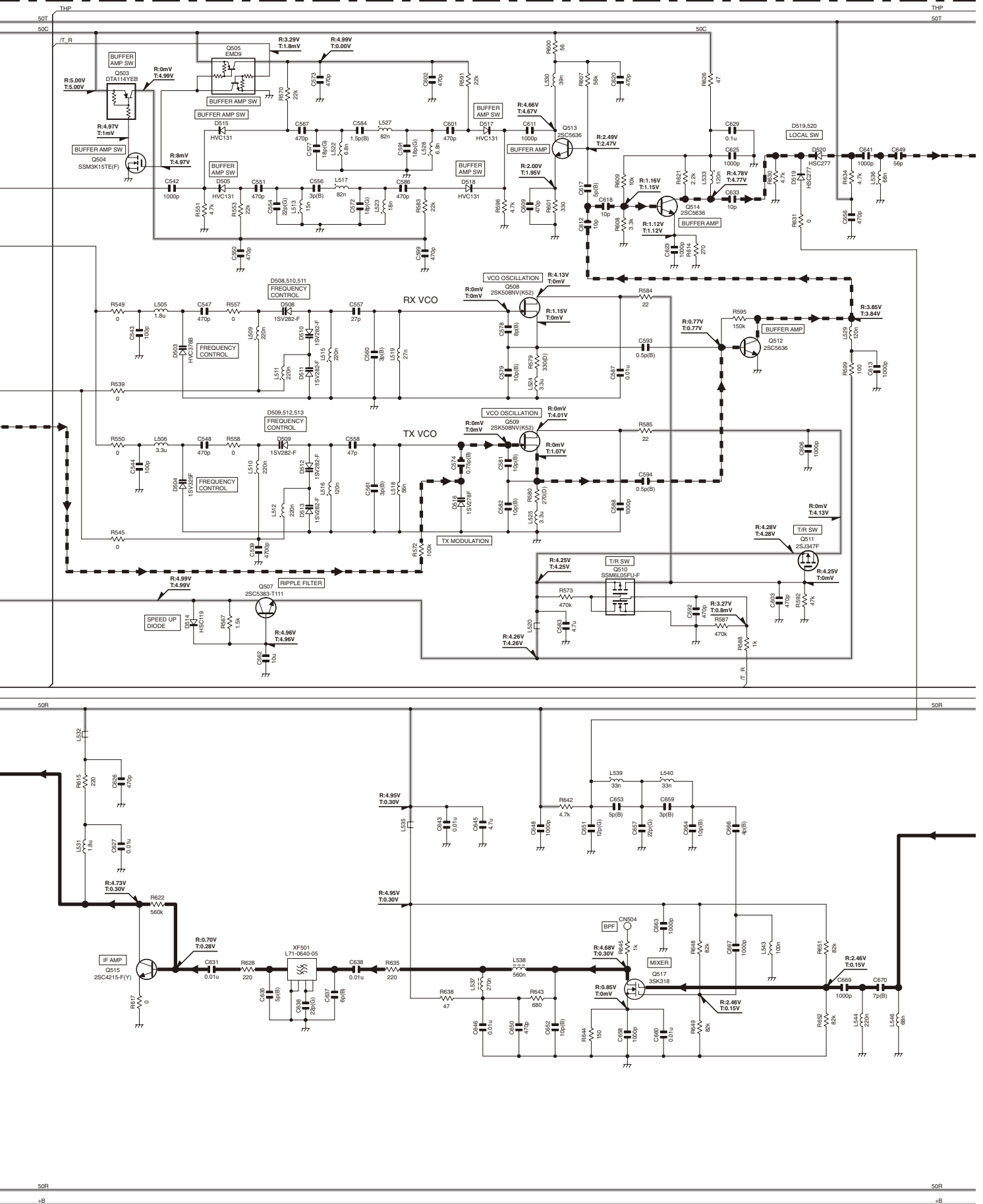
SCHEMATIC DIAGRAM NX-210

TX-RX UNIT (X57-7710-10) (A/2)



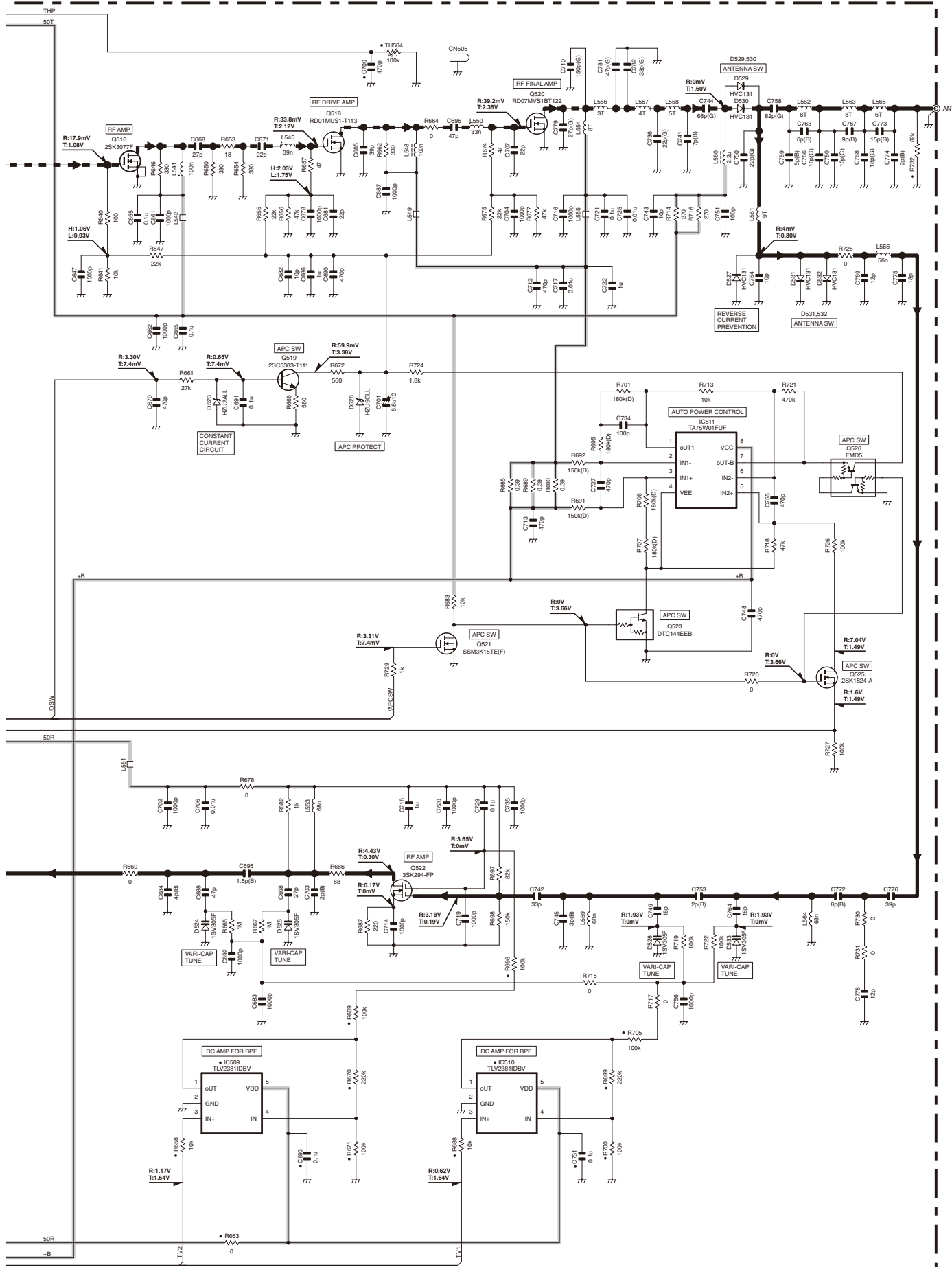
NX-210 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-7710) (A/2)



SCHEMATIC DIAGRAM NX-210

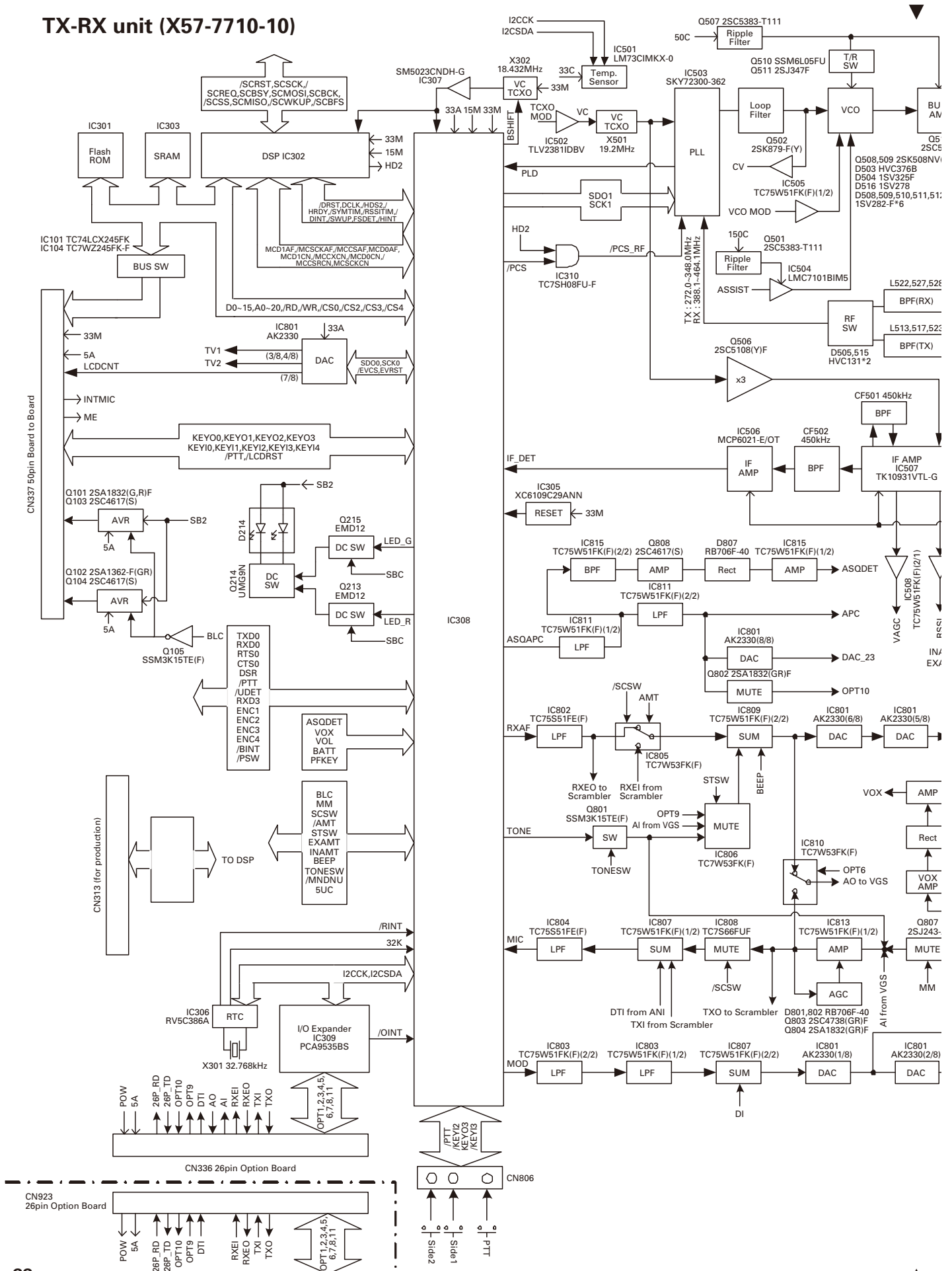
TX-RX UNIT (X57-7710-10) (A/2)



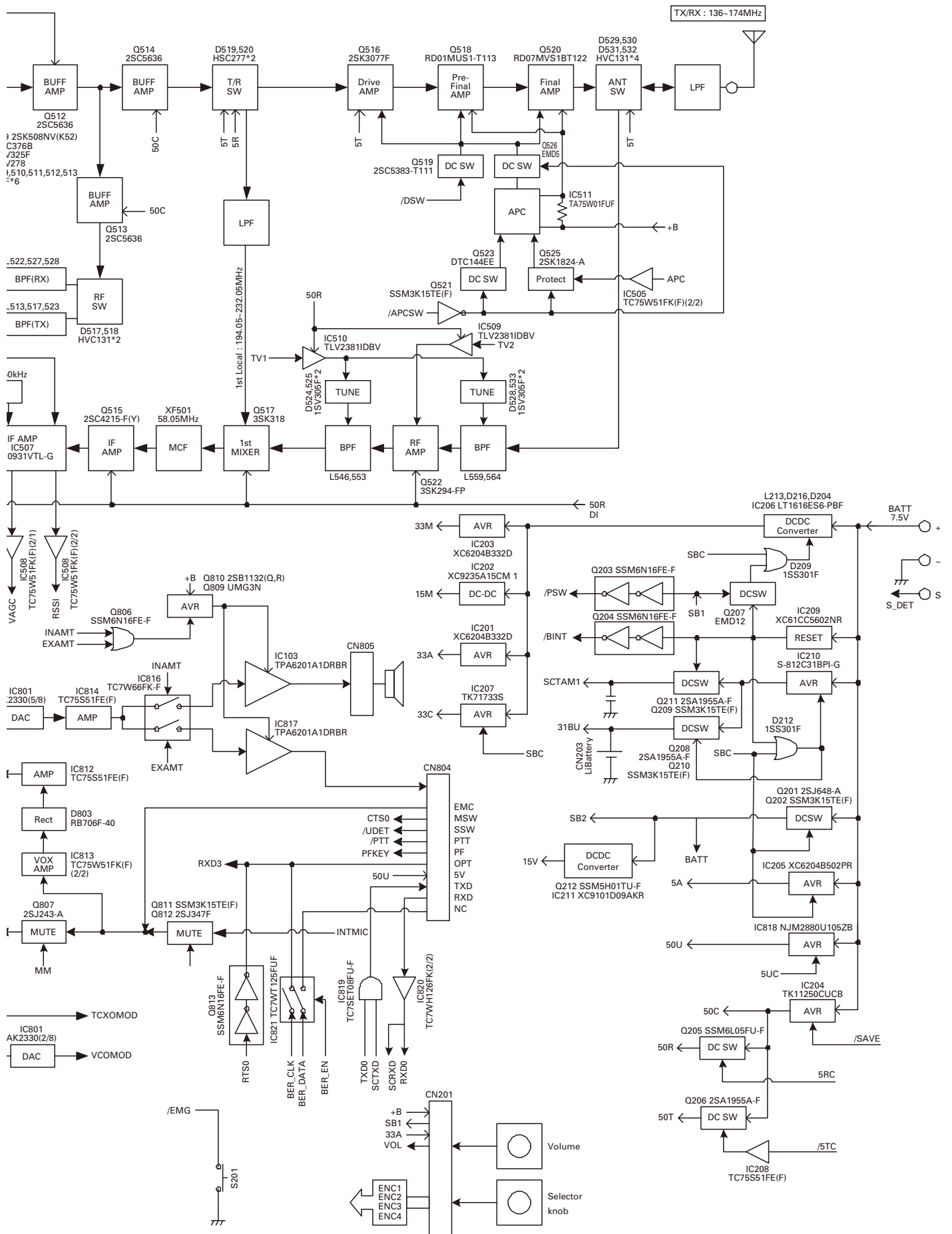
Note : The components marked with a dot (•) are parts of layer 1.

NX-210 BLOCK DIAGRAM

TX-RX unit (X57-7710-10)



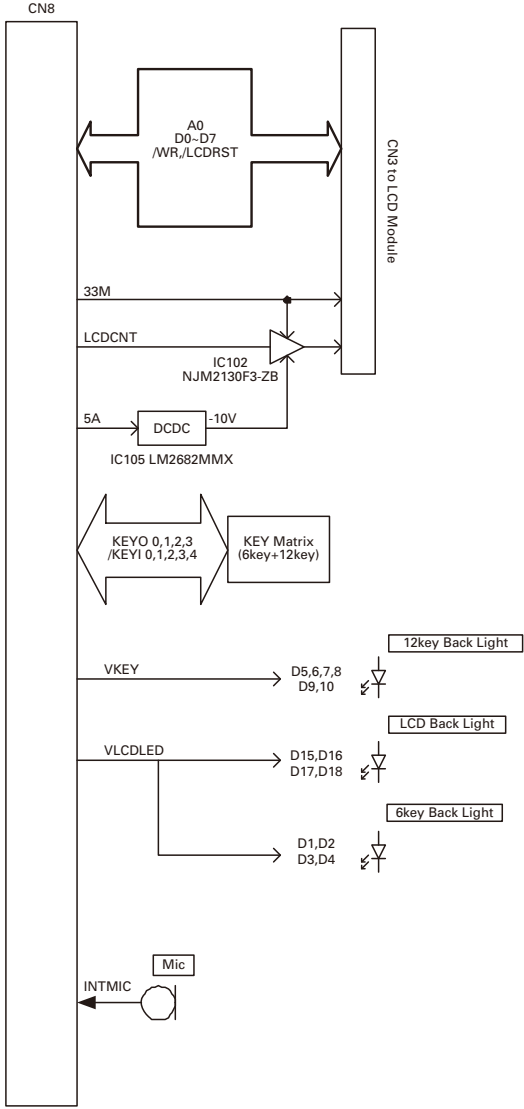
BLOCK DIAGRAM NX-210



NX-210

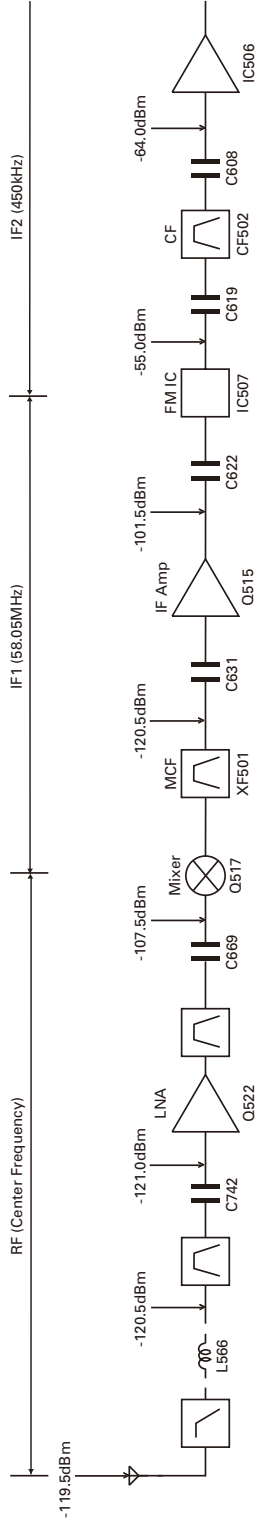
BLOCK DIAGRAM

Display unit (X54-3660-10)

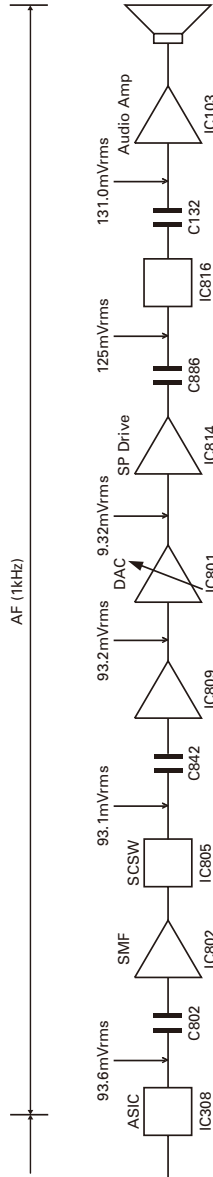


LEVEL DIAGRAM

Receiver Section

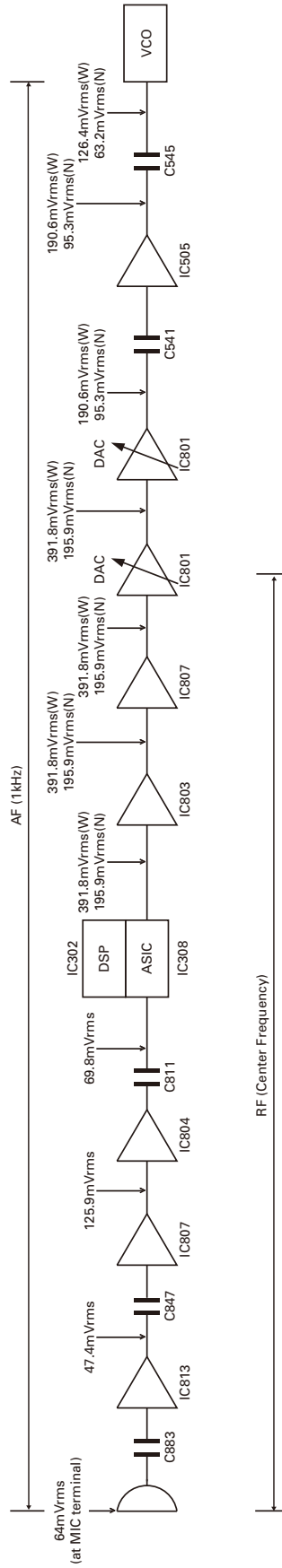


AF (1kHz)

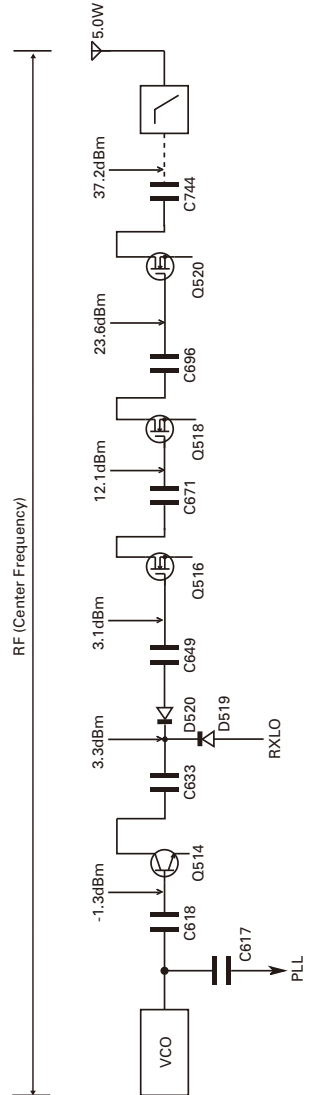


To make measurements in the AF section, connect the AC level meter. (ANT input: -53dBm, 1kHz FM, 3kHz DEV (Wide)) In the RF section, use a 1000pF coupling capacitor. (The display shows the SSG input value required to obtain 12dB SINAD without local level.)

Transmitter Section



RF (Center Frequency)



AG is set to the MIC input becomes (3kHz/1.5kHz) at 1kHz MOD (Wide/Narrow). To make measurements in the AF section, connect the AC level meter. In the RF section, use a 1000pF coupling capacitor.

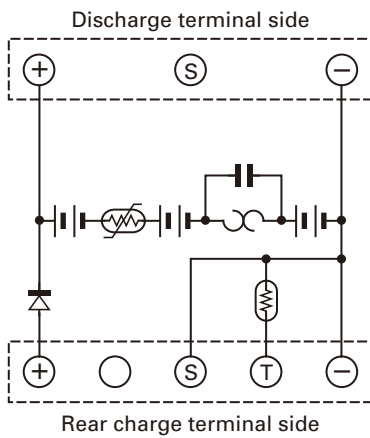
OPTIONAL ACCESSORIES

KNB-31A (Ni-Cd Battery Pack) : 7.2V 1700mAh
KNB-32N (Ni-MH Battery Pack) : 7.2V 2500mAh

■ External View



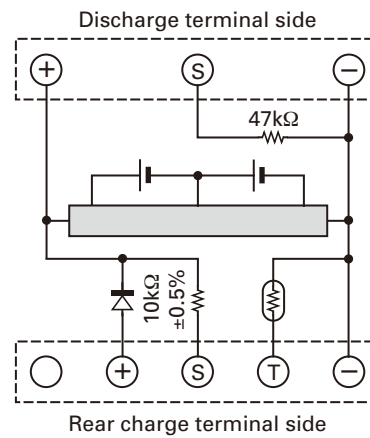
■ KNB-31A Schematic Diagram



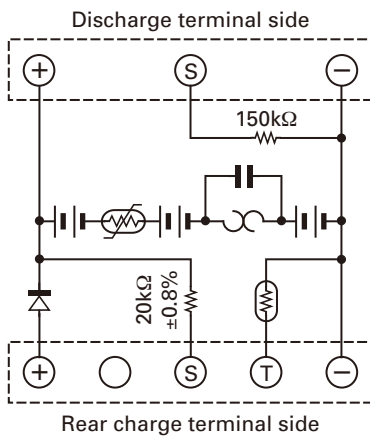
KNB-33L (Li-ion Battery Pack) : 7.4V 2000mAh
 ■ External View



■ Schematic Diagram



■ KNB-32N Schematic Diagram



SPECIFICATIONS

GENERAL

| | |
|---|---|
| Frequency Range..... | 136~174 MHz |
| Number of Channels..... | 512 |
| Zones..... | 128 |
| Max. Channels per Zone..... | 250 |
| Channel Spacing..... | Analog: 12.5/15/25/30 kHz Digital: 6.25/12.5 kHz |
| Operating Voltage..... | 7.5V DC \pm 20% |
| Battery Life (5-5-90) | |
| with KNB-31A..... | More than 10 hours |
| with KNB-32N..... | More than 14 hours |
| with KNB-33L..... | More than 11 hours |
| Battery Life (10-10-80) | |
| with KNB-31A..... | More than 6 hours |
| with KNB-32N..... | More than 9 hours |
| with KNB-33L..... | More than 7 hours |
| Operating Temperature Range | -22°F to +140°F (-30°C to +60°C) |
| Frequency Stability | \pm 2.0ppm |
| Antenna Impedance | 50 Ω |
| Dimensions (W x H x D) (Projections not included) | |
| Radio only..... | 2.28 x 5.46 x 0.88 in (58 x 138.8 x 22.4 mm) |
| with KNB-31A..... | 2.28 x 5.46 x 1.60 in (58 x 138.8 x 40.7 mm) |
| with KNB-32N..... | 2.28 x 5.46 x 1.60 in (58 x 138.8 x 40.7 mm) |
| with KNB-33L..... | 2.28 x 5.46 x 1.35 in (58 x 138.8 x 34.2 mm) |
| Weight (net) | |
| Radio only..... | 9.52 oz (270 g) |
| with KNB-31A..... | 18.52 oz (525 g) |
| with KNB-32N..... | 19.58 oz (555 g) |
| with KNB-33L..... | 13.93 oz (395 g) |

RECEIVER

| | |
|---------------------------------|--|
| Sensitivity | Digital @6.25kHz (3% BER): 0.20 μ V Digital @12.5kHz (3% BER): 0.25 μ V |
| | Analog (12dB SINAD): 0.25 μ V |
| Selectivity | Analog @25kHz: 72dB Analog @12.5kHz: 65dB |
| Intermodulation Distortion..... | Analog: 70dB (\pm 50, 100kHz) |
| Spurious Response..... | Analog: 70dB |
| Audio Distortion..... | Less than 3% |
| Audio Output | 500mW/8 Ω |

TRANSMITTER

| | |
|------------------------|---|
| RF Power Output..... | 5W/1W |
| Spurious Response..... | 70dB |
| FM Hum and Noise | Analog @25kHz: 45dB Analog @12.5kHz: 40dB |
| Audio Distortion..... | Less than 3% |
| Modulation..... | 16K0F3E, 11K0F3E, 8K30F1E, 8K30F1D, 8K30F7W, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D |

Analog measurements made per TIA/EIA 603 and specifications shown are typical.
 KENWOOD reserves the right to change specifications without prior notice or obligation.

NX-210

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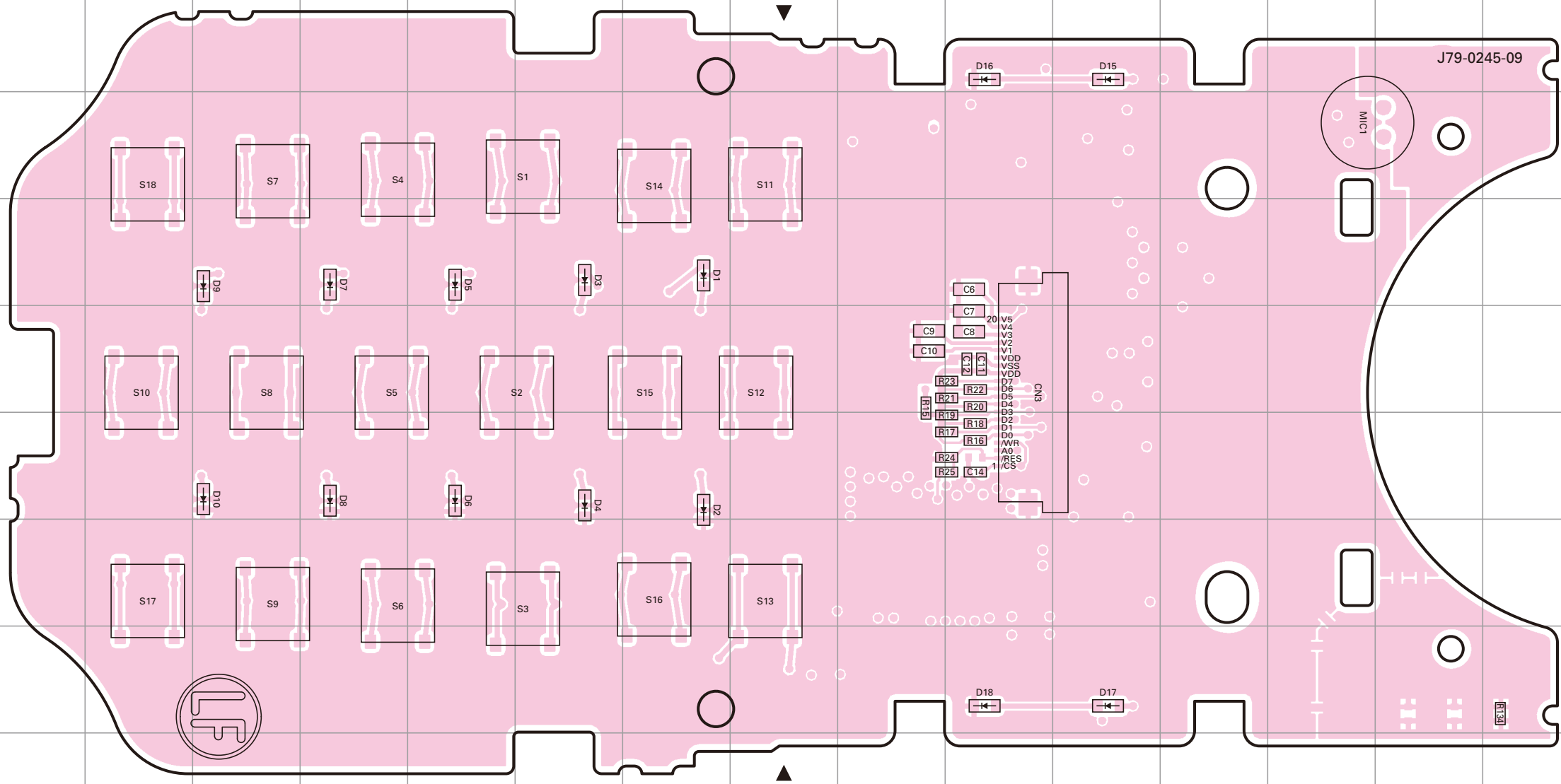


NX-210 PC BOARD

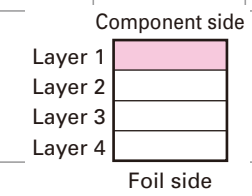
PC BOARD NX-210

DISPLAY UNIT (X54-3660-10)
Component side view (J79-0245-09)

DISPLAY UNIT (X54-3660-10)
Component side view (J79-0245-09)



| Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|
| D1 | 5I | D8 | 7F |
| D2 | 7I | D9 | 5E |
| D3 | 5H | D10 | 7E |
| D4 | 7H | D15 | 3M |
| D5 | 5G | D16 | 3L |
| D6 | 7G | D17 | 9M |
| D7 | 5F | D18 | 9L |

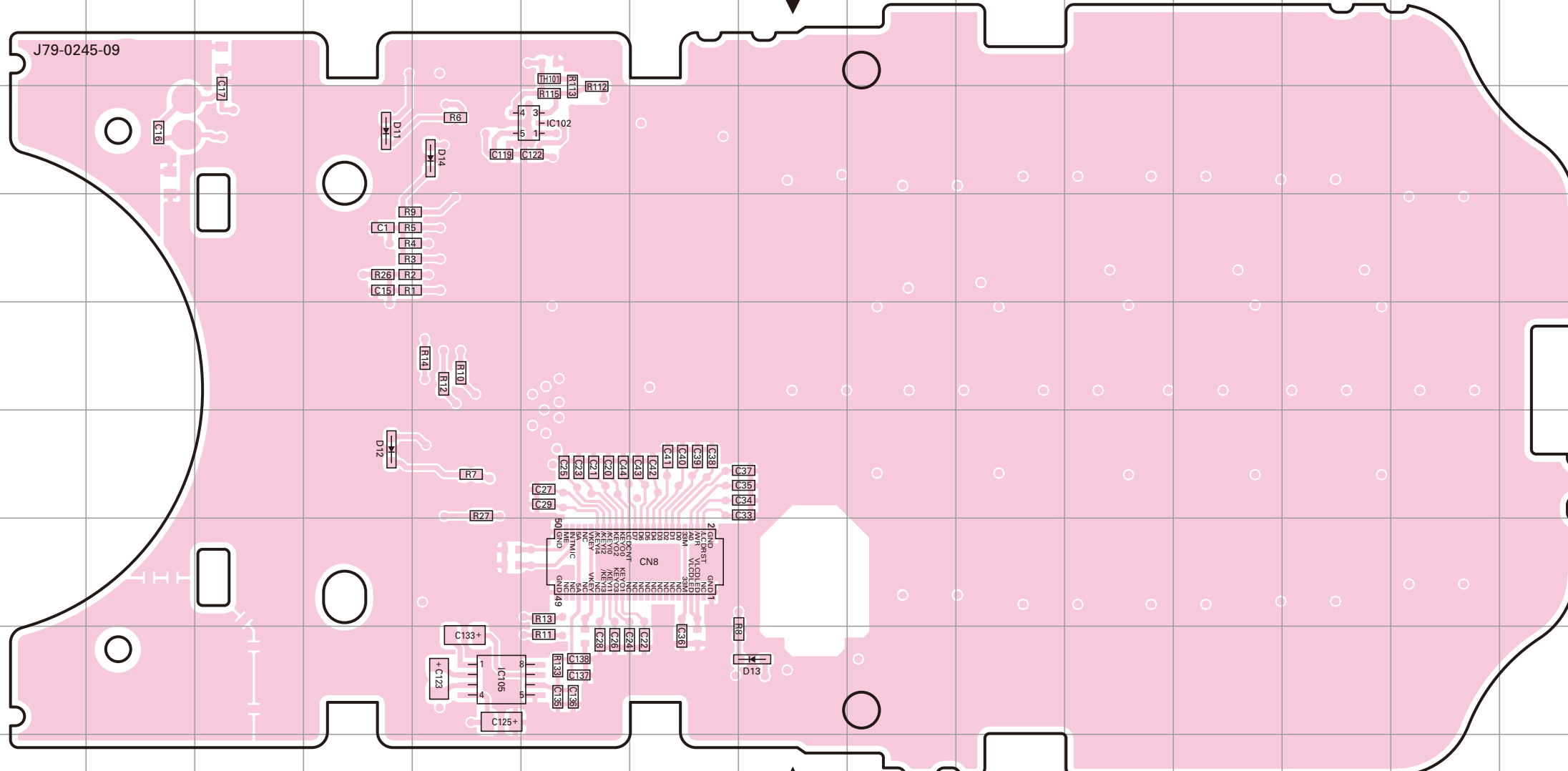


NX-210 PC BOARD

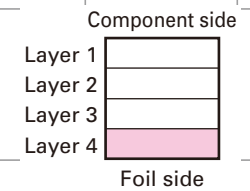
PC BOARD NX-210

DISPLAY UNIT (X54-3660-10)
Foil side view (J79-0245-09)

DISPLAY UNIT (X54-3660-10)
Foil side view (J79-0245-09)



| Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|
| IC102 | 4H | D12 | 7F |
| IC105 | 9G | D13 | 9J |
| D11 | 4F | D14 | 4G |



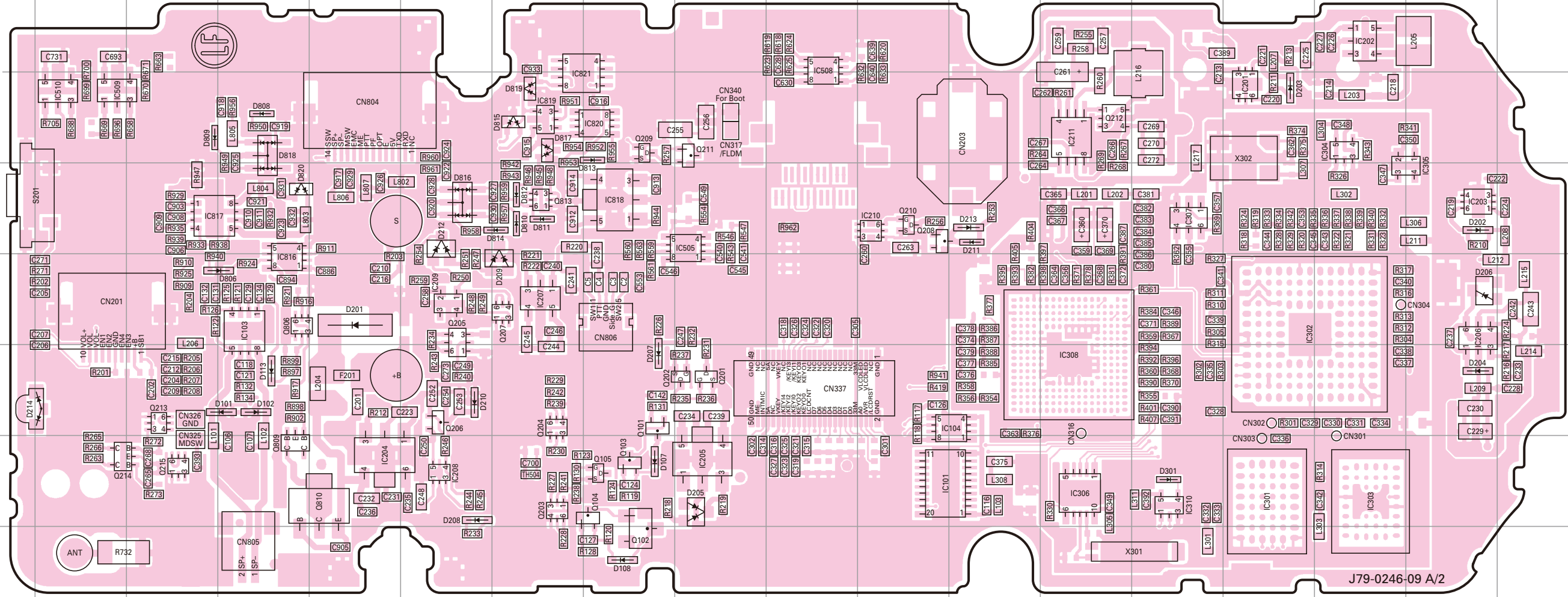
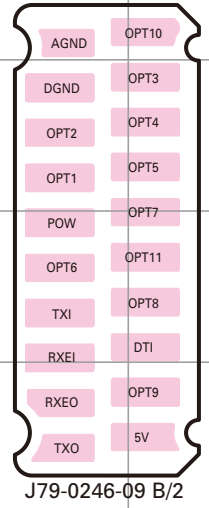
NX-210 PC BOARD

PC BOARD NX-210

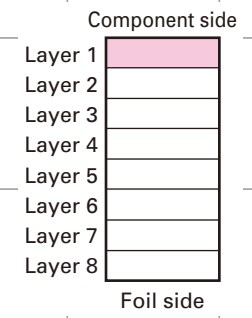
TX-RX UNIT (X57-7710-10) (A/2)
Component side view (J79-0246-09 A/2)

TX-RX UNIT (X57-7710-10) (A/2)
Component side view (J79-0246-09 A/2)

TX-RX UNIT (X57-7710-10) (B/2)

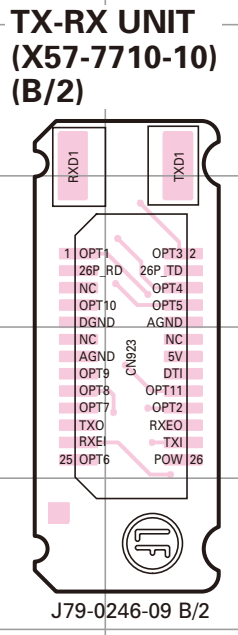
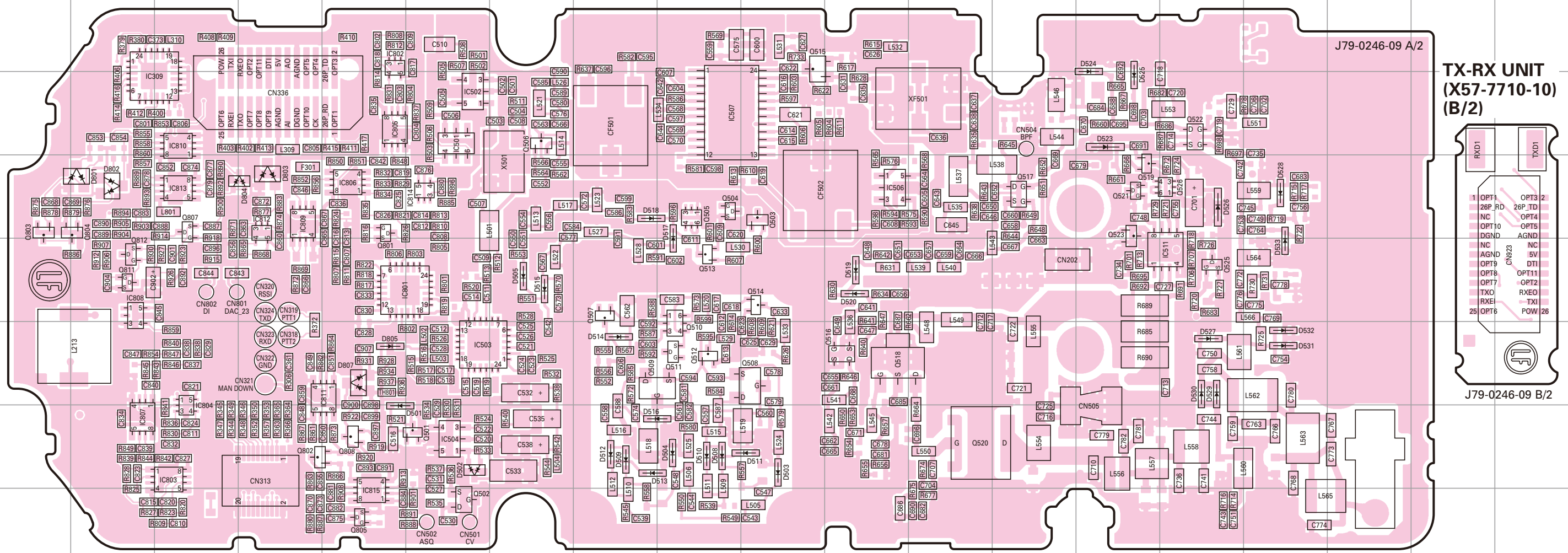


| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC101 | 8L | IC211 | 4N | IC510 | 4C | Q202 | 7I | Q215 | 8D | D204 | 7R | D808 | 4E |
| IC103 | 6E | IC301 | 8P | IC816 | 6E | Q203 | 8H | Q806 | 6E | D205 | 8J | D809 | 4D |
| IC104 | 7M | IC302 | 6P | IC817 | 5D | Q204 | 7H | Q809 | 8E | D206 | 6R | D810 | 5H |
| IC201 | 4P | IC303 | 8Q | IC818 | 5I | Q205 | 6G | Q810 | 8F | D207 | 7I | D811 | 5H |
| IC202 | 3Q | IC304 | 4Q | IC819 | 4H | Q206 | 7G | Q813 | 5H | D208 | 8G | D812 | 5H |
| IC203 | 5R | IC305 | 5R | IC820 | 4I | Q207 | 6H | D101 | 7E | D209 | 6H | D813 | 4I |
| IC204 | 8F | IC306 | 8N | IC821 | 4H | Q208 | 5L | D102 | 7E | D210 | 7G | D814 | 5H |
| IC205 | 8J | IC307 | 5O | Q101 | 7I | Q209 | 4I | D107 | 8I | D211 | 5M | D815 | 4H |
| IC206 | 6R | IC308 | 7N | Q102 | 9I | Q210 | 5L | D108 | 9I | D212 | 5G | D816 | 5G |
| IC207 | 6H | IC310 | 8O | Q103 | 8I | Q211 | 4J | D113 | 7E | D213 | 5M | D817 | 4H |
| IC208 | 8G | IC505 | 5J | Q104 | 8I | Q212 | 4N | D201 | 6F | D214 | 7B | D818 | 4E |
| IC209 | 6G | IC508 | 3K | Q105 | 8I | Q213 | 7D | D202 | 5R | D301 | 8O | D819 | 4H |
| IC210 | 5L | IC509 | 4C | Q201 | 7I | Q214 | 8C | D203 | 4P | D806 | 6E | D820 | 5E |

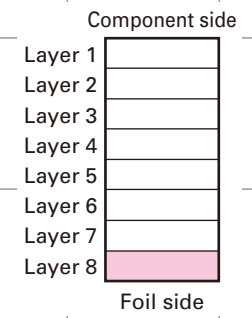


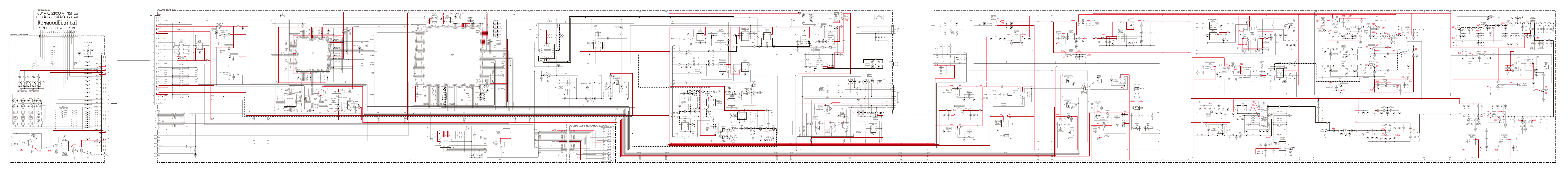
TX-RX UNIT (X57-7710-10) (A/2)
Foil side view (J79-0246-09 A/2)

TX-RX UNIT (X57-7710-10) (A/2)
Foil side view (J79-0246-09 A/2)



| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC309 | 4C | IC807 | 8B | Q506 | 4G | Q520 | 8L | Q812 | 6B | D516 | 8H | D532 | 7P |
| IC501 | 4F | IC808 | 6B | Q507 | 6H | Q521 | 5N | D501 | 8E | D517 | 5I | D533 | 6P |
| IC502 | 4F | IC809 | 5D | Q508 | 7J | Q522 | 4O | D502 | 8F | D518 | 5H | D801 | 5B |
| IC503 | 7F | IC810 | 4C | Q509 | 7H | Q523 | 5N | D503 | 8J | D519 | 6K | D802 | 5B |
| IC504 | 8F | IC811 | 7E | Q510 | 7I | Q525 | 6O | D504 | 8I | D520 | 6K | D803 | 5D |
| IC506 | 5K | IC812 | 5D | Q511 | 7I | Q526 | 5O | D505 | 6G | D523 | 4N | D804 | 5D |
| IC507 | 4I | IC813 | 5C | Q512 | 7I | Q801 | 5E | D508 | 8I | D524 | 3N | D805 | 7E |
| IC511 | 6O | IC814 | 5F | Q513 | 6I | Q802 | 8D | D509 | 8H | D525 | 4N | D807 | 7E |
| IC801 | 6E | IC815 | 9E | Q514 | 6J | Q803 | 5A | D510 | 8I | D526 | 5O | | |
| IC802 | 3E | Q501 | 8F | Q515 | 3J | Q804 | 5B | D511 | 8J | D527 | 7O | | |
| IC803 | 8C | Q502 | 9F | Q516 | 7K | Q805 | 9E | D512 | 8H | D528 | 5P | | |
| IC804 | 8C | Q503 | 5J | Q517 | 5M | Q807 | 5C | D513 | 8H | D529 | 7O | | |
| IC805 | 4E | Q504 | 5I | Q518 | 7K | Q808 | 8E | D514 | 7H | D530 | 7O | | |
| IC806 | 5E | Q505 | 5I | Q519 | 5N | Q811 | 6B | D515 | 6G | D531 | 7P | | |





TX-RX unit (X57-7710-10)

