

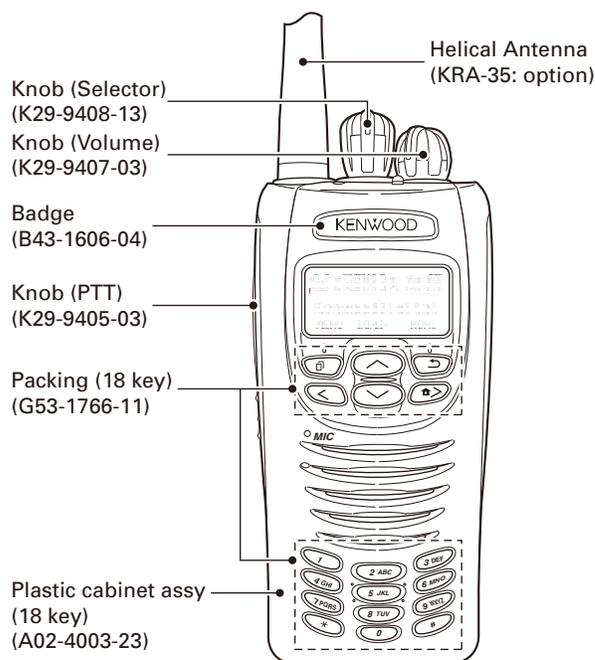
NX-300

SERVICE MANUAL

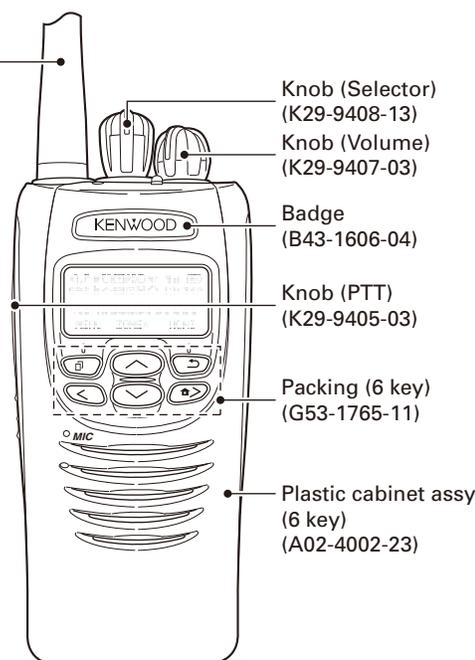
SUPPLEMENT K5, K6 versions

This NX-300 (K5, K6) service manual contains a number of sections which differ from the service manual (B51-8811-10) for the NX-300 (K, K2, K3, K4). For items other than those in this NX-300 (K5, K6) service manual, please refer to the service manual (B51-8811-10) for the NX-300 (K, K2, K3, K4).

NX-300 K6



NX-300 K5



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

CONTENTS

| | |
|---------------------------|----|
| GENERAL..... | 2 |
| SYSTEM SET-UP | 3 |
| REALIGNMENT | 3 |
| INSTALLATION..... | 6 |
| CIRCUIT DESCRIPTION | 7 |
| PARTS LIST | 8 |
| EXPLODED VIEW | 19 |
| PACKING..... | 20 |
| TROUBLE SHOOTING | 21 |
| ADJUSTMENT | 24 |

| | |
|-------------------------------------|------------|
| PC BOARD | |
| CONTROL UNIT (X53-4432-XX)..... | 46 |
| TX-RX UNIT (X57-7830-12) | 50 |
| INTERCONNECTION DIAGRAM | 54 |
| SCHEMATIC DIAGRAM | 56 |
| BLOCK DIAGRAM | 70 |
| LEVEL DIAGRAM | 74 |
| OPTIONAL ACCESSORIES | |
| KNB-47L (Li-ion Battery Pack) | 75 |
| KNB-48L (Li-ion Battery Pack) | 75 |
| SPECIFICATIONS | BACK COVER |

NX-300

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Transceivers containing AMBE+2™ Vocoder:

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

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

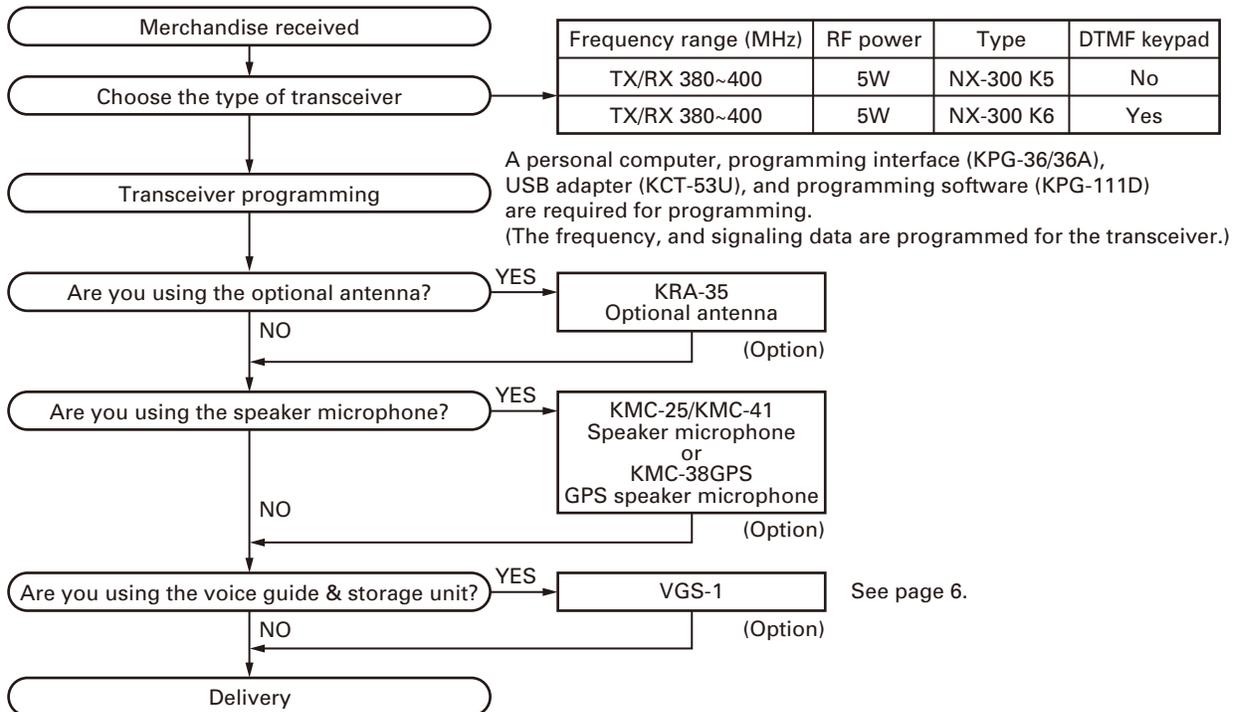
This transceiver is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

Service Manual List

| Title | Parts number | Remarks | Market code | Control unit number | TX-RX unit number |
|--------|--------------|-----------------------------------|---------------|--------------------------------|------------------------------|
| NX-300 | B51-8811-00 | First edition | K, K3 | X53-4260-XX (J79-0131-19) | X57-7370-10 (J79-0128-19) |
| NX-300 | B51-8811-10 | Revised | K, K2, K3, K4 | * X53-4260-XX (J79-0131-29) | X57-7370-XX (J79-0128-39) |
| NX-300 | B51-8896-00 | Supplement This service manual | K5, K6 | * X53-4432-XX (J79-0131-39) | X57-7830-12 (J79-0128-49) |

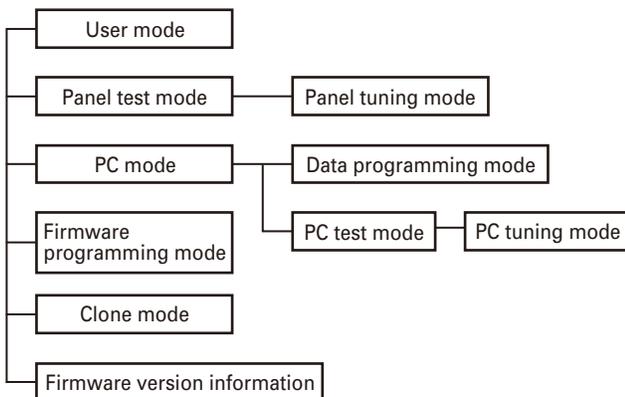
* Note: The circuit pattern of J79-0131-29 and J79-0131-39 is the same.

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. |
| 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 ver. 1.80 or later).

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

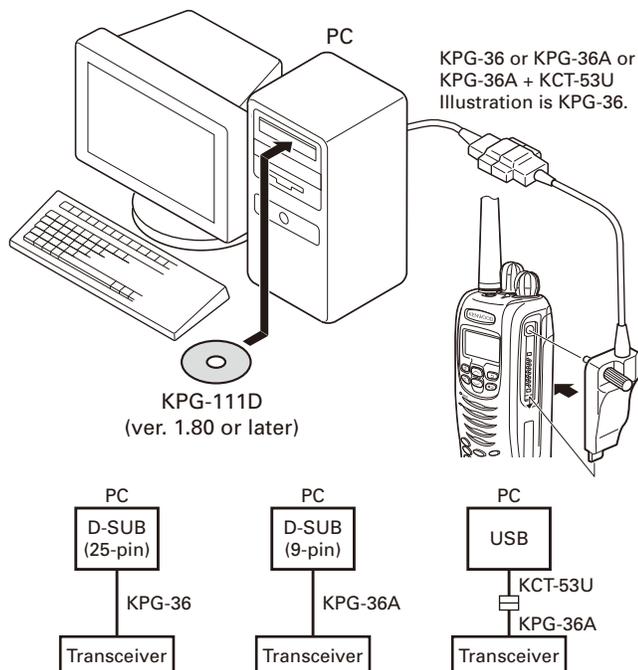


Fig. 1

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 Windows 2000, XP or Vista (32-bit) on a PC.

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

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 (K6 model only);**

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 (K5, K6 models);**

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.

REALIGNMENT

If you press the [⏏] key after entering the password in 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"/"Market Code" must be same to clone the transceiver.

Cloning cable
(E30-3325-05)

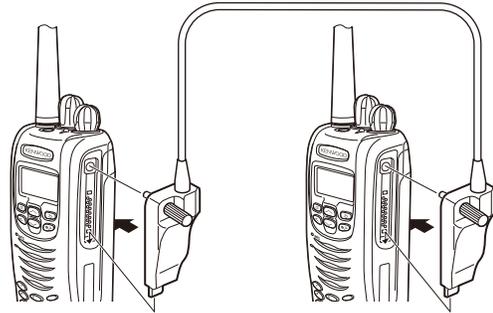


Fig. 2

8. Firmware Version Information

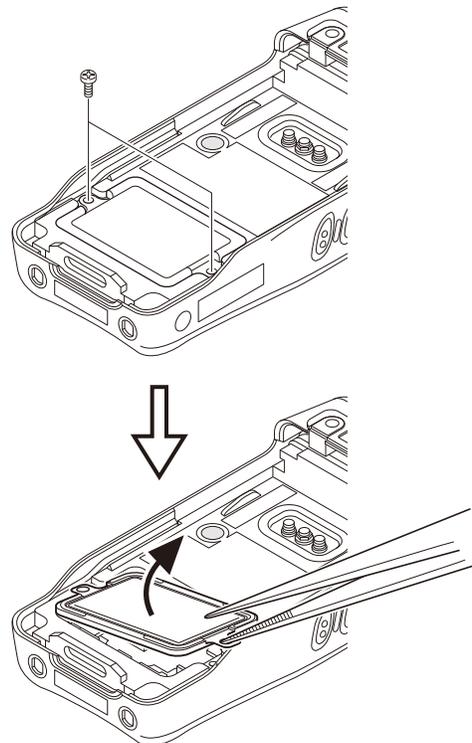
Press and hold the [Side1] key while turning the transceiver power ON and then keep pressing and holding the [Side1] key, the firmware version information appears on the LCD.

INSTALLATION

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

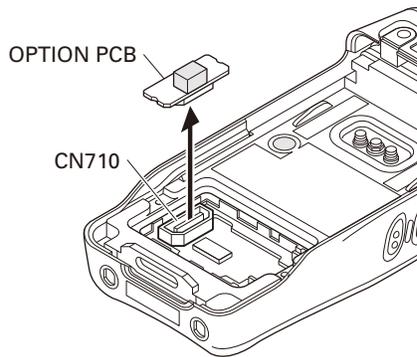
■ Installing the VGS-1 (Voice Guide & Storage Unit) in the transceiver

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.



INSTALLATION

- Remove the OPTION PCB from the connector (CN710) of the Control PCB.



- Attach the flat spring (G02-1846-03) to the VGS-1 as shown in the figure.

Note:

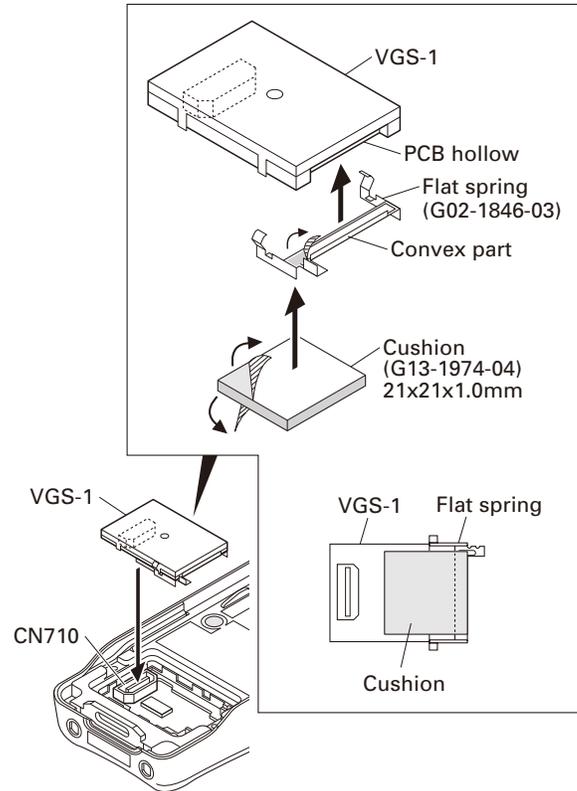
Attach the flat spring so that its convex fits the PCB hollow of the VGS-1.

- 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 (CN710) of the Control PCB.



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

CIRCUIT DESCRIPTION

1. Overview

The NX-300 is a UHF portable transceiver designed to operate in the frequency range of 380 to 400MHz (in user mode). 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.

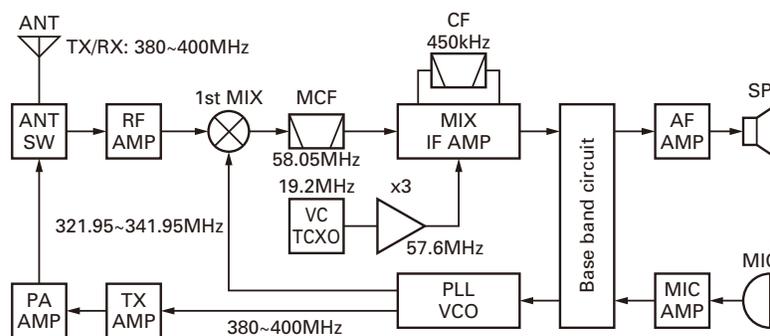


Fig. 1 Frequency configuration

NX-300

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)

C : China

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

NX-300

CONTROL UNIT (X53-4432-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|---------------|---------|-----------|-------------|----------------------------------|-------------|---|----------|-----------|---------------|------------------------------------|-------------|
| NX-300 | | | | | | 65 | 2B | | J30-1296-04 | SPACER (VOL) | |
| 1 | 1B | | A02-4002-23 | PLASTIC CABINET (6KEY) | K5 | 66 | 3B | | J87-0007-15 | FPC (LEAD FREE/UNIVERSAL) | |
| 2 | 1A | | A02-4003-23 | PLASTIC CABINET (18KEY) | K6 | 68 | 2B | | J87-0028-05 | FPC (LEAD FREE/VOL,CH) | |
| 3 | 3A | | A10-4111-21 | CHASSIS | | 69 | 2B | | J99-0390-04 | ADHESIVE SHEET (6KEY FPC) | |
| 4 | 2B | | A62-1156-02 | PANEL (TOP) | | 70 | 3A | | J99-0711-04 | ADHESIVE SHEET (PTT FPC) | |
| 6 | 1B,1D | | B09-0712-03 | CAP ACCESSORY | | 71 | 2B | | J99-0712-14 | ADHESIVE SHEET (6KEY FPC) | |
| 7 | 1A | | B11-1853-24 | FILTER (LCD) | | 72 | 1A,2A | | J99-0714-04 | ADHESIVE SHEET (LCD) | |
| 8 | 1A | | B11-1854-02 | ILLUMINATION GUIDE (LCD) | | 74 | 3B | | J99-0715-08 | ADHESIVE SHEET (UNIVERSAL) | |
| 9 | 3B | | B11-1855-04 | ILLUMINATION GUIDE (TX/BUSY) | | 75 | 3B | | J99-0725-04 | ADHESIVE SHEET (TERMINAL BLOCK) | |
| 10 | 1A | | B38-0923-05 | LCD ASSY | | 77 | 3A | | K25-2001-03 | PUSH KNOB (PTT) | |
| 12 | 1A | | B42-7417-04 | STICKER | | 78 | 1A | | K29-9405-03 | KNOB (PTT) | |
| 13 | 1B | | B43-1606-04 | BADGE | | 79 | 1A | | K29-9406-03 | BUTTON KNOB (SIDE KEY) | |
| 14 | 2D | * | B62-2224-00 | INSTRUCTION MANUAL | | 80 | 1B | | K29-9407-03 | KNOB (VOL) | |
| 17 | 2B | | D32-0446-14 | STOPPER (16CH) | | 81 | 1B | | K29-9408-13 | KNOB (CH) | |
| 19 | 2A | | E29-1220-04 | RELAY HARDWARE (VCO-PCB) | | A | 1B,1D | | N08-0564-04 | DRESSED SCREW ACCESSORY | |
| 20 | 3A | | E29-1221-14 | RELAY HARDWARE (VCO-CHASSIS) | | B | 3B | | N09-2426-14 | HEXAGON HEAD SCREW (BATT-) | |
| 21 | 3B | | E58-0532-05 | RECTANGULAR RECEPTACLE (SP/MIC) | | C | 3A | | N09-2440-15 | SPECIAL SCREW (CASE) | |
| 22 | 3B | | E72-0425-03 | TERMINAL BLOCK | | D | 2A,2B | | N09-6549-04 | STEPPED SCREW (FG-SP HOLDER) | |
| 24 | 3A | | F07-1931-04 | COVER (OP BOARD) | | E | 2B,3A | | N09-6554-05 | PAN HEAD SCREW (ANT/OP BOARD) | |
| 25 | 2A | | F10-3106-03 | SHIELDING CASEASSY | | F | 2B | | N14-0844-04 | CIRCULAR NUT (VOL,CH) | |
| 27 | 2A | | G02-1836-13 | EARTH SPRING (SP) | | G | 1C | | N30-3008-60 | PAN HEAD MACHINE SCREW (BELT CLIP) | |
| 28 | 1A | | G10-1373-04 | FIBROUS SHEET (SP) | | H | 1A,2A,2B | | N83-2005-48 | PAN HEAD TAPTITE SCREW (PCB) | |
| 29 | 2B | | G10-1384-14 | FIBROUS SHEET (TOP PANEL) | | 83 | 1A | | S79-0472-05 | KEYBOARD ASSY (12KEY) | K6 |
| 30 | 2A | | G11-4272-14 | RUBBER CUSHION (SP) | | 85 | 2A | | T07-0755-15 | SPEAKER | |
| 31 | 3A | | G11-4331-04 | SHEET (AIR) | | 86 | 2A | | T91-0575-05 | MIC ELEMENT | |
| 33 | 2A | | G11-4428-04 | SHEET (PTT) | | 88 | 2A | | W09-0971-05 | LITHIUM CELL | |
| 34 | 3A | | G11-4429-04 | RUBBER SHEET (FET) | | 90 | 3A | | X41-3760-10 | SWITCH UNIT (PTT FPC) | |
| 35 | 3A | | G11-4440-04 | SHEET (AIR) | | 91 | 2B | | X41-3770-10 | SWITCH UNIT (6KEY FPC) | |
| 36 | 2A | | G11-4458-14 | SHEET (SP) | | 92 | 2A | | X42-3380-10 | CORD ASSY (50PIN FPC) | |
| 37 | 2A | | G11-4459-04 | SHEET (TX-RX PCB) | | - | | * | X53-4432-73 | SERVICE CONTROL UNIT (6KEY) | K5 |
| 38 | 2A | | G11-4476-04 | SHEET (MIC ELEMENT) | | - | | * | X53-4432-74 | SERVICE CONTROL UNIT (18KEY) | K6 |
| 39 | 1A | | G11-4497-04 | SHEET (LCD) | | 93 | 2B | | X60-3910-10 | TERMINAL ASSY (SMA) | |
| 40 | 2A | | G13-2129-14 | CUSHION (TX-RX PCB) | | CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6 | | | | | |
| 41 | 2A,3B | | G13-2220-04 | CUSHION (ANT/OP BOARD) | | D1-10 | | | B30-2215-05 | LED | K6 |
| 42 | 2A | | G13-2249-04 | CUSHION (TX-RX PCB) | | D3,4 | | | B30-2215-05 | LED | K5 |
| 43 | 2A | | G13-2258-04 | CUSHION (50PIN FPC) | | D7,8 | | | B30-2215-05 | LED | K5 |
| 45 | 2A | | G13-2265-04 | CUSHION (BATT-) | | C1 | | | CK73HB1A104K | CHIP C 0.10UF | K |
| 46 | 2B | | G53-1762-02 | PACKING (TOP) | | C2-6 | | | CK73GB1E105K | CHIP C 1.0UF | K |
| 47 | 3B | | G53-1763-03 | PACKING (TERMINAL BLOCK) | | C7,8 | | | CK73HB1A104K | CHIP C 0.10UF | K |
| 48 | 3A | | G53-1764-03 | PACKING (OP BOARD COVER) | | C10 | | | CK73HB1A104K | CHIP C 0.10UF | K |
| 50 | 1B | | G53-1765-11 | PACKING (6KEY) | K5 | C11 | | | CK73HBOJ105K | CHIP C 1.0UF | K |
| 51 | 1A | | G53-1766-11 | PACKING (18KEY) | K6 | C12-15 | | | CK73HB1H471K | CHIP C 470PF | K |
| 52 | 2B | | G53-1768-04 | PACKING (VOL,CH O-RING) | | C16,17 | | | CC73HCH1H101J | CHIP C 100PF | J |
| 53 | 1B,1D | | G53-1769-04 | PACKING (CAP) | | C23 | | | CK73HB1H102K | CHIP C 1000PF | K |
| 54 | 2B | | G53-1792-04 | PACKING (SMA O-RING) | | C24 | | | CC73HCH1H470J | CHIP C 47PF | J |
| 56 | 1D,2D | | H12-4228-12 | PACKING FIXTURE | | C25-27 | | | CK73HB1H102K | CHIP C 1000PF | K |
| 57 | 2D | | H13-2135-04 | CARTON BOARD | | C28 | | | CC73HCH1H101J | CHIP C 100PF | J |
| 58 | 3C | | H52-2327-02 | ITEM CARTON CASE | | | | | | | |
| 59 | 2A | | J19-5505-11 | HOLDER (FG-SP) | | | | | | | |
| 60 | 2B | | J19-5506-03 | HOLDER (VOL,CH) | | | | | | | |
| 62 | 2A | | J19-5507-02 | HOLDER (OP BOARD) | | | | | | | |
| 63 | 2B | | J21-8579-04 | MOUNTING HARDWARE (FG-SP HOLDER) | | | | | | | |
| 64 | 1C | | J29-0730-05 | BELT CLIP ACCESSORY | | | | | | | |

PARTS LIST

CONTROL UNIT (X53-4432-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|-----------------------|-------------|----------|---------|-----------|---------------|------------------|-------------|
| C30-32 | | | CC73HCH1H101J | CHIP C 100PF J | | C433 | | | CK73FB1A106K | CHIP C 10UF K | |
| C35 | | | CK73HB1H102K | CHIP C 1000PF K | | C435-438 | | | CK73HB1A563K | CHIP C 0.056UF K | |
| C36 | | | CK73HB1E682K | CHIP C 6800PF K | | C439,440 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C37 | | | CK73HB1H102K | CHIP C 1000PF K | | C441 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C38 | | | CC73HCH1H101J | CHIP C 100PF J | | C442 | | | CK73HB1H471K | CHIP C 470PF K | |
| C40 | | | CC73HCH1H221J | CHIP C 220PF J | | C443 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C41 | | | CC73HCH1H101J | CHIP C 100PF J | | C445 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C101-104 | | | CK73HB1A104K | CHIP C 0.10UF K | | C446 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C105 | | | CK73HB0J105K | CHIP C 1.0UF K | | C447 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C106 | | | CK73HB1E103K | CHIP C 0.010UF K | | C448-450 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C107 | | | CK73HB1A104K | CHIP C 0.10UF K | K5 | C452,453 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C107,108 | | | CK73HB1A104K | CHIP C 0.10UF K | K6 | C454 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C109,110 | | | CK73HB1H102K | CHIP C 1000PF K | | C455-457 | | | CK73HB1H471K | CHIP C 470PF K | |
| C111-113 | | | CK73HB1A104K | CHIP C 0.10UF K | | C459 | | | CK73HB1H471K | CHIP C 470PF K | |
| C114 | | | CK73HB0J105K | CHIP C 1.0UF K | K6 | C460 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C115 | | | CK73HB1H471K | CHIP C 470PF K | K6 | C461-463 | | | CK73HB1H471K | CHIP C 470PF K | |
| C116,117 | | | CK73HB1A104K | CHIP C 0.10UF K | | C464 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C118,119 | | | CK73HB0J105K | CHIP C 1.0UF K | | C465 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C120,121 | | | CK73HB1A104K | CHIP C 0.10UF K | | C466 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C122-124 | | | CK73HB1E103K | CHIP C 0.010UF K | | C467,468 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C130 | | | CK73HB1E103K | CHIP C 0.010UF K | | C469,470 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C131 | | | CK73HB1A104K | CHIP C 0.10UF K | | C480 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C133 | | | CS77CPOJ100M | CHIP TINTL 10UF 6.3WV | | C701 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C134 | | | CK73HB1E103K | CHIP C 0.010UF K | | C703 | | | CK73GB0J475K | CHIP C 4.7UF K | |
| C135 | | | CK73HB1H102K | CHIP C 1000PF K | | C704,705 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C136 | | | CK73HB1E103K | CHIP C 0.010UF K | | C706 | | | CC73HCH1H680J | CHIP C 68PF J | |
| C137 | | | CK73GB1E105K | CHIP C 1.0UF K | | C707 | | | CC73HCH1H270J | CHIP C 27PF J | |
| C138-140 | | | CK73HB1A104K | CHIP C 0.10UF K | | C708 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C141 | | | CC73HCH1H101J | CHIP C 100PF J | | C709 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C142 | | | CS77CPOJ100M | CHIP TINTL 10UF 6.3WV | | C710 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C143 | | | CK73HB1E103K | CHIP C 0.010UF K | | C711 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C144 | | | CK73GB1E105K | CHIP C 1.0UF K | | C712 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C145-148 | | | CK73HB1A104K | CHIP C 0.10UF K | | C713 | | | CK73HB1H332K | CHIP C 3300PF K | |
| C149 | | | CK73HB1E103K | CHIP C 0.010UF K | | C714 | | | CK73HB1H122K | CHIP C 1200PF K | |
| C150 | | | CK73GB1E105K | CHIP C 1.0UF K | | C715 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C151-155 | | | CK73HB1A104K | CHIP C 0.10UF K | | C716 | | | CK73HB1H681K | CHIP C 680PF K | |
| C156,157 | | | CK73HB1H102K | CHIP C 1000PF K | | C717 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C158 | | | CK73HB1E103K | CHIP C 0.010UF K | | C718 | | | CK73HB1H152K | CHIP C 1500PF K | |
| C159 | | | CK73HB1A104K | CHIP C 0.10UF K | | C719 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C160,161 | | | CK73HB1E682K | CHIP C 6800PF K | | C720 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C401,402 | | | CK73HB1A104K | CHIP C 0.10UF K | | C721 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C403-405 | | | CS77AP1C2R2M | CHIP TINTL 2.2UF 16WV | | C722 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C406 | | | CK73HB0J105K | CHIP C 1.0UF K | | C723 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C407,408 | | | CK73HB1H102K | CHIP C 1000PF K | | C724 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C409 | | | CK73HB0J105K | CHIP C 1.0UF K | | C725 | | | CC73HCH1E181J | CHIP C 180PF J | |
| C411,412 | | | CK73HB0J105K | CHIP C 1.0UF K | | C726,727 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C414 | | | CK73HB0J105K | CHIP C 1.0UF K | | C728 | | | CK73HB1H331K | CHIP C 330PF K | |
| C415 | | | CS77AP1A100M | CHIP TINTL 10UF 10WV | | C730 | | | CK73HB1H331K | CHIP C 330PF K | |
| C416 | | | CK73FB1A106K | CHIP C 10UF K | | C731,732 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C417 | | | CC73HCH1H221J | CHIP C 220PF J | | C734 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C418 | | | CK73HB1E103K | CHIP C 0.010UF K | | C735 | | | CK73HB1H122K | CHIP C 1200PF K | |
| C419 | | | CK73FB1E475K | CHIP C 4.7UF K | | C736,737 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C420 | | | CK73HB1E103K | CHIP C 0.010UF K | | C738 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C421 | | | CK73HB1E682K | CHIP C 6800PF K | | C739 | | | CK73HB1E682K | CHIP C 6800PF K | |
| C422 | | | CC73HCH1H100C | CHIP C 10PF C | | C740 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C424,425 | | | CK73HB1A104K | CHIP C 0.10UF K | | C742 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C427 | | | CK73HB1E103K | CHIP C 0.010UF K | | C743 | | | CK73HB0J105K | CHIP C 1.0UF K | |
| C428 | | | CC73HCH1H030C | CHIP C 3.0PF C | | C744-746 | | | CK73HB1E103K | CHIP C 0.010UF K | |
| C429,430 | | | CK73HB1A104K | CHIP C 0.10UF K | | C747,748 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C431 | | | CK73FB1A106K | CHIP C 10UF K | | C749,750 | | | CC73HCH1H470J | CHIP C 47PF J | |

PARTS LIST

CONTROL UNIT (X53-4432-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|-----------------------|-------------|----------|---------|-----------|--------------|-----------------------------|-------------|
| C751 | | | CK73GB1E105K | CHIP C 1.0UF K | | L8 | | | L92-0140-05 | CHIP FERRITE | |
| C752,753 | | | CC73HCH1H101J | CHIP C 100PF J | | L101,102 | | | L92-0408-05 | CHIP FERRITE | |
| C755 | | | CC73HCH1H470J | CHIP C 47PF J | | L401 | | | L33-1496-05 | SMALL FIXED INDUCTOR | |
| C756 | | | CK73HB1A104K | CHIP C 0.10UF K | | L402 | | | L92-0467-05 | CHIP FERRITE | |
| C757,758 | | | CK73GB0J475K | CHIP C 4.7UF K | | L403 | | | L92-0466-05 | CHIP FERRITE | |
| C759,760 | | | CK73HB1E103K | CHIP C 0.010UF K | | L409-411 | | | L92-0467-05 | CHIP FERRITE | |
| C761 | | | CC73HCH1H100D | CHIP C 10PF D | | L701 | | | L92-0140-05 | CHIP FERRITE | |
| C762 | | | CK73HB1A104K | CHIP C 0.10UF K | | L702 | | | L92-0162-05 | BEADS CORE | |
| C763 | | | CK73HB1E103K | CHIP C 0.010UF K | | L704-709 | | | L92-0162-05 | BEADS CORE | |
| C764 | | | CK73HB1H102K | CHIP C 1000PF K | | L710-712 | | | L92-0444-05 | CHIP FERRITE | |
| C765-767 | | | CK73HB1A104K | CHIP C 0.10UF K | | L713 | | | L92-0163-05 | BEADS CORE | |
| C768 | | | CK73HB1H102K | CHIP C 1000PF K | | L714-717 | | | L92-0444-05 | CHIP FERRITE | |
| C771 | | | CK73HB1A224K | CHIP C 0.22UF K | | L718 | | | L92-0408-05 | CHIP FERRITE | |
| C772 | | | CK73HB1E103K | CHIP C 0.010UF K | | L719 | | | L33-1494-05 | SMALL FIXED INDUCTOR | |
| C775 | | | CC73HCH1H470J | CHIP C 47PF J | | | | | | | |
| C777 | | | CK73HB1H102K | CHIP C 1000PF K | | X101 | | | L77-1802-05 | CRYSTAL RESONATOR (32768HZ) | |
| C778 | | | CK73HB0J105K | CHIP C 1.0UF K | | X102 | | | L77-3015-05 | TCXO (18.432MHZ) | |
| C779 | | | CK73HB1E103K | CHIP C 0.010UF K | | R1 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| C780 | | | CK73HB1A224K | CHIP C 0.22UF K | | R2 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| C781,782 | | | CK73HB0J105K | CHIP C 1.0UF K | | R3 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| C785 | | | CK73HB1A224K | CHIP C 0.22UF K | | R4-10 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| C786 | | | CK73HB1E103K | CHIP C 0.010UF K | | R11 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| C787 | | | CK73HB0J105K | CHIP C 1.0UF K | | R12 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| C788 | | | CC73HCH1H150J | CHIP C 15PF J | | R14 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| C789 | | | CC73HCH1H680J | CHIP C 68PF J | | R15 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| C790 | | | CK73HB1A104K | CHIP C 0.10UF K | | R16 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| C791 | | | CK73HB1A393K | CHIP C 0.039UF K | | R17 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| C792 | | | CK73HB0J105K | CHIP C 1.0UF K | | R18 | | | RK73HB1J822J | CHIP R 8.2K J 1/16W | |
| C793,794 | | | CK73HB1A104K | CHIP C 0.10UF K | | R19 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| C795 | | | CK73HB1E103K | CHIP C 0.010UF K | | R20 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| C796 | | | CK73HB1A104K | CHIP C 0.10UF K | | R21 | | | RK73HB1J122J | CHIP R 1.2K J 1/16W | |
| C797 | | | CK73HB0J105K | CHIP C 1.0UF K | | R22-24 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| C798 | | | CS77AP1A100M | CHIP TNTL 10UF 10WV | | R25 | | | RK73HB1J122J | CHIP R 1.2K J 1/16W | |
| C799 | | | CK73HB1A104K | CHIP C 0.10UF K | | R26 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| C800 | | | CK73HB1H152K | CHIP C 1500PF K | | R27 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| C801 | | | CK73HB1C223K | CHIP C 0.022UF K | | R28,29 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| C802 | | | CK73HB1E103K | CHIP C 0.010UF K | | R30 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| C803 | | | CK73HB1H102K | CHIP C 1000PF K | | R31 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| C804 | | | CC73HCH1H470J | CHIP C 47PF J | | R32-35 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| C805,806 | | | CK73HB1H471K | CHIP C 470PF K | | R40 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| C808 | | | CK73GB0J475K | CHIP C 4.7UF K | | R101,102 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| C809 | | | CK73FB1A106K | CHIP C 10UF K | | R103 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| C812 | | | CK73HB0J105K | CHIP C 1.0UF K | | R105 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| CN1 | | | E40-6755-05 | FLAT CABLE CONNECTOR | | R106 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | K6 |
| CN22 | | | E23-1325-05 | TERMINAL | | R107 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| CN23 | | | E40-6758-05 | PIN ASSY | | R108 | | | RK73HB1J474J | CHIP R 470K J 1/16W | K6 |
| CN24 | | | E23-1325-05 | TERMINAL | | R110,111 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| CN403 | | | E40-6813-05 | PIN ASSY | | R112 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | K6 |
| CN404 | | | E40-6421-15 | PIN ASSY | | R113 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| CN405 | | | E40-6754-05 | FLAT CABLE CONNECTOR | | R114 | | | RK73HB1J331J | CHIP R 330 J 1/16W | K6 |
| CN701 | | | E40-6586-05 | SOCKET FOR PIN ASSY | | R115 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| CN710 | | | E40-6757-05 | PIN ASSY | | R116 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| - | | | F15-1016-04 | SHIELDING PLATE | | R117 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | K6 |
| F701 | | | F53-0360-05 | FUSE (0.25A) | | R118 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| CN401 | | | J19-5386-05 | HOLDER (LITHIUM CELL) | | R119 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| L1,2 | | | L92-0408-05 | CHIP FERRITE | | R120 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L3 | | | L92-0140-05 | CHIP FERRITE | | R121-123 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| L4-7 | | | L92-0408-05 | CHIP FERRITE | | R126 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| | | | | | | R127,128 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| | | | | | | R129-131 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |

PARTS LIST

CONTROL UNIT (X53-4432-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation |
|----------|---------|-----------|--------------|---------------------|--------------|----------|---------|-----------|--------------|---------------------|--------------|
| R132,133 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R441 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R135-137 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R442 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R138 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R443 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R139 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R444 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R140 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R445 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R141-143 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R446 | | | RK73HB1J274J | CHIP R 270K J 1/16W | |
| R144 | | | RK73HB1J471J | CHIP R 470 J 1/16W | | R447 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R145-147 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R448 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R148 | | | RK73HB1J151J | CHIP R 150 J 1/16W | | R449-452 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R149 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R453 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R150 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R454 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R153,154 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R455 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R155 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R456 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R156,157 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R457,458 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R158,159 | | | RK73HB1J220J | CHIP R 22 J 1/16W | | R459,460 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R160,161 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R461 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R162 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R462 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R163 | | | RK73HH1J104D | CHIP R 100K D 1/16W | | R463 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R165 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R464 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R166 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R465,466 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R167 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R467 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R168 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R468 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R170 | | | RK73HH1J103D | CHIP R 10K D 1/16W | | R469 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R171-173 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R470 | | | RK73HB1J183J | CHIP R 18K J 1/16W | |
| R174-178 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R471 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R180,181 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R472 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R182 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R473 | | | RK73HB1J333J | CHIP R 3.3K J 1/16W | |
| R183 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R474,475 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R184 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R477,478 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R185 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R479 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R186 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R481 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R187 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R483 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R188 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R484 | | | RK73HB1J223J | CHIP R 22K J 1/16W | |
| R189 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R485 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R190 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R487-490 | | | RK73HH1J223D | CHIP R 22K D 1/16W | |
| R191 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R491 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R192 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R492 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R193,194 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R493 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R401 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | K6 | R494-497 | | | RK73HH1J104D | CHIP R 100K D 1/16W | |
| R402 | | | RK73HB1J151J | CHIP R 150 J 1/16W | | R500 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R403 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | K6 | R501 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R404 | | | RK73HB1J151J | CHIP R 150 J 1/16W | | R502,503 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R405 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | K6 | R504 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R406 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R506 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R407,408 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R507-511 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R409 | | | RK73HB1J470J | CHIP R 47 J 1/16W | | R512 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R410-416 | | | RK73HB1J471J | CHIP R 470 J 1/16W | | R513-515 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R417 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R516 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R418 | | | RK73HB1J471J | CHIP R 470 J 1/16W | | R517 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R419,420 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R518 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R424 | | | RK73HH1J683D | CHIP R 68K D 1/16W | | R519-528 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R425 | | | RK73HH1J333D | CHIP R 33K D 1/16W | | R529-531 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R426-429 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R532 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R431 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R533-535 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R432,433 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R536-540 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R434 | | | RK73HB1J393J | CHIP R 39K J 1/16W | | R541 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R435,436 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R543 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R437 | | | RK73HB1J471J | CHIP R 470 J 1/16W | | R544 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R438,439 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R545 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R440 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R546,547 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |

PARTS LIST

CONTROL UNIT (X53-4432-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|--------------|---------------------|-------------|----------|---------|-----------|--------------|-------------------------|-------------|
| R548,549 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R794 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R550 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R795 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R701-707 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R796 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R709-715 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R797 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R716 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R798 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R717-722 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R799 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R723 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R800 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R724 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R801 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R725 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R802 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R726 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R803 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R727-729 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R804 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R730 | | | RK73HB1J471J | CHIP R 470 J 1/16W | | R805,806 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R731,732 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R807 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R733 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R808 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R735 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R809 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R736 | | | RK73HB1J823J | CHIP R 82K J 1/16W | | R810 | | | RK73HB1J332J | CHIP R 3.3K J 1/16W | |
| R737 | | | RK73HB1J153J | CHIP R 15K J 1/16W | | R811 | | | RK73HB1J823J | CHIP R 82K J 1/16W | |
| R738 | | | RK73HB1J563J | CHIP R 56K J 1/16W | | R812 | | | RK73HB1J562J | CHIP R 5.6K J 1/16W | |
| R739 | | | RK73HB1J823J | CHIP R 82K J 1/16W | | R813 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R740 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R814 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R741 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R815 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R742,743 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R816 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R744 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R818 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R745 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | | R819,820 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R746 | | | RK73HB1J563J | CHIP R 56K J 1/16W | | R821 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R747 | | | RK73HB1J333J | CHIP R 33K J 1/16W | | R822,823 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R748 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R824 | | | RK73HB1J393J | CHIP R 39K J 1/16W | |
| R749 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R825 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R750 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R826 | | | RK73HB1J334J | CHIP R 330K J 1/16W | |
| R752 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R827 | | | RK73HB1J184J | CHIP R 180K J 1/16W | |
| R753 | | | RK73HB1J683J | CHIP R 68K J 1/16W | | R828,829 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R754 | | | RK73HB1J564J | CHIP R 560K J 1/16W | | R830 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| R755 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R831 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R756 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R832 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R757 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R833 | | | RK73HB1J684J | CHIP R 680K J 1/16W | |
| R758 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R834 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R759 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R835 | | | RK73HB1J153J | CHIP R 15K J 1/16W | |
| R761-764 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R836 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R765 | | | RK73HB1J334J | CHIP R 330K J 1/16W | | R837 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R766 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R838 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R767 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R839 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| R768 | | | RK73HB1J224J | CHIP R 220K J 1/16W | | R840 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R769,770 | | | RK73HB1J334J | CHIP R 330K J 1/16W | | R841 | | | RK73HB1J564J | CHIP R 560K J 1/16W | |
| R771 | | | RK73HB1J153J | CHIP R 15K J 1/16W | | R842 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R775 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R843 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R777 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R844 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R778 | | | RK73HB1J333J | CHIP R 33K J 1/16W | | R845 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R779 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R846 | | | RK73HB1J471J | CHIP R 470 J 1/16W | |
| R780 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R847 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | |
| R782 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R848 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | K5 |
| R783 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R849,850 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | K6 |
| R784 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R850 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | K5 |
| R785 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | | R851,852 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R786 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R856 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R787 | | | RK73HB1J124J | CHIP R 120K J 1/16W | | | | | | | |
| R788 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | VR1 | 2B | | R31-0666-05 | VARIABLE RESISTOR (VOL) | |
| R789 | | | RK73HB1J154J | CHIP R 150K J 1/16W | | S1 | 2B | | S60-0437-05 | ROTARY SWITCH (CH) | |
| R790 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | | | | | | |
| R791 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | D11 | | | MA2S111-F | DIODE | |
| R793 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | D12-16 | | | 1SS416 | DIODE | |

PARTS LIST

CONTROL UNIT (X53-4432-XX)
TX-RX UNIT (X57-7830-12)

| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | |
|-----------|---------|-----------|---------------|-------------------|--------------|---------------------------------|---------|---------------|----------------------|------------------|----------------|--|
| D17 | | | EMZ6.8N | ZENER DIODE | K6 | IC717 | | | XC9235A15CM1 | MOS-IC | K6 K6 K6 | |
| D18,19 | | | HZC6.8-E | ZENER DIODE | | Q1 | | | 2SA1362-F (GR) | TRANSISTOR | | |
| D20,21 | | | NNCD6.8G-A | ZENER DIODE | | Q2 | | | 2SC4617 (S) | TRANSISTOR | | |
| D22,23 | | | DA221 | DIODE | | Q3,4 | | | SSM3K15TE (F) | FET | | |
| D101 | | | MA2S111-F | DIODE | | Q5 | | | 2SJ347F | FET | | |
| D102 | | | 1SS416 | DIODE | | Q101 | | | 2SA1832 (GR)F | TRANSISTOR | | |
| D401-405 | | | 1SS388F | DIODE | | Q102 | | | 2SC4617 (S) | TRANSISTOR | | |
| D406 | | | HRB0502A | DIODE | | Q103 | | | SSM3K15TE (F) | FET | | |
| D407 | | | MA2S111-F | DIODE | | Q401,402 | | | SSM6N16FE-F | FET | | |
| D408 | | | 1SS301F | DIODE | | Q403 | | | 2SJ648-A | FET | | |
| D409,410 | | | MA2S111-F | DIODE | | Q404 | | | SSM3K15TE (F) | FET | | |
| D411 | | | 1SS416 | DIODE | | Q405 | | | SSM6N16FE-F | FET | | |
| D412 | | | 1SS301F | DIODE | | Q406 | | | 2SB1132 (Q,R) | TRANSISTOR | | |
| D413 | | | 1SS388F | DIODE | | Q407 | | | UMG3N | TRANSISTOR | | |
| D414,415 | | | 1SS416 | DIODE | | Q408 | | | EMD12 | TRANSISTOR | | |
| D416,417 | | | 1SS388F | DIODE | | Q409 | | | 2SA1955A-F | TRANSISTOR | | |
| D701 | | | 1SS301F | DIODE | | Q410 | | | SSM3K15TE (F) | FET | | |
| D702 | | | MA2S111-F | DIODE | | Q411 | | | SSM6N16FE-F | FET | | |
| D703-706 | | | RB706F-40 | DIODE | | Q412 | | | SSM3K15TE (F) | FET | | |
| D707 | | | DA221 | DIODE | | Q413 | | | 2SA1955A-F | TRANSISTOR | | |
| IC1 | | | NJM2130F3-ZB | BI-POLAR IC | | Q414,415 | | | EMD12 | TRANSISTOR | | |
| IC101 | | | Note 1 | ROM IC | | Q701 | | | 2SA1832 (GR)F | TRANSISTOR | | |
| IC102 | | | Note 1 | MICROPROCESSOR IC | | Q702,703 | | | SSM3K15TE (F) | FET | | |
| IC103 | | | Note 1 | SRAM IC | | Q704 | | | 2SC4617 (S) | TRANSISTOR | | |
| IC104 | | | TC7SH08FU-F | MOS-IC | | Q705 | | | 2SC4738 (GR)F | TRANSISTOR | | |
| IC105 | | | XC6109C29ANN | ANALOGUE IC | | Q706 | | | 2SA1832 (GR)F | TRANSISTOR | | |
| IC106 | | | RV5C386A | MOS-IC | | Q707 | | | 2SJ243-A | FET | | |
| IC107 | | | SM5023CNDH-G | MOS-IC | | TH1 | | | ERTJ0EV104H | THERMISTOR | | |
| IC108 | | | Note 1 | MOS-IC | | TH701 | | | ERTJ0EV104H | THERMISTOR | | |
| IC109 | | | TC7SH08FU-F | MOS-IC | | TX-RX UNIT (X57-7830-12) | | | | | | |
| IC401 | | | TC74LCX245FK | MOS-IC | | D900 | | | B30-2278-05 | LED (RED/YELLOW) | | |
| IC402 | | | TC7WZ245FK-F | MOS-IC | | C500 | | | CK73HB1A104K | CHIP C 0.10UF K | | |
| IC403 | | | LM2682MMX | MOS-IC | | C501 | | | CC73HCH1H101J | CHIP C 100PF J | | |
| IC404 | | | XC6204B332D | MOS-IC | | C502 | | | CK73HB1H471K | CHIP C 470PF K | | |
| IC406 | | | XC6204B332M | MOS-IC | | C503 | | | CK73HB1A104K | CHIP C 0.10UF K | | |
| IC407 | | | LT1616ES6-PBF | ANALOGUE IC | | C504 | | | CK73HB1C103K | CHIP C 0.010UF K | | |
| IC408 | | | TC75S51FE (F) | MOS-IC | | C505 | | | CC73HCH1H101J | CHIP C 100PF J | | |
| IC409 | | | TC7W66FK-F | MOS-IC | | C506 | | | CC73HCH1H100C | CHIP C 10PF C | | |
| IC411 | | | NJM2880U105ZB | ANALOGUE IC | | C508 | | | CK73HB1C103K | CHIP C 0.010UF K | | |
| IC412,413 | | | TPA6201A1DRBR | ANALOGUE IC | | C509 | | | CC73HCH1H100C | CHIP C 10PF C | | |
| IC414 | | | XC61CC5602NR | MOS-IC | C511 | | | CK73FB0J106K | CHIP C 10UF K | | | |
| IC415 | | | TC7SET08FU-F | MOS-IC | C512 | | | CK73HB1C103K | CHIP C 0.010UF K | | | |
| IC416 | | | S-812C31BPI-G | ANALOGUE IC | C513 | | | CC73HCH1H101J | CHIP C 100PF J | | | |
| IC417 | | | TC7WH126FK | MOS-IC | C514,515 | | | CK73HB1C103K | CHIP C 0.010UF K | | | |
| IC418 | | | TC7WT125FUF | MOS-IC | C517-519 | | | CC73HCH1H101J | CHIP C 100PF J | | | |
| IC701 | | | Note 1 | MOS-IC | C520 | | | CK73GB1E105K | CHIP C 1.0UF K | | | |
| IC702 | | | TC75W51FK (F) | MOS-IC | C521 | | | CC73HCH1H101J | CHIP C 100PF J | | | |
| IC703 | | | M62364FP-F | MOS-IC | C522 | | | CK73HB1A104K | CHIP C 0.10UF K | | | |
| IC704 | | | TC75S51FE (F) | MOS-IC | C523,524 | | | CC73HCH1H101J | CHIP C 100PF J | | | |
| IC705 | | | TC75W51FK (F) | MOS-IC | C525 | | | CC73HCH1H470J | CHIP C 47PF J | | | |
| IC706 | | | TC75S51FE (F) | MOS-IC | C526 | | | CK73HB1A104K | CHIP C 0.10UF K | | | |
| IC707 | | | TC7W53FK (F) | MOS-IC | C527,528 | | | CC73HCH1H101J | CHIP C 100PF J | | | |
| IC708 | | | XC6209B502PR | MOS-IC | C533 | | | CK73HB1H471K | CHIP C 470PF J | | | |
| IC709 | | | TC7W53FK (F) | MOS-IC | C534 | | | CC73HCH1H101J | CHIP C 100PF J | | | |
| IC710,711 | | | TC75W51FK (F) | MOS-IC | C535 | | | CS77AA1VR15M | CHIP TNL 0.15UF 35WV | | | |
| IC712 | | | TC7S66FUF | MOS-IC | | | | | | | | |
| IC713 | | | TC75W51FK (F) | MOS-IC | | | | | | | | |
| IC714 | | | TC7W53FK (F) | MOS-IC | | | | | | | | |
| IC715 | | | TC75S51FE (F) | MOS-IC | | | | | | | | |
| IC716 | | | TC75W51FK (F) | MOS-IC | | | | | | | | |

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

PARTS LIST

TX-RX UNIT (X57-7830-12)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|------------------------|-------------|----------|---------|-----------|---------------|------------------|-------------|
| C536 | | | CC73HCH1H470J | CHIP C 47PF J | | C632 | | | CK73HB1H471K | CHIP C 470PF K | |
| C539 | | | CS77BA1D100M | CHIP TNTL 10UF 20WV | | C634-637 | | | CK73HB1H471K | CHIP C 470PF K | |
| C541 | | | C92-0863-05 | CHIP TNTL 0.047UF 35WV | | C639 | | | CC73HCH1H150J | CHIP C 15PF J | |
| C542 | | | C93-0787-05 | CERAMIC 0.1UF 50WV | | C640 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C543 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C641 | | | CC73HCH1H100C | CHIP C 10PF C | |
| C545 | | | CK73HB1H471K | CHIP C 470PF K | | C642,643 | | | CC73HCH1H151J | CHIP C 150PF J | |
| C546 | | | CK73HB1H472K | CHIP C 4700PF K | | C645 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C547 | | | CK73HB1H471K | CHIP C 470PF K | | C646 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C548 | | | CC73HCH1H101J | CHIP C 100PF J | | C648,649 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C550 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C651 | | | CK73HB1H471K | CHIP C 470PF K | |
| C553 | | | CC73HCH1H101J | CHIP C 100PF J | | C653 | | | CK73HB1H471K | CHIP C 470PF K | |
| C554 | | | CC73HCH1H470J | CHIP C 47PF J | | C660 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C555 | | | CK73HB0J105K | CHIP C 1.0UF K | | C661 | | | CK73HB1H471K | CHIP C 470PF K | |
| C556,557 | | | CK73HB1H471K | CHIP C 470PF K | | C662 | | | CC73GCH1H030B | CHIP C 3.0PF B | |
| C561 | | | CK73HB1C103K | CHIP C 0.010UF K | | C663 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C562 | | | CK73HB0J105K | CHIP C 1.0UF K | | C664 | | | CC73GCH1H090B | CHIP C 9.0PF B | |
| C563 | | | CC73HCH1H101J | CHIP C 100PF J | | C665 | | | CC73GCH1H3R5B | CHIP C 3.5PF B | |
| C565 | | | CC73HCH1H820J | CHIP C 82PF J | | C666 | | | CC73GCH1H100C | CHIP C 10PF C | |
| C566 | | | CC73HCH1H101J | CHIP C 100PF J | | C667 | | | CC73GCH1H3R5B | CHIP C 3.5PF B | |
| C567 | | | CC73HCH1H010B | CHIP C 1.0PF B | | C668 | | | CC73GCH1H100C | CHIP C 10PF C | |
| C568 | | | CC73HCH1H0R5B | CHIP C 0.5PF B | | C669 | | | CC73GCH1H040B | CHIP C 4.0PF B | |
| C570 | | | CC73HCH1HR75B | CHIP C 0.75PF B | | C670 | | | CK73HB1H471K | CHIP C 470PF K | |
| C571 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C671 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C572 | | | CK73FB0J106K | CHIP C 10UF K | | C689-691 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C573 | | | CC73HCH1H060B | CHIP C 6.0PF B | | C693 | | | CK73GB1C224K | CHIP C 0.22UF K | |
| C574 | | | CC73HCH1H030B | CHIP C 3.0PF B | | C700 | | | CC73HCH1H070B | CHIP C 7.0PF B | |
| C575,576 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C701 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C577 | | | CK73HB1H471K | CHIP C 470PF K | | C702 | | | CC73HCH1H820J | CHIP C 82PF J | |
| C578 | | | CK73GB0J475K | CHIP C 4.7UF K | | C703 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C579 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C704 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C580 | | | CK73HB1H471K | CHIP C 470PF K | | C705 | | | CK73FB1E475K | CHIP C 4.7UF K | |
| C581 | | | CC73HCH1H0R5B | CHIP C 0.5PF B | | C706 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C582 | | | CK73HB1H471K | CHIP C 470PF K | | C707 | | | CC73HCH1H680J | CHIP C 68PF J | |
| C583 | | | CC73HCH1H0R5B | CHIP C 0.5PF B | | C708 | | | CC73HCH1H101J | CHIP C 100PF J | |
| C584,585 | | | CK73HB1H471K | CHIP C 470PF K | | C709-711 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C586 | | | CC73HCH1H100B | CHIP C 10PF B | | C712 | | | CC73HCH1H680J | CHIP C 68PF J | |
| C587 | | | CK73HB1H471K | CHIP C 470PF K | | C713 | | | CK73FB1A106K | CHIP C 10UF K | |
| C588 | | | CC73HCH1H040B | CHIP C 4.0PF B | | C714 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C600 | | | CK73HB1A104K | CHIP C 0.10UF K | | C715 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C601 | | | CC73HCH1H101J | CHIP C 100PF J | | C717 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C602 | | | CK73HB1A104K | CHIP C 0.10UF K | | C718 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C603 | | | CC73HCH1H100B | CHIP C 10PF B | | C719 | | | CK73FB1A106K | CHIP C 10UF K | |
| C604,605 | | | CK73HB1H471K | CHIP C 470PF K | | C720 | | | CC73HCH1H100B | CHIP C 10PF B | |
| C607 | | | CC73HCH1H070B | CHIP C 7.0PF B | | C721 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C609 | | | CC73GCH1H030B | CHIP C 3.0PF B | | C722 | | | CC73HCH1H470G | CHIP C 47PF G | |
| C610-612 | | | CK73HB1H471K | CHIP C 470PF K | | C723,724 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C613 | | | CC73HCH1H060B | CHIP C 6.0PF B | | C725 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C614,615 | | | CK73HB1H471K | CHIP C 470PF K | | C727,728 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C617,618 | | | CK73HB1H471K | CHIP C 470PF K | | C729 | | | CK73FB1E474K | CHIP C 0.47UF K | |
| C619 | | | CK73HB1A104K | CHIP C 0.10UF K | | C730 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C621 | | | CC73HCH1H100C | CHIP C 10PF C | | C732 | | | CK73HB1H471K | CHIP C 470PF K | |
| C622 | | | CK73HB1H471K | CHIP C 470PF K | | C733,734 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C623 | | | CC73HCH1H120J | CHIP C 12PF J | | C735 | | | CC73HCH1H470G | CHIP C 47PF G | |
| C625 | | | CK73HB1H471K | CHIP C 470PF K | | C736 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C626 | | | CK73HB1A104K | CHIP C 0.10UF K | | C737 | | | CC73HCH1H020B | CHIP C 2.0PF B | |
| C627 | | | CC73HCH1H180J | CHIP C 18PF J | | C738 | | | CC73HCH1H220G | CHIP C 22PF G | |
| C628 | | | CC73HCH1H100C | CHIP C 10PF C | | C739 | | | CC73HCH1H060B | CHIP C 6.0PF B | |
| C629 | | | CK73HB1H471K | CHIP C 470PF K | | C740,741 | | | CK73HB1C103K | CHIP C 0.010UF K | |
| C630 | | | CK73GB1E105K | CHIP C 1.0UF K | | C742 | | | CK73FB1A475K | CHIP C 4.7UF K | |
| C631 | | | CS77AA1A6R8M | CHIP TNTL 6.8UF 10WV | | C743 | | | CK73HB1C103K | CHIP C 0.010UF K | |

PARTS LIST

TX-RX UNIT (X57-7830-12)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|------------------|-------------|----------|---------|-----------|---------------|-------------------------------|-------------|
| C744,745 | | | CK73HB1H471K | CHIP C 470PF K | | C948,949 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C746,747 | | | CC73HCH1H090B | CHIP C 9.0PF B | | C950 | | | C92-0765-05 | CHIP TINTL 4.7UF 16WV | |
| C748 | | | CK73HB1H471K | CHIP C 470PF K | | C951 | | | CK73GB1C224K | CHIP C 0.22UF K | |
| C749 | | | CC73HCH1H040B | CHIP C 4.0PF B | | C952 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C750 | | | CK73HB1C103K | CHIP C 0.010UF K | | C953 | | | CK73HB1A104K | CHIP C 0.10UF K | |
| C751 | | | CC73HCH1H180J | CHIP C 18PF J | | C954 | | | CK73GB1C224K | CHIP C 0.22UF K | |
| C752 | | | CK73HB1H471K | CHIP C 470PF K | | C955,956 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C753 | | | CC73HCH1H020B | CHIP C 2.0PF B | | C957,958 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C754 | | | CC73HCH1H150J | CHIP C 15PF J | | C961 | | | CK73HB1H471K | CHIP C 470PF K | |
| C755 | | | CC73HCH1H050B | CHIP C 5.0PF B | | C962 | | | CC73HCH1E181J | CHIP C 180PF J | |
| C756 | | | CK73HB1H471K | CHIP C 470PF K | | C963 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C758 | | | CK73HB1H471K | CHIP C 470PF K | | C964,965 | | | CK73GB1C224K | CHIP C 0.22UF K | |
| C759,760 | | | CK73HB1A104K | CHIP C 0.10UF K | | C966 | | | CC73HCH1H220J | CHIP C 22PF J | |
| C761 | | | CK73GB1E105K | CHIP C 1.0UF K | | C967 | | | CK73HB1H471K | CHIP C 470PF K | |
| C765 | | | CK73HB1H471K | CHIP C 470PF K | | C968 | | | CK73GB1C224K | CHIP C 0.22UF K | |
| C766 | | | CK73GB1H104K | CHIP C 0.10UF K | | C969 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C767 | | | CC73HCH1H180J | CHIP C 18PF J | | C970,971 | | | CK73HB1H102K | CHIP C 1000PF K | |
| C768 | | | CC73HCH1H010B | CHIP C 1.0PF B | | C972-974 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C769 | | | CK73HB1H471K | CHIP C 470PF K | | C975 | | | C93-0899-05 | CERAMIC 9.0PF 50WV | |
| C770 | | | CC73HCH1H020B | CHIP C 2.0PF B | | C976 | | | CC73HCH1H470J | CHIP C 47PF J | |
| C771 | | | CK73HB1H471K | CHIP C 470PF K | | C977 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C772 | | | CC73HCH1H220J | CHIP C 22PF J | | C980 | | | CK73GB1E105K | CHIP C 1.0UF K | |
| C773 | | | CC73HCH1HR75B | CHIP C 0.75PF B | | C981 | | | CK73HB1A474K | CHIP C 0.47UF K | |
| C774 | | | CC73HCH1H0R5B | CHIP C 0.5PF B | | C987 | | | CC73HCH1H050B | CHIP C 5.0PF B | |
| C775 | | | CK73HB1H471K | CHIP C 470PF K | | C990 | * | | C93-0943-05 | CERAMIC 22PF 50WV | |
| C776 | | | CC73HCH1H220J | CHIP C 22PF J | | C991 | | | C93-0937-05 | CERAMIC 12PF 50WV | |
| C777,778 | | | CK73HB1H471K | CHIP C 470PF K | | C993 | | | C93-0951-05 | CERAMIC 47PF 50WV | |
| C779 | | | CK73HB1C103K | CHIP C 0.010UF K | | C994 | | | C93-0941-05 | CERAMIC 18PF 50WV | |
| C782 | | | CC73HCH1H0R5B | CHIP C 0.5PF B | | CN600 | | | E23-1326-05 | TERMINAL | |
| C783 | | | CK73GB1E105K | CHIP C 1.0UF K | | CN601 | | | E23-1167-05 | TERMINAL | |
| C784-786 | | | CK73HB1H471K | CHIP C 470PF K | | CN737 | | | E40-6358-05 | SOCKET FOR PIN ASSY | |
| C788 | | | CK73GB1H104K | CHIP C 0.10UF K | | CN900 | | | E40-6422-15 | SOCKET FOR PIN ASSY | |
| C789 | | | CK73HB1H471K | CHIP C 470PF K | | CN901 | | | E40-6752-05 | FLAT CABLE CONNECTOR | |
| C790 | | | CK73HB1A104K | CHIP C 0.10UF K | | CN902 | | | E23-1326-05 | TERMINAL | |
| C791 | | | CK73HB1H471K | CHIP C 470PF K | | F900 | | | F53-0324-05 | FUSE (2.5A) | |
| C792 | | | CK73HB1A104K | CHIP C 0.10UF K | | CF700 | | | L72-1017-05 | CERAMIC FILTER | |
| C794,795 | | | CK73HB1H471K | CHIP C 470PF K | | CF701 | | | L72-1020-05 | CERAMIC FILTER | |
| C796 | | | CC73HCH1H270J | CHIP C 27PF J | | L500 | | | L41-4795-39 | SMALL FIXED INDUCTOR (4.7UH) | |
| C798 | | | CC73HCH1H010B | CHIP C 1.0PF B | | L503 | | | L92-0163-05 | BEADS CORE | |
| C799 | | | CK73HB1H471K | CHIP C 470PF K | | L504 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| C800 | | | CC73HCH1H010B | CHIP C 1.0PF B | | L508,509 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| C801 | | | CK73HB1H471K | CHIP C 470PF K | | L514-519 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| C803 | | | CC73HCH1H040B | CHIP C 4.0PF B | | L520 | | | L40-2778-67 | SMALL FIXED INDUCTOR (27NH) | |
| C804 | | | CC73HCH1H220J | CHIP C 22PF J | | L521 | | | L40-3978-67 | SMALL FIXED INDUCTOR (39NH) | |
| C807 | | | CC73HCH1H030B | CHIP C 3.0PF B | | L522 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| C810 | | | CC73HCH1H030B | CHIP C 3.0PF B | | L523 | | | L92-0446-05 | BEADS CORE | |
| C811 | | | CK73HB1H471K | CHIP C 470PF K | | L524-526 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| C813,814 | | | CC73HCH1H270J | CHIP C 27PF J | | L527 | | | L92-0446-05 | BEADS CORE | |
| C849 | | | CK73HB1H471K | CHIP C 470PF K | | L528 | | | L40-3975-71 | SMALL FIXED INDUCTOR (39NH) | |
| C900 | | | CK73GB1H102K | CHIP C 1000PF K | | L530 | | | L40-1875-57 | SMALL FIXED INDUCTOR (18.0NH) | |
| C901,902 | | | CK73HB1H471K | CHIP C 470PF K | | L598,599 | | | L92-0163-05 | BEADS CORE | |
| C903 | | | CK73GB1H471K | CHIP C 470PF K | | L600 | | | L40-3375-92 | SMALL FIXED INDUCTOR (33NH) | |
| C904-908 | | | CC73HCH1H470J | CHIP C 47PF J | | L602 | | | L40-3975-92 | SMALL FIXED INDUCTOR (39NH) | |
| C910 | | | CC73HCH1H470J | CHIP C 47PF J | | L603 | | | L40-2775-92 | SMALL FIXED INDUCTOR (27NH) | |
| C912-920 | | | CC73HCH1H470J | CHIP C 47PF J | | L604 | | | L92-0138-05 | CHIP FERRITE | |
| C922,923 | | | CC73HCH1H470J | CHIP C 47PF J | | L605 | | | L40-1875-92 | SMALL FIXED INDUCTOR (18NH) | |
| C925-943 | | | CC73HCH1H470J | CHIP C 47PF J | | L606 | | | L41-2275-43 | SMALL FIXED INDUCTOR (22NH) | |
| C944 | | | CK73HB1H471K | CHIP C 470PF K | | L607 | | | L92-0149-05 | CHIP FERRITE | |
| C945,946 | | | CC73HCH1H470J | CHIP C 47PF J | | | | | | | |
| C947 | | | CK73HB1H471K | CHIP C 470PF K | | | | | | | |

PARTS LIST

TX-RX UNIT (X57-7830-12)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|--------------|-------------------------------|-------------|----------|---------|-----------|--------------|---------------------|-------------|
| L609 | | | L34-4575-05 | AIR-CORE COIL | | R554,555 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| L610 | | | L92-0149-05 | CHIP FERRITE | | R557 | | | RK73HB1J152J | CHIP R 1.5K J 1/16W | |
| L611 | | | L41-2285-43 | SMALL FIXED INDUCTOR (220NH) | | R558 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| L612-614 | | | L34-4564-05 | AIR-CORE COIL | | R559 | | | RK73HB1J181D | CHIP R 180 D 1/16W | |
| L615 | | | L40-3375-57 | SMALL FIXED INDUCTOR (33.0NH) | | R560 | | | RK73HB1J820J | CHIP R 82 J 1/16W | |
| L701 | | | L40-5681-86 | SMALL FIXED INDUCTOR (0.56UH) | | R561 | | | RK73HH1J221D | CHIP R 220 D 1/16W | |
| L703 | | | L41-4778-45 | SMALL FIXED INDUCTOR (47NH) | | R562 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| L704 | | | L40-1891-86 | SMALL FIXED INDUCTOR (1.8UH) | | R563 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| L705,706 | | | L92-0138-05 | CHIP FERRITE | | R564 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| L707 | | | L41-2785-39 | SMALL FIXED INDUCTOR (0.27UH) | | R565 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| L708 | | | L41-5685-39 | SMALL FIXED INDUCTOR (0.56UH) | | R566 | | | RK73HH1J474D | CHIP R 470K D 1/16W | |
| L709,710 | | | L40-2275-92 | SMALL FIXED INDUCTOR (22NH) | | R567 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| L711 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | | R570,571 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L713-715 | | | L41-1878-14 | SMALL FIXED INDUCTOR (18NH) | | R572 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| L716 | | | L92-0138-05 | CHIP FERRITE | | R573 | | | RK73HB1J684J | CHIP R 680K J 1/16W | |
| L717 | | | L41-2285-14 | SMALL FIXED INDUCTOR (220NH) | | R574-576 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L721 | | | L41-1578-14 | SMALL FIXED INDUCTOR (15NH) | | R577 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| L722 | | | L41-1878-14 | SMALL FIXED INDUCTOR (18NH) | | R580,581 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L723 | | | L34-4565-05 | AIR-CORE COIL | | R583 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L727 | | | L40-6865-92 | SMALL FIXED INDUCTOR (6.8NH) | | R586 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| L780 | | | L40-1085-57 | SMALL FIXED INDUCTOR (100NH) | | R589,590 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L900 | | | L92-0149-05 | CHIP FERRITE | | R599 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| L901 | | | L33-1462-05 | SMALL FIXED INDUCTOR | | R600 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| L902 | | | L40-2702-86 | SMALL FIXED INDUCTOR (27UH) | | R601 | | | RK73HB1J183J | CHIP R 18K J 1/16W | |
| L903 | | | L41-6869-16 | SMALL FIXED INDUCTOR (6.8NH) | | R602 | | | RK73HB1J124J | CHIP R 120K J 1/16W | |
| X500 | | | L77-3016-05 | TCXO (19.2MHZ) | | R603 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| XF700 | | | L71-0640-05 | MCF (58.05MHZ) | | R604 | | | RK73HB1J682J | CHIP R 6.8K J 1/16W | |
| R430 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R605 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R431,432 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R606 | | | RK73HB1J271J | CHIP R 270 J 1/16W | |
| R500,501 | | | RN73HH1J104D | CHIP R 100K D 1/16W | | R607 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | |
| R502 | | | RK73HB1J683J | CHIP R 68K J 1/16W | | R608 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R503 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R610 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R504 | | | RK73HB1J393J | CHIP R 39K J 1/16W | | R612 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | |
| R505 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R613 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R506 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R616 | | | RK73HB1J181J | CHIP R 180 J 1/16W | |
| R511-514 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R617 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R515 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R618 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R519 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R619 | | | RK73HB1J821J | CHIP R 820 J 1/16W | |
| R520 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R620 | | | RK73HB1J5R6J | CHIP R 5.6 J 1/16W | |
| R522 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R621 | | | RK73HB1J821J | CHIP R 820 J 1/16W | |
| R523 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R622 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R527 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R623 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R529 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R624 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R530 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R626 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R531 | | | RK73HB1J683J | CHIP R 68K J 1/16W | | R627,628 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R532 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R629 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R533 | | | RK73HH1J224D | CHIP R 220K D 1/16W | | R630 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R534 | | | RK73HH1J473D | CHIP R 47K D 1/16W | | R631 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R535 | | | RK73HB1J151J | CHIP R 150 J 1/16W | | R632 | | | RK73HB1J183J | CHIP R 18K J 1/16W | |
| R536 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R633 | | | RK73HB1J101J | CHIP R 100 J 1/16W | |
| R537 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R634 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R538 | | | RK73HH1J391D | CHIP R 390 D 1/16W | | R635 | | | RK73HB1J561J | CHIP R 560 J 1/16W | |
| R539 | | | RK73HB1J106J | CHIP R 10M J 1/16W | | R636 | | | RK73HB1J331J | CHIP R 330 J 1/16W | |
| R541 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R639 | | | RK73HB1J393J | CHIP R 39K J 1/16W | |
| R546 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R641 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R547 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R642 | | | RK73EB2ER39K | CHIP R 0.39 K 1/4W | |
| R548 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R644 | | | RK73HB1J220J | CHIP R 22 J 1/16W | |
| R550 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R645 | | | RK73EB2ER39K | CHIP R 0.39 K 1/4W | |
| R552 | | | RK73HB1J683J | CHIP R 68K J 1/16W | | R646 | | | RK73HB1J333J | CHIP R 33K J 1/16W | |
| | | | | | | R647 | | | RK73EB2ER39K | CHIP R 0.39 K 1/4W | |

PARTS LIST

TX-RX UNIT (X57-7830-12)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|--------------|---------------------|-------------|----------|---------|-----------|--------------|----------------------------|-------------|
| R648,649 | | | RK73HH1J154D | CHIP R 150K D 1/16W | | R764 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R650 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R765 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R651-654 | | | RK73HH1J274D | CHIP R 270K D 1/16W | | R768 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R655 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R770 | | | RK73HB1J680J | CHIP R 68 J 1/16W | |
| R656 | | | RK73HB1J563J | CHIP R 56K J 1/16W | | R771 | | | RK73HB1J151J | CHIP R 150 J 1/16W | |
| R657 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R772 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R658 | | | RK73HB1J821J | CHIP R 820 J 1/16W | | R775 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R659 | | | RK73HB1J474J | CHIP R 470K J 1/16W | | R778 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R660 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R779 | | | RK73HB1J683J | CHIP R 68K J 1/16W | |
| R661 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R780 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R664 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R781 | | | RK73HB1J182J | CHIP R 1.8K J 1/16W | |
| R665,666 | | | RK73HB1J271J | CHIP R 270 J 1/16W | | R783 | | | RK73HB1J224J | CHIP R 220K J 1/16W | |
| R667 | | | RK73EB2E823J | CHIP R 82K J 1/4W | | R784 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R670 | | | RK73HB1J224J | CHIP R 220K J 1/16W | | R785 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| R671 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R786 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R701 | | | RK73HB1J561J | CHIP R 560 J 1/16W | | R788 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | |
| R702 | | | RK73HB1J334J | CHIP R 330K J 1/16W | | R791 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R703 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R792 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R704 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R794,795 | | | RK73HB1J103J | CHIP R 10K J 1/16W | |
| R705 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R796 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R709 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R797 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R712 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R798 | | | RK73HB1J470J | CHIP R 47 J 1/16W | |
| R714 | | | RK73HB1J100J | CHIP R 10 J 1/16W | | R799 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R717 | | | RK73HB1J473J | CHIP R 47K J 1/16W | | R802 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R718 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R900 | | | RK73HB1J391J | CHIP R 390 J 1/16W | |
| R719 | | | RK73HB1J274J | CHIP R 270K J 1/16W | | R901 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R720 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | | R902 | | | RK73HB1J100J | CHIP R 10 J 1/16W | |
| R721 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R903 | | | RK73HB1J821J | CHIP R 820 J 1/16W | |
| R722 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R904 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R724 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R905 | | | RK73HB1J330J | CHIP R 33 J 1/16W | |
| R725 | | | RK73HB1J223J | CHIP R 22K J 1/16W | | R906 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R726 | | | RK73HB1J183J | CHIP R 18K J 1/16W | | R907 | | | RK73GB2A100J | CHIP R 10 J 1/10W | |
| R727 | | | RK73HB1J222J | CHIP R 2.2K J 1/16W | | R908 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R728 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R909 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R730 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R910-912 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R731 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | R913 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R733 | | | RK73HB1J564J | CHIP R 560K J 1/16W | | R914 | | | RK73HB1J154J | CHIP R 150K J 1/16W | |
| R735 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | R915-917 | | | RK73HB1J474J | CHIP R 470K J 1/16W | |
| R736 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R918 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R737 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R920,921 | | | RK73HB1J473J | CHIP R 47K J 1/16W | |
| R738 | | | RK73HB1J272J | CHIP R 2.7K J 1/16W | | R922 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R739 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R923 | | | RK73HB1J123J | CHIP R 12K J 1/16W | |
| R740 | | | RK73HB1J470J | CHIP R 47 J 1/16W | | R925 | | | RK73HH1J334D | CHIP R 330K D 1/16W | |
| R742 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R926 | | | RK73HH1J223D | CHIP R 22K D 1/16W | |
| R743 | | | RK73HB1J681J | CHIP R 680 J 1/16W | | R927 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R744 | | | RK73HB1J221J | CHIP R 220 J 1/16W | | R928 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R745 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | | R929 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R746 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R931 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R747 | | | RK73HB1J154J | CHIP R 150K J 1/16W | | R932 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R748 | | | RK73HB1J104J | CHIP R 100K J 1/16W | | R933 | | | RK73HB1J102J | CHIP R 1.0K J 1/16W | |
| R749 | | | RK73HB1J224J | CHIP R 220K J 1/16W | | R934 | | | RK73HB1J273J | CHIP R 27K J 1/16W | |
| R750 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | | R950,951 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R752,753 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | | R954 | | | RK73GB2A000J | CHIP R 0.0 J 1/10W | |
| R755 | | | RK73HB1J472J | CHIP R 4.7K J 1/16W | | R955-958 | | | RK73HB1J000J | CHIP R 0.0 J 1/16W | |
| R757 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | R959 | | | RK73HB1J104J | CHIP R 100K J 1/16W | |
| R758 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | S1 | | | S70-0483-05 | TACT SWITCH | |
| R759,760 | | | RK73HB1J105J | CHIP R 1.0M J 1/16W | | D501 | | | HSC119 | DIODE | |
| R761 | | | RK73HB1J101J | CHIP R 100 J 1/16W | | D505 | | | DA221 | DIODE | |
| R762 | | | RK73HB1J103J | CHIP R 10K J 1/16W | | D506,507 | | | 1SV325F | VARIABLE CAPACITANCE DIODE | |
| R763 | | | RK73HB1J824J | CHIP R 820K J 1/16W | | | | | | | |

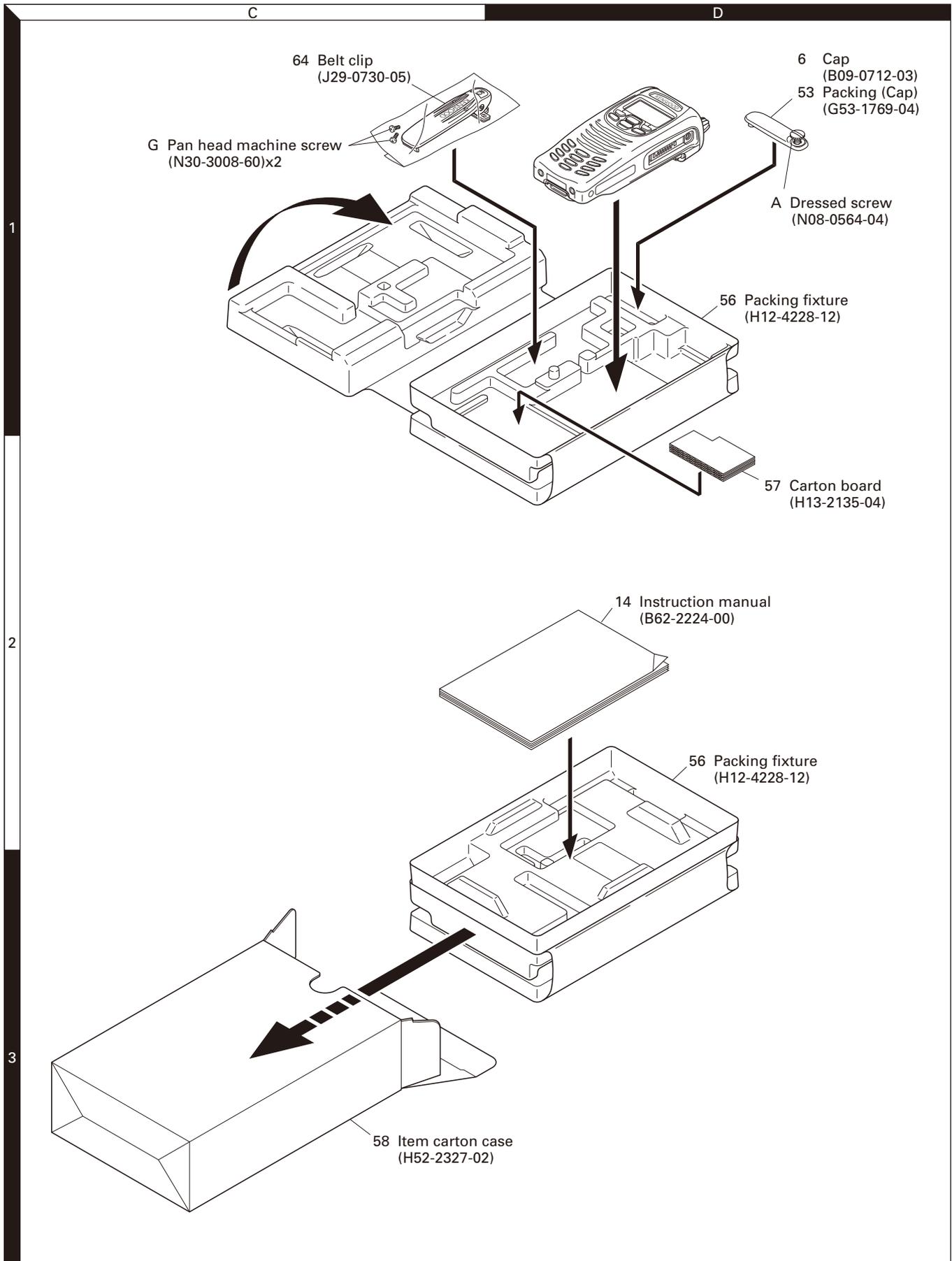
NX-300

PARTS LIST

TX-RX UNIT (X57-7830-12)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|----------------|----------------------------|-------------|-----------|---------|-----------|-------------|-------------|-------------|
| D510 | | | 1SV290B-F | VARIABLE CAPACITANCE DIODE | | TH600,601 | | | ERTJ0EV104H | THERMISTOR | |
| D511 | | | 1SV290B-F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D514,515 | | | 1SV290B-F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D516,517 | | | 1SV290B-F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D518 | | | HSC119 | DIODE | | | | | | | |
| D519 | | | 1SV278F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D600,601 | | | HSC277 | DIODE | | | | | | | |
| D604 | | | HZU2ALL | ZENER DIODE | | | | | | | |
| D605 | | | HZU4ALL | ZENER DIODE | | | | | | | |
| D606,607 | | | HVC131 | DIODE | | | | | | | |
| D611 | | | HSC119 | DIODE | | | | | | | |
| D700 | | | HSC119 | DIODE | | | | | | | |
| D702-704 | | | 1SV286F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D705 | | | HSC119 | DIODE | | | | | | | |
| D706 | | | 1SV286F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D708 | | | 1SV286F | VARIABLE CAPACITANCE DIODE | | | | | | | |
| D709 | | | HVC131 | DIODE | | | | | | | |
| D711-713 | | | HVC131 | DIODE | | | | | | | |
| D901 | | | 1SR154-400 | DIODE | | | | | | | |
| D902 | | | HSC119 | DIODE | | | | | | | |
| IC404 | | | TC75W51FUF | MOS-IC | | | | | | | |
| IC500 | | | LM73CIMKX-0 | MOS-IC | | | | | | | |
| IC501 | | | TLV2381IDBV | MOS-IC | | | | | | | |
| IC502 | | | SKY72300-362 | MOS-IC | | | | | | | |
| IC503 | | | TLV2381IDBV | MOS-IC | | | | | | | |
| IC504 | | | TC75W51FUF | MOS-IC | | | | | | | |
| IC600 | | | TA75W01FUF | MOS-IC | | | | | | | |
| IC700 | | | MCP6021-E/OT | MOS-IC | | | | | | | |
| IC701 | | | TK10931VTL-G | ANALOGUE IC | | | | | | | |
| IC702 | | | TLV2381IDBV | MOS-IC | | | | | | | |
| IC900 | | | TC75S51FE (F) | MOS-IC | | | | | | | |
| IC901 | | | XC9101D09AKR | ANALOGUE IC | | | | | | | |
| IC902 | | | TK11250CUCB | MOS-IC | | | | | | | |
| IC903 | | | TK71733S | BI-POLAR IC | | | | | | | |
| Q503 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q504 | | | 2SK879-F (Y) | FET | | | | | | | |
| Q507 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q508,509 | | | 2SK508NV (K52) | FET | | | | | | | |
| Q510 | | | SSM6L05FU-F | FET | | | | | | | |
| Q511 | | | 2SJ347F | FET | | | | | | | |
| Q512 | | | 2SC5636 | TRANSISTOR | | | | | | | |
| Q600,601 | | | 2SC5636 | TRANSISTOR | | | | | | | |
| Q602 | | | 2SK3077F | FET | | | | | | | |
| Q603 | | | RD01MUS1-T113 | FET | | | | | | | |
| Q604 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q605 | | | SSM3K15TE (F) | FET | | | | | | | |
| Q606 | | * | RD07MUS2BT112 | FET | | | | | | | |
| Q607 | | | RT1N441U-T111 | TRANSISTOR | | | | | | | |
| Q608 | | | 2SK1824-A | FET | | | | | | | |
| Q610 | | | EMD5 | TRANSISTOR | | | | | | | |
| Q700 | | | 2SC5108 (Y)F | TRANSISTOR | | | | | | | |
| Q701 | | | 2SC4215-F (Y) | TRANSISTOR | | | | | | | |
| Q703 | | | 3SK318 | FET | | | | | | | |
| Q704 | | | 2SC5383-T111 | TRANSISTOR | | | | | | | |
| Q705 | | | 3SK318 | FET | | | | | | | |
| Q706 | | | 2SK1830F | FET | | | | | | | |
| Q900 | | | UMG9N | TRANSISTOR | | | | | | | |
| Q901-903 | | | SSM6L05FU-F | FET | | | | | | | |
| Q904 | | | SSM5H01TU-F | FET | | | | | | | |
| Q905 | | | 2SA1955A-F | TRANSISTOR | | | | | | | |

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

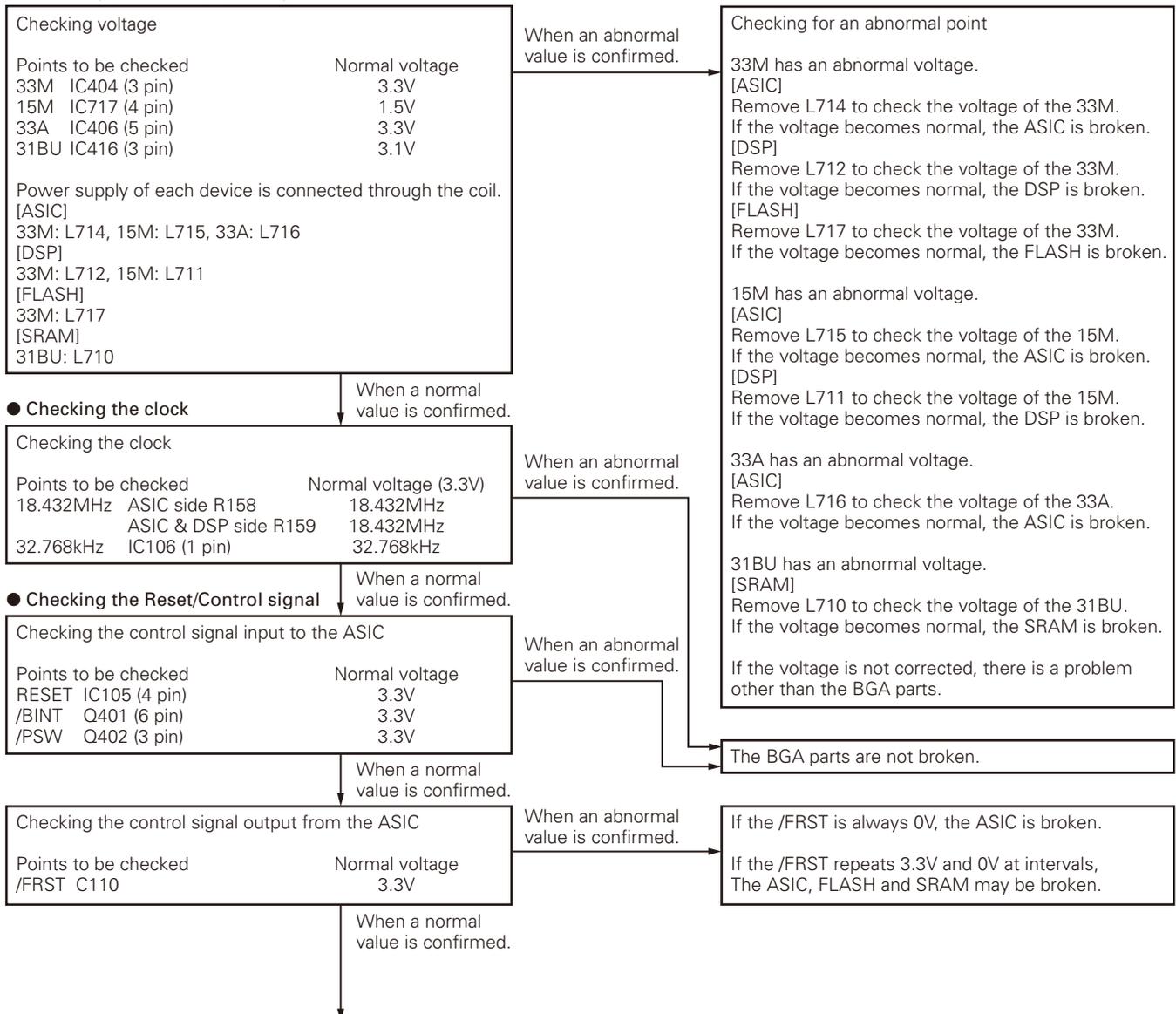
ASIC (IC108), DSP (IC102), FLASH (IC101), SRAM (IC103)

When the BGA IC is problematic, please bring the printed circuit board (X53-4432-71 for 6-key, X53-4432-72 for 18-key) in for service. Various ESN/default adjustment values are written on the printed circuit board for service.

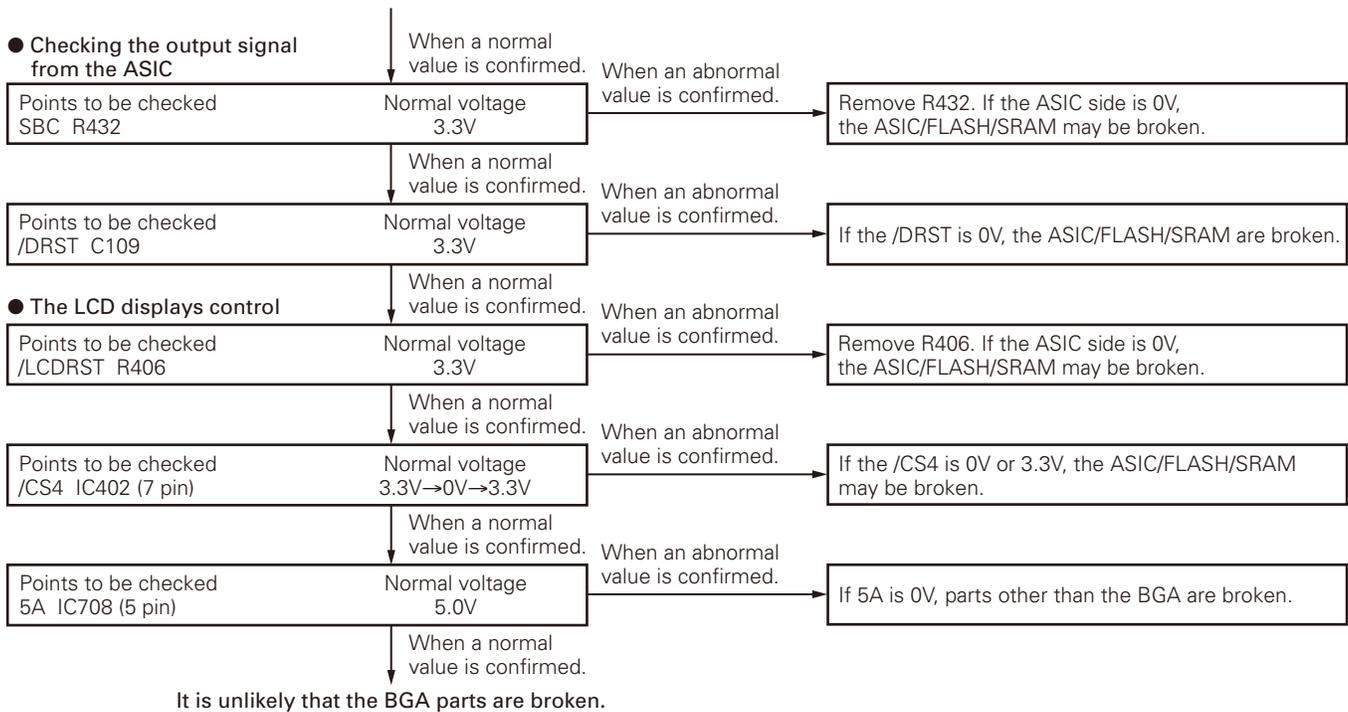
Additionally various ESN stickers are included. (Please refer to pages 23 and 24.)

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.

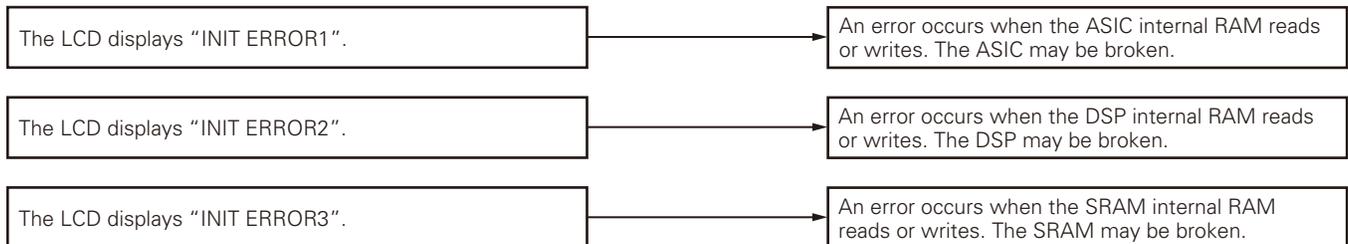
● Checking power supply voltage



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 Control Unit

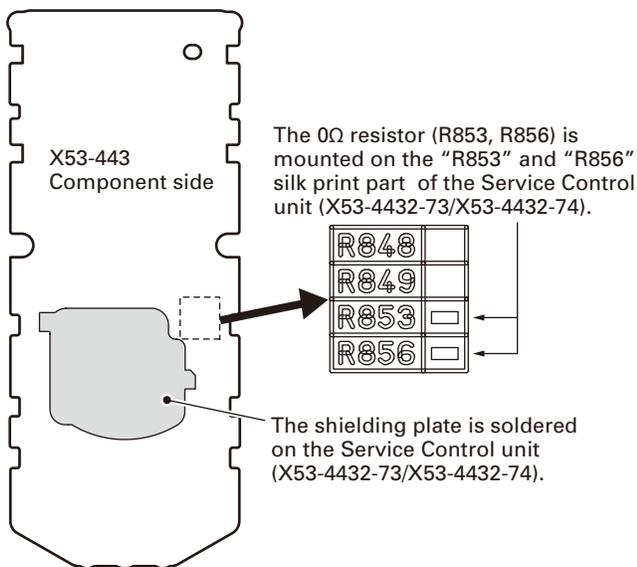
■ Control unit Information

| Model Name | Original Control unit Number | For Service Control unit Number |
|---------------------|------------------------------|---------------------------------|
| NX-300 (K5: 6-key) | X53-4432-71 | X53-4432-73 |
| NX-300 (K6: 18-key) | X53-4432-72 | X53-4432-74 |

Note:

The control unit for K5 and K6 types is common with the control unit for the European market.

■ Method of confirming "Original Control unit" and "Service Control unit"



| X53-443 | R848 | R849 | R853 | R856 |
|---------|--------|--------|--------|------|
| 2-71 | 0Ω | (None) | (None) | 0Ω |
| 2-72 | (None) | 0Ω | (None) | 0Ω |
| 2-73 | 0Ω | (None) | 0Ω | 0Ω |
| 2-74 | (None) | 0Ω | 0Ω | 0Ω |

Note:

- The 0Ω resistor (R848, R849, R853 and R856) 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 these resistors.
- There is no difference between the schematic diagram of the Service Control unit (X53-4432-73/X53-4432-74) and the schematic diagram of the original Control unit (X53-4432-71/X53-4432-72). (R848, R849, R853 and R856 are connected with GND (ground) only.)

■ Supplied Accessories of "Service Control unit"

| Item (Including Part Number) | Quantity |
|------------------------------|----------|
| | Kx |
| Control Unit (X53-443) | 1 |
| Kenwood ESN Label | 1 |
| NXDN ESN Label | 1 |
| MPT ESN Label *1 | 1 |
| Addendum (B59-2576-XX) | 1 |

*1: The MPT ESN label is not used in this transceiver.

Note:

- "Kx" refers to a K-type series (K5 for example).

■ "Service Control unit" Data

The following data is written on the service control unit:

| Data Type | Description |
|--|--|
| Firmware | NX-200/300 Firmware. |
| FPU Data (PC programming mode) | X53-443 (NX-300) Ex type data. |
| Various Adjustment Data (PC Test mode) | General adjustment values for the X53-443 (NX-300). |
| Kenwood ESN | Model Name: [X53-443] NX-xxxS Type: Ex The same number as the Kenwood ESN label is written. |
| NXDN ESN/ MPT ESN/ | The same number as the NXDN ESN/ MPT ESN label is written. |

■ After Changing the PCB

- After changing the printed circuit board, write the up-to-date Firmware following the instructions in the "REALIGNMENT - 6.Firmware Programming Mode".
- 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.

Note:

Because this Control unit (for service) is common with a European model, it is not possible to read out data before writing K-type FPU data by the KPG-111D.

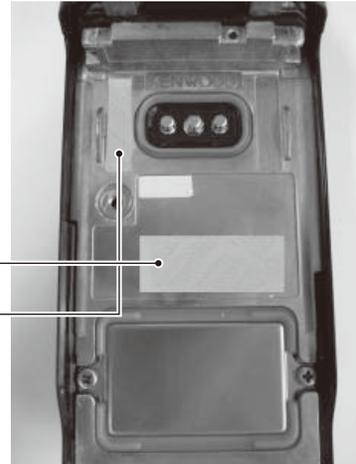
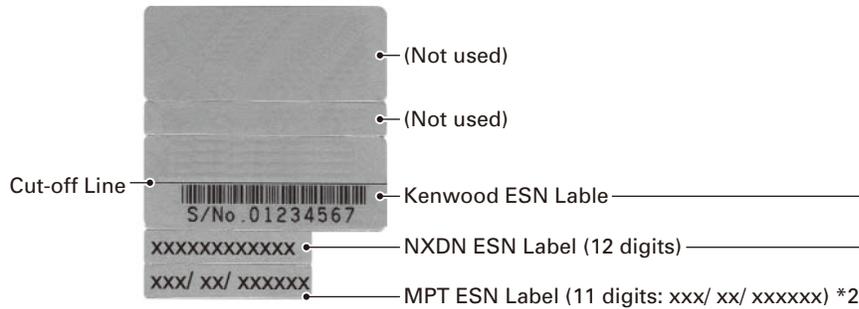
- Enter Program> Test Mode, then adjust the various adjustment data (PC Test Mode) as described in the "ADJUSTMENT".
- Attach the new labels corresponding to the new printed circuit board. (Refer to the images on page 24 for label placement.)
- If necessary, write the FPU data used by the customer with the KPG-111D.

TROUBLE SHOOTING

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.

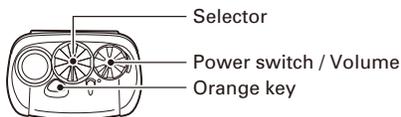


*2: The MPT ESN label is not used in this transceiver.

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: [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: [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 presses 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: [icon] appears |
| [>] | Beat shift on/off | On: [icon] appears |
| [Orange] | Function off | - |
| [PTT] | Transmit | - |
| [0] to [9] and [#], [*] | Function off | - |

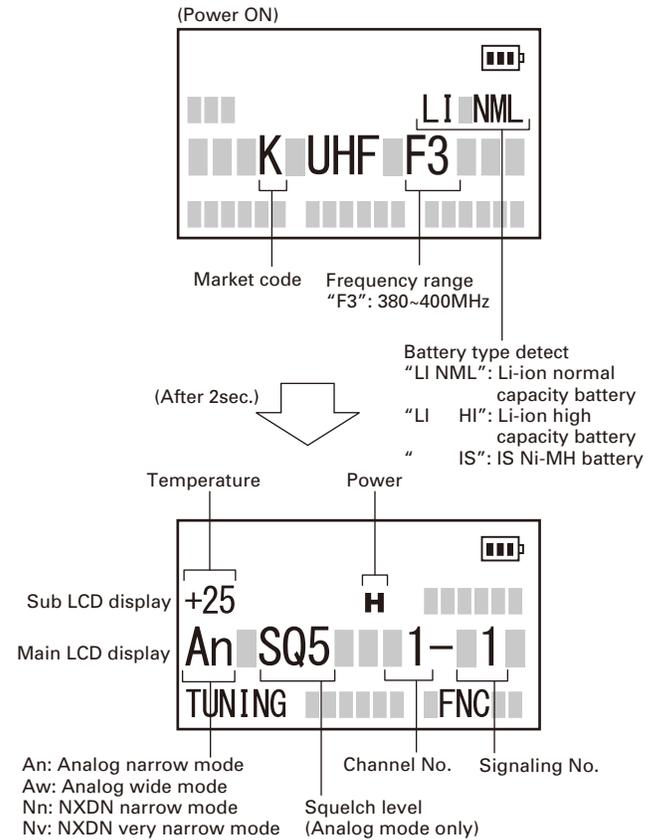
• LED indicator

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 | 390.05000 | 390.10000 |
| 2 | 380.05000 | 380.10000 |
| 3 | 399.95000 | 399.90000 |
| 4 | 390.00000 | 390.00000 |
| 5 | 390.20000 | 390.20000 |
| 6 | 390.40000 | 390.40000 |
| 7 | 335.05000 | 335.10000 |
| 8 | 365.05000 | 365.10000 |
| 9~16 | - | - |

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 |
| 7 | None | FSW + PN9 (PC test mode only) |

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).

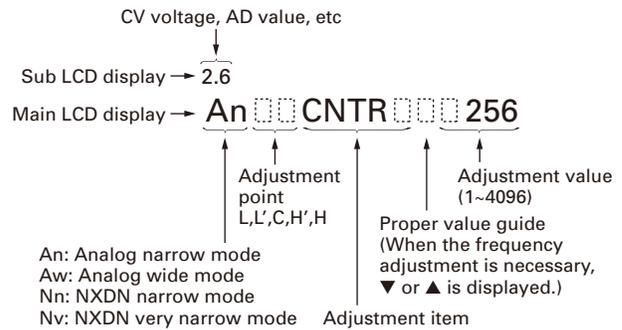
The speaker output connector must be terminated with a 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during tuning.

■ Transceiver tuning (To enter tuning mode)

To enter tuning mode, press the [Ⓜ] 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 [▶] key to select the adjustment item through tuning modes. Use the [⇒] 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 | - |
| [Ⓜ] | Shift to panel test mode | - |
| [⇒] | To enter 5 reference level adjustments | - |
| [<] | Writes the adjustment value | - |
| [▶] | 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 | 335.05000 | 335.10000 |
| Low' | 347.55000 | 347.60000 |
| Center | 365.05000 | 365.10000 |
| High' | 382.55000 | 382.60000 |
| High | 399.95000 | 399.90000 |

Note:

Although the frequency range of this transceiver is 380 to 400 MHz, the circuit and adjustments are designed under consideration of other market types.

When making adjustments, adjust at all frequency points following the service manual.

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. These adjustments can correct the volume variation. |
| Clockwise Volume | 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 | Not used (Set the adjustment value to 256.) |
| Sensitivity 2 | Band-Pass Filter is adjusted. The performance of Receive Sensitivity 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 | | | | |

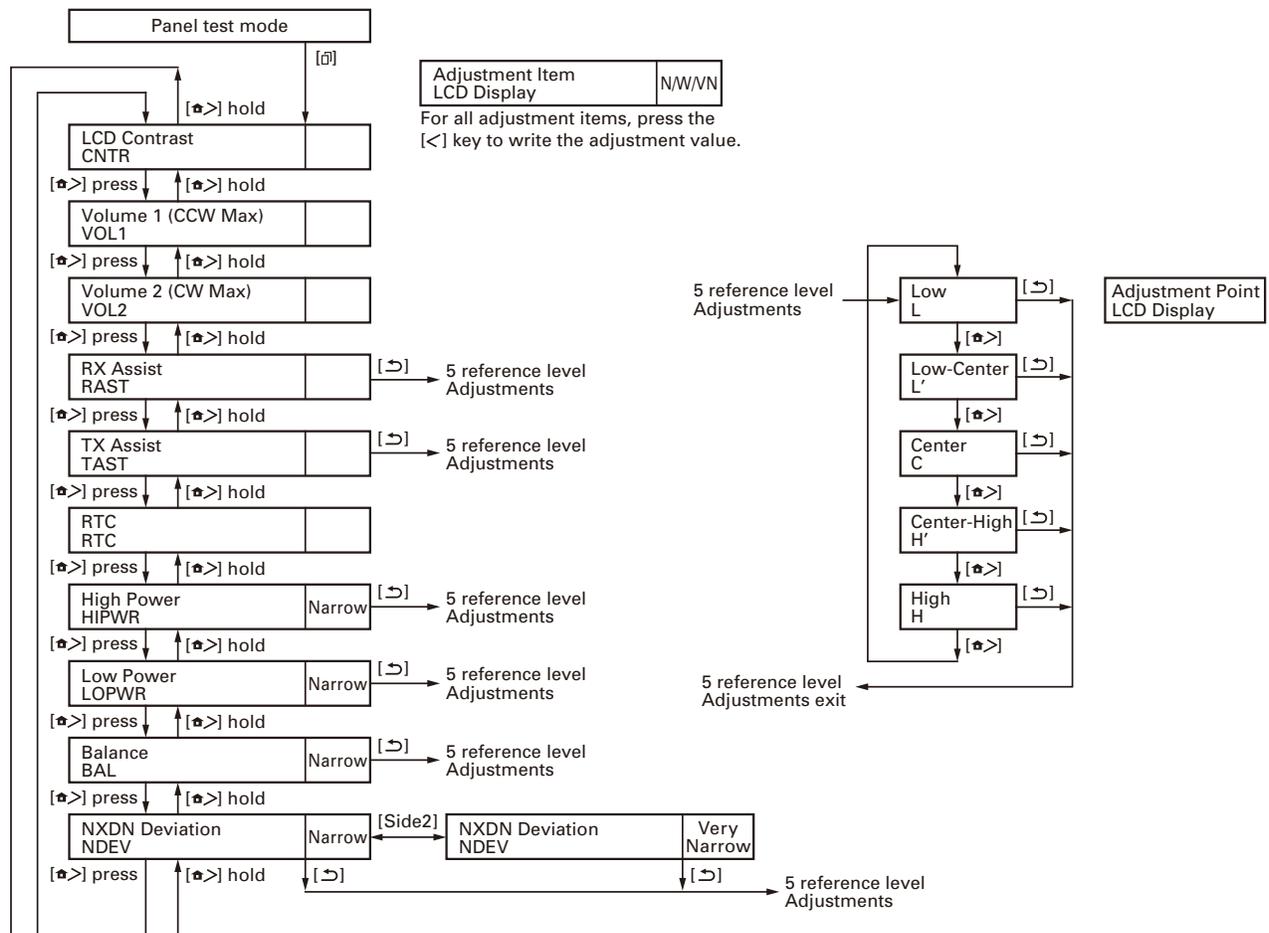
ADJUSTMENT

| 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 | | | | |

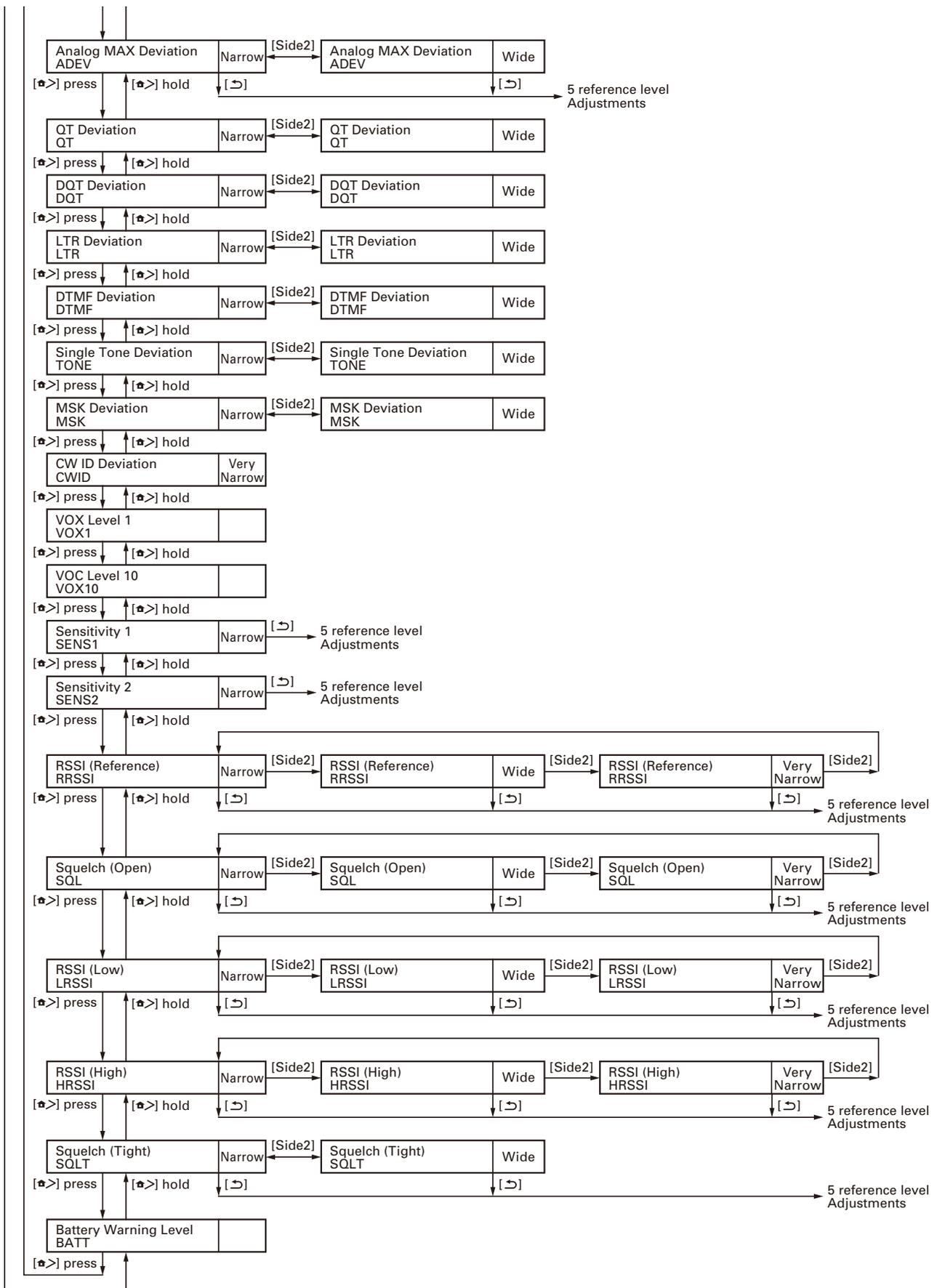
*1: Because NXDN Narrow is adjusted by adjusting Analog Narrow, it is not necessary to adjust NXDN Narrow.

■ 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. • 0.001ppm Use a standard oscillator for adjustments, if necessary. | 300 to 520MHz Frequency modulation and external modulation -127dBm/0.1μV to greater than -20dBm/22.4mV |
| 2. Power Meter | Input Impedance Operation Frequency Measurement Capability | 50Ω 300 to 520MHz Vicinity of 10W |
| 3. Deviation Meter | Frequency Range | 300 to 520MHz |
| 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.)

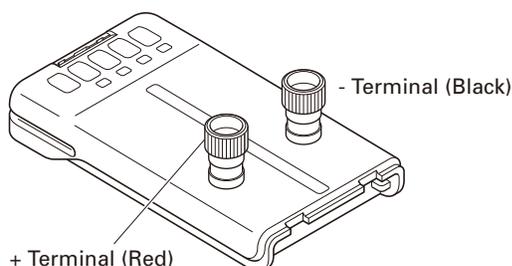
■ Nut wrench

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

KENWOOD part No.: W05-1123-00

■ Battery jig (W05-1370-00)

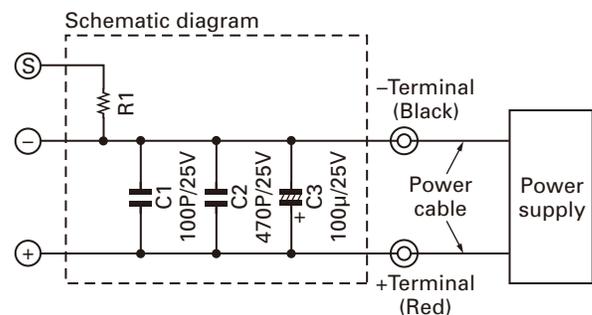
Connect the power cable properly between the battery jig installed in the transceiver and the power supply, and be sure output voltage and the power supply polarity prior to switching the power supply ON, otherwise over voltage and reverse connection may damage the transceiver, or the power supply or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



Note:

- When using the battery jig, you must measure the voltage at the terminals of the battery jig. Otherwise, a slight voltage drop may occur within the power cable, between the power supply and the battery jig, especially while the transceiver transmits.
- The battery jig is detected as "Li-ion High Capacity Battery".

Li-ion High Capacity Battery: R1=Open
Li-ion Normal Capacity Battery: R1=560kΩ



ADJUSTMENT

■ Universal connector

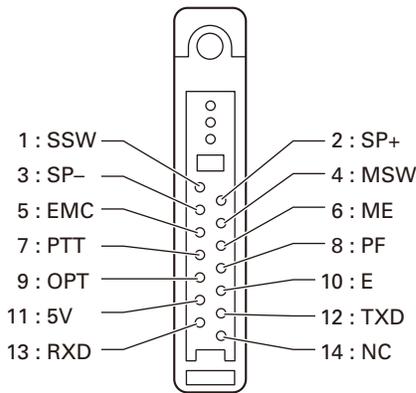
Use the interface cable (KPG-36/36A) for PC tuning or the lead wire with plug (E30-3287-28) and screw (N08-0535-08) for panel tuning. Connect the plug to the universal connector of the transceiver and tighten the screw.

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

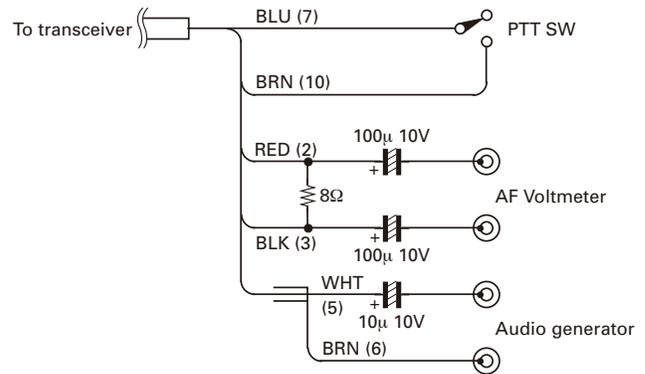
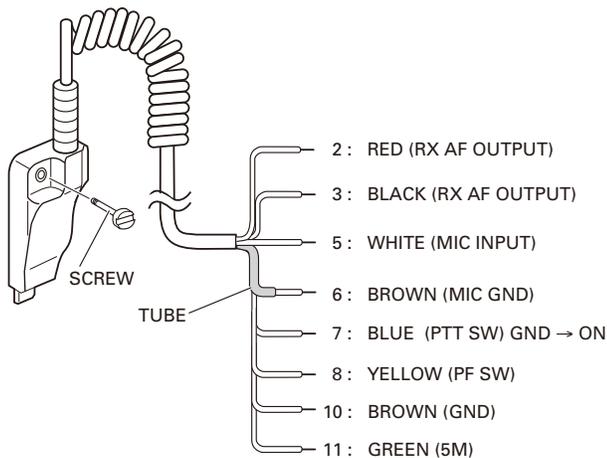
Caution

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

• Universal connector



• Panel tuning

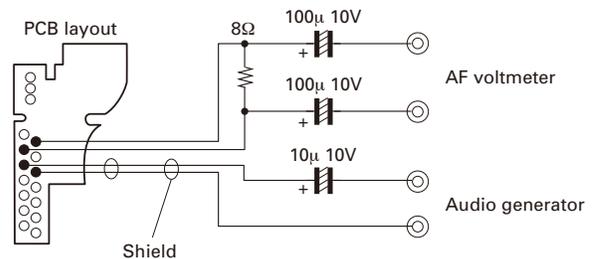
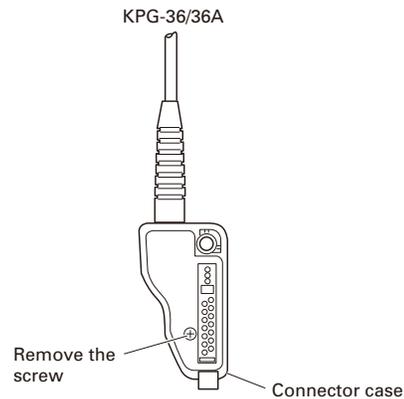


Note: Pin 1 (SSW) and Pin 4 (MSW) are connected to Pin 10 (GND) to active External SP and External MIC.

• PC tuning

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

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



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. | +0.05/+0.55ppm +19.51Hz~+214.56Hz @390.1MHz |
| 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 2.3A 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 1.2A 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) DC 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 (R31-0666-05) 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 0.001ppm 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: [****] | 1) Adj item: [High Transmit Power] | Power meter Ammeter | Panel | ANT | Panel | [Panel tuning mode] [<], [>] [PC test mode] [< , >] | 5.0W | ±0.2W 2.3A or less [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment point was adjusted. |
| | 2) Adj item: [L' HIPWR]→ [L' HIPWR]→ [C HIPWR]→ [H' HIPWR]→ [H HIPWR] Adjust: [****] PTT: ON Press [<] key to store the adjustment value. | 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 1.2A 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 page 41. 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: [*****] Deviation meter LPF: 15kHz HPF: OFF 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)] Deviation meter LPF: 15kHz HPF: OFF 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 page 41. 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] [∧], [∨] | 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. | | | | | [PC test mode] [◀],[▶] | 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. | | | | | | | |
| *4: Refer to the "Necessary Deviation adjustment item for each signaling and mode" table on page 41. | | | | | | | | | |
| 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. |

ADJUSTMENT

■ 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) | - |
| 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 Compander: Uncheck | 1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 Wide/Narrow: Narrow Beat Shift: Uncheck Compander: 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 |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|--|---|---|---|-------|----------------------------|------------|---|---|--------------------------|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 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. | SSG AF VTVM Oscilloscope | Panel | ANT Universal connector | Panel | [Panel tuning mode] [▶], [◀] [PC test mode] [◀], [▶] | Write the value as followings [L SENS1] / [Low] : 256 [L' SENS1] / [Low'] : 256 [C SENS1] / [Center] : 256 [H' SENS1] / [High'] : 256 [H SENS1] / [High] : 256 | |
| 3. Sensitivity 2 adjust | 1) Adj item: [SENS2] Adjust: [***] 2) Adj item: [L SENS2]→ [L' SENS2]→ [C SENS2]→ [H' SENS2]→ [H SENS2] Adjust: [***] SSG output: -90dBm (7.08μV) (MOD: 1kHz±1.5kHz) Press [◀] key to store the adjustment value. | 1) Adj item: [Sensitivity 2] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: -90dBm (7.08μV) (MOD: 1kHz±1.5kHz) Press [Apply All] button to store the adjustment value. | | | | | (The RSSI level is shown on the sub LCD display and PC window.) 1. Change the adjustment value to get the maximum RSSI level. 2. Increase the adjustment value to seek "NX-300 ADJ Point" of RSSI level. (Refer to right.) | | |
| 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 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 Narrow] | 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) | | | | | | | |

ADJUSTMENT

| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|---|---|---|---|-------|----------------------------|------------|-------|--|--|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| RSSI reference adjust *5 [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) | 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. | 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). | | | | | | | | | |
| 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. |
| [Analog Wide] | 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) | | | | | | | Adjust with the analog signal. This item is adjusted under the condition that MOD is “400Hz” and Deviation is “±1.1kHz” due to the circuit configuration. |
| *6: Because Open Squelch (NXDN Narrow) is adjusted by adjusting Open Squelch (Analog Narrow), it is not necessary to adjust Open Squelch (NXDN Narrow). | | | | | | | | | |

ADJUSTMENT

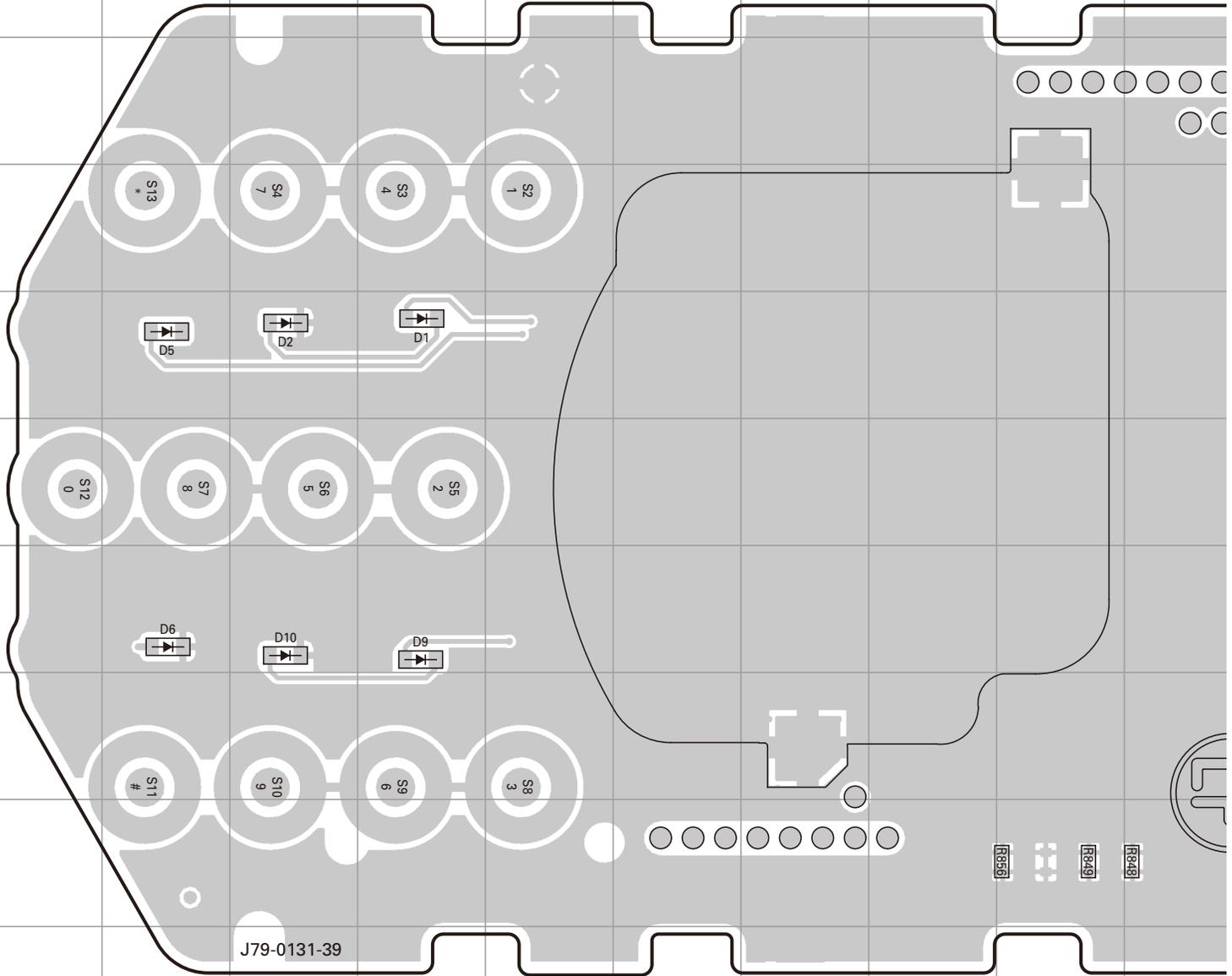
| Item | Condition | | Measurement | | | Adjustment | | | Specifications / Remarks |
|--|--|---|----------------|-------|----------------------------|------------|-------|--|--------------------------------|
| | Panel tuning mode | PC test mode | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 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. | |
| [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) | | | | | | | |
| [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) | | | | | | | Adjust with the analog signal. |
| *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. | |

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 [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) | 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. | |
| [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) | | | | | | | 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 +6dB (MOD: 1kHz/±1.5kHz) | 1) Adj item: [Tight Squelch (Analog Narrow)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level +6dB (MOD: 1kHz/±1.5kHz) | SSG | Panel | ANT 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 +6dB (MOD: 1kHz/±3kHz) | 1) Adj item: [Tight Squelch (Analog Wide)] 2) Adj item: [Low], [Low'], [Center], [High'], [High] SSG output: 12dB SINAD level +6dB (MOD: 1kHz/±3kHz) | | | | | | | |

NX-300 PC BOARD

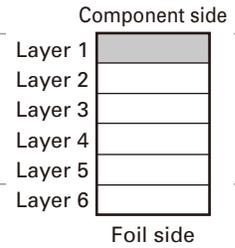
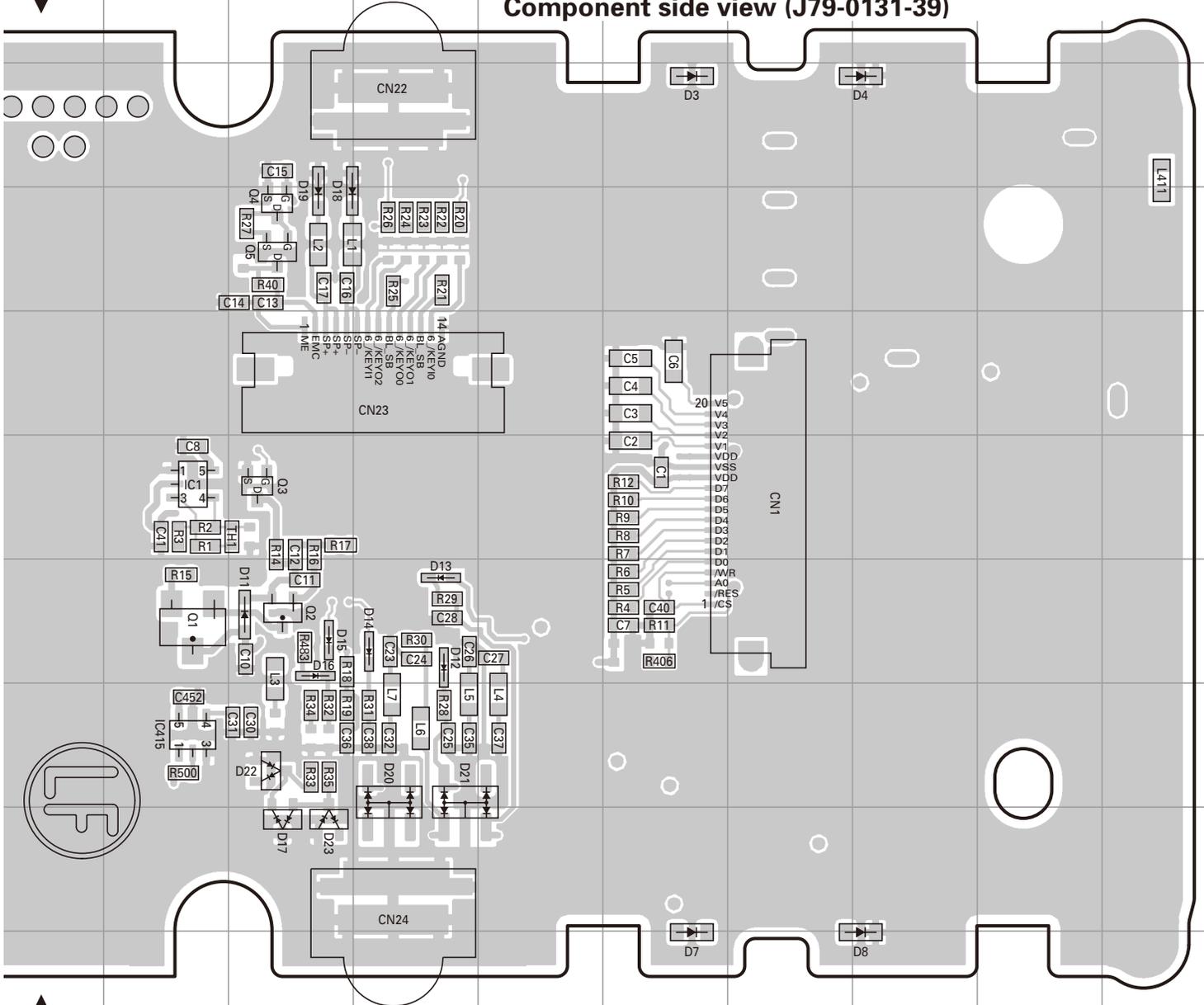
CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Component side view (J79-0131-39)



| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|
| IC1 | 6K | D4 | 3Q | D14 | 7M |
| IC415 | 8K | D5 | 5B | D15 | 7L |
| Q1 | 7K | D6 | 7B | D16 | 7L |
| Q2 | 7L | D7 | 10O | D17 | 9L |
| Q3 | 6L | D8 | 10Q | D18 | 4L |
| Q4 | 4L | D9 | 7D | D19 | 4L |
| Q5 | 4L | D10 | 7C | D20 | 8M |
| D1 | 5D | D11 | 7L | D21 | 8M |
| D2 | 5C | D12 | 7M | D22 | 8L |
| D3 | 3O | D13 | 7M | D23 | 9L |

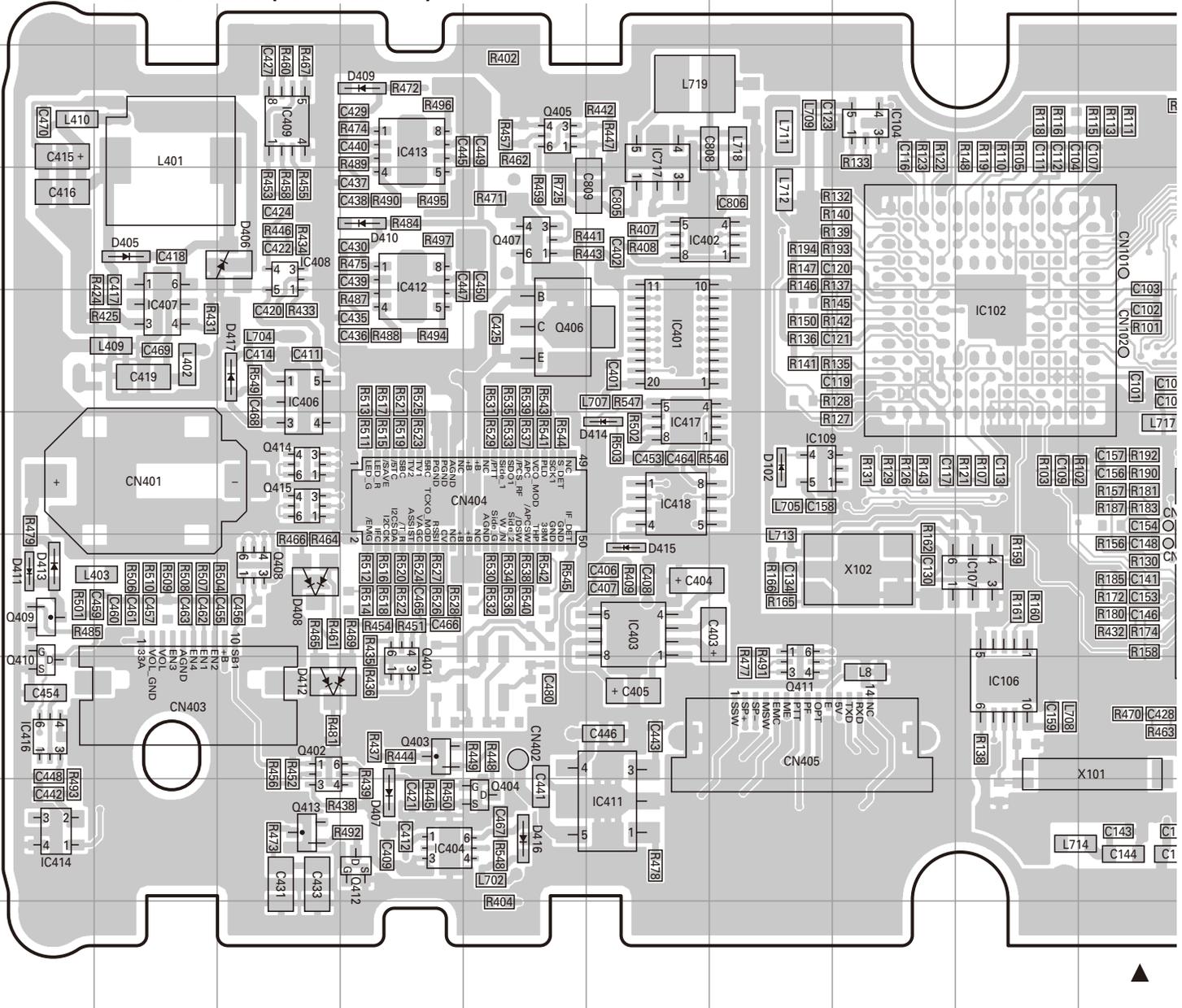
PC BOARD NX-300

CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Component side view (J79-0131-39)



NX-300 PC BOARD

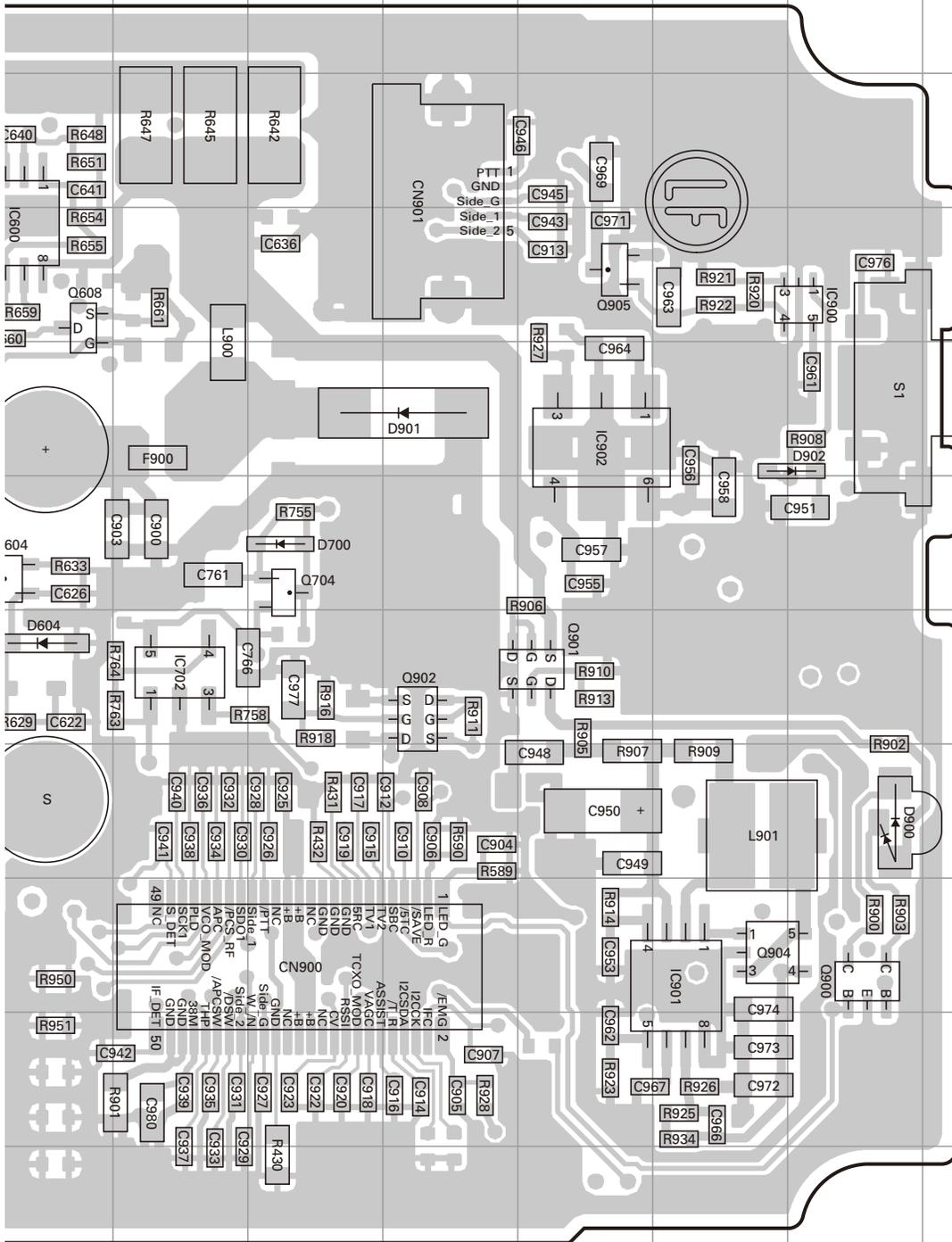
CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Foil side view (J79-0131-39)



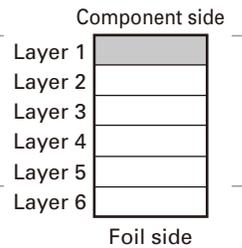
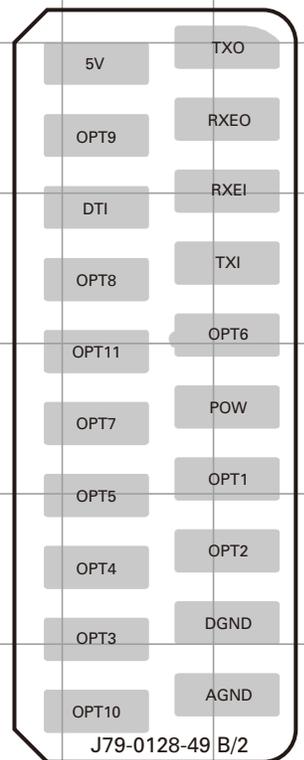
| Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC101 | 5K | IC404 | 9D | IC701 | 7Q | IC713 | 4Q | Q405 | 3E | Q702 | 4R | D405 | 4B | D417 | |
| IC102 | 5I | IC406 | 5C | IC702 | 5R | IC714 | 5R | Q406 | 5E | Q703 | 6R | D406 | 4C | D701 | |
| IC103 | 4K | IC407 | 5B | IC703 | 7P | IC715 | 5P | Q407 | 4E | Q704 | 7R | D407 | 9D | D702 | |
| IC104 | 3H | IC408 | 4C | IC704 | 3P | IC716 | 5N | Q408 | 7C | Q705 | 5O | D408 | 7C | D703 | |
| IC105 | 4L | IC409 | 3C | IC705 | 9N | IC717 | 3F | Q409 | 7A | Q706 | 5O | D409 | 3D | D704 | |
| IC106 | 8I | IC411 | 9F | IC706 | 7N | Q101 | 3K | Q410 | 8A | Q707 | 4N | D410 | 4D | D705 | |
| IC107 | 7I | IC412 | 4D | IC707 | 3P | Q102 | 3K | Q411 | 8G | D101 | 3L | D411 | 7A | D706 | |
| IC108 | 7K | IC413 | 3D | IC708 | 9Q | Q103 | 3L | Q412 | 9D | D102 | 6G | D412 | 8C | D707 | |
| IC109 | 6G | IC414 | 9A | IC709 | 4R | Q401 | 8D | Q413 | 9C | D401 | 4M | D413 | 7A | | |
| IC401 | 5F | IC416 | 8A | IC710 | 6N | Q402 | 8C | Q414 | 6C | D402 | 5M | D414 | 6F | | |
| IC402 | 4F | IC417 | 6F | IC711 | 6S | Q403 | 8D | Q415 | 6C | D403 | 5M | D415 | 7F | | |
| IC403 | 7F | IC418 | 6F | IC712 | 6N | Q404 | 9E | Q701 | 6Q | D404 | 5M | D416 | 9E | | |

PC BOARD NX-300

TX-RX UNIT (X57-7830-12) (A/2) Component side view (J79-0128-49 A/2)

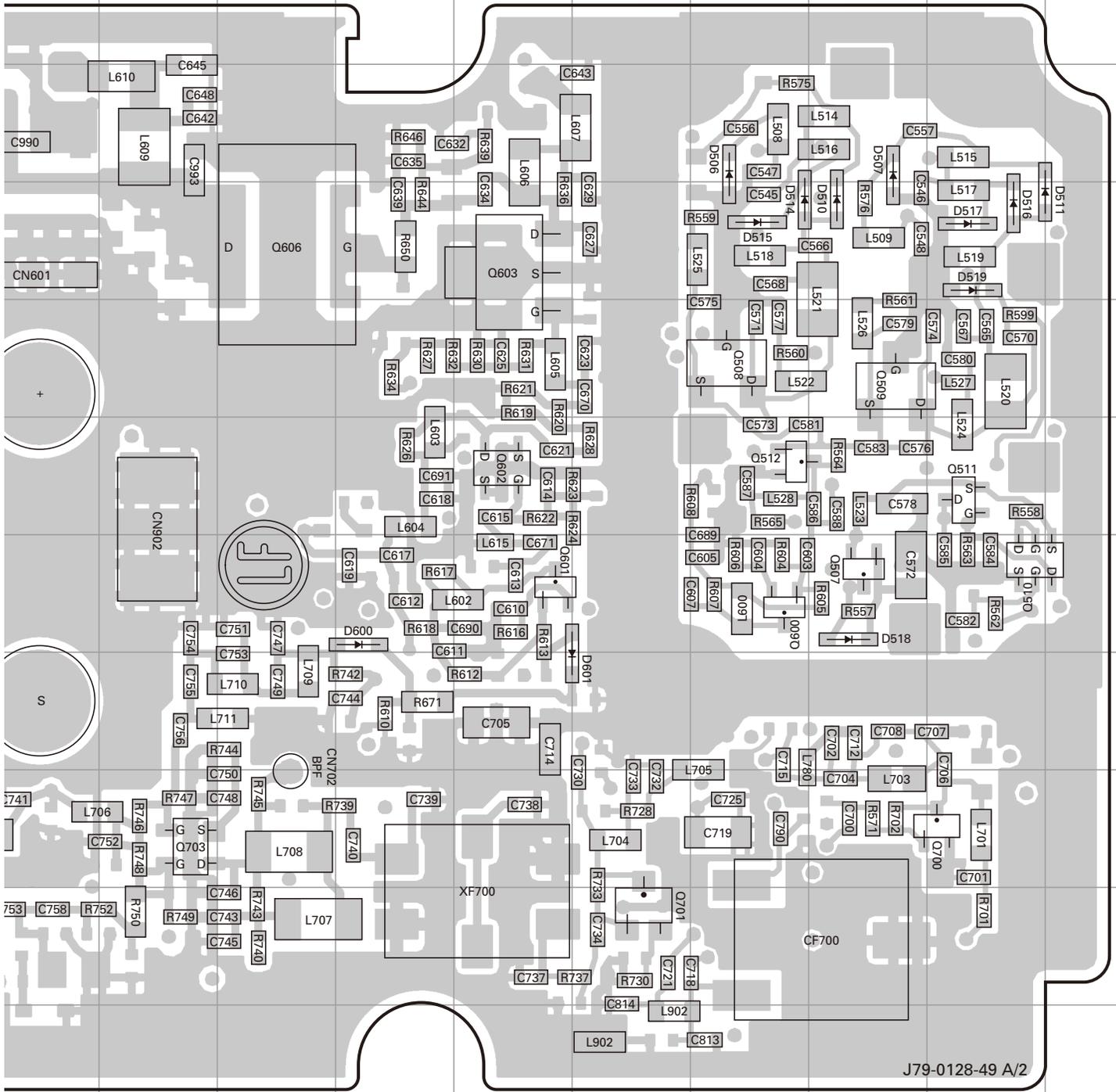


TX-RX UNIT (X57-7830-12) (B/2)



PC BOARD NX-300

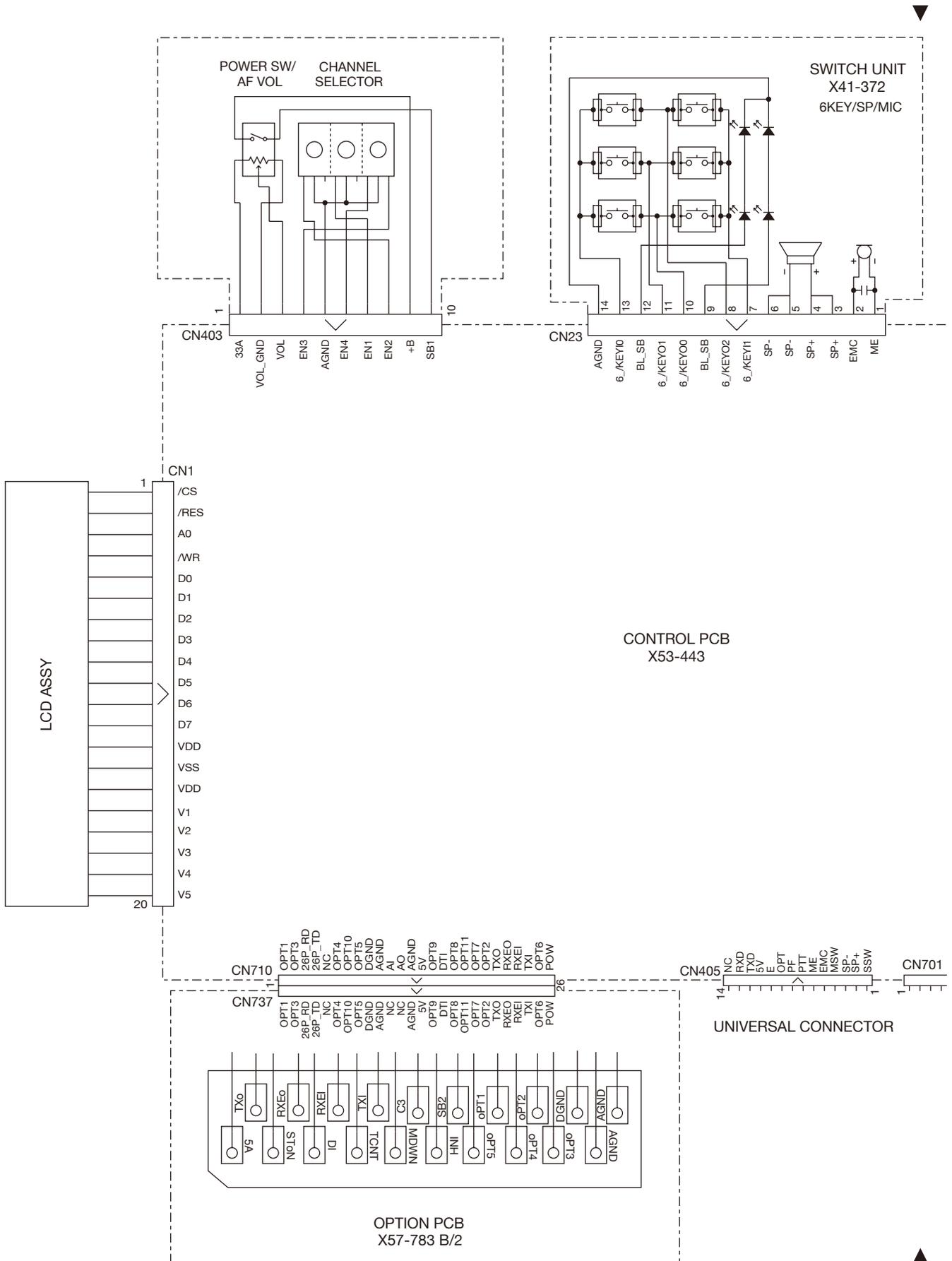
TX-RX UNIT (X57-7830-12) (A/2)
Foil side view (J79-0128-49 A/2)



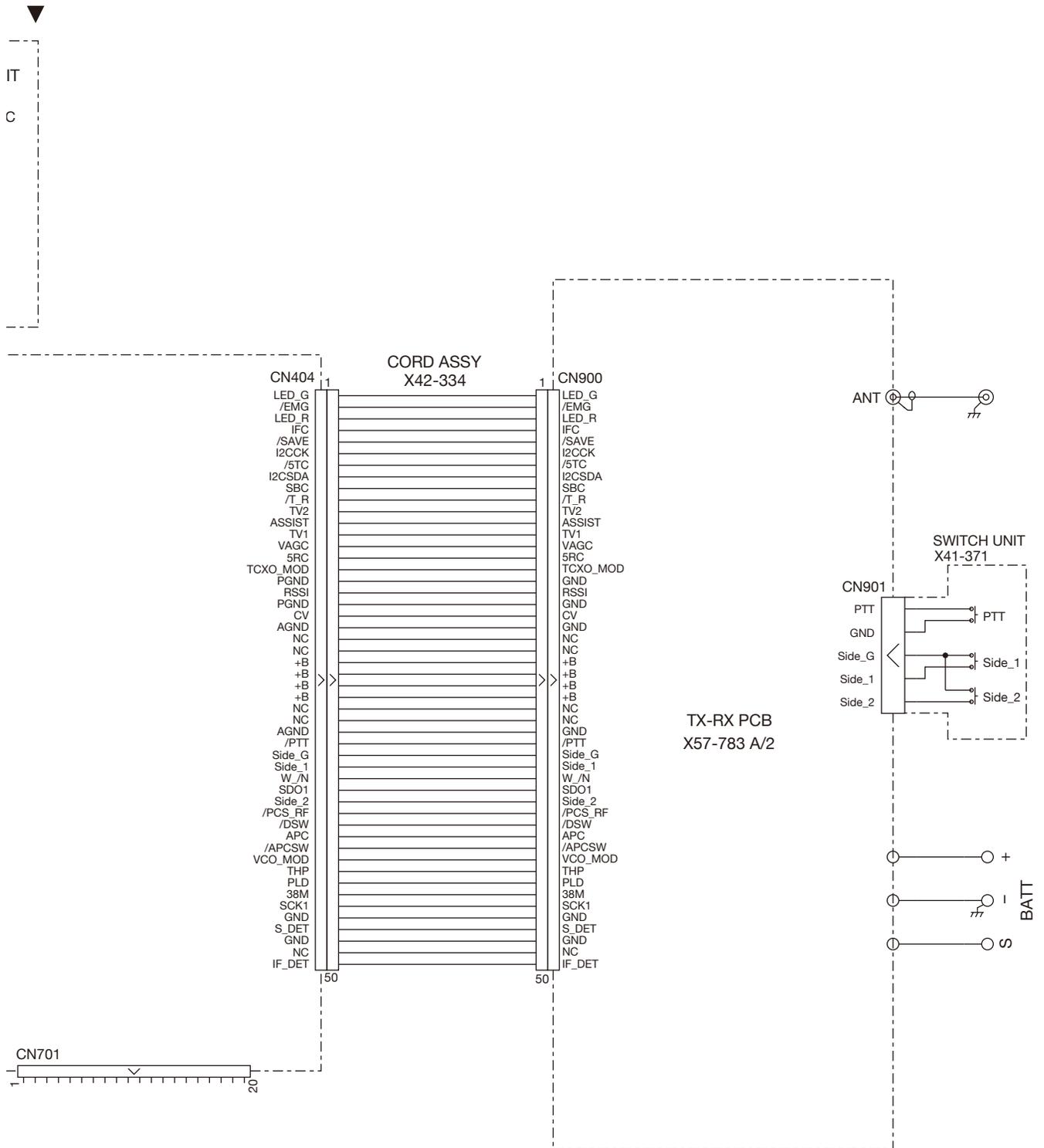
J79-0128-49 A/2

| Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC903 | 7D | Q600 | 7P | Q703 | 9K | D511 | 4S | D600 | 7M | D705 | 10E |
| Q507 | 7Q | Q601 | 7N | Q705 | 10F | D514 | 4P | D601 | 8O | D706 | 8E |
| Q508 | 5P | Q602 | 6N | Q706 | 10E | D515 | 4P | D606 | 5H | D708 | 8E |
| Q509 | 5Q | Q603 | 4N | Q903 | 8D | D516 | 4R | D607 | 5G | D709 | 6G |
| Q510 | 7R | Q606 | 4L | D506 | 3P | D517 | 4R | D702 | 10I | D711 | 6F |
| Q511 | 6R | Q700 | 9R | D507 | 3Q | D518 | 7Q | D703 | 10I | D712 | 7G |
| Q512 | 6P | Q701 | 10O | D510 | 4Q | D519 | 4R | D704 | 10H | D713 | 7G |

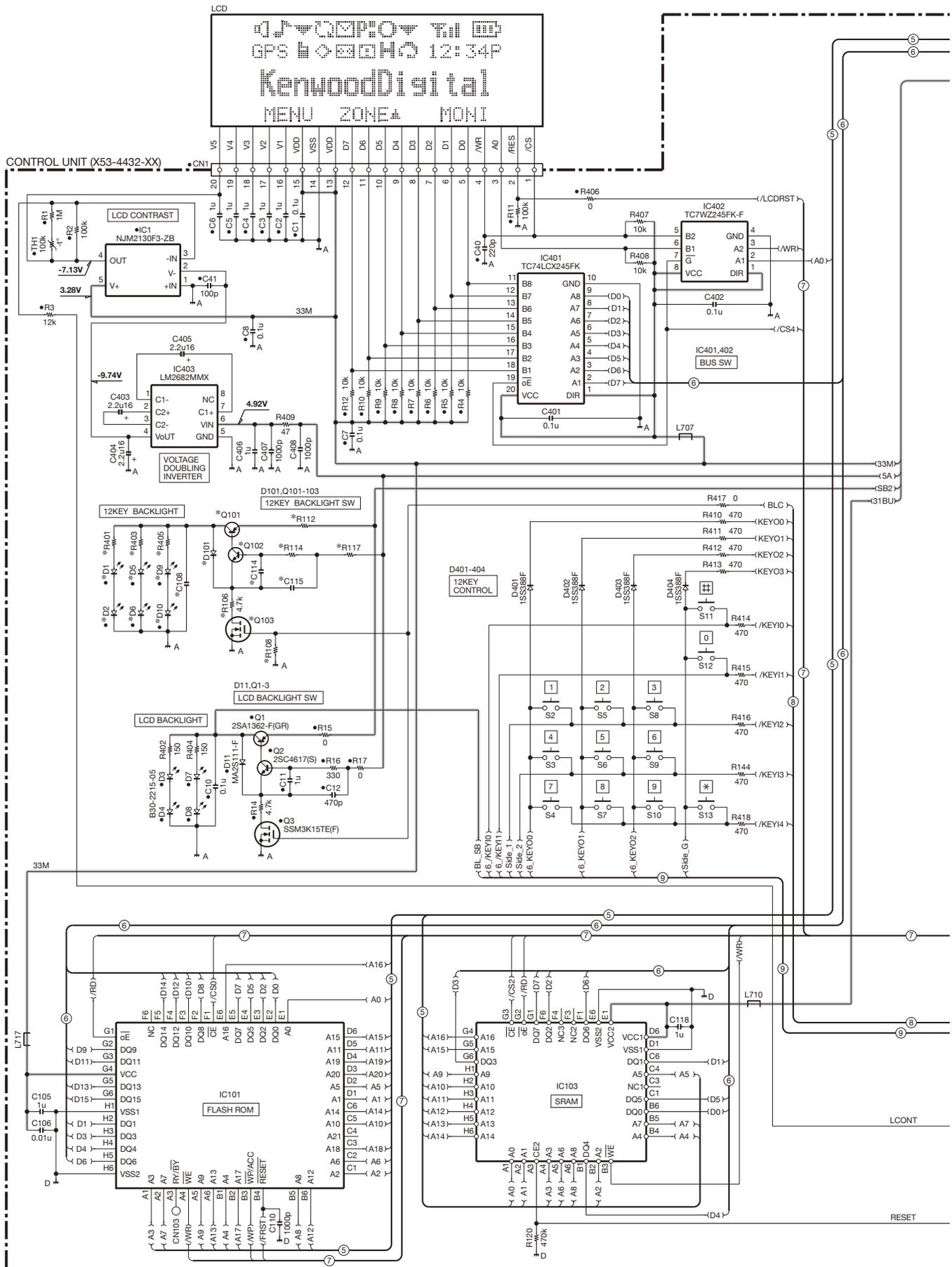
INTERCONNECTION DIAGRAM



INTERCONNECTION DIAGRAM



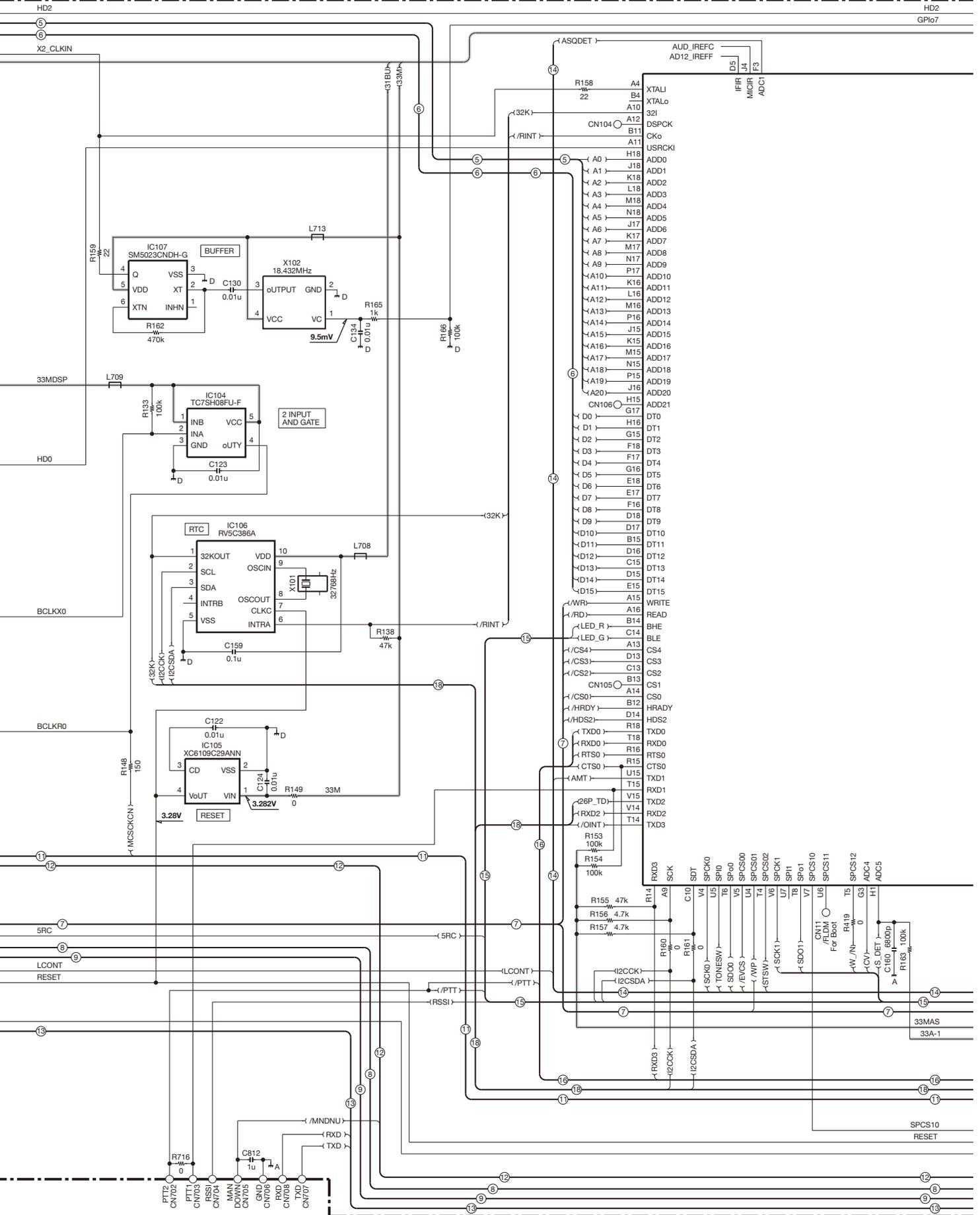
NX-300 SCHEMATIC DIAGRAM



| X53-4432-XX | D1 | D2 | D5 | D6 | D9 | D10 | D101 | Q101 | Q102 | Q103 | R106 | R108 | R112 | R114 | R117 | R401 | R403 | R405 | C108 | C114 | C115 | | |
|-------------|----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|--------------|------------|--------------|------|------|------|------|------|------|------|------|------|----|------|
| -71 | K5 | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| -72 | K6 | B30-2215-05 | MA2S111-F | 2SA1832-GR/F | 2SC4617(S) | SSM3K15TE(F) | 4.7k | 470k | 0 | 330 | 0 | 1.5k | 1.5k | 1.5k | 0.1u | 1u | 470p |

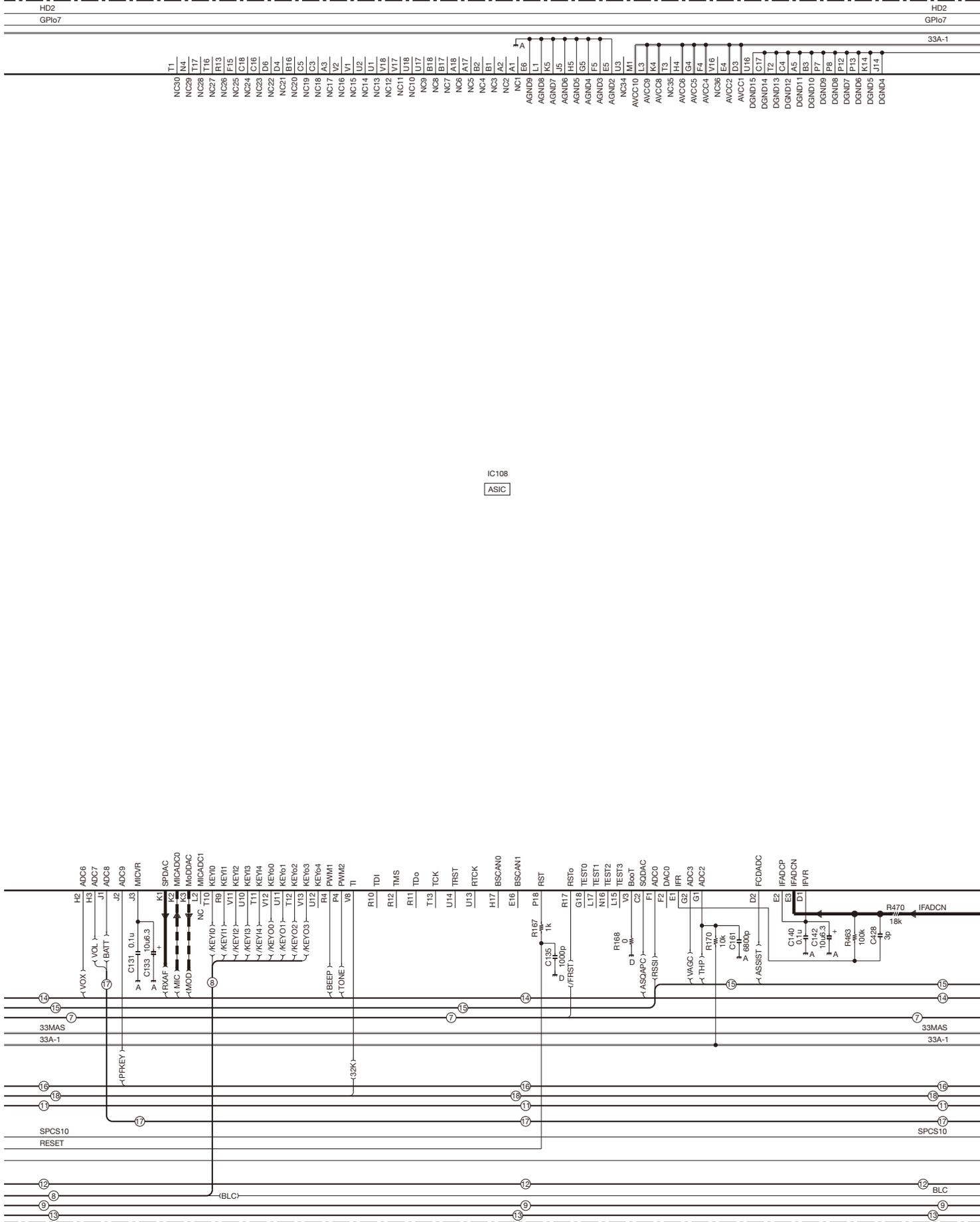
NX-300 SCHEMATIC DIAGRAM

CONTROL UNIT (X53-4432-XX)



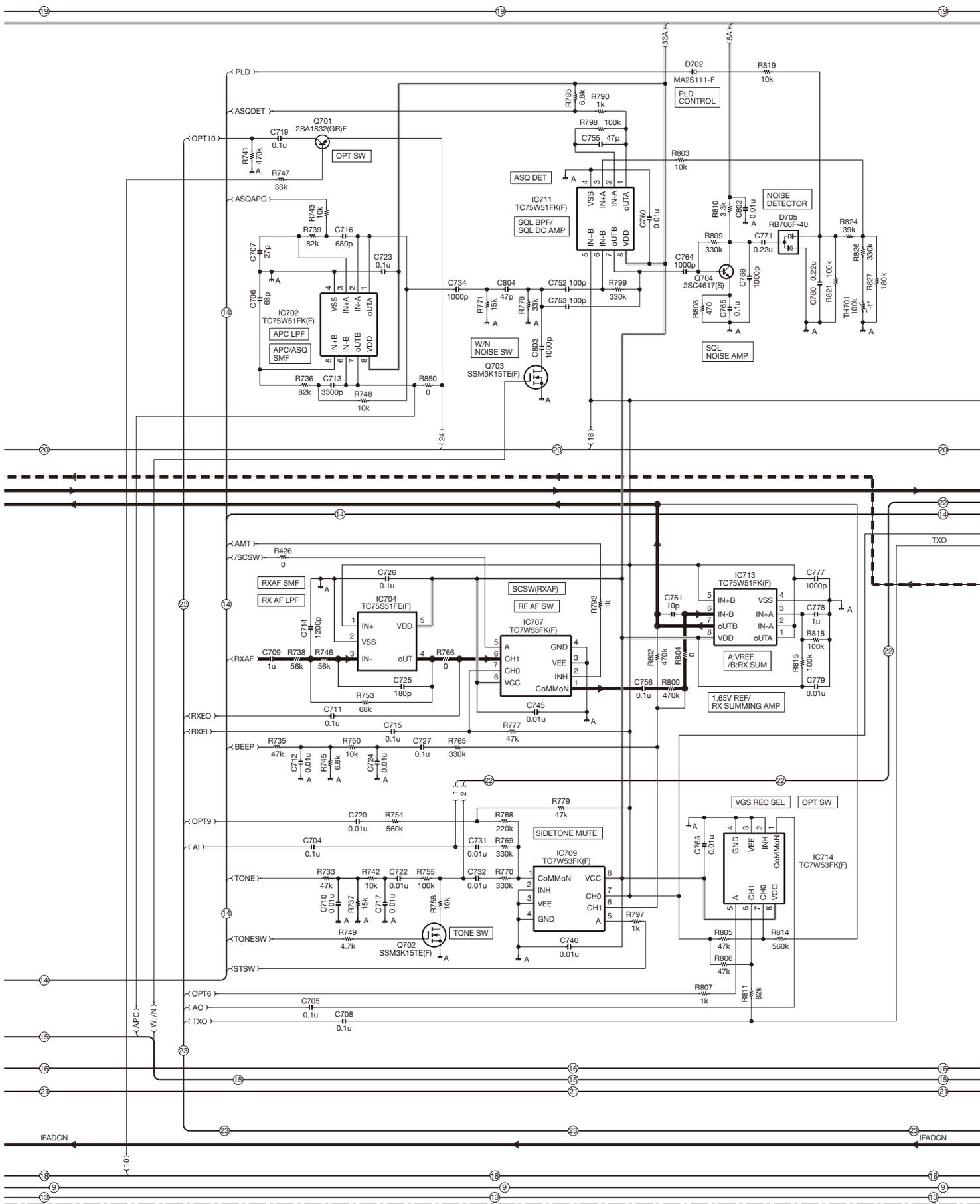
SCHEMATIC DIAGRAM NX-300

CONTROL UNIT (X53-4432-XX)



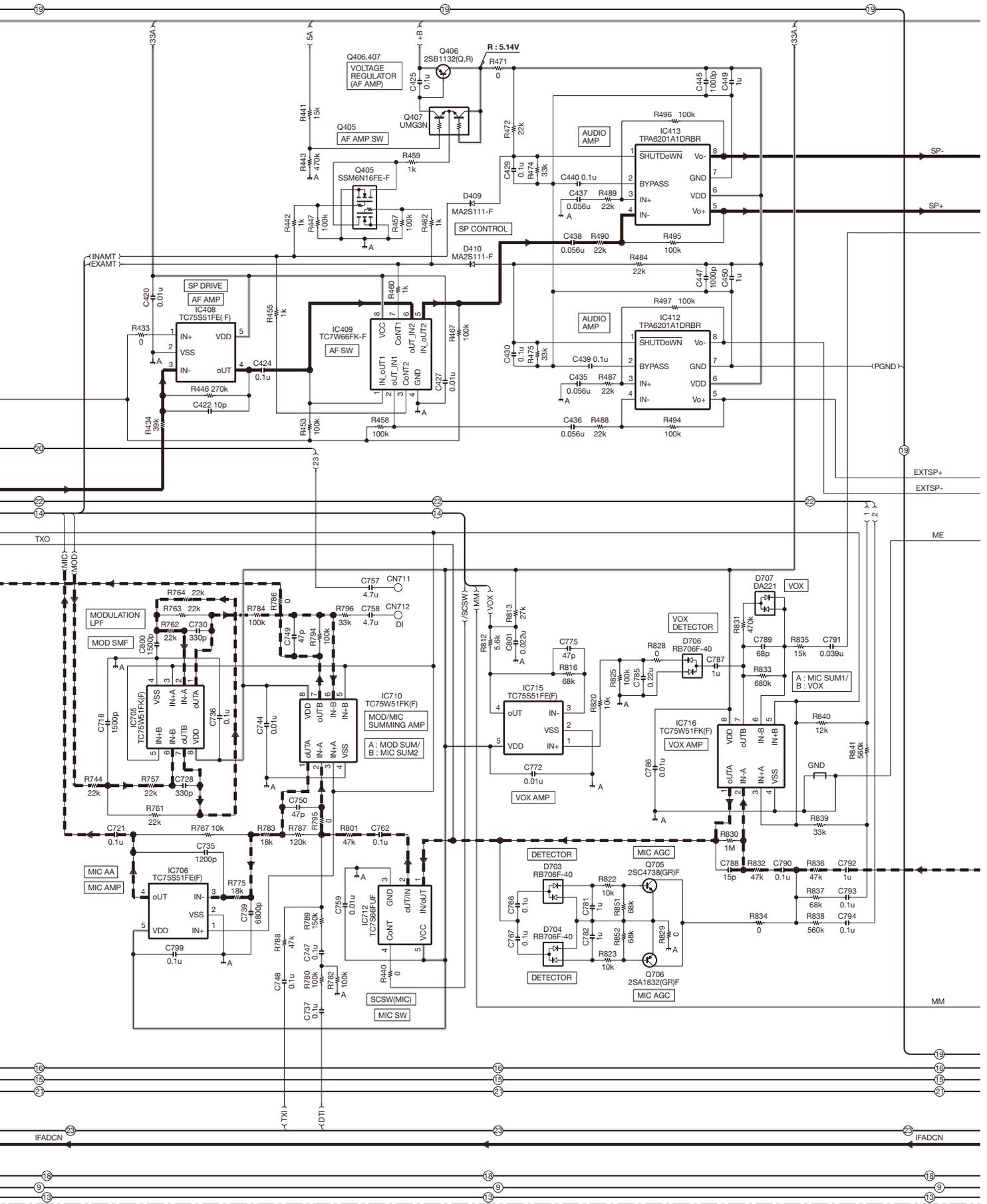
SCHEMATIC DIAGRAM NX-300

CONTROL UNIT (X53-4432-XX)



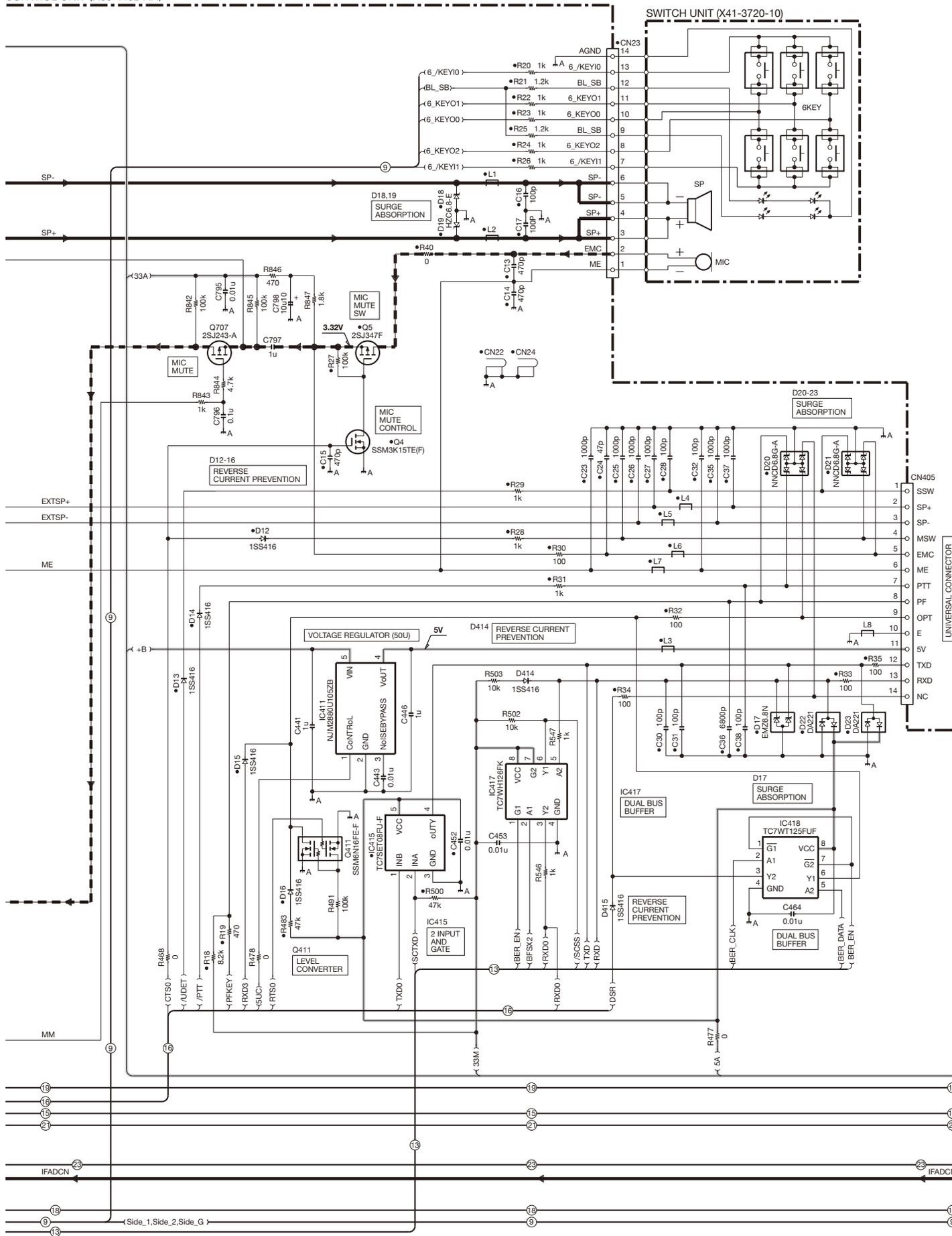
NX-300 SCHEMATIC DIAGRAM

CONTROL UNIT (X53-4432-XX)



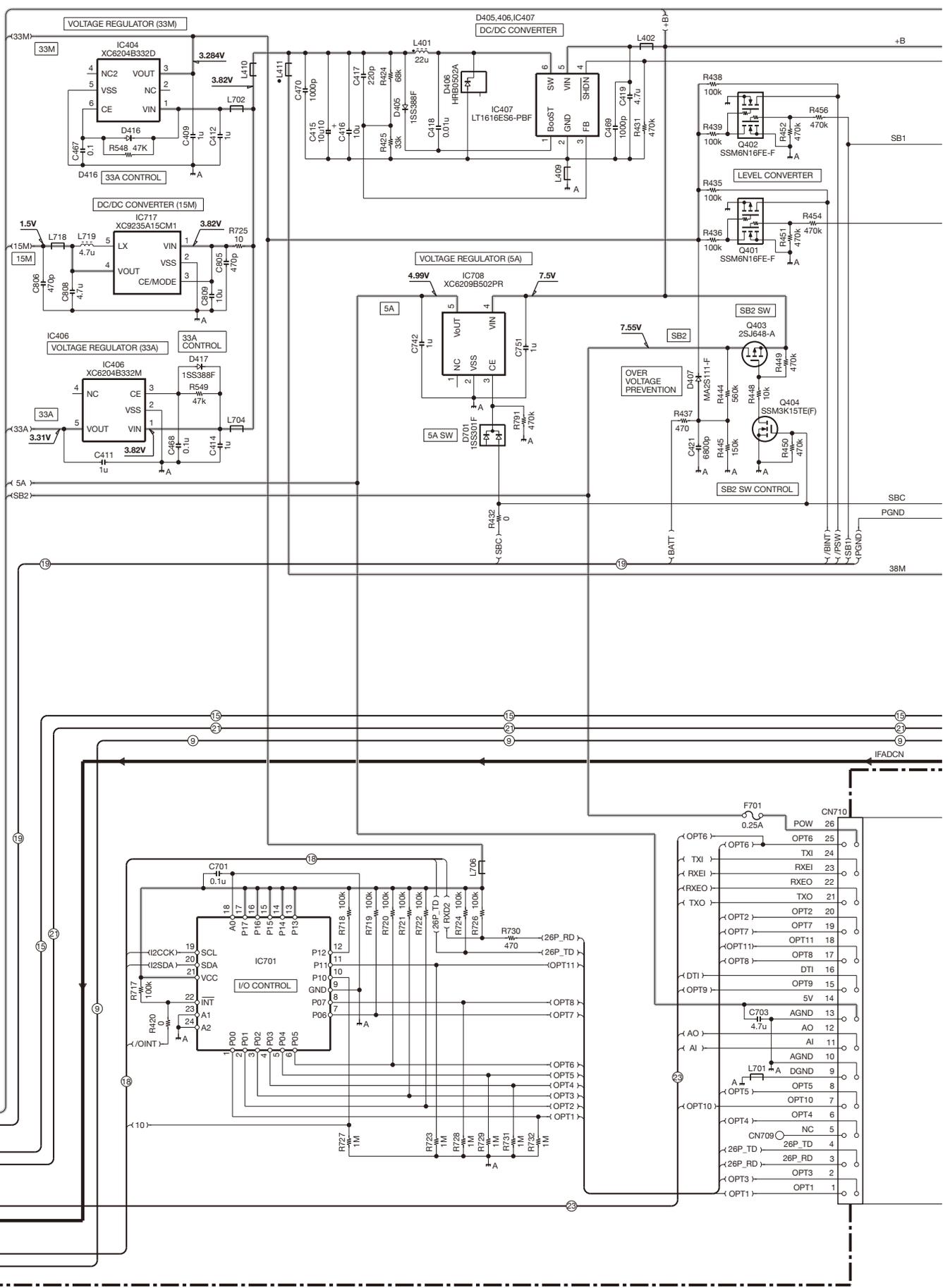
SCHEMATIC DIAGRAM NX-300

CONTROL UNIT (X53-4432-XX)



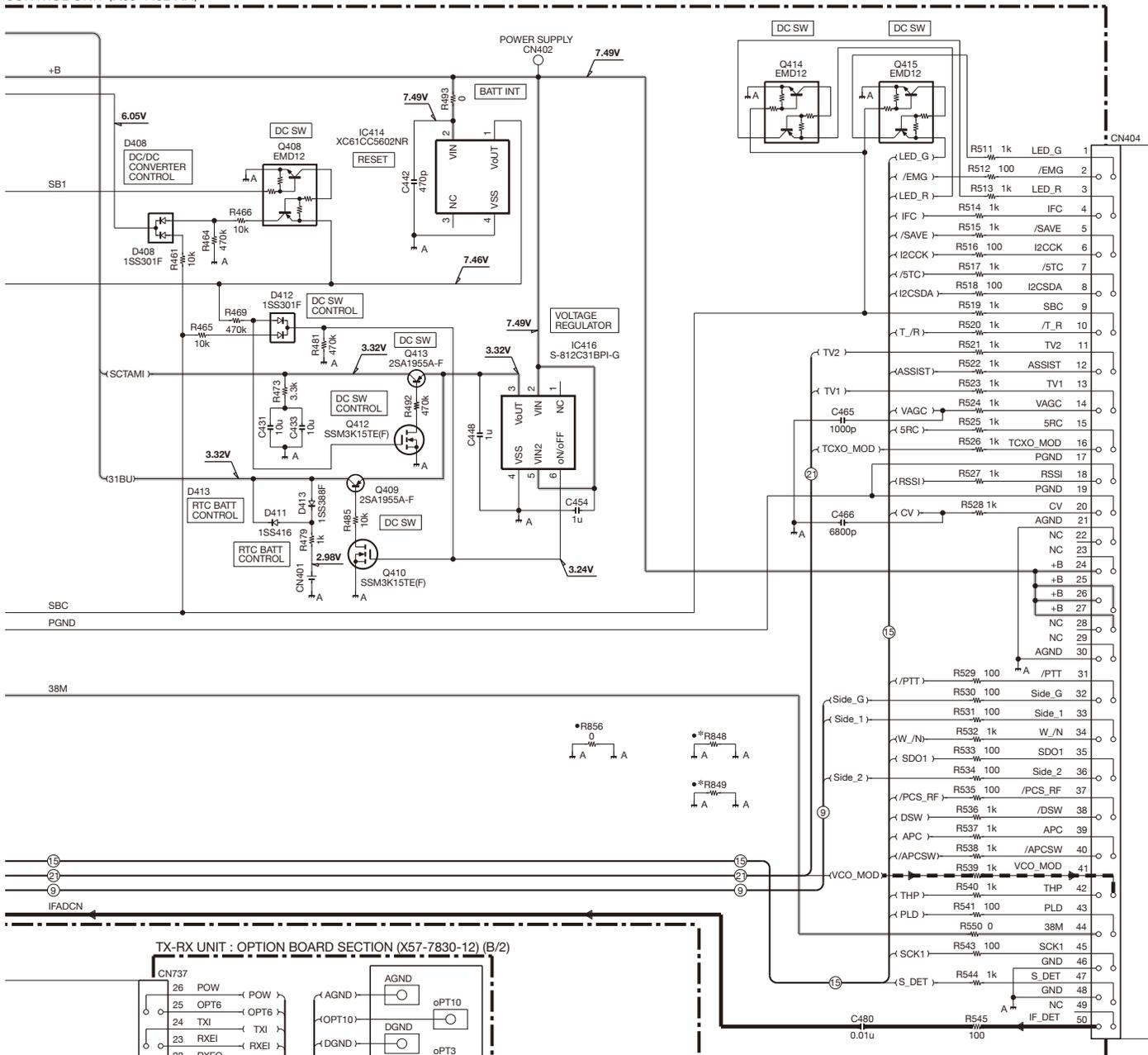
NX-300 SCHEMATIC DIAGRAM

CONTROL UNIT (X53-4432-XX)



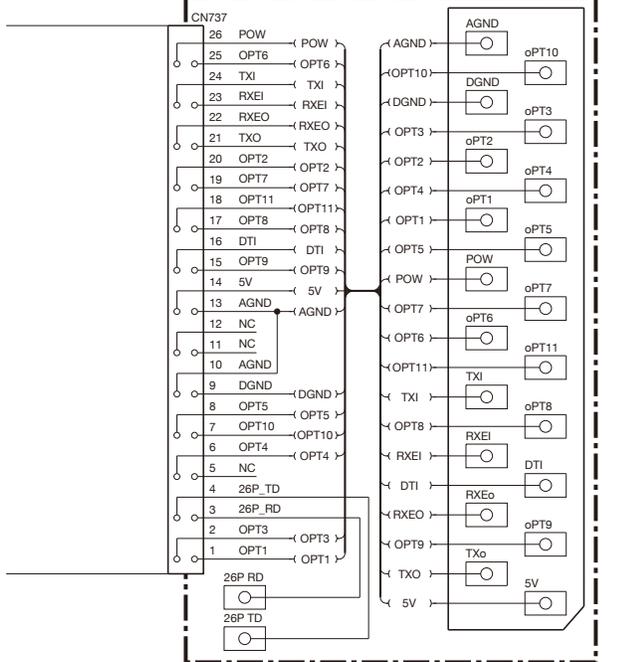
SCHEMATIC DIAGRAM NX-300

CONTROL UNIT (X53-4432-XX)



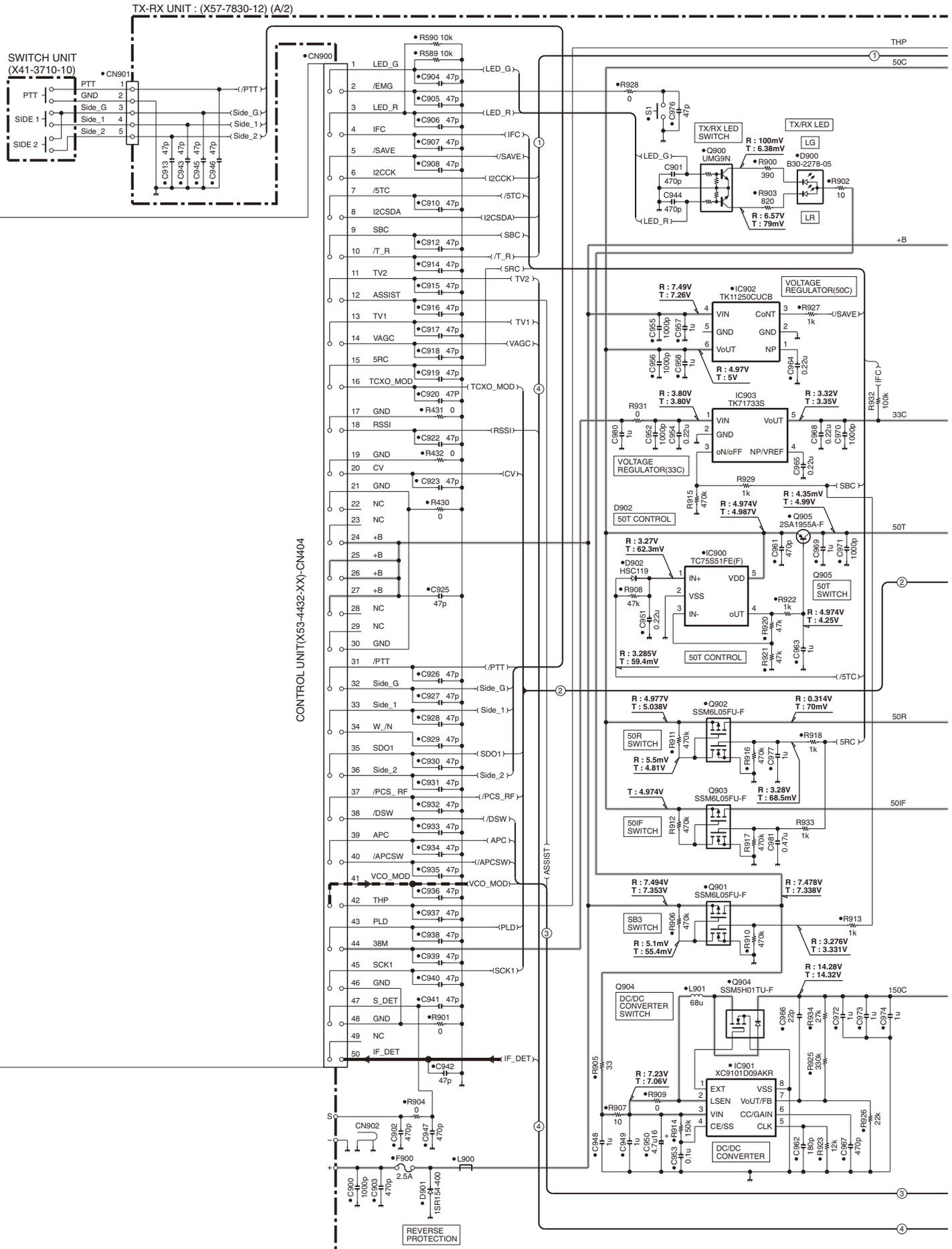
TX-RX UNIT(X57-7830-12) (A/2)-CN900

TX-RX UNIT : OPTION BOARD SECTION (X57-7830-12) (B/2)



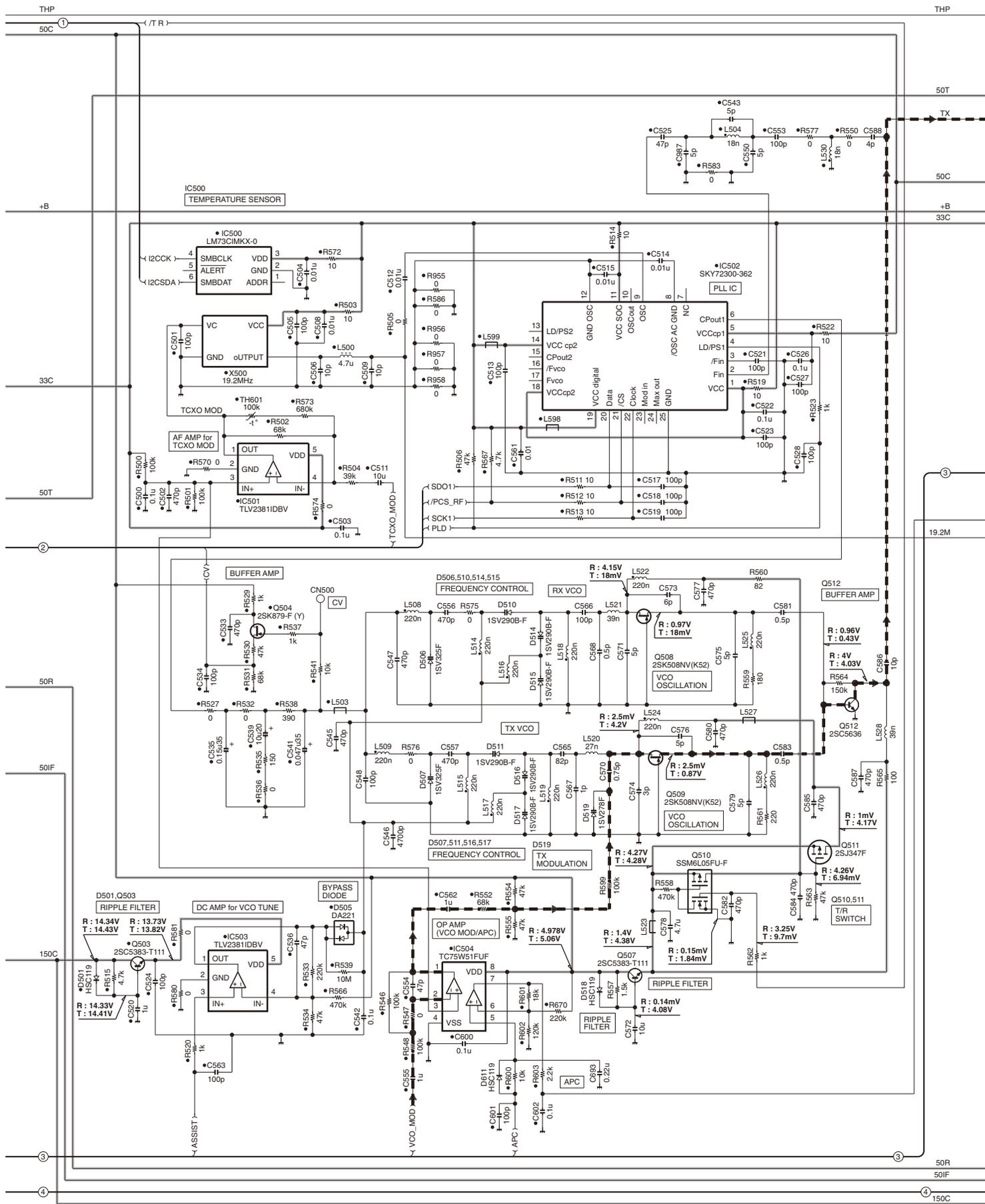
| X53-4432-XX | R848 | R849 |
|-------------|------|------|
| -71 | K5 | 0 NO |
| -72 | K6 | NO 0 |

NX-300 SCHEMATIC DIAGRAM



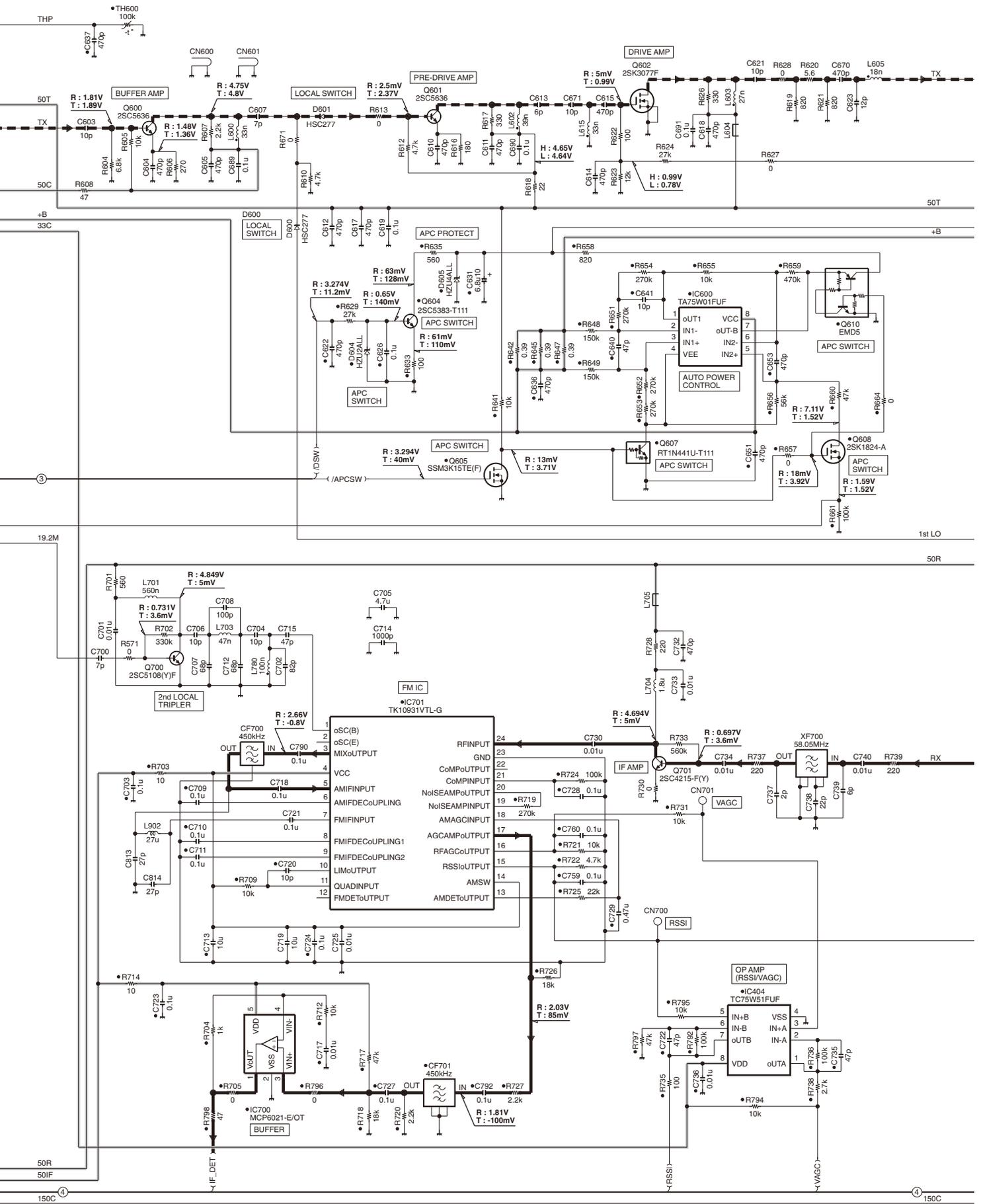
SCHEMATIC DIAGRAM NX-300

TX-RX UNIT (X57-7830-12) (A/2)



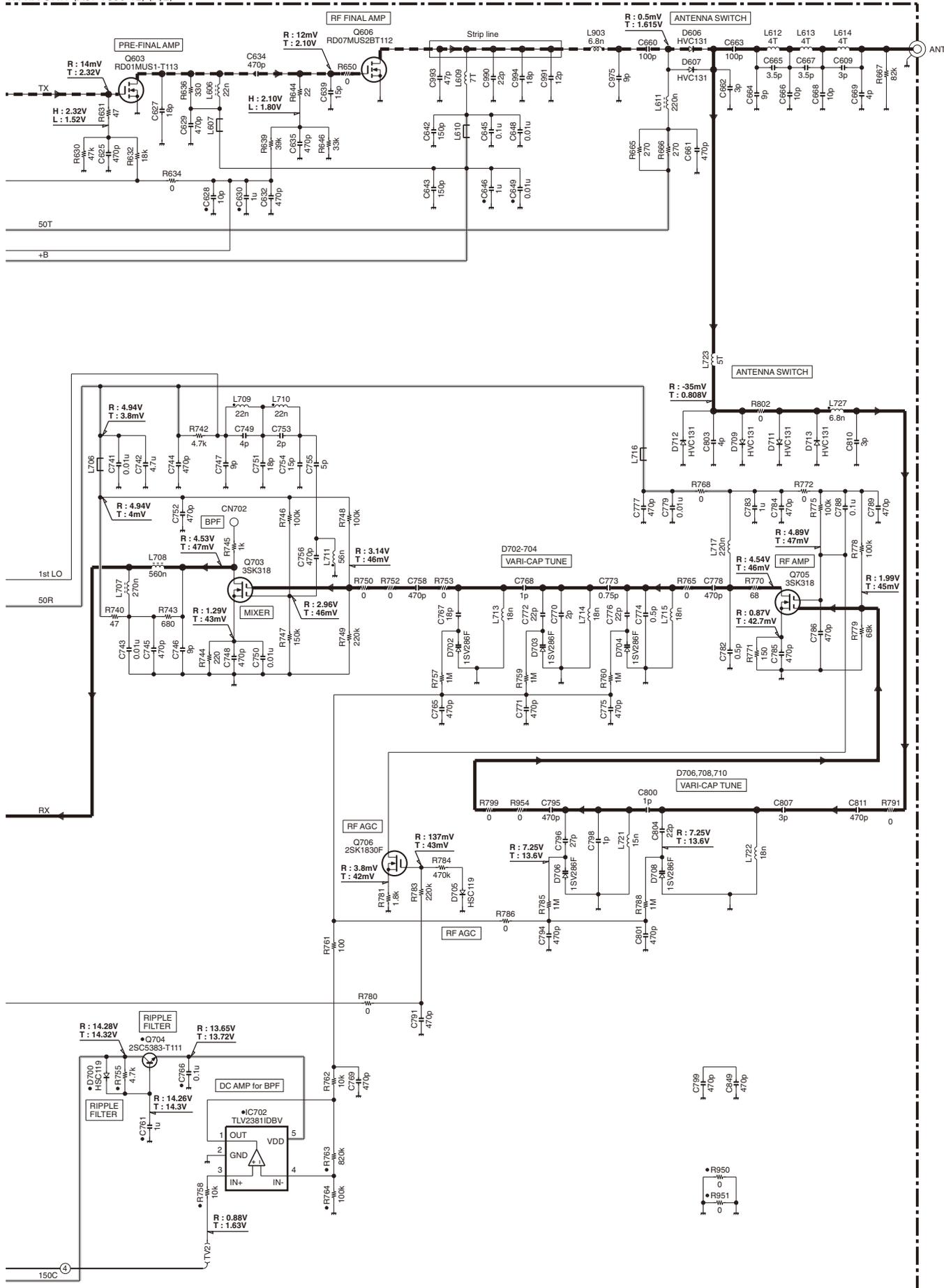
NX-300 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-7830-12) (A/2)



SCHEMATIC DIAGRAM NX-300

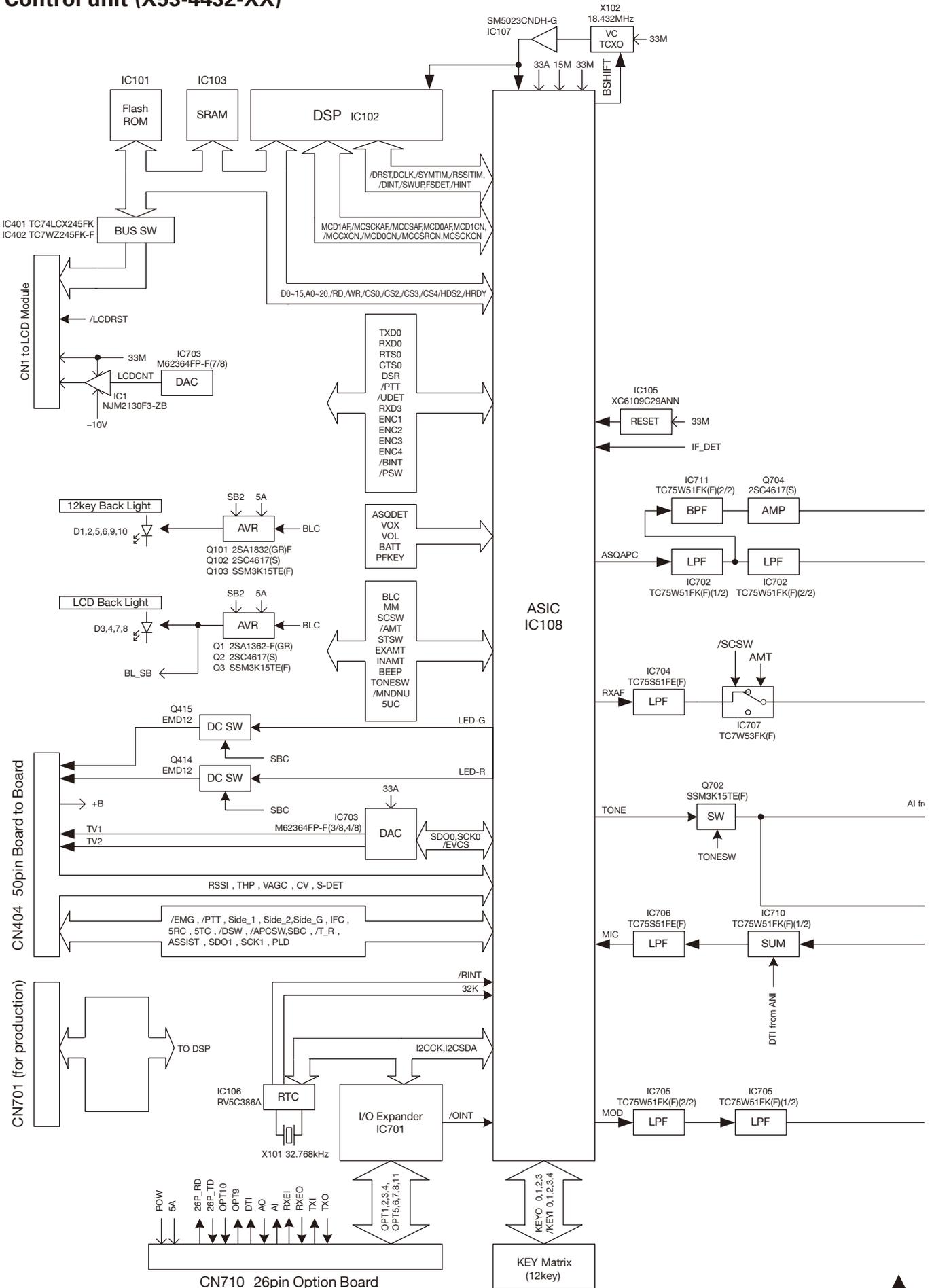
TX-RX UNIT (X57-7830-12) (A/2)



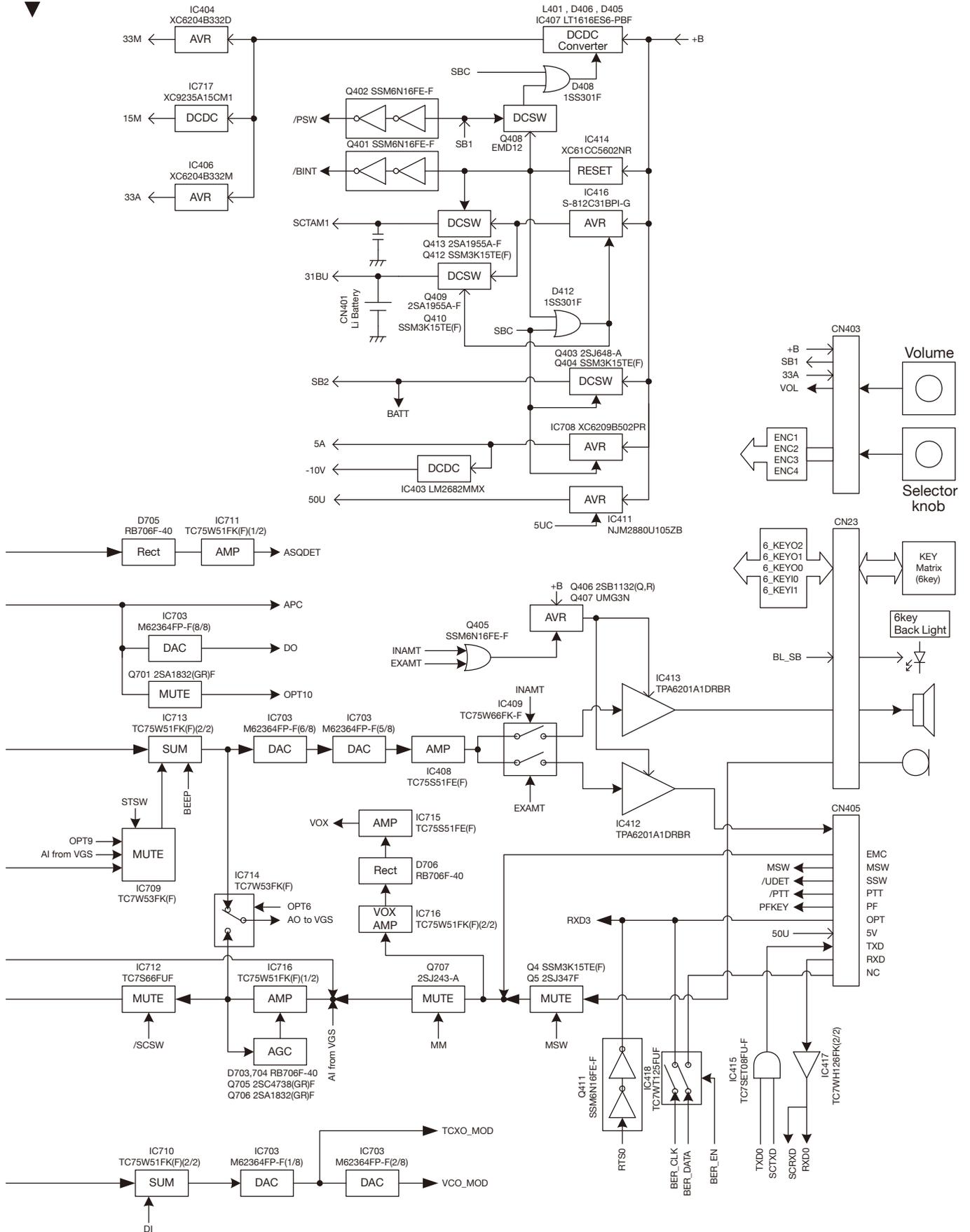
Note : The components marked with a dot (•) are parts of layer 1.

NX-300 BLOCK DIAGRAM

Control unit (X53-4432-XX)

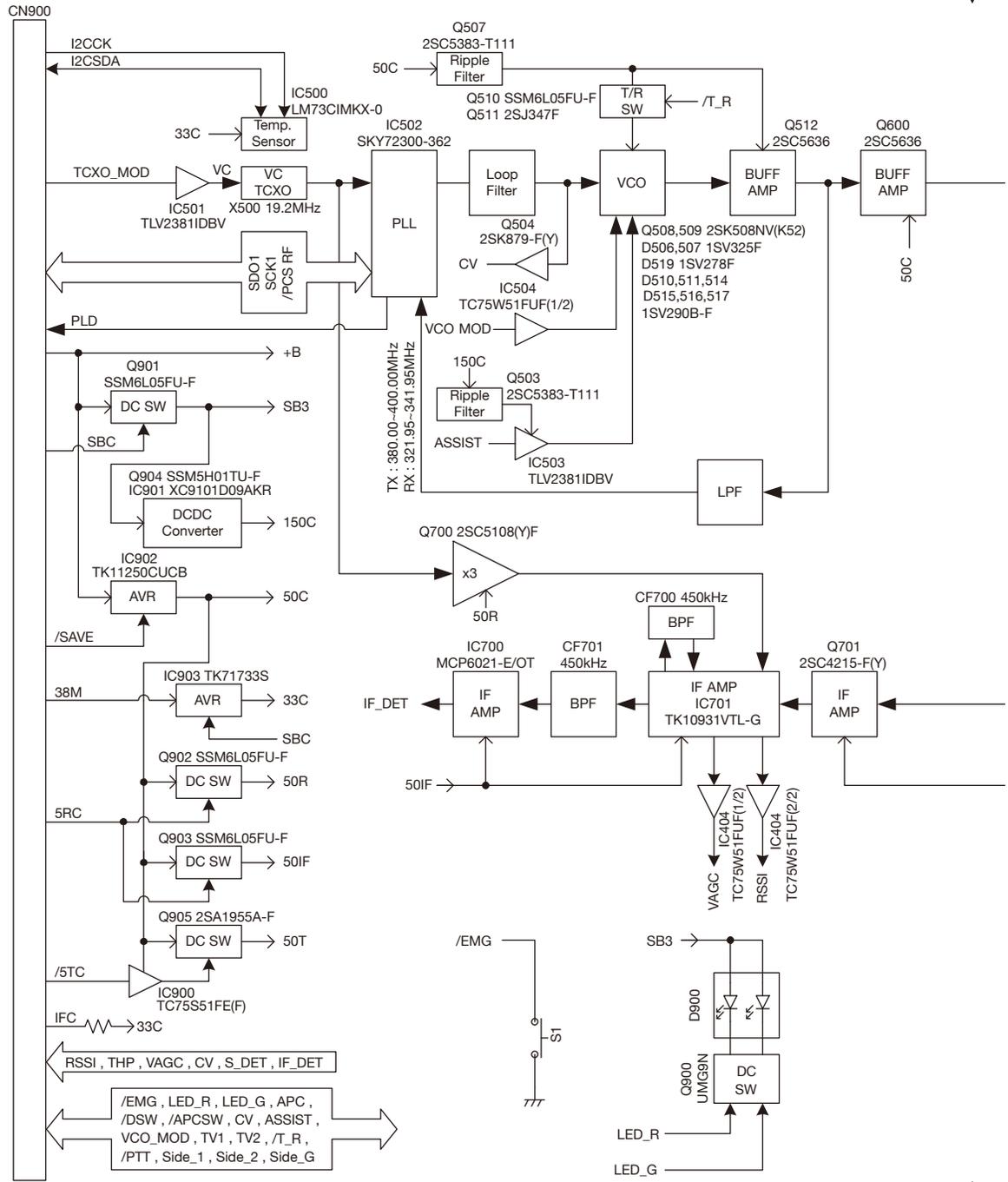


BLOCK DIAGRAM NX-300



BLOCK DIAGRAM

TX-RX unit (X57-7830-12)



OPTIONAL ACCESSORIES

KNB-47L (Li-ion Battery Pack)

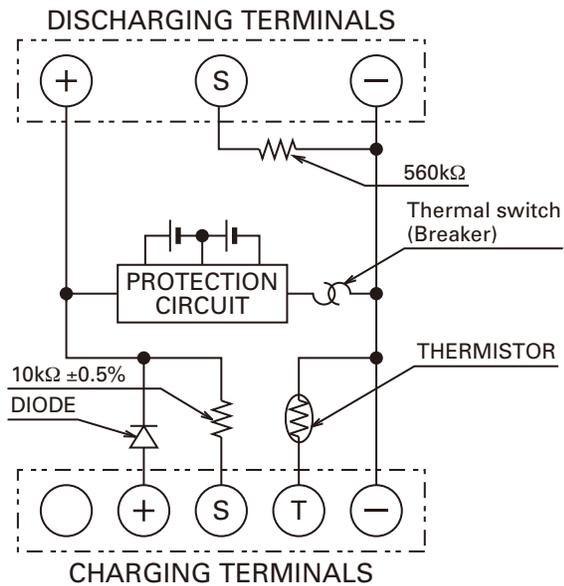
■ External View



■ Specifications

Voltage.....7.4V
 Battery capacity..... 1950mAh

■ Schematic Diagram



KNB-48L (Li-ion Battery Pack)

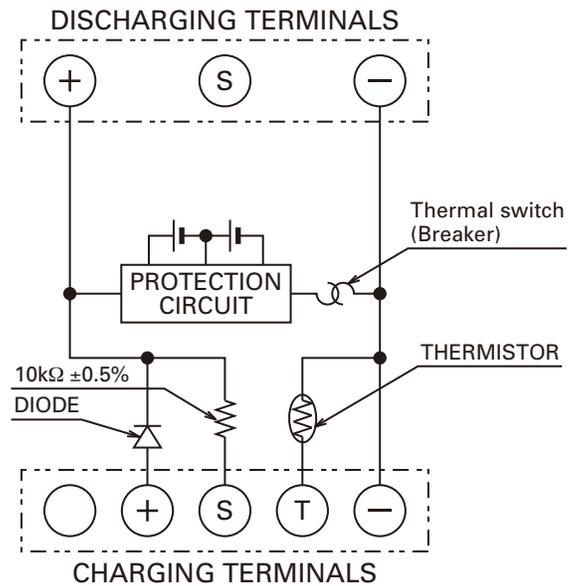
■ External View



■ Specifications

Voltage.....7.4V
 Battery capacity..... 2550mAh

■ Schematic Diagram



NX-300

SPECIFICATIONS

GENERAL

| | | |
|---|---|------------------------|
| Models..... | K5: Basic Model | K6: w/12-key Model |
| Frequency Range..... | 380~400 MHz | |
| Number of Channels..... | 512 | |
| Zones..... | 128 | |
| Max. Channels per Zone..... | 250 | |
| Channel Spacing..... | Analog: 12.5/25 kHz | Digital: 6.25/12.5 kHz |
| Operating Voltage..... | 7.5V DC \pm 20% | |
| Battery Life (with KNB-48L)..... | 5-5-90 duty cycle: more than 14.5 hours 10-10-80 duty cycle: more than 9.0 hours | |
| Operating Temperature Range..... | -22°F to +140°F (-30°C to +60°C) | |
| Frequency Stability..... | \pm 1.0ppm | |
| Antenna Impedance..... | 50 Ω | |
| Dimensions (W x H x D) (Projections not included) | | |
| Radio only..... | 2.28" x 5.02" x 1.63" (58 x 127.5 x 41.3 mm) | |
| with KNB-47L..... | 2.28" x 5.02" x 1.63" (58 x 127.5 x 41.3 mm) | |
| with KNB-48L..... | 2.28" x 5.02" x 1.91" (58 x 127.5 x 48.5 mm) | |
| Weight | | |
| Radio only..... | 9.17 oz (260 g) | |
| with KNB-47L..... | 13.23 oz (375 g) | |
| with KNB-48L..... | 14.29 oz (405 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.

Kenwood Corporation

2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan

Kenwood U.S.A. Corporation

P.O. BOX 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

Kenwood Electronics Canada Inc.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

Kenwood Electronics Deutschland GmbH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

Kenwood Electronics Belgium N.V.

Leuvensesteenweg 248 J, 1800 Vilvoorde, Belgium

Kenwood Electronics France S.A.

L'Etoile Paris Nord 2, 50 Allée des Impressionnistes, Bp 58416 Villepinte, 95944 Roissy Ch De Gaulle Cedex

Kenwood Electronics UK Limited

KENWOOD House, Dwight Road, Watford, Herts., WD18 9EB United Kingdom

Kenwood Electronics Europe B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

Kenwood Electronics Italia S.p.A.

Via G. Sirtori, 7/9 20129 Milano, Italy

Kenwood Ibérica, S.A.

Bolivia, 239-08020 Barcelona, Spain

Kenwood Electronics Australia Pty. Ltd.

Talavera Business Park Building A, 4 Talavera Road, North Ryde NSW 2113 Australia

Kenwood Electronics (Hong Kong) Ltd.

Unit 3712-3724, Level 37, Tower one Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

Kenwood Electronics Singapore Pte Ltd

1 Ang Mo Kio Street 63, Singapore 569110

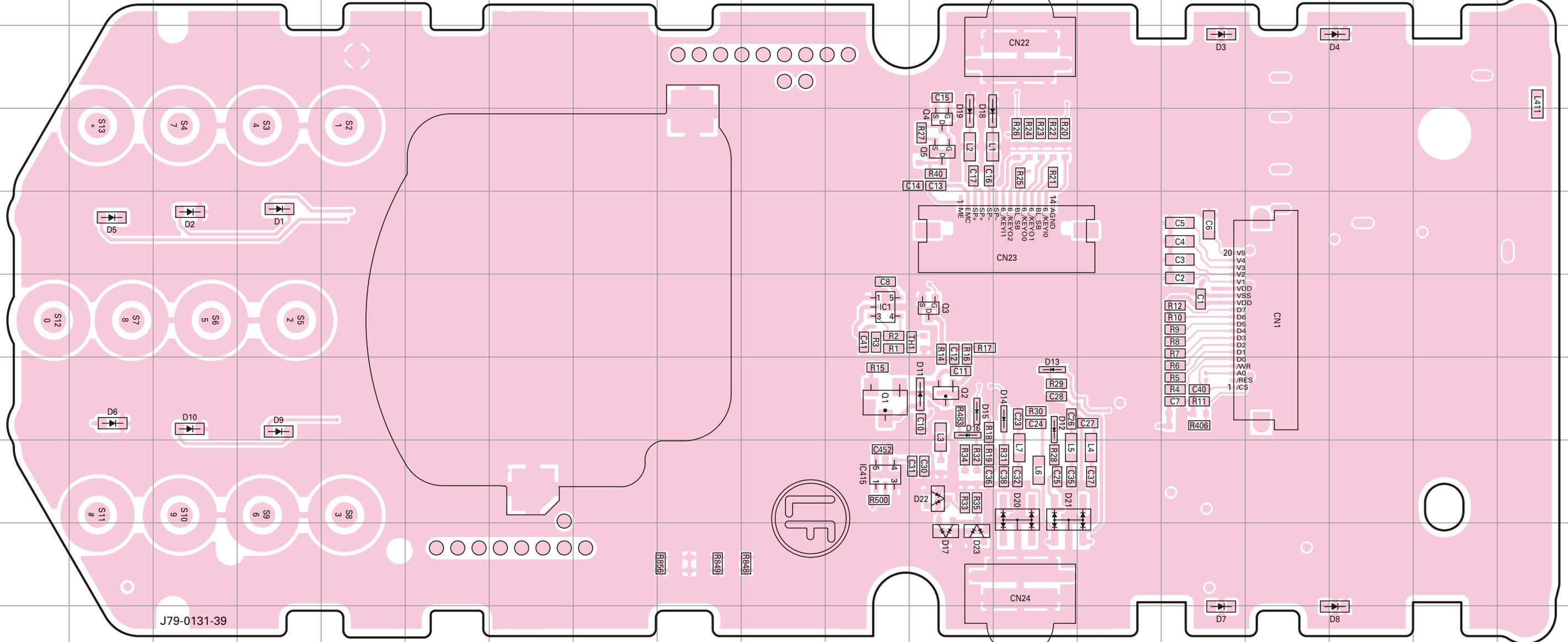


NX-300 PC BOARD

PC BOARD NX-300

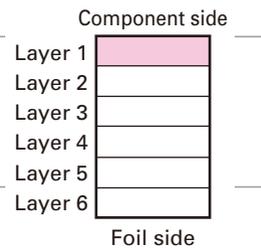
CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Component side view (J79-0131-39)

CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Component side view (J79-0131-39)



J79-0131-39

| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|
| IC1 | 6K | D4 | 3Q | D14 | 7M |
| IC415 | 8K | D5 | 5B | D15 | 7L |
| Q1 | 7K | D6 | 7B | D16 | 7L |
| Q2 | 7L | D7 | 10O | D17 | 9L |
| Q3 | 6L | D8 | 10Q | D18 | 4L |
| Q4 | 4L | D9 | 7D | D19 | 4L |
| Q5 | 4L | D10 | 7C | D20 | 8M |
| D1 | 5D | D11 | 7L | D21 | 8M |
| D2 | 5C | D12 | 7M | D22 | 8L |
| D3 | 3O | D13 | 7M | D23 | 9L |

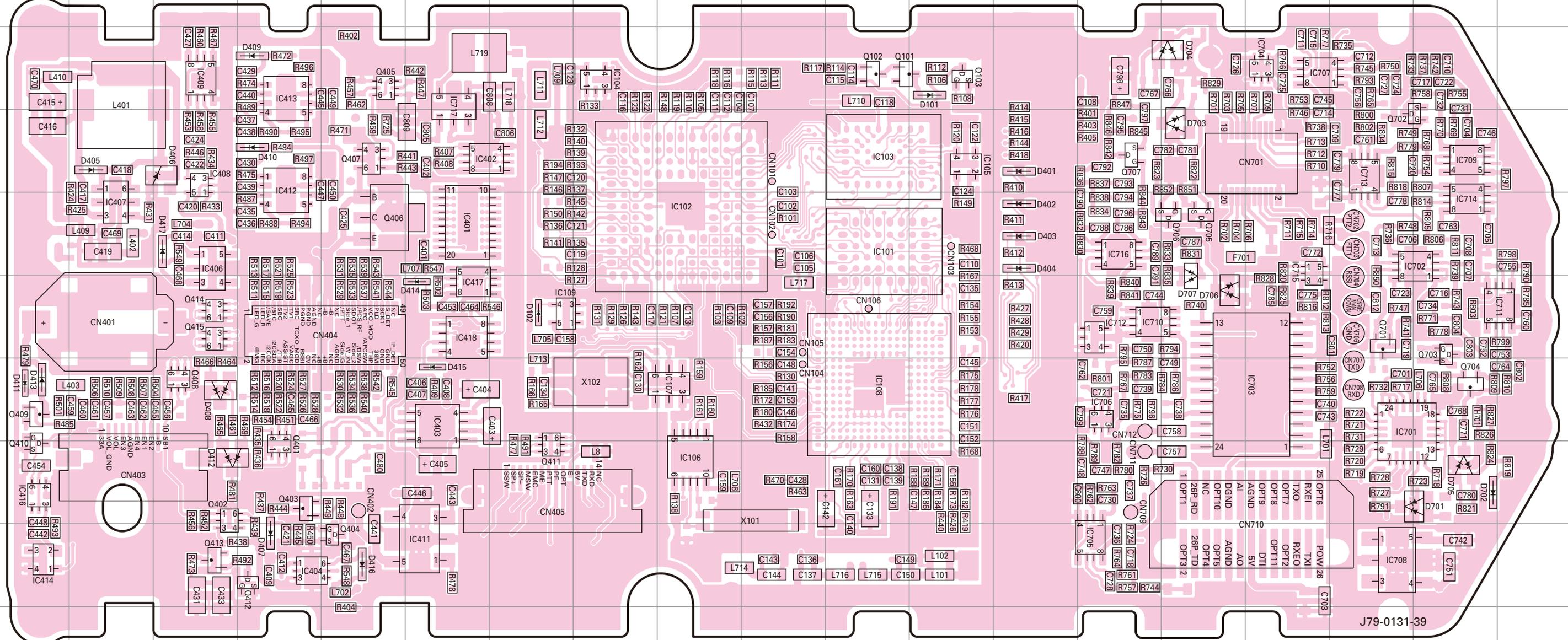


NX-300 PC BOARD

PC BOARD NX-300

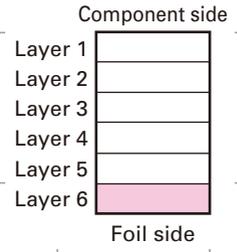
CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Foil side view (J79-0131-39)

CONTROL UNIT (X53-4432-XX) -71: K5 -72: K6
Foil side view (J79-0131-39)



J79-0131-39

| Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC101 | 5K | IC404 | 9D | IC701 | 7Q | IC713 | 4Q | Q405 | 3E | Q702 | 4R | D405 | 4B | D417 | 5C |
| IC102 | 5I | IC406 | 5C | IC702 | 5R | IC714 | 5R | Q406 | 5E | Q703 | 6R | D406 | 4C | D701 | 8R |
| IC103 | 4K | IC407 | 5B | IC703 | 7P | IC715 | 5P | Q407 | 4E | Q704 | 7R | D407 | 9D | D702 | 8R |
| IC104 | 3H | IC408 | 4C | IC704 | 3P | IC716 | 5N | Q408 | 7C | Q705 | 5O | D408 | 7C | D703 | 4O |
| IC105 | 4L | IC409 | 3C | IC705 | 9N | IC717 | 3F | Q409 | 7A | Q706 | 5O | D409 | 3D | D704 | 3O |
| IC106 | 8I | IC411 | 9F | IC706 | 7N | Q101 | 3K | Q410 | 8A | Q707 | 4N | D410 | 4D | D705 | 8R |
| IC107 | 7I | IC412 | 4D | IC707 | 3P | Q102 | 3K | Q411 | 8G | D101 | 3L | D411 | 7A | D706 | 6O |
| IC108 | 7K | IC413 | 3D | IC708 | 9Q | Q103 | 3L | Q412 | 9D | D102 | 6G | D412 | 8C | D707 | 6O |
| IC109 | 6G | IC414 | 9A | IC709 | 4R | Q401 | 8D | Q413 | 9C | D401 | 4M | D413 | 7A | | |
| IC401 | 5F | IC416 | 8A | IC710 | 6N | Q402 | 8C | Q414 | 6C | D402 | 5M | D414 | 6F | | |
| IC402 | 4F | IC417 | 6F | IC711 | 6S | Q403 | 8D | Q415 | 6C | D403 | 5M | D415 | 7F | | |
| IC403 | 7F | IC418 | 6F | IC712 | 6N | Q404 | 9E | Q701 | 6Q | D404 | 5M | D416 | 9E | | |



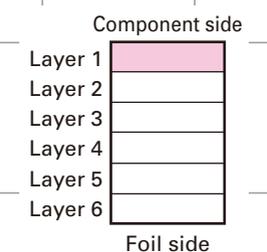
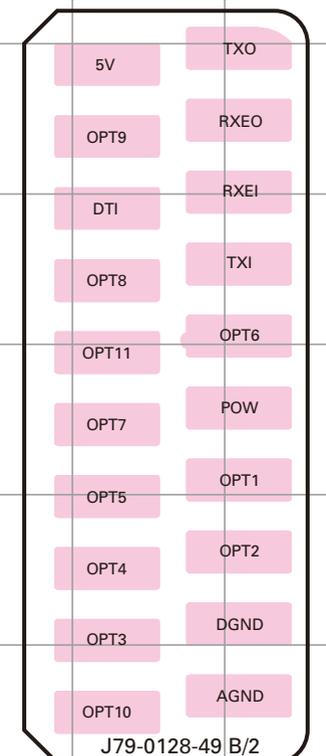
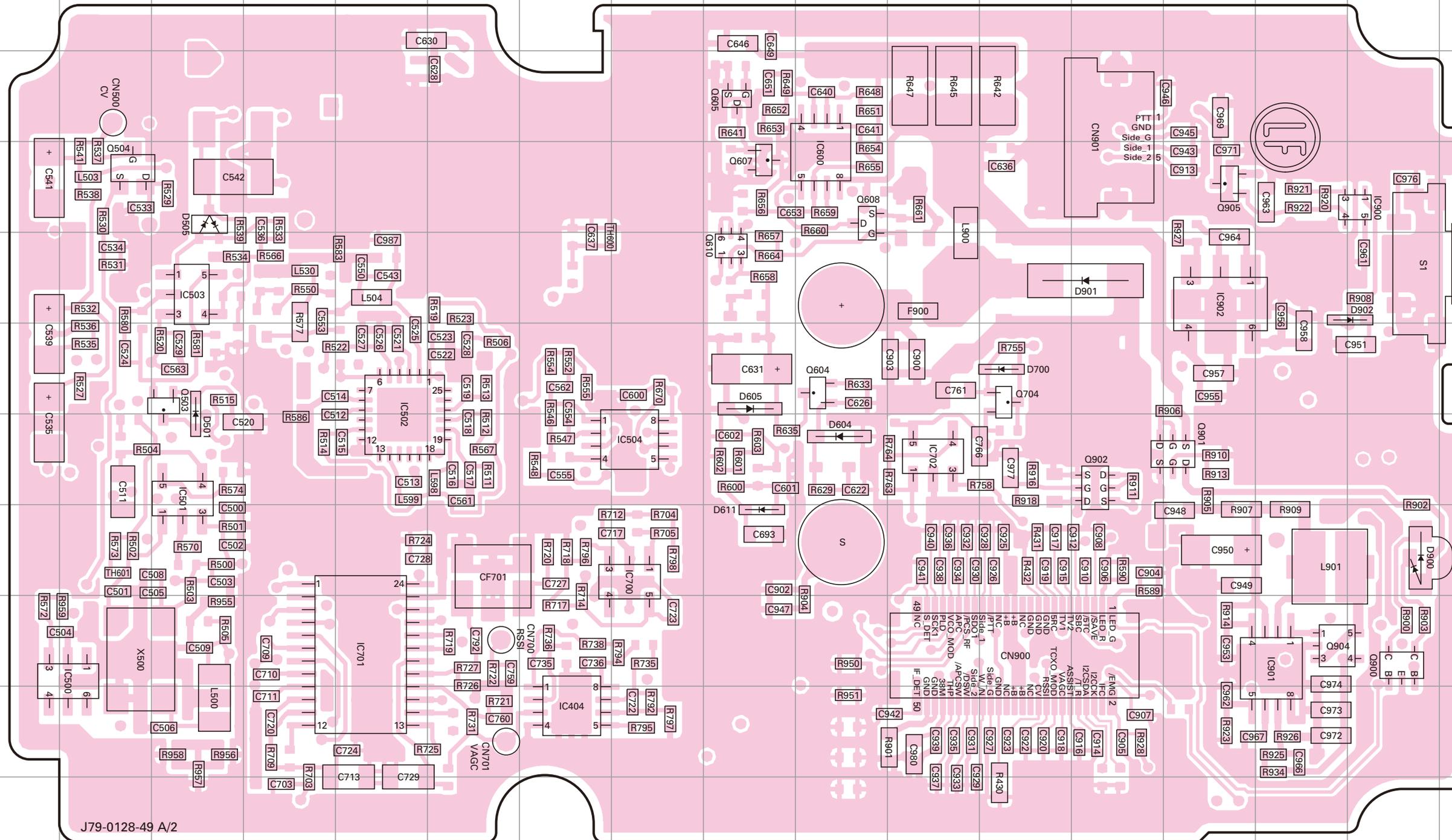
NX-300 PC BOARD

PC BOARD NX-300

TX-RX UNIT (X57-7830-12) (A/2)
Component side view (J79-0128-49 A/2)

TX-RX UNIT (X57-7830-12) (A/2)
Component side view (J79-0128-49 A/2)

TX-RX UNIT (X57-7830-12) (B/2)



| Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC404 | 10G | IC700 | 8H | Q504 | 4B | Q900 | 9P | D604 | 7J |
| IC500 | 9B | IC701 | 9E | Q604 | 6J | Q901 | 7N | D605 | 6I |
| IC501 | 7C | IC702 | 7K | Q605 | 3I | Q902 | 7M | D611 | 8I |
| IC502 | 7E | IC900 | 4P | Q607 | 4I | Q904 | 9O | D700 | 6L |
| IC503 | 5C | IC901 | 9O | Q608 | 4J | Q905 | 4N | D900 | 8P |
| IC504 | 7H | IC902 | 5N | Q610 | 5I | D501 | 7C | D901 | 5M |
| IC600 | 4J | Q503 | 6C | Q704 | 6L | D505 | 4C | D902 | 5P |

J79-0128-49 A/2

J79-0128-49 B/2

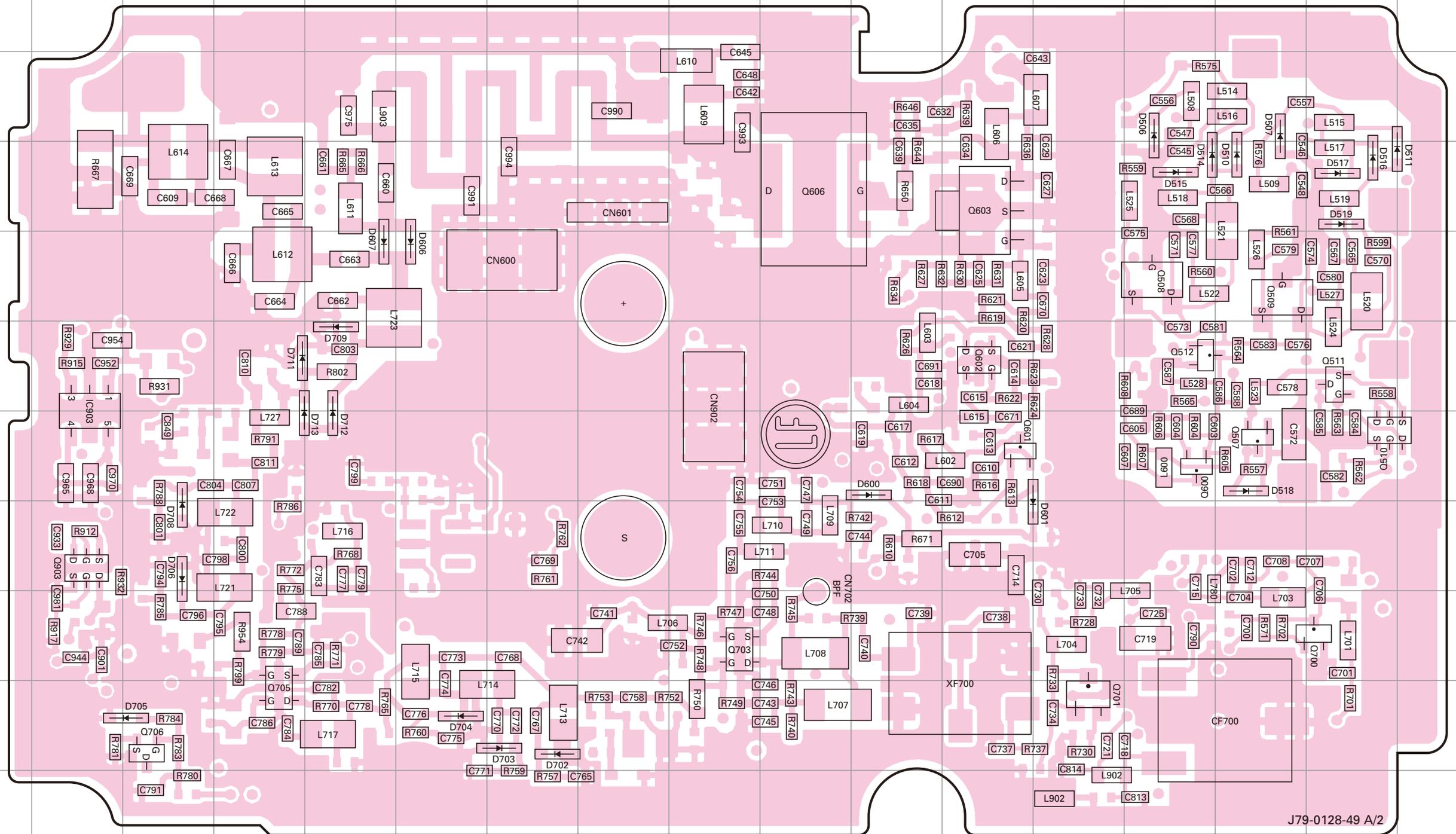
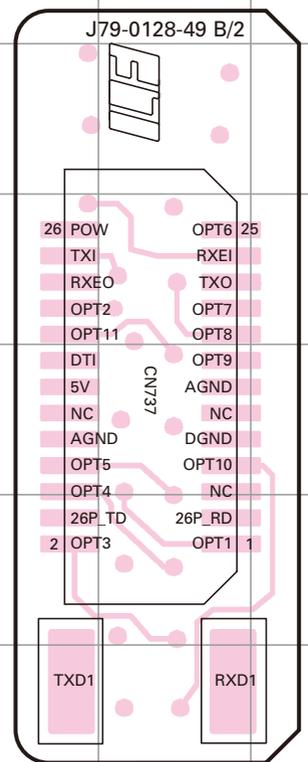
NX-300 PC BOARD

PC BOARD NX-300

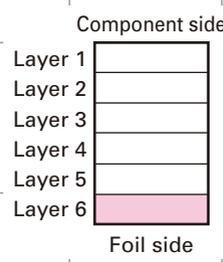
TX-RX UNIT (X57-7830-12) (A/2)
Foil side view (J79-0128-49 A/2)

TX-RX UNIT (X57-7830-12) (A/2)
Foil side view (J79-0128-49 A/2)

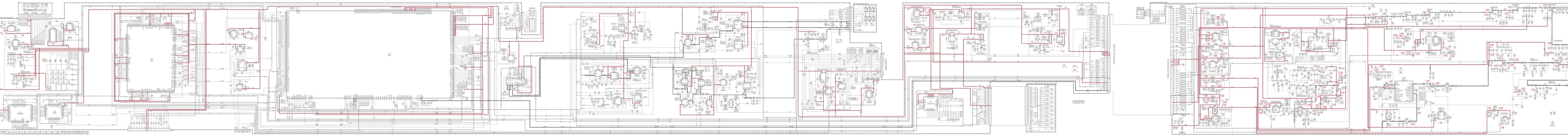
TX-RX UNIT (X57-7830-12) (B/2)



J79-0128-49 A/2



| Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC903 | 7D | Q600 | 7P | Q703 | 9K | D511 | 4S | D600 | 7M | D705 | 10E |
| Q507 | 7Q | Q601 | 7N | Q705 | 10F | D514 | 4P | D601 | 8O | D706 | 8E |
| Q508 | 5P | Q602 | 6N | Q706 | 10E | D515 | 4P | D606 | 5H | D708 | 8E |
| Q509 | 5Q | Q603 | 4N | Q903 | 8D | D516 | 4R | D607 | 5G | D709 | 6G |
| Q510 | 7R | Q606 | 4L | D506 | 3P | D517 | 4R | D702 | 10I | D711 | 6F |
| Q511 | 6R | Q700 | 9R | D507 | 3Q | D518 | 7Q | D703 | 10I | D712 | 7G |
| Q512 | 6P | Q701 | 10O | D510 | 4Q | D519 | 4R | D704 | 10H | D713 | 7G |



TX-RX unit (X57-7830-12)

