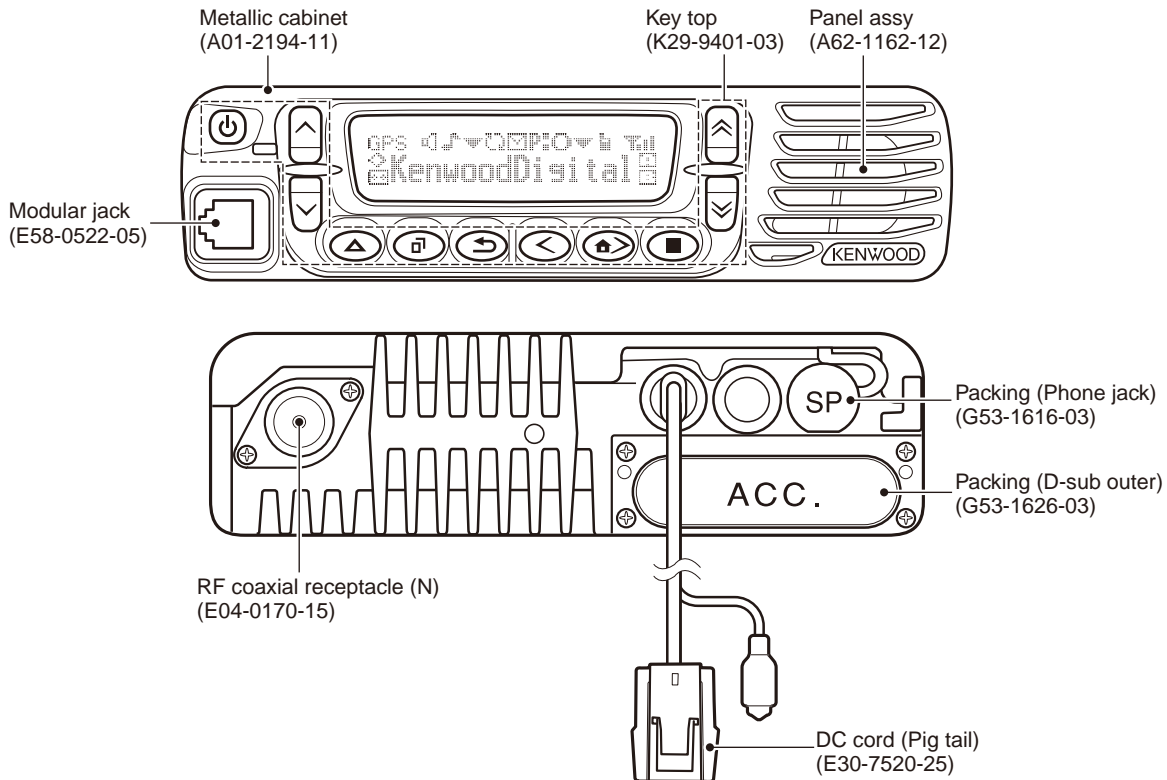


# NX-901

## SERVICE MANUAL



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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 if someone is within two feet (0.6 meter) of the antenna.
- DO NOT transmit until all RF connectors are secure and any open connectors are properly terminated.
- SHUT OFF this equipment when near electrical blasting caps or while in an explosive atmosphere.
- All equipment should be properly grounded before power-up for safe operation.
- This equipment should be serviced by only qualified technicians.

## PRE-INSTALLATION CONSIDERATIONS

### 1. UNPACKING

Unpack the radio from its shipping container and check for accessory items. If any item is missing, please contact Kenwood dealer immediately.

### 2. LICENSING REQUIREMENTS

Federal regulations require a station license for each radio installation (mobile or base) be obtained by the equipment owner. The licensee is responsible for ensuring transmitter power, frequency, and deviation are within the limits permitted by the station license.

Transmitter adjustments may be performed only by a licensed technician holding an FCC first, second or general class commercial radiotelephone operator's license. There is no license required to install or operate the radio.

### 3. PRE-INSTALLATION CHECKOUT

#### 3-1. Introduction

Each radio is adjusted and tested before shipment. However, it is recommended that receiver and transmitter operation be checked for proper operation before installation.

#### 3-2. Testing

The radio should be tested complete with all cabling and accessories as they will be connected in the final installation. Transmitter frequency, deviation, and power output should be checked, as should receiver sensitivity, squelch operation, and audio output. Signaling equipment operation should be verified.

## GENERAL

### 4. PLANNING THE INSTALLATION

#### 4-1. General

Inspect the vehicle and determine how and where the radio antenna and accessories will be mounted.

Plan cable runs for protection against pinching or crushing wiring, and radio installation to prevent overheating.

#### 4-2. Antenna

The favored location for an antenna is in the center of a large, flat conductive area, usually at the roof center. The trunk lid is preferred, bond the trunk lid and vehicle chassis using ground straps to ensure the lid is at chassis ground.

#### 4-3. Radio

The universal mount bracket allows the radio to be mounted in a variety of ways. Be sure the mounting surface is adequate to support the radio's weight. Allow sufficient space around the radio for air cooling. Position the radio close enough to the vehicle operator to permit easy access to the controls when driving.

#### 4-4. DC Power and wiring

1. This radio may be installed in negative ground electrical systems only. Reverse polarity will cause the cable fuse to blow. Check the vehicle ground polarity before installation to prevent wasted time and effort.
2. Connect the positive power lead directly to the vehicle battery positive terminal. Connecting the Positive lead to any other positive voltage source in the vehicle is not recommended.
3. Connect the ground lead directly to the battery negative terminal.
4. The cable provided with the radio is sufficient to handle the maximum radio current demand. If the cable must be extended, be sure the additional wire is sufficient for the current to be carried and length of the added lead.

### 5. INSTALLATION PLANNING – CONTROL STATIONS

#### 5-1. Antenna system

Control station. The antenna system selection depends on many factors and is beyond the scope of this manual. Your Kenwood dealer can help you select an antenna system that will best serve your particular needs.

#### 5-2. Radio location

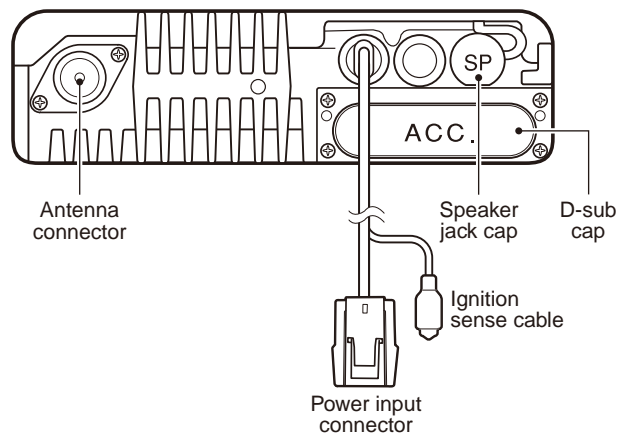
Select a convenient location for your control station radio which is as close as practical to the antenna cable entry point. Secondly, use your system's power supply (which supplies the voltage and current required for your system). Make sure sufficient air can flow around the radio and power supply to allow adequate cooling.

### SERVICE

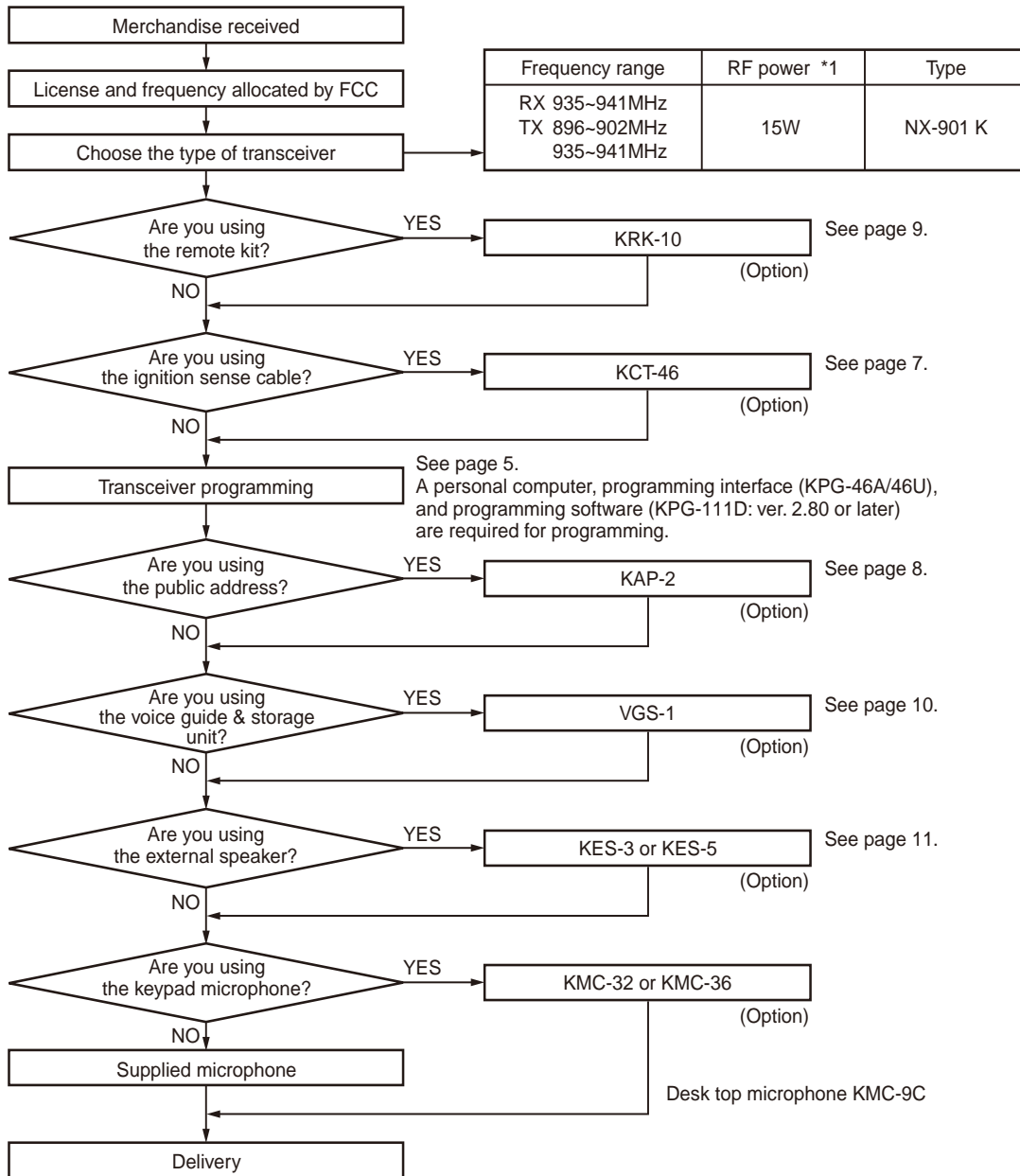
This radio is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained in this manual.

### NOTE

- You must use KPG-111D version 2.80 or later for this transceiver. KPG-111D versions earlier than version 2.80 will not work properly.
- You must use firmware version 2.80 or later for this transceiver. Firmware versions earlier than version 2.80 will not work properly.
- If you do not intend to use the speaker 3.5-mm jack and the D-sub 25-pin connector, fit the supplied speaker-jack cap and D-sub cap to stop dust and sand from getting in.
- If the transceiver is turned ON or OFF when the power-on/off status message is enabled, the transceiver sends the status.



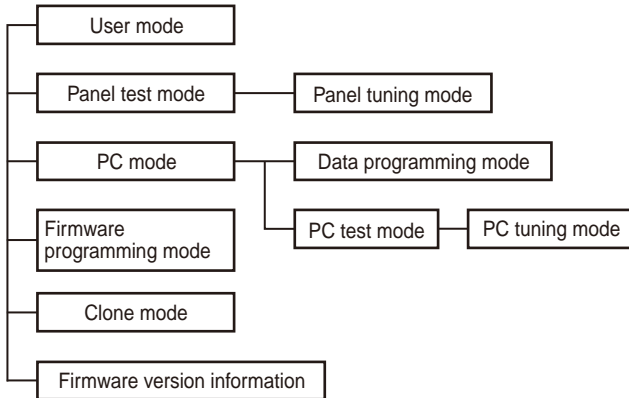
## SYSTEM SET-UP



\*1: The NX-901 transceiver transmits at low transmit power in the band ranging from 901MHz to 902MHz, or from 940MHz to 941MHz while in use with Talk Around, even if High is configured for Transmit Power.

## 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.
PC tuning mode	Used to tune 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.

### 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] + [⇄]
Firmware programming mode	[⇄] + Power ON
Clone mode	[<] + Power ON
Firmware version information	[▲] + 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-46A/46U) and programming software (KPG-111D: ver. 2.80 or later).

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

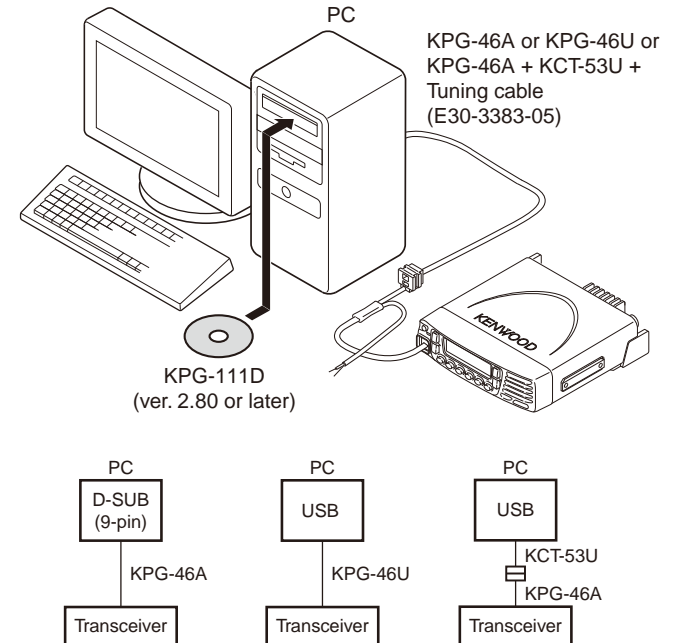


Fig. 1

#### 5-2. Connection procedure

1. Connect the transceiver to the computer using the interface cable and USB adapter (When the interface cable is KPG-46A, the KCT-53U can be used.).

#### Note:

- You must install the KPG-46U driver in the computer to use the USB programming interface cable (KPG-46U).
  - 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 is switched on, you can immediately enter user mode. When the PC sends a command, the transceiver enters PC mode, and "PROGRAM" is displayed on the LCD. When data is transmitting from the transceiver, the red LED lights. When data is receiving by the transceiver, the green LED lights.

#### Note:

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

## REALIGNMENT

### 5-3. KPG-46A description

#### (PC programming interface cable: Option)

The KPG-46A is required to interface the transceiver to the computer. It has a circuit in its D-sub connector case that converts the RS-232C logic level to the TTL level.

The KPG-46A connects the 8-pin microphone connector of the transceiver to the RS-232C serial port of the computer.

### 5-4. KCT-46U description

#### (USB programming interface cable: Option)

The KPG-46U is a cable which connects to a USB port on a computer.

When using the KPG-46U, install the supplied CD-ROM (with driver software) in the computer. The KPG-46U driver runs under Windows XP, Vista or 7.

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

The KCT-53U is a cable which connects the KPG-46A 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).

### 5-6. 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 XP, Vista or 7 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.)

### 6-2. Connection procedure

Connect the transceiver to the personal computer using the interface cable (KPG-46A/46U) and USB adapter (KCT-53U: when the interface cable is KPG-46A, the KCT-53U can be used.). (Connection is the same as in the PC Mode.)

#### Note:

You can only program firmware from the 8-pin microphone connector on the front panel. Using the 25-pin logic interface on the rear panel will not work.

### 6-3. Programming

1. Start up the firmware programming software (Fpro.exe (ver. 6.10 or later)). The Fpro.exe exists in the KPG-111D installed folder.
2. Set the communications speed (normally, 115200 bps) and communications port in the configuration item.
3. Set the firmware to be updated by File name item.
4. Turn the transceiver power ON with the [⏻] key held down. 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 [■] 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 [■] key again while “PROGRAM 19200” is displayed, the display changes to “PROGRAM 38400” (The LED lights red and orange alternatively). If you press the [■] key again while “PROGRAM 38400” is displayed, the display changes to “PROGRAM 57600” (The LED blinks orange). If you press the [■] key again while “PROGRAM 57600” is displayed, the display returns to “PROGRAM 115200” (The LED lights orange).
2. If you press the [▲] key while “PROGRAM 115200” is displayed, the checksum is calculated, and a result is displayed. If you press the [▲] 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 8-pin microphone connectors. The operation is as follows (the transmit transceiver is the master and the receive transceiver is a slave).

The following data cannot be cloned.

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

#### Note:

The following data can be cloned.

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

1. Turn the master transceiver power ON with the [←] key held down. 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

## REALIGNMENT

cloning master. The following describes how to enter the password.

3.
  - **How to enter the password with the microphone keypad;**  
If you press a key while "CLONE LOCK" is displayed, the number that was pressed is displayed on the transceiver. Each press of the key shifts the display in order to the left. When you enter the password and press the [\*] 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 with the [↵] and [↶] keys;**  
If the [↵] and [↶] keys is pressed while "CLONE LOCK" is displayed, number (0 to 9) are displayd flashing. When you press the [↵] key, the currently selected number is determined. 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 slave transceiver.
5. Connect the cloning cable (Part No. E30-3382-05) to the modular microphone jacks on the master and slave.
6. Press the [↵] key on the master while the master displays "CLONE MODE" The data of the master is sent to the slave. While the slave is receiving the data, "PROGRAM" is displayed. When cloning of data is completed, the master displays "END", and the slave automatically operates in the User mode. The slave can then be operated by the same program as the master.

7. The other slave can be continuously cloned. When the [↵] key on the master is pressed while the master displays "END", the master displays "CLONE MODE". Carry out the operation in step 4 to 6. Can not be cloned if the overwrite password is programmed to the slave.

**Note:**

Only the same models can be cloned together.

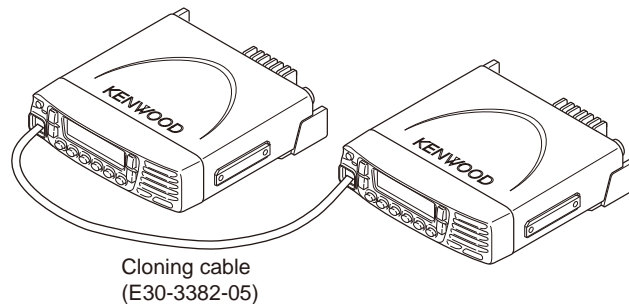


Fig. 2

## 8. Firmware Version Information

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

## INSTALLATION

### 1. Ignition Sense Cable (KCT-46: Option)

The KCT-46 is an optional cable for enabling the ignition function. The ignition function lets you turn the power to the transceiver on and off with the car ignition key.

#### 1-1. Connecting the KCT-46 cable to the transceiver

1. Open the KCT-46 fuse holder and insert a mini blade fuse (3A). (①)
2. While holding a clear protective cover, remove the black cap at the end of the yellow cable (ignition sense cable) of the transceiver. (②)
3. Connect the plug of the KCT-46 to the yellow cable terminal of the transceiver. (③)
4. Connect the other end of the KCT-46 to the ignition line of the car. (④)

**Note:** You must setup using the KPG-111D.

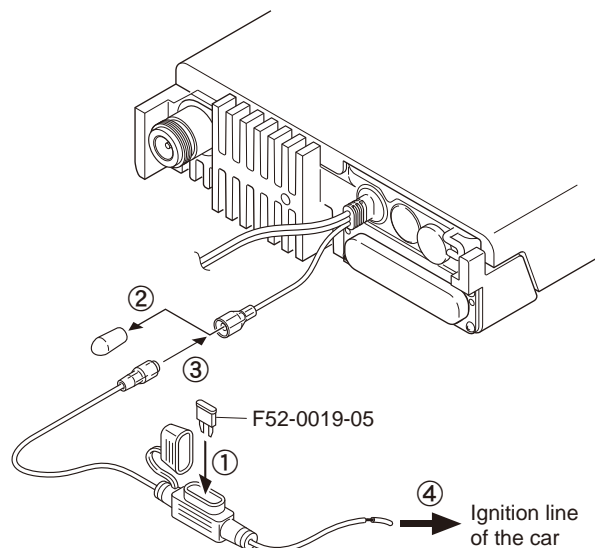


Fig. 1

## INSTALLATION

### 2. Horn Alert/P.A. Relay Unit (KAP-2: Option)

The Horn alert (max. 2A drive), Public address and External speaker function are enabled by installing the KAP-2 in the transceiver.

#### 2-1. Installing the KAP-2 unit in the transceiver

(The kit A is not used in the KAP-2 accessories)

1. Remove the cabinet, top packing and shielding plate of the transceiver.
2. Set the KAP-2 relay unit jumper pins according to the purpose of use.
3. Remove the 6-pin jumper connector inserted in the TX-RX unit (A/2) connector (CN705). (①)
4. Insert one side of the lead wire with connector (E37-1114-05) into the relay unit connector (CN3) (②) and the other side into the TX-RX unit (A/2) connector (CN705) (③).

5. Place the relay unit at the position shown in Figure 2-2 and secure it to the chassis with a screw.
6. Remove the cap on the rear of the chassis by pushing it from the inside with your finger. (④)
7. Pass the 6-pin connector of the cable (E37-1113-25) through the chassis hole (⑤) and insert the bush into the chassis hole.
8. Rotate the bush of the cable 90 degrees counterclockwise as viewed from the rear of the chassis. (⑥)
9. Insert the 6-pin connector of the cable into the connector (CN2) of the KAP-2 relay unit. (⑦)

**Note:** You must setup using the KPG-111D.

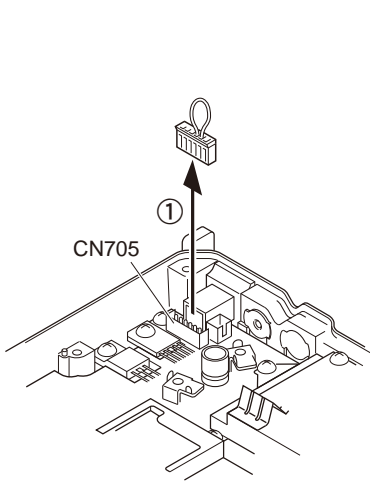


Fig. 2-1

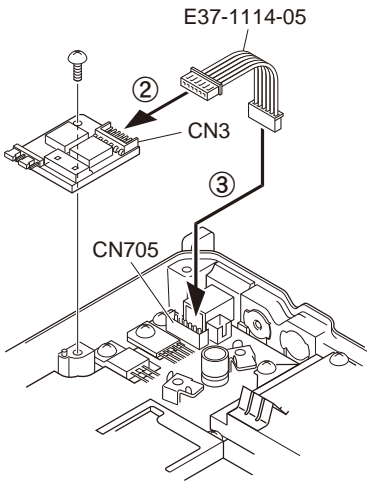


Fig. 2-2

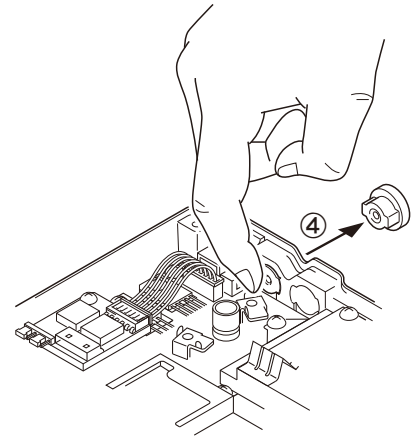


Fig. 2-3

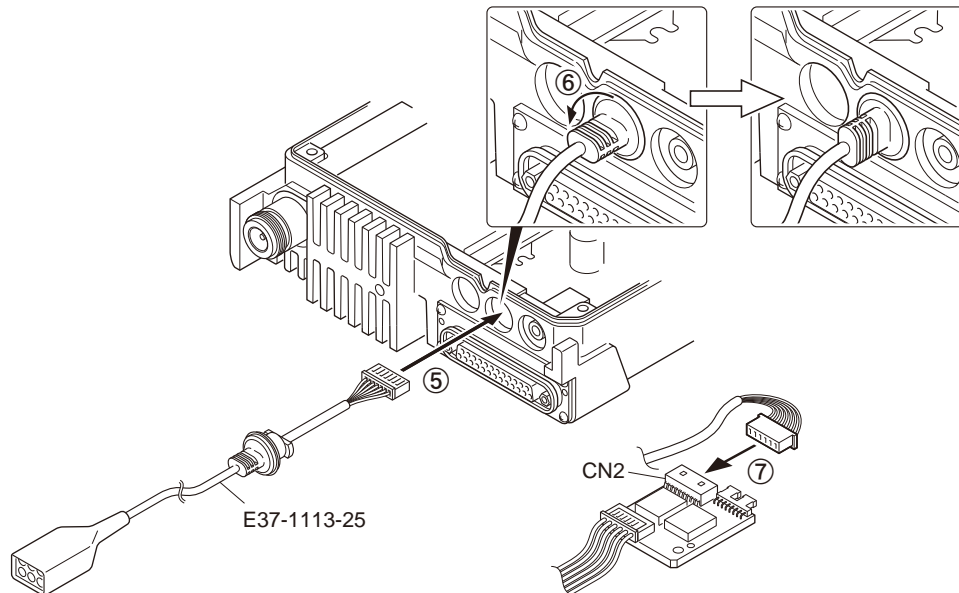


Fig. 2-4



## INSTALLATION

### 3. Control Head Remote Kit (KRK-10: Option)

The KRK-10 remote kit is used to remotely operate the transceiver.

#### 3-1. Installing the KRK-10 kit to the transceiver

1. Remove the front panel from the transceiver.
2. Install the KRK-10 main panel onto the transceiver.
3. Install the KRK-10 rear panel onto the front panel.
4. Connect the KRK-10 main panel to the rear panel with the cable.

#### ■ Remove the front panel from the transceiver

1. Lift the two tabs of the panel on the bottom of the transceiver with a flat-head screwdriver (①) and remove the panel from the chassis (②).
- Note:** Confirm that the tabs of the speaker hardware fixture and holder is securely fitted in the front panel.
2. Remove the flat cable from the connector (CN901) of the display unit of the panel. (③)
3. Fold the black line of the flat cable (in three parts) as shown in Figure 3-2. (④, ⑤, ⑥)

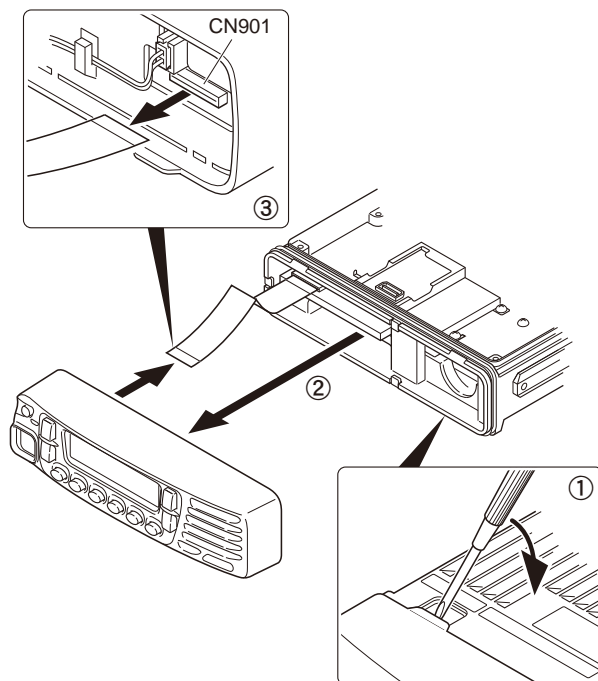


Fig. 3-1

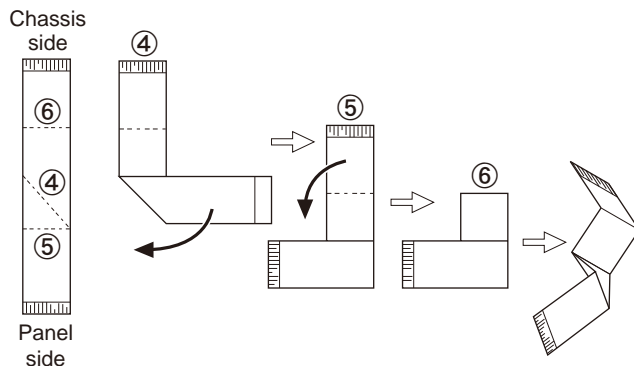


Fig. 3-2

#### ■ Install the KRK-10 main panel onto the transceiver

4. Insert the flat cable that was removed in step 2 above into the connector (CN1) of the interface unit (A/2) of the KRK-10 main panel (A62-1101-21). (⑦)

**Note:** The terminal side of the flat cable must face down when inserting the flat cable into the connector.

5. Fit the main panel with four tabs onto the front of the chassis. (⑧)

**Note:** When installing the main panel onto the front of the chassis, hold down the flat cable with your fingers to prevent it from being caught.

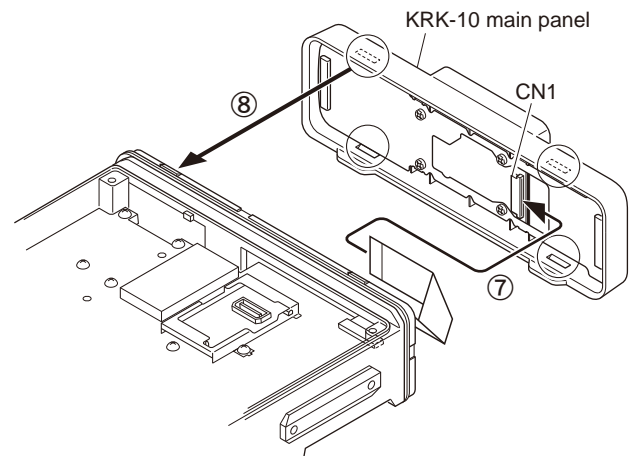


Fig. 3-3

#### ■ Install the KRK-10 rear panel onto the front panel

6. Insert the flat cable attached to the interface unit (A/2) of the KRK-10 rear panel (A82-0056-31) into the connector (CN901) of the display unit of the panel (⑨). (The flat cable has been pre-inserted in the connector (CN2) of the rear panel at the time of shipping.)

**Note:** The terminal side of the flat cable must face down when inserting the flat cable into the connector.

7. Fit the four tabs of the rear panel into the front panel. (⑩)

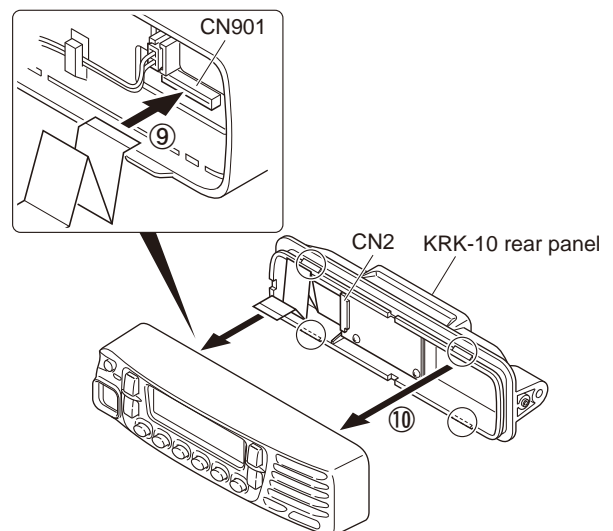


Fig. 3-4

## INSTALLATION

### ■ Connect the KRK-10 main panel to the rear panel with the cable

8. Insert one 14-pin connector of the cable (E30-7514-15) into the connector (CN3) of the interface unit (A/2) of the main panel. (11)

**Note:** Insert the connector that has a sticker onto the cable to the connector of the main panel.

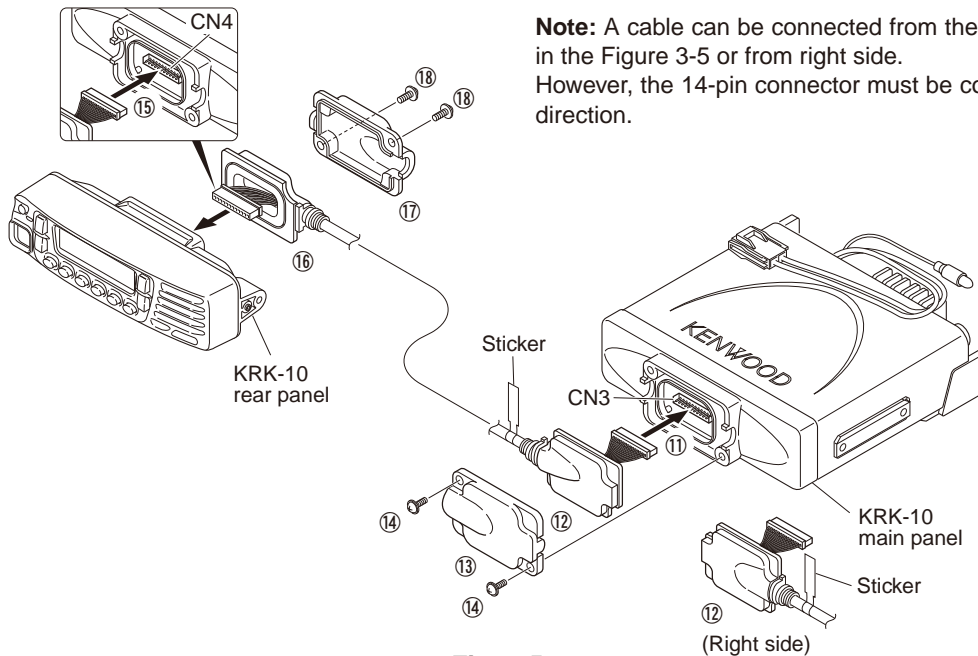
9. Secure the cable bush on the main panel and fit the waterproof packing (orange) (12) securely over top.

10. Install the molded cover (13) over the connector on the main panel and secure it with two screws (14).

11. Insert the other 14-pin connector of the cable into the connector (CN4) of the interface unit (B/2) of the rear panel. (15)

12. Secure the cable bush on the rear panel and fit the waterproof packing (orange) (16) securely over top.

13. Install the molded cover (17) over the connector on the rear panel and secure it with two screws (18).



**Note:** A cable can be connected from the left side as shown in the Figure 3-5 or from right side.

However, the 14-pin connector must be connected to correct direction.

Fig. 3-5

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

### 4-1. Installing the VGS-1 unit in the transceiver

1. Remove the cabinet, top packing and shielding plate of the transceiver.

2. Attach two cushions to VGS-1 as shown in Figure 4. (1)

**Note:** Be sure not to cover the connector with the bottom cushion.

3. Insert the VGS-1 connector (CN1) into the TX-RX unit (A/2) connector (CN595). (2)

**Note:** You must setup using the KPG-111D.

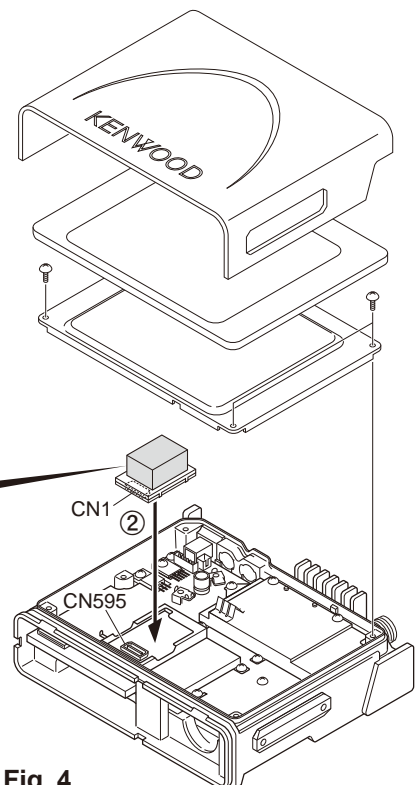
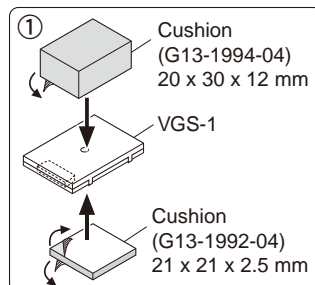


Fig. 4

## INSTALLATION

### 5. External Speaker (Option)

#### 5-1. KES-3

The KES-3 is an external speaker for the 3.5-mm-diameter speaker jack.

#### ■ Connection Procedure

1. Connect the KES-3 to the 3.5-mm-diameter speaker jack on the rear of the transceiver.

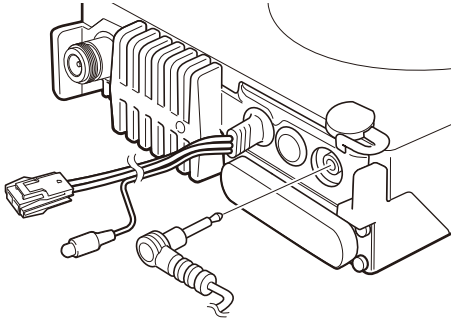


Fig. 5-1

#### 5-2. KES-5

External speaker KES-5 can be installed for KAP-2. If KES-5 is installed, it can be set by changing the CN1 short pin from pins 4 and 5 to pins 5 and 6 on the KAP-2.

KAP-2 CN1 Connect	Set Up
4-5	INT. SP or KES-3
5-6	KES-5

When you use the KES-5, plug the short pin to pins 5 and 6 on the KAP-2.

When you use the INT. SP or KES-3, plug the short pin to pins 4 and 5 on the KAP-2.

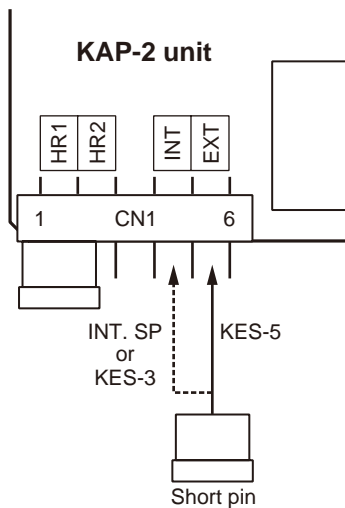


Fig. 5-2

#### ■ Connection Procedure

Insert the crimp terminal into the Square plug supplied with the KAP-2.

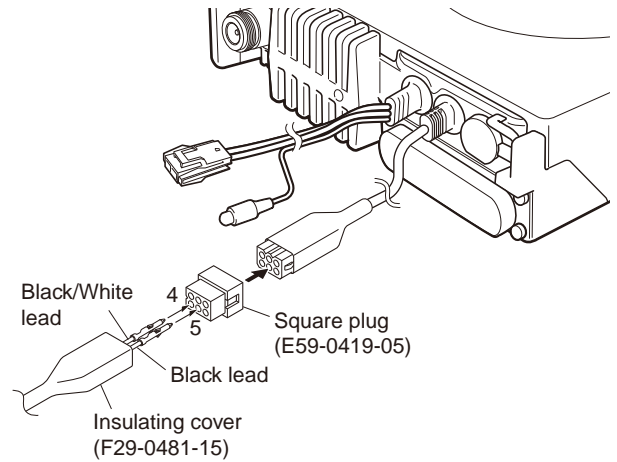
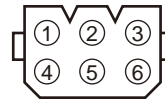


Fig. 5-3

#### ■ KAP-2 Cable (E37-1113-25) 6-pin Connector



Pin No.	Color	Name
1	Red	HR2
2	Blue	GND
3	Yellow	OSP
4	Green	ESP
5	Brown	GND
6	Black	HR1

## INSTALLATION

### 6. GPS Receiver Connection

#### 6-1. Installing the GPS receiver

1. Remove the cabinet, top packing and shielding plate of the transceiver.
2. Remove the front panel from the transceiver.
3. Attach two cushions to the top of the GPS receiver.
4. Attach the GPS receiver to the shield case with two cushions as shown in Figure 6-2.
5. Solder each lead of the GPS receiver to a necessary location of each landing on the component side of the TX-RX unit (A/2).
6. Place the GPS antenna cable in the hollow at the rear of the chassis. (Fig. 6-2 ①)

**Note:** If the GPS receiver is installed, cut the base of the convex tab of the top packing with a pair of diagonal cutters, or similar tool. (Fig. 6-3 ②)

If the convex tab of the top packing is cut off, the water proofing property is no longer guaranteed.

**Note:** You must setup using the KPG-111D.

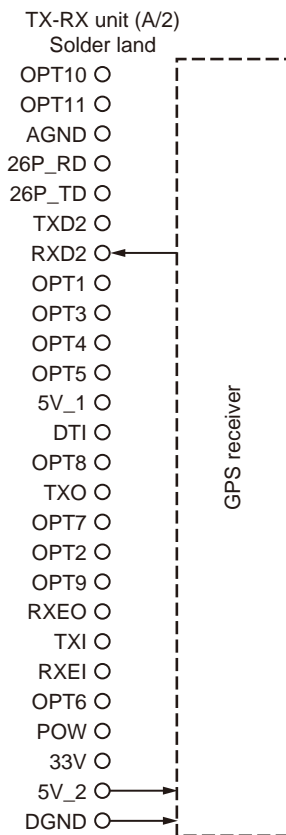


Fig. 6-1

3M Double coated cushion  
No. 4016 (or No. 4416)  
30 x 25 mm

3M Double coated cushion  
No. 4016 (or No. 4416)  
30 x 25 mm

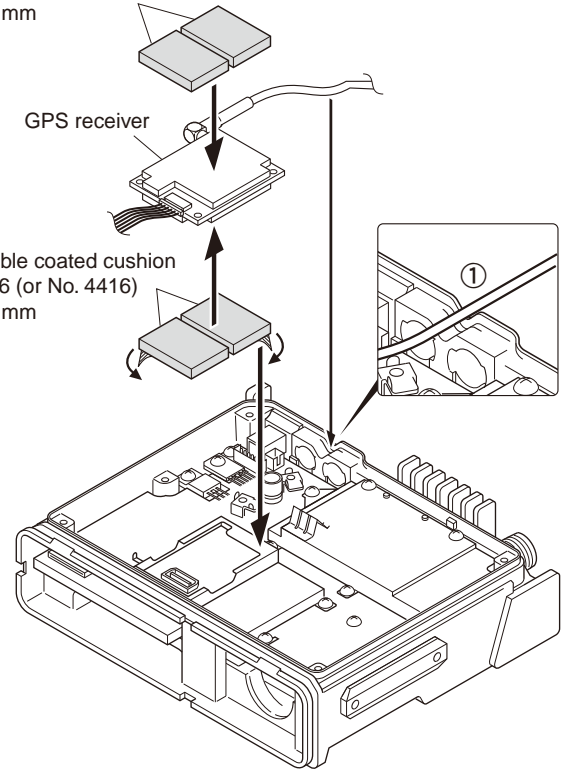


Fig. 6-2

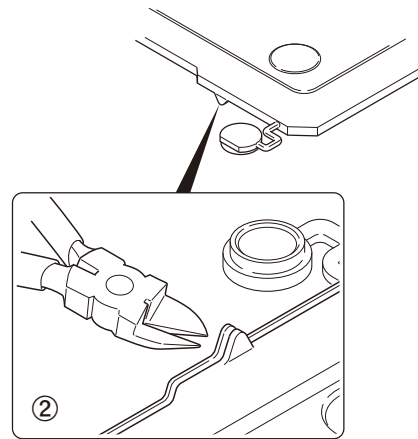


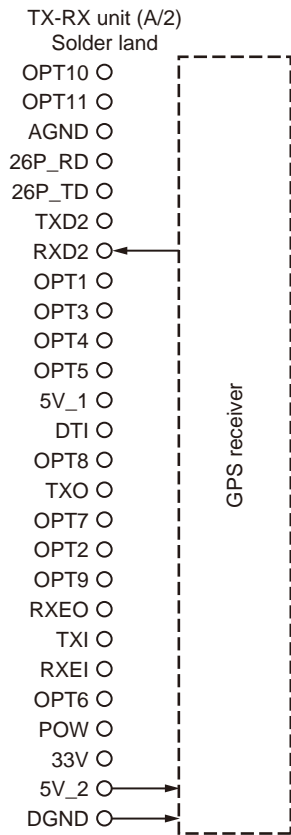
Fig. 6-3

## INSTALLATION

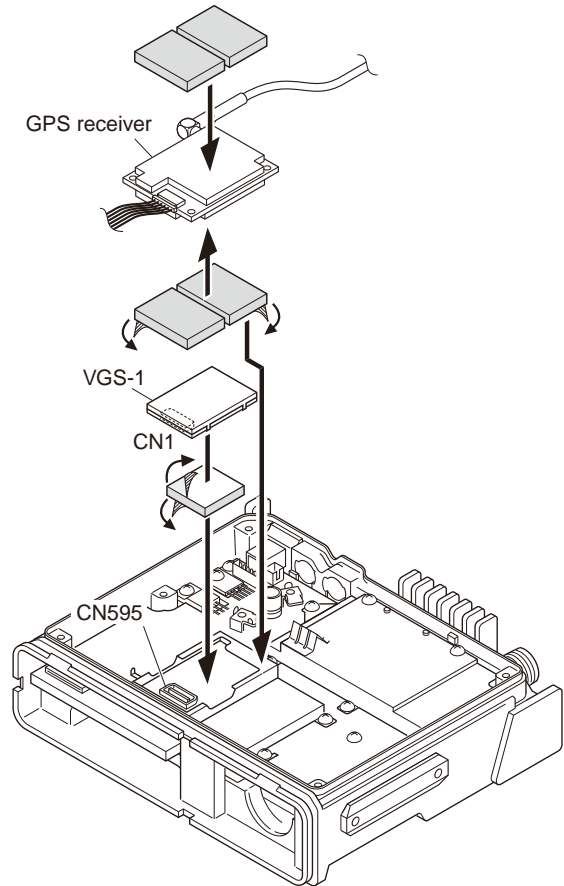
### 6-2. Installing the GPS receiver together with the VGS-1

1. Remove the cabinet, top packing and shielding plate of the transceiver.
  2. Remove the front panel from the transceiver.
  3. Attach a cushion to the bottom of the VGS-1 as shown in Figure 6-5.
- Note:** Be sure not to cover the connector with the cushion.
4. Insert the VGS-1 connector (CN1) into the TX-RX unit (A/2) connector (CN595).
  5. Perform step 3 to 6 of "6-1. Installing the GPS receiver" described on page 12.

**Note:** You must setup using the KPG-111D.



**Fig. 6-4**



**Fig. 6-5**

## DISASSEMBLY FOR REPAIR

### 1. Precautions on Disassembly

#### ■ TX-RX PCB (TX-RX unit A/2) Disassembly

1. Remove all screws and antenna terminals on the TX-RX PCB.
2. Rotate the bush of the power supply cable 90 degrees counterclockwise as viewed from the rear of the chassis (①) and remove the power supply cable from the chassis (②).
3. When the speaker phone jack is pushed up, using your finger, from the rear of the chassis (③), the TX-RX PCB is removed from the chassis.

**Note:** The TX-RX PCB and D-sub PCB (TX-RX unit B/2) are connected with a flat cable. Remove them carefully.

4. Turn the TX-RX PCB over and remove the flat cable from the connector (CN600). (④)
5. Remove the TX-RX PCB from the chassis.

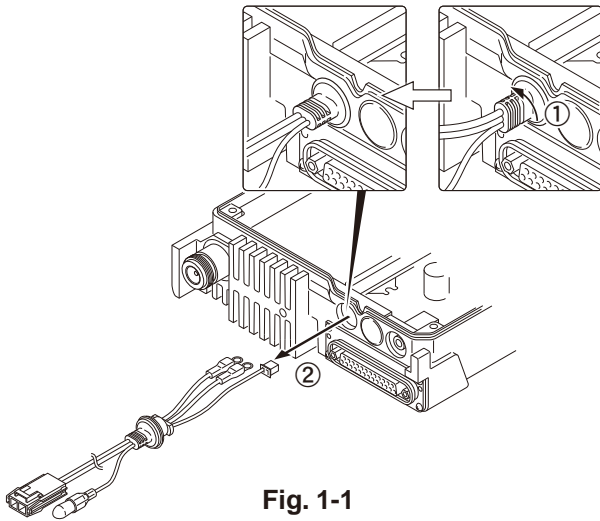


Fig. 1-1

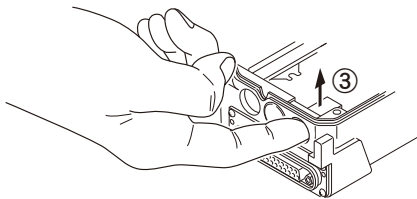


Fig. 1-2

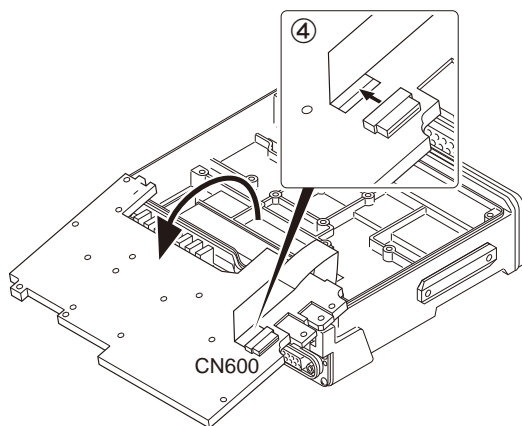


Fig. 1-3

#### ■ Removing the speaker hardware fixture (J21-8481-03) and holder (J19-5485-12)

1. Remove the speaker lead from the holder hook. (①)
2. Remove the speaker connector from the display unit connector (CN902). (②)
3. When removing the speaker hardware fixture, insert a flat-head screwdriver at the position shown in Figure 2-1 and tilt it in the direction shown by the arrow. (③)
4. To remove the holder, insert a flat-head screwdriver into tab of the holder and tilt it in the direction shown by the arrow. (④)

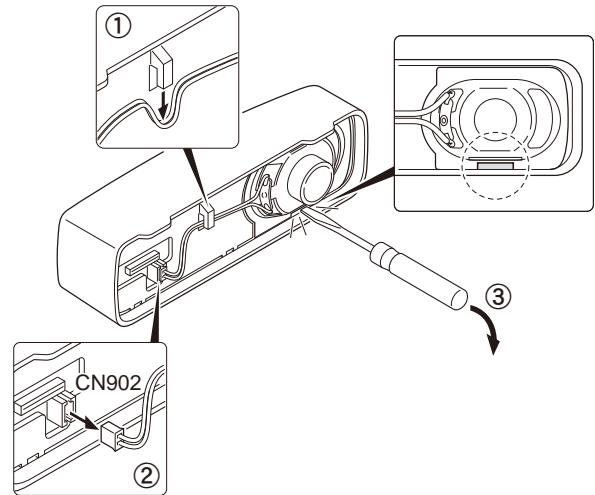


Fig. 2-1

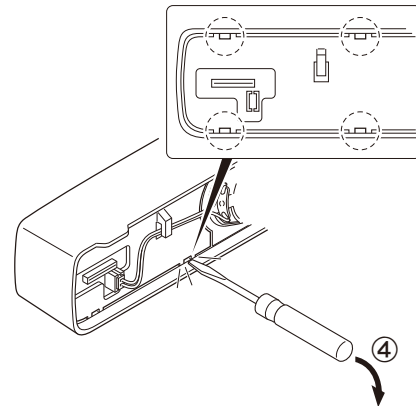


Fig. 2-2

## DISASSEMBLY FOR REPAIR

### 2. Precautions on Reassembly

#### ■ TX-RX PCB (TX-RX unit A/2) Reassembly

1. With the TX-RX PCB turned over, insert the flat cable from the D-sub PCB (TX-RX unit B/2) into the connector (CN600) on the TX-RX PCB.
2. Place the TX-RX PCB at its original position, tilt the TX-RX PCB and install the chassis as shown in Figure 3.

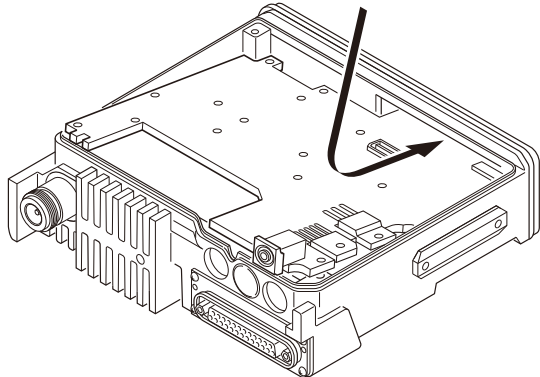


Fig. 3

#### ■ FINAL shield case (F10-3032-14) installation procedure

1. Place the shield case on the final section of the TX-RX unit (A/2).
2. The shield case is installed on the positioning boss of the chassis by pushing down on "PUSH2" (on the shield case) while pushing "PUSH1" (stamped on two parts on the shield case) to the right.

#### ■ Power supply cable installation procedure

1. Pass the power supply cable through the chassis hole (①) as shown in Figure 4-1 and insert the bush into the chassis hole.
2. Rotate the bush of the power supply cable 90 degrees clockwise as viewed from the rear of the chassis. (②)
3. Align the ignition sense connector (yellow) of the power supply cable around the chemical capacitor (C401) and connect it to the TX-RX unit (A/2) connector (CN403).
4. Align the + (positive) terminal of the power supply cable (red) as shown in Figure 4-2 and fix it to the terminal strip with a screw.
5. Align the - (negative) terminal of the power supply cable (black) as shown in Figure 4-2 and fix it to the terminal strip with a screw.

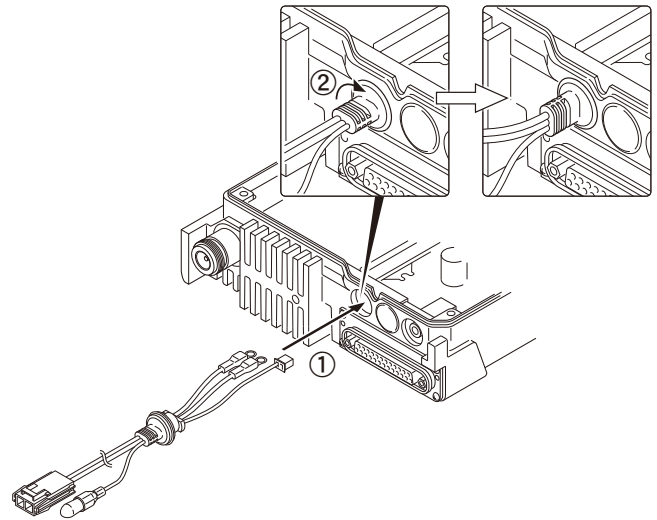


Fig. 4-1

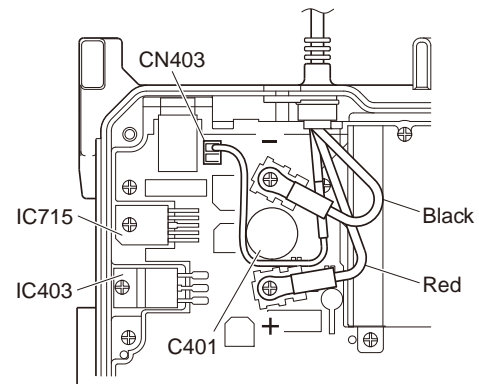


Fig. 4-2

#### ■ Top packing installation procedure

1. Place the top packing over the shielding plate.
2. Fit the convex tab of the top packing into the hollow of the chassis. (①)
3. Fit the chassis into the groove of the top packing. (②)  
Verify that the top packing is in close contact with the chassis.

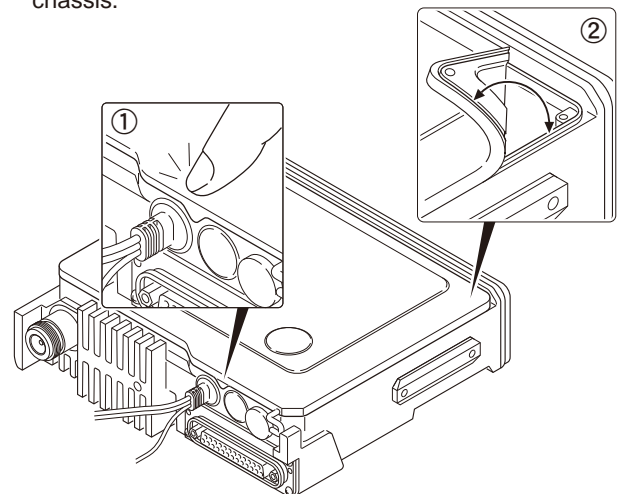


Fig. 5

## DISASSEMBLY FOR REPAIR

### ■ D-sub cap installation procedure

To improve water resistance, fit the D-sub cap into the D-sub terminal hardware fixture of the transceiver in the following order:

1. Fit the left side (①) of the D-sub cap into the hardware fixture.
  2. Fit the right side (②) of the D-sub cap into the hardware fixture.
  3. Fit the center (③) of the D-sub cap into the hardware fixture.
- Verify that the D-sub cap is in close contact with the hardware fixture.

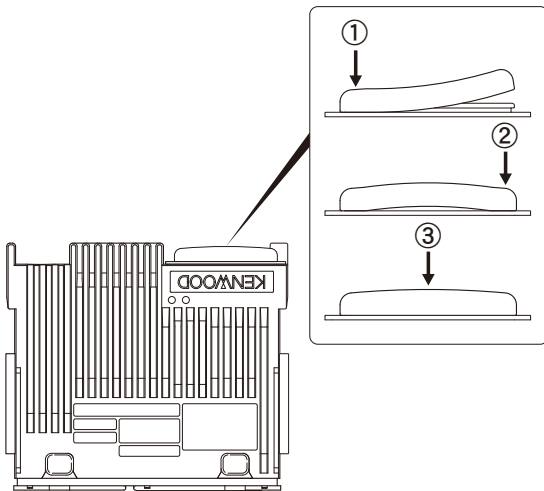


Fig. 6

### ■ Installing the holder (J19-5485-12) and speaker hardware fixture (J21-8481-03)

1. Insert two tabs of the holder (J19-5485-12) into the hollows in the top of the panel. (①)
2. Push the two tabs of the holder in on the opposite side of those in step 1 above and fit them into the hollow in the bottom of the panel. (②)  
**Note:** Push in the holder until it snaps in place.
3. Install the speaker holder onto the panel. (③)  
**Note:** To improve water resistance, fit the panel into the groove of the holder.
4. Place the speaker into the speaker holder.  
**Note:** The speaker must not ride on the holder rib.
5. Place the spacer on the speaker.
6. Insert the hardware fixture (J21-8481-03) into the hollow of the panel as shown in Figure 7-3, then push two parts of the hardware fixture and fit it into the hollow of the top of the panel. (Fig. 7-3 ④)  
**Note:** Push in the hardware fixture until it snaps in place.
7. Insert the speaker connector into the display unit connector (CN902).
8. Place the speaker lead on the holder hook.

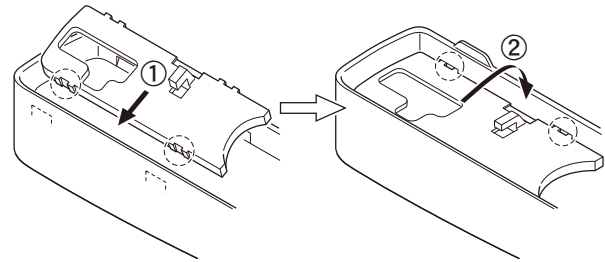


Fig. 7-1

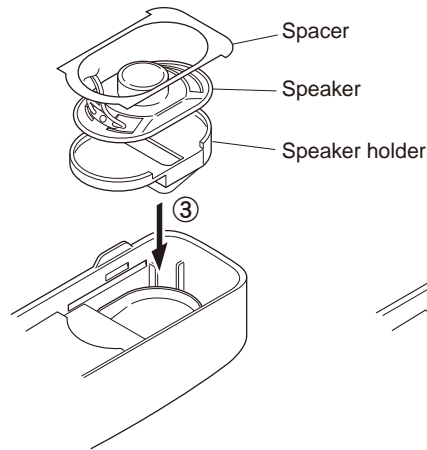


Fig. 7-2

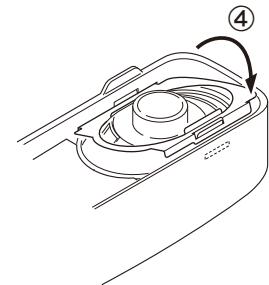


Fig. 7-3

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

Insert a non-conductive screwdriver to groove of one side of the socket (CN405) and pry the lithium cell up from the socket.

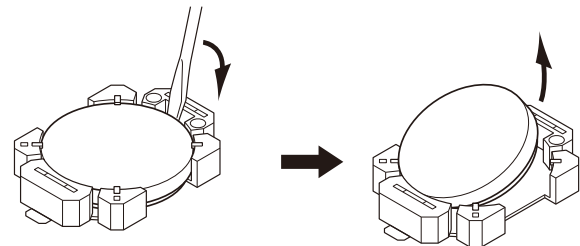


Fig. 8

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

Insert a lithium cell into one side of the socket (CN405). Push the lithium cell to insert the lithium cell into the socket.



Fig. 9



## CIRCUIT DESCRIPTION

### 1. Overview

The NX-901 is an 900MHz Mobile transceiver designed to operate in the frequency range of 896 to 941MHz.

The unit consists of a receiver, transmitter, phase-locked loop (PLL) frequency synthesizer, baseband parts, power supply, and control circuits.

### 2. Frequency Configuration

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

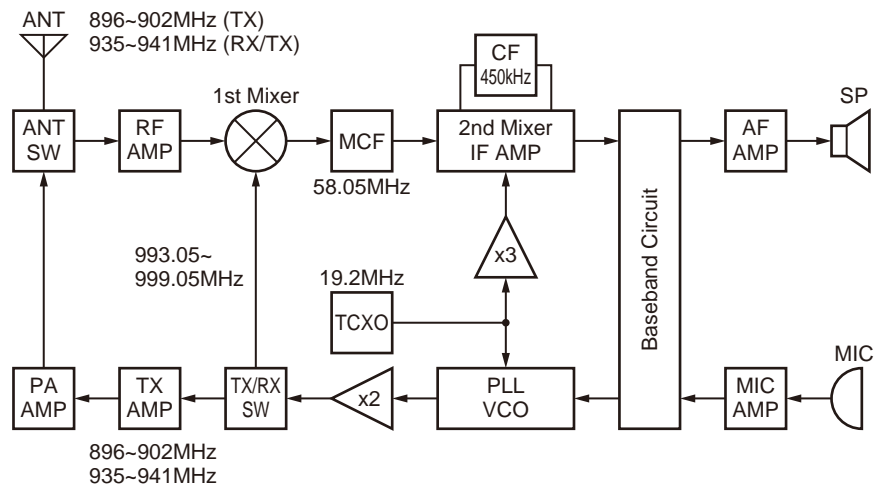


Fig. 1 Frequency configuration

### 3. Receiver System

#### 3-1. RF circuit

The front-end circuit consists of the former BPF (L906), RF amplifier (Q2), and latter BPF (L907).

The BPF attenuates the unwanted signals, and sends only the necessary signal to the first mixer.

#### 3-2. First Mixer

The signal from the BPF is heterodyned with the first local oscillator signal from the PLL frequency synthesizer circuit at the first mixer (IC716) to become a 58.05MHz first intermediate frequency (IF) signal.

The first IF signal is fed through a monolithic crystal filter (XF202) to further remove spurious signals.

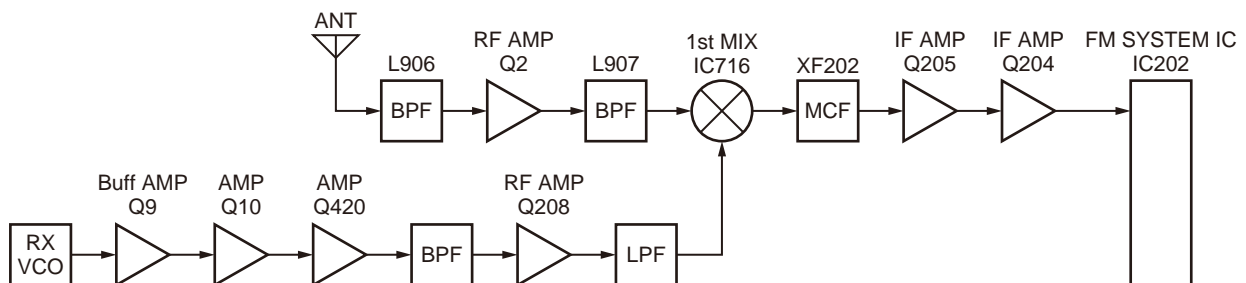


Fig. 2 RF circuit and First mixer

## CIRCUIT DESCRIPTION

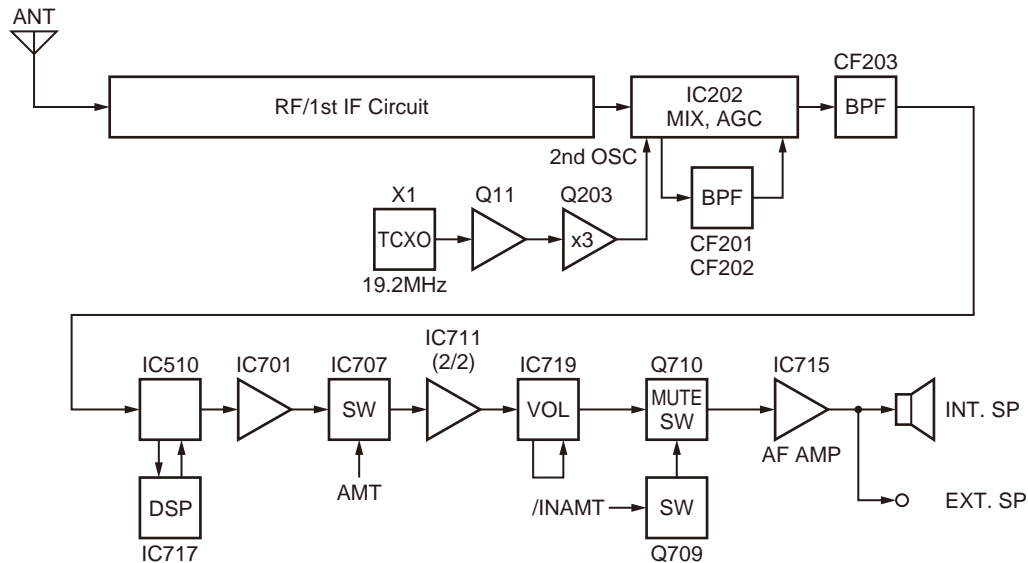
### 3-3. IF circuit

The first IF signal is passed through a four-pole monolithic crystal filter (XF202) to reject adjacent channel signal. The filtered first IF signal is amplified by the first IF amplifier (Q205, Q204) and is then applied to the IF system IC (IC202). The IF system IC provides a second mixer, AGC amplifier, and RSSI (Received Signal Strength Indicator).

The second mixer mixes the first IF signal with the 57.6MHz of the second local oscillator output and produces the second IF signal of 450kHz.

The second IF signal is passed through the ceramic filter (CF201, CF202) to reject the adjacent channel signal. The filtered second IF signal is amplified by the AGC amplifier.

The signal from the AGC amplifier is input to the A/D converter (IC510) through the ceramic filter (CF203).



**Fig. 3 IF circuit**

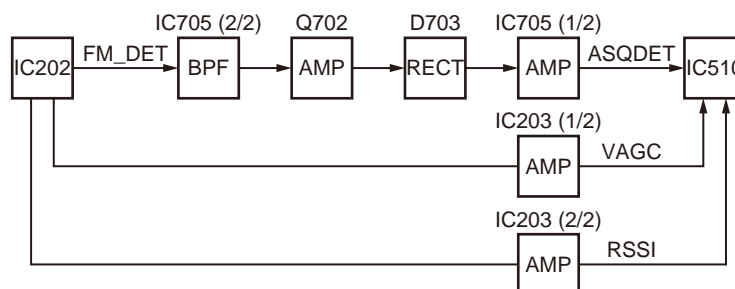
### 3-4. Audio amplifier circuit

Audio processing (high-pass filter, low-pass filter, de-emphasized, etc.) at FM mode and decoding at NXDN mode are processed by the DSP (IC717). The audio signal from IC510, IC717 goes through the amplifier (IC701). The signal then goes through the mute switch (IC707), amplifier (IC711), and electronic volume control (IC719).

While busy, INAMT becomes High, turning the switch (Q709) on and the Mute switch (Q710) off, and the signal is fed to the AF Power Amp (IC715). While not busy, INAMT becomes Low, turning the switch (Q709) off and the Mute switch (Q710) on (there is no AF output).

### 3-5. Squelch Circuit

The squelch circuit amplifies the demodulated noise signal from IC202 after filtering through the BPF circuit. The amplified signal is then converted to a DC signal by the detection circuit. The converted signal is fed back to IC510.



**Fig. 4 Squelch circuit**

## CIRCUIT DESCRIPTION

### 4. Transmitter System

#### 4-1. Audio Band Circuit

The signal from the microphone goes through the mute switch (Q706), the Mic-Mute signal (MM) becomes Low, and the mute switch (Q706) is turned off. The signal from microphone goes through the Mic-AGC (IC709 (2/2), Q704, Q705, D704, D705), then through the switch IC (IC708), and is amplified by Mic-Amp IC706 (2/2). LPF IC706 (1/2) works as an anti-aliasing filter.

If an optional scrambler board is installed, the switch (IC708) adjusts the signal path so that the audio signal is input to the scrambler board.

#### 4-2. Baseband Circuit

The audio signal output from the baseband circuit is converted to digital data of a sampling frequency of 48kHz. This digital data is sent to the DSP (IC717), and voice signals of 300Hz or lower and frequencies of 3kHz or higher are cut off and an audio range 300Hz to 3kHz is extracted. The audio signal is then pre-emphasized in FM mode and synthesized with the signals, such as QT and DQT, as required. In Digital mode, the audio signal is converted to the 4-Level FSK baseband signal. The DTMF and MSK baseband signals are also generated by the DSP. The processed baseband signal is output from IC717 and IC510.

The signal from IC717 directly modulates the PLL IC (IC3).

The signal from IC510 is filtered with the LPF (IC702) working as a smoothing filter. The DAC (IC719) assigns the baseband signal to the VCO. At this time, the level output according to the transmit carrier is fine-adjusted.

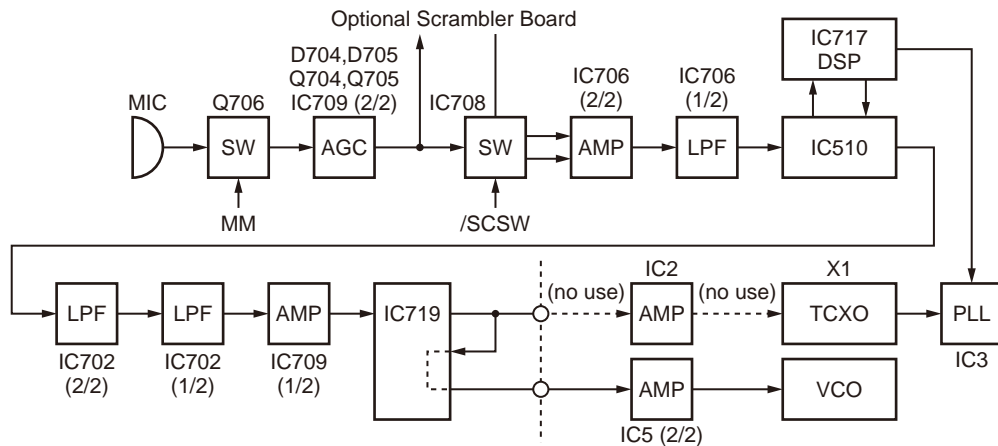


Fig. 5 Audio band and Baseband circuit

#### 4-3. Drive and Final amplifier

The transmit signal obtained from the TX VCO buffer amplifier Q9, is amplified to approximately +17dBm by the driver amplifiers Q10, Q420, Q150 and Q151.

This amplified signal is passed to the power amplifier module (power module) IC102, which consists of a MOS-FET amplifier, and is capable of transmitting output power.

#### 4-4. APC circuit

The automatic power control (APC) circuit stabilizes the transmitter output power at a predetermined level, and consists of forward/reflected power detector circuits.

The forward/reflected power detector circuits detect forward RF power and reflected RF power to DC voltage, and consist of a CM coupling type detection circuit formed by a CM coupler.

The voltage comparator (IC103) compares the voltage obtained by the above detected voltage with reference voltage set using ASIC (IC510).

An APC voltage proportional to the difference between the sensed voltage and the reference voltage appears at the output of IC103. This output voltage controls the gate voltage to the power amplifier module (power module) IC102 (RA20H8994M101), the Pre-Drive amplifier Q150 and the Drive amplifier Q151.

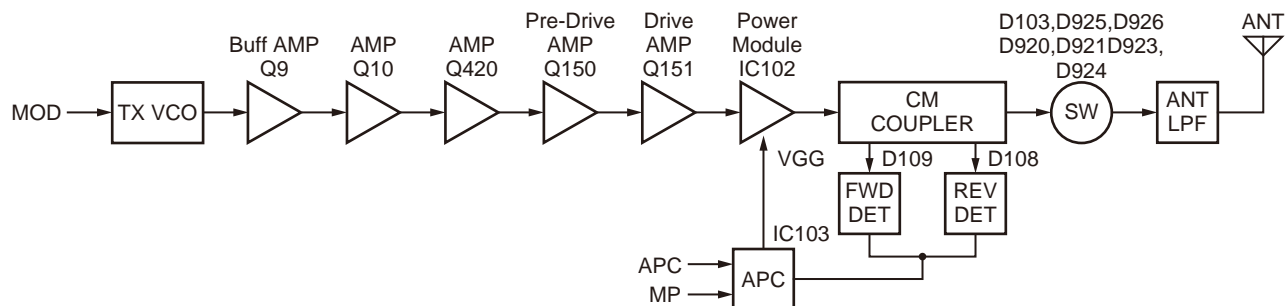


Fig. 6 Drive and final amplifier and APC circuit

## CIRCUIT DESCRIPTION

### 5. PLL Frequency Synthesizer

#### 5-1. TCXO (X1)

TCXO (X1) generates a reference frequency of 19.2MHz for the PLL frequency synthesizer. This reference frequency is applied to pin 9 of the PLL IC (IC3) through the buffer amplifier (Q11) and is connected to the IF circuit as a 2nd local signal through the Tripler (Q203). The TCXO oscillation frequency is determined by the DC voltage of the VC terminal. The VC voltage is fixed at 1.65V by R1 and R2, and is supplied to the VC terminal.

#### 5-2. VCO

There are two VCOs (VCO1 and VCO2).

VCO1 (Q5) generates the 1st local signal for the receiver.

VCO2 (Q6) generates a carrier for the transmitter and for the TA (Talk Around) transmitter.

The oscillation frequency of the VCO is half of the carrier or 1st local signal.

The VCO oscillates from 448 to 470.5MHz at transmission, and 496.525 to 499.525MHz at reception.

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

The operation switching terminal, "/T\_R", is controlled by the control line (/T\_R) output from the ASIC (IC510).

When the /T\_R logic is low, VCO2 is activated, and when the /T\_R logic is high, VCO1 is activated.

The voltage control terminals, "CV" and "ASSIST", are controlled by the PLL IC (IC3) and ASIC (IC510) and the output frequency changes continuously according to the applied voltage. For the modulation input terminal, "VCO\_MOD", the output frequency changes according to the applied voltage. This is used to modulate the VCO output.

#### 5-3. PLL IC (IC3)

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

This allows the VCO oscillation frequency to accurately match (lock) the desired frequency.

When the frequency is controlled by the PLL, the frequency convergence time increases as the frequency difference increases when the set frequency is changed. To supplement this, the ASIC is used before control by the PLL IC to bring the VCO oscillation frequency close to the desired frequency. As a result, the VCO CV voltage does not change and is always stable at approximately 3.0V.

The desired frequency is set for the PLL IC by the ASIC (IC510) through the 3-line "SDO1", "P\_SCK1", "/PCS\_RF" serial bus. Whether the PLL IC is locked or not is monitored by the ASIC through the "PLD" signal line. If the VCO is not the desired frequency (unlocked), the "PLD" logic is low.

"PLL\_MOD" receives the modulation data from DSP (IC717).

#### 5-4. Local Switch (D101, D205)

The connection destination of the signal output from the buffer amplifier (Q420) is changed with the diode switch (D101) that is controlled by the transmission power supply, 80T, and the diode switch (D205) that is controlled by the reception power supply, 50R. If the 80T logic is high, it is connected to a send-side pre-drive (Q150). If the 80T logic is low, it is connected to a local amplifier (Q208).

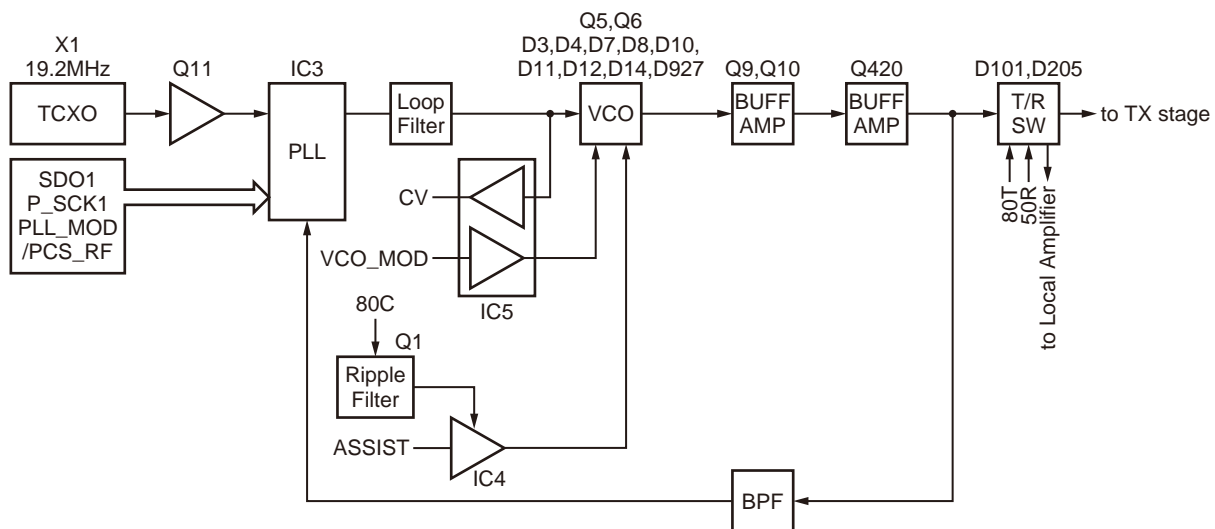


Fig. 7 PLL block diagram

## CIRCUIT DESCRIPTION

### 6. Control Circuit

The control circuit consists of the ASIC (IC510) and its peripheral circuits. IC510 mainly performs the following;

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

#### 6-1. ASIC

The ASIC (IC510) is a 32-bit RISC processor, equipped with peripheral function and ADC/DAC.

This ASIC operates at a 18.432MHz clock and 3.3V/1.5V DC. It controls the flash memory, SRAM, DSP, receive circuit, transmit circuit, control circuit, and display circuit and transfers data to or from an external device.

#### 6-2. Memory Circuit

Memory circuit consists of the ASIC (IC510) and SRAM (IC503), and the flash memory (IC501). The flash memory has capacity of 32M-bit that contains the transceiver control program for the ASIC and stores the data. It also stores the data for transceiver channels and operating parameter that are written by the FPU. This program can be easily written from external devices. The SRAM has a capacity of 1M-bit that contains the work area and data area.

#### ■ Flash memory

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

#### ■ SRAM (Static memory)

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

When the power supply is off, it is backed up by an internal secondary lithium battery. Therefore, the save data does not break.

#### ■ Real-time clock

The clock function is based on a real-time clock IC (IC504). When the power supply is off, it is backed up by an internal secondary lithium battery.

#### 6-3. Display Unit

The display unit is composed of the MCU (IC911) and the memory IC (IC913), and the LCD & Key backlight, etc.

The LCD Ass'y (with LCD Driver) is controlled using the bus lines on the connector (CN905) of the display unit. It corrects the LCD contrast voltage using IC909.

#### 6-4. Key Detection Circuit

Keys are detected using the Key scan circuit in IC911. The /KI\* and KO\* signals that are normally pulled up go low when a key is pressed.

#### 6-5. DSP

The DSP circuit consists of a DSP (IC717) and processes the baseband signal. The DSP operates on an external clock of 18.432MHz (the same as IC510), the I/O section operates at 3.3V and the core section operates at 1.5V. The DSP carries out the following processes:

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

### 7. Power Supply Circuit

+B is connected to the Final amplifier and the DC/DC converter IC (IC405). IC405 regulates the +B voltage to 5.0V (50M). 50M operates whenever +B is supplied. IC402 (33M), IC408 (33A) and IC409 (15M) are enabled while 50M is operating. Q412 is controlled by the SBC\_2 signal. If the SBC\_2 signal becomes High, it operates and Q416 (33A2 SW) is turned on. Q412 is controlled by the SBC\_2 or 33M signal via D408. If the SBC\_2 or 33M signal becomes High, it operates and Q412 (50MC SW) is turned on.

33M and 15M provide the power to the ASIC, DSP, and Flash memory. At this time the ASIC starts working. The voltage detector IC (IC401) watches the +B voltage. If the +B voltage is higher than 8.6V, IC401 (/BINT) outputs High. If the /BINT signal is high, Q404 (SB SW) is turned on by the SBC\_2 signal from the ASIC. (High : SB=ON, Low : SB=OFF). When the SB is turned on, IC403 (80C), IC404 (50C), IC406 (33C) and IC407 (33GPS) start working.

The ASIC sets the TXC signal to High during transmission to supply power (80T) to the transmission circuit. The ASIC sets the RXC signal to High during reception to supply power (80R, 50R) to the reception circuit.

When the ASIC detects the PSW (Power switch) signal, IGN (Ignition sense) signal or /BINT signal, it sets the SBC signal to Low, and turns the transceiver power (SB) off. When D401 and Q401 detect an over-voltage condition, they turns Q404 (SB SW) off, but the ASIC continues to work.

## CIRCUIT DESCRIPTION

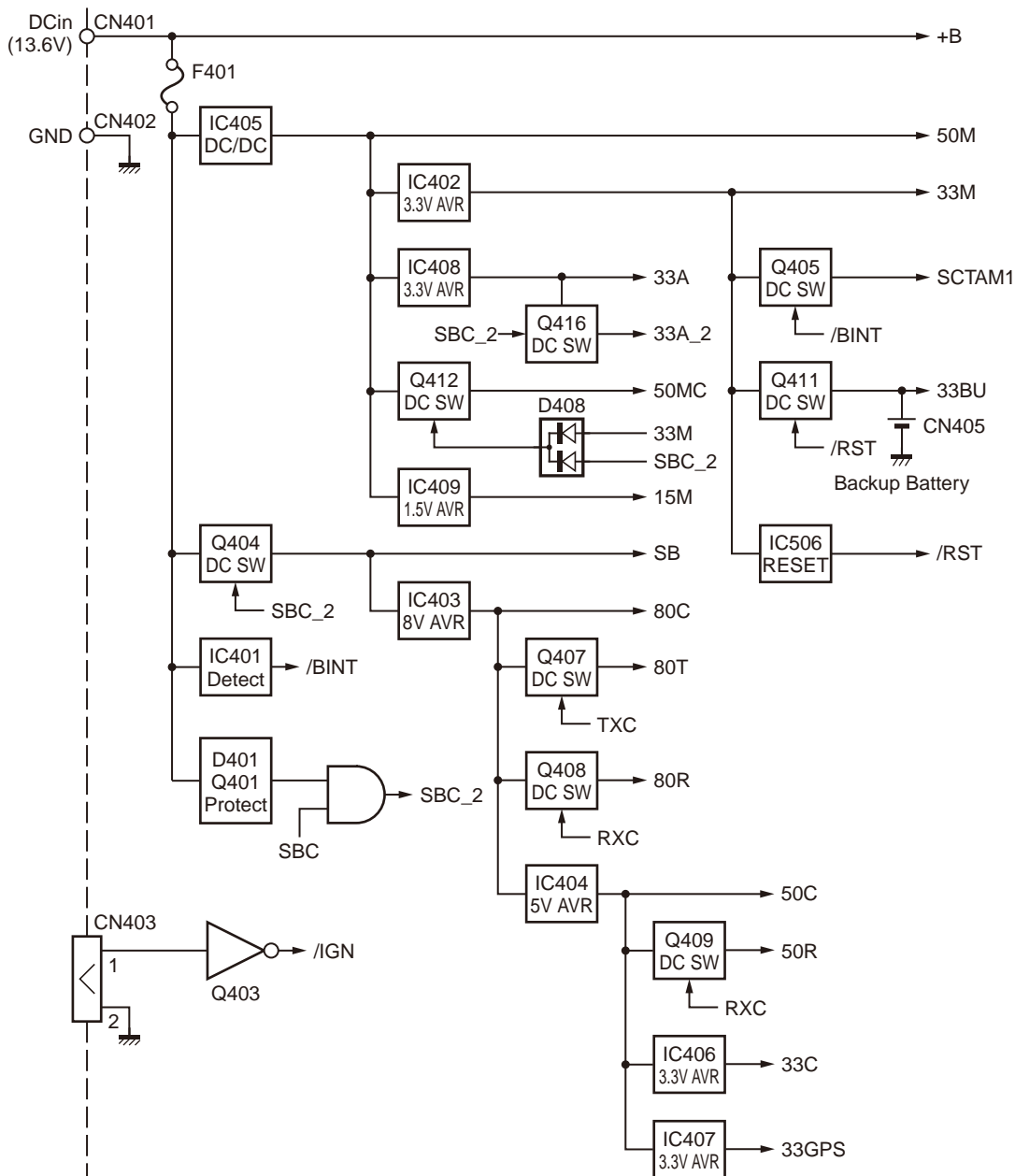


Fig. 8 Power supply circuit

## 8. Signaling Circuit

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

Each signaling data signal of QT, DQT, LTR, DTMF and MSK is generated by the DSP circuit, is superimposed onto the modulation signal, and is output from the DSP (IC717) and ASIC (IC510). The modulation balance of the QT/DQT/LTR signal is adjusted by the D/A converter (IC719) and the resulting signal is routed to the modulation input of the VCO and PLL IC (IC3). Each deviation of the TX QT, DQT, LTR, DTMF and MSK signal is adjusted by changing the output level of IC717 and the resulting signal is routed to the VCO and PLL IC (IC3). The RX DTMF tone is routed to the receive audio signal system, and is output from the speaker.

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

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

## 9. Compauder Circuit

The term "compander" means compressor and expander. The compander reduces noise by utilizing a compressor and an expander. The NX-901 contains a DSP (IC717) to perform this operation. The NX-901 compander can be turned on or off using the FPU.

## COMPONENTS DESCRIPTION

### Display unit (X54-3680-10)

Ref. No.	Part Name	Description
IC901	IC	AFO/BLC switch
IC902	IC	AF buffer AMP (AFO)
IC903	IC	Voltage regulator (5C)
IC904	IC	Voltage regulator (33C)
IC905	IC	Bus buffer (TXD0)
IC906	IC	DC/DC converter (N100C)
IC907	IC	Dual bus buffer (RXD0/RXD1)
IC908	IC	AND gate (TXD1/RXD0)
IC909	IC	Buffer AMP (LCD Contrast ADJ)
IC910	IC	Bus buffer (D0-D7)
IC911	IC	MCU
IC912	IC	Bus buffer (A1-A2)
IC913	IC	Flash memory
Q901	FET	AFO switch
Q902	Transistor	HK/RXD0 switch
Q904	Transistor	HK/RXD0 switch
Q905	Transistor	TX/RX LED (TX)
Q906	Transistor	TX/RX LED (BUSY)
Q908	Transistor	LCD backlight switch
Q909	Transistor	Dimmer switch (LCD backlight)
Q910	Transistor	LCD backlight switch
Q911	FET	Dimmer switch (LCD backlight)
Q913	FET	LCD reset switch
D901	Varistor	Surge absorption (DM/KVL)
D902	Varistor	Surge absorption (HK/RXD)
D903	Zener Diode	Over DC supply protection
D904	Varistor	Surge absorption (BLC/AFO)
D906	Varistor	Line protection (SB)
D907	Zener Diode	Over DC supply protection
D908	Diode	KEY matrix
D910	Diode	Reverse current prevention (HK/RXD)
D911,912	Diode	KEY matrix
D913	Diode	Line protection (PTT/TXD0)
D914	LED	TX/RX LED
D915~926	LED	LCD backlight
D927~936	LED	KEY backlight
D937	Diode	Level shift (PRST)

### TX-RX unit (X57-8060-12)

Ref. No.	Part Name	Description
IC1	IC	Temperature sensor
IC3	IC	PLL IC
IC4	IC	Buffer AMP (VCO tune)
IC5	IC	VCO modulation/Buffer AMP (CV)
IC102	IC	Power module
IC103	IC	Auto power control
IC202	IC	IF IC
IC203	IC	Buffer AMP (RSSI/VAGC)
IC401	IC	Voltage detector (BINT)
IC402	IC	Voltage regulator (33M)
IC403	IC	Voltage regulator (80C)
IC404	IC	Voltage regulator (50C)
IC405	IC	DC/DC converter (50M)
IC406	IC	Voltage regulator (33C)
IC407	IC	Voltage regulator (33GPS)
IC408	IC	Voltage regulator (33A)
IC409	IC	Voltage regulator (15M)
IC501	IC	Flash memory
IC503	IC	SRAM
IC504	IC	RTC
IC506	IC	Reset (ASIC)
IC507	IC	Buffer AMP
IC508	IC	Buffer AMP (18.432MHz)
IC509	IC	Buffer AMP (BER CLK/BER DATA)
IC510	IC	ASIC
IC511	IC	AND (CPS/FSX0)
IC512	IC	Level shift (AND ITXD1/SCTXD)
IC513	IC	Buffer AMP (TXD2)
IC514	IC	Level shift (I2CCK/I2CDDT)
IC515	IC	Level shift (TXDO/RTSO)
IC516	IC	Level shift (RXDO/CTSO)
IC517	IC	I/O expander
IC518	IC	RS-232C driver
IC701	IC	LPF (RXAF)
IC702	IC	LPF (MOD)
IC703	IC	LPF (APC/DEO)
IC705	IC	BPF/Buffer AMP (SQ)
IC706	IC	LPF/SUM AMP
IC707	IC	RXAF/RXEI switch
IC708	IC	AF switch (TXO/TXI)

## COMPONENTS DESCRIPTION

Ref. No.	Part Name	Description
IC709	IC	SUM AMP (AI/TONE/MI1 MI2)/(MOD/DI)
IC710	IC	AF switch (AI TONE OPT9/VREF)
IC711	IC	SUM AMP (AF)/VREF
IC713	IC	AO switch
IC714	IC	Level shift
IC715	IC	AF power AMP
IC716	IC	1st mixer
IC717	IC	DSP
IC718	IC	AND (CLKX0/SCK1)
IC719	IC	D/A converter
IC720	IC	DI SMF
Q1	Transistor	Ripple filter
Q2	FET	LNA
Q4	Transistor	Ripple filter
Q5,6	FET	VCO
Q7,8	FET	T/R switch (VCO)
Q9	Transistor	Buffer AMP (VCO)
Q10	Transistor	Buffer AMP (RF)
Q11	FET	Buffer AMP (19.2MHz)
Q150	FET	TX pre-drive AMP
Q151	FET	TX drive AMP
Q201,202	Transistor	Switch (W/N)
Q203	Transistor	2nd Local buffer AMP (x3)
Q204,205	Transistor	1st IF AMP
Q208	Transistor	Buffer AMP (Local)
Q212	Transistor	Wide/Narrow switch
Q401	Transistor	Switch (Over DC supply protection)
Q402	Transistor	DC switch (SB)
Q403	Transistor	DC switch (IGN)
Q404	FET	DC switch (SB)
Q405	Transistor	DC switch (SCTAM1)
Q406	FET	DC switch (33BU)
Q407	Transistor	DC switch (80T)
Q408	Transistor	DC switch (80R)
Q409	Transistor	DC switch (50R)
Q410	FET	DC switch (50MC)
Q411	Transistor	DC switch (33BU)
Q412	Transistor	DC switch (50MC)
Q413	Transistor	DC switch (80T)
Q414	Transistor	DC switch (80R)

Ref. No.	Part Name	Description
Q415	Transistor	DC switch (50R)
Q416	FET	DC switch (50IF)
Q420	Transistor	RF buffer AMP
Q501	FET	DC switch
Q701	FET	SQL switch (W/N)
Q702	Transistor	Noise AMP
Q703	FET	Tone switch
Q704,705	Transistor	Limit
Q706	FET	Mute (MI1)
Q707	FET	Mute (MI2)
Q708	Transistor	OPT10 switch
Q709	Transistor	AF mute
Q710	Transistor	Audio mute switch
Q901,902	Transistor	DC switch (AUXO1)
Q903	FET	Switch
D1	Surge absorber	Surge absorption
D2	Diode	Bypass diode
D3,4	Variable capacitance diode	Frequency control
D7,8	Variable capacitance diode	Frequency control
D10~12	Variable capacitance diode	Frequency control
D14	Variable capacitance diode	TX modulation
D21	Diode	2nd Local switch
D101	Diode	T/R switch
D103	Diode	Antenna switch
D108,109	Diode	TX power detect
D201,202	Diode	CF switch (W/N)
D205	Diode	T/R switch
D401	Zener diode	Over DC supply protection
D403	Diode	Reverse current prevention
D404	Surge absorber	Surge absorption
D405	Diode	Reverse protection
D406	Diode	Reverse current prevention (BLVL)
D407	Diode	DC/DC converter (50M)
D408	Diode	Reverse current prevention (OR 33M/SBC_2)
D409	Diode	DC/DC converter (50M)
D410~412	Diode	Reverse protection, DC/DC



## COMPONENTS DESCRIPTION

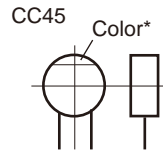
Ref. No.	Part Name	Description
D501,502	Diode	Line protection
D504	Diode	Reverse current prevention (RXD)
D506	Diode	Reverse current prevention (OR G_RXD2)
D507	Diode	Reverse current prevention (OR RXD2)
D508	Diode	Line protection
D509,510	Diode	Reverse current prevention
D511	Diode	Line protection (RXD2)
D512	Diode	Line protection (AID9)
D702	Diode	SQ voltage control
D703	Diode	Noise detector (SQ)
D704,705	Diode	AF detector (LIMIT)
D706	Zener diode	Line protection (DI)
D707	Zener diode	Line protection (DEO)
D901	Diode	Line protection (BER CK)
D902	Diode	Line protection (BER DT)
D903	Diode	Line protection (AUXIO1)
D904	Diode	Line protection (AUXIO2)
D905,906	Zener diode	Over DC supply protection
D907	Diode	Line protection (AUXIO3)
D908	Diode	Line protection (AUXIO4)
D909	Diode	Reverse current prevention (SB)
D910	Zener diode	Over DC supply protection
D911	Diode	Line protection (AUXIO8)
D912	Diode	Line protection (AUXIO5)
D913	Diode	Reverse current prevention (SB)
D914	Zener diode	Over DC supply protection
D915	Zener diode	Drain bias protection
D920,921	Diode	Antenna switch
D922	Diode	Reverse current prevention (TX power DET)
D923,924	Diode	RF level protection for SAW filter
D925,926	Diode	Antenna switch

## PARTS LIST

### CAPACITORS

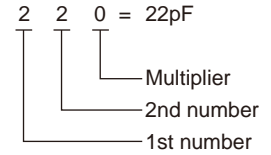
$\frac{C}{1} \frac{C}{2} \frac{45}{3} \frac{TH}{4} \frac{1H}{5} \frac{220}{6} \frac{J}{6}$

- 1 = Type ... ceramic, electrolytic, etc.
- 2 = Shape ... round, square, etc.
- 3 = Temp. coefficient
- 4 = Voltage rating
- 5 = Value
- 6 = Tolerance



#### • Capacitor value

- 010 = 1pF
- 100 = 10pF
- 101 = 100pF
- 102 = 1000pF = 0.001μF
- 103 = 0.01μF



#### • Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	-80	-150	-220	-330	-470	-750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example : CC45TH = -470±60ppm/°C

#### • Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40 -20	+80 -20	+100 -0	More than 10μF : -10~+50 Less than 4.7μF : -10~+75

#### (Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

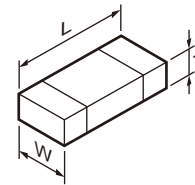
#### • Voltage rating

2nd word \ 1st word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	-
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	-
3	1000	1250	1600	2000	2500	2150	4000	5000	6300	8000	-

#### • Chip capacitors

- (EX)  $\frac{C}{1} \frac{C}{2} \frac{73}{3} \frac{F}{4} \frac{SL}{5} \frac{1H}{6} \frac{000}{7} \frac{J}{7}$  → Refer to the table above.
- (Chip) (CH, RH, UJ, SL)
- (EX)  $\frac{C}{1} \frac{K}{2} \frac{73}{3} \frac{F}{4} \frac{F}{5} \frac{1H}{6} \frac{000}{7} \frac{Z}{7}$
- (Chip) (B, F)
- 1 = Type
  - 2 = Shape
  - 3 = Dimension
  - 4 = Temp. coefficient
  - 5 = Voltage rating
  - 6 = Value
  - 7 = Tolerance

#### • Dimension



#### Chip capacitor

Code	L	W	T
Empty	5.6±0.5	5.0±0.5	Less than 2.0
A	4.5±0.5	3.2±0.4	Less than 2.0
B	4.5±0.5	2.0±0.3	Less than 2.0
C	4.5±0.5	1.25±0.2	Less than 1.25
D	3.2±0.4	2.5±0.3	Less than 1.5
E	3.2±0.2	1.6±0.2	Less than 1.25
F	2.0±0.3	1.25±0.2	Less than 1.25
G	1.6±0.2	0.8±0.2	Less than 1.0
H	1.0±0.05	0.5±0.05	0.5±0.05

#### Chip resistor

Code	L	W	T
E	3.2±0.2	1.6±0.2	1.0
F	2.0±0.3	1.25±0.2	1.0
G	1.6±0.2	0.8±0.2	0.5±0.1
H	1.0±0.05	0.5±0.05	0.35±0.05

#### • Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

### RESISTORS

#### • Chip resistor (Carbon)

- (EX)  $\frac{R}{1} \frac{D}{2} \frac{73}{3} \frac{E}{4} \frac{B}{5} \frac{2B}{6} \frac{000}{7} \frac{J}{7}$
- (Chip) (B, F)

#### • Carbon resistor (Normal type)

- (EX)  $\frac{R}{1} \frac{D}{2} \frac{14}{3} \frac{B}{4} \frac{B}{5} \frac{2C}{6} \frac{000}{7} \frac{J}{7}$

- 1 = Type
- 2 = Shape
- 3 = Dimension
- 4 = Temp. coefficient
- 5 = Rating wattage
- 6 = Value
- 7 = Tolerance

## PARTS LIST

\* New Parts.  $\Delta$  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-901

### DISPLAY UNIT (X54-3680-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination
<b>NX-901</b>					
1	1B		A01-2194-11	METALLIC CABINET	
2	3A		A62-1162-12	PANEL ASSY	
4	2A		B09-0681-03	CAP(KAP-2)	
5	3B		B11-1871-04	FILTER(LCD)	
6	3B	*	B38-0922-25	LCD ASSY	
7	3A		B42-7417-04	STICKER(NEXEDGE)	
8	1D	*	B62-2384-00	INSTRUCTION MANUAL	
10	2B		E04-0170-15	RF COAXIAL RECEPTACLE(N)	
11	2B		E30-7520-25	DC CORD(PIG TAIL)	
12	2C		E30-7523-55	DC CORD ASSY ACCESSORY	
13	1A		E37-1118-05	SHORT PLUG	
14	3B		E37-1124-05	LEAD WIRE WITH CONNECTOR(SP)	
15	2A		E37-1448-05	FLAT CABLE(30P/D-SUB)	
16	2A		E37-1449-05	FLAT CABLE(30P/PANEL)	
18	2B		F10-2488-12	SHIELDING PLATE(CHASSIS)	
20	1A		F10-2490-13	SHIELDING CASE(VCO)	
21	1A		F10-3032-14	SHIELDING CASE ASSY(FINAL)	
22	1A		F10-3112-03	SHIELDING CASE(POWER MODULE)	
23	2A	*	F10-3164-04	SHIELDING PLATE(POWER MODULE)	
24	2C		F52-0024-05	FUSE(BLADE TYPE) 15A 32V	
25	2A	*	G02-1868-04	EARTH SPRING(ANT SIDE)	
-			G10-1322-04	FIBROUS SHEET(PANEL-SP)	
27	3B		G10-1342-04	FIBROUS SHEET(SP MOUNT)	
28	3B		G10-1802-04	FIBROUS SHEET(LCD)	
-			G11-4336-04	SHEET(PANEL-FG)	
30	1B		G11-4343-04	SHEET(STEP)	
31	1A		G13-2018-04	CUSHION(FINAL CASE)	
32	2B		G13-2047-04	CUSHION(DC SCREW)	
33	2A		G13-2071-14	CONDUCTIVE CUSHION(FINAL CASE)	
34	1B		G13-2101-04	CONDUCTIVE CUSHION(PM BOTTOM)	
35	1A		G13-2102-04	CONDUCTIVE CUSHION(PM TOP)	
36	2B		G13-2279-04	CUSHION(FFC)	
37	1B		G53-1613-11	PACKING(SHIELD PLATE)	
38	1A		G53-1616-03	PACKING(PHONE JACK)	
39	2B		G53-1626-03	PACKING(D-SUB OUTER)	
40	2B		G53-1643-04	PACKING(DC CORD)	
41	2B		G53-1645-03	PACKING(D-SUB INNER)	
42	3A		G53-1676-03	PACKING(CHASSIS)	
43	2A		G53-1789-04	PACKING(ANT)	
44	2C		H02-0624-13	INNER CARTON CASE	
45	2D		H12-4274-03	PACKING FIXTURE(UPPER)	
46	2D		H12-4275-02	PACKING FIXTURE(LOWER)	
47	3D	*	H52-2506-03	ITEM CARTON CASE	
49	2C		J19-1584-15	HOLDER(MIC) ACCESSORY	
50	3B		J19-5464-13	HOLDER(SPEAKER)	
51	3B		J19-5485-12	HOLDER(PANEL)	
52	3B		J19-5502-13	HOLDER(LCD)	
53	2B		J21-8479-02	MOUNTING HARDWARE(D-SUB)	
54	3B		J21-8481-03	MOUNTING HARDWARE(SPEAKER)	
55	3B		J21-8569-03	MOUNTING HARDWARE(LCD)	
56	2C		J29-0726-03	BRACKET ACCESSORY	
57	3B		J30-1289-04	SPACER(SP-SHEET)	

Ref. No.	Address	New parts	Parts No.	Description	Destination
59	3A		K29-9401-03	KEY TOP	
A	2B		N09-2292-05	HEXAGON HEAD SCREW	
B	1A		N67-3008-48	PAN HEAD SEMS SCREW	
C	2B		N87-2606-43	BRAZIER HEAD TAPTITE SCREW	
D	1A,2A,2B		N87-2608-48	BRAZIER HEAD TAPTITE SCREW	
61	2C		N99-2039-05	SCREW SET ACCESSORY	
63	3B		T07-0757-25	SPEAKER	
64	1C		T91-0639-55	MICROPHONE ACCESSORY	
-		*	X57-8060-13	SERVICE TX-RX UNIT	
<b>DISPLAY UNIT (X54-3680-10)</b>					
D914			B30-2304-05	LED(RED/GREEN)	
D915-926			B30-2281-05	LED(Y)	
D927-936			B30-2282-05	LED(Y)	
C903			CK73HB1E103K	CHIP C 0.010UF K	
C905			CK73HB1A104K	CHIP C 0.10UF K	
C906			CK73HB1H222K	CHIP C 2200PF K	
C907-909			CK73HB1H102K	CHIP C 1000PF K	
C910-912			CC73HCH1H101J	CHIP C 100PF J	
C913			CK73HB1A104K	CHIP C 0.10UF K	
C914			CK73HB1H102K	CHIP C 1000PF K	
C915			CK73FB1E475K	CHIP C 4.7UF K	
C916			CK73GB1E105K	CHIP C 1.0UF K	
C917,918			CK73HB1A104K	CHIP C 0.10UF K	
C919			CK73HB1H102K	CHIP C 1000PF K	
C920			CC73HCH1H121J	CHIP C 120PF J	
C921			CK73HB1A104K	CHIP C 0.10UF K	
C922-925			CK73HB1H102K	CHIP C 1000PF K	
C926-929			CK73HB1A104K	CHIP C 0.10UF K	
C930			CK73GB1E105K	CHIP C 1.0UF K	
C931,932			CK73HB1H102K	CHIP C 1000PF K	
C933			CK73GB1E105K	CHIP C 1.0UF K	
C934			CK73HB1H102K	CHIP C 1000PF K	
C935			CS77BA1E4R7M	CHIP TNTL 4.7UF 25WV	
C936			CC73HCH1H100D	CHIP C 10PF D	
C938			CC73HCH1H100D	CHIP C 10PF D	
C939			CK73GB1C104K	CHIP C 0.10UF K	
C940			CK73FB1A106K	CHIP C 10UF K	
C941,942			CK73HB1H102K	CHIP C 1000PF K	
C943,944			CS77BA1E4R7M	CHIP TNTL 4.7UF 25WV	
C945			CK73GB1H103K	CHIP C 0.010UF K	
C946			CC73HCH1H101J	CHIP C 100PF J	
C947			CK73HB1A104K	CHIP C 0.10UF K	
C948			CC73HCH1H101J	CHIP C 100PF J	
C949-954			CK73GB1E105K	CHIP C 1.0UF K	
C955			CC73HCH1H101J	CHIP C 100PF J	
C956,957			CK73HB1E103K	CHIP C 0.010UF K	
C958			CK73HB1H102K	CHIP C 1000PF K	
C959,960			CK73HB1E103K	CHIP C 0.010UF K	
C961			CK73HB0J105K	CHIP C 1.0UF K	
C962			CK73HB1A104K	CHIP C 0.10UF K	
C963			CC73HCH1H101J	CHIP C 100PF J	
C964			CK73GB1E105K	CHIP C 1.0UF K	

## PARTS LIST

### DISPLAY UNIT (X54-3680-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C965			CK73HB1A104K	CHIP C 0.10UF K		R953			RK73GB2A271J	CHIP R 270 J 1/10W	
C966,967			CK73HB1H102K	CHIP C 1000PF K		R954			RK73GB2A470J	CHIP R 47 J 1/10W	
CN901			E40-6559-05	FLAT CABLE CONNECTOR(30P)		R955			RK73GB2A271J	CHIP R 270 J 1/10W	
CN902			E41-2671-05	PIN ASSY(2P)		R956			RK73GB2A101J	CHIP R 100 J 1/10W	
CN905			E40-6556-05	FLAT CABLE CONNECTOR(20P)		R957,958			RK73GB2A271J	CHIP R 270 J 1/10W	
J901			E58-0522-05	MODULAR JACK(MIC)		R960			RK73HB1J000J	CHIP R 0 J 1/16W	
-			J31-0551-05	COLLAR		R962			RK73HB1J000J	CHIP R 0 J 1/16W	
L901,902			L41-1095-39	SMALL FIXED INDUCTOR(1.0UH)		R963,964			RK73GB2A391J	CHIP R 390 J 1/10W	
L903-905			L92-0140-05	CHIP FERRITE		R965,966			RK73GB2A821J	CHIP R 820 J 1/10W	
L906			L92-0163-05	BEADS CORE		R967-974			RK73HB1J103J	CHIP R 10K J 1/16W	
L907			L92-0140-05	CHIP FERRITE		R976			RK73HB1J000J	CHIP R 0 J 1/16W	
L908			L92-0163-05	BEADS CORE		R977-979			RK73HB1J473J	CHIP R 47K J 1/16W	
X901			L77-1950-05	CRYSTAL RESONATOR(11.0592MHZ)		R981,982			RK73HB1J103J	CHIP R 10K J 1/16W	
CP907,908			RK75HA1JR00J	CHIP-COM 0 J 1/16W		R986			RK73HB1J103J	CHIP R 10K J 1/16W	
CP909			RK74HA1J104J	CHIP-COM 100K J 1/16W		R988			RK73HB1J473J	CHIP R 47K J 1/16W	
CP910			RK74HA1J101J	CHIP-COM 100 J 1/16W		R989			RK73HB1J474J	CHIP R 470K J 1/16W	
CP912			RK74HA1J101J	CHIP-COM 100 J 1/16W		R990			RK73HB1J472J	CHIP R 4.7K J 1/16W	
CP917			RK74HA1J104J	CHIP-COM 100K J 1/16W		R991			RK73HB1J474J	CHIP R 470K J 1/16W	
R900			RK73HB1J000J	CHIP R 0 J 1/16W		R992			RK73HB1J000J	CHIP R 0 J 1/16W	
R901			RK73GB2A000J	CHIP R 0 J 1/10W		R996			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R902			RK73HB1J102J	CHIP R 1.0K J 1/16W		R997			RK73GB2A000J	CHIP R 0 J 1/10W	
R904			RK73HB1J101J	CHIP R 100 J 1/16W		R998			RK73HB1J000J	CHIP R 0 J 1/16W	
R905			RK73HB1J102J	CHIP R 1.0K J 1/16W		R999			RK73HB1J101J	CHIP R 100 J 1/16W	
R906			RK73HB1J331J	CHIP R 330 J 1/16W		D901,902			AVRM16080MAAB	VARISTOR	
R907			RK73HB1J104J	CHIP R 100K J 1/16W		D903			02DZ18F-X	ZENER DIODE	
R908			RK73HB1J473J	CHIP R 47K J 1/16W		D904			AVRM16080MAAB	VARISTOR	
R909			RK73HB1J104J	CHIP R 100K J 1/16W		D906			MINISMDC020F	VARISTOR	
R911			RK73HB1J472J	CHIP R 4.7K J 1/16W		D907			02DZ18F-X	ZENER DIODE	
R912			RK73HB1J333J	CHIP R 33K J 1/16W		D908			HSC119	DIODE	
R913			RK73HB1J823J	CHIP R 82K J 1/16W		D910			1SS416	DIODE	
R914			RK73HB1J104J	CHIP R 100K J 1/16W		D911,912			HSC119	DIODE	
R915			RK73HB1J473J	CHIP R 47K J 1/16W		D913			DA204U	DIODE	
R916,917			RK73HB1J103J	CHIP R 10K J 1/16W		D937			1SS416	DIODE	
R918			RK73GB2A100J	CHIP R 10 J 1/10W		IC901			TC7W66FK-F	MOS-IC	
R919			RK73HB1J103J	CHIP R 10K J 1/16W		IC902			TC75S51FE(F)	MOS-IC	
R920,921			RK73HB1J101J	CHIP R 100 J 1/16W		IC903			XC6209B502P-G	MOS-IC	
R922-925			RK73HB1J102J	CHIP R 1.0K J 1/16W		IC904			XC6204B332M-G	MOS-IC	
R926			RK73HB1J103J	CHIP R 10K J 1/16W		IC905			TC7SH126FU-F	MOS-IC	
R927			RK73HB1J473J	CHIP R 47K J 1/16W		IC906			LM2682MMX	MOS-IC	
R928			RK73HB1J103J	CHIP R 10K J 1/16W		IC907			TC7WH126FU-F	MOS-IC	
R929			RK73HB1J474J	CHIP R 470K J 1/16W		IC908			TC7SH08FU-F	MOS-IC	
R930			RK73HB1J103J	CHIP R 10K J 1/16W		IC909			LMC7101BIM5	MOS-IC	
R931			RK73FB2B561J	CHIP R 560 J 1/8W		IC910			TC74LCX245FK	MOS-IC	
R932			RK73FB2B471J	CHIP R 470 J 1/8W		IC911			30620MCP497GU	MICROCONTROLLER IC	
R933			RK73HB1J101J	CHIP R 100 J 1/16W		IC912			TC7WZ245FK-F	MOS-IC	
R934-937			RK73HB1J473J	CHIP R 47K J 1/16W		IC913			29LV16BT7KDDA	ROM IC	
R938,939			RK73HB1J103J	CHIP R 10K J 1/16W		Q901			SSM3K15TE(F)	FET	
R940			RK73HB1J274J	CHIP R 270K J 1/16W		Q902			RT1N441U-T111	TRANSISTOR	
R941			RK73HB1J124J	CHIP R 120K J 1/16W		Q904			RT1N441U-T111	TRANSISTOR	
R942			RK73HB1J000J	CHIP R 0 J 1/16W		Q905,906			RT1N141U-T111	TRANSISTOR	
R943			RK73HB1J102J	CHIP R 1.0K J 1/16W		Q908,909			RT1N141U-T111	TRANSISTOR	
R944			RK73HB1J104J	CHIP R 100K J 1/16W		Q910			12A02CH	TRANSISTOR	
R945,946			RK73HB1J000J	CHIP R 0 J 1/16W		Q911			SSM3K15TE(F)	FET	
R947			RK73HB1J474J	CHIP R 470K J 1/16W		Q913			UPA672T-A	FET	
R948			RK73HB1J103J	CHIP R 10K J 1/16W		TH901			ERTJ0EV104H	THERMISTOR	
R949			RK73HB1J102J	CHIP R 1.0K J 1/16W							
R950			RK73HB1J473J	CHIP R 47K J 1/16W							
R952			RK73HB1J000J	CHIP R 0 J 1/16W							

## PARTS LIST

TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Destination
<b>TX-RX UNIT (X57-8060-12)</b>					
C1			CK73HB0J105K	CHIP C 1.0UF K	
C2 ,3			CC73HCH1H101J	CHIP C 100PF J	
C4			CK73HB1A104K	CHIP C 0.10UF K	
C5			CK73HB1H103K	CHIP C 0.010UF K	
C6			CC73HCH1H101J	CHIP C 100PF J	
C7			CC73HCH1H180J	CHIP C 18PF J	
C9			CK73HB1H103K	CHIP C 0.010UF K	
C10			CC73HCH1H390J	CHIP C 39PF J	
C13			CK73HB1H103K	CHIP C 0.010UF K	
C14			CK73GB1E105K	CHIP C 1.0UF K	
C16 ,17			CK73HB1H103K	CHIP C 0.010UF K	
C19 -23			CC73HCH1H101J	CHIP C 100PF J	
C24			CK73HB1A104K	CHIP C 0.10UF K	
C25 ,26			CC73HCH1H101J	CHIP C 100PF J	
C27			CK73HB1A104K	CHIP C 0.10UF K	
C28			CC73HCH1H101J	CHIP C 100PF J	
C29			CK73HB1H103K	CHIP C 0.010UF K	
C31			CC73HCH1H101J	CHIP C 100PF J	
C32			CS77CA1VR15M	CHIP TNTL 0.15UF 35WV	
C33			CC73HCH1H680J	CHIP C 68PF J	
C35			CS77BA1D100M	CHIP TNTL 10UF 20WV	
C37			C92-0863-05	CHIP TNTL 0.047UF 35WV	
C38			C93-0787-05	CHIP C 0.1UF J	
C39			CC73HCH1H101J	CHIP C 100PF J	
C41			CK73HB1H471K	CHIP C 470PF K	
C43			CK73HB1H471K	CHIP C 470PF K	
C44 ,45			CC73HCH1H101J	CHIP C 100PF J	
C46			CC73GCH1H030B	CHIP C 3.0PF B	
C48			CK73HB0J105K	CHIP C 1.0UF K	
C50 ,51			CC73HCH1H151J	CHIP C 150PF J	
C52			CC73HCH1H101J	CHIP C 100PF J	
C53			CK73HB1H103K	CHIP C 0.010UF K	
C54			CK73HB1A104K	CHIP C 0.10UF K	
C55			CK73HB0J105K	CHIP C 1.0UF K	
C56			CK73HB1H471K	CHIP C 470PF K	
C58			CC73HCH1H120G	CHIP C 12PF G	
C59			CC73HCH1H040B	CHIP C 4.0PF B	
C60 ,61			CC73HCH1H3R5B	CHIP C 3.5PF B	
C63			CC73HCH1HR75B	CHIP C 0.75PF B	
C64			CC73HCH1H080B	CHIP C 8.0PF B	
C65			CK73FB1A106K	CHIP C 10UF K	
C66			CC73HCH1H090B	CHIP C 9.0PF B	
C67			CC73HCH1H070B	CHIP C 7.0PF B	
C68			CC73HCH1H090B	CHIP C 9.0PF B	
C69			CC73HCH1H060B	CHIP C 6.0PF B	
C70			CC73HCH1H471J	CHIP C 470PF J	
C71			CK73GB1E105K	CHIP C 1.0UF K	
C72			CC73HCH1H060B	CHIP C 6.0PF B	
C73			CC73HCH1H101J	CHIP C 100PF J	
C74			CC73HCH1H0R5B	CHIP C 0.5PF B	
C75			CK73HB1H471K	CHIP C 470PF K	
C76			CC73HCH1H0R5B	CHIP C 0.5PF B	
C77 ,78			CC73HCH1H101J	CHIP C 100PF J	
C79			CC73HCH1H050B	CHIP C 5.0PF B	
C80			CC73HCH1H101J	CHIP C 100PF J	
C82			CC73HCH1H330J	CHIP C 33PF J	
C83 ,84			CC73HCH1H101J	CHIP C 100PF J	
C85			CK73HB1A104K	CHIP C 0.10UF K	
C86			CC73HCH1H030B	CHIP C 3.0PF B	
C87			CC73HCH1H050B	CHIP C 5.0PF B	
C88 -92			CK73HB1H103K	CHIP C 0.010UF K	
C93			CK73HB1H471K	CHIP C 470PF K	
C94			CC73GCH1H040B	CHIP C 4.0PF B	
C95			CC73HCH1H180J	CHIP C 18PF J	
C96			CC73HCH1H040B	CHIP C 4.0PF B	
C97			CC73HCH1H050B	CHIP C 5.0PF B	
C98			CC73HCH1H101J	CHIP C 100PF J	
C99			CC73HCH1H1R5B	CHIP C 1.5PF B	
C102			CC73HCH1H101J	CHIP C 100PF J	
C103			CK73HB1H103K	CHIP C 0.010UF K	
C107			CC73HCH1H050B	CHIP C 5.0PF B	
C108			CK73FB1E475K	CHIP C 4.7UF K	
C109			CC73HCH1H470J	CHIP C 47PF J	
C110			CK73GB1H104K	CHIP C 0.10UF K	
C111			CC73HCH1H040B	CHIP C 4.0PF B	
C112			CC73HCH1H030B	CHIP C 3.0PF B	
C113			CC73HCH1H090B	CHIP C 9.0PF B	
C114			CC73HCH1H680J	CHIP C 68PF J	
C115			CK73HB1H103K	CHIP C 0.010UF K	
C116			CC73HCH1H040B	CHIP C 4.0PF B	
C117			CC73HCH1H470J	CHIP C 47PF J	
C118			CC73HCH1H101J	CHIP C 100PF J	
C119			CC73HCH1H040B	CHIP C 4.0PF B	
C120			CC73HCH1H470J	CHIP C 47PF J	
C121			CC73FCH1H060B	CHIP C 6.0PF B	
C123			CC73HCH1H220J	CHIP C 22PF J	
C124,125			CC73HCH1H470J	CHIP C 47PF J	
C126			CC73HCH1H101J	CHIP C 100PF J	
C127-130			CC73HCH1H470J	CHIP C 47PF J	
C131			CC73HCH1H101J	CHIP C 100PF J	
C132			CK73HB1H471K	CHIP C 470PF K	
C133			CC73HCH1H220J	CHIP C 22PF J	
C134			CK73HB1H471K	CHIP C 470PF K	
C135			CC73HCH1H101J	CHIP C 100PF J	
C136			CE32BM1E101M	CHIP EL 100UF 25WV	
C137			CK73HB1H103K	CHIP C 0.010UF K	
C139			CK73HB1H103K	CHIP C 0.010UF K	
C140			CC73HCH1H101J	CHIP C 100PF J	
C143			CC73GCH1H470J	CHIP C 47PF J	
C144			CC73HCH1H101J	CHIP C 100PF J	
C146			CC73HCH1H030B	CHIP C 3.0PF B	
C148			CC73HCH1H101J	CHIP C 100PF J	
C149			CK73HB1H472K	CHIP C 4700PF K	
C150			CC73HCH1H050B	CHIP C 5.0PF B	
C151			CC73HCH1H101J	CHIP C 100PF J	
C152			CC73HCH1H060B	CHIP C 6.0PF B	
C153			CC73HCH1H030B	CHIP C 3.0PF B	
C154			CK73HB1A104K	CHIP C 0.10UF K	
C155			CC73HCH1H020B	CHIP C 2.0PF B	
C156			CC73HCH1H101J	CHIP C 100PF J	
C157			CC73HCH1H100B	CHIP C 10PF B	
C158			CC73HCH1H101J	CHIP C 100PF J	
C159			CC73HCH1H080B	CHIP C 8.0PF B	
C160			CC73HCH1H020B	CHIP C 2.0PF B	
C161			CC73HCH1H100B	CHIP C 10PF B	
C162			CE32BM1E101M	CHIP EL 100UF 25WV	
C163			CC73HCH1H040B	CHIP C 4.0PF B	
C164			CC73HCH1H470J	CHIP C 47PF J	

## PARTS LIST

### TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C165			CC73HCH1H101J	CHIP C 100PF J		C263			CC73HCH1H470J	CHIP C 47PF J	
C166,167			CC73HCH1H470J	CHIP C 47PF J		C264			CC73HCH1H101J	CHIP C 100PF J	
C168			CC73HCH1H030B	CHIP C 3.0PF B		C266			CC73HCH1H101J	CHIP C 100PF J	
C169			CC73HCH1H100B	CHIP C 10PF B		C267			CC73HCH1H2R5B	CHIP C 2.5PF B	
C170			CC73HCH1H030B	CHIP C 3.0PF B		C269			CC73HCH1H101J	CHIP C 100PF J	
C171			CC73HCH1H050B	CHIP C 5.0PF B		C330-334			CK73HB1A104K	CHIP C 0.10UF K	
C172			CC73HCH1H030B	CHIP C 3.0PF B		C335			CC73HCH1H121J	CHIP C 120PF J	
C173			CC73HCH1H1R5B	CHIP C 1.5PF B		C336			CK73HB1H103K	CHIP C 0.010UF K	
C174			CK73GB1H104K	CHIP C 0.10UF K		C337,338			CK73HB1A104K	CHIP C 0.10UF K	
C176			CK73GB1H104K	CHIP C 0.10UF K		C339			CK73HB1H103K	CHIP C 0.010UF K	
C177			CC73HCH1H010B	CHIP C 1.0PF B		C341			CK73HB0J105K	CHIP C 1.0UF K	
C182			CC73HCH1H050B	CHIP C 5.0PF B		C342			CK73FB1A106K	CHIP C 10UF K	
C185			C93-1847-05	CHIP C 4.3PF B		C343			CK73HB1A104K	CHIP C 0.10UF K	
C186		*	C93-1864-05	CHIP C 18PF G		C344			CC73HCH1H101J	CHIP C 100PF J	
C188		*	C93-1849-05	CHIP C 5.0PF B		C348			CK73HB1H103K	CHIP C 0.010UF K	
C194,195			CC73HCH1H470J	CHIP C 47PF J		C358			CK73HB1H102K	CHIP C 1000PF K	
C201			CK73HB1H103K	CHIP C 0.010UF K		C361			CC73HCH1H101J	CHIP C 100PF J	
C202-205			CK73HB1A104K	CHIP C 0.10UF K		C364-366			CC73HCH1H101J	CHIP C 100PF J	
C206			CC73HCH1H100B	CHIP C 10PF B		C375,376			CC73HCH1H470J	CHIP C 47PF J	
C207,208			CK73HB1H103K	CHIP C 0.010UF K		C401			C92-0777-05	ELECTRO 1000UF 25WV	
C210			CK73HB1A104K	CHIP C 0.10UF K		C403			CK73HB1H471K	CHIP C 470PF K	
C211			CC73HCH1H100B	CHIP C 10PF B		C405,406			CC73HCH1H101J	CHIP C 100PF J	
C212,213			CK73HB1A104K	CHIP C 0.10UF K		C409			CK73HB1H103K	CHIP C 0.010UF K	
C214			CC73HCH1H680J	CHIP C 68PF J		C410			CK73GB1H103K	CHIP C 0.010UF K	
C215			CC73HCH1H101J	CHIP C 100PF J		C411			CC73HCH1H101J	CHIP C 100PF J	
C216			CC73HCH1H680J	CHIP C 68PF J		C412			CC73HCH1H050C	CHIP C 5.0PF C	
C217			CK73HB1A104K	CHIP C 0.10UF K		C413			CK73GB1E105K	CHIP C 1.0UF K	
C218,219			CK73GB0J475K	CHIP C 4.7UF K		C414			CC73HCH1H040C	CHIP C 4.0PF C	
C220			CC73HCH1H470J	CHIP C 47PF J		C415			CC73HCH1H101J	CHIP C 100PF J	
C221			CK73FB1A106K	CHIP C 10UF K		C416			CC73HCH1H050C	CHIP C 5.0PF C	
C222,223			CK73HB1H103K	CHIP C 0.010UF K		C417			CC73HCH1H101J	CHIP C 100PF J	
C225			CK73HB1A104K	CHIP C 0.10UF K		C418			CC73HCH1H040C	CHIP C 4.0PF C	
C226			CK73FB1A106K	CHIP C 10UF K		C419			CK73HB1H102K	CHIP C 1000PF K	
C227			CC73HCH1H820J	CHIP C 82PF J		C420			CK73HB1A104K	CHIP C 0.10UF K	
C228-230			CK73HB1A104K	CHIP C 0.10UF K		C421			CK73GB1H473K	CHIP C 0.047UF K	
C231			CK73HB1H103K	CHIP C 0.010UF K		C422			CK73FB1E475K	CHIP C 4.7UF K	
C232			CK73HB1A104K	CHIP C 0.10UF K		C424			CK73GB1E105K	CHIP C 1.0UF K	
C233			CK73HB0J105K	CHIP C 1.0UF K		C425			CK73GB1H104K	CHIP C 0.10UF K	
C234			CK73HB1H103K	CHIP C 0.010UF K		C426			CK73HB1H103K	CHIP C 0.010UF K	
C235			CC73HCH1H100B	CHIP C 10PF B		C427			CK73HB1H471K	CHIP C 470PF K	
C236			CC73HCH1H470J	CHIP C 47PF J		C428			CC73HCH1H101J	CHIP C 100PF J	
C237			CC73HCH1H101J	CHIP C 100PF J		C429			CK73GB1H104K	CHIP C 0.10UF K	
C238-240			CK73HB1H103K	CHIP C 0.010UF K		C430,431			CK73FB1E475K	CHIP C 4.7UF K	
C242			CC73HCH1H101J	CHIP C 100PF J		C432			C92-0875-05	ELECTRO 47UF 25WV	
C243			CK73HB1H103K	CHIP C 0.010UF K		C433			CK73GB1H104K	CHIP C 0.10UF K	
C244			CC73HCH1H470J	CHIP C 47PF J		C434			CC73HCH1H101J	CHIP C 100PF J	
C245			CC73FCH1H470J	CHIP C 47PF J		C435,436			CK73FB1A106K	CHIP C 10UF K	
C246			CK73HB1H103K	CHIP C 0.010UF K		C437			CK73HB1A224K	CHIP C 0.22UF K	
C247			CC73FCH1H020B	CHIP C 2.0PF B		C438			CK73FB1A106K	CHIP C 10UF K	
C248			CC73HCH1H101J	CHIP C 100PF J		C439			CK73HB1H103K	CHIP C 0.010UF K	
C249			CC73HCH1H470J	CHIP C 47PF J		C440			CK73GB1E105K	CHIP C 1.0UF K	
C251			CC73HCH1H030B	CHIP C 3.0PF B		C441,442			CK73HB1H103K	CHIP C 0.010UF K	
C253			CC73HCH1H030B	CHIP C 3.0PF B		C443,444			CK73GB1E105K	CHIP C 1.0UF K	
C254			CC73HCH1H030C	CHIP C 3.0PF C		C445			CK73FB1A106K	CHIP C 10UF K	
C255			CC73FCH1H030B	CHIP C 3.0PF B		C446			CS77BA1C4R7M	CHIP TNL 4.7UF 16WV	
C256			CC73HCH1H030B	CHIP C 3.0PF B		C447			CK73HB1A224K	CHIP C 0.22UF K	
C257			CC73HCH1H101J	CHIP C 100PF J		C448			CK73HB1H103K	CHIP C 0.010UF K	
C258,259			CC73HCH1H470J	CHIP C 47PF J		C449			CK73GB1C225K	CHIP C 2.2UF K	
C260			CK73HB1H103K	CHIP C 0.010UF K		C450			CK73HB1H103K	CHIP C 0.010UF K	
C261			CC73HCH1H060B	CHIP C 6.0PF B		C451			CK73GB1C225K	CHIP C 2.2UF K	

## PARTS LIST

TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C452			CK73HB0J105K	CHIP C 1.0UF K		C622			CC73HCH1H101J	CHIP C 100PF J	
C453			CK73GB1E105K	CHIP C 1.0UF K		C623-629			CK73HB1H103K	CHIP C 0.010UF K	
C454			CC73HCH1H101J	CHIP C 100PF J		C630			CK73GB1H104K	CHIP C 0.10UF K	
C455,456			CK73HB1H103K	CHIP C 0.010UF K		C648			CC73HCH1H030B	CHIP C 3.0PF B	
C463			CK73HB0J105K	CHIP C 1.0UF K		C651			CK73GB1E105K	CHIP C 1.0UF K	
C468			CK73HB1H103K	CHIP C 0.010UF K		C652			CC73HCH1H470J	CHIP C 47PF J	
C471			CK73HB0J105K	CHIP C 1.0UF K		C653			CC73HCH1H221J	CHIP C 220PF J	
C473			CK73FB1E475K	CHIP C 4.7UF K		C654			CK73HB1H102K	CHIP C 1000PF K	
C474			CK73HB1H103K	CHIP C 0.010UF K		C702			CK73HB0J105K	CHIP C 1.0UF K	
C475			CK73FB1A106K	CHIP C 10UF K		C704			CC73HCH1H030B	CHIP C 3.0PF B	
C476-483			CC73HCH1H101J	CHIP C 100PF J		C705			CK73HB1H122K	CHIP C 1200PF K	
C485,486			CC73HCH1H050C	CHIP C 5.0PF C		C706			CC73HCH1H221J	CHIP C 220PF J	
C487,488			CK73GB0J106K	CHIP C 10UF K		C707			CK73HB1A104K	CHIP C 0.10UF K	
C501,502			CK73HB0J105K	CHIP C 1.0UF K		C708			CK73HB1H122K	CHIP C 1200PF K	
C503-507			CK73HB1A104K	CHIP C 0.10UF K		C709			CC73HCH1H221J	CHIP C 220PF J	
C508			CC73HCH1H101J	CHIP C 100PF J		C711			CC73HCH1H181J	CHIP C 180PF J	
C509			CK73HB1A104K	CHIP C 0.10UF K		C712			CC73HCH1H470J	CHIP C 47PF J	
C511-514			CK73HB1A104K	CHIP C 0.10UF K		C714			CK73HB1H103K	CHIP C 0.010UF K	
C515			CK73HB0J105K	CHIP C 1.0UF K		C715			CK73HB1H122K	CHIP C 1200PF K	
C516,517			CK73HB1A104K	CHIP C 0.10UF K		C716			CC73HCH1H221J	CHIP C 220PF J	
C518			CK73GB0J106K	CHIP C 10UF K		C717			CK73HB1A104K	CHIP C 0.10UF K	
C520,521			CK73HB1H103K	CHIP C 0.010UF K		C718			CC73HCH1H221J	CHIP C 220PF J	
C522			CK73GB0J106K	CHIP C 10UF K		C719,720			CK73HB1A104K	CHIP C 0.10UF K	
C523			CK73HB1H103K	CHIP C 0.010UF K		C721			CC73HCH1H221J	CHIP C 220PF J	
C527			CK73HB1H103K	CHIP C 0.010UF K		C722			CC73HCH1H470J	CHIP C 47PF J	
C528			CK73HB1A104K	CHIP C 0.10UF K		C723,724			CK73HB1A104K	CHIP C 0.10UF K	
C529,530			CK73HB1H103K	CHIP C 0.010UF K		C726			CK73HB1A104K	CHIP C 0.10UF K	
C531			CK73HB1A104K	CHIP C 0.10UF K		C727			CC73HCH1H820J	CHIP C 82PF J	
C532			CK73HB1H103K	CHIP C 0.010UF K		C729			CK73HB1A104K	CHIP C 0.10UF K	
C533			CK73HB1A104K	CHIP C 0.10UF K		C730			CK73HB1H561K	CHIP C 560PF K	
C534			CC73HCH1H101J	CHIP C 100PF J		C731			CK73HB1A104K	CHIP C 0.10UF K	
C535			CK73FB1A106K	CHIP C 10UF K		C734			CK73HB1H103K	CHIP C 0.010UF K	
C536			CK73HB1H103K	CHIP C 0.010UF K		C735			CK73FB1E475K	CHIP C 4.7UF K	
C537,538			CK73HB1A104K	CHIP C 0.10UF K		C736			CC73HCH1H101J	CHIP C 100PF J	
C539			CK73HB1H103K	CHIP C 0.010UF K		C737			CK73HB1A104K	CHIP C 0.10UF K	
C540			CK73HB0J105K	CHIP C 1.0UF K		C738			CK73HB1H102K	CHIP C 1000PF K	
C541			CK73HB1A104K	CHIP C 0.10UF K		C740			CK73HB1H472K	CHIP C 4700PF K	
C542			CK73FB1A106K	CHIP C 10UF K		C741			CK73HB1A154K	CHIP C 0.15UF K	
C543-546			CC73HCH1H101J	CHIP C 100PF J		C742			CK73HB1A104K	CHIP C 0.10UF K	
C547-550			CK73HB1A104K	CHIP C 0.10UF K		C743			CK73HB1H103K	CHIP C 0.010UF K	
C551			CK73HB1H103K	CHIP C 0.010UF K		C744			CK73HB1A104K	CHIP C 0.10UF K	
C552			CK73HB0J105K	CHIP C 1.0UF K		C745-747			CK73HB1H103K	CHIP C 0.010UF K	
C553			CC73HCH1H101J	CHIP C 100PF J		C748-751			CK73HB1A104K	CHIP C 0.10UF K	
C554-558			CK73HB1A104K	CHIP C 0.10UF K		C752,753			CK73HB1H103K	CHIP C 0.010UF K	
C559			CK73HB1H103K	CHIP C 0.010UF K		C754			CC73HCH1H101J	CHIP C 100PF J	
C560			CK73HB0J105K	CHIP C 1.0UF K		C761			CK73HB1H103K	CHIP C 0.010UF K	
C561-563			CC73HCH1H101J	CHIP C 100PF J		C762,763			CK73HB1A104K	CHIP C 0.10UF K	
C564			CC73HCH1H020B	CHIP C 2.0PF B		C764			CC73HCH1H220J	CHIP C 22PF J	
C565-585			CC73HCH1H101J	CHIP C 100PF J		C765,766			CK73GB1E105K	CHIP C 1.0UF K	
C586			CK73HB1H103K	CHIP C 0.010UF K		C767			CK73HB1A104K	CHIP C 0.10UF K	
C587-589			CC73HCH1H101J	CHIP C 100PF J		C768,769			CK73HB1H103K	CHIP C 0.010UF K	
C590,591			CK73HB1H103K	CHIP C 0.010UF K		C770			CK73HB1A104K	CHIP C 0.10UF K	
C592,593			CC73HCH1H101J	CHIP C 100PF J		C773			CK73HB1A104K	CHIP C 0.10UF K	
C594,595			CK73HB1H103K	CHIP C 0.010UF K		C774			CC73HCH1H101J	CHIP C 100PF J	
C596			CK73HB1A104K	CHIP C 0.10UF K		C775			CK73HB1A104K	CHIP C 0.10UF K	
C597-611			CC73HCH1H101J	CHIP C 100PF J		C776			CK73HB0J105K	CHIP C 1.0UF K	
C612			CK73GB1H103K	CHIP C 0.010UF K		C777			CC73HCH1H101J	CHIP C 100PF J	
C613-616			CK73GB1E105K	CHIP C 1.0UF K		C778			CK73HB1A104K	CHIP C 0.10UF K	
C618			CK73HB1H103K	CHIP C 0.010UF K		C779			CC73HCH1H680J	CHIP C 68PF J	
C620,621			CK73HB1H103K	CHIP C 0.010UF K		C781			CK73GB1E105K	CHIP C 1.0UF K	

## PARTS LIST

### TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C782-786			CK73HB1A104K	CHIP C 0.10UF K		C974			CC73HCH1H050B	CHIP C 5.0PF B	
C787			CK73FB1A106K	CHIP C 10UF K		C975			CC73HCH1H020B	CHIP C 2.0PF B	
C788			CK73HB1A104K	CHIP C 0.10UF K		C976			CC73HCH1H010B	CHIP C 1.0PF B	
C789			CK73FB1E475K	CHIP C 4.7UF K		C977			CC73HCH1H030B	CHIP C 3.0PF B	
C790			CK73FB1A106K	CHIP C 10UF K		C979			CC73HCH1H010C	CHIP C 1.0PF C	
C791			CC73HCH1H101J	CHIP C 100PF J		C980			CC73GCH1H470J	CHIP C 47PF J	
C792			CC73HCH1H470J	CHIP C 47PF J		C981			CC73HCH1H040B	CHIP C 4.0PF B	
C793			CC73HCH1H101J	CHIP C 100PF J		C982,983			CC73HCH1H020B	CHIP C 2.0PF B	
C794,795			CK73FB1A106K	CHIP C 10UF K		CN401,402			E23-1260-04	TERMINAL	
C796-799			CK73HB1A104K	CHIP C 0.10UF K		CN403			E41-1682-05	PIN ASSY(20P)	
C801,802			CK73GB1E105K	CHIP C 1.0UF K		CN502-513			E23-1278-05	TERMINAL	
C803			CC73HCH1H101J	CHIP C 100PF J		CN516,517			E23-1278-05	TERMINAL	
C804,805			CK73HB1H102K	CHIP C 1000PF K		CN520			E23-1278-05	TERMINAL	
C806			C92-0906-05	ELECTRO 330UF 16WV		CN527			E23-1278-05	TERMINAL	
C807			C92-0875-05	ELECTRO 47UF 25WV		CN540			E23-1278-05	TERMINAL	
C809			CC73HCH1H101J	CHIP C 100PF J		CN542,543			E23-1278-05	TERMINAL	
C810			CK73HB1H471K	CHIP C 470PF K		CN549			E40-6720-05	SOCKET FOR PIN ASSY(20P)	
C811			CC73HCH1H101J	CHIP C 100PF J		CN595			E40-6361-05	PIN ASSY(26P)	
C813			CK73FB1A106K	CHIP C 10UF K		CN597			E40-6558-05	FLAT CABLE CONNECTOR(30P)	
C814			CC73HCH1H101J	CHIP C 100PF J		CN600			E40-6560-05	FLAT CABLE CONNECTOR(30P)	
C817			CK73HB1H103K	CHIP C 0.010UF K		CN611,612			E23-1278-05	TERMINAL	
C818			CK73HB0J105K	CHIP C 1.0UF K		CN614			E23-1278-05	TERMINAL	
C819			CK73HB1A104K	CHIP C 0.10UF K		CN705			E40-6582-05	PIN ASSY	
C820			CK73GB1E105K	CHIP C 1.0UF K		CN901			E40-6560-05	FLAT CABLE CONNECTOR(30P)	
C821			CK73HB1H102K	CHIP C 1000PF K		J701			E11-0425-05	3.5D PHONE JACK(EXT SP)	
C825			CC73HCH1H101J	CHIP C 100PF J		J901			E58-0521-05	SUB SOCKET(D)	
C826			CK73HB1H102K	CHIP C 1000PF K		F401			F53-0328-15	FUSE(5A)	
C828			CC73HCH1H101J	CHIP C 100PF J		F501			F53-0352-05	FUSE(2A)	
C846			CC73GCH1H470J	CHIP C 47PF J		CN405			J19-5386-05	HOLDER(LITHIUM CELL)	
C848			CC73GCH1H030C	CHIP C 3.0PF C		CD201			L79-1850-05	TUNING COIL	
C852			CC73HCH1H020B	CHIP C 2.0PF B		CF201			L72-1027-05	CERAMIC FILTER(450KHZ)	
C858			CK73HB1E103K	CHIP C 0.010UF K		CF202			L72-1041-05	CERAMIC FILTER(450KHZ)	
C861			CC73GCH1H220J	CHIP C 22PF J		CF203			L72-1040-05	CERAMIC FILTER(450KHZ)	
C868,869			CC73GCH1H470J	CHIP C 47PF J		L1			L41-4795-39	SMALL FIXED INDUCTOR(4.7UH)	
C901			CC73HCH1H101J	CHIP C 100PF J		L3			L92-0163-05	BEADS CORE	
C902			CK73HB1H102K	CHIP C 1000PF K		L5			L41-2278-14	SMALL FIXED INDUCTOR(22NH)	
C903-906			CC73HCH1H101J	CHIP C 100PF J		L6 ,7			L40-1001-86	SMALL FIXED INDUCTOR(10UH)	
C907			CK73HB1H102K	CHIP C 1000PF K		L8			L41-8268-14	SMALL FIXED INDUCTOR(8.2NH)	
C908-921			CC73HCH1H101J	CHIP C 100PF J		L9			L41-8268-08	SMALL FIXED INDUCTOR(8.2NH)	
C922,923			CK73HB1H102K	CHIP C 1000PF K		L10			L92-0163-05	BEADS CORE	
C928			CK73HB1H103K	CHIP C 0.010UF K		L11			L40-2285-92	SMALL FIXED INDUCTOR(220NH)	
C929			CC73HCH1H100B	CHIP C 10PF B		L12			L40-2785-92	SMALL FIXED INDUCTOR(270NH)	
C932			CC73HCH1H101J	CHIP C 100PF J		L13			L40-2285-92	SMALL FIXED INDUCTOR(220NH)	
C934			CC73HCH1H101J	CHIP C 100PF J		L14			L41-2785-45	SMALL FIXED INDUCTOR(270NH)	
C938			CC73HCH1H030B	CHIP C 3.0PF B		L15			L40-2285-92	SMALL FIXED INDUCTOR(220NH)	
C939			CK73HB1H103K	CHIP C 0.010UF K		L16			L41-2785-45	SMALL FIXED INDUCTOR(270NH)	
C941			C93-1871-05	CHIP C 100PF J		L17 ,18			L34-4607-15	AIR-CORE COIL(6T)	
C943,944			CC73FCH1H470J	CHIP C 47PF J		L19			L41-2785-45	SMALL FIXED INDUCTOR(270NH)	
C945		*	C93-1841-05	CHIP C 2.7PF B		L20			L92-0446-05	BEADS CORE	
C946		*	C93-1843-05	CHIP C 3.3PF B		L21 -23			L41-2785-45	SMALL FIXED INDUCTOR(270NH)	
C947			C93-1852-05	CHIP C 6.0PF B		L24			L92-0140-05	CHIP FERRITE	
C949-951			CC73HCH1H470J	CHIP C 47PF J		L25			L40-1575-71	SMALL FIXED INDUCTOR(15NH)	
C952			CK73GB1C683K	CHIP C 0.068UF K		L26			L40-5663-92	SMALL FIXED INDUCTOR(5.6NH)	
C953-963			CK73HB1A104K	CHIP C 0.10UF K		L27			L41-3963-14	SMALL FIXED INDUCTOR(3.9NH)	
C964			CK73HB1H103K	CHIP C 0.010UF K		L28			L41-4763-14	SMALL FIXED INDUCTOR(4.7NH)	
C966			CC73HCH1H050B	CHIP C 5.0PF B		L32 -36			L92-0163-05	BEADS CORE	
C967			CC73HCH1H010B	CHIP C 1.0PF B		L40 ,41			L92-0163-05	BEADS CORE	
C968			CC73HCH1H070B	CHIP C 7.0PF B		L106			L92-0140-05	CHIP FERRITE	
C971			CC73HCH1H030B	CHIP C 3.0PF B							
C972,973			CC73HCH1H020B	CHIP C 2.0PF B							



## PARTS LIST

TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
L107-109			L92-0179-05	CHIP FERRITE		R13			RK73HB1J473J	CHIP R 47K J 1/16W	
L110			L34-4613-05	AIR-CORE COIL(7T)		R15 -19			RK73HB1J100J	CHIP R 10 J 1/16W	
L111			L34-4602-15	AIR-CORE COIL(1T)		R20			RK73HB1J220J	CHIP R 22 J 1/16W	
L112-114			L34-4604-15	AIR-CORE COIL(3T)		R21			RK73HB1J100J	CHIP R 10 J 1/16W	
L118,119			L92-0163-05	BEADS CORE		R22 ,23			RK73HB1J102J	CHIP R 1.0K J 1/16W	
L150			L40-8265-92	SMALL FIXED INDUCTOR(8.2NH)		R24			RK73HB1J221J	CHIP R 220 J 1/16W	
L151			L40-3363-92	SMALL FIXED INDUCTOR(3.3NH)		R25			RK73HB1J000J	CHIP R 0 J 1/16W	
L152			L40-6865-92	SMALL FIXED INDUCTOR(6.8NH)		R26			RK73HB1J104J	CHIP R 100K J 1/16W	
L153			L40-3363-92	SMALL FIXED INDUCTOR(3.3NH)		R27			RK73HB1J473J	CHIP R 47K J 1/16W	
L156			L40-6865-92	SMALL FIXED INDUCTOR(6.8NH)		R28			RK73HB1J683J	CHIP R 68K J 1/16W	
L157			L40-4763-92	SMALL FIXED INDUCTOR(4.7NH)		R29			RK73HB1J000J	CHIP R 0 J 1/16W	
L158			L40-3363-92	SMALL FIXED INDUCTOR(3.3NH)		R30			RK73HB1J823J	CHIP R 82K J 1/16W	
L159			L40-1263-92	SMALL FIXED INDUCTOR(1.2NH)		R31			RK73HB1J473J	CHIP R 47K J 1/16W	
L160,161			L40-8265-92	SMALL FIXED INDUCTOR(8.2NH)		R32			RK73HB1J151J	CHIP R 150 J 1/16W	
L201			L40-1085-71	SMALL FIXED INDUCTOR(100NH)		R34			RK73HB1J102J	CHIP R 1.0K J 1/16W	
L202			L40-5681-86	SMALL FIXED INDUCTOR(0.56UH)		R35			RK73HB1J391J	CHIP R 390 J 1/16W	
L204			L41-4778-45	SMALL FIXED INDUCTOR(47NH)		R36			RK73HB1J106J	CHIP R 10M J 1/16W	
L205			L40-5681-86	SMALL FIXED INDUCTOR(0.56UH)		R37			RK73HB1J103J	CHIP R 10K J 1/16W	
L206			L92-0138-05	CHIP FERRITE		R38			RK73HB1J000J	CHIP R 0 J 1/16W	
L207			L40-5681-86	SMALL FIXED INDUCTOR(0.56UH)		R40 ,41			RK73HB1J000J	CHIP R 0 J 1/16W	
L208			L92-0138-05	CHIP FERRITE		R42			RK73HB1J104J	CHIP R 100K J 1/16W	
L209			L40-8265-92	SMALL FIXED INDUCTOR(8.2NH)		R44			RK73HB1J000J	CHIP R 0 J 1/16W	
L215			L41-1878-14	SMALL FIXED INDUCTOR(18NH)		R45			RK73HB1J104J	CHIP R 100K J 1/16W	
L217			L41-8268-14	SMALL FIXED INDUCTOR(8.2NH)		R48			RK73HB1J330J	CHIP R 33 J 1/16W	
L218			L41-6868-14	SMALL FIXED INDUCTOR(6.8NH)		R49			RK73HB1J154J	CHIP R 150K J 1/16W	
L220,221			L41-1078-14	SMALL FIXED INDUCTOR(10NH)		R50			RK73HB1J104J	CHIP R 100K J 1/16W	
L401-403			L92-0179-05	CHIP FERRITE		R51			RK73HB1J154J	CHIP R 150K J 1/16W	
L404			L92-0639-05	CHIP FERRITE		R52			RK73HB1J470J	CHIP R 47 J 1/16W	
L405			L33-1496-05	SMALL FIXED INDUCTOR(22UH)		R53 ,54			RK73HB1J473J	CHIP R 47K J 1/16W	
L444			L40-5663-92	SMALL FIXED INDUCTOR(5.6NH)		R55			RK73HB1J472J	CHIP R 4.7K J 1/16W	
L447,448			L41-1575-45	SMALL FIXED INDUCTOR(15NH)		R56			RK73HB1J474J	CHIP R 470K J 1/16W	
L450,451			L41-5165-45	SMALL FIXED INDUCTOR(5.1NH)		R57			RN73HH1J121D	CHIP R 120 D 1/16W	
L501-503			L92-0138-05	CHIP FERRITE		R58			RN73HH1J100D	CHIP R 10 D 1/16W	
L506-511			L92-0138-05	CHIP FERRITE		R59			RN73HH1J181D	CHIP R 180 D 1/16W	
L512			L92-0140-05	CHIP FERRITE		R60			RK73HB1J102J	CHIP R 1.0K J 1/16W	
L517,518			L92-0138-05	CHIP FERRITE		R61			RK73HB1J473J	CHIP R 47K J 1/16W	
L521-523			L92-0162-05	BEADS CORE		R62			RK73HB1J154J	CHIP R 150K J 1/16W	
L901,902			L92-0140-05	CHIP FERRITE		R63			RK73HB1J101J	CHIP R 100 J 1/16W	
L903,904			L92-0162-05	BEADS CORE		R64			RK73HB1J682J	CHIP R 6.8K J 1/16W	
L905			L40-1085-71	SMALL FIXED INDUCTOR(100NH)		R65			RK73HB1J103J	CHIP R 10K J 1/16W	
L906,907		*	L79-1953-05	FILTER(938MHZ)		R66			RK73HB1J101J	CHIP R 100 J 1/16W	
L910			L40-2785-92	SMALL FIXED INDUCTOR(270NH)		R67			RK73HB1J222J	CHIP R 2.2K J 1/16W	
L911			L41-2278-14	SMALL FIXED INDUCTOR(22NH)		R68			RK73HB1J330J	CHIP R 33 J 1/16W	
L912			L41-5678-14	SMALL FIXED INDUCTOR(56NH)		R70			RK73HB1J472J	CHIP R 4.7K J 1/16W	
L913			L41-1585-08	SMALL FIXED INDUCTOR(150NH)		R71			RK73HB1J474J	CHIP R 470K J 1/16W	
L914,915			L40-4763-71	SMALL FIXED INDUCTOR(4.7NH)		R72			RK73HB1J183J	CHIP R 18K J 1/16W	
L916,917			L40-1575-71	SMALL FIXED INDUCTOR(15NH)		R73			RK73HB1J104J	CHIP R 100K J 1/16W	
L919			L92-0163-05	BEADS CORE		R74			RK73HB1J102J	CHIP R 1.0K J 1/16W	
L920,921			L40-8265-71	SMALL FIXED INDUCTOR(8.2NH)		R75			RK73HB1J221J	CHIP R 220 J 1/16W	
X1			L77-3016-05	TCXO(19.2MHZ)		R76			RK73HB1J474J	CHIP R 470K J 1/16W	
X501			L77-1802-05	CRYSTAL RESONATOR(32.768KHZ)		R77			RK73HB1J101J	CHIP R 100 J 1/16W	
X502			L77-3015-05	TCXO(18.432MHZ)		R78			RK73HB1J333J	CHIP R 33K J 1/16W	
XF202			L71-0649-05	MCF(58.05MHZ)		R80 ,81			RK73HB1J000J	CHIP R 0 J 1/16W	
R1 ,2			RK73HH1J223D	CHIP R 22K D 1/16W		R82			RK73GB2A000J	CHIP R 0 J 1/10W	
R4			RK73HB1J101J	CHIP R 100 J 1/16W		R83			RK73HB1J000J	CHIP R 0 J 1/16W	
R6			RK73HB1J000J	CHIP R 0 J 1/16W		R84 ,85			RK73GB2A000J	CHIP R 0 J 1/10W	
R7			RK73HB1J103J	CHIP R 10K J 1/16W		R86			RK73GB2A272J	CHIP R 2.7K J 1/10W	
R8			RK73HB1J103J	CHIP R 10K J 1/16W		R87			RK73HB1J000J	CHIP R 0 J 1/16W	
R10			RK73HB1J000J	CHIP R 0 J 1/16W		R88			RK73HB1J103J	CHIP R 10K J 1/16W	
						R89			RK73HB1J330J	CHIP R 33 J 1/16W	

## PARTS LIST

TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R90			RK73HB1J331J	CHIP R 330 J 1/16W		R228			RK73HB1J223J	CHIP R 22K J 1/16W	
R91			RK73HB1J101J	CHIP R 100 J 1/16W		R229,230			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R92			RK73HB1J000J	CHIP R 0 J 1/16W		R231			RK73HB1J221J	CHIP R 220 J 1/16W	
R93			RK73HB1J473J	CHIP R 47K J 1/16W		R232			RK73HB1J101J	CHIP R 100 J 1/16W	
R96			RK73HB1J000J	CHIP R 0 J 1/16W		R233			RK73HB1J221J	CHIP R 220 J 1/16W	
R98			RK73HB1J181J	CHIP R 180 J 1/16W		R234			RK73HB1J103J	CHIP R 10K J 1/16W	
R99			RK73HB1J182J	CHIP R 1.8K J 1/16W		R235			RK73HB1J000J	CHIP R 0 J 1/16W	
R100			RK73FB2B221J	CHIP R 220 J 1/8W		R237			RK73HB1J104J	CHIP R 100K J 1/16W	
R101			RK73HB1J332J	CHIP R 3.3K J 1/16W		R238			RK73HB1J103J	CHIP R 10K J 1/16W	
R102,103			RK73FB2B470J	CHIP R 47 J 1/8W		R239			RK73HB1J104J	CHIP R 100K J 1/16W	
R104			RK73FB2B221J	CHIP R 220 J 1/8W		R242			RK73HB1J221J	CHIP R 220 J 1/16W	
R106			RK73PB2H470J	CHIP R 47 J 1/2W		R243			RK73HB1J101J	CHIP R 100 J 1/16W	
R109			RK73HB1J332J	CHIP R 3.3K J 1/16W		R244			RK73HB1J000J	CHIP R 0 J 1/16W	
R111			RK73HB1J104J	CHIP R 100K J 1/16W		R245,246			RK73HB1J104J	CHIP R 100K J 1/16W	
R112			RK73PB2H470J	CHIP R 47 J 1/2W		R248			RK73HB1J474J	CHIP R 470K J 1/16W	
R114,115			RK73HB1J000J	CHIP R 0 J 1/16W		R250			RK73HB1J000J	CHIP R 0 J 1/16W	
R117			RK73HB1J103J	CHIP R 10K J 1/16W		R256			RK73HB1J181J	CHIP R 180 J 1/16W	
R131			RK73HB1J000J	CHIP R 0 J 1/16W		R257,258			RK73HB1J000J	CHIP R 0 J 1/16W	
R136			RK73HB1J273J	CHIP R 27K J 1/16W		R261			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R137			RK73HB1J153J	CHIP R 15K J 1/16W		R262			RK73HB1J682J	CHIP R 6.8K J 1/16W	
R141			RK73HB1J394J	CHIP R 390K J 1/16W		R263			RK73HB1J000J	CHIP R 0 J 1/16W	
R142			RK73HB1J182J	CHIP R 1.8K J 1/16W		R265			RK73HB1J103J	CHIP R 10K J 1/16W	
R145			RK73HB1J000J	CHIP R 0 J 1/16W		R266			RK73HB1J222J	CHIP R 2.2K J 1/16W	
R147			RK73HB1J104J	CHIP R 100K J 1/16W		R267			RK73HB1J271J	CHIP R 270 J 1/16W	
R148			RK73HB1J183J	CHIP R 18K J 1/16W		R269			RK73HB1J121J	CHIP R 120 J 1/16W	
R152			RK73HB1J330J	CHIP R 33 J 1/16W		R320			RK73HB1J000J	CHIP R 0 J 1/16W	
R153		*	RN73HH1J330D	CHIP R 33 D 1/16W		R324			RK73HB1J152J	CHIP R 1.5K J 1/16W	
R154			RK73HB1J331J	CHIP R 330 J 1/16W		R326			RK73HB1J152J	CHIP R 1.5K J 1/16W	
R156			RK73HB1J391J	CHIP R 390 J 1/16W		R328			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R157			RK73HB1J331J	CHIP R 330 J 1/16W		R329			RK73HB1J682J	CHIP R 6.8K J 1/16W	
R158			RK73FB2B331J	CHIP R 330 J 1/8W		R330			RK73GB2A100J	CHIP R 10 J 1/10W	
R159			RK73HB1J120J	CHIP R 12 J 1/16W		R331			RK73HB1J473J	CHIP R 47K J 1/16W	
R160			RK73HB1J472J	CHIP R 4.7K J 1/16W		R332			RK73HB1J000J	CHIP R 0 J 1/16W	
R161			RK73HB1J331J	CHIP R 330 J 1/16W		R333			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R163			RK73HB1J391J	CHIP R 390 J 1/16W		R334			RK73HB1J000J	CHIP R 0 J 1/16W	
R164			RK73HB1J331J	CHIP R 330 J 1/16W		R338			RK73HB1J000J	CHIP R 0 J 1/16W	
R165			RK73FB2B8R2J	CHIP R 8.2 J 1/8W		R339			RK73HB1J470J	CHIP R 47 J 1/16W	
R166,167			RK73GB2A391J	CHIP R 390 J 1/10W		R340,341			RK73HB1J121J	CHIP R 120 J 1/16W	
R168			RK73GB2A120J	CHIP R 12 J 1/10W		R343-345			RK73HB1J000J	CHIP R 0 J 1/16W	
R170			RK73FB2B331J	CHIP R 330 J 1/8W		R346			RK73HB1J223J	CHIP R 22K J 1/16W	
R171			RK73HB1J103J	CHIP R 10K J 1/16W		R352,353			RK73HB1J000J	CHIP R 0 J 1/16W	
R174			RK73HB1J103J	CHIP R 10K J 1/16W		R401			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R201			RK73HB1J222J	CHIP R 2.2K J 1/16W		R402			RK73HB1J471J	CHIP R 470 J 1/16W	
R202,203			RK73HB1J223J	CHIP R 22K J 1/16W		R403			RK73HB1J104J	CHIP R 100K J 1/16W	
R204			RK73HB1J470J	CHIP R 47 J 1/16W		R404			RK73HB1J103J	CHIP R 10K J 1/16W	
R205,206			RK73HB1J223J	CHIP R 22K J 1/16W		R405			RK73HH1J274D	CHIP R 270K D 1/16W	
R207			RK73HB1J334J	CHIP R 330K J 1/16W		R406			RK73HH1J104D	CHIP R 100K D 1/16W	
R208			RK73HB1J153J	CHIP R 15K J 1/16W		R407			RK73HB1J473J	CHIP R 47K J 1/16W	
R209,210			RK73HB1J100J	CHIP R 10 J 1/16W		R408			RK73HB1J103J	CHIP R 10K J 1/16W	
R212			RK73HB1J000J	CHIP R 0 J 1/16W		R409			RK73HB1J683J	CHIP R 68K J 1/16W	
R213			RK73HB1J102J	CHIP R 1.0K J 1/16W		R410			RK73HB1J684J	CHIP R 680K J 1/16W	
R215			RK73HB1J332J	CHIP R 3.3K J 1/16W		R411			RK73HB1J104J	CHIP R 100K J 1/16W	
R216			RK73HB1J102J	CHIP R 1.0K J 1/16W		R413			RK73HB1J474J	CHIP R 470K J 1/16W	
R219			RK73HB1J103J	CHIP R 10K J 1/16W		R415			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R222			RK73HB1J102J	CHIP R 1.0K J 1/16W		R417			RK73HB1J473J	CHIP R 47K J 1/16W	
R223			RK73HB1J274J	CHIP R 270K J 1/16W		R418,419			RK73HB1J103J	CHIP R 10K J 1/16W	
R224			RK73HB1J103J	CHIP R 10K J 1/16W		R420			RK73HB1J473J	CHIP R 47K J 1/16W	
R225			RK73HB1J153J	CHIP R 15K J 1/16W		R421			RK73HB1J474J	CHIP R 470K J 1/16W	
R226			RK73HB1J473J	CHIP R 47K J 1/16W		R422			RK73HB1J103J	CHIP R 10K J 1/16W	
R227			RK73HB1J104J	CHIP R 100K J 1/16W		R423-425			RK73HB1J472J	CHIP R 4.7K J 1/16W	

## PARTS LIST

TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R426			RK73HB1J474J	CHIP R 470K J 1/16W		R587			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R428,429			RK73HB1J103J	CHIP R 10K J 1/16W		R588-590			RK73HB1J000J	CHIP R 0 J 1/16W	
R430			RK73HH1J124D	CHIP R 120K D 1/16W		R591			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R431			RK73HH1J183D	CHIP R 18K D 1/16W		R592,593			RK73HB1J000J	CHIP R 0 J 1/16W	
R432			RK73HH1J223D	CHIP R 22K D 1/16W		R594			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R433			RK73HB1J102J	CHIP R 1.0K J 1/16W		R595			RK73HB1J000J	CHIP R 0 J 1/16W	
R437			RK73HB1J474J	CHIP R 470K J 1/16W		R596			RK73HB1J103J	CHIP R 10K J 1/16W	
R440			RK73HB1J102J	CHIP R 1.0K J 1/16W		R597			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R444			RK73HB1J272J	CHIP R 2.7K J 1/16W		R598-601			RK73FB2B102J	CHIP R 1.0K J 1/8W	
R445			RK73HB1J473J	CHIP R 47K J 1/16W		R602			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R446			RK73GB2A100J	CHIP R 10 J 1/10W		R603,604			RK73HB1J000J	CHIP R 0 J 1/16W	
R447			RK73HB1J473J	CHIP R 47K J 1/16W		R605			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R448			RK73HB1J000J	CHIP R 0 J 1/16W		R606			RK73HB1J103J	CHIP R 10K J 1/16W	
R449			RK73GB2A100J	CHIP R 10 J 1/10W		R607,608			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R451			RK73HB1J104J	CHIP R 100K J 1/16W		R610			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R452			RK73HB1J000J	CHIP R 0 J 1/16W		R611,612			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R455			RK73HB1J000J	CHIP R 0 J 1/16W		R613			RK73HB1J181J	CHIP R 180 J 1/16W	
R456			RK73GB2A100J	CHIP R 10 J 1/10W		R614			RK73HB1J474J	CHIP R 470K J 1/16W	
R503			RK73HB1J102J	CHIP R 1.0K J 1/16W		R615,616			RK73HB1J000J	CHIP R 0 J 1/16W	
R504			RK73HB1J104J	CHIP R 100K J 1/16W		R617-620			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R506			RK73HB1J474J	CHIP R 470K J 1/16W		R621			RK73HB1J000J	CHIP R 0 J 1/16W	
R508			RK73HB1J104J	CHIP R 100K J 1/16W		R622			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R509			RK73HB1J000J	CHIP R 0 J 1/16W		R623-625			RK73HB1J104J	CHIP R 100K J 1/16W	
R510			RK73HB1J104J	CHIP R 100K J 1/16W		R627,628			RK73HB1J104J	CHIP R 100K J 1/16W	
R511			RK73HB1J220J	CHIP R 22 J 1/16W		R629			RK73HB1J105J	CHIP R 1.0M J 1/16W	
R512			RK73HB1J104J	CHIP R 100K J 1/16W		R630			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R515			RK73HB1J104J	CHIP R 100K J 1/16W		R632			RK73HB1J103J	CHIP R 10K J 1/16W	
R520,521			RK73HB1J473J	CHIP R 47K J 1/16W		R633			RK73HB1J000J	CHIP R 0 J 1/16W	
R522			RK73HB1J474J	CHIP R 470K J 1/16W		R634			RK73HB1J103J	CHIP R 10K J 1/16W	
R523			RK73HB1J103J	CHIP R 10K J 1/16W		R636			RK73HB1J000J	CHIP R 0 J 1/16W	
R525			RK73HB1J104J	CHIP R 100K J 1/16W		R637			RK73HB1J103J	CHIP R 10K J 1/16W	
R528			RK73HB1J104J	CHIP R 100K J 1/16W		R638			RK73HB1J104J	CHIP R 100K J 1/16W	
R532			RK73HB1J101J	CHIP R 100 J 1/16W		R639			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R533,534			RK73HB1J000J	CHIP R 0 J 1/16W		R640			RK73HB1J103J	CHIP R 10K J 1/16W	
R536			RK73HB1J000J	CHIP R 0 J 1/16W		R641,642			RK73HB1J104J	CHIP R 100K J 1/16W	
R538			RK73HB1J101J	CHIP R 100 J 1/16W		R644			RK73GB2A000J	CHIP R 0 J 1/10W	
R540,541			RK73HB1J101J	CHIP R 100 J 1/16W		R646			RK73HB1J682J	CHIP R 6.8K J 1/16W	
R543			RK73HB1J000J	CHIP R 0 J 1/16W		R648			RK73HB1J682J	CHIP R 6.8K J 1/16W	
R545			RK73HB1J000J	CHIP R 0 J 1/16W		R650			RK73GB2A000J	CHIP R 0 J 1/10W	
R546			RK73GB2A000J	CHIP R 0 J 1/10W		R651			RK73FB2B102J	CHIP R 1.0K J 1/8W	
R548			RK73GB2A000J	CHIP R 0 J 1/10W		R652			RK73HB1J104J	CHIP R 100K J 1/16W	
R550			RK73GB2A000J	CHIP R 0 J 1/10W		R654			RK73GB2A000J	CHIP R 0 J 1/10W	
R551			RK73HB1J101J	CHIP R 100 J 1/16W		R656			RK73HB1J471J	CHIP R 470 J 1/16W	
R552			RK73HB1J103J	CHIP R 10K J 1/16W		R658			RK73GB2A000J	CHIP R 0 J 1/10W	
R553,554			RK73HB1J104J	CHIP R 100K J 1/16W		R659-661			RK73HB1J104J	CHIP R 100K J 1/16W	
R556-558			RK73HB1J104J	CHIP R 100K J 1/16W		R662,663			RK73HB1J474J	CHIP R 470K J 1/16W	
R561			RK73HB1J473J	CHIP R 47K J 1/16W		R664-674			RK73HB1J104J	CHIP R 100K J 1/16W	
R562			RK73GB2A000J	CHIP R 0 J 1/10W		R676			RK73HB1J104J	CHIP R 100K J 1/16W	
R565			RK73GB2A000J	CHIP R 0 J 1/10W		R677			RK73HB1J474J	CHIP R 470K J 1/16W	
R568			RK73HB1J102J	CHIP R 1.0K J 1/16W		R678			RK73HB1J104J	CHIP R 100K J 1/16W	
R569			RK73HB1J220J	CHIP R 22 J 1/16W		R680-683			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R572			RK73HB1J220J	CHIP R 22 J 1/16W		R684			RK73HB1J104J	CHIP R 100K J 1/16W	
R574			RK73GB2A000J	CHIP R 0 J 1/10W		R686			RK73HB1J104J	CHIP R 100K J 1/16W	
R575			RK73HB1J103J	CHIP R 10K J 1/16W		R687,688			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R576			RK73HB1J000J	CHIP R 0 J 1/16W		R689,690			RK73HB1J474J	CHIP R 470K J 1/16W	
R577			RK73HB1J102J	CHIP R 1.0K J 1/16W		R691-698			RK73HB1J104J	CHIP R 100K J 1/16W	
R578-580			RK73HB1J000J	CHIP R 0 J 1/16W		R700-702			RK73HB1J104J	CHIP R 100K J 1/16W	
R581			RK73HB1J474J	CHIP R 470K J 1/16W		R703			RK73HB1J103J	CHIP R 10K J 1/16W	
R582,583			RK73HB1J000J	CHIP R 0 J 1/16W		R704			RK73HB1J563J	CHIP R 56K J 1/16W	
R585,586			RK73HB1J000J	CHIP R 0 J 1/16W		R705			RK73HB1J104J	CHIP R 100K J 1/16W	

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## PARTS LIST

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Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R706			RK73HB1J683J	CHIP R 68K J 1/16W		R783			RK73HB1J000J	CHIP R 0 J 1/16W	
R707			RK73HB1J153J	CHIP R 15K J 1/16W		R784			RK73HB1J154J	CHIP R 150K J 1/16W	
R708			RK73HB1J683J	CHIP R 68K J 1/16W		R785			RK73HB1J103J	CHIP R 10K J 1/16W	
R709			RK73HB1J822J	CHIP R 8.2K J 1/16W		R786			RK73HB1J393J	CHIP R 39K J 1/16W	
R710			RK73HB1J104J	CHIP R 100K J 1/16W		R787			RK73HB1J274J	CHIP R 270K J 1/16W	
R712			RK73HB1J683J	CHIP R 68K J 1/16W		R788			RK73HB1J223J	CHIP R 22K J 1/16W	
R713			RK73HB1J563J	CHIP R 56K J 1/16W		R789			RK73HB1J000J	CHIP R 0 J 1/16W	
R714			RK73HB1J104J	CHIP R 100K J 1/16W		R790			RK73HB1J224J	CHIP R 220K J 1/16W	
R715			RK73HB1J473J	CHIP R 47K J 1/16W		R791			RK73HB1J564J	CHIP R 560K J 1/16W	
R716			RK73HB1J000J	CHIP R 0 J 1/16W		R792			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R718			RK73HB1J000J	CHIP R 0 J 1/16W		R793,794			RK73HB1J000J	CHIP R 0 J 1/16W	
R720			RK73HB1J104J	CHIP R 100K J 1/16W		R795			RK73HB1J224J	CHIP R 220K J 1/16W	
R721			RK73HB1J222J	CHIP R 2.2K J 1/16W		R796			RK73HB1J103J	CHIP R 10K J 1/16W	
R722			RK73HB1J683J	CHIP R 68K J 1/16W		R797			RK73HB1J334J	CHIP R 330K J 1/16W	
R723			RK73HB1J102J	CHIP R 1.0K J 1/16W		R798			RK73HB1J684J	CHIP R 680K J 1/16W	
R724			RK73HB1J563J	CHIP R 56K J 1/16W		R799			RK73HB1J563J	CHIP R 56K J 1/16W	
R725			RK73HB1J683J	CHIP R 68K J 1/16W		R800			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R726			RK73HB1J100J	CHIP R 10 J 1/16W		R801			RK73HB1J104J	CHIP R 100K J 1/16W	
R727			RK73HB1J274J	CHIP R 270K J 1/16W		R802			RK73HB1J273J	CHIP R 27K J 1/16W	
R728			RK73HB1J000J	CHIP R 0 J 1/16W		R803			RK73HB1J153J	CHIP R 15K J 1/16W	
R729			RK73HB1J104J	CHIP R 100K J 1/16W		R804			RK73HB1J681J	CHIP R 680 J 1/16W	
R731			RK73HB1J000J	CHIP R 0 J 1/16W		R805			RK73HB1J823J	CHIP R 82K J 1/16W	
R732			RK73HB1J473J	CHIP R 47K J 1/16W		R806			RK73HB1J562J	CHIP R 5.6K J 1/16W	
R737			RK73HB1J473J	CHIP R 47K J 1/16W		R807,808			RK73HB1J103J	CHIP R 10K J 1/16W	
R738			RK73HB1J102J	CHIP R 1.0K J 1/16W		R809			RK73HB1J104J	CHIP R 100K J 1/16W	
R739			RK73HB1J000J	CHIP R 0 J 1/16W		R810			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R740,741			RK73HB1J104J	CHIP R 100K J 1/16W		R812,813			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R744			RK73HB1J473J	CHIP R 47K J 1/16W		R814-816			RK73HB1J104J	CHIP R 100K J 1/16W	
R745			RK73HB1J104J	CHIP R 100K J 1/16W		R817			RK73HB1J473J	CHIP R 47K J 1/16W	
R746			RK73HB1J103J	CHIP R 10K J 1/16W		R818			RK73HB1J333J	CHIP R 33K J 1/16W	
R747			RK73HB1J334J	CHIP R 330K J 1/16W		R819			RK73HB1J000J	CHIP R 0 J 1/16W	
R748			RK73HB1J000J	CHIP R 0 J 1/16W		R820			RK73HB1J474J	CHIP R 470K J 1/16W	
R749			RK73HB1J823J	CHIP R 82K J 1/16W		R821			RK73HB1J000J	CHIP R 0 J 1/16W	
R750			RK73HB1J332J	CHIP R 3.3K J 1/16W		R822			RK73HB1J101J	CHIP R 100 J 1/16W	
R751			RK73HB1J271J	CHIP R 270 J 1/16W		R823			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R752			RK73HB1J102J	CHIP R 1.0K J 1/16W		R825,826			RK73HB1J103J	CHIP R 10K J 1/16W	
R753			RK73HB1J563J	CHIP R 56K J 1/16W		R827			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R755			RK73HB1J103J	CHIP R 10K J 1/16W		R828			RK73HB1J000J	CHIP R 0 J 1/16W	
R756			RK73HB1J153J	CHIP R 15K J 1/16W		R831			RK73HB1J000J	CHIP R 0 J 1/16W	
R758			RK73HB1J103J	CHIP R 10K J 1/16W		R833-835			RK73HB1J101J	CHIP R 100 J 1/16W	
R759			RK73HB1J104J	CHIP R 100K J 1/16W		R836			RK73HB1J000J	CHIP R 0 J 1/16W	
R760			RK73HB1J152J	CHIP R 1.5K J 1/16W		R837			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R761			RK73HB1J683J	CHIP R 68K J 1/16W		R838			RK73HB1J000J	CHIP R 0 J 1/16W	
R762			RK73HB1J334J	CHIP R 330K J 1/16W		R841			RK73HB1J000J	CHIP R 0 J 1/16W	
R763			RK73HB1J183J	CHIP R 18K J 1/16W		R842			RK73FB2B102J	CHIP R 1.0K J 1/8W	
R764			RK73HB1J124J	CHIP R 120K J 1/16W		R843			RK73HB1J471J	CHIP R 470 J 1/16W	
R765			RK73HB1J102J	CHIP R 1.0K J 1/16W		R845			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R766			RK73HB1J104J	CHIP R 100K J 1/16W		R846			RK73HB1J332J	CHIP R 3.3K J 1/16W	
R767,768			RK73HB1J473J	CHIP R 47K J 1/16W		R847			RK73HB1J000J	CHIP R 0 J 1/16W	
R769			RK73HB1J472J	CHIP R 4.7K J 1/16W		R849,850			RK73GB2A000J	CHIP R 0 J 1/10W	
R770			RK73HB1J563J	CHIP R 56K J 1/16W		R882			RK73HB1J000J	CHIP R 0 J 1/16W	
R771			RK73HB1J104J	CHIP R 100K J 1/16W		R890			R92-1061-05	JUMPER REST 0 OHM	
R772			RK73HB1J123J	CHIP R 12K J 1/16W		R901			RK73GB2A471J	CHIP R 470 J 1/10W	
R773			RK73HB1J684J	CHIP R 680K J 1/16W		R902,903			RK73HB1J101J	CHIP R 100 J 1/16W	
R774			RK73HB1J474J	CHIP R 470K J 1/16W		R904-913			RK73HB1J471J	CHIP R 470 J 1/16W	
R776			RK73HB1J334J	CHIP R 330K J 1/16W		R914			RK73GB2A471J	CHIP R 470 J 1/10W	
R777			RK73HB1J154J	CHIP R 150K J 1/16W		R915-917			RK73HB1J000J	CHIP R 0 J 1/16W	
R778			RK73HB1J394J	CHIP R 390K J 1/16W		R918,919			RK73HB1J101J	CHIP R 100 J 1/16W	
R779			RK73HB1J474J	CHIP R 470K J 1/16W		R920			RK73HB1J000J	CHIP R 0 J 1/16W	
R782			RK73HB1J153J	CHIP R 15K J 1/16W		R923			RK73HB1J473J	CHIP R 47K J 1/16W	

## PARTS LIST

TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R933			RK73HB1J000J	CHIP R 0 J 1/16W		D702			HSC119	DIODE	
R934-936			RK73HB1J474J	CHIP R 470K J 1/16W		D703-705			RB706F-40	DIODE	
R938			RK73HB1J101J	CHIP R 100 J 1/16W		D706,707			EMZ6.8N	ZENER DIODE	
R939			RK73FB2B000J	CHIP R 0 J 1/8W		D901-904			MC2850	DIODE	
R940,941			RK73HB1J474J	CHIP R 470K J 1/16W		D905,906			UDZW18(B)	ZENER DIODE	
R943			RK73HB1J103J	CHIP R 10K J 1/16W		D907,908			MC2850	DIODE	
R944			RK73HB1J471J	CHIP R 470 J 1/16W		D909			1SS355	DIODE	
R951			RK73HB1J000J	CHIP R 0 J 1/16W		D910			UDZW18(B)	ZENER DIODE	
R952-954			RK73HB1J104J	CHIP R 100K J 1/16W		D911,912			MC2850	DIODE	
R962			RK73HB1J101J	CHIP R 100 J 1/16W		D913			1SS355	DIODE	
R963			RK73HB1J270J	CHIP R 27 J 1/16W		D914			UDZW18(B)	ZENER DIODE	
R964			RK73HB1J330J	CHIP R 33 J 1/16W		D915			UDZW5.6(B)	ZENER DIODE	
R965			RK73HB1J270J	CHIP R 27 J 1/16W		D920,921			RN142S	DIODE	
R967			RK73HB1J100J	CHIP R 10 J 1/16W		D922			DA2J101	DIODE	
R968			RK73HB1J101J	CHIP R 100 J 1/16W		D923,924			RN142S	DIODE	
R969,970			RK73FB2B121J	CHIP R 120 J 1/8W		D925,926			JDP2S12CR	DIODE	
R971			RK73GB2A221J	CHIP R 220 J 1/10W		IC1			LM73CIMXK-0	MOS-IC	
R972			RK73GB2A000J	CHIP R 0 J 1/10W		IC3			SKY72310-362	MOS-IC	
R973			RK73GB2A472J	CHIP R 4.7K J 1/10W		IC4			XC221A1200MRG	MOS-IC	
R975			RK73GB2A104J	CHIP R 100K J 1/10W		IC5			TC75W51FK(F)	MOS-IC	
R976,977			RK73HB1J000J	CHIP R 0 J 1/16W		<b>IC102</b>	2A		RA20H8994M101	MOS-IC(POWER MODULE)	
R978			RK73HB1J470J	CHIP R 47 J 1/16W		IC103			NJM12904RB1	MOS-IC	
R979,980			RK73HB1J000J	CHIP R 0 J 1/16W		IC202			TK10931VTL-G	ANALOGUE IC	
R981			RK73HB1J472J	CHIP R 4.7K J 1/16W		IC203			TC75W51FK(F)	MOS-IC	
R982			RK73HB1J103J	CHIP R 10K J 1/16W		IC401			XC6118C23CMR	MOS-IC	
R983			RK73HB1J333J	CHIP R 33K J 1/16W		IC402			XC6204B332P-G	MOS-IC	
R984			RK73HB1J101J	CHIP R 100 J 1/16W		IC403	2A		NJM78M08FA-ZB	ANALOGUE IC	
R988,989			RK73HB1J000J	CHIP R 0 J 1/16W		IC404			TA7805F-NQ	MOS-IC	
R990			RK73HB1J101J	CHIP R 100 J 1/16W		IC405			LT1616ES6-PBF	ANALOGUE IC	
R992			RK73HB1J101J	CHIP R 100 J 1/16W		IC406			TK71733S	BI-POLAR IC	
R993,994			RK73HB1J104J	CHIP R 100K J 1/16W		IC407,408			XC6204B332M-G	MOS-IC	
R997			RK73HB1J000J	CHIP R 0 J 1/16W		IC409			XC6205B152P-G	MOS-IC	
R998			RK73HB1J474J	CHIP R 470K J 1/16W		IC501			<b>Note 1 (BGA)</b>	ROM IC	
D1			CSA30-201N	SURGE ABSORBER		IC503			<b>Note 1 (BGA)</b>	SRAM IC	
D2			DA221	DIODE		IC504			RV5C386A	MOS-IC	
D3 ,4			1SV325F	VARIABLE CAPACITANCE DIODE		IC506			XC6119C29ANR	MOS-IC	
D7 ,8			1SV305F	VARIABLE CAPACITANCE DIODE		IC507			TC7SH126FU-F	MOS-IC	
D10 -12			1SV305F	VARIABLE CAPACITANCE DIODE		IC508			SM5023CNDH-G	MOS-IC	
D14			1SV278F	VARIABLE CAPACITANCE DIODE		IC509			TC7WT125FU-F	MOS-IC	
D21			RN142S	DIODE		IC510			<b>Note 1 (BGA)</b>	MOS-IC	
D101			HVC131	DIODE		IC511			TC7SH08FU-F	MOS-IC	
D103		*	L8104	DIODE		IC512,513			TC7SET08FU-F	MOS-IC	
D108,109			HSB88AS-E	DIODE		IC514			TC7WBD125AFK	MOS-IC	
D201,202			DAN235E	DIODE		IC515			TC7WT126FU-F	MOS-IC	
D205			HVC131	DIODE		IC516			TC7WH126FU-F	MOS-IC	
D401			UDZW18(B)	ZENER DIODE		IC517			PCA9535BS	MOS-IC	
D403			1SS416	DIODE		IC518			ADM202EARNZ	MOS-IC	
D404			22ZR-10D	SURGE ABSORBER		IC701			TC75S51FE(F)	MOS-IC	
D405			DSA3A1	DIODE		IC702,703			TC75W51FK(F)	MOS-IC	
D406			HSC119	DIODE		IC705,706			TC75W51FK(F)	MOS-IC	
D407			CRS02-Q	DIODE		IC707,708			TC7W53FK(F)	MOS-IC	
D408			MC2848-T111	DIODE		IC709			TC75W51FK(F)	MOS-IC	
D409-412			1SS388F	DIODE		IC710			TC7W53FK(F)	MOS-IC	
D501,502			1SS388F	DIODE		IC711			TC75W51FK(F)	MOS-IC	
D504			1SS416	DIODE		IC713			TC7W53FK(F)	MOS-IC	
D506,507			1SS416	DIODE		IC714			TC75S51FE(F)	MOS-IC	
D508			MC2850	DIODE		IC715	2A		LA4425A	MOS-IC	
D509,510			1SS416	DIODE		IC716			CMY210	MOS-IC	
D511,512			MC2850	DIODE		IC717			<b>Note 1 (BGA)</b>	MICROPROCESSOR IC	
						IC718			TC7SH08FU-F	MOS-IC	

**Note 1: This part cannot be replaced. Therefore, this part is not supplied as a service part.**  
**If a part reference number is listed in a shaded box, that part does not come with the PCB.**

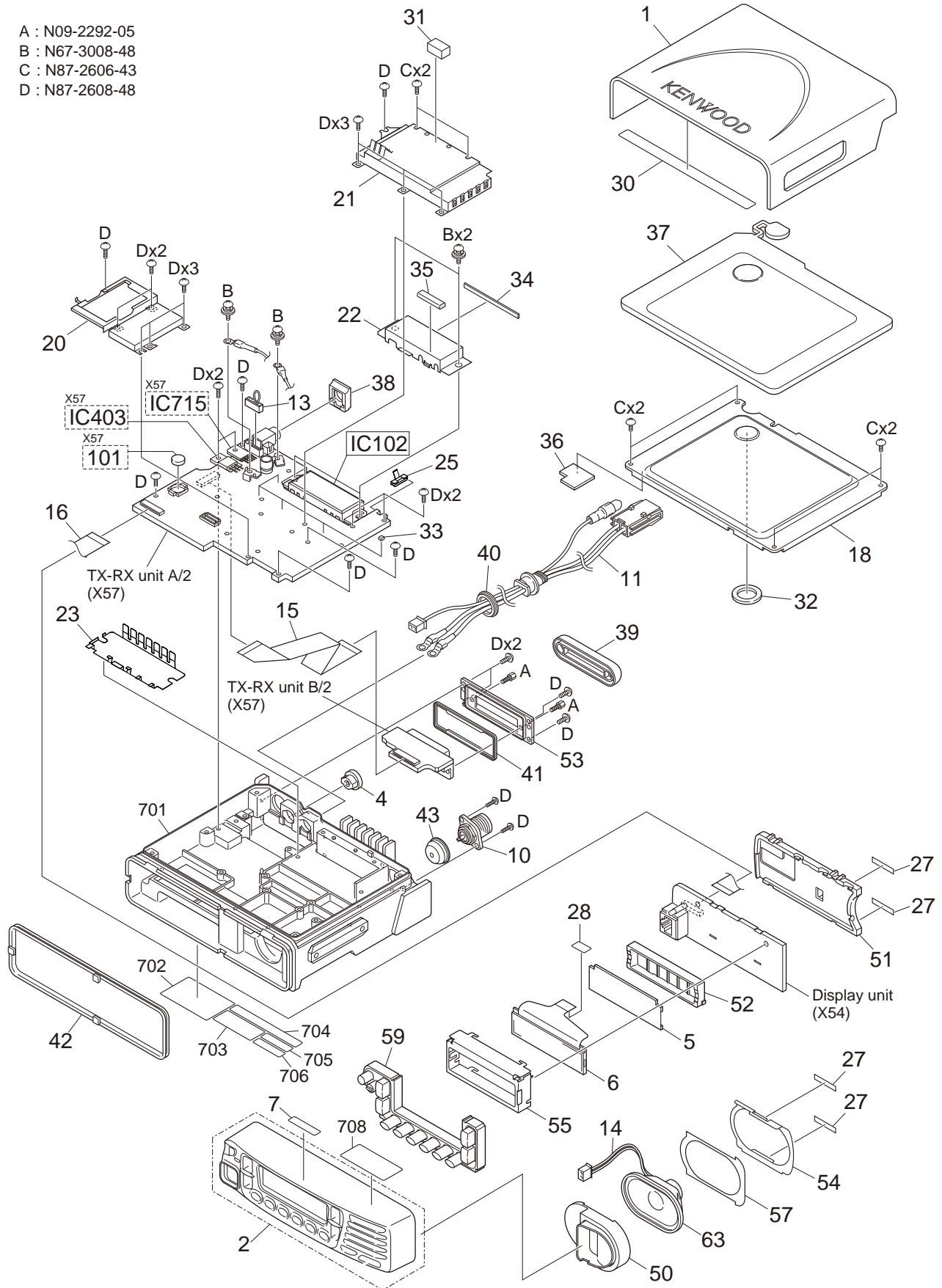
## PARTS LIST

### TX-RX UNIT (X57-8060-12)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
IC719			R2A20178NP	MICROCONTROLLER IC							
IC720			TC75S51FE(F)	MOS-IC							
Q1			2SC5383-T111	TRANSISTOR							
Q2			3SK293-F	FET							
Q4			2SC5383-T111	TRANSISTOR							
Q5 ,6			MCH3914(8)-H	FET							
Q7			SSM6L05FU-F	FET							
Q8			SSM3J05FU-F	FET							
Q9 ,10			2SC5636	TRANSISTOR							
Q11			2SK3737-5	FET							
Q150			2SK3077F	FET							
Q151			RD01MUS1-T113	FET							
Q201			RT1P141U-T111	TRANSISTOR							
Q202			RT1N441U-T111	TRANSISTOR							
Q203			2SC5636	TRANSISTOR							
Q204,205			2SC3356(R23)	TRANSISTOR							
Q208			2SC5636	TRANSISTOR							
Q212			EMD9	TRANSISTOR							
Q401,402			RT1N141U-T111	TRANSISTOR							
Q403			RT1N140U-T111	TRANSISTOR							
Q404			2SJ645	FET							
Q405			2SA1955A-F	TRANSISTOR							
Q406			SSM6N17FU	FET							
Q407-409			12A02CH	TRANSISTOR							
Q410			SSM3K15TE(F)	FET							
Q411,412			2SA1955A-F	TRANSISTOR							
Q413-415			RT1N141U-T111	TRANSISTOR							
Q416			SSM6L05FU-F	FET							
Q420			2SC5108(Y)F	TRANSISTOR							
Q501			SSM6N17FU	FET							
Q701			SSM3K15TE(F)	FET							
Q702			2SC5383-T111	TRANSISTOR							
Q703			SSM3K15TE(F)	FET							
Q704			2SC4738(GR)F	TRANSISTOR							
Q705			2SA1832(GR)F	TRANSISTOR							
Q706,707			2SJ243-A	FET							
Q708			2SA1832(GR)F	TRANSISTOR							
Q709			RT1N141U-T111	TRANSISTOR							
Q710			DTC363EU	DIGITAL TRANSISTOR							
Q901,902			QXS6	TRANSISTOR							
Q903			SSM3K15TE(F)	FET							
TH101,102			ERTJ0EV104H	THERMISTOR							
TH701			ERTJ0EV104H	THERMISTOR							
101	2A		W09-0971-05	LITHIUM CELL							

## EXPLODED VIEW

- A : N09-2292-05
- B : N67-3008-48
- C : N87-2606-43
- D : N87-2608-48

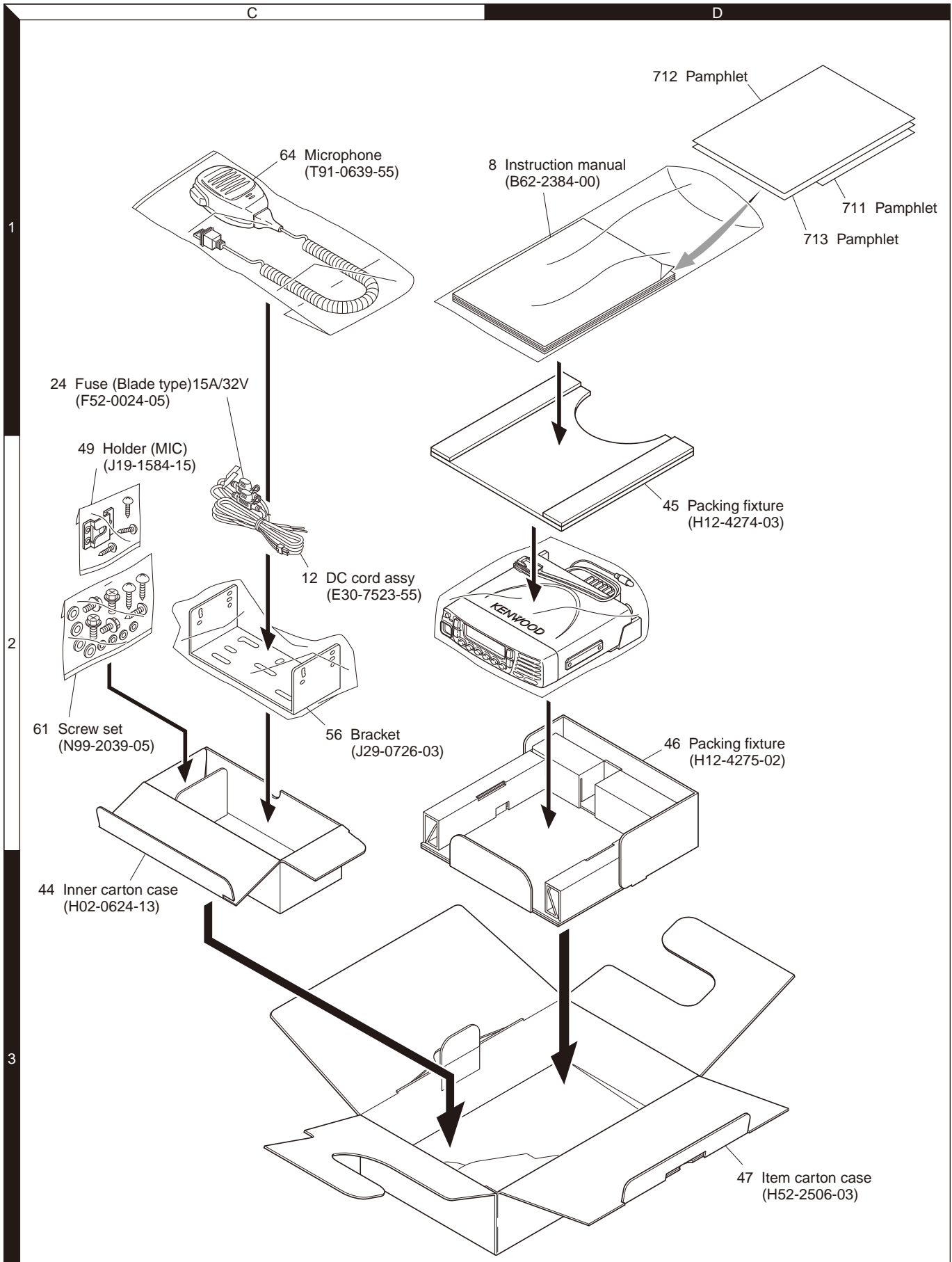


Parts with the exploded numbers larger than 700 are not supplied.

If a part reference number is listed in a box on the exploded view of the PCB, that part does not come with the PCB.

These parts must be ordered separately.

## PACKING





## TROUBLE SHOOTING

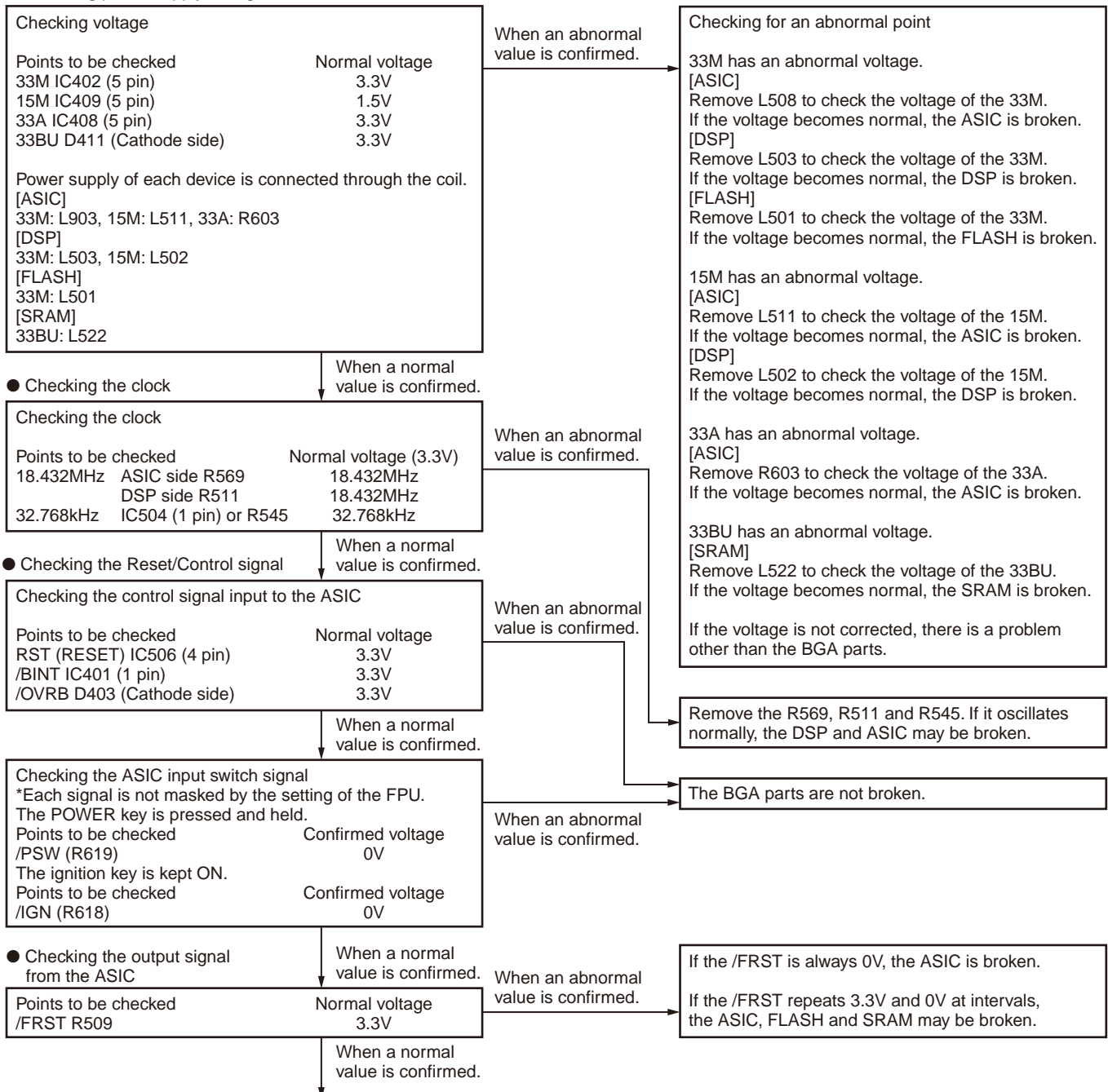
### Fault diagnosis of the BGA (Ball Grid Array) IC

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.

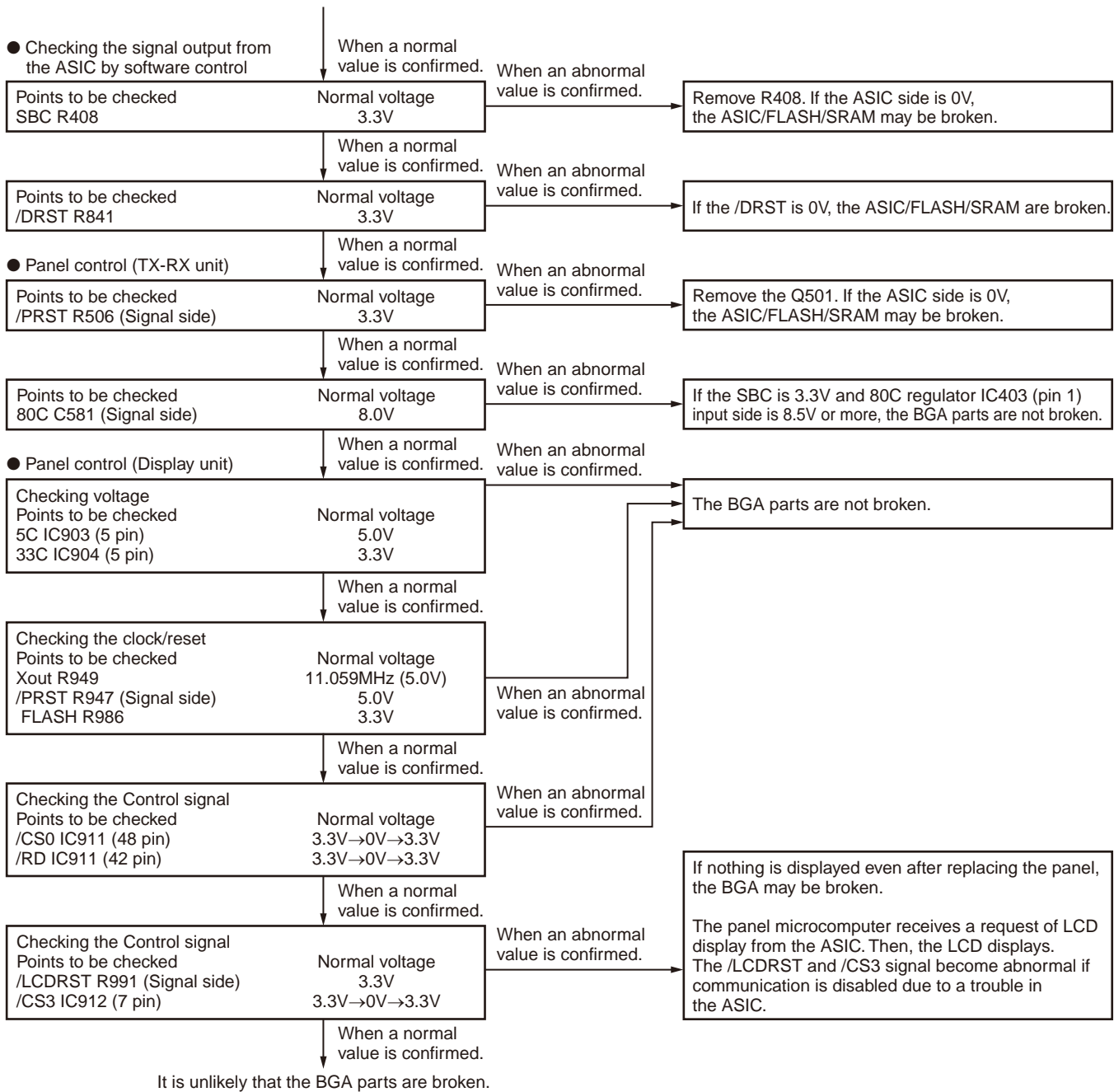
BGA parts: ASIC (IC510), DSP (IC717), FLASH (IC501), SRAM (IC503)

When the BGA IC is problematic, please bring the printed circuit board (X57-8060-13) in for service. Various ESN/default adjustment values are written on the printed circuit board for service. Additionally various ESN stickers are included. The power module (RA20H8994M101), short connector (E37-1180-05) and button type lithium battery (W09-0971-05) do 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.

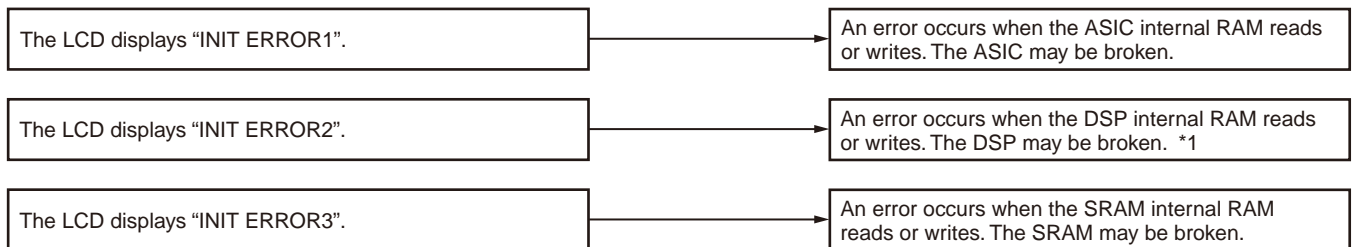
#### ● Checking power supply voltage



## TROUBLE SHOOTING



● When an error display appears on the LCD.



\*1: When writing firmware version earlier than version 2.80, this error display appears.

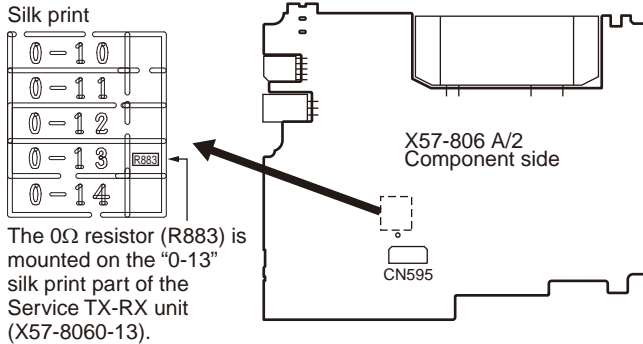
## TROUBLE SHOOTING

### Replacing TX-RX Unit

#### ■ TX-RX Unit Information

Model Name	Original TX-RX Unit Number	For Service TX-RX Unit Number
NX-901 (K)	X57-8060-12	X57-8060-13

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



#### ■ Supplied Accessories of “Service TX-RX Unit”

Item (Including Part Number)	Quantity
TX-RX Unit (X57-806)	1
Kenwood ESN Label	1
NXDN ESN Label	1
MPT ESN Label	1
Addendum (B59-2576-XX)	1

#### ■ “Service TX-RX Unit” Data

The following data is written on the service unit:

- Firmware
- FPU Data
- Various Adjustment Data
- Kenwood ESN (“S” is given after the model name.)
- NXDN ESN / MPT ESN

#### ■ Printed Circuit Board Data

The following data is written on the printed circuit board:

Data Type	Description
Firmware	NX-901 Firmware.
FPU Data (PC programming mode)	X57-806 (NX-901) K type data.
Various Adjustment Data (PC Test mode)	General adjustment values for the X57-806 (NX-901).
Kenwood ESN	Model Name: [X57-806] NX-901S Type: K 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.

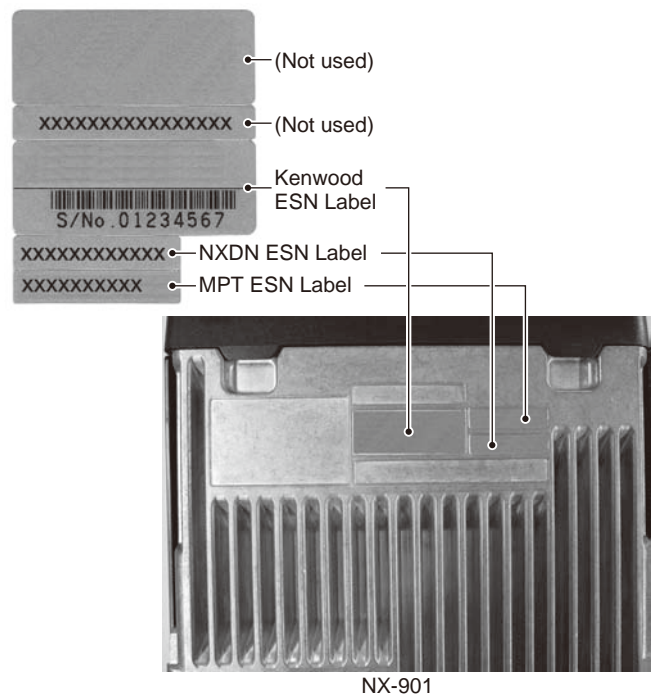
#### ■ After Changing the PCB

1. After changing the printed circuit board, write the up-to-date Firmware following the instructions in the “REALIGNMENT - 6.Firmware Programming Mode”.
2. Using the KPG-111D, select your desired item (Model Name and Frequency) from the Model> Product Information menu, then use Program> Write Data to the Transceiver to write the FPU data (PC Programming mode).
3. Enter Program> Test Mode, then adjust the various adjustment data (PC Test Mode) as described in the “ADJUSTMENT”.
4. Attach the new labels corresponding to the new printed circuit board. (Refer to the images below for label placement.)
5. If necessary, write the FPU data used by the customer with the KPG-111D.

#### Note:

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

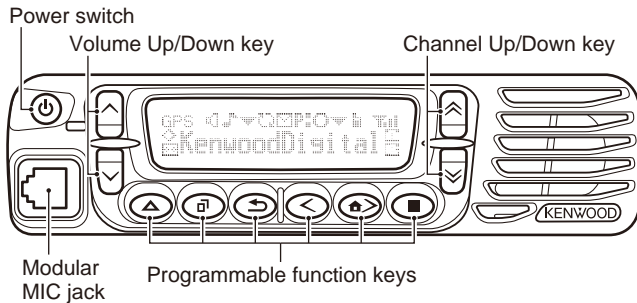
#### ■ ESN Label Layout



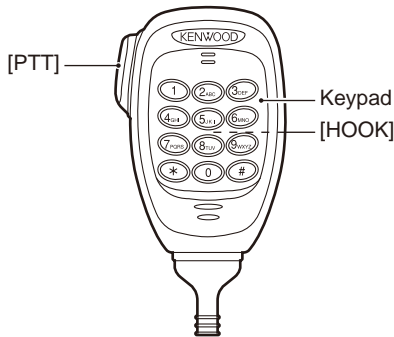
**Note:** A UPC code and UPC barcode is not printed on the Kenwood ESN Label. If necessary, cut the label at the cut-off line and attach only the serial number.

## ADJUSTMENT

### Controls



### KMC-36



### ■ Preparations for checking/tuning the transceiver

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

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

The speaker output connector must be terminated with a 4Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during checking/tuning.

### 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.

### ■ Key operation

Key	“FNC” not appears on the sub LCD display	
	Function	Display
[↗] / [↘]	Test CH up/down	Channel No.
[^] / [v]	Volume up/down	-
[Δ]	Push: Squelch level up Hold: Squelch off	Squelch level Squelch off:  icon appears
[■]	Narrow/Very narrow	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
[▲>]	Test signaling CH up	Signaling No.
<b>Microphone key</b>		
[PTT]	Transmit	-
[0] to [9] and [A] to [D], [#], [*]	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
[↗]	Talk Around on/off	On:  icon appears
[↘]	Analog/NXDN	Analog: “A” NXDN: “N”
[^] / [v]	Function off	-
[Δ]	-	-
[■]	LCD all lights	LCD all point appears
[□]	High power/Low power	Low:  icon appears
[⇒]	Function off	-
[<]	Compander on/off	On:  icon appears
[▲>]	Beat shift on/off	On:  icon appears
<b>Microphone key</b>		
[PTT]	Transmit	-
[0] to [9] and [A] to [D], [#], [*]	Function off	-

#### • LED indicator

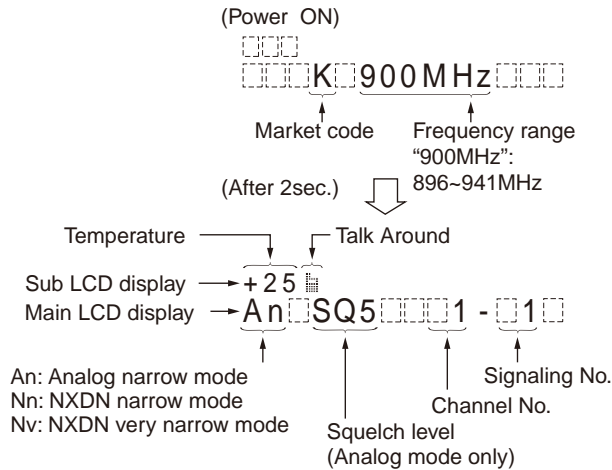
Red LED Lights during transmission.  
Green LED Lights when there is carrier.

#### • Sub LCD indicator

“FNC” Appears at function on.

## ADJUSTMENT

### • 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	938.050000	899.050000
2	935.050000	896.050000
3	940.950000	901.950000
4	938.550000	899.550000
5	935.550000	896.550000
6	940.450000	901.450000
7~16	-	-

### • 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
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)

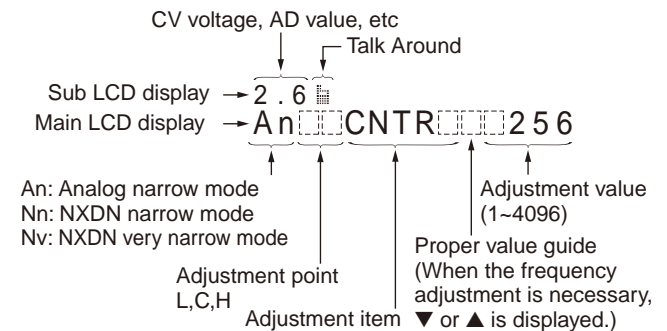
### Panel Tuning Mode

#### ■ Transceiver tuning (To enter tuning mode)

To enter tuning mode, press the [a] key while the transceiver is in test mode. Use the [<] key to write tuning data through tuning modes, and the [↔]/[↔] 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 2, 3 or 4 reference level adjustments, and use the [■] key to switch between Narrow/Very narrow.

### • LCD display in panel tuning mode



### ■ Key operation

Key	Function	
	Push	Hold (1 second)
[↔] / [↔]	Adjustment value up/down	Continuation up/down
[^] / [v]	Volume up/down	Continuation up/down
[▲]	Auto adjustment start	-
[■]	Narrow/Very narrow	-
[a]	Shift to panel test mode	-
[↔]	To enter 2, 3 or 4 reference level adjustments	-
[<]	Writes the adjustment value	-
[▲>]	Go to next adjustment item	Back to last adjustment item
<b>Microphone key</b>		
[PTT]	Transmit	-
[0] to [9] and [A] to [D], [#], [*]	-	-

## ADJUSTMENT

### ■ 2 reference level adjustments frequency

#### Receive Assist

Tuning point	RX (MHz)
Low	935.050000
High	940.950000

#### QT Deviation

#### DQT Deviation

#### LTR Deviation

#### DTMF Deviation

#### MSK Deviation

Tuning point	TX (MHz)
High	901.900000
TA High	940.900000

### ■ 3 reference level adjustments frequency

Tuning point	RX (MHz)	TX (MHz)
Low	935.050000	896.100000
Center	938.050000	899.000000
High	940.950000	901.900000

### ■ 4 reference level adjustments frequency

Tuning point	RX (MHz)	TX (MHz)
Low	935.050000	896.100000
High	940.950000	901.900000
TA Low	935.050000	935.100000
TA High	940.950000	940.900000

### ■ Adjustment item supplement

Adjustment Item	Description
LCD Contrast	The contrast of LCD display can be changed.
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.
RTC (Real-time clock)	Real-Time Clock (RTC) is adjusted. This item uses the internal clock. (Any measurement equipment is not required.)
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.
High Transmit Power Limit	The limit value of the High Transmit Power output is adjusted.
Low Transmit Power Limit	The limit value of the Low Transmit Power output is adjusted.
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 Narrow)	Maximum Deviation of Analog (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 "CW ID 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.
MSK Deviation	MSK tone deviation is adjusted.
CW ID Deviation	CW ID tone deviation is adjusted. CW ID is used to inform the others who is transmitting on a 6.25-kHz spacing channel. (In FCC rule, Analog mode or CW ID is required for each channel-spacing.)
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 "4" 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.

## ADJUSTMENT

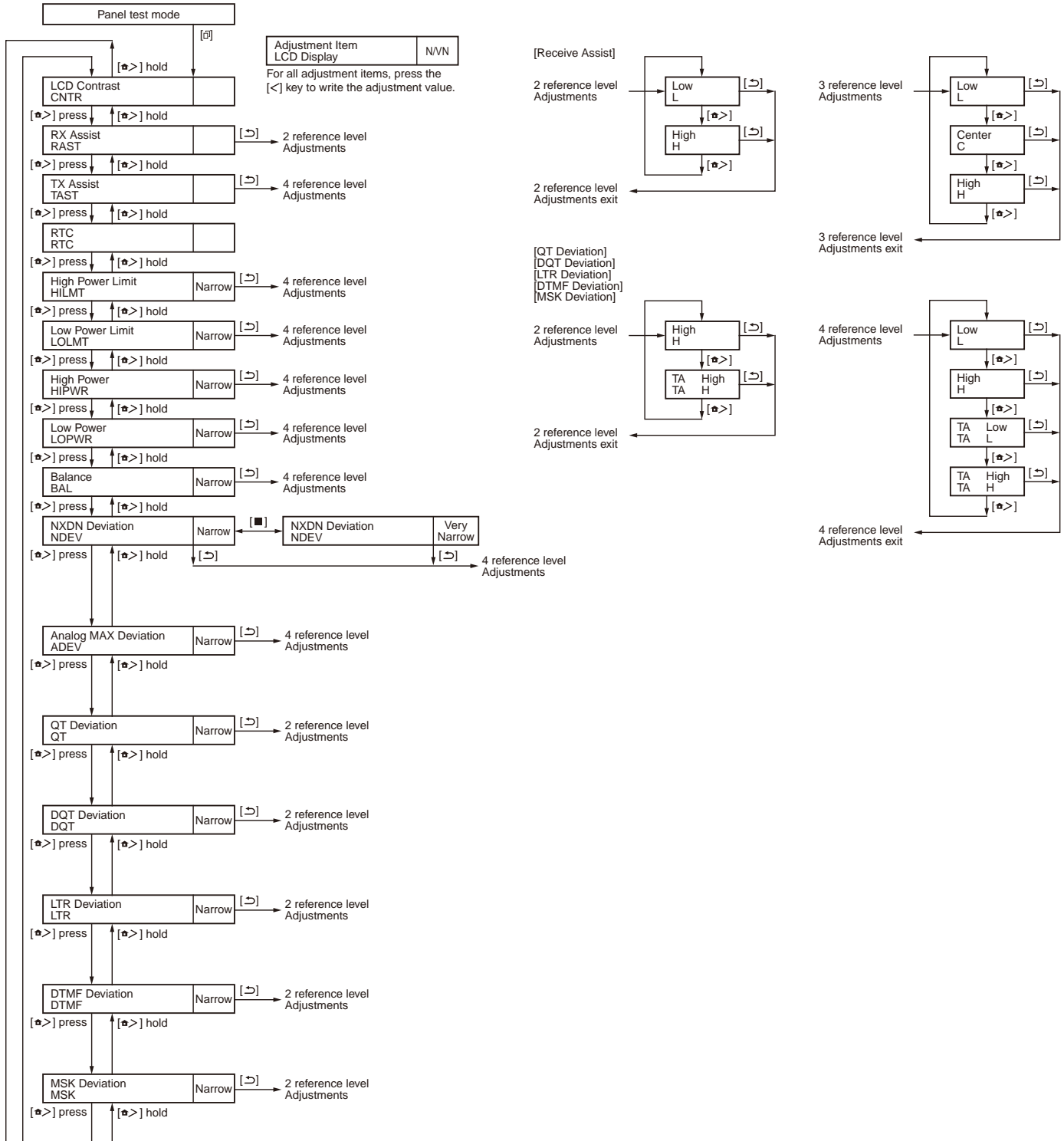
### ■ Adjustment item and Display

Order	Adjustment item	Main LCD display	Sub-LCD display	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	Receive Assist	RAST	(CV voltage)	2 point ADJ			Common Section 3
				1~4096			
3	Transmit Assist	TAST	(CV voltage)	4 point ADJ			Common Section 4
				1~4096			
4	RTC (Real-time clock)	RTC	-	1 point ADJ			Common Section 5
				-62~-1/0/+1~+62			
5	High Transmit Power Limit	HILMT	-	4	-	-	Transmitter Section 1
				1~256			
6	Low Transmit Power Limit	LOLMT	-	4	-	-	Transmitter Section 2
				1~256			
7	High Transmit Power	HIPWR	-	4	-	-	Transmitter Section 3
				1~1024			
8	Low Transmit Power	LOPWR	-	4	-	-	Transmitter Section 4
				1~1024			
9	Balance	BAL	(Encode frequency)	4	-	-	Transmitter Section 5
				1~256			
10	Maximum Deviation (NXDN)	NDEV	-	-	4	4	Transmitter Section 6
				1~1024			
11	Maximum Deviation (Analog)	ADEV	-	4	-	-	Transmitter Section 7
				1~1024			
12	QT Deviation	QT	-	2	-	-	Transmitter Section 8
				1~1024			
13	DQT Deviation	DQT	-	2	-	-	Transmitter Section 9
				1~1024			
14	LTR Deviation	LTR	-	2	-	-	Transmitter Section 10
				1~1024			
15	DTMF Deviation	DTMF	-	2	-	-	Transmitter Section 11
				1~1024			
16	MSK Deviation	MSK	-	2	-	-	Transmitter Section 12
				1~1024			
17	CW ID Deviation	CWID	-	-	-	1	Transmitter Section 13
				1~1024			
18	RSSI Reference	RRSSI	(RSSI measurement value)	3	3	3	Receiver Section 2
				1~256			
19	Open Squelch	SQL	(ASQDET measurement value)	3	3	3	Receiver Section 3
				1~256			
20	Low RSSI	LRSSI	(RSSI measurement value)	3	3	3	Receiver Section 4
				1~256			
21	High RSSI	HRSSI	(RSSI measurement value)	3	3	3	Receiver Section 5
				1~256			
22	Tight Squelch	SQLT	(ASQDET measurement value)	3	-	-	Receiver Section 6
				1~256			

## ADJUSTMENT

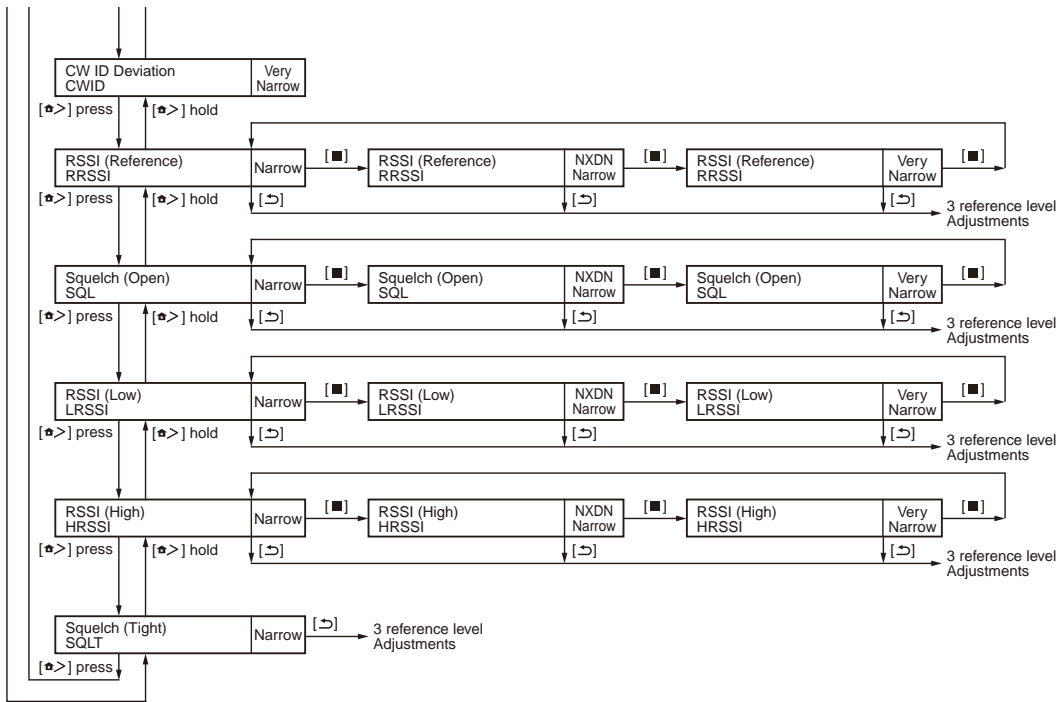
### ■ Panel tuning mode flow chart

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





## ADJUSTMENT

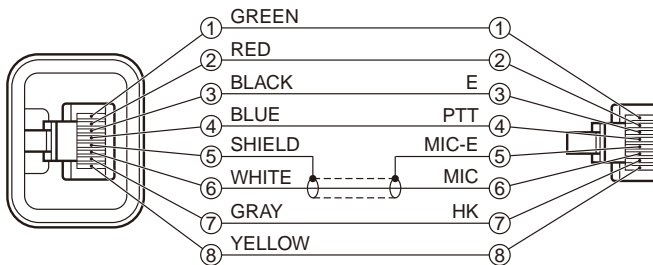


## ADJUSTMENT

### Test Equipment Required for Alignment

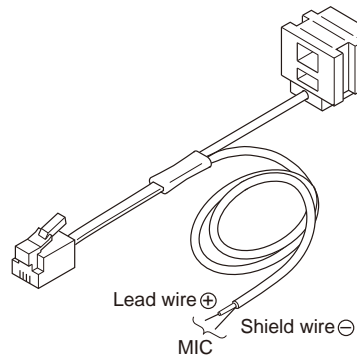
Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range Modulation Output When performing the Frequency adjustment, the following accuracy is necessary. • 0.001ppm Use a standard oscillator for adjustments, if necessary.	800 to 950MHz Frequency modulation and external modulation -127dBm/0.1μV to greater than -20dBm/22.4mV
2. RF Power Meter	Input Impedance Operation Frequency Measurement Capability	50Ω 800 to 950MHz Vicinity of 100W
3. Deviation Meter	Frequency Range	800 to 950MHz
4. Digital Volt Meter (DVM)	Measuring Range Input Impedance	10mV to 20V 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 0.01ppm or less
7. DC Ammeter		20A or more
8. AF Volt Meter (AF VM)	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. 4Ω Dummy Load		Approx. 4Ω, 20W
12. Regulated Power Supply		13.6V, approx. 20A (adjustable from 9V to 20V) Useful if ammeter equipped
13. Spectrum Analyzer	Frequency Range Input Level Input Sensitivity Resolution Bandwidth Video Bandwidth	40MHz to 950MHz Up to +20dBm -100dBm 100Hz 100Hz
14. Tracking Generator	Frequency Range Output Level	40MHz to 950MHz -30dBm to 0dBm

### Test cable for microphone input (E30-3360-28)

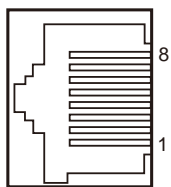


### Tuning cable (E30-3383-05)

Adapter cable (E30-3383-05) is required for injecting an audio if PC tuning is used.  
See "PC Mode" section for the connection.



### MIC connector (Front panel view)



- 1 : BLC/AFO
- 2 : +B
- 3 : GND
- 4 : PTT/TXD (PC serial data from radio)
- 5 : MICE
- 6 : MIC
- 7 : HOOK/RXD (PC serial data to radio)
- 8 : DM/KVL

## 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		ANT			Check	899.049101~ 899.050899MHz (±1.0ppm @899.05MHz)
2. High power check	1) CH-Sig: 2-1 PTT: ON	1) Test Channel Channel: 2 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.	Power meter Ammeter					Check	12W~18W 9.0A or less
	2) CH-Sig: 2-1 (TA) PTT: ON	2) Test Channel Channel: 2 Test Signaling Mode: Analog Signaling: 1 Talk Around: Check PTT: Press [Transmit] button.							
3. Low power check	1) CH-Sig: 2-1 PTT: ON	1) Test Channel Channel: 2 Test Signaling Mode: Analog Signaling: 1 PTT: Press [Transmit] button.							4.0W~6.0W 5.0A or less
	2) CH-Sig: 2-1 (TA) PTT: ON	2) Test Channel Channel: 2 Test Signaling Mode: Analog Signaling: 1 Talk Around: Check 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 VM					Adjust AG input to get a standard MOD.	Dev: 1.5kHz at 5mV±1.5mV

## 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 Narrow: -117dBm (0.32μV) (MOD: 1kHz±1.5kHz)	1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 SSG output Narrow: -117dBm (0.32μV) (MOD: 1kHz±1.5kHz)	SSG AF VM Oscilloscope Distortion meter		ANT Ext. SP 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: 13.6V 2) SSG standard modulation [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] Fixed Digit: 120 Press [Apply] button to store the adjustment value.					[Panel tuning mode] [<], [V]  [PC test mode] [<], [V]	Adjust the LCD contrast by looking. Fixed Digit: 120	After replacing the LCD align contrast.
3. Receive Assist	1) Adj item: [RAST] Adjust: [***] 2) Adj item: [L RAST]→ [H RAST] Adjust: [***] Press [<] key to store the adjustment value.	1) Adj item: [Receive Assist] 2) Adj item: [Low], [High] Press [Apply All] button to store the adjustment value.					[Panel tuning mode] [<], [V]  [PC test mode] [<], [V]	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.	3.0V±0.1V  [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
4. Transmit Assist	1) Adj item: [TAST] Adjust: [***] 2) Adj item: [L TAST]→ [H TAST]→ [L TAST] (TA)→ [H TAST] (TA) Adjust: [***] PTT : ON Press [<] key to store the adjustment value.	1) Adj item: [Transmit Assist] 2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.					[Panel tuning mode] [<], [V]  [PC test mode] [<], [V]	<b>Note:</b> Confirm the VCO lock voltage approximately 3 seconds after the adjustment value is changed.	

## ADJUSTMENT

Item	Condition		Measurement			Adjustment			Specifications / Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
5. RTC (Real-time clock) oscillation frequency	1) Adj item: [RTC] Adjust: [***]	1) Adj item: [RTC (Real-time clock)]					[Δ]	<p><b>[Panel tuning mode]</b> Press [Δ] key. After automatic adjustment adjusted value is displayed on LCD. Press [&lt;] key to store the adjustment value.</p> <p><b>[PC test mode]</b> Press [Start] button of "Auto Tuning". Press [Apply] button to store the adjustment value after the automatic adjustment has finished.</p>	Adjustment of the transceiver's internal clock.
6. Frequency	* The Frequency adjustment can be performed only in PC test mode.	1) Adj item: [Frequency] 2) CH-Sig: 3-1 SSG output : -20dBm (22.4mV) (CW (without modulation))  <b>Caution:</b> Perform the frequency adjustment under the following conditions. <ul style="list-style-type: none"> <li>• 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.)</li> <li>• Use an accuracy of 0.001ppm for the SSG. (Use a standard oscillator if necessary.)</li> </ul>	SSG		ANT			<p><b>[PC test mode]</b> Press [Start] button of "Auto Tuning". Press [Apply] button to store the adjustment value after the automatic adjustment has finished.</p>	<p><b>[PC test mode]</b> "IF20" value = Within 0±12 digits. The value of "IF20" will become around "0" after the adjustment has finished. Frequency is adjusted under receiving condition with SSG.</p>

## 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 Limit	1) Adj item: [HILMT] Adjust: [****] 2) Adj item: [AnL HILMT]→ [AnH HILMT]→ [AnL HILMT] (TA)→ [AnH HILMT] (TA) Adjust: [****] PTT: ON Press [←] key to store the adjustment value.	1) Adj item: [High Transmit Power Limit] 2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Power meter Ammeter		ANT		[Panel tuning mode] [↶],[↷]  [PC test mode] [←],[→]	16.5W	±0.5W  <b>[PC test mode]</b> Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.  <b>CAUTION!</b> Do not attempt to adjust the transceiver's transmit output power beyond its specifications. If the transceiver is adjusted beyond the specifications, it may cause deterioration of the parts reliability and the output power may be lowered suddenly and unstable. The transceiver may be also extremely hot.
2. Low Transmit Power Limit	1) Adj item: [LOLMT] Adjust: [****] 2) Adj item: [AnL LOLMT]→ [AnH LOLMT]→ [AnL LOLMT] (TA)→ [AnH LOLMT] (TA) Adjust: [****] PTT: ON Press [←] key to store the adjustment value.	1) Adj item: [Low Transmit Power Limit] 2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.						7.5W	±0.5W  <b>[PC test mode]</b> Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.  <b>CAUTION!</b> Do not attempt to adjust the transceiver's transmit output power beyond its specifications. If the transceiver is adjusted beyond the specifications, it may cause deterioration of the parts reliability and the output power may be lowered suddenly and unstable. The transceiver may be also extremely hot.

## ADJUSTMENT

Item	Condition		Measurement			Adjustment			Specifications / Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
3. High Transmit Power	1) Adj item: [HIPWR] Adjust: [*****]	1) Adj item: [High Transmit Power]	Power meter Ammeter		ANT		[Panel tuning mode] [↔],[↵]	15.0W	±1.0W 9.0A or less  [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
	2) Adj item: [AnL HIPWR]→ [AnH HIPWR]→ [AnL HIPWR] (TA)→ [AnH HIPWR] (TA) Adjust: [*****] PTT: ON Press [<] key to store the adjustment value.	2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.					[PC test mode] [◀],[▶]		
4. Low Transmit Power	1) Adj item: [LOPWR] Adjust: [*****]	1) Adj item: [Low Transmit Power]						5.0W	±1.0W 5.0A or less  [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
	2) Adj item: [AnL LOPWR]→ [AnH LOPWR]→ [AnL LOPWR] (TA)→ [AnH LOPWR] (TA) Adjust: [*****] PTT: ON Press [<] key to store the adjustment value.	2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.							
5. Balance *2	1) Adj item: [BAL] Adjust: [***] Deviation meter LPF: 3kHz HPF: OFF	1) Adj item: [Balance] Deviation meter LPF: 3kHz HPF: OFF	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 points have been adjusted.
	2) Adj item: [AnL BAL]→ [AnH BAL]→ [AnL BAL] (TA)→ [AnH BAL] (TA) Adjust: [***] PTT: ON Press [<] key to store the adjustment value. Sub LCD: Tone frequency [▲] key: Press while transmitting to change 20Hz and 2kHz.	2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value. [2kHz Sine Wave Check box]: Check while transmitting change to 2kHz.							
*2: Refer to the "Necessary Deviation adjustment item for each signaling and mode" table on page 58. Balance adjustment is common with the adjustment of all signaling deviation.									
6. Maximum Deviation (NXDN) *3  [Narrow]	1) Adj item: [Nn NDEV] Adjust: [*****] Deviation meter LPF: 3kHz HPF: OFF	1) Adj item: [Maximum Deviation (NXDN Narrow)] Deviation meter LPF: 3kHz HPF: OFF	Deviation meter Oscilloscope		ANT			3056Hz Write the value as followings. 503 (Reference value)	2995~3117Hz  [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
	2) Adj item: [NnL NDEV]→ [NnH NDEV]→ [NnL NDEV] (TA)→ [NnH NDEV] (TA) Adjust: [*****] PTT: ON Press [<] key to store the adjustment value.	2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.							

## ADJUSTMENT

Item	Condition		Measurement			Adjustment			Specifications / Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
Maximum Deviation (NXDN) *3  [Very Narrow]	1) Adj item: [Nv NDEV] Adjust: [****] 2) Adj item: [NvL NDEV]→ [NvH NDEV]→ [NvL NDEV] (TA)→ [NvH NDEV] (TA) Adjust: [****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [Maximum Deviation (NXDN Very Narrow)] 2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.	Deviation meter Oscilloscope		ANT		[Panel tuning mode] [↔],[↵]  [PC test mode] [←],[→]	1337Hz Write the value as followings. 500 (Reference value)	1287~1387Hz  [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.
7. Maximum Deviation (Analog) *3  [Narrow]	1) Adj item: [An ADEV] Adjust: [****] Deviation meter LPF: 15kHz HPF: OFF 2) Adj item: [AnL ADEV]→ [AnH ADEV]→ [AnL ADEV] (TA)→ [AnH ADEV] (TA) Adjust: [****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [Maximum Deviation (Analog Narrow)] Deviation meter LPF: 15kHz HPF: OFF 2) Adj item: [Low], [High], [Low (TA)], [High (TA)] PTT: Press [Transmit] button. Press [Apply All] button to store the adjustment value.					2100Hz Write the value as followings. 480 (Reference value)  Deviation meter LPF: 15kHz HPF: OFF  [Panel tuning mode] PTT: ON  [PC test mode] PTT: Press [Transmit] button	2050~2150Hz  [PC test mode] Press [Apply All] button to store the adjustment value after all adjustment points have been adjusted.	
*3: Refer to the “Necessary Deviation adjustment item for each signaling and mode” table on page 58. Regarding Maximum Deviation (Analog), it is common with the adjustment of all analog signalings.									
8. QT Deviation *4  [Analog Narrow]	1) Adj item: [An QT] Adjust: [****] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [AnH QT]→ [AnH QT] (TA) Adjust: [****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [QT Deviation (Analog Narrow)] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [High], [High (TA)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Deviation meter Oscilloscope		ANT		[Panel tuning mode] [↔],[↵]  [PC test mode] [←],[→]	Write the value as followings. 513 (Reference value)	0.30~0.40kHz
9. DQT Deviation *4  [Analog Narrow]	1) Adj item: [An DQT] Adjust: [****] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [AnH DQT]→ [AnH DQT] (TA) Adjust: [****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [DQT Deviation (Analog Narrow)] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [High], [High (TA)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.					Write the value as followings. 430 (Reference value)	0.30~0.40kHz	



## ADJUSTMENT

Item	Condition		Measurement			Adjustment			Specifications / Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
10. LTR Deviation *4 [Analog Narrow]	1) Adj item: [An LTR] Adjust: [*****] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [AnH LTR]→ [AnH LTR] (TA) Adjust: [*****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [LTR Deviation (Analog Narrow)] Deviation meter LPF: 3kHz HPF: OFF 2) Adj item: [High], [High (TA)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.	Deviation meter Oscilloscope	ANT			[Panel tuning mode] [<], [M]  [PC test mode] [<], [▶]	Write the value as followings. 494 (Reference value)	0.65~0.85kHz
11. DTMF Deviation *4 [Analog Narrow]	1) Adj item: [An DTMF] Adjust: [*****] Deviation meter LPF: 15kHz HPF: OFF 2) Adj item: [AnH DTMF]→ [AnH DTMF] (TA) Adjust: [*****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [DTMF Deviation (Analog Narrow)] Deviation meter LPF: 15kHz HPF: OFF 2) Adj item: [High], [High (TA)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.						Write the value as followings. 662 (Reference value)	1.40~1.60kHz
12. MSK Deviation *4 [Analog Narrow]	1) Adj item: [An MSK] Adjust: [*****] Deviation meter LPF: 15kHz HPF: OFF 2) Adj item: [AnH MSK]→ [AnH MSK] (TA) Adjust: [*****] PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [MSK Deviation (Analog Narrow)] Deviation meter LPF: 15kHz HPF: OFF 2) Adj item: [High], [High (TA)] PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.						Write the value as followings. 513 (Reference value)	1.40~1.60kHz
13. CW ID Deviation *4 [NXDN Very Narrow]	1) Adj item: [Nv CWID] Adjust: [*****] Deviation meter LPF: 3kHz HPF: OFF PTT: ON Press [<] key to store the adjustment value.	1) Adj item: [CW ID Deviation (NXDN Very Narrow)] Deviation meter LPF: 3kHz HPF: OFF PTT: Press [Transmit] button. Press [Apply] button to store the adjustment value.						Write the value as followings. 390 (Reference value)	1.00~1.20kHz

\*4: Refer to the "Necessary Deviation adjustment item for each signaling and mode" table on page 58.

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

Mode	Signaling	Necessary adjustment and order	
		Narrow	Very Narrow
Analog	Audio	Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow)	-
	QT	Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. QT Deviation (Analog Narrow)	-
	DQT	Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. DQT Deviation (Analog Narrow)	-
	LTR	Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. LTR Deviation (Analog Narrow)	-
	DTMF	Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. DTMF Deviation (Analog Narrow)	-
	MSK (FleetSync)	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)
	CW ID	-	Step1. Balance adjust Step2. Maximum Deviation (Analog Narrow) Step3. CW ID Deviation (NXDN Very Narrow)

- Balance is common with all the above deviation adjustments. If Balance (Transmitter Section 5) has already adjusted, please skip Step1 and adjust from Step2.
- Maximum Deviation (Analog Narrow) is common with all the analog signaling deviations and CW ID Deviation (NXDN Very Narrow). If Balance and Maximum Deviation (Analog Narrow) (Transmitter Section 7) have already adjusted, please skip Step2 and adjust from Step3.

## ADJUSTMENT

### 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	<b>[Panel test mode]</b> 1) CH-Sig: 1-1 SSG output: -47dBm (1mV) (MOD: 1kHz/±1.5kHz)	1) Test Channel Channel: 1 Test Signaling Mode: Analog Signaling: 1 SSG output: -47dBm (1mV) (MOD: 1kHz/±1.5kHz)	SSG DVM AF VM Dummy load (4Ω)		ANT Ext.SP connector		<b>[Panel tuning mode]</b> [↗],[↘]  <b>[PC test mode]</b> [←],[→]	Volume Up/Down knob to obtain 2.83V AF output. (2.0W @ 4Ω load)	2.83V±0.3V
2. RSSI Reference  [Analog Narrow]	1) Adj item: [An RRSSI] Adjust: [***] 2) Adj item: [AnL RRSSI]→ [AnC RRSSI]→ [AnH RRSSI] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±1.5kHz)	1) Adj item: [RSSI Reference (Analog Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±1.5kHz)	SSG AF VM Oscilloscope				<b>[Panel tuning mode]</b> After input signal from SSG, press [←] key to store the adjustment value.  <b>[PC test mode]</b> After input signal from SSG, press [Apply] button to store the adjustment value.		
[NXDN Narrow]	1) Adj item: [Nn RRSSI] Adjust: [***] 2) Adj item: [NnL RRSSI]→ [NnC RRSSI]→ [NnH RRSSI] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±3kHz)	1) Adj item: [RSSI Reference (NXDN Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±3kHz)							Adjust with the analog signal.
[NXDN Very Narrow]	1) Adj item: [Nv RRSSI] Adjust: [***] 2) Adj item: [NvL RRSSI]→ [NvC RRSSI]→ [NvH RRSSI] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±1.5kHz)	1) Adj item: [RSSI Reference (NXDN Very Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level -3dB (MOD: 1kHz/±1.5kHz)							
3. Open Squelch  [Analog Narrow]	1) Adj item: [An SQL] Adjust: [***] 2) Adj item: [AnL SQL]→ [AnC SQL]→ [AnH SQL] SSG output: 12dB SINAD level +1dB (MOD: 1kHz/±1.5kHz)	1) Adj item: [Open Squelch (Analog Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level +1dB (MOD: 1kHz/±1.5kHz)	SSG AF VM Oscilloscope		ANT Ext.SP connector		<b>[Panel tuning mode]</b> After input signal from SSG, press [←] key to store the adjustment value.  <b>[PC test mode]</b> 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.

## ADJUSTMENT

Item	Condition		Measurement			Adjustment			Specifications / Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
Open Squelch [NXDN Narrow]	1) Adj item: [Nn SQL] Adjust: [***] 2) Adj item: [NnL SQL]→ [NnC SQL]→ [NnH SQL] SSG output: 12dB SINAD level +1dB (MOD: 1kHz/±3kHz)	1) Adj item: [Open Squelch (NXDN Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level +1dB (MOD: 1kHz/±3kHz)	SSG AF VM Oscilloscope		ANT Ext.SP connector			<b>[Panel tuning mode]</b> After input signal from SSG, press [<] key to store the adjustment value.  <b>[PC test mode]</b> After input signal from SSG, press [Apply] button to store the adjustment value.	Adjust with the analog signal. This item is adjusted under the condition that MOD is "1kHz" and Deviation is "±3.0kHz" due to the circuit configuration.
[NXDN Very Narrow]	1) Adj item: [Nv SQL] Adjust: [***] 2) Adj item: [NvL SQL]→ [NvC SQL]→ [NvH SQL] SSG output: 12dB SINAD level for analog Narrow -2dB (MOD: 1kHz/±1.5kHz)	1) Adj item: [Open Squelch (NXDN Very Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level for analog Narrow -2dB (MOD: 1kHz/±1.5kHz)						Adjust with the analog signal. This item is adjusted under the condition that MOD is "1kHz" and Deviation is "±1.5kHz" due to the circuit configuration.	
4. Low RSSI at -118dBm [Analog Narrow]	1) Adj item: [An LRSSI] Adjust: [***] 2) Adj item: [AnL LRSSI]→ [AnC LRSSI]→ [AnH LRSSI] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz)	1) Adj item: [Low RSSI (Analog Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz)	SSG AF VM Oscilloscope		ANT Ext.SP connector			<b>[Panel tuning mode]</b> After input signal from SSG, press [<] key to store the adjustment value.  <b>[PC test mode]</b> After input signal from SSG, press [Apply] button to store the adjustment value.	
[NXDN Narrow]	1) Adj item: [Nn LRSSI] Adjust: [***] 2) Adj item: [NnL LRSSI]→ [NnC LRSSI]→ [NnH LRSSI] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±3kHz)	1) Adj item: [Low RSSI (NXDN Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±3kHz)						Adjust with the analog signal.	
[NXDN Very Narrow]	1) Adj item: [Nv LRSSI] Adjust: [***] 2) Adj item: [NvL LRSSI]→ [NvC LRSSI]→ [NvH LRSSI] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz)	1) Adj item: [Low RSSI (NXDN Very Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: -118dBm (0.28μV) (MOD: 1kHz/±1.5kHz)							

## ADJUSTMENT

Item	Condition		Measurement			Adjustment			Specifications / Remarks
	Panel tuning mode	PC test mode	Test-equipment	Unit	Terminal	Unit	Parts	Method	
5. High RSSI at -80dBm  [Analog Narrow]	1) Adj item: [An HRSSI] Adjust: [***] 2) Adj item: [AnL HRSSI]→ [AnC HRSSI]→ [AnH HRSSI] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±1.5kHz)	1) Adj item: [High RSSI (Analog Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±1.5kHz)	SSG AF VM Oscilloscope		ANT Ext.SP connector			<b>[Panel tuning mode]</b> After input signal from SSG, press [<] key to store the adjustment value.  <b>[PC test mode]</b> After input signal from SSG, press [Apply] button to store the adjustment value.	
[NXDN Narrow]	1) Adj item: [Nn HRSSI] Adjust: [***] 2) Adj item: [NnL HRSSI]→ [NnC HRSSI]→ [NnH HRSSI] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±3kHz)	1) Adj item: [High RSSI (NXDN Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±3kHz)							Adjust with the analog signal.
[NXDN Very Narrow]	1) Adj item: [Nv HRSSI] Adjust: [***] 2) Adj item: [NvL HRSSI]→ [NvC HRSSI]→ [NvH HRSSI] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±1.5kHz)	1) Adj item: [High RSSI (NXDN Very Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: -80dBm (22.4μV) (MOD: 1kHz/±1.5kHz)							
6. Tight Squelch  [Analog Narrow]	1) Adj item: [An SQLT] Adjust: [***] 2) Adj item: [AnL SQLT]→ [AnC SQLT]→ [AnH SQLT] SSG output: 12dB SINAD level +6dB (MOD: 1kHz/±1.5kHz)	1) Adj item: [Tight Squelch (Analog Narrow)] 2) Adj item: [Low], [Center], [High] SSG output: 12dB SINAD level +6dB (MOD: 1kHz/±1.5kHz)	SSG AF VM Oscilloscope		ANT Ext.SP connector			<b>[Panel tuning mode]</b> After input signal from SSG, press [<] key to store the adjustment value.  <b>[PC test mode]</b> After input signal from SSG, press [Apply] button to store the adjustment value.	

## TERMINAL FUNCTION

### Display unit (X54-3680-10)

Pin No.	Name	Function
<b>CN901 (to TX-RX unit A/2 CN597)</b>		
1~6	SPO	Speaker input
7	GND	Ground
8	80C	8V input
9,10	SB	Power input of switched power supply
11	NC	No connection
12	/PSW	Detection signal output of power switch
13,14	GND	Ground
15	MIC	MIC signal output
16	ME	MIC ground
17	GND	Ground
18	AFO	RX filtered AF signal input
19	/PRST	Display MCU reset signal input
20~23	GND	Ground
24	SHIFT	Control signal input of Beat-shift function
25	NC	No connection
26	5C	5V output
27	TXD	Serial data signal input
28	RXD	Serial data signal output
29,30	GND	Ground
<b>CN902 (to internal speaker)</b>		
1	GND	Ground
2	SPO	Speaker output
<b>CN905 (to LCD ASSY)</b>		
1	V5	LCD Drive voltage output
2	V4	LCD Drive voltage output
3	V3	LCD Drive voltage output
4	V2	LCD Drive voltage output
5	V1	LCD Drive voltage output
6	Vdd	LCD Driver DC power supply
7	Vss	LCD Driver Ground
8	Vdd	LCD Driver DC power supply
9	D7	LCD Driver data output
10	D6	LCD Driver data output
11	D5	LCD Driver data output
12	D4	LCD Driver data output
13	D3	LCD Driver data output
14	D2	LCD Driver data output
15	D1	LCD Driver data output
16	D0	LCD Driver data output
17	/WR	LCD Driver WR signal output
18	A0	LCD Driver address output
19	/RES	LCD Driver Reset signal output
20	/CS	LCD Driver Chip-select signal output

Pin No.	Name	Function
<b>J901 (MIC jack)</b>		
1	BLC	MIC key backlight control
2	SB	Power output of switched power supply DC13.6V±15%, 200mA typ
3	E	Ground
4	PTT/TXD	PTT: PTT input, TXD: Serial data output
5	ME	MIC ground
6	MIC	MIC signal input
7	HOOK/RXD	HOOK: Hook detection, RXD: Serial data input
8	DM	MIC data detection

### TX-RX unit (X57-8060-12) (A/2)

Pin No.	Name	Function
<b>CN595 (to Option board)</b>		
1	OPT1	Refer to "CN595 26-pin connector specification" described on pages 66 to 69.
2	OPT3	
3	26P_RD	
4	26P_TD	
5	NC	
6	OPT4	
7	OPT10	
8	OPT5	
9	DGND	
10	AGND	
11	AI	
12	AO	
13	AGND	
14	50C	
15	OPT9	
16	DTI	
17	OPT8	
18	OPT11	
19	OPT7	
20	OPT2	
21	TXO	
22	RXEO	
23	RXEI	
24	TXI	
25	OPT6	
26	80C	
<b>CN597 (to Display unit CN901)</b>		
1,2	GND	Ground
3	RXD	Serial data signal input
4	TXD	Serial data signal output

## TERMINAL FUNCTION

Pin No.	Name	Function
5	NC	No connection
6	50C	5V output
7	SHIFT	Control signal output of Beat-shift function
8~11	GND	Ground
12	/PRST	Display MCU reset signal output
13	AFO	RX filtered AF signal output
14	GND	Ground
15	ME	MIC ground
16	MIC	MIC signal input
17,18	GND	Ground
19	/PSW	Detection signal input of power switch
20	NC	No connection
21,22	SB	Power output of switched power supply
23	80C	8V output
24	GND	Ground
25~30	SPO	Speaker output
<b>CN600 (to TX-RX unit B/2 CN901)</b>		
1	NC	No connection
2~7	SB	Power output of switched power supply
8	AFO	RX filtered AF signal output
9	DI	Data signal input
10	50C	5V output
11	GND	Ground
12	DEO	RX Detected signal output
13	MI2	External MIC signal input
14	ME	MIC ground
15	GND	Ground
16	RXD0	Serial data input 0
17	AUXO2	AUX output 2
18	TXD0	Serial data output 0
19	AUXO1	AUX output 1
20	AUXIO9	AUX input/output 9
21	AUXIO5	AUX input/output 5
22	AUXIO8	AUX input/output 8
23	AUXIO4	AUX input/output 4
24	TXD2	Serial data output 2
25	AUXIO3	AUX input/output 3
26	RXD2	Serial data input 2
27	AUXIO2	AUX input/output 2
28	AUXIO1	AUX input/output 1
29	AUXIO7	AUX input/output 7
30	AUXIO6	AUX input/output 6
<b>CN705</b>		
1	SB	Power output of switched power supply
2	SPI	Speaker output

Pin No.	Name	Function
3	SPO	Speaker input
4	PA	Control signal output of PA function
5	HOR	Control signal output of Horn alert function
6	GND	Ground
<b>CN403</b>		
1	IGN	Ignition sense input
2	GND	Ground

### TX-RX unit (X57-8060-12) (B/2)

Pin No.	Name	Function
<b>CN901 (to TX-RX unit A/2 CN600)</b>		
1	AUXIO6	AUX input/output 6
2	AUXIO7	AUX input/output 7
3	AUXIO1	AUX input/output 1
4	AUXIO2	AUX input/output 2
5	RXD2	Serial data output 2
6	AUXIO3	AUX input/output 3
7	TXD2	Serial data input 2
8	AUXIO4	AUX input/output 4
9	AUXIO8	AUX input/output 8
10	AUXIO5	AUX input/output 5
11	AUXIO9	AUX input/output 9
12	AUXO1	AUX input 1
13	TXD0	Serial data input 0
14	AUXO2	AUX input 2
15	RXD0	Serial data output 0
16	GND	Ground
17	ME	MIC ground
18	MI2	External MIC signal output
19	DEO	RX Detected signal input
20	GND	Ground
21	50C	5V input
22	DI	Data signal output
23	AFO	RX filtered AF signal input
24	SB	Power input of switched power supply
25	SB	Power input of switched power supply
26	SB	Power input of switched power supply
27	SB	Power input of switched power supply
28	SB	Power input of switched power supply
29	SB	Power input of switched power supply
30	NC	No connection
<b>J901 (ACC. D-Sub 25-pin)</b>		
1	NC	Refer to "D-sub 25-pin connector specification" described on pages 69 to 71.
2	RXD1	
3	TXD1	

## TERMINAL FUNCTION

Pin No.	Name	Function
4	AUXIO9	Refer to "D-sub 25-pin connector specification" described on pages 69 to 71.
5	DI	
6	MI2	
7	GND	
8	AUXIO8	
9	TXD2	
10	RXD2	
11	GND	
12	AUXIO7	
13	AUXIO6	
14	SB	
15	AUXO2	
16	AUXO1	
17	AFO	
18	GND	

Pin No.	Name	Function
19	DEO	Refer to "D-sub 25-pin connector specification" described on pages 69 to 71.
20	AUXIO5	
21	AUXIO4	
22	AUXIO3	
23	AUXIO2	
24	AUXIO1	
25	ME	

### Solder Land

Name	Description
<b>to GPS receiver</b>	
DGND	Ground
RXD2	Data input
5V_2	5V power supply

### Solder Pad Interface Description

Pin Name	I/O	Signal Type	Rating and Condition				
			Parameter	Min	Typ	Max	Unit
OPT1	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
			VOL (I <sub>o</sub> =2mA)	-	-	0.7	V
OPT3	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
			VOL (I <sub>o</sub> =2mA)	-	-	0.7	V
26P_RD	I	Digital/CMOS In with Interrupt	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			Baud Rate	-	-	19200	bps
26P_TD	O	Digital/CMOS Out	VOH (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
			VOL (I <sub>o</sub> =2mA)	-	-	0.7	V
			Baud Rate	-	-	19200	bps
OPT4	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
			VOL (I <sub>o</sub> =2mA)	-	-	0.7	V
OPT10 (USEL)	O	Digital/Analog	Output Amplitude	-	0.28	-	V <sub>p-p</sub>
			Coupling Capacitor		0.1		μF
			Allowable Load	100	-	-	kΩ
			Pull Down Resistor	-	470	-	kΩ



## TERMINAL FUNCTION

Pin Name	I/O	Signal Type	Rating and Condition				
			Parameter	Min	Typ	Max	Unit
OPT5	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (Io=-2mA)	2.8	-	3.4	V
			VOL (Io=2mA)	-	-	0.7	V
DGND	-	-					
AGND	-	-					
OPT9 (STON)	I	Analog	Input Level	-	3.3	-	Vp-p
			Coupling Capacitor	-	0.01	-	μF
			Input Impedance	22	-	-	kΩ
DTI	I	Analog	Input Level	-	0.6	-	Vp-p
			Coupling Capacitor	-	0.1	-	μF
			Input Impedance	22	-	-	kΩ
OPT8	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (Io=-2mA)	2.8	-	3.4	V
			VOL (Io=2mA)	-	-	0.7	V
OPT11	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (Io=-2mA)	2.8	-	3.4	V
			VOL (Io=2mA)	-	-	0.7	V
OPT7	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (Io=-2mA)	2.8	-	3.4	V
			VOL (Io=2mA)	-	-	0.7	V
OPT2	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (Io=-2mA)	2.8	-	3.4	V
			VOL (Io=2mA)	-	-	0.7	V
TXO	O	Analog	Output Level	-	130	-	mVp-p
			Coupling Capacitor	-	0.1	-	μF
			Allowable Load	100	-	-	kΩ
RXEO	O	Analog	Output Level	-	640	-	mVp-p
			Coupling Capacitor	-	0.1	-	μF
			Allowable Load	100	-	-	kΩ
RXEI	I	Analog	Input Level	-	640	-	mVp-p
			Coupling Capacitor	-	0.1	-	μF
			Input Impedance	22	-	-	kΩ
TXI	I	Analog	Input Level	-	130	-	mVp-p
			Coupling Capacitor	-	0.1	-	μF
			Input Impedance	22	-	-	kΩ
OPT6	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
			VIL	-0.3	-	0.7	V
			VOH (Io=-2mA)	2.8	-	3.4	V
			VOL (Io=2mA)	-	-	0.7	V

## TERMINAL FUNCTION

Pin Name	I/O	Signal Type	Rating and Condition				
			Parameter	Min	Typ	Max	Unit
POW	-	Power	Output Voltage (Iout=100mA)	7.6	8.0	8.4	V
			Output Current	-	-	100	mA
RXD2	I	Digital/CMOS In with Interrupt	VIH	2.7	-	25	V
			VIL	-10	-	0.6	V
			Baud Rate	-	-	19200	bps
TXD2	O	Digital/CMOS Out	VOH(Io=-8mA)	4.3	-	5.2	V
			VOL(Io=8mA)	-	-	0.5	V
			Baud Rate	-	-	19200	bps
5V_2	-	Power	Output Voltage (Iout=100mA)	4.65	5.0	5.2	V
			Output Current	-	-	100	mA
33V	-	Power	Output Voltage (Iout=100mA)	3.2	3.3	3.4	V
			Output Current	-	-	100	mA

### CN595 26-pin connector specification (Rating/Condition)

Pin No.	Pin Name	I/O	Signal Type	Rating and Condition				
				Parameter	Min	Typ	Max	Unit
1	OPT1	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
				VIL	-0.3	-	0.7	V
				VOH (Io=-2mA)	2.8	-	3.4	V
				VOL (Io=2mA)	-	-	0.7	V
2	OPT3	I/O	Digital/CMOS Out/CMOS In with Interrupt	VIH	2.7	-	3.5	V
				VIL	-0.3	-	0.7	V
				VOH (Io=-2mA)	2.8	-	3.4	V
				VOL (Io=2mA)	-	-	0.7	V
3	26P_RD	I	Digital/CMOS In with Interrupt	VIH	2.7	-	3.5	V
				VIL	-0.3	-	0.7	V
				Baud Rate	-	19200	-	bps
4	26P_TD	O	Digital/CMOS Out	VOH (Io=-2mA)	2.8	-	3.4	V
				VOL (Io=2mA)	-	-	0.7	V
				Baud Rate	-	19200	-	bps
5	NC	-	-					
6	OPT4	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
				VIL	-0.3	-	0.7	V
				VOH (Io=-2mA)	2.8	-	3.4	V
				VOL (Io=2mA)	-	-	0.7	V
7	OPT10 (USEL)	O	Digital/Analog	Output Amplitude	-	0.28	-	Vp-p
				Coupling Capacitor	-	0.1	-	μF
				Allowable Load	100	-	-	kΩ
				Pull_Down Register	-	470	-	kΩ
8	OPT5	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
				VIL	-0.3	-	0.7	V
				VOH (Io=-2mA)	2.8	-	3.4	V
				VOL (Io=2mA)	-	-	0.7	V

## TERMINAL FUNCTION

Pin No.	Pin Name	I/O	Signal Type	Rating and Condition				
				Parameter	Min	Typ	Max	Unit
9	DGND	-	-					
10	AGND	-	-					
11	AI	-	Analog	Input Amplitude	-	0.5	-	Vp-p
				Coupling Capacitor	-	0.1	-	μF
				Input Impedance	22	-	-	kΩ
12	AO	O	Analog	Output Amplitude	-	50.0	-	mVp-p
				Coupling Capacitor	-	0.1	-	μF
				Allowable Load	220	-	-	kΩ
13	AGND	-	-					
14	50C	-	Power	Output Voltage (I <sub>out</sub> =200mA)	4.7	5.0	5.1	V
				Output Current	-	-	100	mA
15	OPT9 (STON)	I	Analog	Input Level	-	3.3	-	Vp-p
				Coupling Capacitor	-	0.01	-	μF
				Input Impedance	22	-	-	kΩ
16	DTI	I	Analog	Input Level	-	0.6	-	Vp-p
				Coupling Capacitor	-	0.1	-	μF
				Input Impedance	22	-	-	kΩ
17	OPT8	I/O	Digital/CMOS Out/CMOS In with Interrupt	V <sub>IH</sub>	2.7	-	3.5	V
				V <sub>IL</sub>	-0.3	-	0.7	V
				V <sub>OH</sub> (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
				V <sub>OL</sub> (I <sub>o</sub> =2mA)	-	-	0.7	V
18	OPT11	I/O	Digital/CMOS Out/CMOS In	V <sub>IH</sub>	2.7	-	3.5	V
				V <sub>IL</sub>	-0.3	-	0.7	V
				V <sub>OH</sub> (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
				V <sub>OL</sub> (I <sub>o</sub> =2mA)	-	-	0.7	V
19	OPT7	I/O	Digital/CMOS Out/CMOS In with Interrupt	V <sub>IH</sub>	2.7	-	3.5	V
				V <sub>IL</sub>	-0.3	-	0.7	V
				V <sub>OH</sub> (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
				V <sub>OL</sub> (I <sub>o</sub> =2mA)	-	-	0.7	V
20	OPT2	I/O	Digital/CMOS Out/CMOS In with Interrupt	V <sub>IH</sub>	2.7	-	3.5	V
				V <sub>IL</sub>	-0.3	-	0.7	V
				V <sub>OH</sub> (I <sub>o</sub> =-2mA)	2.8	-	3.4	V
				V <sub>OL</sub> (I <sub>o</sub> =2mA)	-	-	0.7	V
21	TXO	O	Analog	Output Level	-	130	-	mVp-p
				Coupling Capacitor	-	0.1	-	μF
				Allowable Load	100	-	-	kΩ
22	RXEO	O	Analog	Output Level	-	640	-	mVp-p
				Coupling Capacitor	-	0.1	-	μF
				Allowable Load	100	-	-	kΩ
23	RXEI	I	Analog	Input Level	-	640	-	mVp-p
				Coupling Capacitor	-	0.1	-	μF
				Input Impedance	22	-	-	kΩ

## TERMINAL FUNCTION

Pin No.	Pin Name	I/O	Signal Type	Rating and Condition				
				Parameter	Min	Typ	Max	Unit
24	TXI	I	Analog	Input Level	-	130	-	mVp-p
				Coupling Capacitor		0.1		μF
				Input Impedance	22	-	-	kΩ
25	OPT6	I/O	Digital/CMOS Out/CMOS In	VIH	2.7	-	3.5	V
				VIL	-0.3	-	0.7	V
				VOH (Io=-2mA)	2.8	-	3.4	V
				VOL (Io=2mA)	-	-	0.7	V
26	80C	-	Power	Output Voltage (Iout=100mA)	7.6	8.0	8.4	V
				Output Current	-	-	100	mA

### CN595 26-pin connector specification (Function)

Pin No.	Pin Name	Device	I/O	Connection	Description/Function
1	OPT1	ANI board	O	Aux Input	[COR] Conv/LTR L: Activity receiving H: Not activity receiving [TOR] Conv/LTR L: Activity receiving H: Not activity receiving [LOK] Conv L: TX Complete H: TX not complete LTR L: TX Link complete (Until TX finishes) H: TX Link not complete
		VGS-1	I	BUSY	BUSY indication
2	OPT3	ANI board	I	KEY	TX requirement input
		VGS-1	I	PLAY	PLAY indication
3	26P_RD	ANI board	-	-	-
		VGS-1	I	SO	Serial data input
4	26P_TD	ANI board	-	-	-
		VGS-1	O	SI	Serial data output
5	NC	-	-	-	-
6	OPT4	ANI board	O	PTT	PTT signal output
		VGS-1	O	EN	Enable signal output
7	OPT10 (USEL)	ANI board	-	-	-
		VGS-1	O	USEL	UART speed select signal output
8	OPT5	ANI board	O	Emergency	Emergency signal output
		VGS-1	O	RST	Reset signal output
9	DGND	ANI board	-	A-	GND
		VGS-1	-	DGND	DGND
10	AGND	ANI board	-	A-	GND
		VGS-1	-	AGND	AGND

## TERMINAL FUNCTION

Pin No.	Pin Name	Device	I/O	Connection	Description/Function
11	AI	ANI board	-	-	-
		VGS-1	I	AO	VGS Audio signal input
12	AO	ANI board	-	-	-
		VGS-1	O	AI	VGS Audio signal output
13	AGND	ANI board	-	A-	GND
		VGS-1	-	AGND	AGND
14	50C	ANI board	-	-	Note: 80C and 50C can not be used simultaneously.
		VGS-1	O	5C	5V power supply
15	OPT9 (STON)	ANI board	I	Sidetone	Side tone signal input
		VGS-1	-	-	-
16	DTI	ANI board	I	Data out	Data signal input
		VGS-1	-	-	-
17	OPT8	ANI board	I	Tone Control	Speaker mute signal input
		VGS-1	-	-	-
18	OPT11	ANI board	O	Man-Down	Man-Down signal output
		VGS-1	-	-	-
19	OPT7	ANI board	I	MIC Mute	MIC mute signal input
		VGS-1	-	-	-
20	OPT2	ANI board	I	Aux Output	Emergency signal input
		VGS-1	-	-	-
21	TXO	ANI board	-	-	-
		VGS-1	-	-	-
22	RXEO	ANI board	-	-	-
		VGS-1	-	-	-
23	RXEI	ANI board	-	-	-
		VGS-1	-	-	-
24	TXI	ANI board	-	-	-
		VGS-1	-	-	-
25	OPT6	ANI board	-	-	-
		VGS-1	-	-	-
26	80C	ANI board	O	A+	8V power supply
		VGS-1	-	-	Note: 80C and 50C can not be used simultaneously.

### D-sub 25-pin connector specification

Pin No.	Pin Name	I/O	A/D	Rating and Condition				
				Parameter	Min	Typ	Max	Unit
1	NC (No connection)	-	-		-			
2	RXD1 Serial data input 1. RS-232C level.	I	Digital	Input Voltage Range	-30		30	V
				Threshold Low	0.5	1.3		V
				Threshold High		1.75	2.6	V
				Baud Rate		11520		bps
				CL		100		pF

## TERMINAL FUNCTION

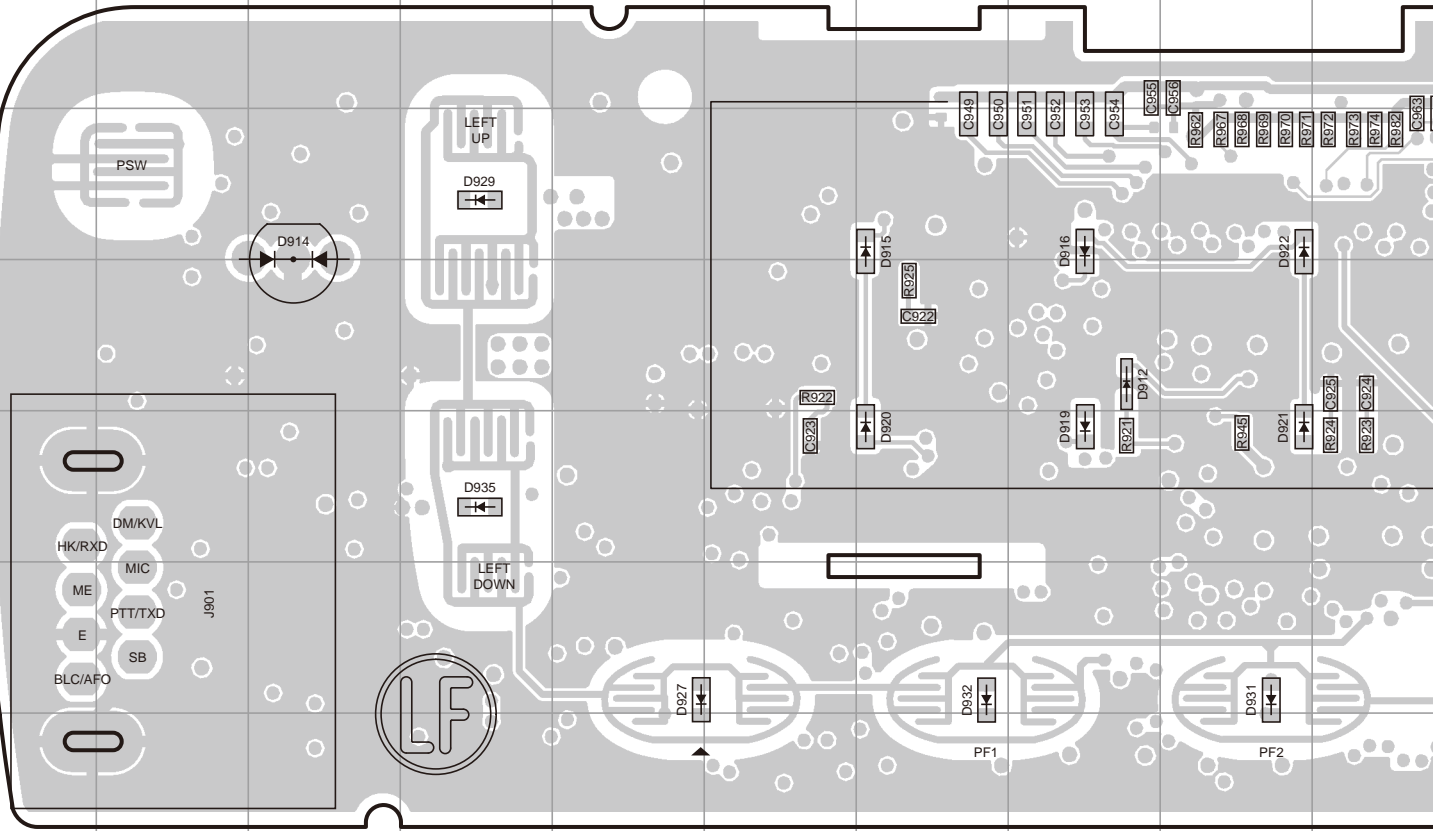
Pin No.	Pin Name	I/O	A/D	Rating and Condition				
				Parameter	Min	Typ	Max	Unit
3	TXD1 Serial data output 1. RS-232C level.	O	Digital	Voltage Swing (3k $\Omega$ Load)	$\pm 5$	$\pm 9$		V
				Baud Rate		11520		bps
				CL		100		pF
4	AUXIO9 AUX input/output 9.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
5	DI Data signal input.	I	Analog	Input Voltage range (STD Deviation)	-	0.5	-	Vp-p
				Freq Response (STD Dev.) 20~9600Hz	-3		3	dB
6	MI2 External MIC input.	I	Analog	Audio Level (STD Deviation)	-	5	-	mVrms
				Allowable Freq	300		3000	Hz
				Input Impedance	-	600	-	$\Omega$
7	GND (Ground)	-	GND					
8	AUXIO8 AUX input/output 8.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
9	TXD2 Serial data output 2. TTL level.	O	Digital	VOH (Io=-1.5mA)	3.7	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
				CL		100		pF
10	RXD2 Serial data input 2. TTL level.	I	Digital	VIH	2.8	-	5.2	V
				VIL	-	-	0.65	V
				CL		100		pF
11	GND (Ground)	-	GND					
12	AUXIO7/ BER_DATA AUX input/output 7. BER data input.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	3.7	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
13	AUXIO6/ BER_CLK AUX input/output 6. BER CLK input.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	3.7	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
14	SB Power output after power switch.	-	Power	Voltage	This parameter depends on Battery Voltage			
				Supply Current	-	-	2	A
15	AUXO2 AUX output 2.	O	Digital	The type of this port is open collector.				
				VOL			0.4	V
				IOL			-500	mA
16	AUXO1 AUX output 1.	O	Digital	The type of this port is open collector.				
				VOL			0.4	V
				IOL			-500	mA
17	AFO RX filtered audio output.	O	Analog	Output Level		0.7		Vp-p
				Coupling Capacitor		0.1		$\mu$ F
				Allowable Load	100	-	-	k $\Omega$
				Allowable Freq	300		3000	Hz

## TERMINAL FUNCTION

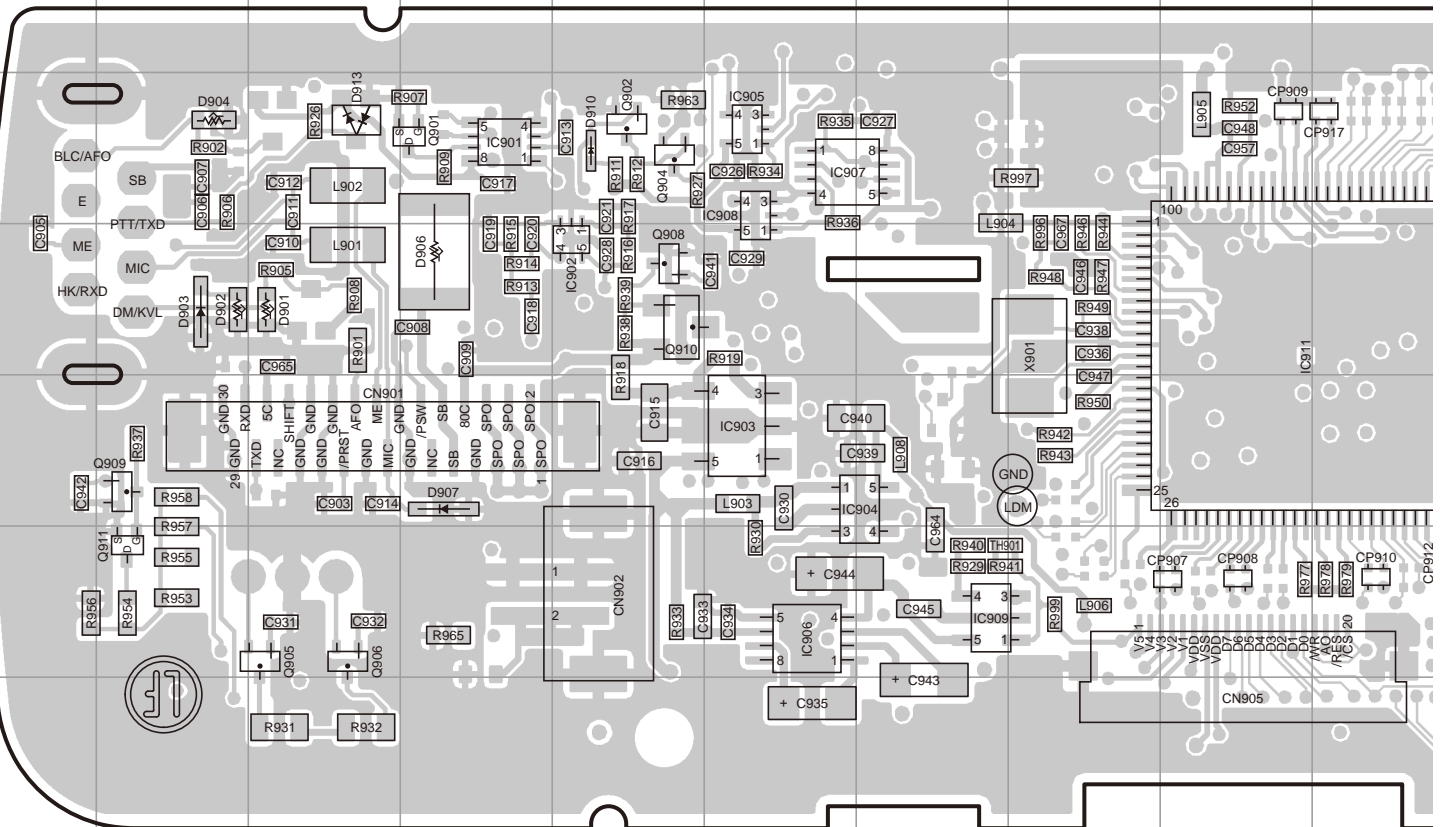
Pin No.	Pin Name	I/O	A/D	Rating and Condition				
				Parameter	Min	Typ	Max	Unit
18	GND (Ground)	-	GND					
19	DEO Detected signal output.	O	Analog	Output Level	-	0.28	-	Vp-p
				Coupling Capacitor	-	4.7	-	μF
				Allowable Load	47	-	-	kΩ
				Freq. Response (STD Dev) Narrow; 20-4800Hz	-15		1	dB
20	AUXIO5 AUX input/output 5.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
21	AUXIO4 AUX input/output 4.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
22	AUXIO3 AUX input/output 3.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
23	AUXIO2 AUX input/output 2.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
24	AUXIO1 AUX input/output 1.	I/O	Digital	VIH	4	-	5.2	V
				VIL	-0.5	-	1	V
				VOH (Io=-1.5mA)	4	-	5.2	V
				VOL (Io=1.5mA)	-	-	1.1	V
25	ME (MIC ground)	-	Analog	This is GND port for Microphone.				

# NX-901 PC BOARD

## DISPLAY UNIT (X54-3680-10) Component side view (J79-0157-39)



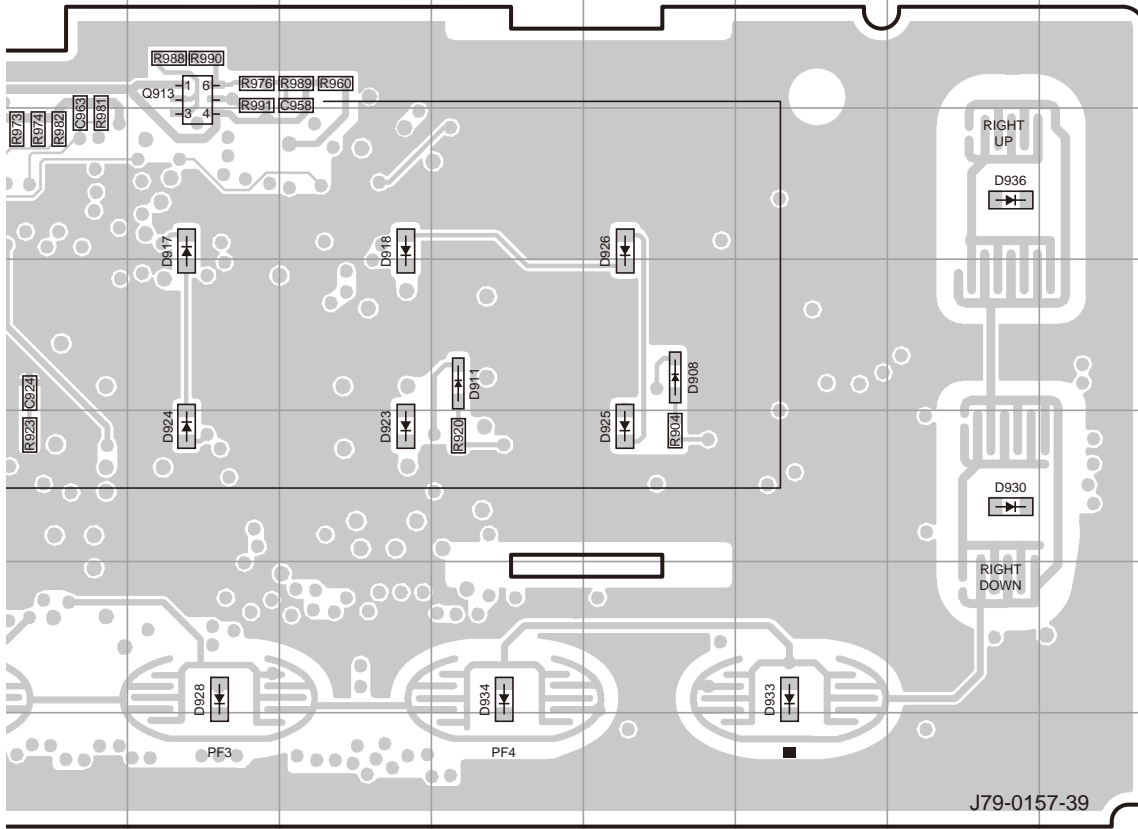
## DISPLAY UNIT (X54-3680-10) Foil side view (J79-0157-39)



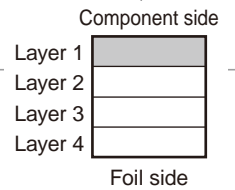


# PC BOARD NX-901

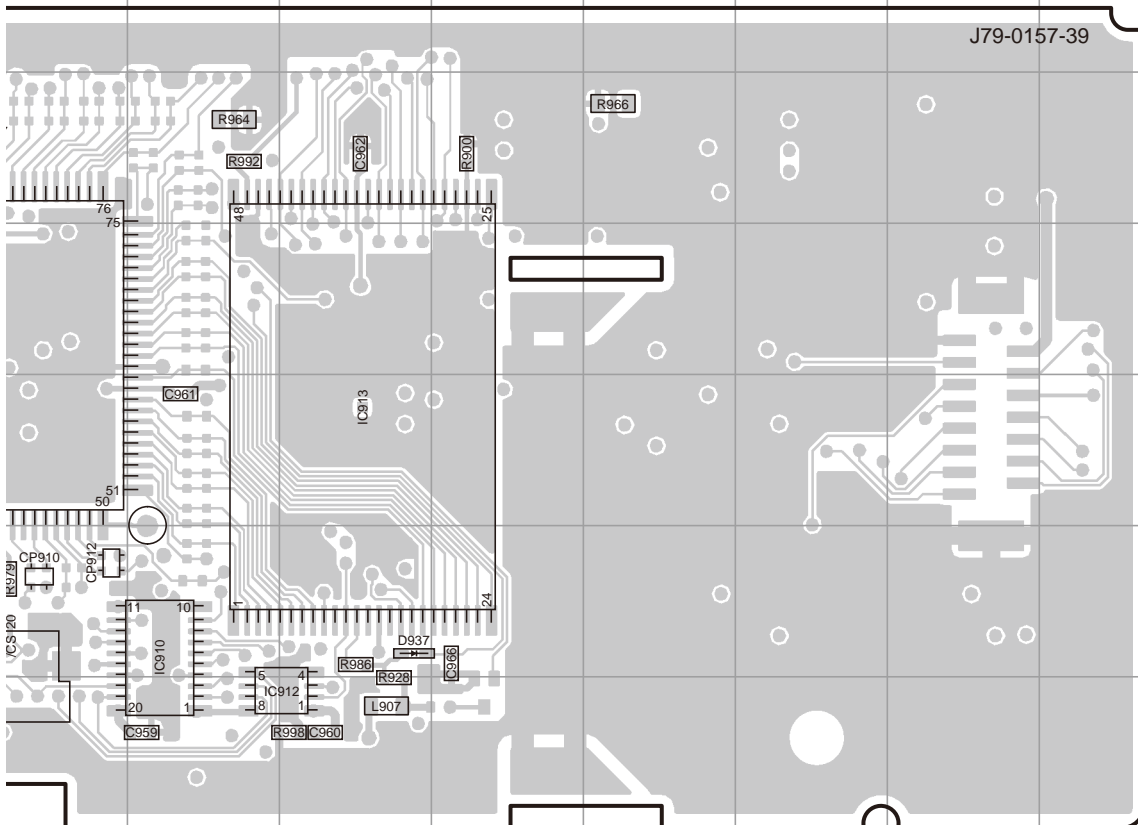
## DISPLAY UNIT (X54-3680-10) Component side view (J79-0157-39)



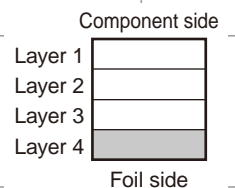
Ref. No.	Address	Ref. No.	Address
Q913	2K	D924	5K
D908	4N	D925	5N
D911	4M	D926	3M
D912	4H	D927	6E
D914	3C	D928	6K
D915	3G	D929	3D
D916	3H	D930	5P
D917	3K	D931	6I
D918	3L	D932	6G
D919	5H	D933	6O
D920	5G	D934	6M
D921	5I	D935	5D
D922	3I	D936	3P
D923	5L		



## DISPLAY UNIT (X54-3680-10) Foil side view (J79-0157-39)

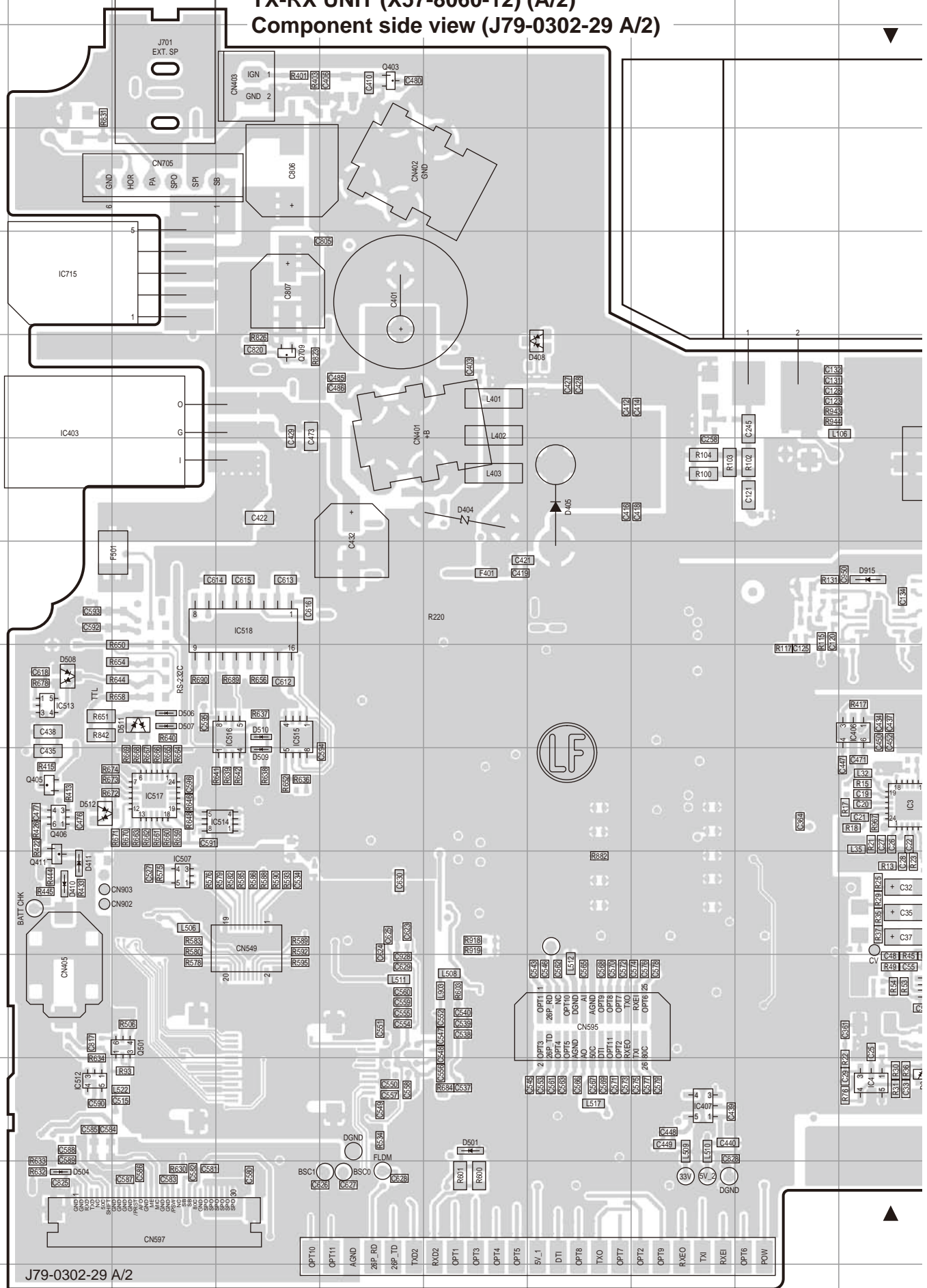


Ref. No.	Address	Ref. No.	Address
IC901	9D	Q905	12C
IC902	10E	Q906	12C
IC903	11F	Q908	10E
IC904	11G	Q909	11B
IC905	9F	Q910	10E
IC906	12F	Q911	12B
IC907	9F	D901	10C
IC908	9F	D902	10B
IC909	12G	D903	10B
IC910	12K	D904	9B
IC911	10I	D906	10D
IC912	13L	D907	11D
IC913	11L	D910	9E
Q901	9D	D913	9C
Q902	9E	D937	12L
Q904	9E		



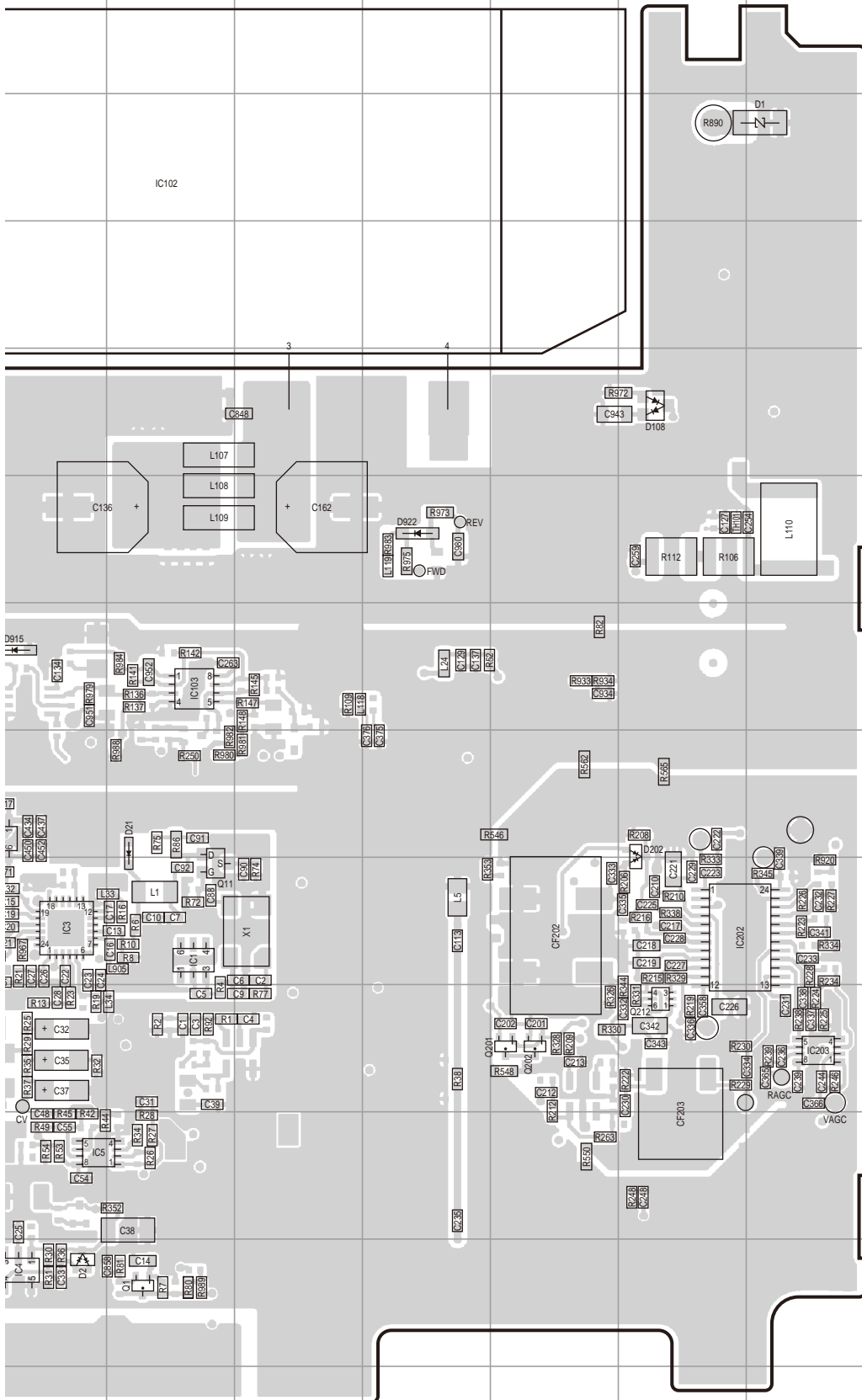
# NX-901 PC BOARD

## TX-RX UNIT (X57-8060-12) (A/2) Component side view (J79-0302-29 A/2)

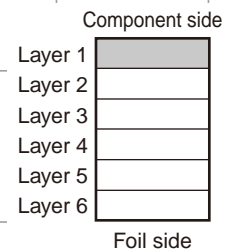


# PC BOARD NX-901

## TX-RX UNIT (X57-8060-12) (A/2) Component side view (J79-0302-29 A/2)



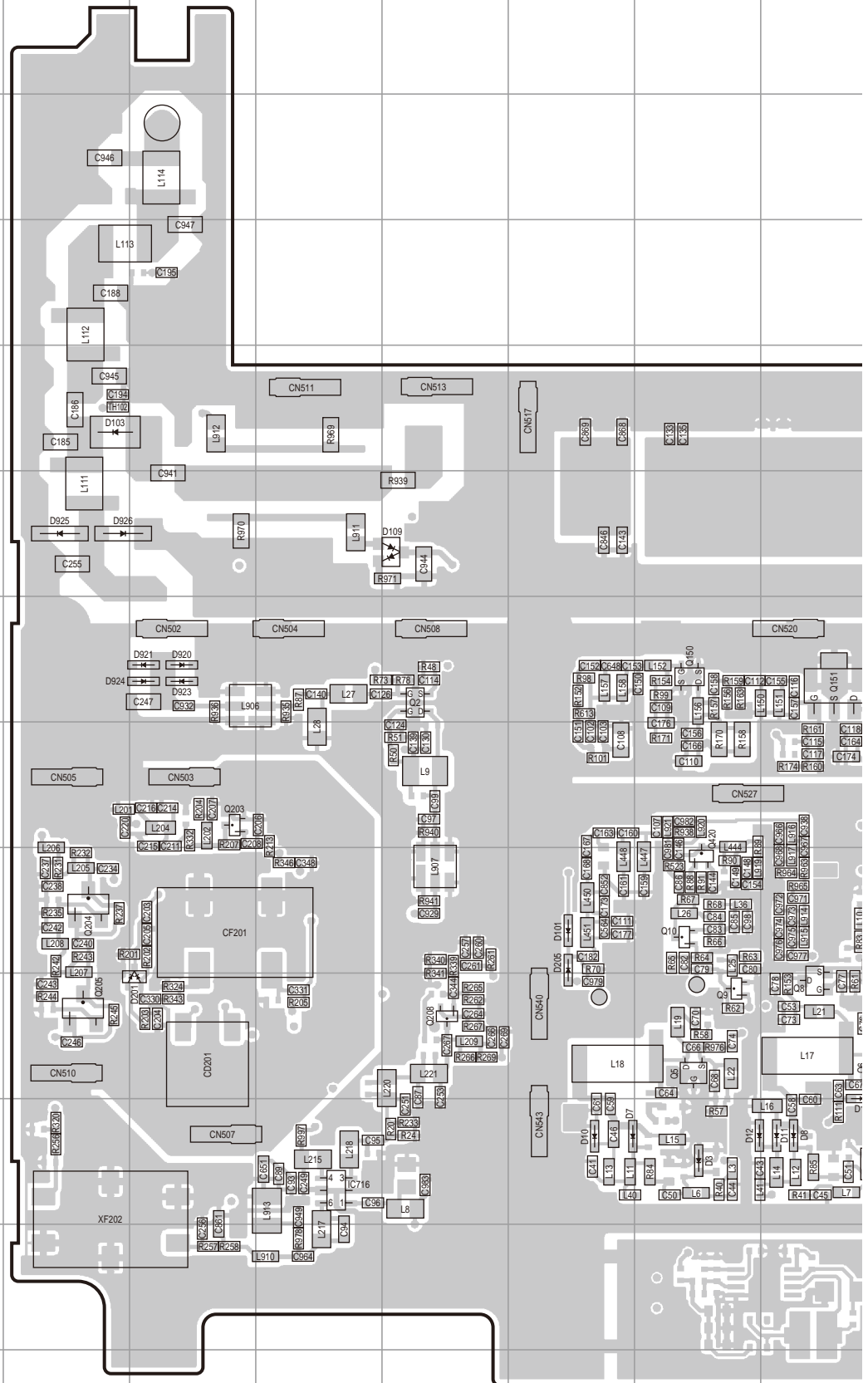
Ref. No.	Address	Ref. No.	Address
IC1	9K	Q405	9B
IC3	9J	Q406	9B
IC4	12J	Q411	10B
IC5	11J	Q501	11C
IC102	3K	Q709	5D
IC103	7K	D1	3P
IC202	9O	D2	12J
IC203	10P	D21	8K
IC403	5B	D108	5O
IC406	8J	D202	8O
IC407	12H	D404	6F
IC507	10C	D405	6G
IC512	12B	D408	5G
IC513	8B	D410	10B
IC514	9D	D411	10B
IC515	8D	D501	12F
IC516	8D	D504	13B
IC517	9C	D506	8C
IC518	7D	D507	8C
IC715	4B	D508	8B
Q1	12K	D509	9D
Q11	9K	D510	8D
Q201	10N	D511	8C
Q202	10N	D512	9B
Q212	10O	D915	7J
Q403	2E	D922	6M



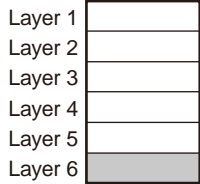
# NX-901 PC BOARD

## TX-RX UNIT (X57-8060-12) (A/2) Foil side view (J79-0302-29 A/2)

Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC401	7M	Q6	10J	D3	11I
IC402	6N	Q7	10K	D4	11J
IC404	6P	Q8	10J	D7	11H
IC405	5N	Q9	10I	D8	11J
IC408	5M	Q10	9I	D10	11H
IC409	7N	Q150	7I	D11	11J
IC501	12P	Q151	7J	D12	11I
IC503	12Q	Q203	8E	D14	11J
IC504	10N	Q204	9D	D101	9H
IC506	10P	Q205	10D	D103	5D
IC508	10O	Q208	10G	D109	6G
IC509	9P	Q401	3P	D201	10E
IC510	11O	Q402	4P	D205	9H
IC511	9O	Q404	4P	D401	3O
IC701	12M	Q407	5P	D403	4P
IC702	8N	Q408	5P	D406	3P
IC703	12L	Q409	7O	D407	4N
IC705	12L	Q410	7N	D409	4N
IC706	8M	Q412	6N	D412	5N
IC707	12M	Q413	5P	D502	13O
IC708	8N	Q414	5P	D702	11L
IC709	8O	Q415	7O	D703	11L
IC710	11M	Q416	5N	D704	7O
IC711	11L	Q420	9I	D705	8O
IC713	11K	Q701	12K	D706	9L
IC714	11L	Q702	11L	D707	9M
IC716	11F	Q703	12M	D920	7E
IC717	10Q	Q704	7P	D921	7E
IC718	13O	Q705	8P	D923	7E
IC719	9L	Q706	8R	D924	7E
IC720	9M	Q707	8R	D925	6D
Q2	7G	Q708	10L	D926	6D
Q4	9J	Q710	5Q		
Q5	10I	Q903	11R		



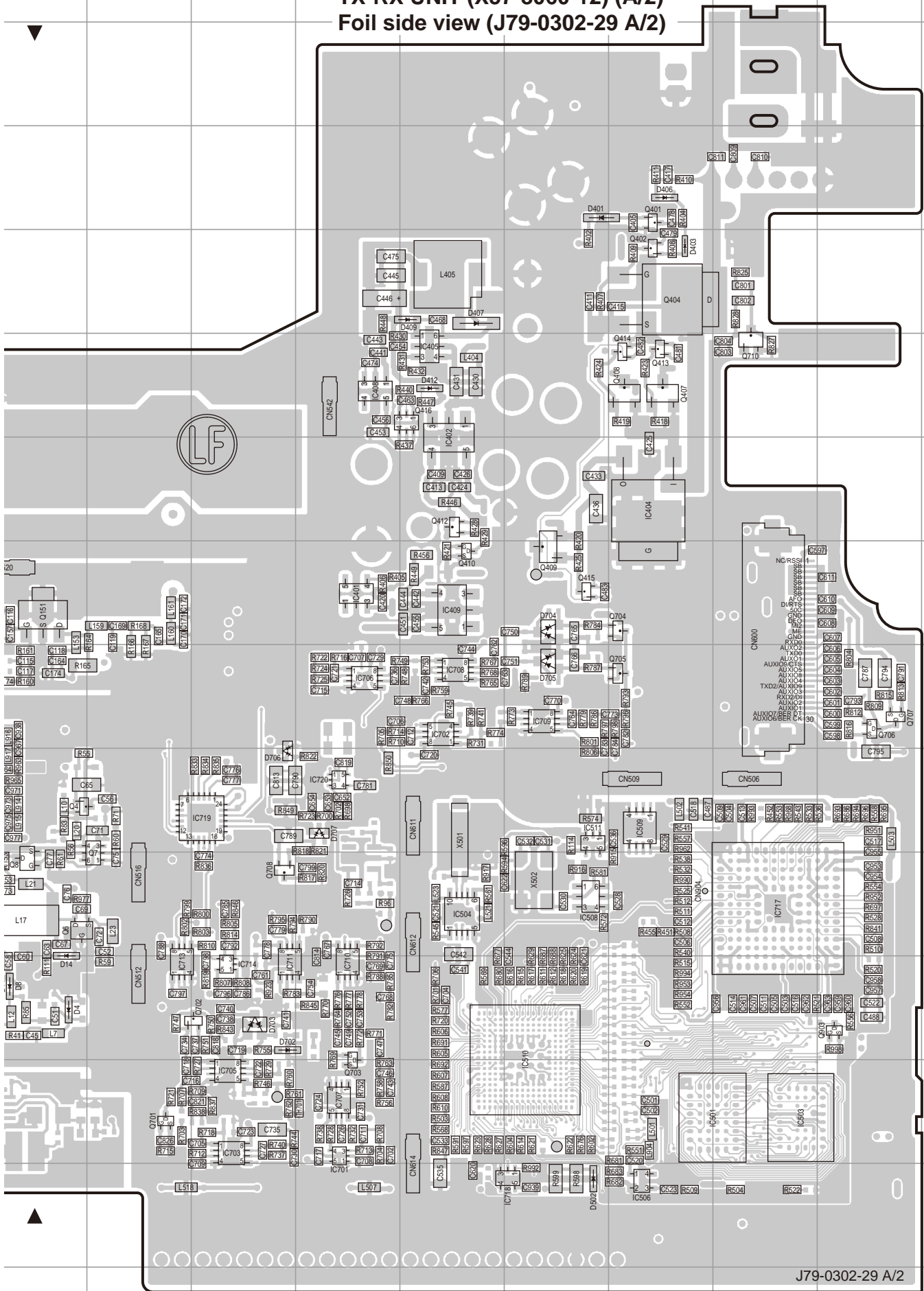
Component side



Foil side

# PC BOARD NX-901

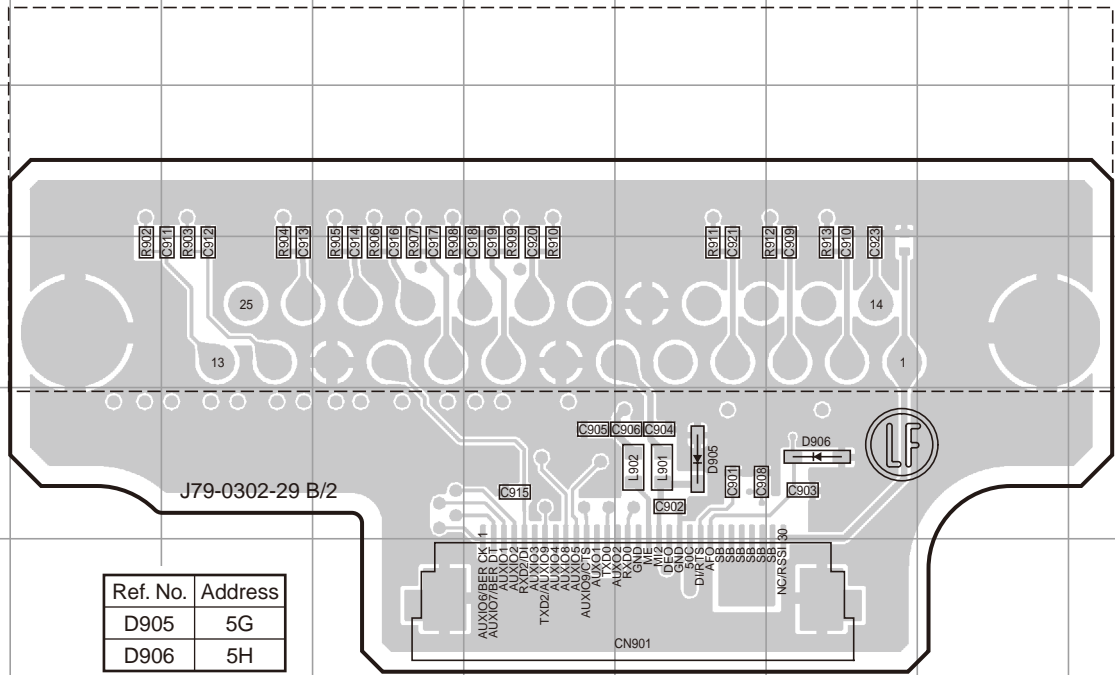
TX-RX UNIT (X57-8060-12) (A/2)  
Foil side view (J79-0302-29 A/2)



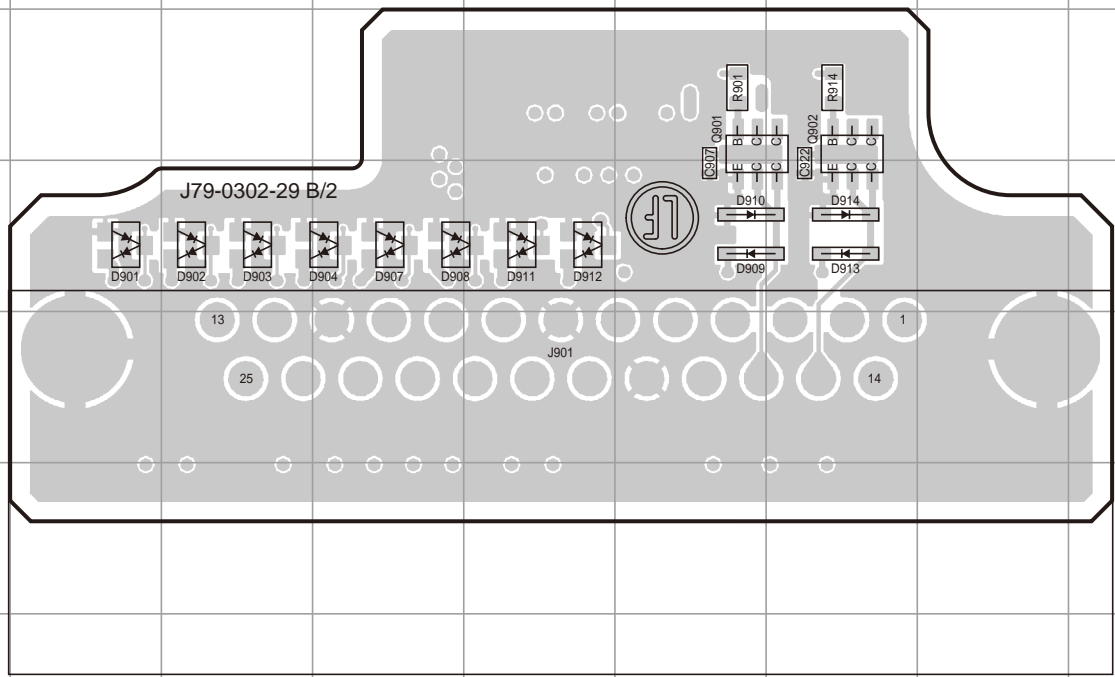
J79-0302-29 A/2

# NX-901 PC BOARD

**TX-RX UNIT (X57-8060-12) (B/2)**  
**Component side view (J79-0302-29 B/2)**

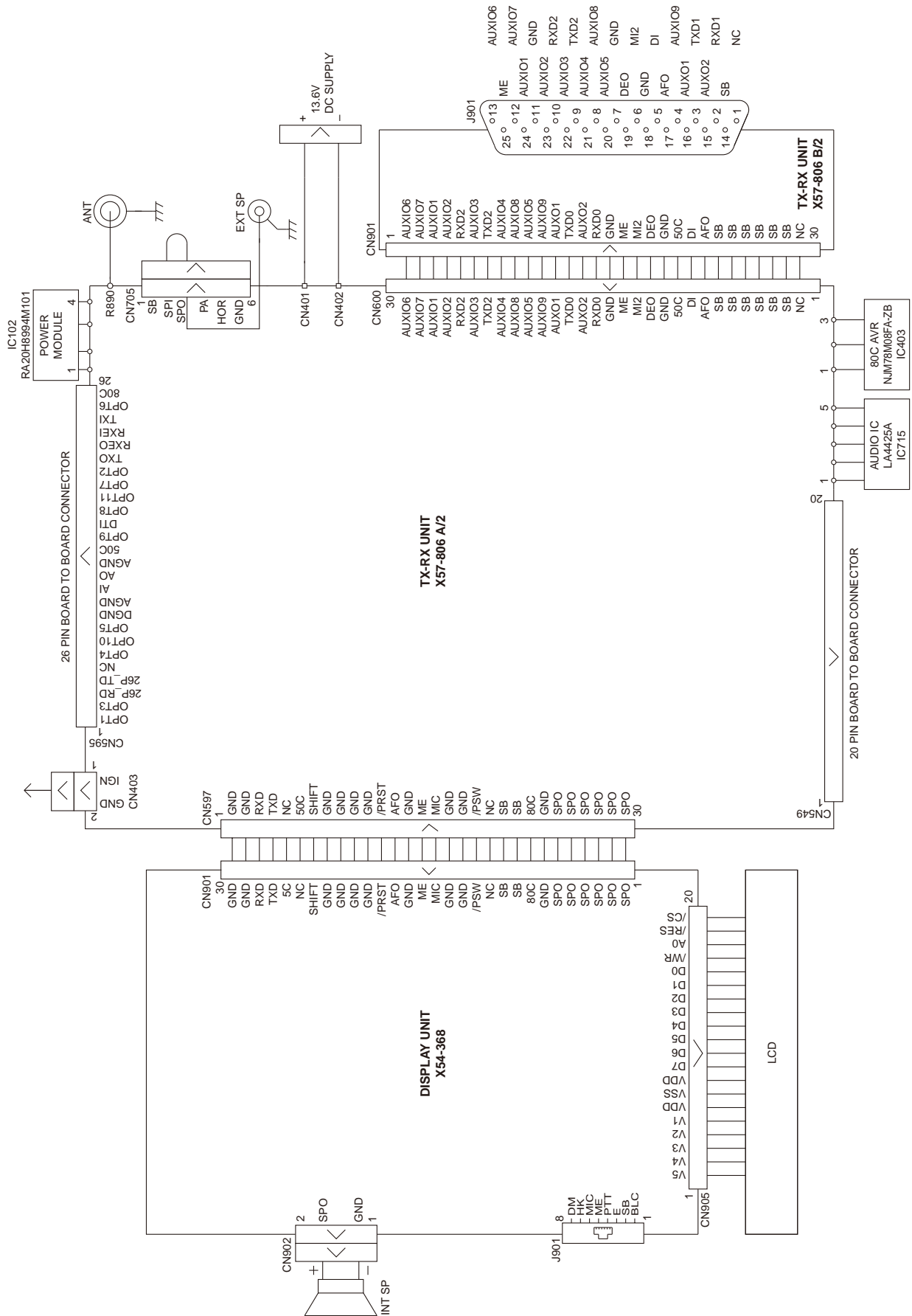


**TX-RX UNIT (X57-8060-12) (B/2)**  
**Foil side view (J79-0302-29 B/2)**



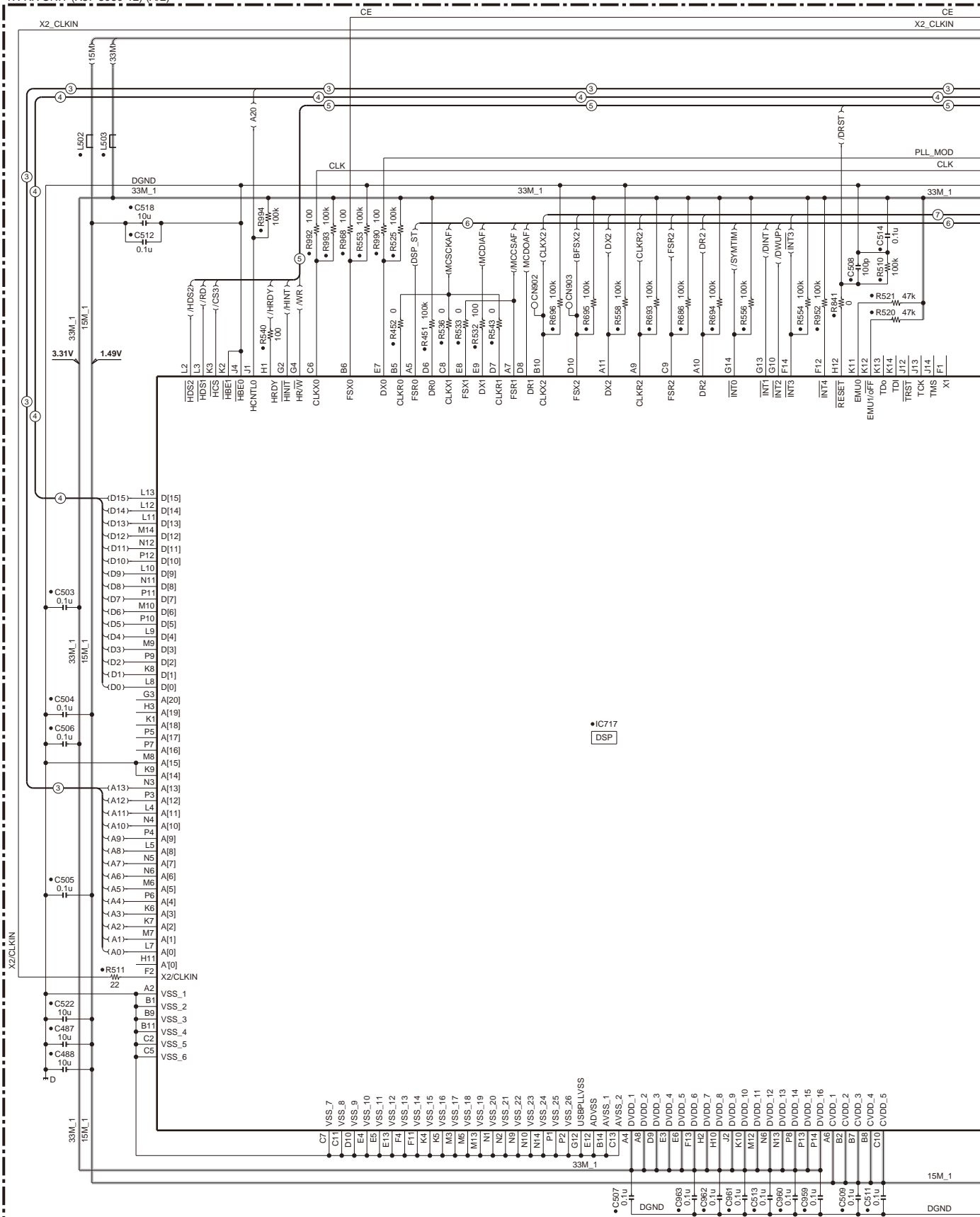
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
Q901	8G	D904	9E	D911	9F
Q902	8H	D907	9E	D912	9F
D901	9C	D908	9E	D913	9H
D902	9D	D909	9G	D914	9H
D903	9D	D910	9G		

## INTERCONNECTION DIAGRAM



# NX-901 SCHEMATIC DIAGRAM

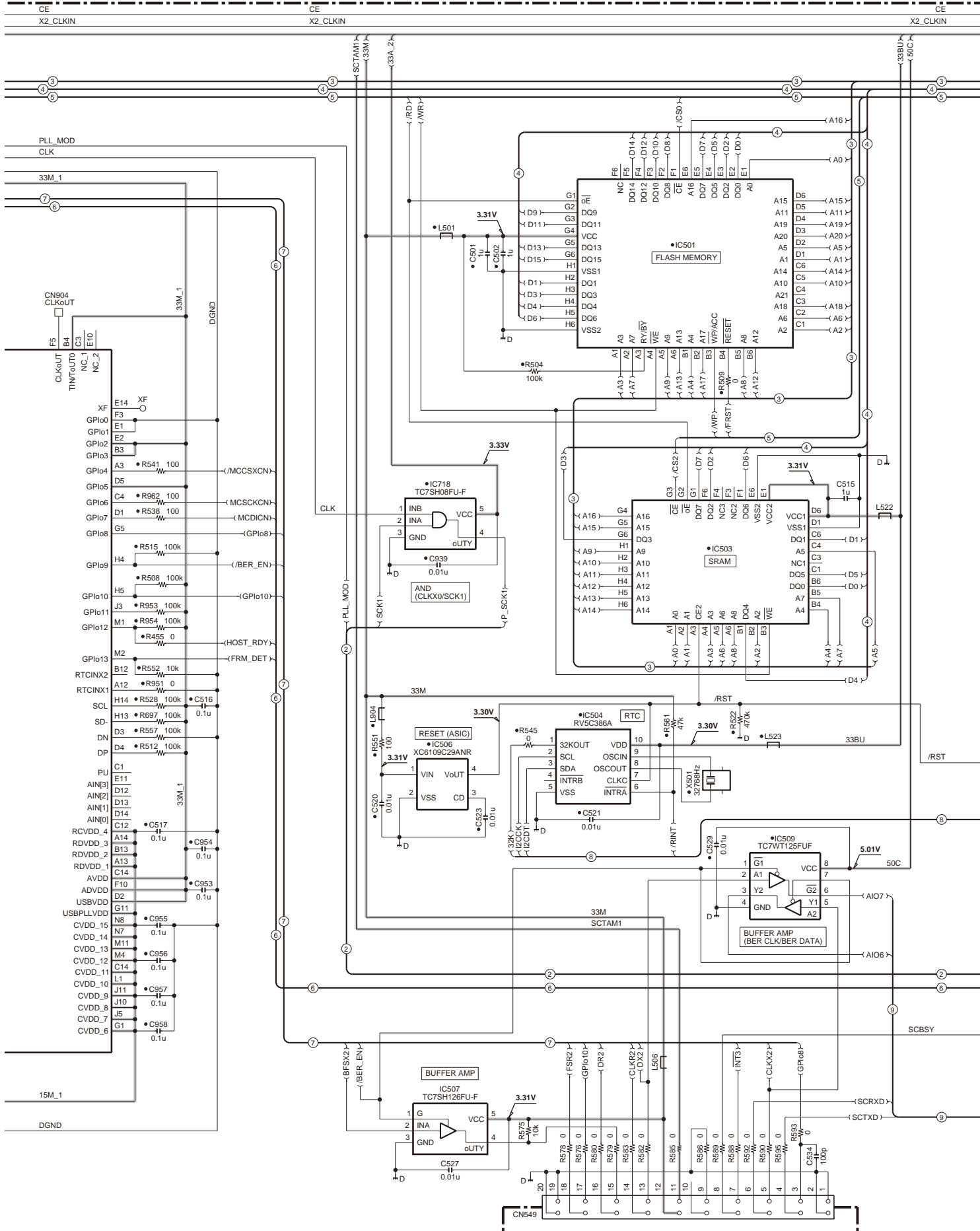
TX-RX UNIT (X57-8060-12) (A/2)





# SCHEMATIC DIAGRAM NX-901

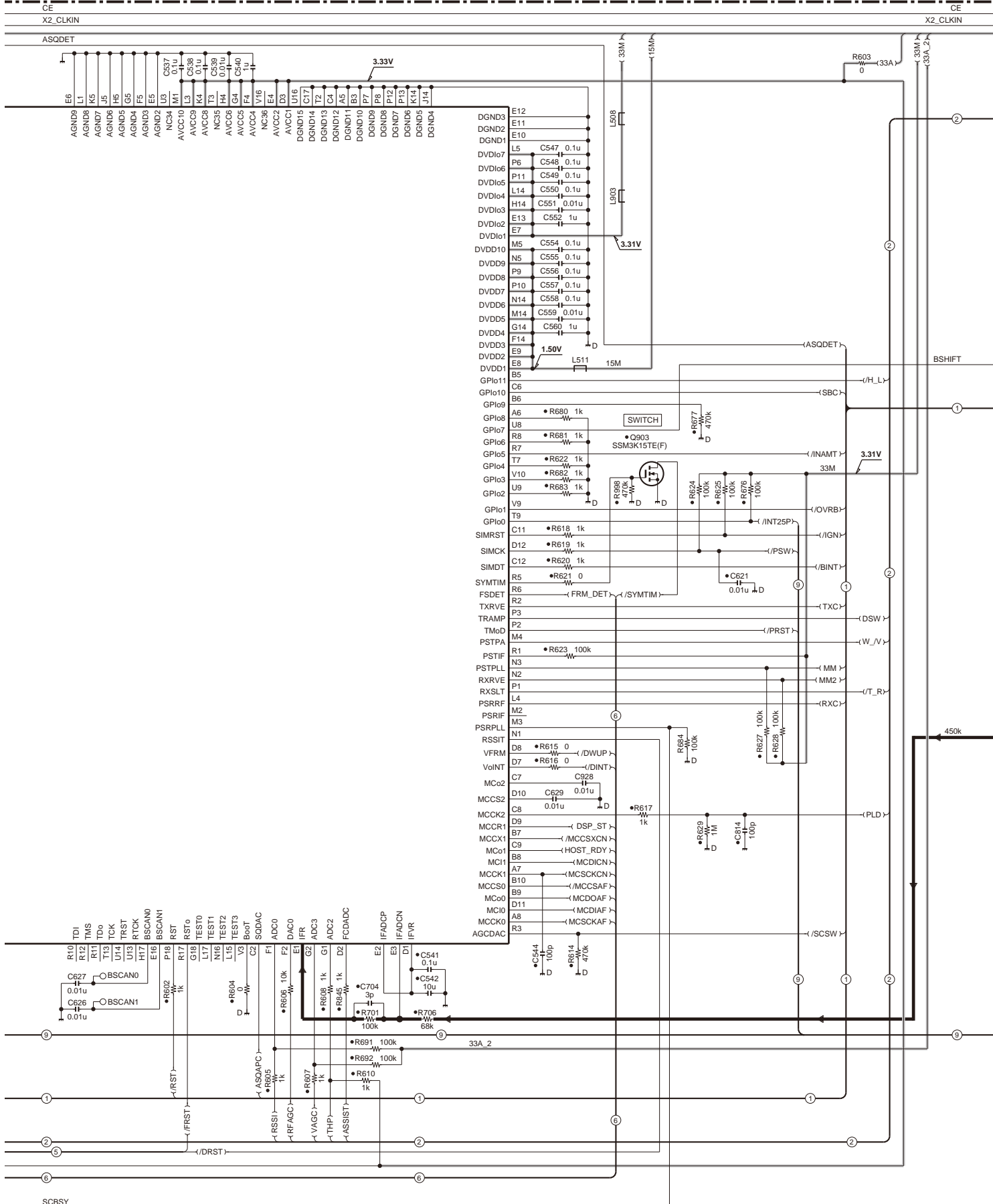
TX-RX UNIT (X57-8060-12) (A/2)





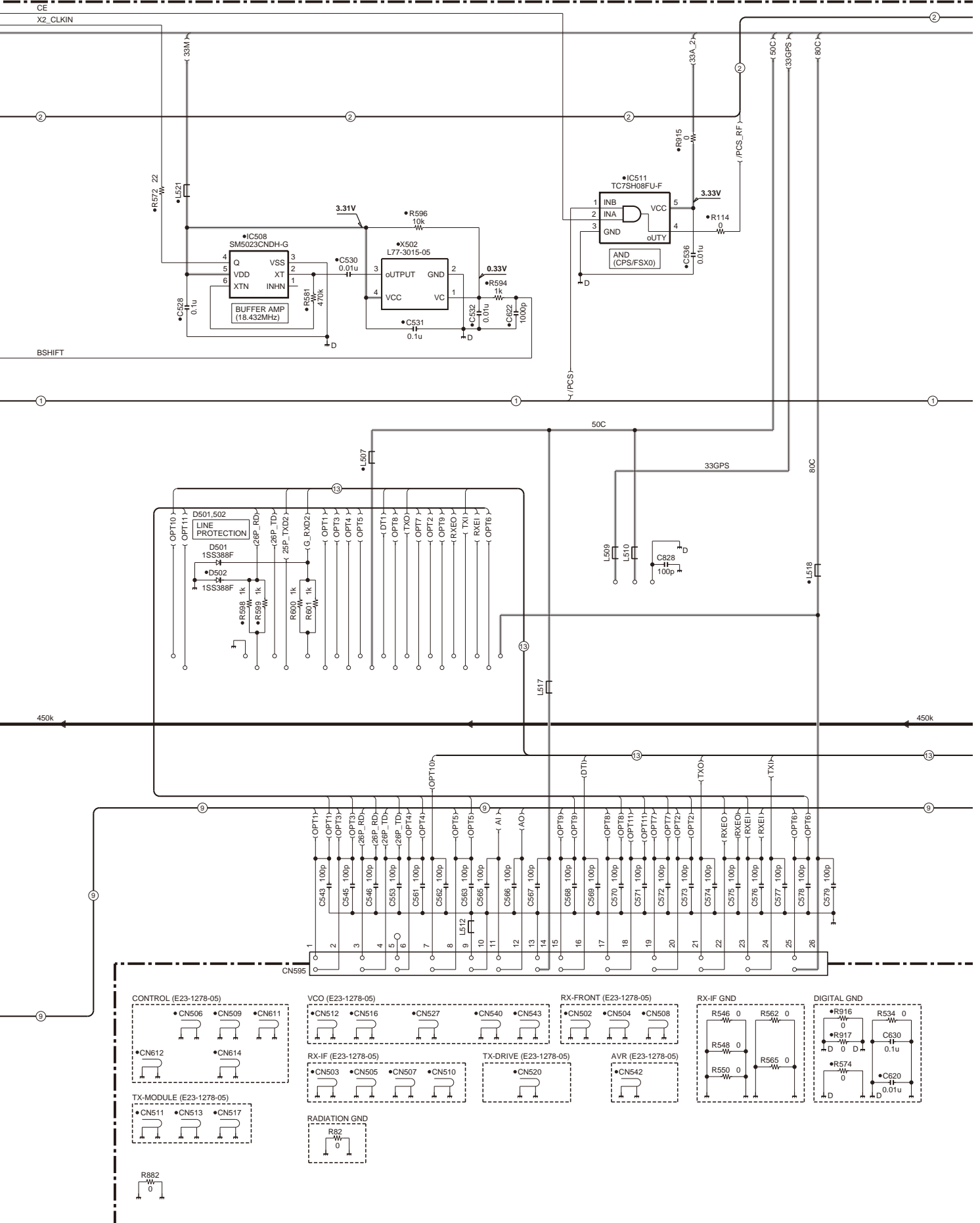
# SCHEMATIC DIAGRAM NX-901

TX-RX UNIT (X57-8060-12) (A/2)



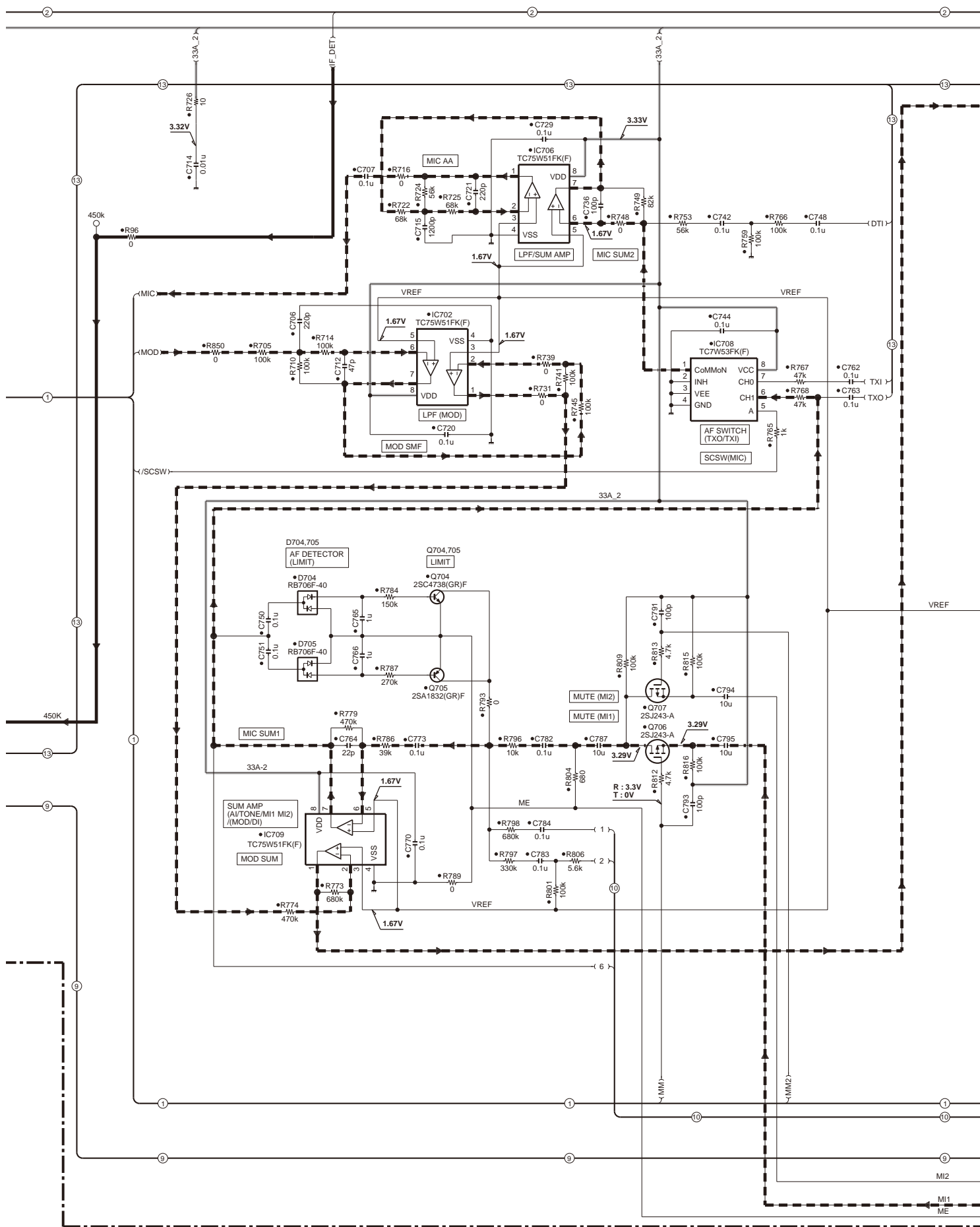
# NX-901 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-8060-12) (A/2)



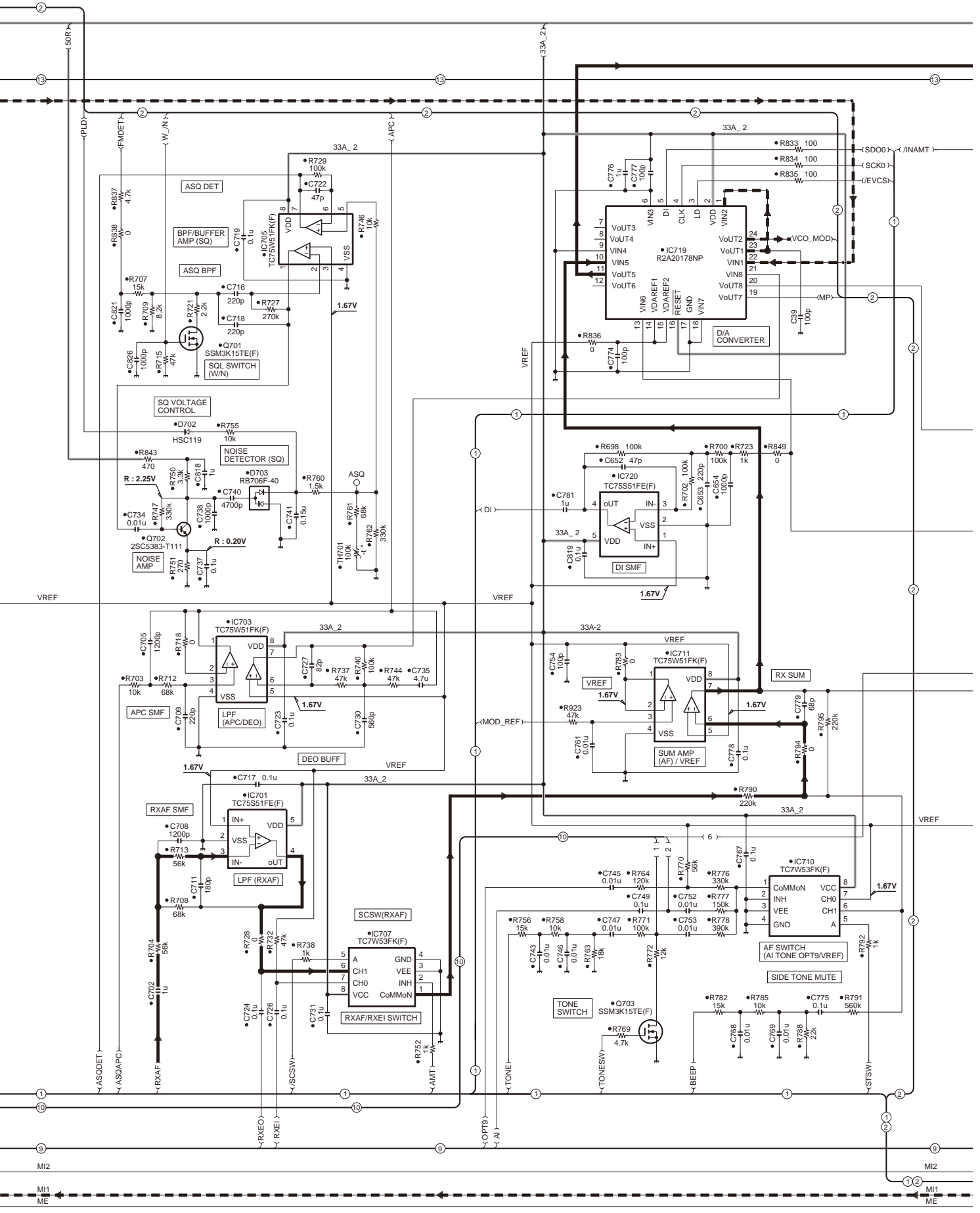
# SCHEMATIC DIAGRAM NX-901

TX-RX UNIT (X57-8060-12) (A/2)



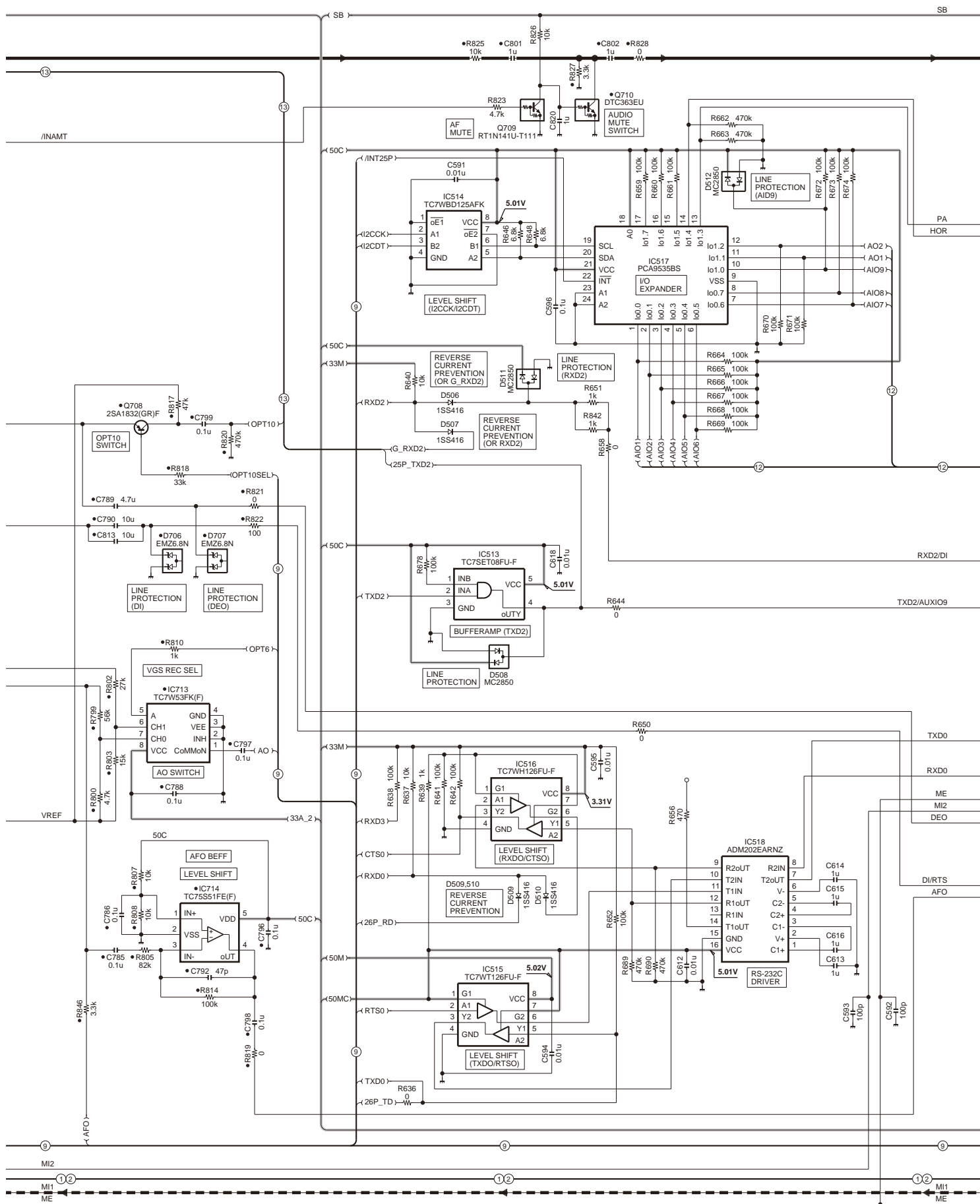
# NX-901 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-8060-12) (A/2)



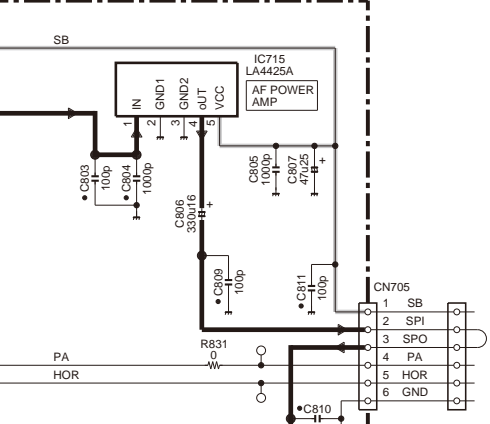
# SCHEMATIC DIAGRAM NX-901

TX-RX UNIT (X57-8060-12) (A/2)

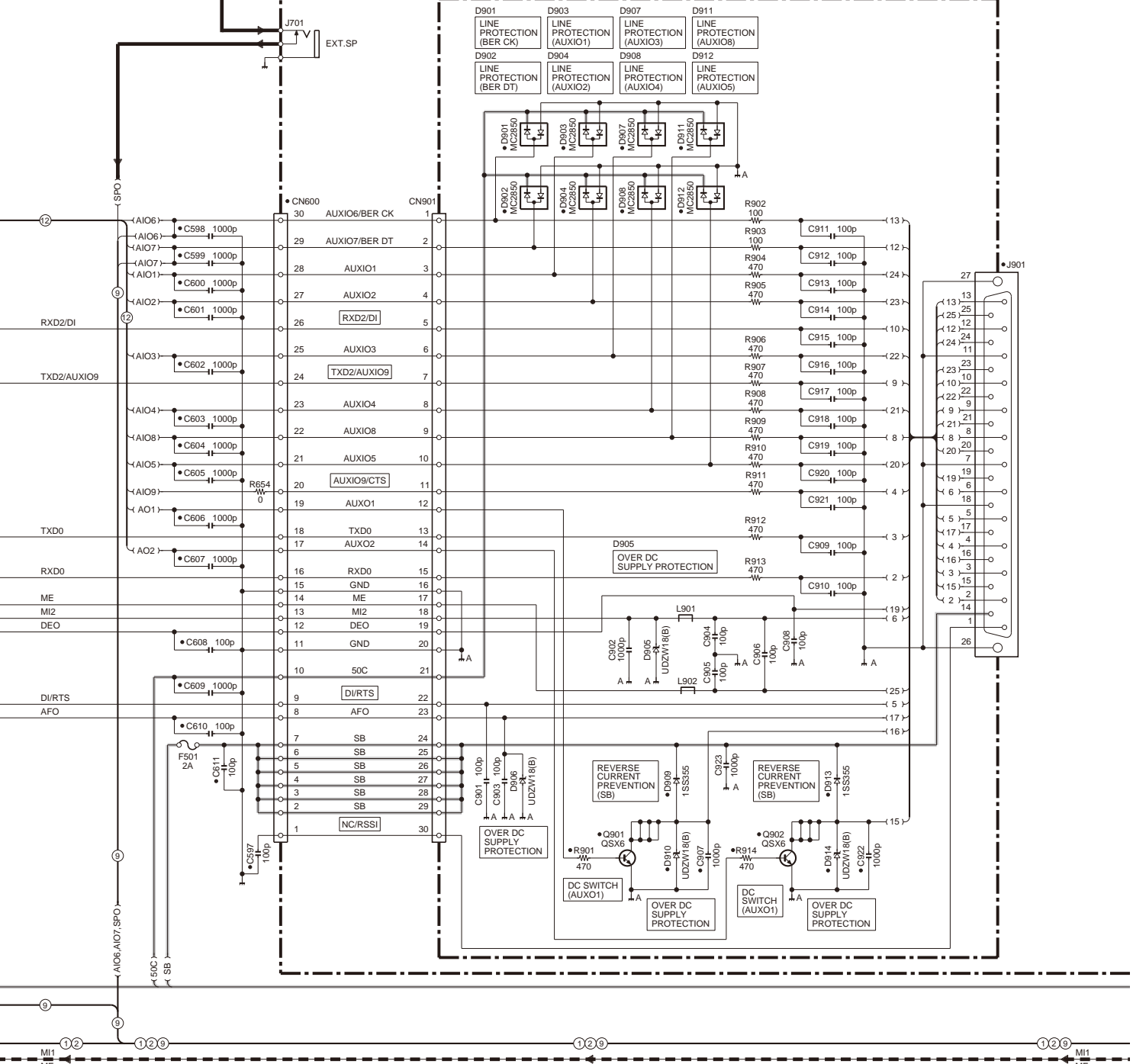


# NX-901 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-806-12) (A/2)



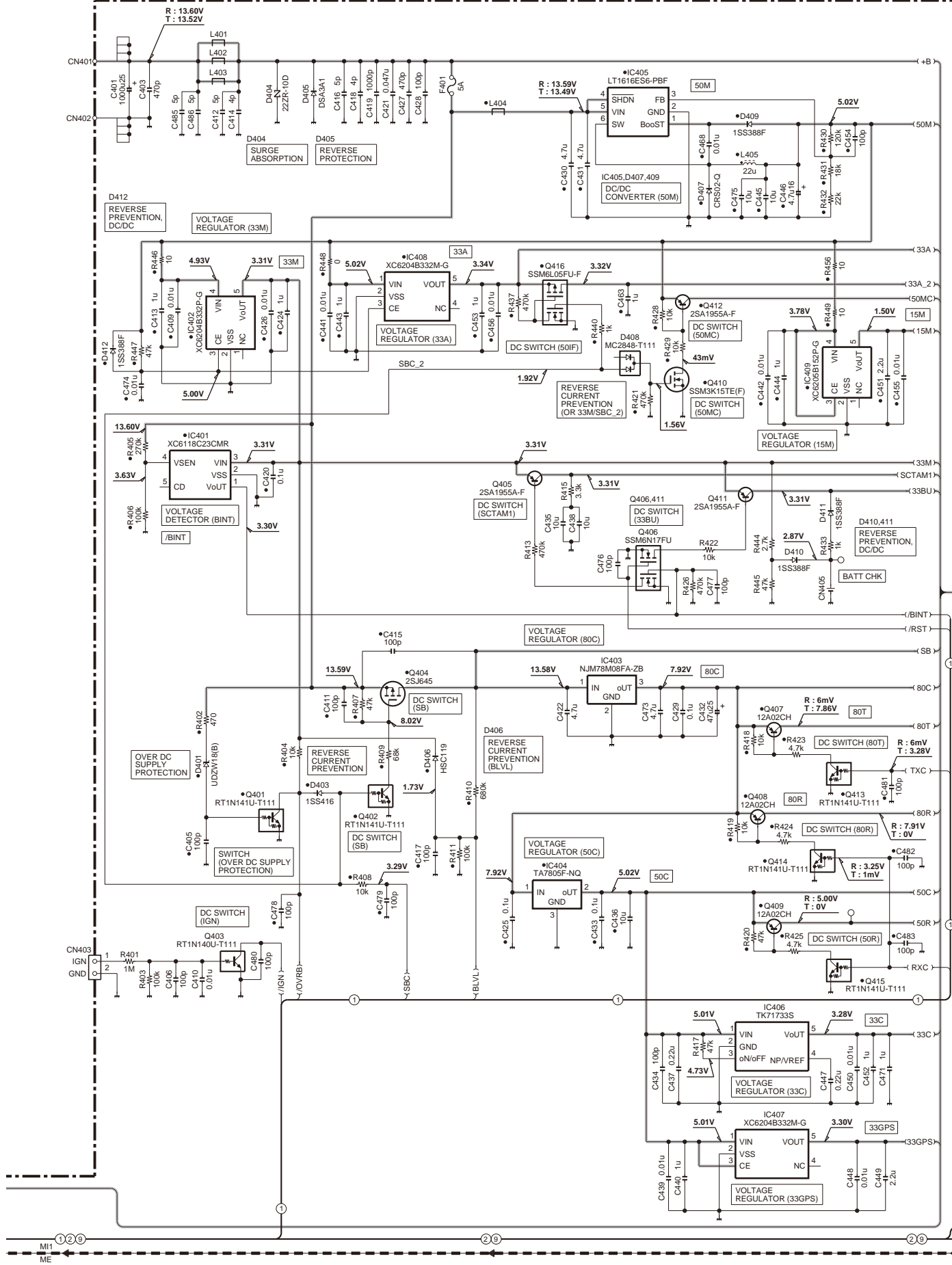
TX-RX UNIT (X57-806-12) (B/2) : D-SUB25





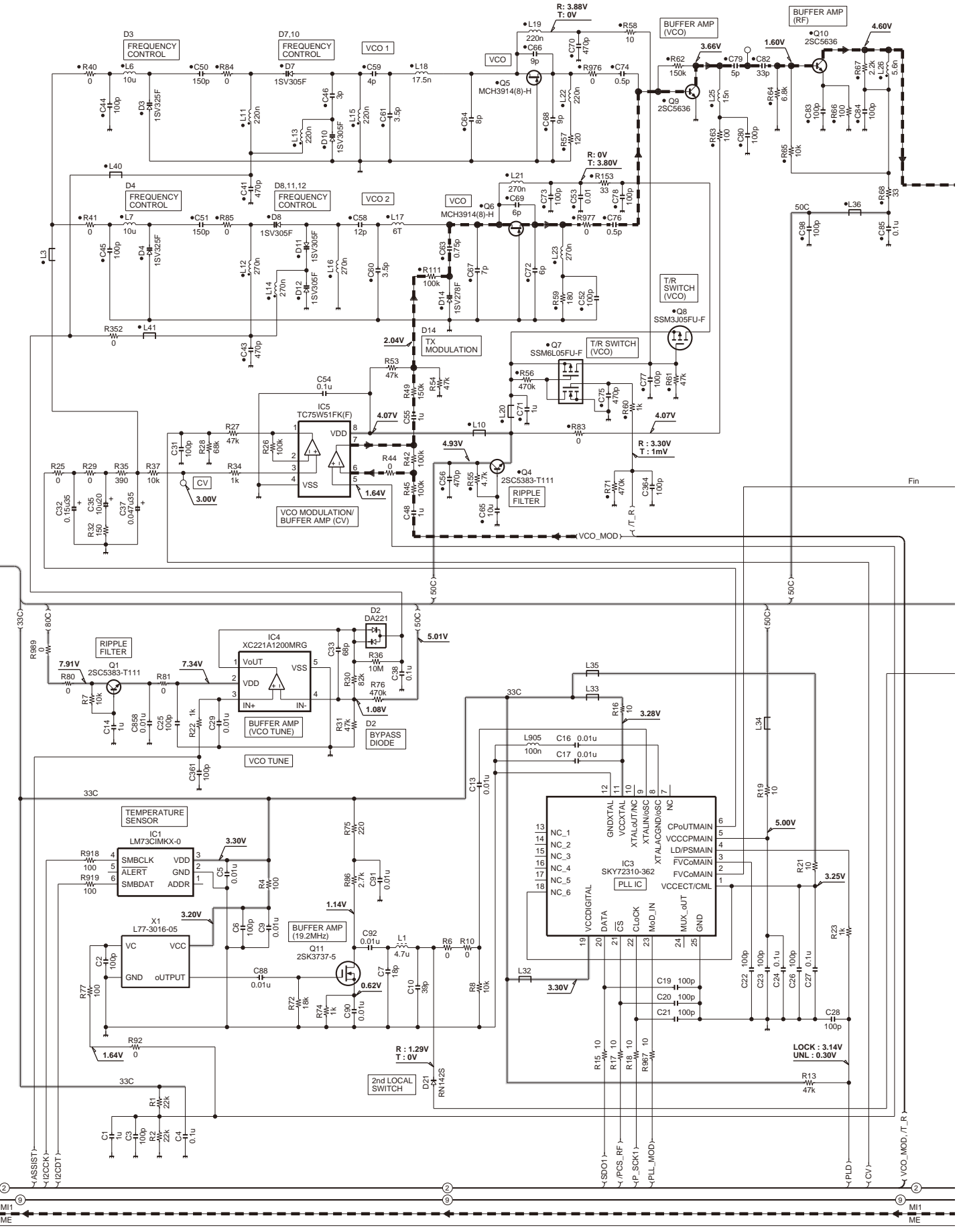
# SCHEMATIC DIAGRAM NX-901

TX-RX UNIT (X57-8060-12) (A/2)



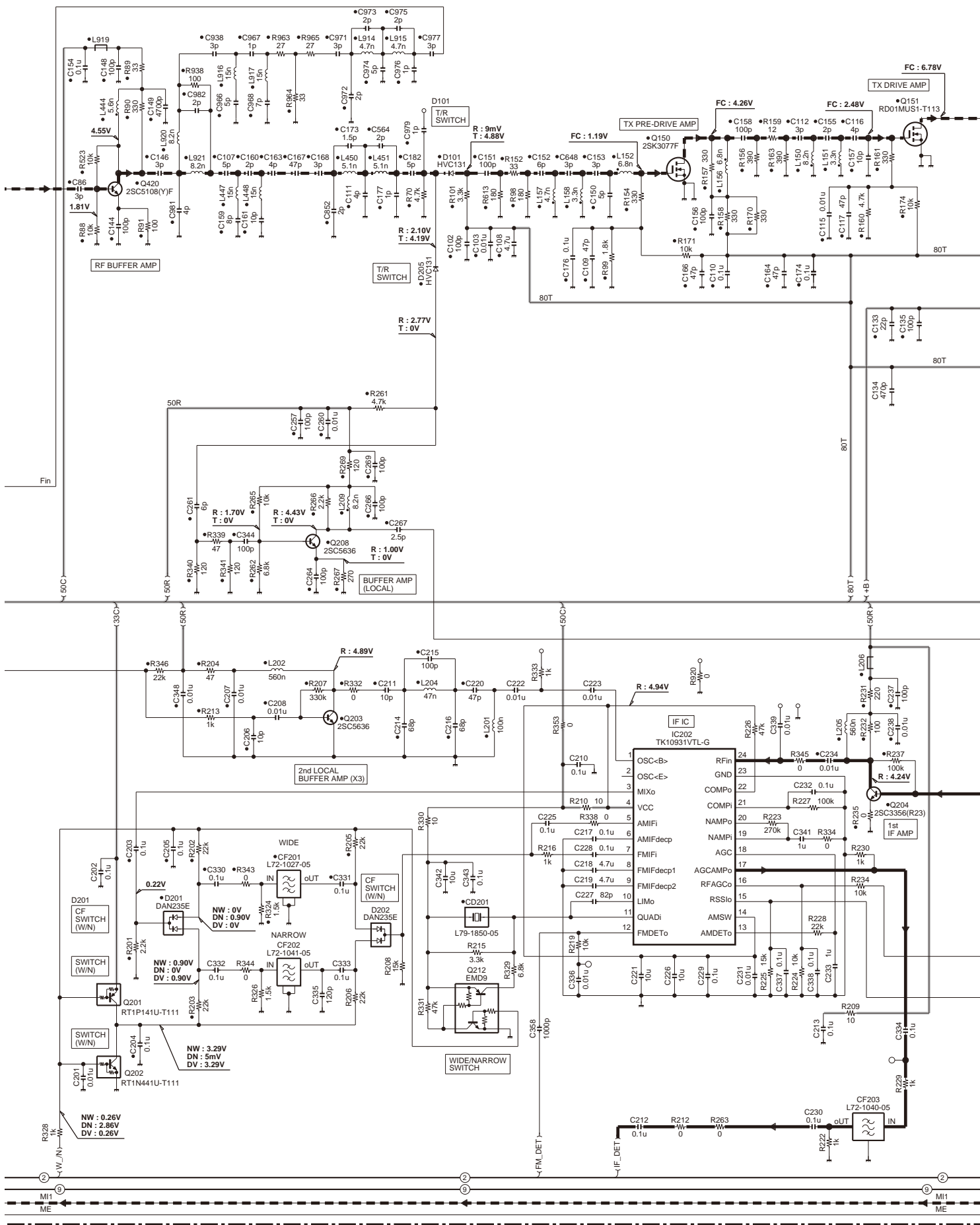
# NX-901 SCHEMATIC DIAGRAM

TX-RX UNIT (X57-8060-12) (A/2)



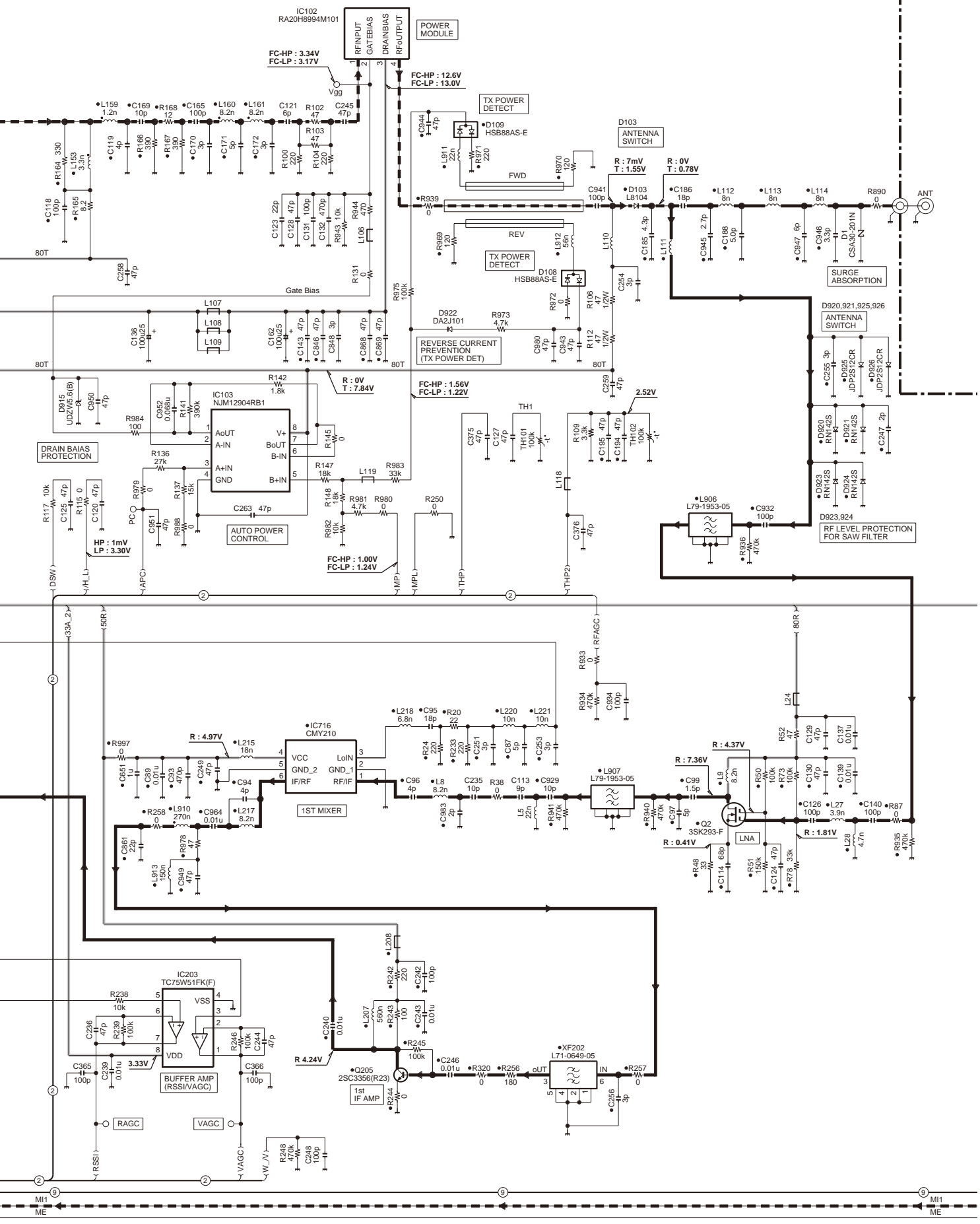
# SCHEMATIC DIAGRAM NX-901

TX-RX UNIT (X57-8060-12) (A/2)

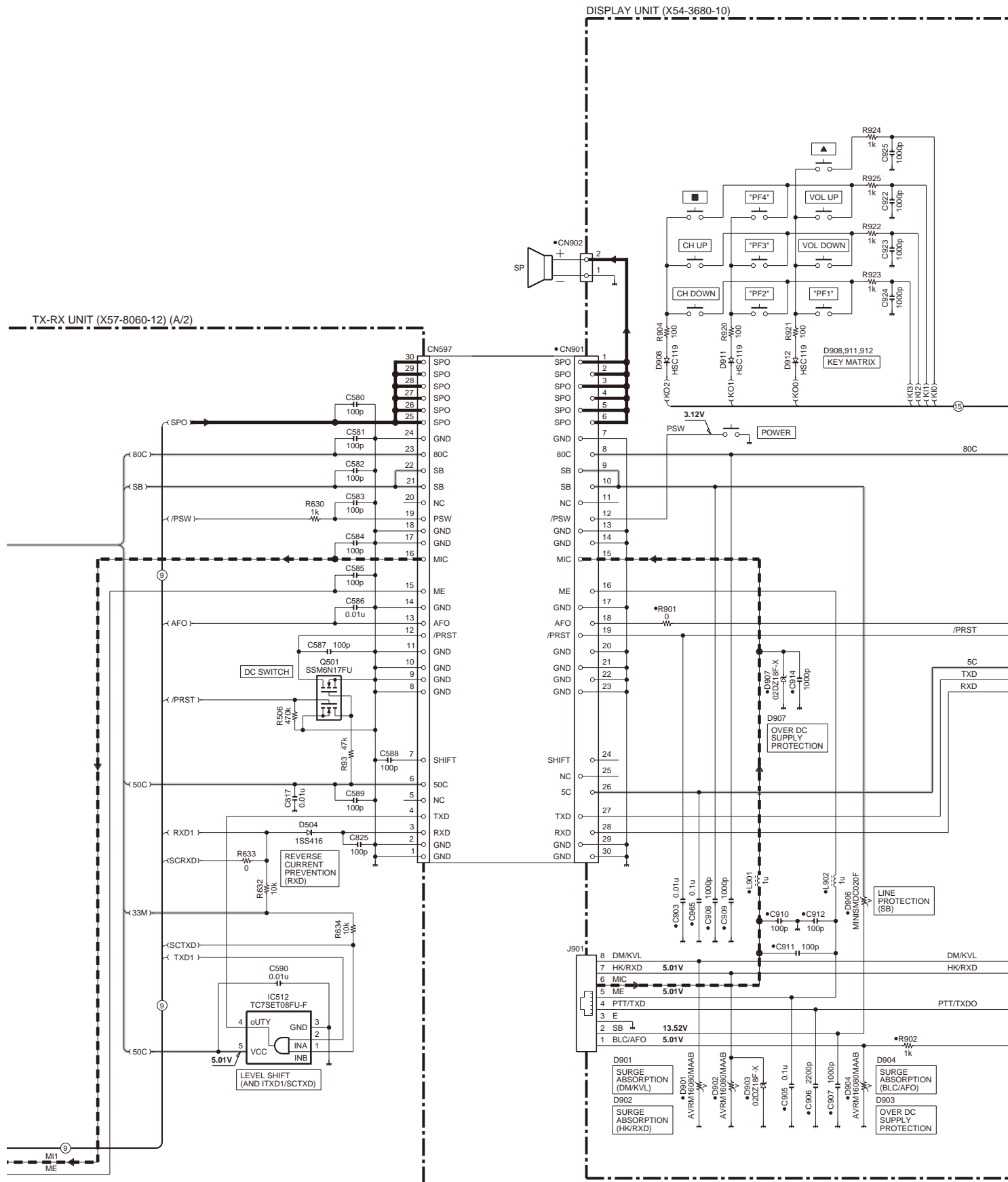


# NX-901 SCHEMATIC DIAGRAM

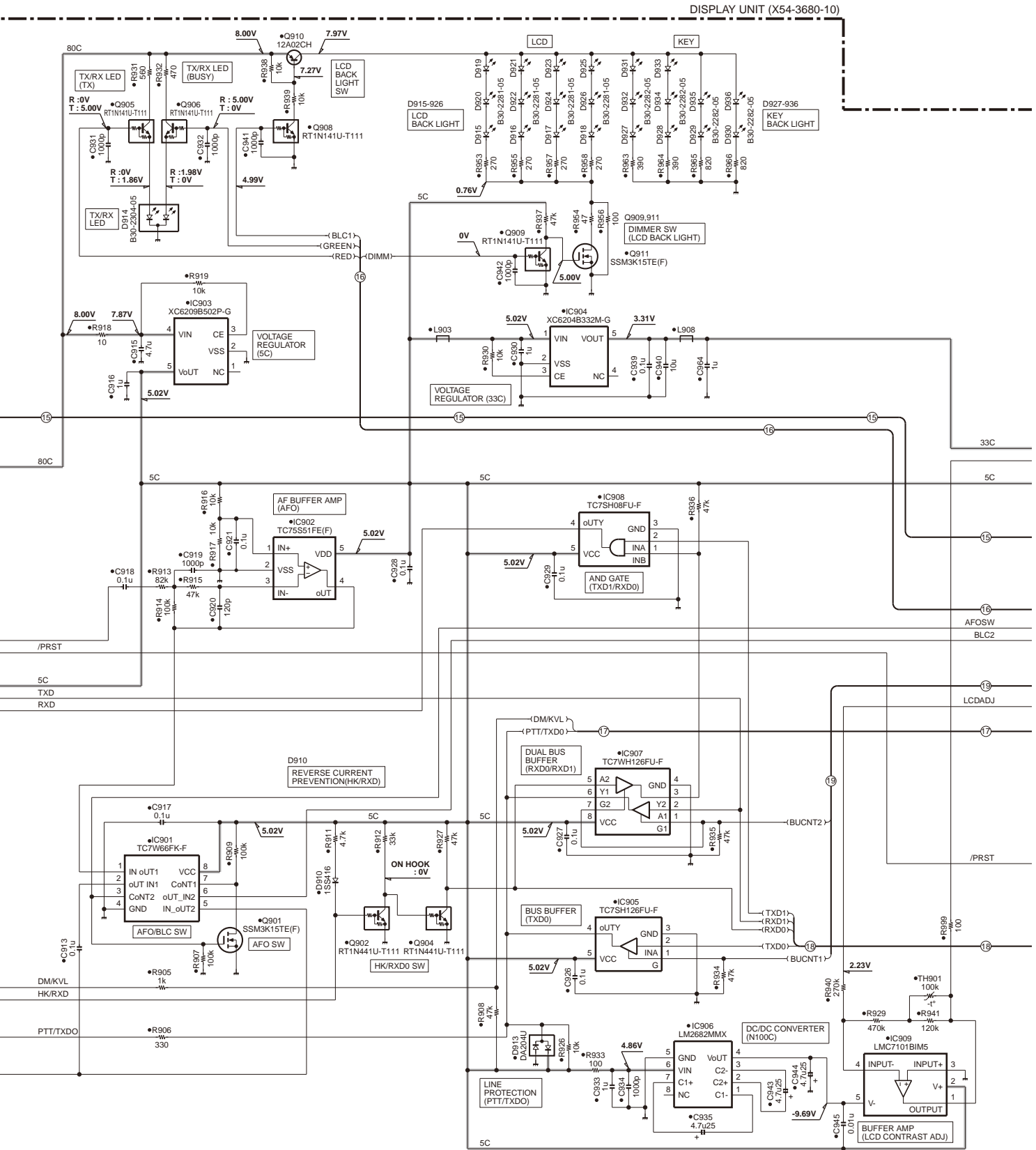
TX-RX UNIT (X57-8060-12) (A/2)



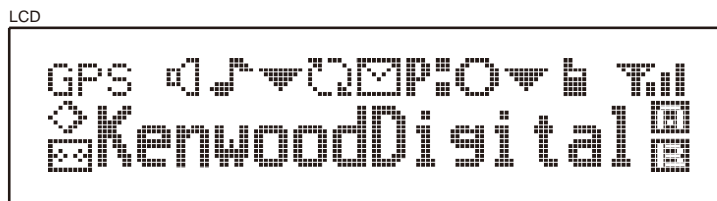
# SCHEMATIC DIAGRAM NX-901



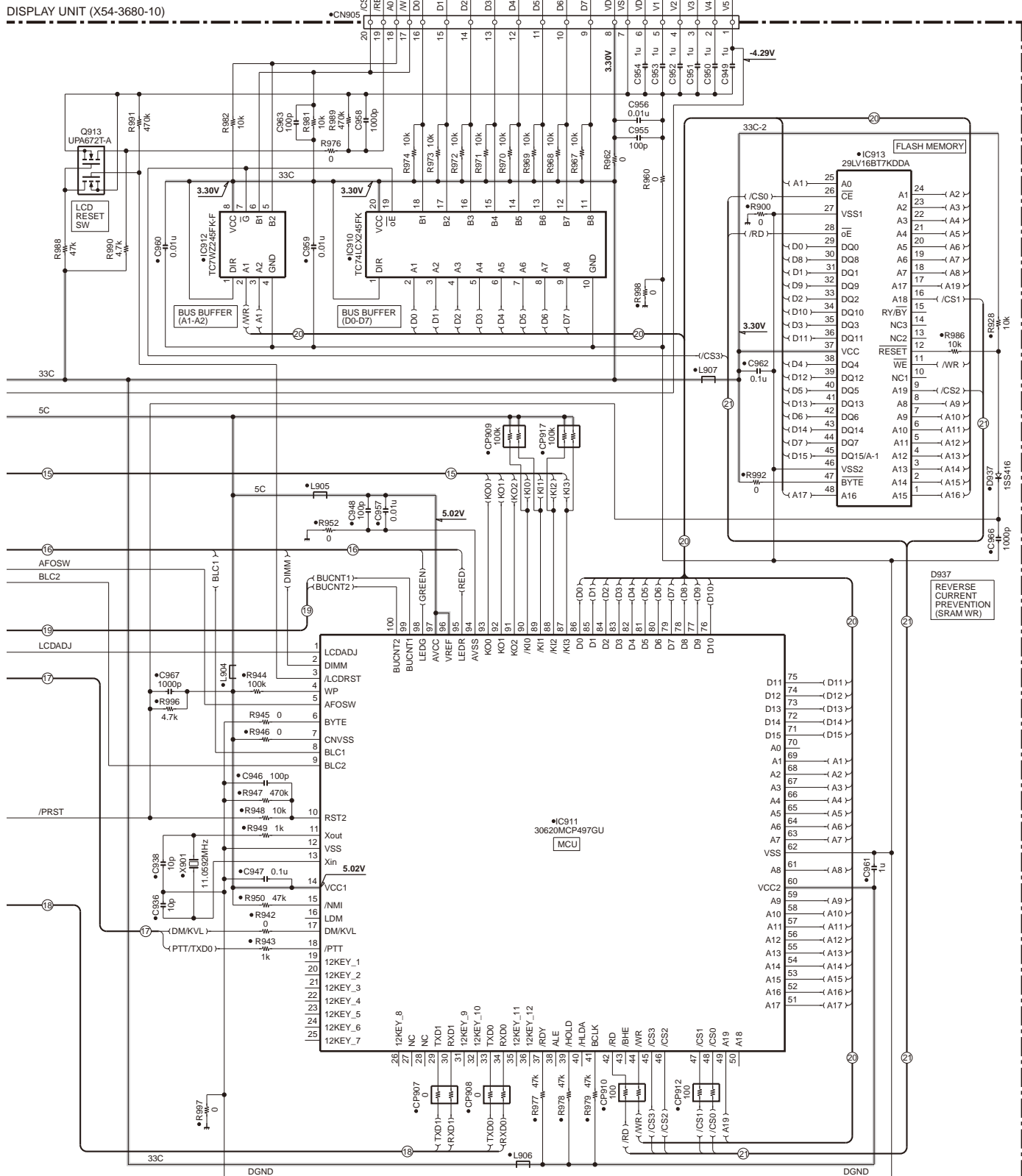
# NX-901 SCHEMATIC DIAGRAM



# SCHEMATIC DIAGRAM NX-901



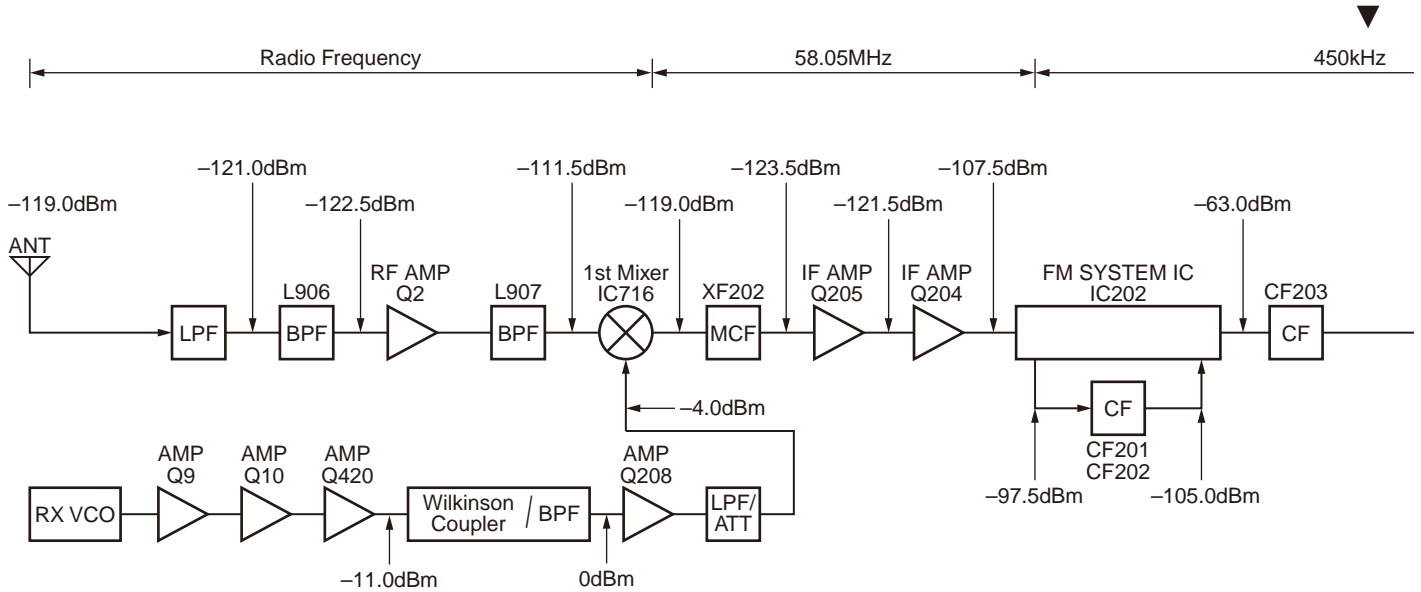
DISPLAY UNIT (X54-3680-10)



Note : The components marked with a dot (•) are parts of foil side.

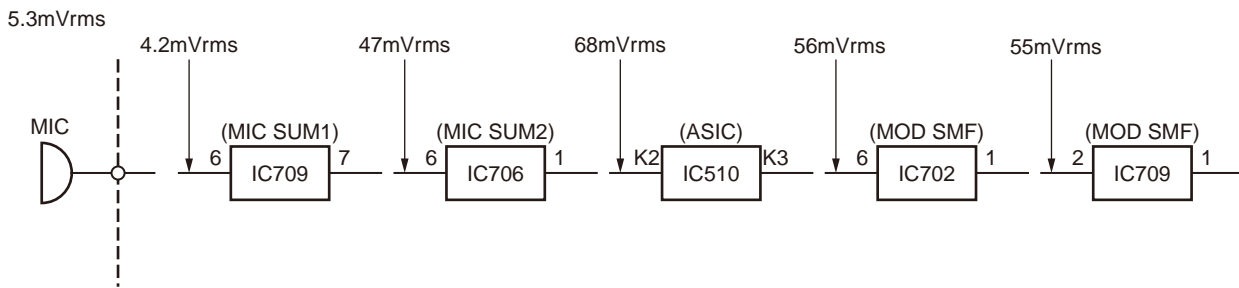
## LEVEL DIAGRAM

### Receiver Section

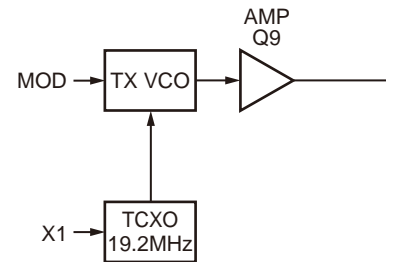


SSG input level for 12dB SINAD are obtained Measured by connecting SSG to each point via a 0.01μF capacitor.

### Transmitter Section

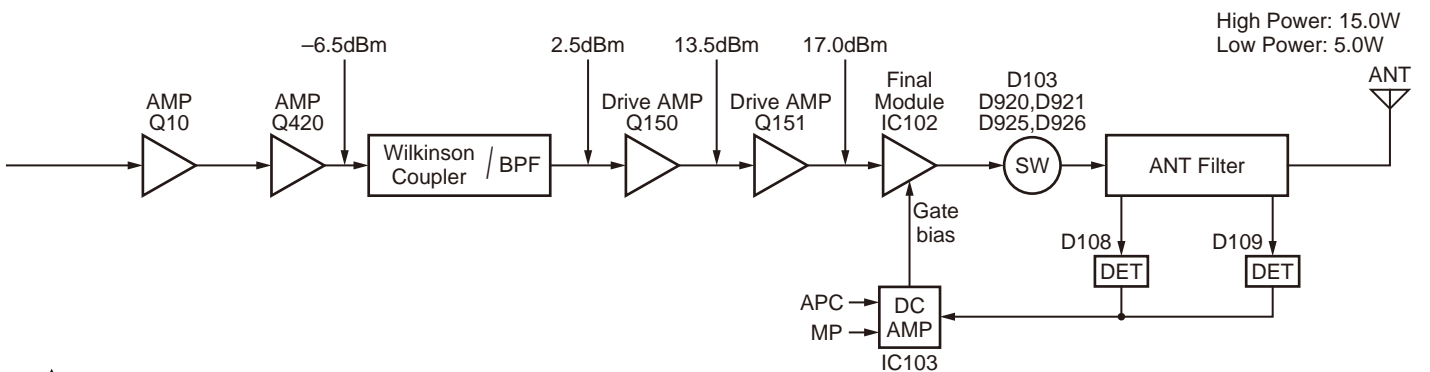
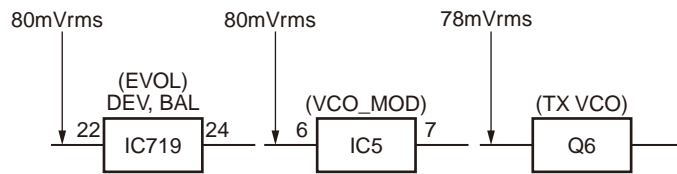
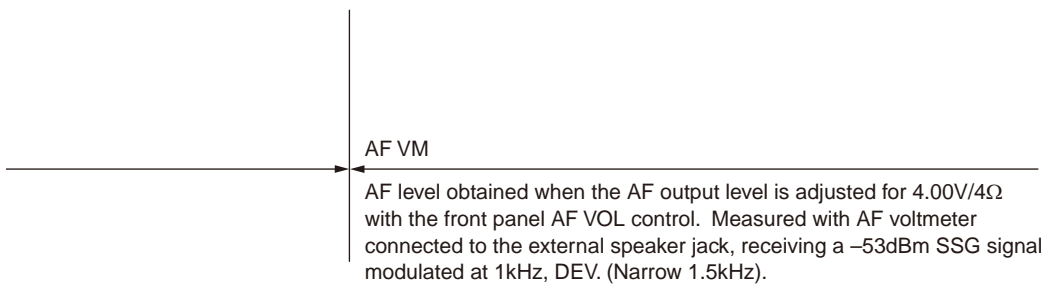
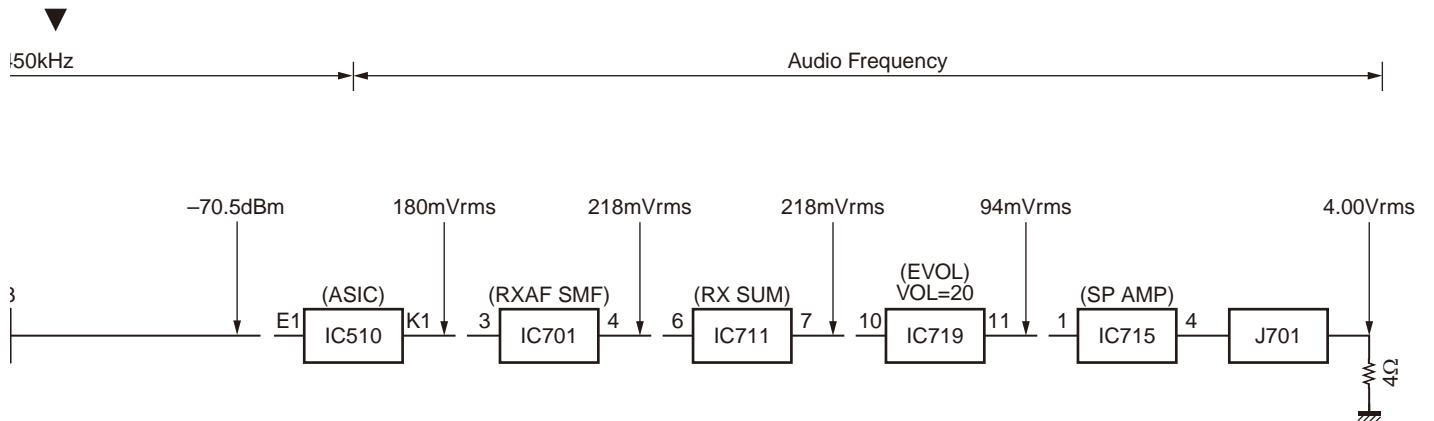


MIC input : 1.5kHz DEV. (Narrow) at 1kHz MOD.  
Transmitting frequency : Center frequency

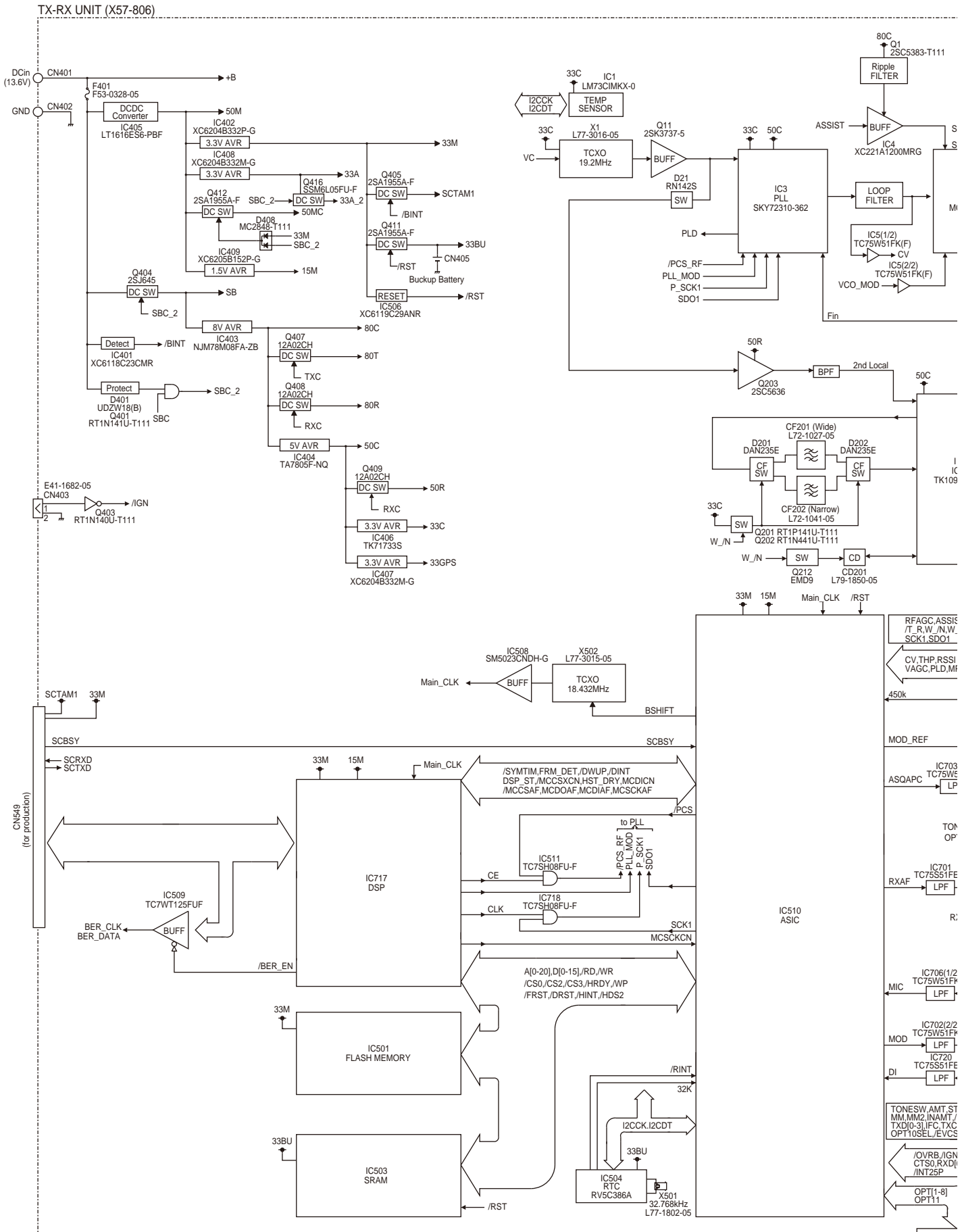




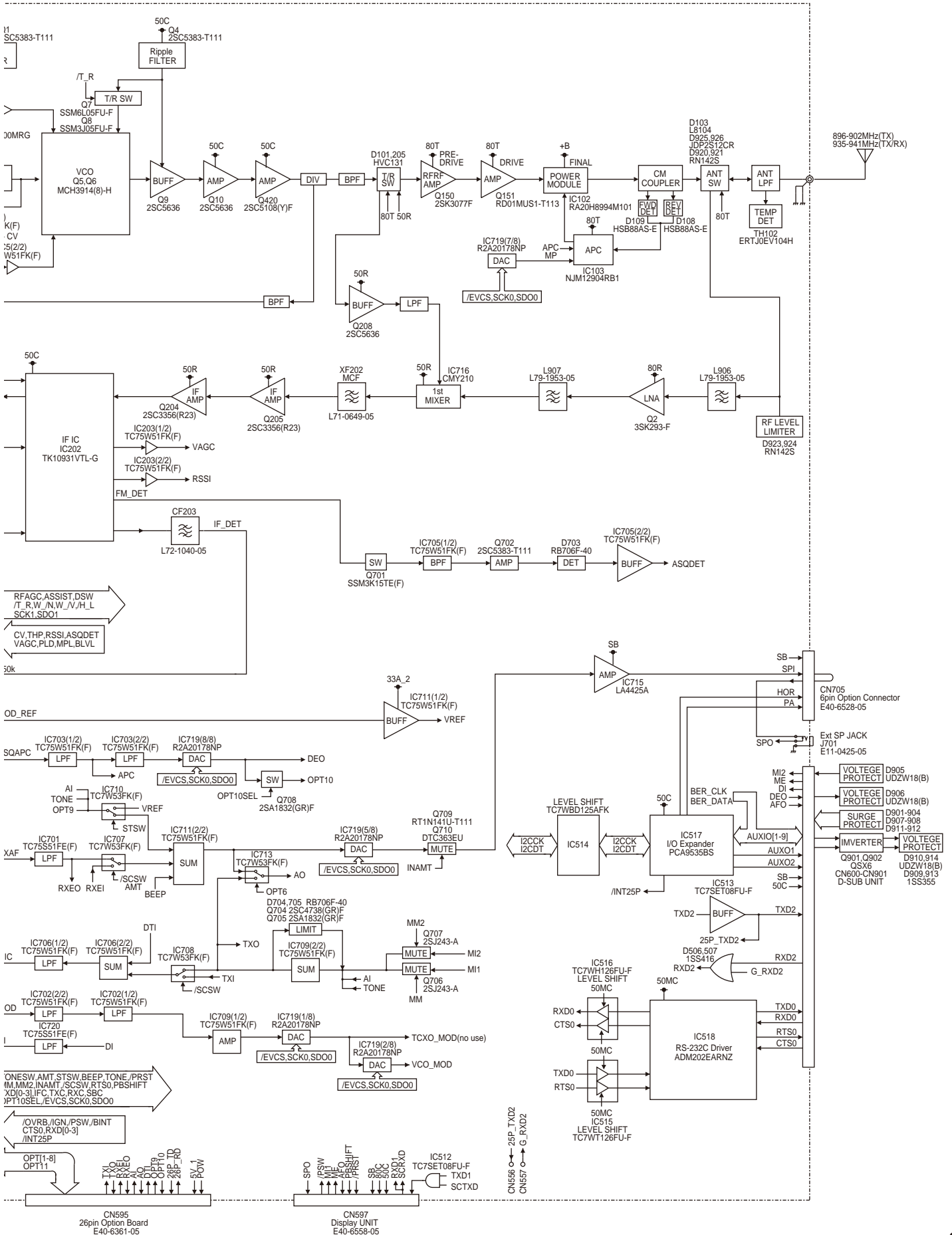
## LEVEL DIAGRAM



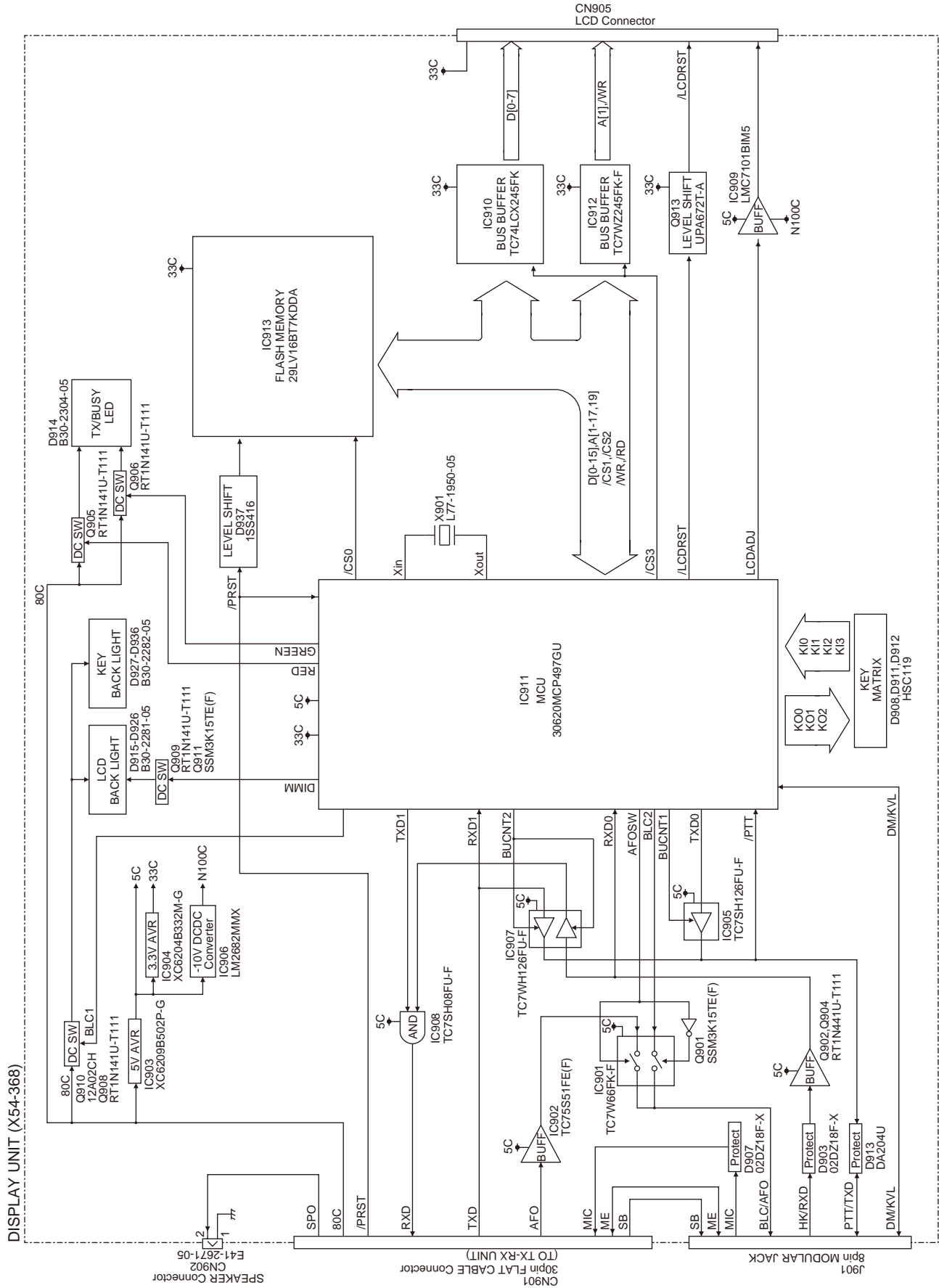
# NX-901 BLOCK DIAGRAM



# BLOCK DIAGRAM NX-901



## BLOCK DIAGRAM



**MEMO**

NX-901

MEMO

## SPECIFICATIONS

### GENERAL

Frequency Range .....	RX: 935~941MHz TX: 896~902MHz, 935~941MHz
Number of Channels.....	512
Zones.....	128
Max. Channels per Zone .....	250
Channel Spacing .....	Analog: 12.5 kHz    Digital: 6.25/12.5 kHz
Operating Voltage .....	13.6V DC ± 15%
Operating Temperature Range .....	-22°F to +140°F (-30°C to +60°C)
Frequency Stability .....	±1.0ppm
Antenna Impedance .....	50Ω
Dimensions (W x H x D) .....	6.30 x 1.77 x 6.18 in (160 x 45 x 157 mm) (Projections not included)
Weight (net) .....	3.1 lb (1.40 kg)

### RECEIVER

Sensitivity .....	Digital @6.25kHz (3% BER): 0.20μV    Digital @12.5kHz (3% BER): 0.28μV Analog (12dB SINAD): 0.25μV
Selectivity .....	Analog: 68dB
Intermodulation Distortion .....	Analog: 78dB (±50,100kHz)
Spurious Response .....	Analog: 80dB
Audio Distortion .....	Less than 3%
Audio Output .....	4W/4Ω

### TRANSMITTER

RF Power Output *1 .....	5~15W
Spurious Response .....	70dB
FM Hum and Noise.....	Analog: 40dB
Audio Distortion .....	Less than 3%
Modulation .....	11K0F3E, 8K30F1E, 8K30F1D, 8K30F7W, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D

Analog measurements made per TIA/EIA 603 and specifications shown are typical.

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

\*1: The NX-901 transceiver transmits at low transmit power in the band ranging from 901MHz to 902MHz, or from 940MHz to 941MHz while in use with Talk Around, even if High is configured for Transmit Power.

# NX-901

## **JVC KENWOOD Corporation**

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Kanagawa, 221-0022 Japan

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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

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Bp 58416 Villepinte, 95944 Roissy Ch De Gaulle Cedex

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WD18 9EB United Kingdom

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### **Kenwood Electronics Italia S.p.A.**

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### **Kenwood Ibérica, S.A.**

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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.**

Suite 2504, 25/F, Tower 2, Nina Tower, No. 8 Yeung Uk Road,  
Tsuen Wan, New Territories, Hong Kong

### **Kenwood Electronics Singapore Pte Ltd**

1 Ang Mo Kio Street 63, Singapore 569110

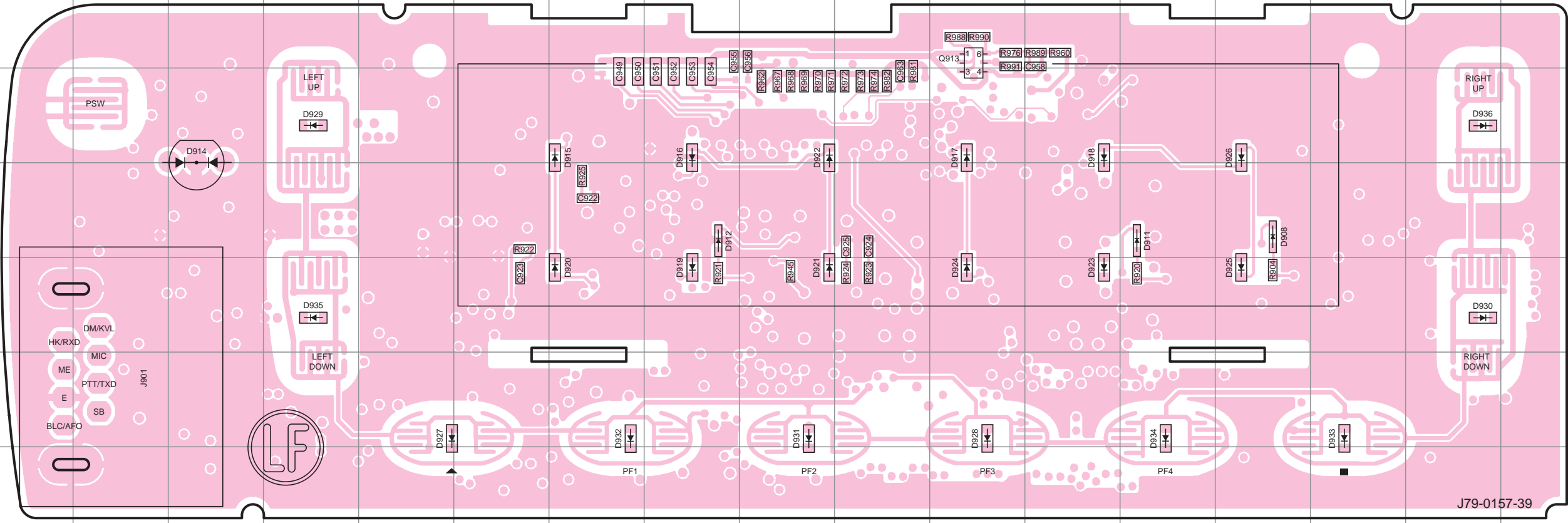


# NX-901 PC BOARD

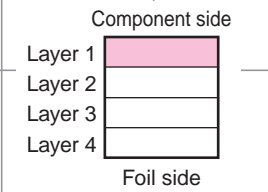
# PC BOARD NX-901

DISPLAY UNIT (X54-3680-10) Component side view (J79-0157-39)

DISPLAY UNIT (X54-3680-10) Component side view (J79-0157-39)

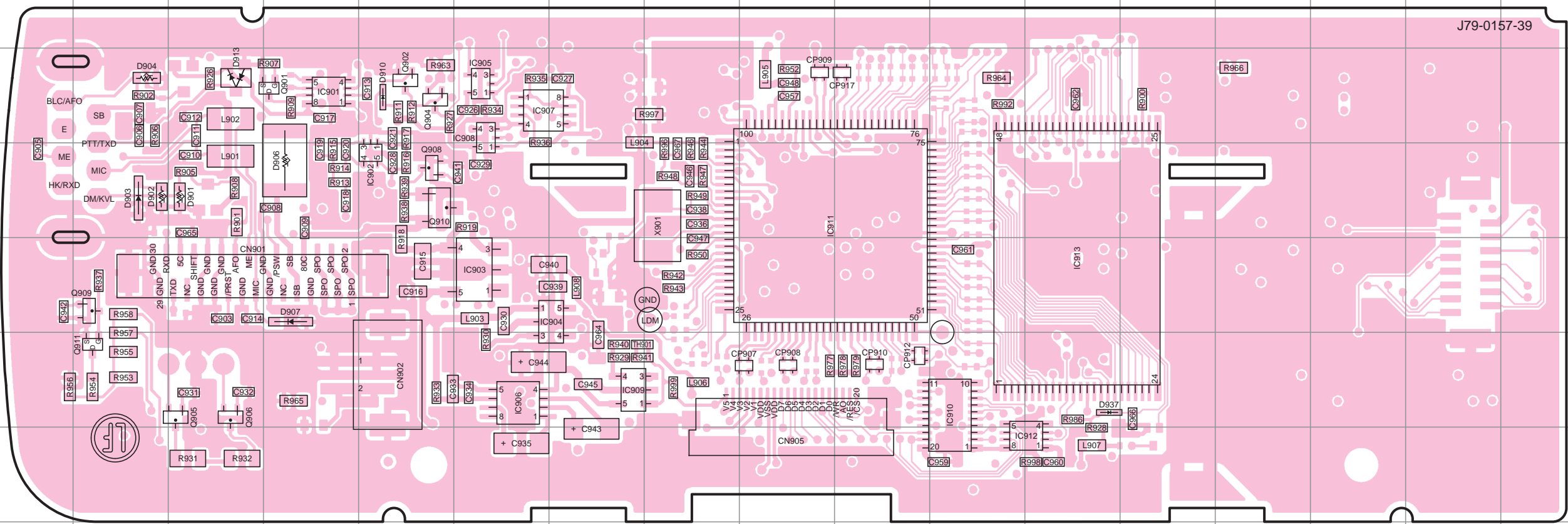


Ref. No.	Address	Ref. No.	Address
Q913	2K	D924	5K
D908	4N	D925	5N
D911	4M	D926	3M
D912	4H	D927	6E
D914	3C	D928	6K
D915	3G	D929	3D
D916	3H	D930	5P
D917	3K	D931	6I
D918	3L	D932	6G
D919	5H	D933	6O
D920	5G	D934	6M
D921	5I	D935	5D
D922	3I	D936	3P
D923	5L		

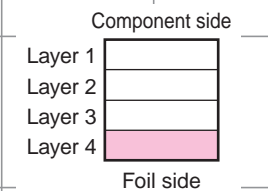


DISPLAY UNIT (X54-3680-10) Foil side view (J79-0157-39)

DISPLAY UNIT (X54-3680-10) Foil side view (J79-0157-39)



Ref. No.	Address	Ref. No.	Address
IC901	9D	Q905	12C
IC902	10E	Q906	12C
IC903	11F	Q908	10E
IC904	11G	Q909	11B
IC905	9F	Q910	10E
IC906	12F	Q911	12B
IC907	9F	D901	10C
IC908	9F	D902	10B
IC909	12G	D903	10B
IC910	12K	D904	9B
IC911	10I	D906	10D
IC912	13L	D907	11D
IC913	11L	D910	9E
Q901	9D	D913	9C
Q902	9E	D937	12L
Q904	9E		

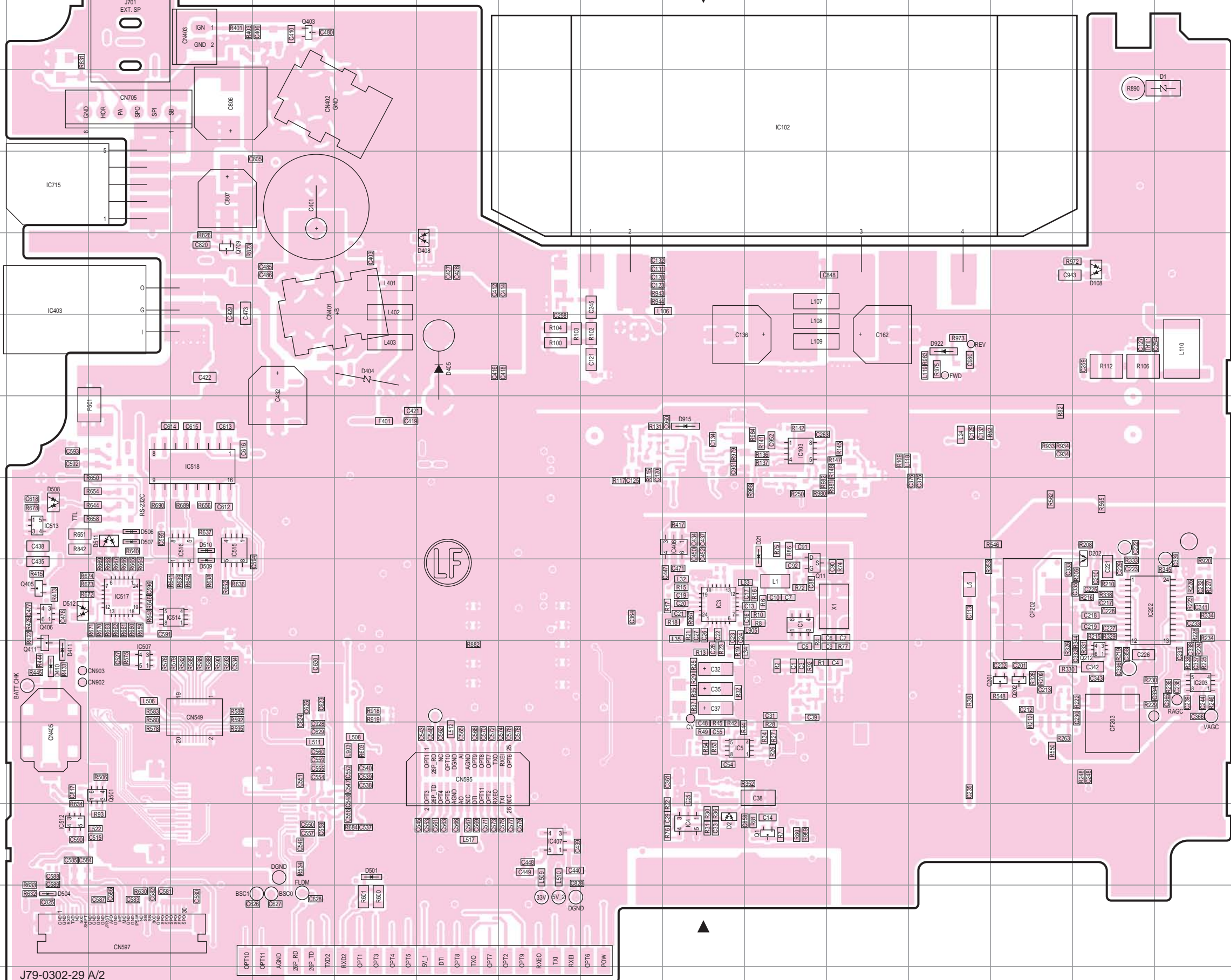


# NX-901 PC BOARD

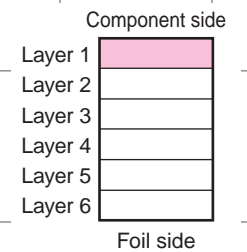
**TX-RX UNIT (X57-8060-12) (A/2)**  
**Component side view (J79-0302-29 A/2)**

# PC BOARD NX-901

**TX-RX UNIT (X57-8060-12) (A/2)**  
**Component side view (J79-0302-29 A/2)**



Ref. No.	Address	Ref. No.	Address
IC1	9K	Q405	9B
IC3	9J	Q406	9B
IC4	12J	Q411	10B
IC5	11J	Q501	11C
IC102	3K	Q709	5D
IC103	7K	D1	3P
IC202	9O	D2	12J
IC203	10P	D21	8K
IC403	5B	D108	5O
IC406	8J	D202	8O
IC407	12H	D404	6F
IC507	10C	D405	6G
IC512	12B	D408	5G
IC513	8B	D410	10B
IC514	9D	D411	10B
IC515	8D	D501	12F
IC516	8D	D504	13B
IC517	9C	D506	8C
IC518	7D	D507	8C
IC715	4B	D508	8B
Q1	12K	D509	9D
Q11	9K	D510	8D
Q201	10N	D511	8C
Q202	10N	D512	9B
Q212	10O	D915	7J
Q403	2E	D922	6M



J79-0302-29 A/2

- OPT10
- OPT11
- AGND
- 2P\_RD
- 2P\_TD
- TXD2
- RXD2
- OPT1
- OPT3
- OPT4
- OPT5
- 5V\_1
- DTI
- OPT8
- TXO
- OPT7
- OPT2
- OPT8
- RXEO
- TX
- RXEI
- OPT6
- POW

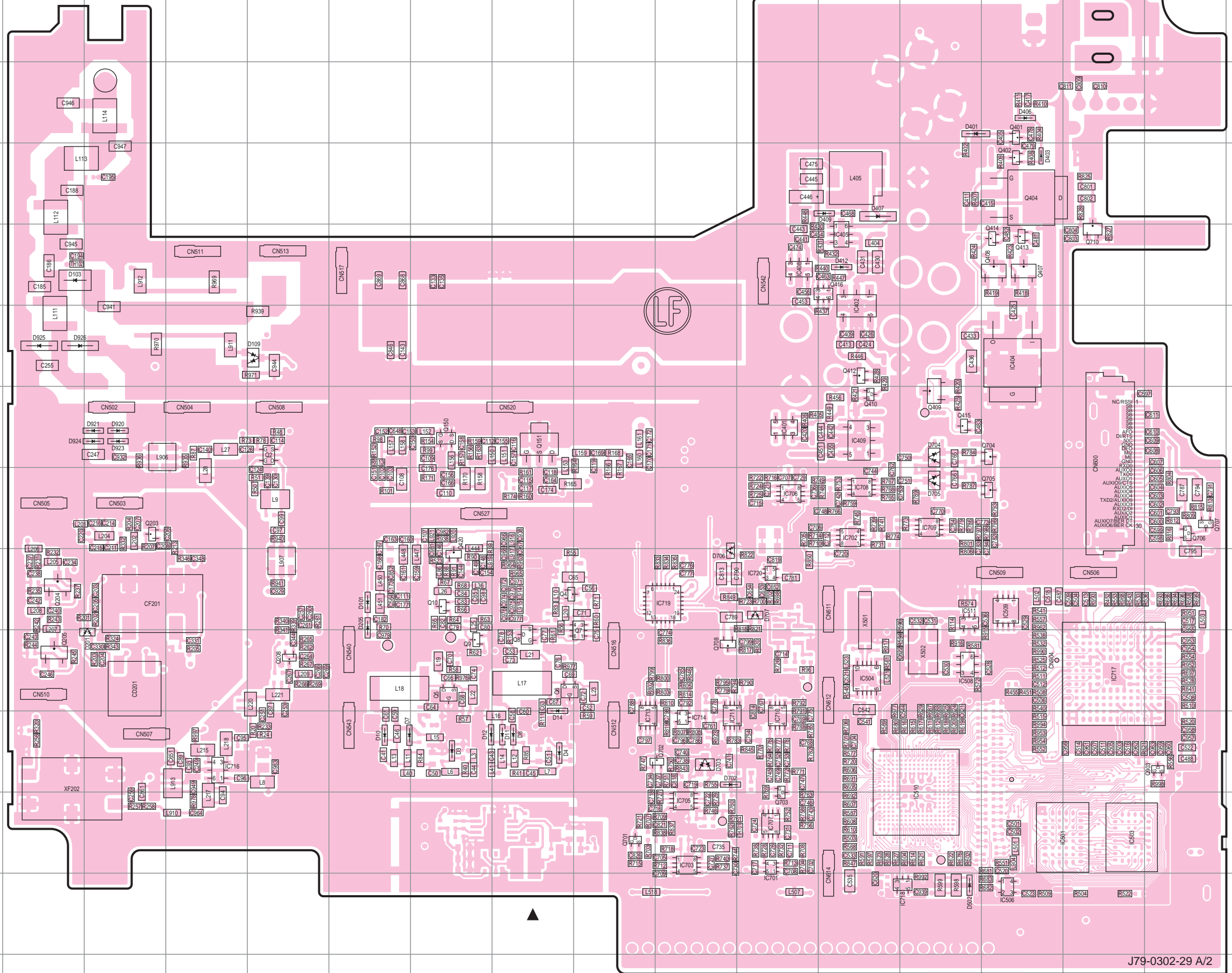
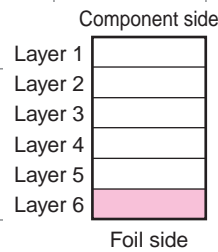
# NX-901 PC BOARD

# PC BOARD NX-901

TX-RX UNIT (X57-8060-12) (A/2)  
Foil side view (J79-0302-29 A/2)

TX-RX UNIT (X57-8060-12) (A/2)  
Foil side view (J79-0302-29 A/2)

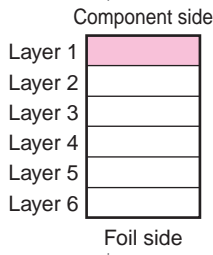
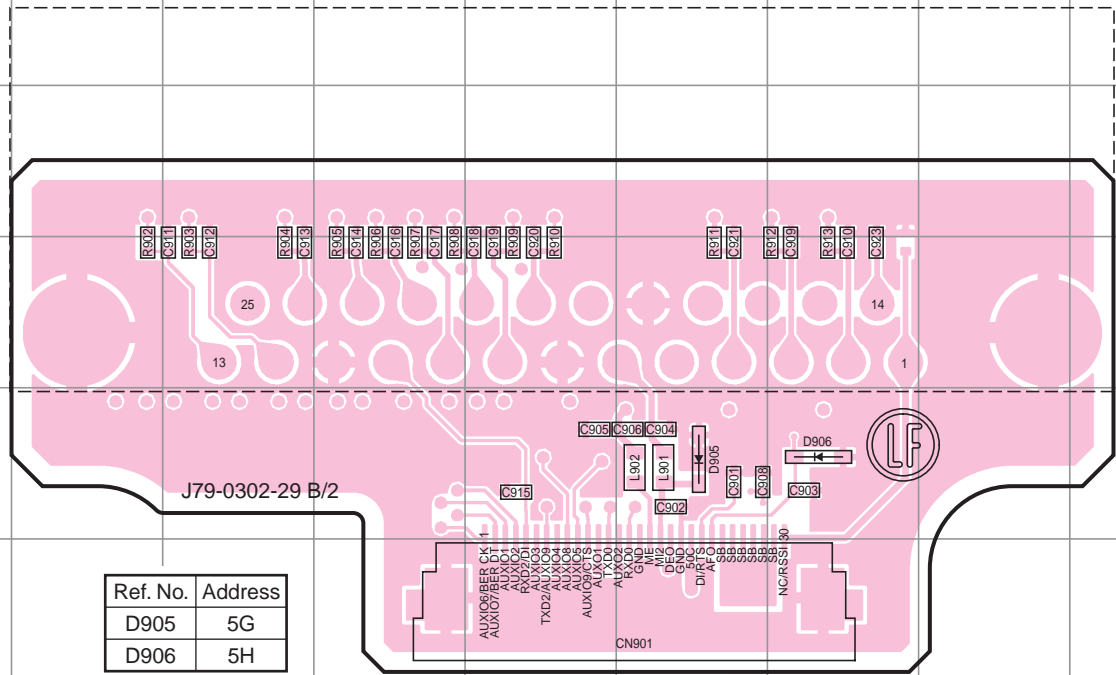
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC401	7M	Q6	10J	D3	11I
IC402	6N	Q7	10K	D4	11J
IC404	6P	Q8	10J	D7	11H
IC405	5N	Q9	10I	D8	11J
IC408	5M	Q10	9I	D10	11H
IC409	7N	Q150	7I	D11	11J
IC501	12P	Q151	7J	D12	11I
IC503	12Q	Q203	8E	D14	11J
IC504	10N	Q204	9D	D101	9H
IC506	10P	Q205	10D	D103	5D
IC508	10O	Q208	10G	D109	6G
IC509	9P	Q401	3P	D201	10E
IC510	11O	Q402	4P	D205	9H
IC511	9O	Q404	4P	D401	3O
IC701	12M	Q407	5P	D403	4P
IC702	8N	Q408	5P	D406	3P
IC703	12L	Q409	7O	D407	4N
IC705	12L	Q410	7N	D409	4N
IC706	8M	Q412	6N	D412	5N
IC707	12M	Q413	5P	D502	13O
IC708	8N	Q414	5P	D702	11L
IC709	8O	Q415	7O	D703	11L
IC710	11M	Q416	5N	D704	7O
IC711	11L	Q420	9I	D705	8O
IC713	11K	Q701	12K	D706	9L
IC714	11L	Q702	11L	D707	9M
IC716	11F	Q703	12M	D920	7E
IC717	10Q	Q704	7P	D921	7E
IC718	13O	Q705	8P	D923	7E
IC719	9L	Q706	8R	D924	7E
IC720	9M	Q707	8R	D925	6D
Q2	7G	Q708	10L	D926	6D
Q4	9J	Q710	5Q		
Q5	10I	Q903	11R		



J79-0302-29 A/2

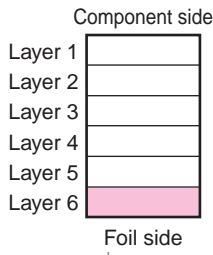
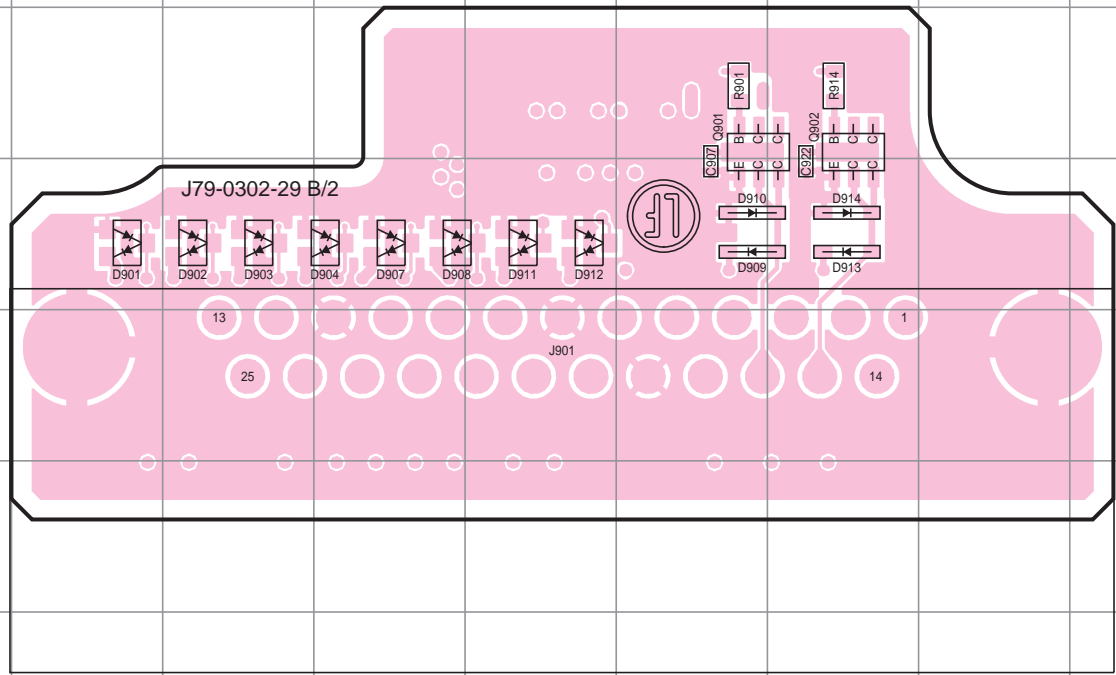
# NX-901 PC BOARD

## TX-RX UNIT (X57-8060-12) (B/2) Component side view (J79-0302-29 B/2)

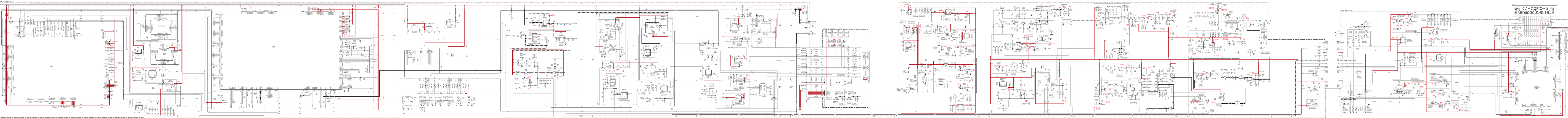


Ref. No.	Address
D905	5G
D906	5H

## TX-RX UNIT (X57-8060-12) (B/2) Foil side view (J79-0302-29 B/2)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
Q901	8G	D904	9E	D911	9F
Q902	8H	D907	9E	D912	9F
D901	9C	D908	9E	D913	9H
D902	9D	D909	9G	D914	9H
D903	9D	D910	9G		



TX-RX UNIT (X57-806)

