

NXR-700

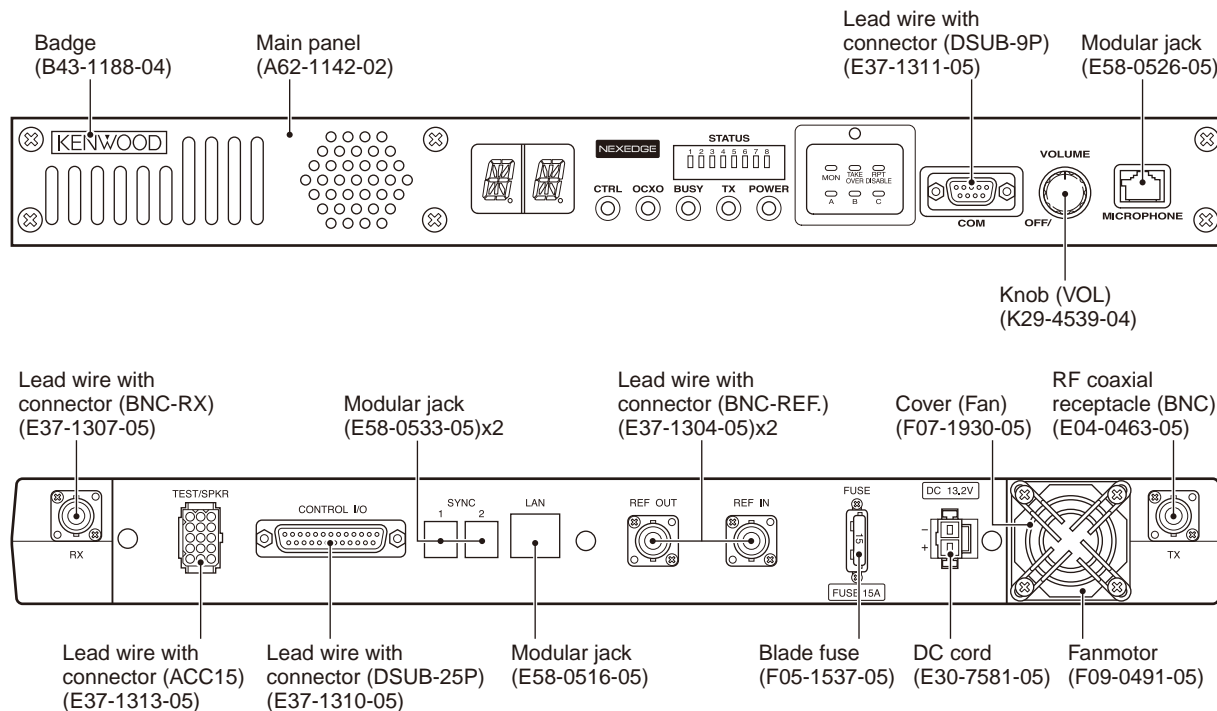
SERVICE MANUAL

E2 version

KENWOOD

JVKENWOOD Corporation

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NXR-700

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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 powerup for safe operation.
- This equipment should be serviced by only qualified technicians.

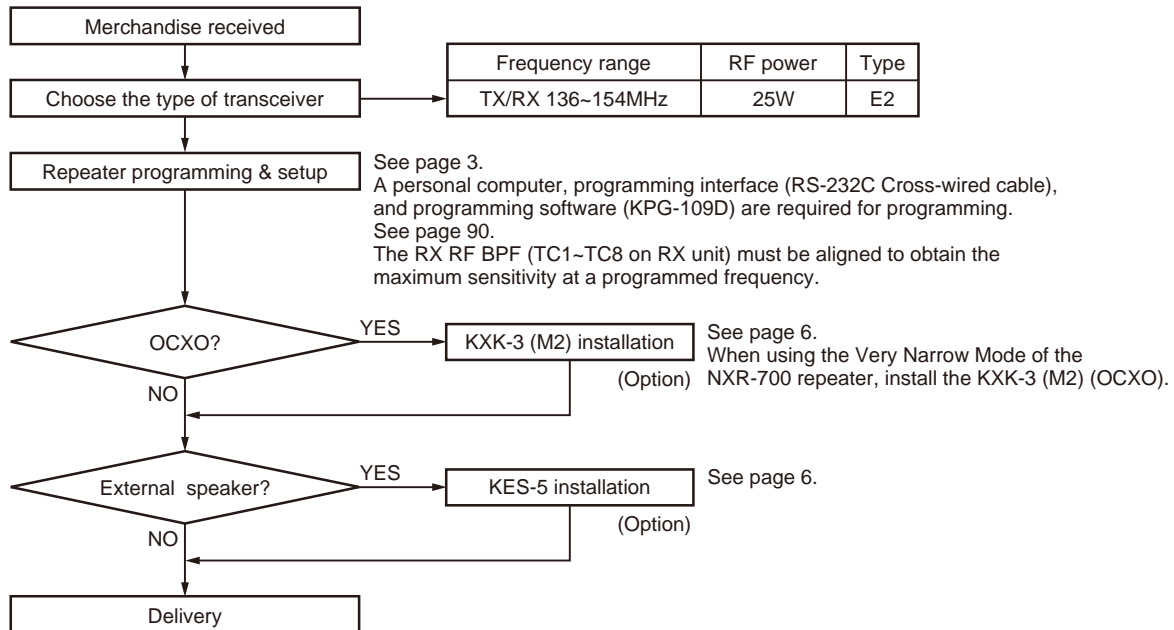
SERVICE

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

NOTE

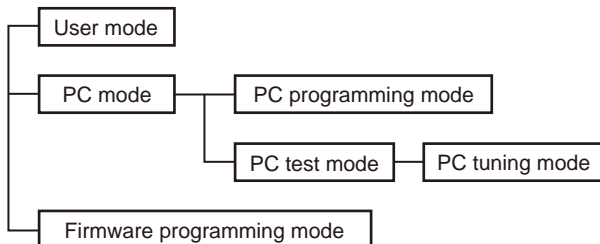
You must use KPG-109D version 3.00 or later for this transceiver. KPG-109D version earlier than version 3.00 will not work properly.

SYSTEM SET-UP



REALIGNMENT

1. Modes



Mode	Function
User mode	Use this mode for normal operation.
PC mode	Use this mode to make various settings by means of the FPU through the RS-232C port.
PC programming mode	Use to read and write frequency data and other features to and from the repeater.
PC test mode	Use to check the repeater using the PC. This feature is included in the FPU.
Firmware programming mode	Use when changing the firmware program of the flash memory.

2. How to Enter Each Mode

Mode	Operation
User mode	Power ON
PC mode	Received commands from PC
Firmware programming mode	Received commands from PC

3. PC Mode

3-1. Preface

The NXR-700 repeater is programmed by using a personal computer, programming interface and programming software (KPG-109D).

3-2. Connection Procedure

1. Connect the NXR-700 to the personal computer with the interface cable.
2. When power is applied, the user mode is entered immediately. When the PC sends a command, the repeater enters the PC mode and displays "PC" on the 17-segment LED. When data is being transmitted to the PC from the repeater, the TX LED flashes. The BUSY LED flashes when data from the PC is being received by the repeater.

Note:

- The data stored in the personal computer must match the model type, when it is written into the flash memory.
- Change the NXR-700 to PC mode, then attach the RS-232C Cross-wired cable.

NXR-700

REALIGNMENT

3-3. Programming Software Description

The KPG-109D is the programming software for NXR-700 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 NXR-700 and edited on the screen. The programmed or edited data can be printed out. It is also possible to tune the transceiver.

3-4. Programming With PC

Data can be programmed into the flash memory in RS-232C format via the COM connector.

Note:

To use the KCT-53U USB adapter, the USB driver needs to be installed onto the PC.

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

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

(This URL may change without notice.)

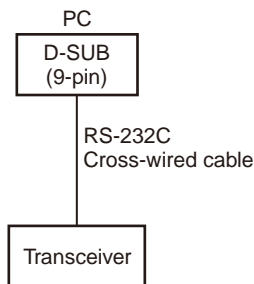
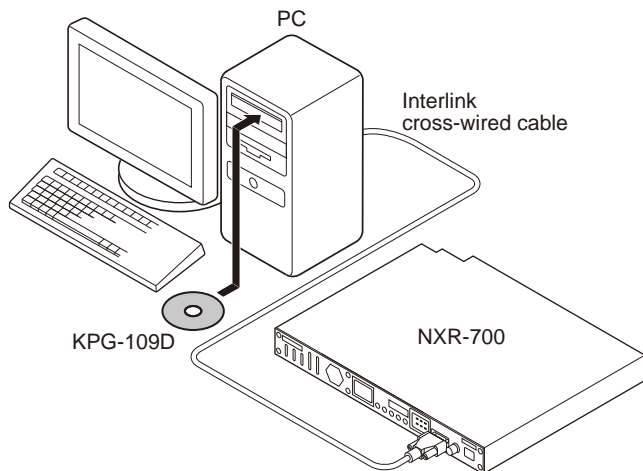


Fig. 1

4. Firmware Programming Mode

4-1. Preface

The NXR-700 uses flash memory to allow it to be easily upgraded when new features are released in the future.

4-2. Connection Procedure

Connect the NXR-700 to the personal computer with the RS-232C Cross-wired cable. (Connection is the same as in

the PC mode.)

Note:

You can only program firmware from the DB-9 COM connector on the front panel. Using the 25-pin logic interface on the rear panel will not work.

4-3. Programming

1. Start up the programming software (Fpro. exe).
The Fpro. exe exists in the KPG-109D installed holder.
2. Set the communications speed (normally, 115200 bps) and communications port in the configuration item.
3. Set the firmware to be updated by file name item.
4. Turn the NXR-700 power on.
5. Check the connection between the NXR-700 and the personal computer, and make sure that the NXR-700 is in the program mode.
6. Press write button in the window. A window opens on the display to indicate progress of writing.
7. If writing ends successfully, the NXR-700 restarts.
8. If you want to continue programming other NXR-700s, repeat steps 3 to 6.

Note:

It automatically enters the firmware program mode by the writing request from the programming software (KPG-109D).

4-4. Function

Baud rate is decided automatically with setting of programming software.

Note:

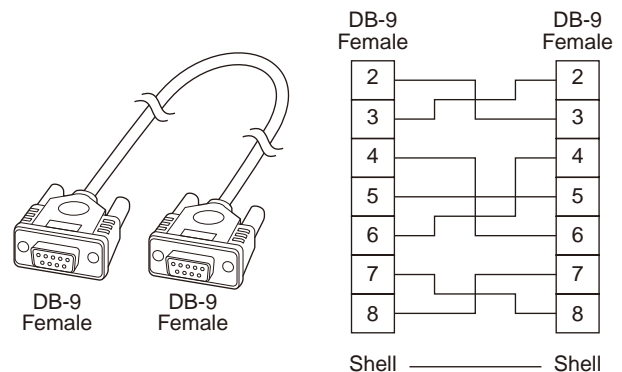
Normally, write in the high-speed mode (115200 bps).

■ Cross-wired cable

There are a few types of null modem cable available in the market. Make sure to use one of the following null modem cables that meets the following specifications.

Cable Specification: Null modem cable with full handshaking (cross-wired) or InterLink cable that is usually used to transfer files between PCs.

Connector Specification (both cable ends): DB-9 female



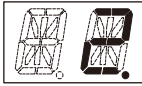
OPERATING FEATURES

1. Two 17-segment LED Displays

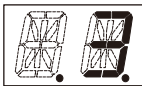
- Channel display (1~30): While operating normally in user mode.



- When the displayed channel is contained in scan sequence, the right side decimal point is displayed.



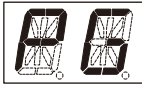
- When the displayed channel is the priority channel, the left side decimal point is displayed.



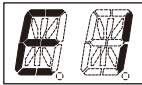
- “PC” is displayed while in PC mode.



- “PG” is displayed while in firmware programming mode.



- “E1” is displayed when FPU data is not written.



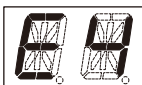
- “E2” is displayed when the channel data is not written.



- “E3” is displayed when PLL is unlocked.
Receiver PLL unlocked = BUSY LED blinks.
Transmitter PLL unlocked = TX LED blinks.



- “E4” is displayed when PTT is attempted on a channel number that has no frequency data programmed.



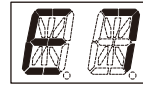
- “E5” is displayed when IP address configuration is error.



- “E6” is displayed when no frame clock is entered.



- “E7” is displayed when the thermal protection occurs.



- “E8” is displayed when Failure Input port becomes active.



- “SC” is displayed while in scan mode.



All segments ON



INSTALLATION

1. OCXO (KXK-3 (M2))

1. Before installing the KXK-3 (M2), be sure to turn the power off.
2. Remove the top cover of the TX unit.
3. Mount the KXK-3 (M2) using the 5 screws.
4. Carefully connect and lock the flat cable to CN1 and CN803, with the conductor side facing in.
5. Connect the coaxial cable to CN2 and CN407.
6. Connect the 2-pin cable to CN3 and CN807.

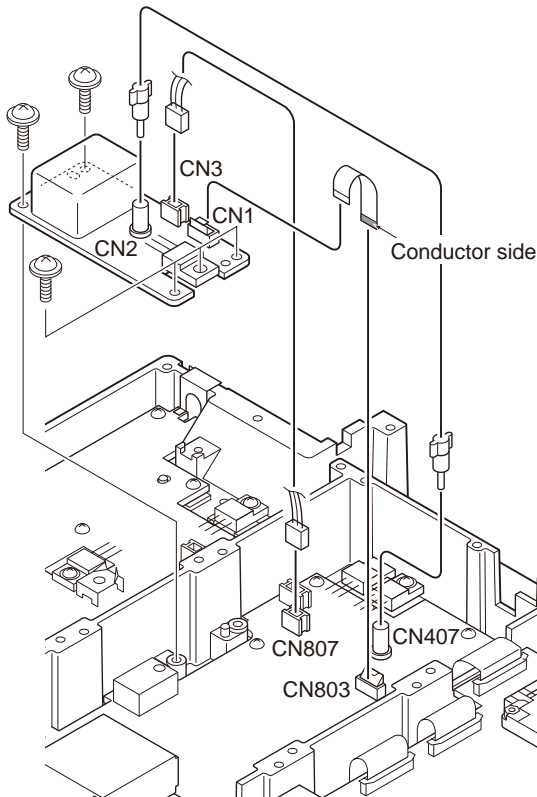


Fig. 1

2. External Speaker (KES-5)

The NXR-700 has a internal built-in speaker, and the external speaker output from the TEST/SPKR connector (15-pin) on the rear of the radio is 3W/4Ω. Use external speaker KES-5.

2-1. Connection for the KES-5 With the NXR-700

■ When taking the AF output from the TEST/SPKR connector (15-pin) on the rear of the radio

The following tools are required for changing the connector.

• Extracting tool

The following extracting tool is recommended:
Molex Inc. Order No.: 11-03-0002 (W05-0878-00)

1. Remove the connector with jumper from the external speaker connector on the rear panel of the radio. (Fig. 2-1)

Note: Save the jumper, which is required when the radio is used without the external speaker.

2. Remove the terminals with the jumper from the connector housing holes number 9 and 12 using the extracting tool.

Removing the jumper lead (Fig. 2-2)

- 1) Insert the extracting tool (11-03-0002) into the connector while pushing the jumper lead in the direction of (a).
 - 2) Push the extracting tool into collapse the barbs of the crimp terminal.
 - 3) Pull out the lead while continuing to push the extracting tool in the direction (b).
3. Reinsert the terminal with the black and white stripe lead into hole number 12, and the terminal with the black lead into hole number 6. (Fig. 2-3)
 4. Attach the connector to the external speaker connector on the radio.

Note:

- Relationship between TEST/SPKR connector (15-pin) connection and speaker output.
- When pins 9 and 12 are shorted: Built-in internal speaker is used.
- When pins 9 and 12 are open and output is from pins 6 and 12: KES-5 is used.

Square-type plug
(E31-3228-05)
Accessory

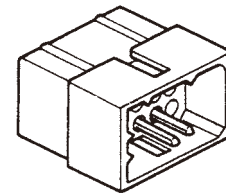


Fig. 2-1

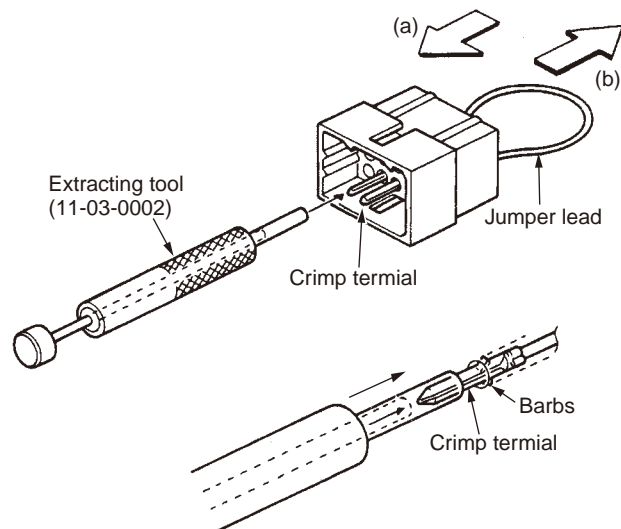


Fig. 2-2

INSTALLATION

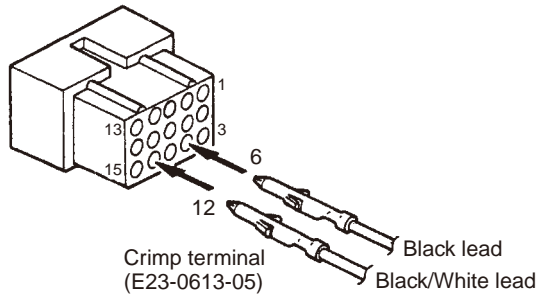


Fig. 2-3

3. How to Attach the Supplied Accessories

1. Attach the front glass to the front panel with the supplied screw. (①)
2. To attach the handles on the both sides of the chassis, refer to illustration. (②)

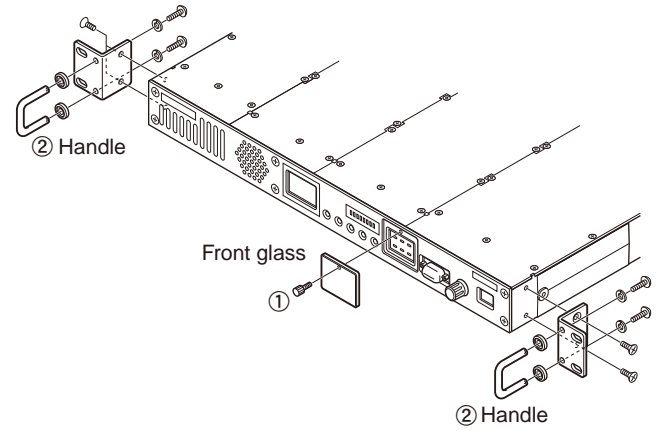


Fig. 3

CIRCUIT DESCRIPTION

1. Outline

The NXR-700 is a VHF repeater operating in the 136~154MHz frequency range.

2. Transmitter unit

The transmitter unit (X56-311 A/3) consists of the following circuit.

- (1) Internal/external reference circuit
- (2) Transmitter reference 19.2MHz PLL circuit
- (3) Transmitter Modulation 19.2MHz PLL circuit
- (4) Transmitter DDS circuit
- (5) Transmitter main PLL circuit
- (6) Driver circuit
- (7) Modulation level adjustment circuit
- (8) AVR circuit
- (9) Other circuits

2-1. Internal/external reference circuit

The internal/external reference circuit automatically switches signals used as reference signals among the

5.99MHz internal DDS, the 10MHz external reference signal and the 10MHz OCXO unit.

If no OCXO unit is installed, and there is no external reference signal, the 5.99MHz internal DDS (IC601) is selected as the reference signal.

If the OCXO unit is installed and there is no external reference signal, the 10MHz OCXO unit is selected as the reference signal.

If an external reference signal (CN408/ 10MHz/ 0dBm or higher/ $Z_{in}=50\Omega$) is input, the external reference signal is selected as the reference signal irrespective of an existing OCXO unit.

The internal/external reference circuit consists of Q419, Q418, D401, D403, D404, D410, D411, Q430, Q422, D601 and D607.

The DDS circuit consists of X601, IC602, IC601, Q606, CF601, Q603, D602 and D608.

If either the OCXO 10MHz or external reference 10MHz is selected as the reference signal, the reference output terminal outputs the reference signal (CN403/ 10MHz/ +9dBm/ $Z_{out}=50\Omega$). This circuit consists of Q431, Q420 and Q425.

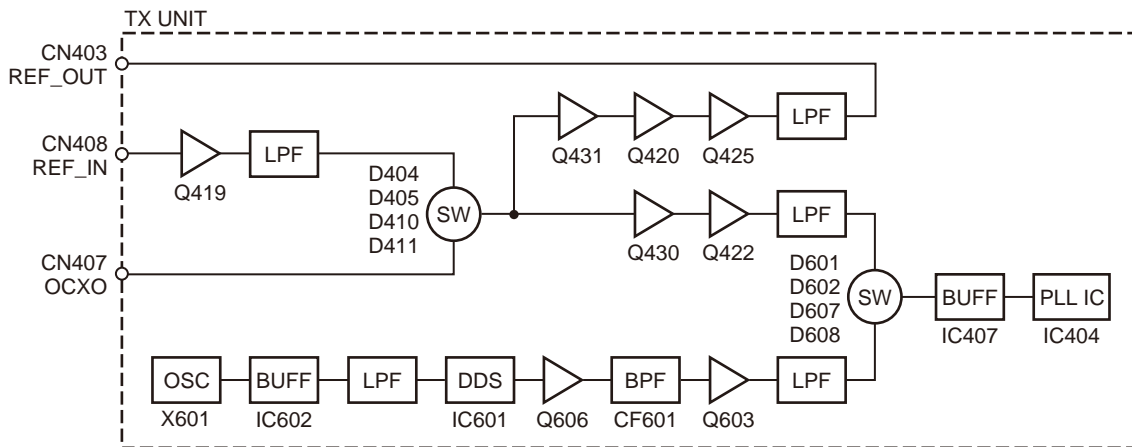


Fig. 1 Internal/external reference circuit

2-2. Transmitter reference 19.2MHz PLL circuit

The transmitter reference 19.2MHz PLL circuit produces a reference frequency signal for the transmitter modulation 19.2MHz PLL circuit and the Receiver unit (X55-309) Receiver DDS circuit.

This circuit consists of Q401, Q412, Q415, Q416, Q417, X401, IC401, IC404, and IC407.

The 5.99MHz or 10MHz signal produced by the internal/external reference circuit is amplified by IC407 and supplied to the PLL IC (IC404) reference signal pin.

The VCXO (X401) signal enters buffer amp Q417 and is amplified by Q415. The higher harmonic wave is attenuated by LPF and returns to IC404. Its phase is compared with that of the reference frequency 10kHz.

The phase difference signal produced by the comparing phase is converted to a DC voltage by a lag-lead type loop filter. This DC voltage is input to the X401 control voltage terminal for controlling the VCXO oscillating frequency.

The DC voltage passes through the IC401 operational amplifier, and is output as a voltage signal (CVT-REF) for monitoring the reference 19.2MHz PLL circuit lock voltage.

The stabilized 19.2MHz reference oscillating signal enters the Q417 buffer amplifier and is amplified by Q412 and Q416. The higher harmonic wave is attenuated by LPF, fed to IC302 and used as the reference frequency signal for the transmitter modulation 19.2MHz PLL circuit.

The 19.2MHz reference oscillating signal is also used as the reference signal for the receiver unit (X55-309).

It enters the Q417 buffer amplifier for the receiver unit (X55-309) and is amplified by Q401. The higher harmonic wave is attenuated by LPF and is output from CN406.

CIRCUIT DESCRIPTION

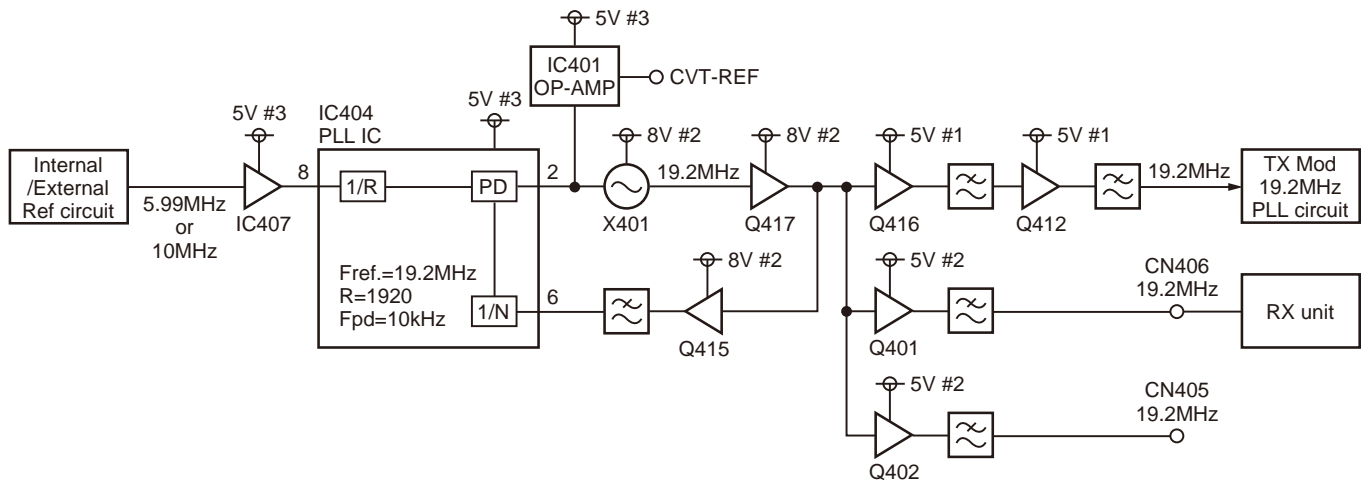


Fig. 2 Transmitter reference 19.2MHz PLL circuit

2-3. Transmitter modulation 19.2MHz PLL circuit

The transmitter modulation 19.2MHz PLL circuit produces the reference frequency signal for the Transmitter DDS circuit and modulates the low-frequency components.

The circuit consists of IC302, IC303, IC305, IC306, X301, Q304, Q305, and Q307.

The signal generated by the VCXO (X301) is fed to the buffer amplifier Q307.

The VCXO (X301) signal enters buffer amplifier Q307 and is amplified by Q305. The higher harmonic wave is attenuated by the LPF and returns to IC303. Its phase is compared with that of the reference frequency 5kHz.

The phase difference signal produced by the comparing

phase is converted to a DC voltage by a lag-lead type loop filter. This DC voltage is input to the IC305 invert amplifier (B/2) and is synthesized with the modulating signal. This DC voltage is input to the X301 control voltage terminal for controlling the VCXO oscillating frequency 19.2MHz.

The DC voltage passes through the IC306 operational amplifier, and is output as a voltage signal (CVT-MOD) for monitoring the modulating 19.2MHz PLL circuit lock voltage.

The 19.2MHz oscillating signal is fed to the Q307 buffer amplifier and is amplified by Q304. The higher harmonic wave is attenuated by the LPF, fed to IC307, and is used as the reference frequency signal of the transmitter DDS circuit.

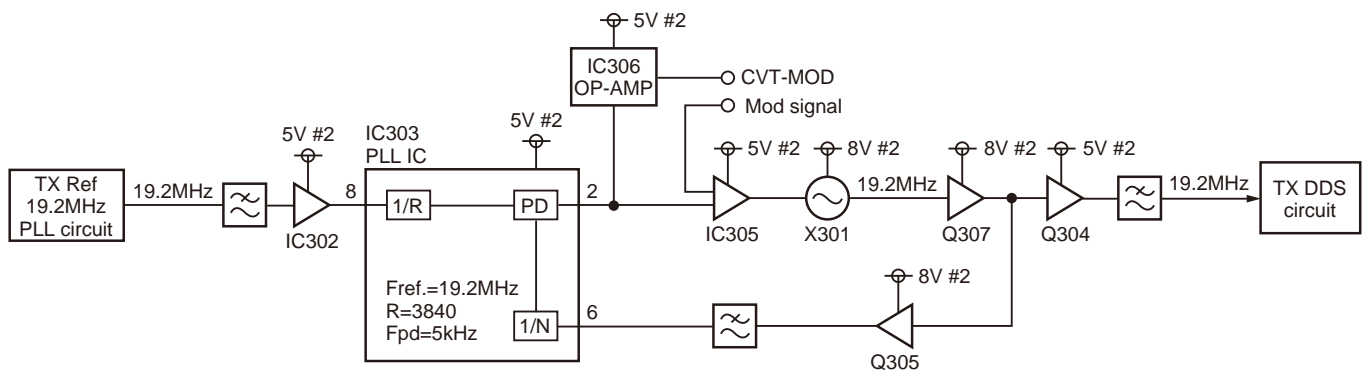


Fig. 3 Transmitter modulation 19.2MHz PLL circuit

CIRCUIT DESCRIPTION

2-4. Transmitter DDS circuit

The transmitter DDS circuit produces the transmitter main PLL reference frequency signal 4.5MHz.

This circuit consists of IC307, IC202, CF201, Q210, Q211, Q212 and Q213.

The 19.2MHz signal from the transmitter modulation 19.2MHz PLL circuit is amplified by IC307 and supplied to the IC202 reference signal pin.

IC202 produces the transmitter main PLL 4.5MHz refer-

ence frequency signal based on 19.2MHz on signal.

The spurious output by IC202 is attenuated by CF201 and LPF, 4.5MHz reference frequency signal is amplified by Q211, Q212, and Q213, and fed to the transmitter main PLL.

The comparison frequency of the transmitter main PLL is 100kHz and the PLL frequency step is 100kHz.

However, minute frequency step such as 2.5kHz and 3.125kHz because the DDS output frequency is variable.

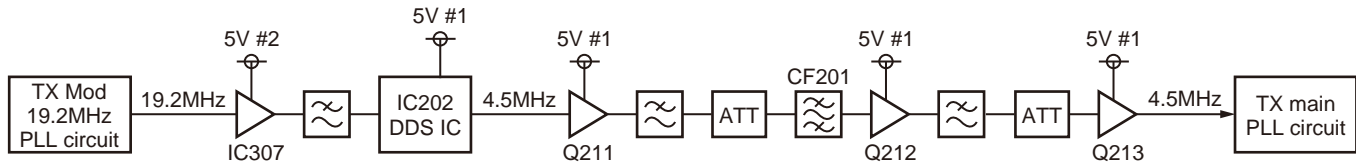


Fig. 4 Transmitter DDS circuit

2-5. Transmitter main PLL circuit

The transmitter main PLL circuit consists of the VCO (Q102 and Q103), PLL IC (IC101) and divide-by-2 circuit (IC811) and produces the transmitter frequency signal.

The VCO Q102 produces transmitter frequencies from 136.000MHz to 144.995MHz. (The transmitter frequency of the VCO is from 272.000MHz to 289.990MHz.)

The VCO Q103 produces transmitter frequencies from 145.000MHz to 154.000MHz. (The transmitter frequency of the VCO is from 290.000MHz to 308.000MHz.)

The signal produced by the VCO (Q102 or Q103) is fed to the buffer amplifier and is amplified by Q106. The higher harmonic wave is attenuated by LPF and returns to the PLL IC (IC101).

IC101 divides the VCO oscillating frequency signal and

transmitter PLL reference signal (4.5MHz), and compares the phase with the 100kHz comparison frequency.

The phase difference signal produced by the comparing phase is converted to a DC voltage by a lag-lead type loop filter.

The DC signal is applied to varicaps D101, D102, D107, and D108 to lock the VCO oscillator frequency with the desired oscillator frequency.

At the same time, the DC signal passes through the IC102 operational amplifier for monitoring the transmitter main PLL lock voltage.

The output from the VCO passes through the buffer amplifier Q104. The divide-by-2 circuit (IC811) divides the frequency and produces the transmitter frequency. The output level of IC811 is about +6dBm (4mW).

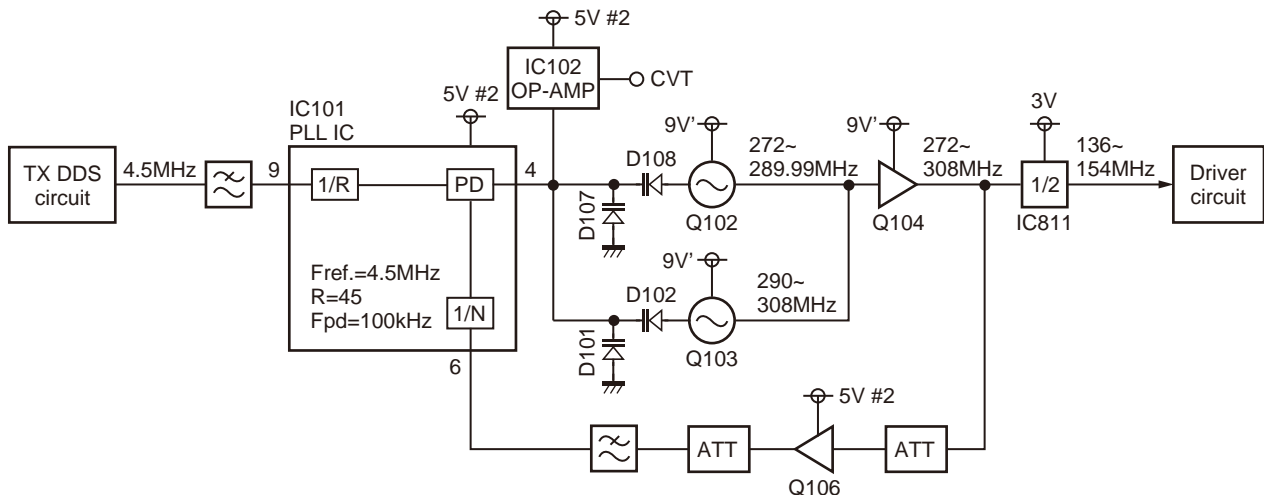


Fig. 5 Transmitter main PLL circuit

CIRCUIT DESCRIPTION

2-6. Driver circuit

The driver circuit amplifies the transmitter frequency signal to the level required for input to the Final Unit (X45-385 A/5).

This circuit consists of RF amplifiers Q202 and Q203, switches Q204, and Q205, and operating amplifier IC201.

DC switches Q204, and Q205 turns the power supply voltage of RF amplifiers Q202, and Q203 on and off.

The output of the divide-by-2 IC (IC811) is attenuated by attenuators R209, R210 and R211, by approximately 10dB. So, the transmitter signal input level to Q202 is approximately -4dBm (0.4mW).

Q202 amplifies it by approximately 15dB. So, the output

level is approximately +11dBm (12.6mW).

The output from Q202 is attenuated by attenuators R217, R218 and R219, by approximately 3dB, and amplified by Q203 approximately by 12dB. So, the output from Q203 is approximately +20dBm (100mW). This output level is output from the driver output connector CN802 and connected to the Final Unit (X45-385 A/5).

Q203 has an AGC (Auto Gain Control) circuit. D201 rectifies a part of the Q203 output and converts it into DC voltage. It is compared with the control voltage (D_PC) by the operation amplifier IC201. The Q203 Gate terminal voltage is controlled for the stabilizing Q203 output (+20dBm).

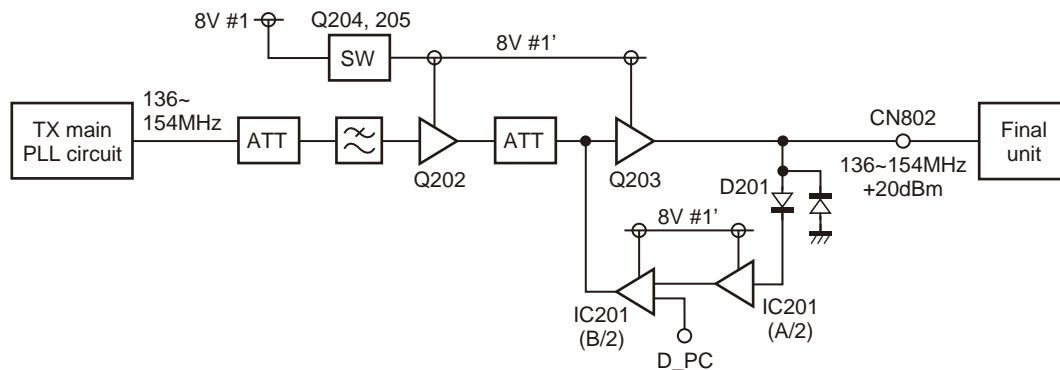


Fig. 6 Driver circuit

2-7. Modulation level adjustment circuit

The level adjustment circuit adjusts the modulation signal level to provide the required level of modulation. This circuit consists of IC301, IC304, IC305, and IC308.

The audio signal comes from the Control Unit (X53-413) through pin 4. The modulating signal is input to IC304 from this.

IC304 is an electronic volume control IC.

The modulation waveform balance adjustment, maximum AF Dev. change, and adjustment are performed according to data from the MPU using the FPU.

The modulation signal is produced by the modulating low-pitched tone to the transmitter modulation 19.2MHz PLL circuit and adds the high-pitched modulation to the transmitter main PLL.

IC305 is an inverting amplifier (B/2) for inverting the amplification (A/2) of the modulating signal and synthesizing the VCXO (X301) control voltage and modulating signal.

IC301 is a reference voltage generator (A/2) in modulating level adjusting circuit and non-inverting amplification of modulating signal with a cutoff signal of approximately 9kHz (B/2).

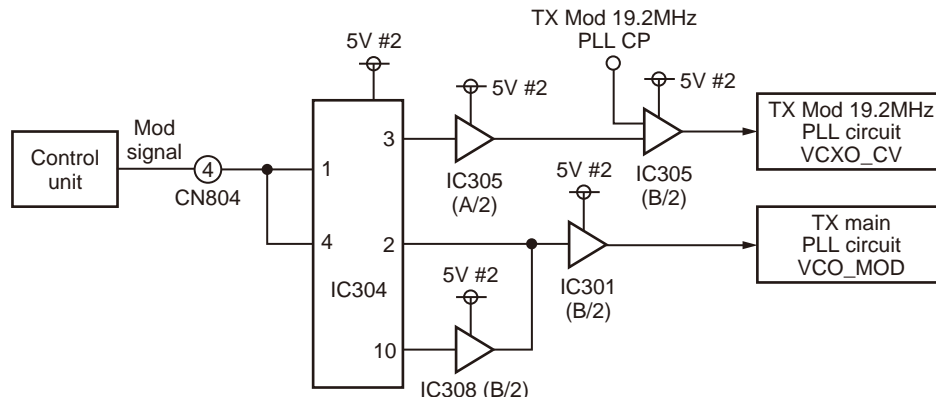


Fig. 7 Modulation level adjustment circuit

CIRCUIT DESCRIPTION

2-8. AVR circuit

IC104, IC603, IC704, IC705, IC706, IC807, IC808, IC809 and IC810 are AVR ICs.

Each circuit contains its own power regulator IC to maintain isolation between circuits.

2-9. Other circuits

In addition, IC702 is an EEPROM. The transmitter adjustment data adjusted for each unit is written into the EEPROM. If the unit is installed in another set, it is not necessary to adjust it again from the beginning, but only fine-tuning is necessary for each unit.

The temperature sensor (IC804) monitors the temperature of the transmitter unit (X56-311 A/3).

The D/A converters (IC701 and IC802) converts the AGC setting (D_PC) of the driver circuit and control voltage value (PWR_CONT, PWR_PRT) of the Final Unit (X45-385 A/5).

The A/D converter (IC803) converts the transmitter unit (X56-311 A/3) temperature, VCO & VCXO control voltage (CVT, CVT-REF and CVT-MOD), Final Unit (X45-385 A/5) PA current (PA_CURR), fan current (FAN_CURR), detection voltage (FWD_PWR, RFL_PWR), etc.

The shift register (IC703) controls each part of the transmitter unit (X56-311 A/3) based on serial data of the Control Unit (X53-413).

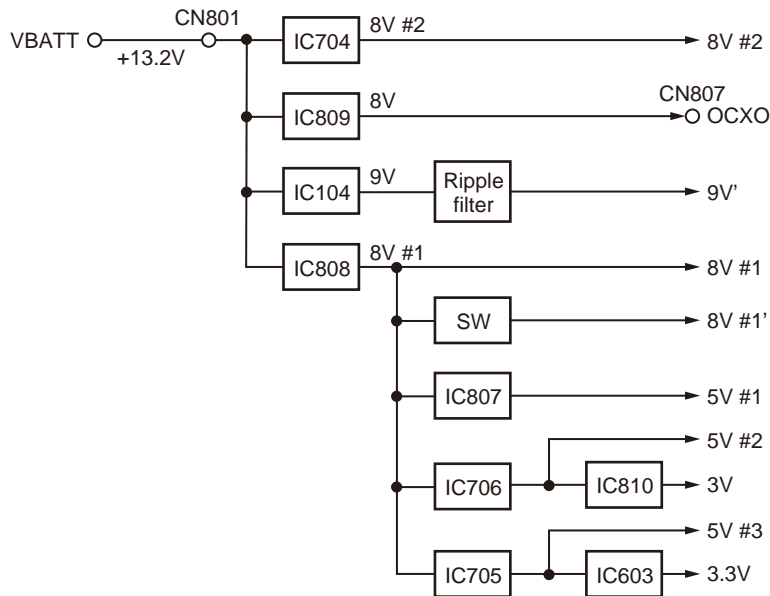


Fig. 8 AVR circuit

3. Final unit

The RF final amplifier unit (X45-385 A/5) amplifies the transmitter power to a specified level.

This unit consists of the following circuits:

- (1) Transmitter power module
- (2) High pass filter
- (3) Forward/Reflect power detector circuit
- (4) Antenna switch
- (5) Harmonic filter circuit
- (6) APC circuit
- (7) High temperature detector circuit
- (8) FAN action control circuit
- (9) Current detector circuit
- (10) AVR Circuit
- (11) Other Circuits

3-1. Transmitter power module

The power module IC10 uses power module RA60H1317 M1A to improve its efficiency. The driver output of the transmitter unit passes through an attenuator and enters the power module IC10 pin 1. Power module IC10 amplifies the RF power according to the voltage at the amplification control pin 2 (VGG) and outputs it through pin 4 (Pout).

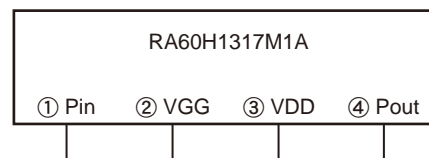


Fig. 9 Transmitter power module

3-2. Low pass filter and High pass filter

The T type single stage low pass filter and high pass filter prevents the Power Amplifier Module from being broken by static electricity.

CIRCUIT DESCRIPTION

3-3. Forward/Reflect power detector circuit

The forward / Reflect power detector circuit consists of a CM coupling type detection circuit formed by a Micro strip line and the differential amplifier IC4.

A part of the transmitter power is detected by diodes D9 and D10 and is converted into DC voltage.

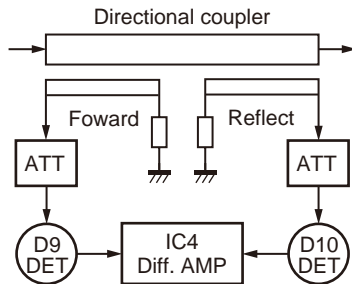


Fig. 10 Forward/Reflect power detector circuit

3-4. Harmonic filter circuit

The harmonic filter circuit uses a three-stage “pi” type Chebyshev type LPF.

This circuit removes harmonics from the transmitter output and sends the filtered signal to the antenna connector (CN22).

3-5. APC circuit

The APC circuit stabilizes the transmitter power so that the output power specified by the Control Voltage from the MPU is obtained. It consists of a Forward/Reflect power detector circuit and Differential amplifiers (IC2 and IC5).

It compares the voltage detected by the Forward/Reflect power detector circuit (voltage detected by the Forward Power) and the Control Voltage (PWR_CONT) from the MPU (IC802: X56-311 A/3). It stabilizes the output power by changing pin 2 (Vgg).

The voltage detected (that detected Reflect Power) by the Forward/Reflect power detector circuit is compared to the Control Voltage (PWR_PRT) from the MPU (IC802: X56-311 A/3). When a load V.S.W.R. is connected to the Antenna Connector and is more than 1.5, it functions so that the output power gets smaller as the detection voltage (that detected Reflect Power) gets larger.

3-6. High temperature detector circuit

The high temperature detector circuit consists of a thermal switch IC (IC7) and a switching FET (Q2).

This circuit lowers the transmitter power when the final unit temperature is too high (90°C or higher).

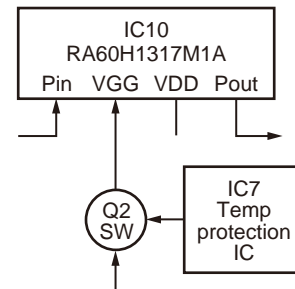


Fig. 12 High temperature detector circuit

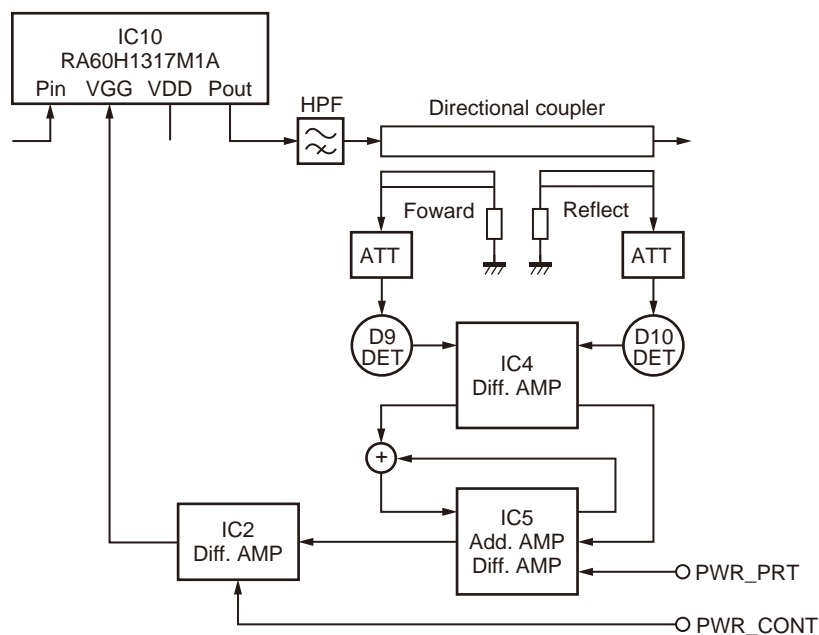


Fig. 11 APC circuit

CIRCUIT DESCRIPTION

3-7. FAN action control circuit

The FAN action control circuit consists of a FAN and a AVR (IC12)

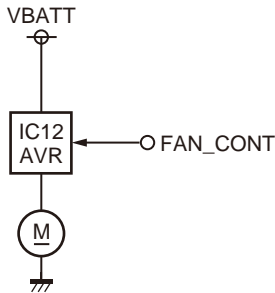


Fig. 13 FAN action control circuit

3-8. Current detector circuit

The current detector circuit monitors the current of the Power Amplifier Module. It consists of a current detection resistance (R4) and a current detection IC (IC1). It detects the normal and abnormal state of the Power Amplifier Module by monitoring the current of the Power Amplifier Module. If a failure occurs, it stops operation.

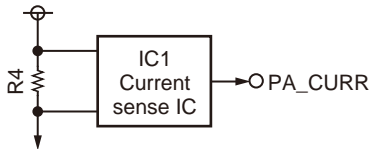


Fig. 14 Current detector circuit

3-9. AVR circuit

IC3, IC11 and IC12 are AVR ICs. They maintain isolation of each power supply.

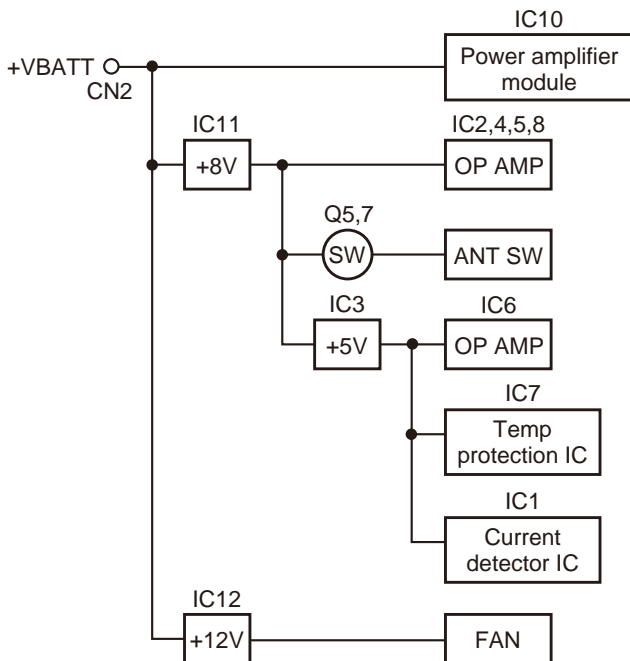


Fig. 15 AVR circuit

3-10. Other circuits

Circuit IC9 saves various adjustment values of the Final Unit in the EEPROM.

4. Receiver Unit

The receiver unit (X55-309) consists of the following circuits:

- (1) Front-end circuit
- (2) 1st-Mixer circuit
- (3) 1st-IF circuits
- (4) Demodulator circuits
- (5) Squelch circuit
- (6) Receiver DDS circuit
- (7) Receiver PLL circuits
- (8) AVR circuit
- (9) Other circuits

There are five modulating modes that can receiver demodulate, including Analog_Wide_5k, Analog_Wide_4k, Analog_Narrow, NXDN_Narrow, and NXDN_Very-Narrow.

4-1. Front-end circuit

The front-end circuit consists of L132, L133, L134, and L135 coils, tetra polar BPF synchronizing TC1, TC2, TC3 and TC4 variable trimming capacitors, Q1 Low Noise Amplifier (LNA), L136, L137, L138, L139 coils, and tetra polar BPF synchronizing TC5, TC6, TC7, and TC8 variable trimming capacitors.

Adjusting eight variable trimming capacitors forms the BPF having a pass band width of 3MHz with a center frequency from 136 to 154MHz.

+9V is applied to the Q1 collector power supply. The collector current is monitored by the IC4 current detection circuit. Detected DC voltage is input to pin 15 of IC30 (ADC).

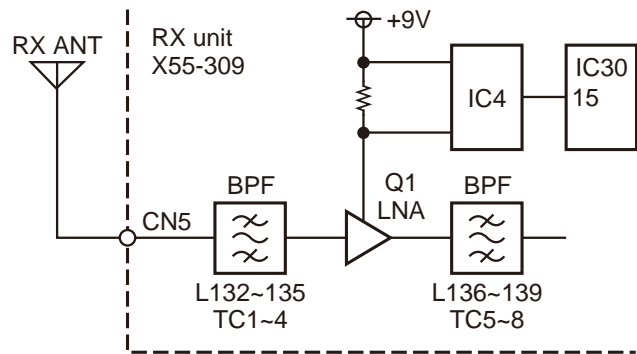


Fig. 16 Front-end circuit

CIRCUIT DESCRIPTION

4-2. 1st-Mixer circuit

The unwanted out-of-band RF components produced by Q1 are attenuated by the BPF. Only the desired signal is transmitted to the A1 Double Balanced Mixer (DBM). Here, the desired signal is mixed with the first hetero signal. 49.95MHz is produced as the 1st Intermediate Frequency (IF1).

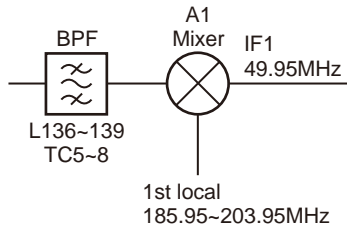


Fig. 17 1st-Mixer circuit

4-3. 1st-IF circuits

The IF1 signal produced by the 1st-Mixer circuit is transmitted through either one of two 1st-IF circuits with different bandwidth. The signal passes through the WIDE band consisting of D9, XF1, Q19, XF3, Q28 and D13 only in Analog_Wide_5k/4k mode. Meanwhile, the signal passes through the NARROW band consisting of D10, XF2, Q20, XF4, Q29, and D14 only in Analog_Narrow, NXDN_Narrow or NXDN_Very-Narrow mode.

XF1 and XF2 is 2 pole and XF3 and XF4 are 4 pole Monolithic Crystal Filters (MCF). They are BPF for removing spurious noise occurring close to the desired signal. The DC switch consists of Q31, Q32, Q26 and Q25, switches the WIDE (5k/4k) and NARROW bands of the 1st-IF circuits.

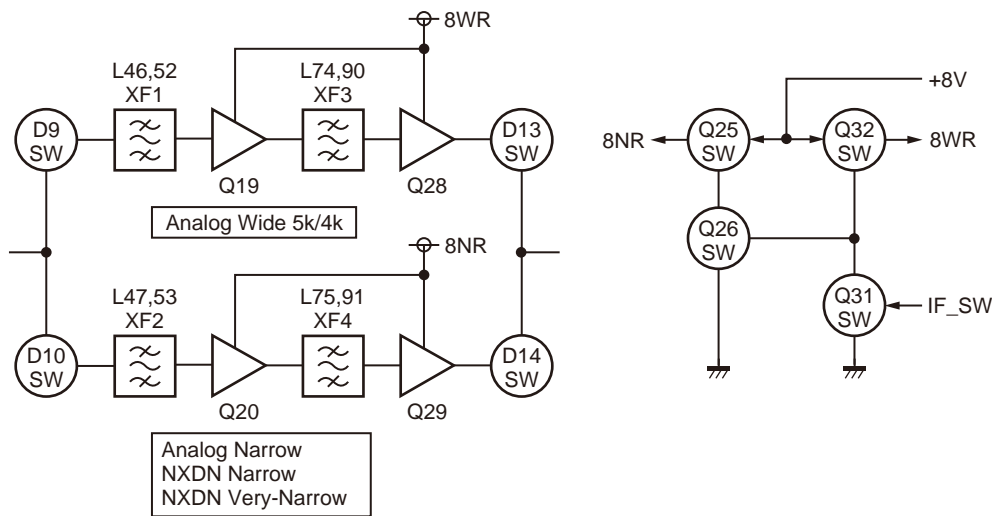


Fig. 18 1st-IF circuits

4-4. Demodulator circuits

The desired signal that passed through the 1st-IF circuits passes through the distributor consisting of LC parts and is fed to the IF system IC₁₂, IC₁₃. The signal in Analog_Wide_5k/4k or Analog_Narrow mode is mixed with the second local oscillator hetero signal by the mixer in IC₁₂. 450kHz is produced as the 2nd Intermediate Frequency (IF2).

It passes through D15, CF2, D16, D19, CF5 and D20 path if the modulation mode is Analog_Wide_5k/4k. It passes through D15, CF3, D16 and D19, CF7 and D20 path if the modulation mode is Analog_Narrow. The baseband signal FM-detected by the quadrature detection circuit consisting of L128, Q57, and Q58 and is amplified to a signal level

of approximately 100mVrms by IC₂₀ and is then transmitted to the control unit (X53-413) from CN42 (pin 12).

The signal in NXDN_Narrow or NXDN_Very-Narrow mode is mixed with the second local oscillator hetero signal by the mixer in IC₁₃. 450kHz is produced as the 2nd Intermediate Frequency (IF2). Here, irrespective of modulation modes, it passes through the CF4 and CF6 path. It is transmitted as the baseband signal via IC₁₄ to the CN43 control unit, X53-414.

CF2, CF3, CF4, CF5, CF6 and CF7 are hexode Ceramic Filters. They are BPF for removing spurious noise occurring close to the desired signal.

CIRCUIT DESCRIPTION

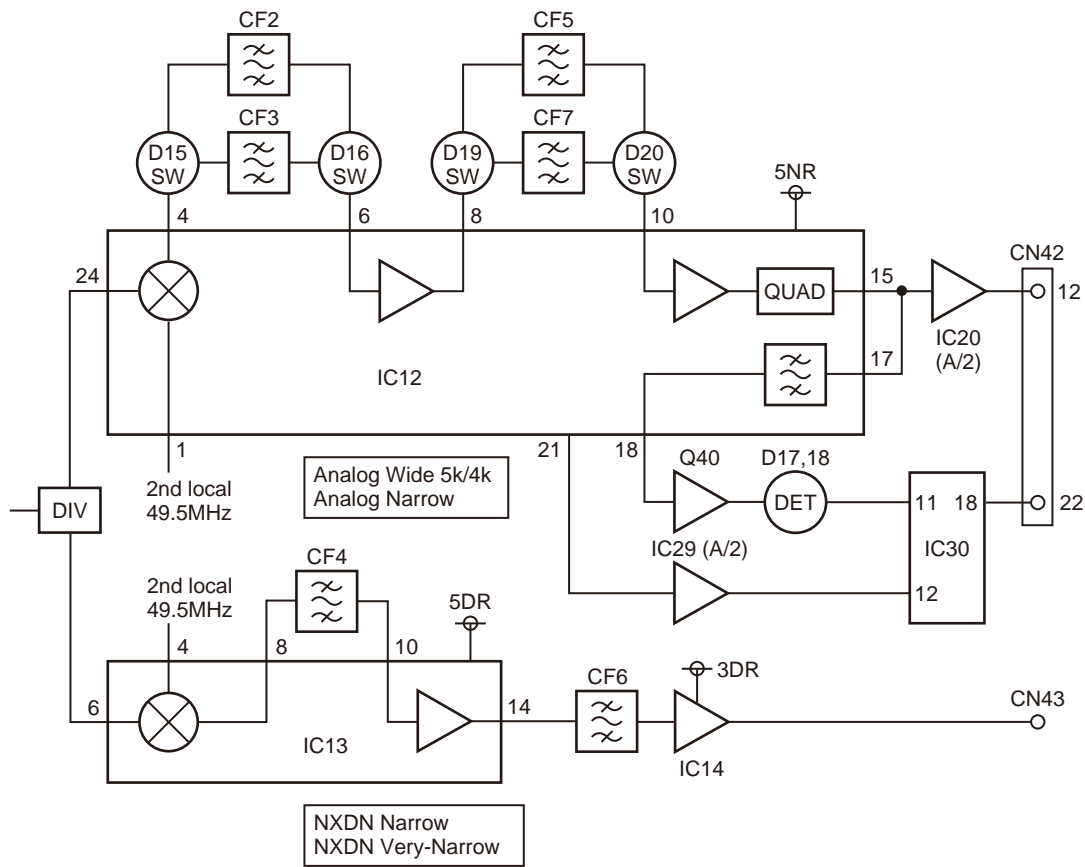


Fig. 19 Demodulator circuits

4-5. Squelch circuit

The desired noise of the noise component output from IF system IC_IC12 (pin 18) is extracted by the BPF. After passing through Q40, it is DC-detected as the squelch voltage by D17, D18 and input to ADC_IC30 (pin 11).

The MPU mounted in the control unit (X53-413) compares it with a predetermined reference voltage and turns the Audio signal on and off. The strength of the receiver signal input from CN5 is output as the RSSI voltage from IF system IC_IC12 (pin 21), and is input to IC30 (ADC) pin 12 via IC29 A/2.

4-6. Receiver DDS circuit

The 19.2MHz Internal reference clock produced by transmitter unit (X56-311 A/3) is distributed to CN45 of the receiver unit (X55-309). It passes through Q39, Q30, and IC8, and is input to IC7 (DDS-IC) pin 6 as the Master clock. Approximately 6MHz signal is generated as the 1st-PLL Reference clock.

IC7 has a resolution of 32 bits for realizing the frequency step minters than the 1st-PLL comparison frequency. The generated Reference clock is output via Q12, CF1, and Q5. CF1 is a Ceramic Filter. It is the BPF for removing unnecessary spurious noise included in the generated Reference clock.

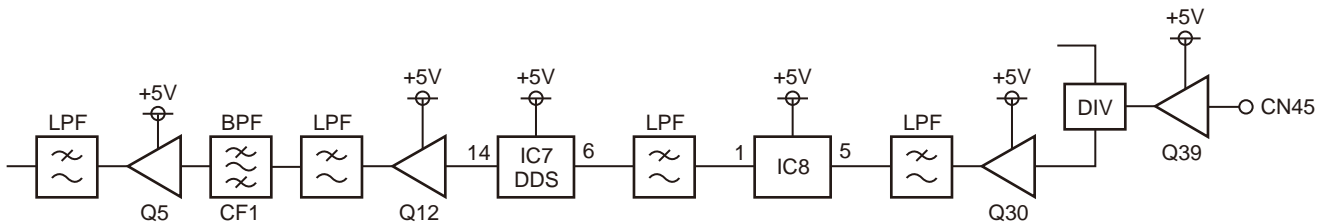


Fig. 20 Receiver DDS circuit

CIRCUIT DESCRIPTION

4-7. Receiver PLL circuits

The receiver unit (X55-309) has the 1st-PLL circuit for controlling the VCO that generates the hetero signal to the first local oscillator, and the 2nd-PLL circuit for controlling the VCO that generates the hetero signal to the second local oscillator.

The 1st-PLL circuit consists of the VCO (Q7 and Q8), the Buffer amplifier (Q17), the RF amplifiers (Q16 and Q3), the PLL-IC (IC5), the Active loop filters (Q2 and Q4) and the Band switches (Q14, Q10, Q11 and Q59). The signal in the 185.95 through 194.95MHz band generated by VCO Q7 and the 194.95 through 203.95MHz band generated by VCO Q8 is input to IC5 (pin 5) via Q17 and Q16 as the Fin signal. The 6MHz reference signal generated by the DDS-IC (IC7) is input to IC5 (pin 8) via Q3. Two signals, Fin and REFin, are phase-compared as the 100kHz comparison frequency by each frequency divider. The VCO output with the frequency synchronized is input to the 1st-Mixer as the first local oscillator Upper hetero signal approximately

+17dBm via Q17, Q23, and Q18. The control voltage is input to IC30 (ADC) pin 16 via IC6.

Meanwhile, the 2nd-PLL circuit consists of the VCO (Q24), the Buffer amplifier (Q33), the RF amplifier (Q38, Q22), and the PLL-IC (IC11). The 99.0MHz signal generated by Q24 is input to IC11 (pin 5) as the Fin signal via Q38. The 19.2MHz Internal reference clock distributed by the transmitter unit (X56-311) is input as the REFin signal to IC11 (pin 8) via Q22. Two signals, Fin and REFin, are phase-compared by each frequency divider as the comparison frequency of 200kHz. The VCO output with the frequency synchronized is input to IC9 (prescaler IC) pin 2 via Q33 and Q21. The 49.5MHz signal is frequency-divided into halves by IC9 and is excited by Q53 and distributed. One is input to IC12 (pin 1) via Buffer amplifier_Q35. The other is input to IC13 (pin 4) via Buffer amplifier_Q36. Both are input as approximately -16dBm for the second local oscillator Lower hetero signal. The control voltage at this point is input to IC30 (ADC) pin 10 via IC33.

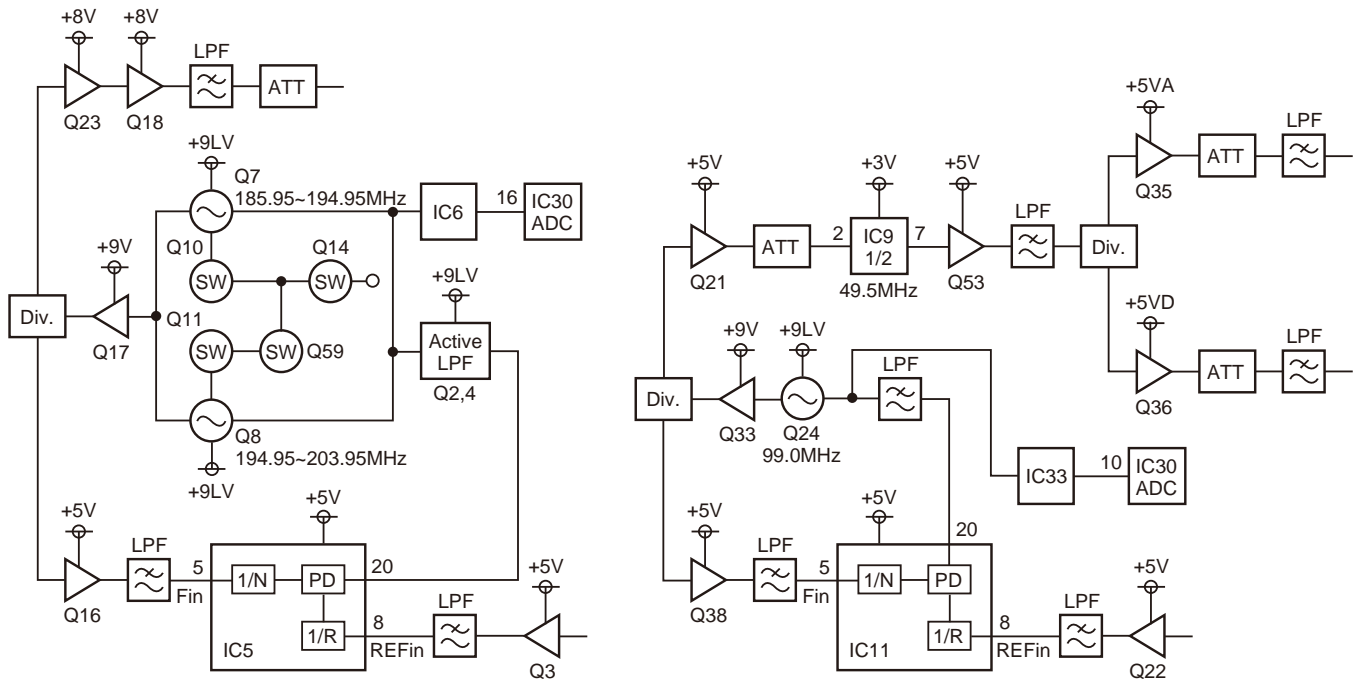


Fig. 21 Receiver PLL circuits

4-8. AVR circuit

The power supply voltage supplied from the power unit (X45-385 C/5) is distributed from the receiver unit (X55-309) CN44 to IC24 (8V), IC25 (8V), IC26 (9V), and IC27 (9V) via the Q52 DC switch. The output of IC24 is supplied to the 1st-IF circuits, the 1st-Local amplifiers and the IF system IC_IC12 via IC15 (5V). Further, the output of IC25 is distributed to IC16 (5V), IC17 (5V), IC18 (5V) and IC19 (5V). The out-

put of IC16 is supplied to IF system IC_IC13. The output of IC17 is supplied to the 2nd-Local amplifiers. The output of IC18 is supplied to the 1st-PLL and the 2nd-PLL. The output of IC19 is supplied to the DDS circuit. The output of IC26 is supplied to LNA_Q1. The output of IC27 is supplied to the VCO buffer amplifiers_Q17, Q33, the 1st-VCO and the 2nd-VCO via Active ripple filters_Q9, Q27, and to the Active loop filter_Q2, Q4 via the Active ripple filters_Q6.

CIRCUIT DESCRIPTION

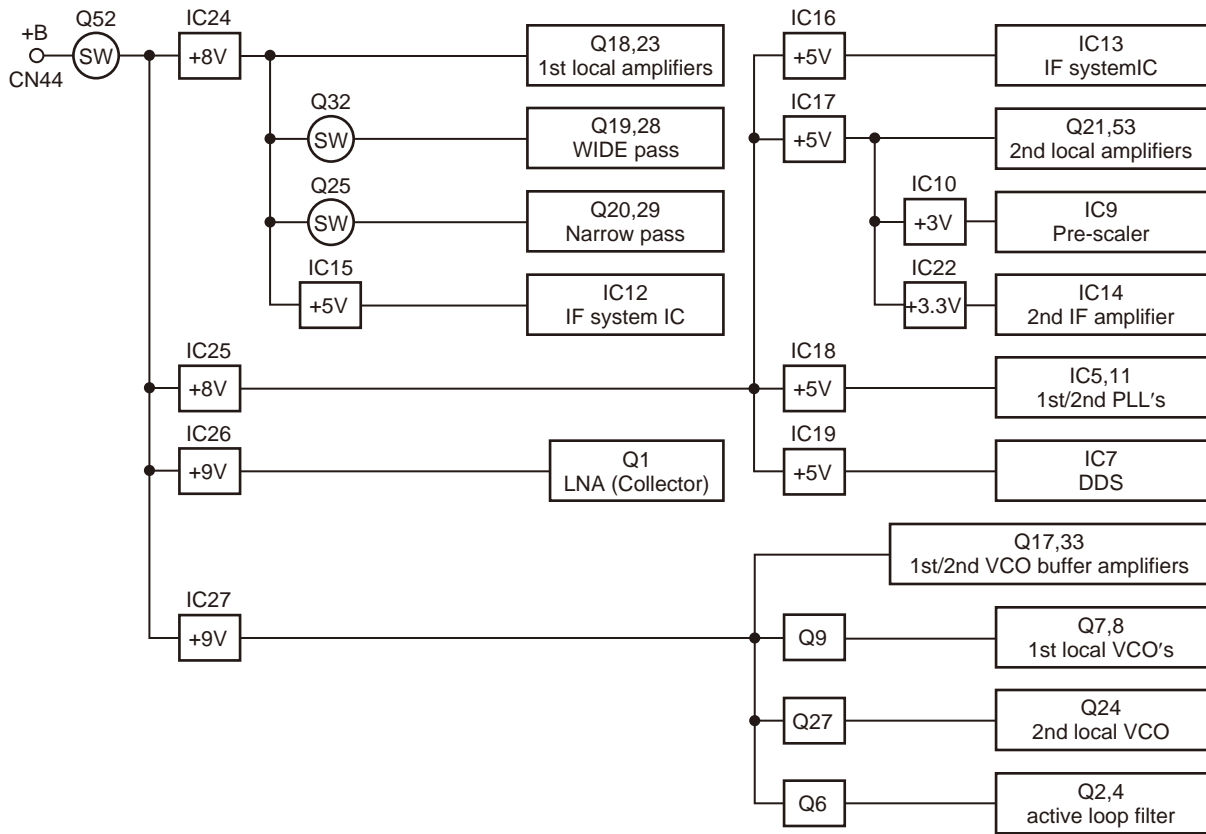


Fig. 22 AVR circuit

4-9. Other circuits

Other circuits include the EEPROM (IC31), the temperature sensor IC (IC35), the DAC (IC23) and the ADC (IC30). IC31 saves various adjustment values of the receiver unit. IC35 is built-in for detecting changes in temperature. IC23 offsets the RSSI voltage (pin 1) (detected by the IF system IC (IC12)) and the 1st-VCO_A, VCO_B control voltage (pin 2, pin 3).

IC30 monitors the 1st-VCO control voltage (pin 16), the LNA current detection value (pin 15), the temperature detected by the temperature sensor IC (IC35 pin 14), the RSSI voltage detected by the IF system IC (IC12 pin 12), the squelch voltage detected by the IF system IC (IC12 pin 11), and the control voltage of the 2nd-VCO (pin 10), and outputs each state in serial data (IC30 pin 18), sends the signal from CN42 (pin 22) to the control unit (X53-413). The signal is processed by the MPU.

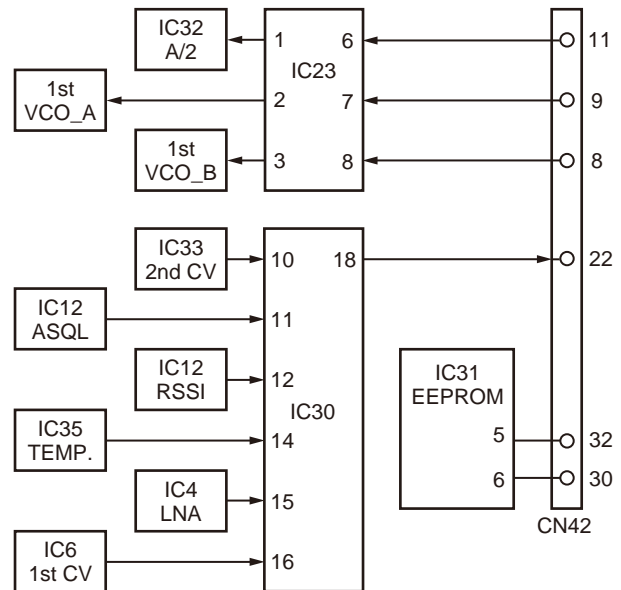


Fig. 23 Other circuits

CIRCUIT DESCRIPTION

5. Baseband Signal Processing Part

The baseband circuit is located on unit X53-413. This circuit enables the selection of the Analog Signal Processing mode and the Digital Signal Processing mode, and adjusts the level of the baseband signals in each mode. This circuit consists of IC2, IC3, IC5, IC8, IC9, IC12, IC14, IC19, IC20 and IC21.

The type of input modulation signals are local microphone terminal, low-speed data (LSD), high-speed data (HSD), external audio input (TA), and external data input (TD), and also the type of output demodulation signals are receiving audio output (RA), and receiving data output (RD).

The multiplexer (IC2, IC3, IC14) selects the signal path, the electronic volume (IC8) adjusts the signal level, and the operational amplifiers (IC5, IC9, IC12, IC19, IC20, and IC21) amplify and sum various signals.

5-1. Demodulation circuit (Analog/NXDN signal processing)

In case of the Analog Signal Processing mode, the detected audio signal obtained from the IF SYSTEM IC (X55-307 IC8) is amplified by IC5 (A/2), input into the AINR terminal of CODEC IC (IC4), and then processed as an audio signal by the DSP (IC37). The processed audio signal from the AOATR terminal of IC4 is amplified to a sufficient level by IC12 (A/2), and is then passed through the anti-aliasing filter at IC12 (B/2).

In case of the NXDN Signal Processing mode, the detected audio/data signal obtained from the IF SYSTEM IC (X55-307 IC7) is input into the ADC (X53-414 IC312). Receiving signal processing is performed by RX_DSP (X53-414 IC323), and voice decode processing is performed by TX_VOCODER DSP (X53-414 IC324). The processed audio signal from the AOATR terminal of CODEC IC (X53-414 IC309) is amplified to a sufficient level by IC20 (D/4), and is then passed through the anti-aliasing filter at IC20 (C/4).

The audio signal path is selected by multiplexer (IC14) depending on the Analog mode (IC14 is setting $Y=Y0$) or the NXDN mode (IC14 is setting $Y=Y1$). The audio signal is then routed through an electronic volume (IC8) V3/V4 to multiplexer IC (IC25), and is amplified to a sufficient level to drive the loudspeaker using an audio power amplifier (IC29).

5-2. Audio amplifier circuit

The audio amplifier circuit is located in the control section of the Control unit (X53-413).

The 3W output audio power is available from the pin 15 test connector "SPO, SPG" on the rear panel to the external speaker in the case of a 13.2V power supply voltage and 4 ohm load.

5-3. Microphone circuit

The signal from the microphone is passed through the AGC circuit located in the DISPLAY circuit (X56-311 B/3) so that it may not saturate. This circuit consists of IC926, D933, D934 Q931, and Q932. The AGC controls the amplifier gains using the detected audio signal depending on the positive and negative peaks of the signal amplitude. The audio signal goes to the control section of the Control unit (X53-413)

from the DISPLAY circuit (X56-311 B/3).

5-4. Modulation circuit (Analog/NXDN signal processing)

The transmitting audio signal goes to the input terminal of the multiplexer IC (IC3) for microphone muting.

In case of the Analog Signal Processing mode (multiplexer IC3 is setting $X=X0$), the audio signal is amplified by IC9 (A/4), input to the AINL terminal of the CODEC IC (IC4), and audio processed by the DSP (IC37). The processed audio signal from the AOATR terminal of IC4 is amplified to a sufficient level by IC9 (B/4), and is then passed through an anti-aliasing filter at IC9 (C/4), and amplified by the summing (TD) amplifier IC9 (D/4).

On the other hand, in the case of the NXDN Signal Processing mode (multiplexer IC3 is setting $X=X1$), the audio signal is amplified by IC20 (A/4), input to the AINL terminal of the CODEC IC (X53-414 IC309), and processed by the TX_VOCODER DSP (X53-414 IC324). The processed audio signal from the AOATR terminal of IC309 passes through the anti-aliasing filter at IC19 (B/2).

6. Control Circuit

The control circuit consists of two units, X53-413 and X53-414.

Unit X53-413 mainly has the power supply circuit, baseband signal path selection circuit (level adjustment is included), analog mode voice codec circuit, and RF controller circuit.

Unit X53-414 has the mode selection (analog or NXDN) circuit, NXDN mode communication processing circuit, LAN interface circuit, and Compact Flash interface circuit.

6-1. X53-413

■ RF control MPU

The IC34 RF control MPU is a 16-bit single chip microprocessor incorporating 256 kilobytes of ROM and 20 kilobytes of RAM.

This MPU controls the Flash memory, DSP, receiver unit, transmitter unit, and EEPROM of each unit, and the display circuit, and has communication I/F with external devices.

■ DSP

The DSP circuit is in charge of the filtering of transmitting and receiving signals, and the encoding and decoding of sub-audible signals (encode: QT, DQT, DTMF, decode: QT, DQT, DTMF).

This circuit consists of IC37, IC30, IC31, IC4, IC5, IC9, and IC12.

The receiving signal, DET is converted from analog to digital by IC4 with a sampling frequency of 16.128kHz. The digitized audio signal is sent to the DSP (IC37) to process the sub-audible signal and audio signal. The processed digital audio signal is applied to CODEC IC4, and is converted from digital to analog. The analog signal is output from pin 16 (AOATR). The audio signal is then amplified by IC12 (A/2), passes through the low-pass filter at IC12 (B/2), is selected by the multiplexer IC14 ($Y0=Y$) and is then input into an

CIRCUIT DESCRIPTION

electronic volume IC8.

On the other hand, the transmitting audio signal output from IC3 is amplified by IC9 (A/4), applied to pin 3 (AINL) of CODEC IC4, and is then converted from analog to digital at a sampling frequency of 16.128kHz. The digitized transmitting audio signal is AGC-processed, pre-emphasized and filtered, except for the 300Hz to 3kHz range, by DSP IC37,

and is then feed back to CODEC IC4, converted from digital to analog, and the analog signal is output from pin 15 (AOUTL). The transmitting signal from the AOUTL is amplified by IC9 (B/4), passed through the IC9 (C/4) low-pass filter, and sent to the IC9 (D/4) summing amplifier.

IC31 is a counter IC. The clock required for the CODEC and DSP is generated by dividing the 16.515072MHz clock signal supplied by the DSP IC37.

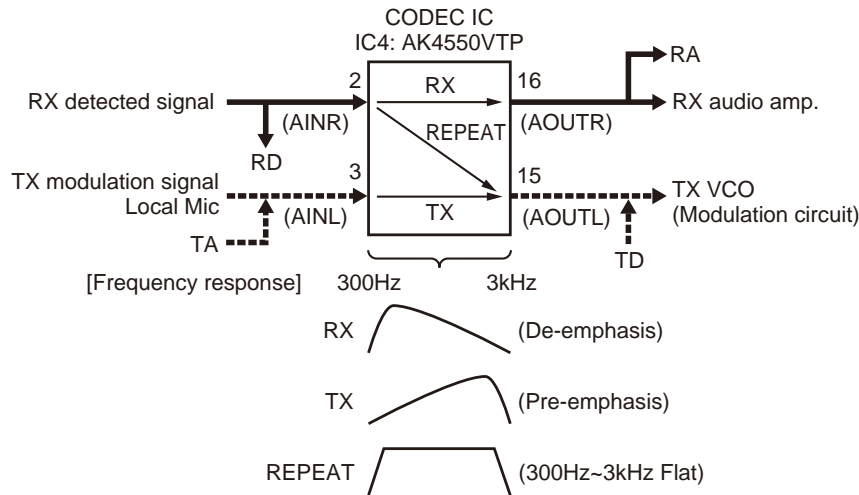


Fig. 24 An audio signal course and the frequency characteristic

■ Shift register circuit

The MPU (IC34) transmits serial data to shift registers IC923 from IC923 to IC960 and from IC960 to IC963 in the display circuit (X56-311 B/3, C/3).

Additionally, it transmit serial data to the control unit (X53-413) IC1 and IC22 and the transmitter unit (X56-311) IC703. This serial data can control various functions of each unit.

■ Power supply circuit

This circuit consists of X53-413 IC6, IC10, IC11, IC15, IC16 and 18, and X53-414 IC305, IC306, IC307 and IC329.

IC11 is a DC/DC converter that converts 13.2V to 5.0V. IC10 is a DC/DC converter that converts 13.2V to 8.0V. IC16 is the 5.0V AVR and connected to IC10. IC6, IC15, IC305 and IC329 is the 3.3V AVR. IC18 is the 1.8V AVR. IC306 is the 1.5V AVR. IC18 and IC306 is connected to IC329.

■ Flash memory (RF control MPU)

IC17 is an 8M bit Flash memory and contains MPU firmware for controlling the RF.

■ EEPROMs circuit

The EEPROM is a built in receiver unit (X55-309), transmitter unit (X56-311) and Final unit (X45-385).

The RF control MPU controls these EEPROMs by the IIC bus.

6-2. X53-414

■ Main MPU

The Main MPU (IC703) is a 32-bit RISC microprocessor incorporating a 16 kilobytes cache memory.

The main MPU controls the Flash memory, SDRAM, SRAM, LAN IC, RS-232C driver, receiver and real-time clock (RTC) IC besides RF control MPU and UART communication with modem control MPU.

■ LAN interface

NXR-700 is equipped with a 100Base-TX or 10Base-T LAN interface. This circuit consists of IC719, IC720 and J700. IC719 is a control IC. IC720 is a EEPROM, and saves the MAC address.

■ Real time clock (RTC) circuit

This circuit consists of IC710 and X701. IC710 is a Real Time Clock. X701 is a crystal oscillator. IC710 is connected to IC703 (Main MPU) via the IIC bus. The oscillating frequency of X701 is 32.768kHz. It is backed up by a rechargeable lithium battery (BA300). The IC710 clock data is used after resetting the backup.

■ RS-232C circuit

NXR-700 is equipped with a RS-232C interface. It is connected to a PC with pin 9 female RS-232C cross-wired cable. It uses the FPU and writes the firmware. IC705 is a RS-232C driver receiver IC, and interfaces at the TTL level.

CIRCUIT DESCRIPTION

Modem control MPU

Modem control MPU (IC325) is 16-bit single chip micro-processor incorporating 256 kilobytes of ROM and 20 kilobytes of RAM.

This MPU controls the Flash memory, two DSPs, the OCXO unit in the transmitter unit (X42-328) and the PLL circuit.

It also monitors the external power supply voltage. If the voltage is abnormal, it stops the system.

RX DSP (IC323)

In NXDN mode, the IF signal input from the ADC (IC312) to the RX DSP is limited to a narrow band or a very narrow

band. So, it passes through the IF band limitation band.

This signal is demodulated by the wave detection processing part. The demodulated wave is made to pass through the baseband limitation filter (root nyquist cosine filter and 1/sinc filter).

This signal is symbol-detected and bit-judged, and is then converted to NXDN data. Its frame timing is detected and decoded for CAI (Common Air Interface: NXDN format) data error correction.

Audio data is vocoder decode processed by the IC324 TX_Vocoder_DSP. It is then converted into the PCM signal. It is analog-output as an audio signal by the DAC part of the Audio codec IC (IC309 AOUTL terminal).

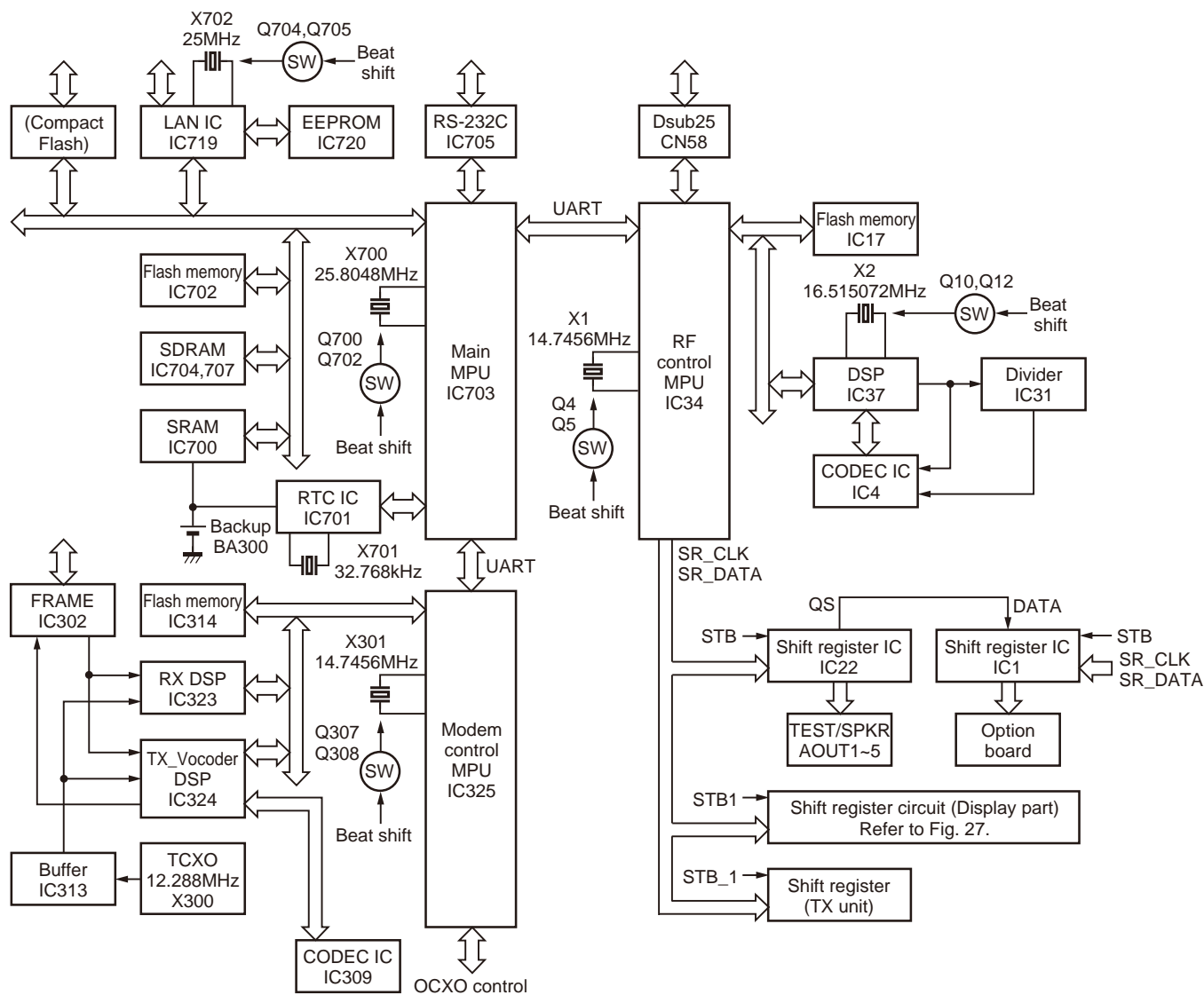


Fig. 25 Control circuit

CIRCUIT DESCRIPTION

■ TX_Vocoder DSP

In NXDN mode, the AMBE+2 (TM) vocoder processing is performed by the IC324 TX_Vocoder_DSP.

Audio signal input from the Audio codec IC ADC part (IC309 AINL) terminal is vocoder encode processed and converted to audio data.

CAI data is encoded for correcting errors and converted to transmitter data.

This data is framed, converted to symbol values and made to pass the baseband limitation filter (root nyquist cosine filter and sinc filter). The passed signal turns into a modulating signal. It is output as an analog signal by the Audio codec IC DAC part (IC309 AOUTR terminal).

■ Power supply voltage monitoring circuit

This circuit always monitors the external power supply voltage assuming that the abnormal power supply voltage is applied. This circuit consists of X53-413 R67, R68, R71, and R79 and IC7, and X53-414 IC308. If the voltage is reduced, these circuits interrupt the Modem control MPU (IC325) and NXR-700 rapidly shift to the power down state. The IC325 A/D converter (pin 124) monitors the voltage. It detects the voltage rises and returns to the normal voltage range.

■ Reset circuit

Reset system diagrams of each device of NXR-700 are attached. With regard to the priority of the reset signal of each device, IC303 that prepares the reset signal of IC325 has the highest priority. Software of IC325 can activate devices including IC323, IC324, IC703, IC700, IC719, IC702, IC34, and IC17. Software of IC703 can activate the reset of IC325.

■ Clock shift circuit

NXR-700 control unit has a crystal oscillation circuit shown below.

X53-4132-71:

14.7456MHz (IC34 and X1)

16.515072MHz (IC37 and X2)

X53-4140-10:

14.7456MHz (IC325 and X301)

25.8048MHz (IC37 and X2)

25MHz (IC719 and X702)

Each oscillation circuit turns on the NPN transistor "2SC4738(GR)F" and staggers the oscillating frequency by approximately -70ppm . This may prevent interference against transmitter and receiver frequencies. Each transistor is turned on and off by the FPU.

■ Flash memory (Main MPU)

IC702 is a 128M bit Flash memory and contains the firmware of the Main MPU.

■ Flash memory (Modem control MPU)

IC314 is an 8M bit Flash memory and contains the firmware of the Modem control MPU, RX DSP, and TX_Vocoder_DSP.

■ SDRAM

IC704 and IC707 are program execution 128M bit memory used by the Main MPU.

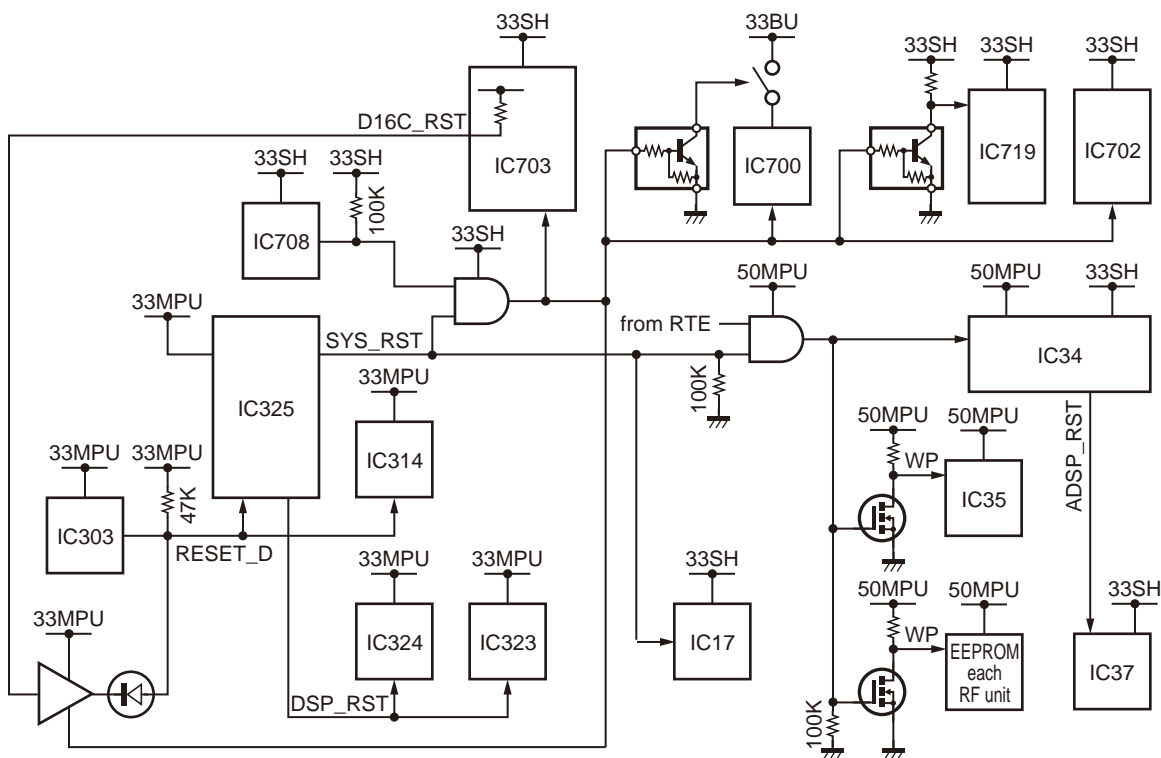


Fig. 26 Reset circuit

CIRCUIT DESCRIPTION

■ SRAM

IC700 is a memory backed up by a lithium battery (BA300).

The memory size is 16M bits. It contains data required for the system backup.

■ Frame synchronizing signal transmitter and receiver circuit

J702 and J703 are connectors for synchronizing with other repeaters in NXDN trunking mode. The differential rectangular wave that conforms to RS-485, 12.5Hz or 25Hz is input to and output from this connector for synchronizing multiple repeaters.

In the repeater system, any given repeater outputs a synchronizing signal and that synchronous signal is input to other remaining repeaters.

With regards to the output of the synchronous signal, the frame signal generated by TX_Vocoder_DSP (IC324) is differentially output by IC302.

With regards to the input of the synchronous signal, IC302 receives a differential signal, and is input to the interruption of the RX DSP (IC323) and TX_Vocoder_DSP (IC324).

■ 12.288MHz clock circuit

The clock circuit is installed in the control unit (X53-414) for operating the RX DSP and TX_Vocoder DSP.

The clock circuit consists of X300 (12.288MHz TCXO), Q304, and IC313.

12.288MHz from X300 is amplified by Q304, IC313 and becomes a clock for the RX DSP and TX_Vocoder DSP.

7. Display Circuit

7-1. Display circuit

The display circuit (X56-311 B/3,C/3) consists of various types of LEDs, 17-segment type D960, D961 (red), D921 (red: transmission), two-color type D920 (green: busy), D922 (green: power on, red blinking: abnormal voltage), D923 (green: CTRL), two-color type D924 (red: OCXO error, green: OCXO normality, orange: external reference signal), 8-bit status LEDs D925 to D932, and LEDs with built in switches S920 to S925.

IC920 to IC925 and IC960 to IC963 are in charge of displaying present channels and states on the front panel. IC923 to IC925 and IC960 to IC963 are shift registers that convert the MPU serial data to parallel data and turn on LEDs.

7-2. Key switches circuit

The logic signals from the front panel key and channel selector switches (channel selector) are entered directly into the RF MPU (IC34).

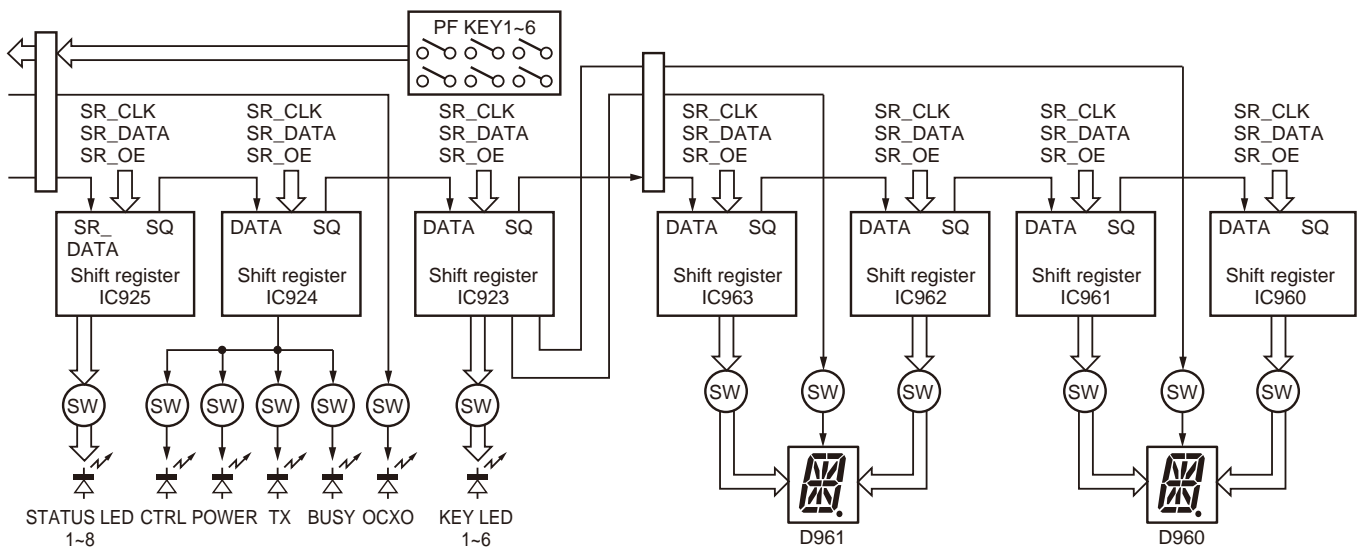


Fig. 27 Shift register circuit (Display part)

COMPONENTS DESCRIPTION

FINAL UNIT (X45-3852-71)

Ref. No.	Part Name	Description
IC1	IC	Current monitor
IC2	IC	OP AMP
IC3	IC	Voltage regulator
IC4~6	IC	OP AMP
IC7	IC	Temperature sensor
IC8	IC	OP AMP
IC9	IC	EEPROM
IC10	IC	Power module
IC11,12	IC	Voltage regulator
Q2	FET	DC switch
Q5~8	FET	DC switch
D4	Surge absorber	Surge protection
D5,6	Diode	Surge protection
D7	Zener diode	Overvoltage protection
D9,10	Diode	Detector
D11,16,19,20	Diode	RF switch
D902	Varistor	Surge protection

CONTROL UNIT (X53-4132-71)

Ref. No.	Part Name	Description
IC1	IC	Shift register
IC2,3	IC	Multiplexer
IC4	IC	CODEC
IC5	IC	OP AMP
IC6	IC	Voltage regulator
IC7	IC	OP AMP
IC8	IC	D/A converter
IC9	IC	OP AMP
IC10,11	IC	DC/DC converter control
IC12	IC	OP AMP
IC14	IC	Multiplexer
IC15,16	IC	Voltage regulator
IC17	IC	Flash memory
IC18	IC	Voltage regulator
IC19~21	IC	OP AMP
IC22	IC	Shift register
IC23	IC	NAND gate
IC25	IC	Analog switch
IC26	IC	OP AMP
IC27,28	IC	Buffer

Ref. No.	Part Name	Description
IC29	IC	AF PA
IC30	IC	NAND gate
IC31	IC	Divider
IC32,33	IC	Buffer
IC34	IC	MPU
IC35	IC	EEPROM
IC36	IC	Buffer
IC37	IC	DSP
IC38	IC	AND gate
IC39,40	IC	Buffer
IC41,50	IC	AND gate
Q1	Transistor	Inverter
Q2,3	FET	DC/DC converter
Q4,5	Transistor	Clock shift switch
Q6,7	Transistor	AF mute switch
Q8	Transistor	Power switch
Q9	FET	Power switch
Q10	Transistor	Clock shift switch
Q11	Transistor	Buffer AMP
Q12	Transistor	Clock shift switch
Q13	Transistor	Buffer AMP
Q14~17	Transistor	DC/DC converter
Q18	FET	Inverter
Q19	FET	Pull up switch
Q20~23	Transistor	Power switch
Q25	Transistor	OP CONT switch
Q26	Transistor	AF mute switch
Q27~29	Transistor	Buffer AMP
D1,2	Diode	DC/DC converter
D3~5	Diode	Surge protector
D6	Zener diode	Surge protector
D7~12	Diode	Surge protector
D13	Zener diode	Surge protector
D14~18,20,23	Diode	Surge protector
D24,25	Varistor	Current protector
D26	Diode	Diode switch
D28	Diode	Surge protector
D29	Zener diode	Surge protector
D30	Diode	Surge protector
D31	Zener diode	Surge protector
D32	Diode	Surge protector

COMPONENTS DESCRIPTION

Ref. No.	Part Name	Description
D33	Zener diode	Surge protector
D36,37	Diode	Surge protector
D38,39	Diode	Diode switch

CONTROL UNIT (X53-4140-10)

Ref. No.	Part Name	Description
IC300,301	IC	Buffer
IC302	IC	RS-485 driver/reciever
IC303	IC	Voltage detector
IC304	IC	Buffer
IC305~307	IC	Voltage regulator
IC308	IC	Voltage detector
IC309	IC	CODEC
IC312	IC	A/D converter
IC313	IC	Inverter
IC314	IC	Flash memory
IC323,324	IC	DSP
IC325	IC	MPU
IC327	IC	AND gate
IC329	IC	Voltage regulator
IC330	IC	Buffer
IC700	IC	SRAM
IC701	IC	RTC IC
IC702	IC	Flash memory
IC703	IC	MPU
IC704	IC	SDRAM
IC705	IC	RS-232C driver/reciever
IC707	IC	SDRAM
IC708	IC	Voltage detector
IC709	IC	Buffer
IC710,711	IC	NAND gate
IC712,713	IC	OR gate
IC714~718	IC	Octal buffer
IC719	IC	LAN IC
IC720	IC	EEPROM
IC721	IC	AND gate
IC722	IC	OR gate
IC723	IC	NAND gate
IC724,725	IC	Buffer
IC726	IC	AND gate
IC727,728	IC	Buffer

Ref. No.	Part Name	Description
Q301	Transistor	DC switch
Q302	Transistor	Power switch
Q303	Transistor	Control switch
Q304	Transistor	Reference AMP
Q307,308	Transistor	Clock shift switch
Q309	FET	Switch
Q700,702 Q704,705	Transistor	Clock shift switch
Q706	Transistor	Control switch
Q707	Transistor	MIC switch
D300	Diode	DC switch
D701	Diode	Switch
D702	Diode	Voltage protector

RX UNIT (X55-3092-72)

Ref. No.	Part Name	Description
IC4	IC	OP AMP
IC5	IC	Frequency PLL
IC6	IC	OP AMP
IC7	IC	DDS
IC8	IC	Buffer AMP
IC9	IC	1/2 divider
IC10	IC	Voltage regulator
IC11	IC	Frequency PLL
IC12	IC	IF system
IC13	IC	IF system
IC14	IC	OP AMP
IC15,16	IC	Voltage regulator
IC17~19	IC	Voltage regulator
IC20	IC	OP AMP
IC22	IC	Voltage regulator
IC23	IC	DAC
IC24,25	IC	Voltage regulator
IC26~28	IC	Voltage regulator
IC29	IC	OP AMP
IC30	IC	ADC
IC31	IC	EEPROM
IC32	IC	OP AMP
IC33	IC	OP AMP
IC35	IC	Temperature sensor
Q1	Transistor	LNA

COMPONENTS DESCRIPTION

Ref. No.	Part Name	Description
Q2	Transistor	PLL active filter AMP
Q3	Transistor	RF AMP
Q4	Transistor	PLL active filter AMP
Q5	Transistor	RF AMP
Q6	Transistor	Ripple filter AMP
Q7,8	FET	Oscillator
Q9	Transistor	Ripple filter AMP
Q10,11	Transistor	DC switch
Q12	Transistor	RF AMP
Q13	Transistor	DC switch
Q14,15	FET	DC switch
Q16,17	Transistor	RF AMP
Q18~20	FET	RF AMP
Q21~23	Transistor	RF AMP
Q24	FET	Oscillator
Q25,26	FET	DC switch
Q27	Transistor	Ripple filter AMP
Q28,29	FET	RF AMP
Q30	Transistor	RF AMP
Q31,32	FET	DC switch
Q33	Transistor	RF AMP
Q34	Transistor	DC switch
Q35,36	Transistor	RF AMP
Q37	FET	DC switch
Q38~40	Transistor	RF AMP
Q50~52	FET	DC switch
Q53	Transistor	RF AMP
Q56	FET	DC switch
Q57	Transistor	DC switch
Q58~61	FET	DC switch
D1	Diode	Surge protection
D3~8	Variable capacitance diode	Frequency control
D9,10	Diode	RF switch
D11,12	Variable capacitance diode	Frequency control
D13~16	Diode	RF switch
D17,18	Diode	Detector
D19,20	Diode	RF switch
D21	LED	PLL indicator
D22,23	Variable capacitance diode	Frequency control

TX UNIT (X56-3112-72)

Ref. No.	Part Name	Description
IC101	IC	RF PLL
IC102	IC	OP AMP
IC104	IC	Voltage regulator
IC201	IC	APC AMP
IC202	IC	4.5MHz DDS
IC301	IC	OP AMP
IC302	IC	Buffer AMP
IC303	IC	PLL
IC304	IC	Digital potentiometer
IC305	IC	Summing AMP
IC306	IC	OP AMP
IC307	IC	Buffer AMP
IC308	IC	OP AMP
IC401	IC	OP AMP
IC404	IC	19.2MHz PLL
IC405,406	IC	Comparator
IC407	IC	Buffer AMP
IC408,409	IC	OP AMP
IC601	IC	5.99MHz DDS
IC602	IC	Buffer AMP
IC603	IC	Voltage regulator
IC701	IC	DAC
IC702	IC	EEPROM
IC703	IC	Shift register
IC704~706	IC	Voltage regulator
IC801	IC	Voltage reference
IC802	IC	DAC
IC803	IC	ADC
IC804	IC	Temperature sensor
IC805,806	IC	3-state buffer
IC807~810	IC	Voltage regulator
IC811	IC	Prescaler
IC812	IC	Line switch
IC920~922	IC	3-state buffer
IC923~925	IC	Shift register
IC926	IC	OP AMP
IC960	IC	Shift register
IC961~963	IC	Shift register
Q101	FET	DC switch
Q102,103	FET	RF VCO

COMPONENTS DESCRIPTION

Ref. No.	Part Name	Description
Q104	Transistor	RF AMP
Q105	Transistor	Ripple filter AMP
Q106	Transistor	RF AMP
Q107~109	Transistor	DC switch
Q110	FET	DC switch
Q202	Transistor	RF AMP
Q203	FET	RF driver AMP
Q204,205,210	FET	DC switch
Q211~213	Transistor	RF AMP
Q301,302	FET	DC switch
Q303	Transistor	DC switch
Q304,305,307 Q401,402	Transistor	RF AMP
Q405,407~409	FET	DC switch
Q410	Transistor	DC switch
Q412	Transistor	RF AMP
Q413,414	FET	DC switch
Q415~419	Transistor	RF AMP
Q420	FET	RF AMP
Q421	FET	DC switch
Q422	FET	RF AMP
Q423,424	FET	DC switch
Q425	FET	RF AMP
Q426,428,429	FET	DC switch
Q430,431	FET	RF AMP
Q601,602	FET	DC switch
Q603	Transistor	RF AMP
Q604,605	FET	DC switch
Q606	Transistor	RF AMP
Q607~609 Q701,702	FET	DC switch

Ref. No.	Part Name	Description
Q920~930	Transistor	DC switch
Q931,932	Transistor	Audio level limiter
Q960~976	Transistor	DC switch
D101,102	Variable Capacitance diode	Frequency control
D106	Variable Capacitance diode	Moduration control
D107,108	Variable Capacitance diode	Frequency control
D112	Variable Capacitance diode	Moduration control
D201	Diode	Detector
D202	LED	Output indicator
D301	LED	PLL indicator
D401~403	Diode	Detector
D404~407	Diode	RF switch
D408	Diode	Detector
D409	Surge absorber	Ref signal output
D410,411	Diode	RF switch
D601,602	Diode	RF switch
D603~606	Zener diode	Limiter
D607,608	Diode	RF switch
D920	LED	BUSY
D921	LED	TX
D922	LED	POWER
D923	LED	CTRL
D924	LED	OCXO
D925~932	LED	Status 8~Status 1
D933,934	Diode	Audio level limiter
D935,936	Diode	Surge protection
D960,961	LED	17-segment

TERMINAL FUNCTION

Final Unit (X45-3852-71) (A/5)

Pin No.	Name	I/O	Function
CN1 (To X56-311 A/3 CN802)			
1	TX SIGNAL	I	TX driver input signal (Coaxial)
CN2 (To X45-385 C/5 CN29)			
1	SB	I	Power supply input
CN8			
1	-	O	12V supply output for FAN
2	-	-	Ground
CN19			
1	MONITOR	O	Receive signal input (Coaxial)
CN20 (To X56-311 A/3 CN806)			
1	GND	-	Ground
2	GND	-	Ground
3	NC	-	No connection
4	GND	-	Ground
5	PA_CURR	O	Power module current monitor
6	GND	-	Ground
7	FAN_CURR	O	FAN current monitor
8	GND	-	Ground
9	FWD_PWR	O	TX Forward power detection
10	GND	-	Ground
11	RFL_PWR	O	TX Reflect power detection
12	GND	-	Ground
13	PWR_PRT	I	TX power protection
14	GND	-	Ground
15	PWR_CONT	I	TX power control
16	GND	-	Ground
17	FAN_CONT	I	FAN1 control
18	GND	-	Ground
19	FAN_CONT2	I	FAN2 control
20	GND	-	Ground
21	TEMP_RST	I	Reset input for temperature detect IC
22	GND	-	Ground
23	ANT_SW	I	Antenna switch
24	GND	-	Ground
25	TEMP_PRT	O	High temperature detect
26	D_GND	-	Digital ground
27	CONT_5.0V	I	Switched 5V supply
28	D_GND	-	Digital ground
29	SCL	I	Clock input for EEPROM

Pin No.	Name	I/O	Function
30	D_GND	-	Digital ground
31	SDA	I/O	Data input/output for EEPROM
32	D_GND	-	Digital ground
33	GND	-	Ground
34	WP	I	Write protection input for EEPROM
35	GND	-	Ground
36	GND	-	Ground
CN21 (To X45-385 C/5 CN30)			
1	E	-	Ground

Final Unit (X45-3852-71) (C/5)

Pin No.	Name	I/O	Function
CN11 (To X53-413 CN4)			
1	E	-	Ground
2	-	-	No connection
3	SB	O	Power supply output
4	SB	O	Power supply output
CN12 (To X56-311 CN801)			
1	E	-	Ground
2	SB	O	Power supply output
3	SB	O	Power supply output
CN15 (To X55-309 CN44)			
1	E	-	Ground
2	SB	O	Power supply output
3	SB	O	Power supply output

Final Unit (X45-3852-71) (E/5)

Pin No.	Name	I/O	Function
CN905 (To X56-311 B/3 CN923)			
1	VOLUME_IN	O	Volume control output for AF signal
2	33MPU	I	3.3V constant voltage
3	GND	-	Ground
4	33AUD	I	3.3V constant voltage
5	SB	I	Power supply input
6	SCM_EN	-	No connection
7	GND	-	Ground
8	PTT_TXD_SCM	O	PTT output
9	HOOK_RXD_SCM	O	Hook detection output
10	MIG	-	MIC ground
11	MIC	O	MIC signal output

TERMINAL FUNCTION

Control Unit (X53-4132-71)

Pin No.	Name	I/O	Function
CN1 (To X53-414 CN401)			
1	PTT_TXD_SCM	-	No connection
2	GND	-	Ground
3	LO_VOL_DET	O	Low voltage detection signal
4	NC	-	No connection
5	TD_SW	I	TD terminal input signal mute switch
6	MICAD_SW	I	Microphone input signal switch, changed to analog modulation or NXDN modulation
7	MIC_SW	I	Microphone mute switch
8	RXAD_SW	I	Speaker signal switch, changed to analog reception signal or NXDN reception signal
9	PATH_SW	I	Analog or NXDN modulation route selector switch
10	BEEP_SW	I	Beep sound mute switch
11	TA_SW	I	TA input mute switch
12	TAAD_SW	I	TA input signal, changed to analog modulation or NXDN modulation
13	EVOL_LD	I	Load for electronic volume
14	GND	-	Ground
15	EVOL_CLK	I	Clock for electronic volume
16	PTT_AM16C	O	PTT signal
17	EVOL_DATA	I	Data for electronic volume
18	INSP_SW	-	No connection
19	AF_MUTE	I	Speaker output mute switch
20	SCM_EN	-	No connection
21	AMP_SW	I	Speaker amplifier power ON/OFF switch
22	HOOK_RXD_SCM	-	No connection
23	NC	-	No connection
24	INRA_SW	-	No connection
25	MIC_D_IN	O	NXDN transmission signal output
26	BEEP	I	Beep sound signal input
27	RX_AUDIO_D	I	NXDN reception signal input
28	GND	-	Ground
29	MOD_D_OUT	I	NXDN modulation signal input
30	PWR_ST_R	I	Switch for red LED (Power source)
31	VOLUME_IN	O	Volume control input for AF signal
32	OEXO_ST_G	I	Switch for green LED (OEXO)
33	OEXO_ST_R	I	Switch for red LED (OEXO)
34	RX_POWER_SAVE	I	RX unit power saving signal
35	GND	-	Ground
36	GND	-	Ground

Pin No.	Name	I/O	Function
CN2 (To X53-414 CN402)			
1	SYS_RST	I	System reset signal from modem control MPU
2	GND	-	Ground
3	BER_CLK	I	Serial clock for measurement bit error rate
4	BER_DAT	I	Serial data for measurement bit error rate
5	A16C_CK_SFT	I	"Frequency shift" signal to RF control MPU
6	TRUNKING	O	"Trunking mode" signal to Main MPU
7	ADSP_CK_SFT	I	"Frequency shift" signal to Analog mode DSP
8	GND	-	Ground
9	RADIO_ERR	O	"Detect accident of RF block" signal to Main MPU
10	QT_DQT	O	"Detect QT or DQT" signal to Main MPU
11	TX_STATE	O	"During the transmission" signal to Main MPU
12	RF_PTT	O	"Press-to-talk-switch" signal to Main MPU
13	GND	-	Ground
14	STXO_ARXO	I	UART signal from Main CPU to RF control MPU
15	SRXO_ATXO	O	UART signal from RF control MPU to Main MPU
16	GND	-	Ground
17	SC_SH	O	"Squelch control" signal to Main MPU
18	E_PTT_SH	O	"External press-to-talk-switch" signal to Main MPU
19	NC	-	No connection
20	50MPU_CONT	I	5V regulator control
21	33SH	I	3.3V constant voltage
22	33MPU_A	O	3.3V constant voltage
23	50MPU_A	O	5V constant voltage
24	33MPU_A_GND	-	Ground
25	33MPU	O	3.3V constant voltage
26	33MPU	O	3.3V constant voltage
27	33MPU_A_GND	-	Ground
28	DC50	O	5V constant voltage
29	DC50	O	5V constant voltage
30	DC50	O	5V constant voltage
31	DC50	O	5V constant voltage
32	50MPU_A_GND	-	Ground
33	50MPU	O	5V constant voltage
34	50MPU_A_GND	-	Ground
35	GND	-	Ground
36	HI_VOL_DET	O	Voltage monitor

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
CN3 (To X56-311 B/3 CN921)			
1	DC8	O	8V constant voltage
2	GND	-	Ground
3	DC8	O	8V constant voltage
4	DC8	O	8V constant voltage
5	50MPU	O	5V constant voltage
6	50MPU	O	5V constant voltage
7	GND	-	Ground
8	DC8	O	8V constant voltage
9	K5	O	Key Scan
10	K4	O	Key Scan
11	K3	I	Key Scan
12	K2	I	Key Scan
13	K1	I	Key Scan
14	GND	-	Ground
15	STB1	O	Shift Register Strobe
16	GND	-	Ground
17	SR_DATA	O	Shift Register Data
18	GND	-	Ground
19	SR_CLK	O	Shift Register Clock
20	GND	-	Ground
21	SR_OE	O	Shift Register Output Enable
22	GND	-	Ground
23	PTT_TXD_SCM	I	MIC PTT
24	SCM_EN	-	No connection
25	HOOK_RXD_SCM	I	HOOK detect input
26	GND	-	Ground
27	OEXO_ST_G	O	OEXO Green LED Switch
28	PWR_ST_R	O	POWER Red LED Switch
29	OEXO_ST_R	O	OEXO Red LED Switch
30	SB	O	Power supply output
31	VOLUME_IN	I	Volume control input for AF signal
32	33AUD	O	3.3V constant voltage
33	33MPU	O	3.3V constant voltage
34	MIC	I	MIC Signal Input
35	GND	-	Ground
36	MIG	-	MIC Ground
CN4 (To X45-385 C/5 CN11)			
1	E	-	Earth
2	NC	-	No connection
3	SB	I	Power supply input
4	SB	I	Power supply input

Pin No.	Name	I/O	Function
CN56 (To X56-311 A/3 CN804)			
1	GND	-	Ground
2	GND	-	Ground
3	PAG	O	POCSAG Switch
4	GND	-	Ground
5	CONT_5.0V	O	5V constant voltage
6	D_GND	-	Ground
7	CONT_5.0V	O	5V constant voltage
8	D_GND	-	Ground
9	SDA	I/O	EEPROM Data
10	D_GND	-	Ground
11	SCK	O	EEPROM Clock
12	TEMP_PRT	I	Temperature Sensor Protection Signal
13	ANT_SW	O	Transmission antenna switch
14	DDS_EN	I/O	Enable for DDS / Hardware version DC signal
15	VR_EN	O	Enable for electronic volume
16	440_EN	O	Enable for PLL
17	132_EN	O	Enable for PLL
18	440_CE	O	PLL chip select
19	132_CE	O	PLL chip select
20	LDT	I	PLL lock detection
21	2DA_EN	O	Enable for 2ch DAC
22	3DA_EN	O	Enable for 3ch DAC
23	2DA_CE	O	Chip select for 2ch DAC
24	SR_OE	O	Shift Register Output Enable
25	8AD_EN	O	Enable for 8ch DC
26	SR_EN	O	Shift Register Strobe
27	SDI1	I	Analog data of 8ch ADC
28	SDO0	O	Data for 3 line serial
29	SCLK1	O	Clock 1 for 3 line serial
30	SCLK0	O	Clock for 3 line serial
31	SDO1	O	Data 1 for 3 line serial
32	GND	-	Ground
33	MOD	O	Modulating signal
34	WP	O	Write protection of EEPROM
35	GND	-	Ground
36	GND	-	Ground
CN57 (To X55-309 CN42)			
1	GND	-	Ground
2	GND	-	Ground
3	WP	O	Write protection of EEPROM
4	D_GND	-	Digital Ground

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
5	E2PROM_SDA	I/O	Data of EEPROM
6	CONT_5.0V	-	5V constant voltage
7	E2PROM_SCL	O	Clock of EEPROM
8	D_GND	-	Digital Ground
9	AD_CS	O	Enable for 8ch DAC
10	IF_BW_SW	O	IF_ bandwidth switch
11	AD_DAT_WRITE	O	Data 0 for 3 line serial
12	NC (IF_NW_SW)	-	No connection
13	AD_CLK	O	Clock 0 for 3 line serial
14	GND	-	Ground
15	AD_DAT_READ	I	Analog data of 8ch ADC
16	NC	-	No connection
17	CONT_5.0V	-	5V constant voltage
18	PLL_LOCK_DET	I	PLL1,2 lock detection
19	NC(AGC_RSSI)	-	No connection
20	PLL2_EN	O	PLL 2 enabling signal
21	FM_RSSI	I	RSSI signal input
22	NC	-	No connection
23	GND	-	Ground
24	PLL_PWR_SAVE	O	PLL1,2 chip selection signal
25	RX_AUDIO	I	Reception audio signal
26	SIF_DAT	O	Data 0 for 3 line serial
27	GND	-	Ground
28	SIF_CLK	O	Clock 0 for 3 line serial
29	3DA_EN	O	Enable for 3ch DAC
30	PLL1_EN	O	PLL 1 enabling signal
31	VCO_BAND_SW	O	VCO bandwidth switch
32	DDS_EN	O	Enable for DDS
33	RX_POWER_SAVE	O	Power saving signal of RX unit
34	NC	-	No connection
35	GND	-	Ground
36	GND	-	Ground
CN58 (To CONTROL I/O D-sub 25-pin Connector)			
1	NC	-	No connection
2	NC	-	No connection
3	NC	-	No connection
4	NC (RSSI)	-	No connection (RSSI)
5	BER_CLK	O	for Bit Error Rate Clock
6	NC	-	No connection
7	EMON	I	External monitor switch input "L"=Monitor on, "H"=Monitor off
8	NC	-	No connection

Pin No.	Name	I/O	Function
9	EPTT	I	External press-to-talk switch input "L"=PTT on, "H"=PTT off
10	AI1	I	Programmable function input 1
11	SC	O	Squelch control output "L"=Busy, "H"=Not busy
12	AI2	I	Programmable function input 2
13	BER_DAT	O	for Bit Error Rate Data
14	AI3	I	Programmable function input 3
15	TXG	-	TX signal ground for TA,TD
16	DG	-	Control line ground
17	IO1	I/O	Programmable function input/output 1
18	TD	I	TX-DATA input (data or Signaling) Input impedance=600Ω Coupling=AC coupling Deviation=0.75kHz (Wide)/ 0.75kHz (Narrow) at 100Hz 0.5Vpp input
19	IO2		Programmable function input/output 2
20	TA	I	TX audio input (voice) Input impedance=600Ω Coupling=AC coupling Frequency response=Pre-emphasis curve Deviation=60% deviation at 1kHz 280mVrms±25mV input
21	IO3	I/O	Programmable function input/output 3
22	RD	O	RX-DATA output (data or Signaling) output impedance=1kΩ or less Coupling=AC coupling Non-squelched Frequency responses=±2.5dB at 10~3000Hz Output level=70~90mVrms (standard modulation)
23	IO4		Programmable function input/output 4
24	RA	O	RX-Audio output (voice) output impedance=1kΩ or less Coupling=AC coupling Squelched Frequency responses=De-emphasis curve Output level=360~440mVrms (standard modulation)
25	IO5	I/O	Programmable function input/output 5
26	RXG	-	RX signal ground for RA, RD
27	IO6	I/O	Programmable function input/output 6
28	SPM	I	Speaker mute signal input. "L"=Mute on
29	NC	-	No connection
30	NC	-	No connection
CN59 (To TEST/SPKR 15-pin Connector)			
1	AO5	O	Auxiliary output 5
2	AO4	O	Auxiliary output 4

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
3	AO3	O	Auxiliary output 3
4	SPO	O	Speaker AF output
5	AO2	O	Auxiliary output 2
6	SPO	O	Speaker AF output
7	AO1	O	Auxiliary output 1
8	SPI	I	Internal speaker AF input
9	RSSI	O	RSSI output (Analog signal output)
10	RD	O	RX-DATA output (Equal to D-sub connector terminal No22)
11	GND	-	Ground
12	SPG	-	Speaker ground
13	GND	-	Ground
14	SPG	-	Speaker ground
15	NC	-	No connection
16	NC	-	No connection
17	SB	O	Power supply output
18	NC	-	No connection
19	SB	O	Power supply output
20	NC	-	No connection
CN60 (To Internal Speaker)			
1	SPO	O	Internal speaker AF output
2	SPG	-	Internal speaker ground

Control Unit (X53-4140-10)

Serial data inable signal to potentiometer of OCXO unit

Pin No.	Name	I/O	Function
CN300 (To X55-309 CN43)			
	RX_IF_VN	I	2nd IF signal (450 kHz) of NXDN mode
CN400 (To X56-311 A/3 CN805)			
1	GND	-	Ground
2	GND	-	Ground
3	REF_SW2	O	Control signal for reference clock change circuit
4	WP	O	Write protection signal to EEPROM
5	REF_SW	O	Control signal for reference clock change circuit
6	OX_SCL	O	ADC of OCXO unit (for electric current detection) to serial clock
7	EXT_EXIST	I	External reference clock detection signal
8	OX_SDA	I/O	ADC of OCXO unit (for electric current detection) to serial data input/output
9	REF_EXIST	I	Reference clock detection signal
10	IMP_H_L	-	No connection
11	REF_IN_OUT	O	Control signal for reference clock change circuit

Pin No.	Name	I/O	Function
12	GND	-	Ground
13	OX_SDI2	I	Serial data input from potentiometer of OCXO unit
14	GND	-	Ground
15	OCXO_VR_EN	O	Serial data enable signal to potentiometer of OCXO unit
16	GND	-	Ground
17	OCXO_ON	O	Power source control of OCXO unit
18	GND	-	Ground
19	OCXO_CURR	I	Monitor of the voltage which detects current of OCXO unit
20	GND	-	Ground
21	OCXO_EXIST	I	Detection signal of OCXO unit presence
22	GND	-	Ground
23	VCXO_DA_EN	O	DDS (5.99MHz) to serial data enabling signal
24	GND	-	Ground
25	REF_LDT	I	Lock detection signal from PLL (19.2MHz)
26	GND	-	Ground
27	PLL_19_EN	O	Serial data enabling signal to PLL (19.2MHz)
28	GND	-	Ground
29	PLL_19_CE	-	No connection
30	GND	-	Ground
31	OX_SDO2	O	DAC of OCXO unit to serial data output
32	GND	-	Ground
33	OX_SCLK2	O	DAC of OCXO unit to serial clock output
34	33MPU	O	3.3V constant voltage
35	GND	-	Ground
36	GND	-	Ground
CN401 (To X53-413 CN1)			
1	GND	-	Ground
2	GND	-	Ground
3	RX_POWER_SAVE	O	Power saving signal of RX unit
4	OCXO_ST_R	O	OCXO LED red control
5	OCXO_ST_G	O	OCXO LED green control
6	VOLUME_IN	I	Voltage monitor for audio level control
7	PWR_ST_R	O	POWER LED red control
8	MOD_D_OUT	O	Transmission modulating signal of NXDN mode
9	GND	-	Ground
10	RX_AUDIO_D	O	Reception demodulating signal of NXDN mode
11	BEEP	O	Beep sound signal output
12	MIC_D_IN	I	Audio signal before the transmission compressing of the NXDN mode

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
13	INRA_SW	-	No connection
14	NC	-	No connection
15	HOOK_RXD_SCM	I	Hook detection input
16	AMP_SW	O	Power source control of audio power amplifier
17	SCM_EN	-	No connection
18	AF_MUTE	O	Audio mute control
19	INSP_SW	-	No connection
20	EVOL_DATA	O	Serial data to DAC (for audio level adjustment)
21	PTT_AM16C	I	"Press-to-talk-switch" signal to Main MPU
22	EVOL_CLK	O	Serial clock to DAC (for audio level adjustment)
23	GND	-	Ground
24	EVOL_LD	O	Serial load to DAC (for audio level adjustment)
25	TAAD_SW	O	Route formation signal of audio circuit
26	TA_SW	O	Route formation signal of audio circuit
27	BEEP_SW	O	Route formation signal of audio circuit
28	PATH_SW	O	Route formation signal of audio circuit
29	RXAD_SW	O	Route formation signal of audio circuit
30	MIC_SW	O	Route formation signal of audio circuit
31	MICAD_SW	O	Route formation signal of audio circuit
32	TD_SW	O	Route formation signal of audio circuit
33	NC	-	No connection
34	LO_VOL_DET	I	Detection of voltage for low voltage state
35	GND	-	Ground
36	PTT_TXD_SCM	-	No connection
CN402 (To X53-413 CN2)			
1	HI_VOL_DET	I	Voltage monitor
2	GND	-	Ground
3	50MPU_A_GND	-	Ground
4	50MPU	I	5V constant voltage
5	50MPU_A_GND	-	Ground
6	DC50	I	5V constant voltage
7	DC50	I	5V constant voltage
8	DC50	I	5V constant voltage
9	DC50	I	5V constant voltage
10	33MPU_A_GND	-	Ground
11	33MPU	I	3.3V constant voltage
12	33MPU	I	3.3V constant voltage
13	33MPU_A_GND	-	Ground
14	50MPU_A	I	5V constant voltage
15	33MPU_A	I	3.3V constant voltage

Pin No.	Name	I/O	Function
16	33SH	O	3.3V constant voltage
17	50MPU_CONT	O	5V regulator control
18	NC	-	No connection
19	E_PTT_SH	I	"External press-to-talk-switch" signal to Main MPU
20	SC_SH	I	"Squelch control" signal to Main MPU
21	GND	-	Ground
22	SRXD_ATXO	O	UART signal from RF control MPU to Main MPU
23	STXO_ARXO	I	UART signal from Main MPU to RF control MPU
24	GND	-	Ground
25	RF_PTT	I	"Press-to-talk-switch" signal to Main MPU
26	TX_STATE	I	"During the transmission" signal to Main MPU
27	QT_DQT	I	"Detect QT or DQT" signal to Main MPU
28	RADIO_EER	I	"Detect accident of RF block" signal to Main MPU
29	GND	-	Ground
30	ADSP_CK_SFT	O	"Frequency shift" signal to Analog mode DSP
31	TRUKING	I	"Trunking mode" signal to Main MPU
32	A16C_CK_SFT	O	"Frequency shift" signal to RF control MPU
33	BER_DAT	O	Serial data for measurement bit error rate
34	BER_CLK	O	Serial clock for measurement bit error rate
35	GND	-	Ground
36	SYS_RST	O	System reset signal from modem control MPU
CN713 (To COM D-sub 9-pin connector)			
1	CD	-	No connection
2	DSR	I	Data Set Ready
3	RD	I	Receive Data
4	RTS	O	Request to Send
5	SD	O	Send Data
6	CTS	I	Clear to Send
7	DTR	O	Data Terminal Ready
8	RI	-	No connection
9	GND	-	Ground

RX Unit (X55-3092-72)

Pin No.	Name	I/O	Function
CN5 (To RX ANT)			
1	RX_SIGNAL	I	Receive signal input (Coaxial)
CN41			
1	MONITOR_PORT	O	Use for RX BPF tuning (Coaxial)

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
CN42 (To X53-413 CN57)			
1	GND	-	Ground
2	GND	-	Ground
3	NC	-	No connection
4	RX_POWER_SAVE	I	RX power save
5	DDS_EN	I	Enable input for DDS
6	VCO_BAND_SW	I	VCO band switch
7	PLL1_EN	I	Enable input for PLL1
8	DA_EN	I	Enable input for DA
9	SIF_CLK	I	Clock input for PLL1/PLL2/DDS/DA
10	GND	-	Ground
11	SIF_DAT	I	Data input for PLL1/PLL2/DDS/DA
12	RX_AUDIO	O	RX audio output
13	PLL_PWR_SAVE	I	Enable input for PLL1/PLL2
14	GND	-	Ground
15	NC	-	No connection
16	FM_RSSI	O	FM RSSI output
17	PLL2_EN	I	Enable input for PLL2
18	NC (AGC_RSSI)	-	No connection
19	PLL_LOCK_DET	O	PLL1/PLL2 lock detect output
20	CONT_5.0V	I	Switched 5V supply
21	NC	-	No connection
22	AD_CLK	O	AD logic data output
23	GND	-	Ground
24	AD_CLK	I	Clock input for AD
25	NC (IF_NW_SW)	-	No connection
26	AD_DAT_WRITE	I	Serial data input for AD
27	IF_BW_SW	I	IF bandwidth switch input
28	AD_CS	I	Enable input for AD
29	D_GND	-	Ground
30	E2PROM_SCL	I	Clock input for EEPROM
31	CONT_5.0V	I	Switched 5V supply
32	E2PROM_SDA	I/O	Data input/output for EEPROM
33	D_GND	-	Digital ground
34	WP	I	Write protection input for EEPROM
35	GND	-	Ground
36	GND	-	Ground
CN43 (To X53-414 CN300)			
1	RX_IF_VN	O	RX NXDN detection output
CN44 (To X45-385 C/5 CN15)			
1	E	-	Ground
2	B	I	Power supply input

Pin No.	Name	I/O	Function
3	B	I	Power supply input
CN45 (To X56-311 A/3 CN406)			
1	REF1	I	Reference signal input
CN46			
1	-	I	Use for RX MCF tuning
2	GND	-	Ground
CN47			
1	-	O	Use for RX MCF tuning
2	-	-	Ground

TX Unit (X56-3112-72) (A/3)

Pin No.	Name	I/O	Function
CN403			
1	REF_OUT (10MHz)	O	Reference signal distribution (coaxial)
CN405 (To X53-414 CN302)			
1	REF2 (19.2MHz)	O	Not used (DSP reference signal output (coaxial))
CN406 (To X55-309 CN45)			
1	REF1 (19.2MHz)	O	RX reference signal output (coaxial)
CN407 (To X42-328 CN2: OCXO Optional unit)			
1	OCXO	I	OCXO (Optional unit) reference signal input (coaxial)
CN408			
1	REF_IN (10MHz)	I	External reference signal input (coaxial)
CN801 (To X45-385 C/5 CN12)			
1	E	-	Ground
2	B	I	Power supply (Vcc)
3	B	I	Power supply (Vcc)
CN802 (To X45-385 A/5 CN1)			
1	TX OUT	O	TX driver output signal (coaxial)
CN803 (To X42-328 CN1: OCXO Optional unit)			
1	33MPU	O	Switched 3.3V power supply
2	GND	-	Ground
3	OX_SDA	I/O	OCXO EEPROM serial data
4	OX_SCL	O	OCXO EEPROM serial clock
5	OCXO_VR_EN	O	Enable output for OCXO IC3 (potentiometer)
6	OCXO_ON	O	OCXO power on signal
7	OX_SCLK2	O	Serial clock output for OCXO IC3 (potentiometer)
8	OCXO_CURR	I	OCXO current detection signal
9	OX_SDI2	I	Serial data input for OCXO IC3 (potentiometer)
10	OCXO_EXIST	I	OCXO detection signal

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
11	OX_SDO2	O	Serial data output for OCXO IC3 (potentiometer)
12	GND	-	Ground
13	REF_SW2	O	OCXO reference signal output switch
CN804 (To X53-413 CN56)			
1	GND	-	Ground
2	GND	-	Ground
3	WP	I	EEPROM write protect signal input
4	MOD	I	Moduration signal input
5	GND	-	Ground
6	SDO1	I	Serial data input for IC101, IC202, IC303, IC802, IC803
7	SCLK0	I	Serial clock input for IC703
8	SCLK1	I	Serial clock input for IC101, IC202, IC303, IC802, IC803
9	SDO0	I	Serial data input for IC701, IC703
10	SDI1	O	Serial data output for IC803
11	SR_EN	I	Enable input for IC701, IC703
12	8AD_EN	I	Enable input for IC803
13	SR_OE	I	Enable input for IC703
14	2DA_CE	I	Chip enable input for IC802
15	3DA_EN	I	Enable input for IC701
16	2DA_EN	I	Enable input for IC802
17	LDT	O	RF PLL lock detect output
18	132_CE	I	Chip enable input for IC303
19	440_CE	I	Chip enable input for IC101
20	132_EN	I	Load enable input for IC303
21	440_EN	I	Load enable input for IC101
22	VR_EN	I	Load enable input for IC304
23	DDS_EN/VER	I/O	Load enable input for IC202 / Hardware version control signal output
24	ANT_SW	I	TX antenna switch input
25	TEMP_PRT	O	Temp protection signal output
26	SCK	I	EEPROM Clock
27	D_GND	-	Ground
28	SDA	I/O	EEPROM Data
29	D_GND	-	Ground
30	CONT_5.0V	I	Switched 5V power supply
31	D_GND	-	Ground
32	CONT_5.0V	I	Switched 5V power supply
33	GND	-	Ground
34	PAG	I	POCSAG Switch
35	GND	-	Ground
36	GND	-	Ground

Pin No.	Name	I/O	Function
CN805 (To X53-414 CN400)			
1	GND	-	Ground
2	GND	-	Ground
3	33MPU	I	Switched 3.3V power supply
4	OX_SCLK2	I	Serial clock input for IC601, IC404
5	GND	-	Ground
6	OX_SDO2	I	Serial data input for IC601, IC404
7	GND	-	Ground
8	PLL_19_CE	I	100kohm load
9	GND	-	Ground
10	PLL_19_EN	I	Enable input for IC404
11	GND	-	Ground
12	REF_LDT	O	19.2MHz PLL lock detect output
13	GND	-	Ground
14	VCXO_DA_EN	I	Enable input for IC601
15	GND	-	Ground
16	OCXO_EXIST	O	OCXO detection signal
17	GND	-	Ground
18	OCXO_CURR	O	OCXO current detection signal
19	GND	-	Ground
20	OCXO_ON	I	OCXO power on signal
21	GND	-	Ground
22	OCXO_VR_EN	I	Enable input for OCXO IC3 (potentiometer)
23	GND	-	Ground
24	OX_SDI2	O	Serial data output for OCXO IC3 (potentiometer)
25	GND	-	Ground
26	REF_IN_OUT	I	Reference clock switched signal input
27	IMP_H_L	I	100kohm load
28	REF_EXIST	O	Reference detector signal output
29	OX_SDA	I/O	OCXO EEPROM serial data
30	EXT_EXIST	O	External reference detector signal output
31	OX_SCL	I	OCXO EEPROM serial clock
32	REF_SW	I	Reference signal output switch
33	WP	I	EEPROM write protect signal input
34	REF_SW2	I	OCXO reference signal output switch
35	GND	-	Ground
36	GND	-	Ground
CN806 (To X45-385 A/5 CN20)			
1	GND	-	Ground
2	GND	-	Ground
3	WP	O	EEPROM write protect signal output

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
4	GND	-	Ground
5	D_GND	-	Ground
6	SDA	I/O	EEPROM Data
7	D_GND	-	Ground
8	SCK	O	EEPROM Clock
9	D_GND	-	Ground
10	CONT_5.0V	O	Switched 5V power supply
11	D_GND	-	Ground
12	TEMP_PRT	I	Temp protection signal input
13	GND	-	Ground
14	ANT_SW	O	TX antenna switch output
15	GND	-	Ground
16	TEMP_RST	O	Temperature sensor reset signal output
17	GND	-	Ground
18	FAN_CONT2	O	FAN2 control signal output
19	GND	-	Ground
20	FAN_CONT	O	FAN1 control signal output
21	GND	-	Ground
22	PWR_CONT	O	Power control signal output
23	GND	-	Ground
24	PWR_PRT	O	Power protection signal output
25	GND	-	Ground
26	RFL_PWR	I	Reflect power signal input
27	GND	-	Ground
28	FWD_PWR	I	Forward power signal input
29	GND	-	Ground
30	FAN_CURR	I	Fan current monitor signal input
31	GND	-	Ground
32	PA_CURR	I	PA current monitor signal input
33	GND	-	Ground
34	NC	-	No connection
35	GND	-	Ground
36	GND	-	Ground
CN807 (To X42-328 CN3: OCXO Optional unit)			
1	8OCXO	O	OCXO power supply 8V
2	GND	-	Ground

TX Unit (X56-3112-72) (B/3)

Pin No.	Name	I/O	Function
CN920 (To X56-311 C/3 CN960)			
1	DC8	O	8V Power supply
2	GND	-	Ground

Pin No.	Name	I/O	Function
3	50MPU	O	Switched 5V power supply
4	STB	O	Shift Register Strobe
5	SR_OE	O	Shift Register Output Enable
6	SR_CLK	O	Shift Register Clock
7	SR_DATA	O	Shift Register Data
8	LED1	O	D960 segment "F" control
9	GND	-	Ground
10	LED10	O	D961 segment "F" control
CN921 (To X53-413 CN3)			
1	MIG	-	MIC Ground
2	GND	-	Ground
3	MIC	O	MIC Signal Input
4	33MPU	I	Switched 3.3V power supply
5	33AUD	I	Switched 3.3V power supply
6	VOLUME_IN	O	Volume control output for AF signal
7	SB	I	Power supply output
8	OCXO_ST_R	I	OCXO Red LED Switch
9	PWR_ST_R	I	POWER Red LED Switch
10	OCXO_ST_G	I	OCXO Green LED Switch
11	GND	-	Ground
12	HOOK_RXD_SCM	O	HOOK detect signal
13	SCM_EN	-	No connection
14	PTT_TXD_SCM	O	MIC PTT
15	GND	-	Ground
16	SR_OE	I	Shift Register Output Enable
17	GND	-	Ground
18	SR_CLK	I	Shift Register Clock
19	GND	-	Ground
20	SR_DATA	I	Shift Register Data
21	GND	-	Ground
22	STB1	I	Shift Register Strobe
23	GND	-	Ground
24	K1	O	Key Scan
25	K2	O	Key Scan
26	K3	O	Key Scan
27	K4	I	Key Scan
28	K5	I	Key Scan
29	DC8	I	8V Power supply
30	GND	-	Ground
31	50MPU	I	Switched 5V power supply
32	50MPU	I	Switched 5V power supply
33	DC8	I	8V Power supply

TERMINAL FUNCTION

Pin No.	Name	I/O	Function
34	DC8	I	8V Power supply
35	GND	-	Ground
36	DC8	I	8V Power supply
CN923 (To X45-385 E/5 CN905)			
1	VOLUME_IN	I	Volume control input for AF signal
2	33MPU	O	Switched 3.3V power supply
3	GND	-	Ground
4	33AUD	O	Switched 3.3V power supply
5	SB	O	Power supply output
6	SCM_EN	-	No connection
7	GND	-	Ground
8	PTT_TXD_SCM	I	MIC PTT
9	HOOK_RXD_SCM	I	HOOK detect signal
10	MIG	-	MIC ground
11	MIC	I	MIC signal input

TX Unit (X56-3112-72) (C/3)

Pin No.	Name	I/O	Function
CN960 (To X56-311 B/3 CN920)			
1	DC8	I	8V Power supply
2	GND	-	Ground
3	50MPU	I	Switched 5V power supply
4	STB	I	Shift Register Strobe
5	SR_OE	I	Shift Register Output Enable
6	SR_CLK	I	Shift Register Clock
7	SR_DATA	I	Shift Register Data
8	LED1	I	D960 segment "F" control
9	GND	-	Ground
10	LED10	I	D961 segment "F" control

COM D-sub 9-pin Connector

Pin No.	Pin Name	I/O	Signal Type	Description / port Type	Specification	Min	Typ	Max	Unit	Remarks
1	CD	I	Digital	Carrier Detect	Input voltage range	-30	-	30	V	Conform to RS-232C
2	RD	I	Digital	Receive Data	Input voltage range	-30	-	30	V	
3	SD	O	Digital	Send Data	Voltage swing	±5	±5.2	-	V	
4	DTR	O	Digital	Data Terminal Ready	Voltage swing	±5	±5.2	-	V	
5	SG	-	GND	Signal GND	-	-	-	-	-	
6	DSR	I	Digital	Data Set Ready	Input voltage range	-30	-	30	V	
7	RTS	O	Digital	Request to Send	Voltage swing	±5	±5.2	-	V	
8	CTS	I	Digital	Clear to Send	Input voltage range	-30	-	30	V	
9	CI	I	Digital	Ringer DET	Input voltage range	-30	-	30	V	

TERMINAL FUNCTION

Microphone Connector

Pin No.	Pin Name	I/O	Signal Type	Description /port Type	Specification	Min	Typ	Max	Unit	Remarks
1	NC	-	-	-	-	-	-	-	-	-
2	SB	-	Power	Power	Voltage value	10.8	13.2	15.6	V	Related to DC power supply terminal input voltage.
					Allowable current value	-	-	0.2	A	
3	GND	-	GND	Digital GND	Allowable current value	-	-	0.2	A	-
4	PTT	I	Digital	PTT Signal CMOS Active Low	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	47kΩ PU
5	MIG	-	-	MIC GND	-	-	-	-	-	-
6	MIC	I	Analog	MIC Input	Input amplitude value (60%Dev@1kHz)	4	5.5	7	mVrms	-
					Input impedance (DC to 10kHz)	-	600	-	Ω	-
					Allowable frequency	0.3	-	3	kHz	-
7	HOOK	I	Digital	HOOK Detect Signal CMOS Active Low	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	47kΩ PU
8	NC	-	-	-	-	-	-	-	-	-

LAN Connector (RJ-45)

Pin No.	Pin Name	I/O	Signal Type	Description /port Type	Specification	Min	Typ	Max	Unit	Remarks
1	TD+	O	Analog	TX Signal +	-	0.95	-	1.05	V	Conform to IEEE802.3
2	TD-	O	Analog	TX Signal -	-	0.95	-	1.05	V	Conform to IEEE802.3
3	RD+	I	Analog	RX Signal +	-	-	-	-	-	Use Designated Transformer
4	NC	-	-	-	-	-	-	-	-	-
5	NC	-	-	-	-	-	-	-	-	-
6	RD-	I	Analog	RX Signal -	-	-	-	-	-	Use Designated Transformer
7	NC	-	-	-	-	-	-	-	-	-
8	NC	-	-	-	-	-	-	-	-	-

SYNC Connector

Pin No.	Pin Name	I/O	Signal Type	Description /port Type	Specification	Min	Typ	Max	Unit	Remarks
1	FRMA	I/O	-	RS-485 Differential Signal A	[Input] VID=VA-VB	-12	-	12	V	Conform to RS-485
					[Output] (No load) VOD= VA-VB	3	4.3	-	V	
2	NC	-	-	-	-	-	-	-	-	-
3	NC	-	-	-	-	-	-	-	-	-
4	FRMB	I/O	-	RS-485 Differential Signal B	[Input] VID=VA-VB	-12	-	12	V	Conform to RS-485
					[Output] (No load) VOD= VA-VB	3	4.3	-	V	

TERMINAL FUNCTION

CONTROL I/O D-sub 25-pin Connector

Pin No.	Pin Name	I/O	Signal Type	Signal Summary	Specification	Min	Typ	Max	Unit	Remarks
1	NC (RSSI)	-	-	-	-	-	-	-	-	-
2	NC	-	-	-	-	-	-	-	-	-
3	NC	-	-	-	-	-	-	-	-	-
4	AI1	I	Digital	Programmable Function Input 1 /CMOS	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	
5	AI2	I	Digital	Programmable Function Input 2 /CMOS	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	
6	AI3	I	Digital	Programmable Function Input 3 /CMOS	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	
7	DG	-	GND	Digital GND	-	-	-	-	-	-
8	TD	I	Analog	TX Data Input (signaling)	INPUT: 0.1kHz/0.5Vp-p	0.7	0.75	0.8	kHzDEV	NFM
					Input impedance	-	600	-	Ω	600Ω PD is applied to GND.
9	TA	I	Analog	TX Audio Input (voice)	1kHz/60% Dev	270	280	290	mV	NFM
					Input impedance	-	600	-	Ω	600Ω PD is applied to GND.
10	RD	O	Analog	RX Data Output (signaling) Not squelched	INPUT: 60% Dev.	75	80	85	mV	-
11	RA	O	Analog	RX Audio Output (voice) Squelched	INPUT: 60% Dev.	380	400	420	mV	-
12	RXG	-	GND	RX Signal GND	-	-	-	-	-	-
13	SPM	I	Digital	Speaker Mute /CMOS	VIH	0.7Vcc	-	5.5	V	Vcc=3.3V±2%
					VIL	-	-	0.3Vcc	V	
					Input impedance	-	47k	-	Ω	
14	BER_CLK	O	Digital	for Bit Error Rate Clock	VOH (IO=-50μA)	Vcc-0.1	Vcc	-	V	47kΩ PU to Vcc
					VOL (IO=50μA)	-	0	0.1	V	
15	EMON	I	Digital	External Monitor Switch	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	
16	EPTT	I	Digital	External PTT Switch	VIH	0.8Vcc	-	Vcc	V	Vcc=5V ±2%
					VIL	0	-	0.2Vcc	V	
					Input impedance	-	47k	-	Ω	
17	SC	O	Digital	Squelch Control	VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	47kΩ PU to Vcc
					VOL (IO=200μA)	-	-	0.45	V	
18	BER_DAT	O	Digital	for Bit Error Rate Data	VOH (IO=-50μA)	Vcc-0.1	Vcc	-	V	47kΩ PU to Vcc
					VOL (IO=50μA)	-	0	0.1	V	

TERMINAL FUNCTION

Pin No.	Pin Name	I/O	Signal Type	Signal Summary	Specification	Min	Typ	Max	Unit	Remarks
19	TXG	-	GND	TX Signal GND	-	-	-	-	-	-
20	IO1	I	Digital	Programmable Function I/O 1	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
		O			Input impedance	-	47k	-	Ω	47kΩ PU to Vcc
					VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	
					VOL (IO=200μA)	-	-	0.45	V	
21	IO2	I	Digital	Programmable Function I/O 2	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
		O			Input impedance	-	47k	-	Ω	47kΩ PU to Vcc
					VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	
					VOL (IO=200μA)	-	-	0.45	V	
22	IO3	I	Digital	Programmable Function I/O 3	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
		O			Input impedance	-	47k	-	Ω	47kΩ PU to Vcc
					VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	
					VOL (IO=200μA)	-	-	0.45	V	
23	IO4	I	Digital	Programmable Function I/O 4	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
		O			Input impedance	-	47k	-	Ω	47kΩ PU to Vcc
					VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	
					VOL (IO=200μA)	-	-	0.45	V	
24	IO5	I	Digital	Programmable Function I/O 5	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
		O			Input impedance	-	47k	-	Ω	47kΩ PU to Vcc
					VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	
					VOL (IO=200μA)	-	-	0.45	V	
25	IO6	I	Digital	Programmable Function I/O 6	VIH	0.8Vcc	-	Vcc	V	Vcc=5V±2%
					VIL	0	-	0.2Vcc	V	
		O			Input impedance	-	47k	-	Ω	47kΩ PU to Vcc
					VOH (IO=-200μA)	Vcc-2.0	-	Vcc	V	
					VOL (IO=200μA)	-	-	0.45	V	

TERMINAL FUNCTION

TEST/SPKR 15-pin Connector

Pin No.	Pin Name	I/O	Signal Type	Con-figuration Change	Signal Summary	Specification	Min	Typ	Max	Unit	Remarks
1	SB	-	-	No	Power Supply	Voltage value	10.8	13.2	15.6	V	Related to DC power supply terminal input voltage.
						Supply current	-	-	1	A	
2	SB	-	-	No	Power Supply	Voltage value	10.8	13.2	15.6	V	Related to DC power supply terminal input voltage.
						Supply current	-	-	1	A	
3	NC	-	-	-	-	-	-	-	-	-	-
4	GND	-	GND	No	Digital GND	-	-	-	-	-	-
5	GND	-	GND	No	Digital GND	-	-	-	-	-	-
6	SPG	-	GND	No	Speaker GND	-	-	-	-	-	-
7	RD	O	Analog	No	RX Data Output (signaling) Not squelched	INPUT: 60% Dev.	75	80	85	mV	-
8	RSSI	O	Analog	No	RSSI Output	Amplitude value	0	-	5	V	-
						Allowable Load value	10k	-	-	Ω	-
9	SPI	I	Analog	No	Internal Speaker Input	-	-	-	-	-	-
10	AO1	O	Digital	default	Auxiliary Output 1 Open collector	External voltage value	-	-	16	V	-
						Supply current	-	-	200	mA	-
				\$R520=47k D5=delete	Auxiliary Output 1 Open collector with PU	PU resistor	-	47k	-	Ω	V _{cc} =5V±2%
						VOL (IO=0mA)	-	-	0.1	V	-
11	AO2	O	Digital	default	Auxiliary Output 2 Open collector	External Voltage value	-	-	16	V	-
						Supply current	-	-	200	mA	-
				\$R519=47k D12=delete	Auxiliary Output 2 Open collector with PU	PU resistor	-	47k	-	Ω	V _{cc} =5V±2%
						VOL (IO=0mA)	-	-	0.1	V	-
12	SPO	O	Analog	No	External Speaker Output	Output level	-	-	3	W	-
						Output impedance	-	-	4	Ω	-
13	AO3	O	Digital	default	Auxiliary Output 3 Open collector	External voltage value	-	-	16	V	-
						Supply current	-	-	200	mA	-
				\$R518=47k D28=delete	Auxiliary Output 3 Open collector with PU	PU resistor	-	47k	-	Ω	V _{cc} =5V±2%
						VOL (IO=0mA)	-	-	0.1	V	-
14	AO4	O	Digital	default	Auxiliary Output 4 Open collector	External voltage value	-	-	16	V	-
						Supply current	-	-	200	mA	-
				\$R517=47k D30=delete	Auxiliary Output 4 Open collector with PU	PU resistor	-	47k	-	Ω	V _{cc} =5V±2%
						VOL (IO=0mA)	-	-	0.1	V	-
15	AO5	O	Digital	default	Auxiliary Output 5 Open collector	External voltage value	-	-	16	V	-
						Supply current	-	-	200	mA	-
				\$R516=47k D32=delete	Auxiliary Output 5 Open collector with PU	PU resistor	-	47k	-	Ω	V _{cc} =5V±2%
						VOL (IO=0mA)	-	-	0.1	V	-

NXR-700

PARTS LIST

* New Parts. Δ indicates safety critical components.

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

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

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

L : Scandinavia

Y : PX (Far East, Hawaii)

C : China

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

NXR-700

FINAL UNIT (X45-3852-71)

Ref. No.	Address	New parts	Parts No.	Description	Destination
NXR-700					
1	3A		A62-1142-02	MAIN PANEL	
3	1E		B10-2781-04	FRONT GLASS ACCESSORY	
4	3A		B11-1841-04	FILTER(PF)	
5	3A		B11-1842-04	FILTER(17SEG)	
6	3A		B11-1843-04	FILTER(LED)	
7	3A		B11-1844-04	FILTER(STATUS)	
8	3A		B42-7296-04	STICKER(NEXEDGE)	
9	3A		B43-1188-04	BADGE	
10	1F	*	B62-2114-30	INSTRUCTION MANUAL	
11	2B		E04-0463-05	RF COAXIAL RECEPTACLE(BNC)	
12	1F		E30-3427-45	DC CORD ACCESSORY	
13	1B		E30-7581-05	DC CORD	
14	2C		E30-7582-05	TRUNK CABLE	
15	1B,2C		E30-7583-05	TRUNK CABLE	
16	1E		E30-7701-15	MODULAR CABLE(SYNC) ACCESSORY	
17	1B,1C		E37-1295-05	FLAT CABLE(36P)	
18	1B		E37-1299-05	LEAD WIRE WITH TERMINAL(FUSE-DC+)	
19	1B		E37-1300-05	LEAD WIRE WITH TERMINAL(FUSE-DC-)	
20	1B		E37-1301-05	LEAD WIRE WITH TERMINAL(DC-PA+)	
21	1B		E37-1302-05	LEAD WIRE WITH TERMINAL(DC-PA-)	
22	2C		E37-1303-05	LEAD WIRE WITH CONNECTOR(BNC-RX)	
23	1D		E37-1304-05	LEAD WIRE WITH CONNECTOR(BNC-REF)	
24	1B		E37-1305-05	LEAD WIRE WITH CONNECTOR(DC-TX)	
25	1C		E37-1306-05	LEAD WIRE WITH CONNECTOR(DC-CONT)	
26	2C		E37-1307-05	LEAD WIRE WITH CONNECTOR(DC-RX)	
28	1D		E37-1310-05	LEAD WIRE WITH CONNECTOR(DSUB-25P)	
29	3B		E37-1311-05	LEAD WIRE WITH CONNECTOR(DSUB-9P)	
30	2D		E37-1313-05	LEAD WIRE WITH CONNECTOR(ACC15)	
31	3B		E37-1314-05	LEAD WIRE WITH CONNECTOR(DISP-MIC)	
32	3B		E37-1315-05	LEAD WIRE WITH CONNECTOR(DISP-17SEG)	
33	2B		E37-1316-05	LEAD WIRE WITH CONNECTOR(SP)	
34	1E		E37-1381-05	15P PLUG ACCESSORY	
36	1D,1E		F05-1537-05	FUSE(15A/32V) ACCESSORY	
37	2A		F07-1930-05	COVER(FAN)	
38	1D		F09-0445-05	CAP(25P)	
39	3B		F09-0484-05	CAP(9P)	
40	2A		F09-0491-05	FANMOTOR	
42	3A		G10-1343-04	FIBROUS SHEET(FRONT PANEL)	
44	3C		G10-1396-04	FIBROUS SHEET(SHIELDING COVER)	
45	2B		G11-4408-04	RUBBER SHEET(CONT-TR)	
47	3A		G13-2163-04	CUSHION(PF)	
48	1C		G13-2382-04	CONDUCTIVE CUSHION(COMPACT FLASH)	
52	3B		J19-5496-12	HOLDER(DISP)	
53	1C		J19-5546-05	HOLDER(COMPACT FLASH)	
54	1E		J29-0725-04	BRACKET(SIDE) ACCESSORY	
55	3A		J39-0655-03	SPACER(SP)	
58	1E		K01-0421-05	HANDLE ACCESSORY	
59	3A		K29-4539-04	KNOB(VOLUME)	
A	1E		N08-0563-04	DRESSED SCREW(FRONT GLASS)	
B	3B,1D		N09-2292-05	HEXAGON HEAD SCREW(DSUB)	
D	2C,1D		N30-2606-48	PAN HEAD MACHINE SCREW(BNC)	
E	2A		N30-3035-43	PAN HEAD MACHINE SCREW(FAN)	

Ref. No.	Address	New parts	Parts No.	Description	Destination
F	2D,3D		N32-3006-43	FLAT HEAD MACHINE SCREW(TOP/REAR)	
G	3A,1E		N32-4008-43	FLAT HEAD MACHINE SCREW(PANEL)	
H	1B,1C		N67-3008-48	PAN HEAD SEMS SCREW(AVR)	
J	3B		N80-2006-43	PAN HEAD TAPTITE SCREW(DISP)	
K	1D		N80-2608-43	PAN HEAD TAPTITE SCREW(FUSE)	
L	1B,2C		N87-2608-48	BRAZIER HEAD TAPTITE SCREW(PCB)	
64	3A		T07-0347-15	SPEAKER	
-			X53-4132-72	SERVICE CONTROL UNIT	
-			X53-4140-11	SERVICE CONTROL UNIT	
-			490-0174-05	ADHESIVE TAPE	
FINAL UNIT (X45-3852-71)					
C1 ,2			CD04BQ1H101M	ELECTRO 100UF 50WV	
C7 ,8			CE32BM1V220M	CHIP EL 22UF 35WV	
C10 ,11			CK73GB1H102K	CHIP C 1000PF K	
C15 -17			CK73GB1H103K	CHIP C 0.010UF K	
C21			CK73GB1H102K	CHIP C 1000PF K	
C22			C93-0564-05	CHIP C 22PF J	
C25 ,26			CK73GB1H103K	CHIP C 0.010UF K	
C29 ,30			CK73GB1H102K	CHIP C 1000PF K	
C32 ,33			CE32BM1V220M	CHIP EL 22UF 35WV	
C36			CK73GB1H102K	CHIP C 1000PF K	
C37			CK73GB1H103K	CHIP C 0.010UF K	
C38			CE32BM1V220M	CHIP EL 22UF 35WV	
C39			CK73GB1H102K	CHIP C 1000PF K	
C40			CK73GB1H103K	CHIP C 0.010UF K	
C41 ,42			CK73GB1H102K	CHIP C 1000PF K	
C44			CE32CL1V100M	CHIP EL 10UF 35WV	
C46			CK73GB1H102K	CHIP C 1000PF K	
C47			CK73GB1H103K	CHIP C 0.010UF K	
C49			CK73GB1H473K	CHIP C 0.047UF K	
C50 -52			CK73GB1H102K	CHIP C 1000PF K	
C53			CK73GB1H103K	CHIP C 0.010UF K	
C59			CK73GB1H103K	CHIP C 0.010UF K	
C60			C93-0573-05	CHIP C 120PF J	
C61			CK73GB1H102K	CHIP C 1000PF K	
C62			CK73GB1H103K	CHIP C 0.010UF K	
C63 -65			CK73GB1H102K	CHIP C 1000PF K	
C67			CK73GB1H102K	CHIP C 1000PF K	
C68			CE32CL1V100M	CHIP EL 10UF 35WV	
C70			CK73GB1H103K	CHIP C 0.010UF K	
C71 -75			CK73GB1H102K	CHIP C 1000PF K	
C77 ,78			CK73GB1H102K	CHIP C 1000PF K	
C80			CK73GB1H103K	CHIP C 0.010UF K	
C82			CK73GB1H104K	CHIP C 0.10UF K	
C83			CK73GB1H102K	CHIP C 1000PF K	
C85			CC73GCH1H330J	CHIP C 33PF J	

PARTS LIST

FINAL UNIT (X45-3852-71)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C86			CK73GB1H103K	CHIP C 0.010UF K		L5			L34-4522-05	AIR-CORE COIL	
C87			CC73GCH1H330J	CHIP C 33PF J		L6			L34-4519-05	AIR-CORE COIL	
C88 -90			CK73GB1H102K	CHIP C 1000PF K		L7			L34-4521-05	AIR-CORE COIL	
C95 -102			CK73GB1H102K	CHIP C 1000PF K		L9			L34-4638-05	AIR-CORE COIL	
C104			CK73GB1H102K	CHIP C 1000PF K		L10			L34-4614-05	AIR-CORE COIL	
C105			C93-0603-05	CHIP C 1000PF K		L12			L34-4522-05	AIR-CORE COIL	
C108,109			CK73GB1H102K	CHIP C 1000PF K		L13 -15			L34-4521-05	AIR-CORE COIL	
C112			CK73GB1H102K	CHIP C 1000PF K		L17			L34-4523-05	AIR-CORE COIL	
C113,114			CK73GB1H472K	CHIP C 4700PF K		L19			L41-2278-14	SMALL FIXED INDUCTOR(22NH)	
C115			CK73GB1H102K	CHIP C 1000PF K		L900			L92-0447-05	BEADS CORE	
C116			C93-0554-05	CHIP C 4.0PF C		CP1			RK75GB1J103J	CHIP-COM 10K J 1/16W	
C117			CK73GB1H103K	CHIP C 0.010UF K		R1			RK73FB2B271J	CHIP R 270 J 1/8W	
C118			CK73GB1H102K	CHIP C 1000PF K		R2			RK73FB2B180J	CHIP R 18 J 1/8W	
C119			CC73GCH1H060D	CHIP C 6.0PF D		R3			RK73FB2B271J	CHIP R 270 J 1/8W	
C122			C93-0779-05	CHIP C 36PF J		R4			R92-3627-05	CHIP R 0.005 D 1.0W	
C123			C93-0566-05	CHIP C 33PF J		R9			RK73GB2A101J	CHIP R 100 J 1/10W	
C124			CK73GB1H102K	CHIP C 1000PF K		R12 ,13			RK73GB2A473J	CHIP R 47K J 1/10W	
C126			C93-0564-05	CHIP C 22PF J		R15			RK73GB2A332J	CHIP R 3.3K J 1/10W	
C127,128			CK73GB1H102K	CHIP C 1000PF K		R17			RK73GB2A103J	CHIP R 10K J 1/10W	
C130			C93-0562-05	CHIP C 15PF J		R20			RK73GB2A104J	CHIP R 100K J 1/10W	
C131			C93-0565-05	CHIP C 27PF J		R21 ,22			RK73GB2A824J	CHIP R 820K J 1/10W	
C133,134			CK73GB1H102K	CHIP C 1000PF K		R25			RK73GB2A104J	CHIP R 100K J 1/10W	
C138			CE32CL1V100M	CHIP EL 10UF 35WV		R26			RK73EB2E101J	CHIP R 100 J 1/4W	
C141			C93-0573-05	CHIP C 120PF J		R27			RK73GB2A224J	CHIP R 220K J 1/10W	
C147			C93-0567-05	CHIP C 39PF J		R28			RK73GB2A474J	CHIP R 470K J 1/10W	
C149			C93-0558-05	CHIP C 8.0PF D		R29 ,30			RK73GB2A103J	CHIP R 10K J 1/10W	
C158			C93-0565-05	CHIP C 27PF J		R31 ,32			RK73GB2A104J	CHIP R 100K J 1/10W	
C159			C93-0553-05	CHIP C 3.0PF C		R33			RK73GB2A824J	CHIP R 820K J 1/10W	
C161			CC73GCH1H180J	CHIP C 18PF J		R34			RK73FB2B8R2J	CHIP R 8.2 J 1/8W	
C162			CK73GB1H104K	CHIP C 0.10UF K		R35 ,36			RK73GB2A823J	CHIP R 82K J 1/10W	
C187,188			C92-0905-05	OS-CON 47UF 35WV		R37			RK73GB2A824J	CHIP R 820K J 1/10W	
C189			CK73GB1H103K	CHIP C 0.010UF K		R38			RK73FB2B151J	CHIP R 150 J 1/8W	
C190			CK73GB1H102K	CHIP C 1000PF K		R39 ,40			RK73GB2A684J	CHIP R 680K J 1/10W	
C191			CK73GB1E105K	CHIP C 1.0UF K		R41			RK73GB2A000J	CHIP R 0 J 1/10W	
C900			CK73GB1H104K	CHIP C 0.10UF K		R42			RK73FB2B8R2J	CHIP R 8.2 J 1/8W	
C901			CK73GB1H102K	CHIP C 1000PF K		R44			RK73FB2B8R2J	CHIP R 8.2 J 1/8W	
C902			CC73GCH1H101J	CHIP C 100PF J		R45 ,46			RK73GB2A000J	CHIP R 0 J 1/10W	
C904			CC73GCH1H101J	CHIP C 100PF J		R47			RK73FB2B151J	CHIP R 150 J 1/8W	
C905			CK73FBOJ106K	CHIP C 10UF K		R49			RK73GB2A000J	CHIP R 0 J 1/10W	
C906-908			CK73GB1H102K	CHIP C 1000PF K		R50 ,51			RK73GB2A104J	CHIP R 100K J 1/10W	
C909,910			CC73GCH1H101J	CHIP C 100PF J		R52			RK73FB2B8R2J	CHIP R 8.2 J 1/8W	
C912,913			CC73GCH1H101J	CHIP C 100PF J		R53 ,54			RK73GB2A154J	CHIP R 150K J 1/10W	
C914			CK73GB1H104K	CHIP C 0.10UF K		R55 -58			RK73GB2A104J	CHIP R 100K J 1/10W	
C915			CC73GCH1H101J	CHIP C 100PF J		R59 ,60			RK73GB2A103J	CHIP R 10K J 1/10W	
C916			CK73GB1H102K	CHIP C 1000PF K		R61			RK73EB2E101J	CHIP R 100 J 1/4W	
CN1			E04-0193-05	PIN SOCKET		R62			RK73GH2A433D	CHIP R 43K D 1/10W	
CN2			E23-0902-05	TERMINAL		R63			RK73GH2A333D	CHIP R 33K D 1/10W	
CN8			E41-2671-05	PIN ASSY(2P)		R64			RK73GB2A474J	CHIP R 470K J 1/10W	
CN11			E41-2673-05	PIN ASSY(4P)		R65			RK73GB2A473J	CHIP R 47K J 1/10W	
CN12			E41-2672-05	PIN ASSY(3P)		R66			RK73GB2A100J	CHIP R 10 J 1/10W	
CN15			E41-2672-05	PIN ASSY(3P)		R67			RS14DB3D560J	FL-PROOF RS 56 J 2W	
CN19			E04-0193-05	PIN SOCKET		R68			RK73GB2A104J	CHIP R 100K J 1/10W	
CN20			E40-6656-05	PIN ASSY(36P)		R69			RK73GB2A103J	CHIP R 10K J 1/10W	
CN905			E41-1483-05	PIN ASSY(11P)		R70 -72			RK73GB2A000J	CHIP R 0 J 1/10W	
J901			E58-0526-05	MODULAR JACK(MIC)		R75 ,76			RK73GB2A472J	CHIP R 4.7K J 1/10W	
CN4			J13-0071-05	FUSE HOLDER		R78			RK73GB2A104J	CHIP R 100K J 1/10W	
L1 ,2			L92-0179-05	CHIP FERRITE		R89			RK73GB2A000J	CHIP R 0 J 1/10W	
L3			L79-1938-05	FILTER		R92			RK73GB2A104J	CHIP R 100K J 1/10W	
L4			L92-0131-05	CHIP FERRITE		R98			RK73FB2B000J	CHIP R 0 J 1/8W	
						R102			RK73GB2A000J	CHIP R 0 J 1/10W	

PARTS LIST

FINAL UNIT (X45-3852-71)
CONTROL UNIT (X53-4132-71)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R104			RK73GB2A393J	CHIP R 39K J 1/10W	
R106			RK73GB2A000J	CHIP R 0 J 1/10W	
R123			RK73GB2A000J	CHIP R 0 J 1/10W	
R124			RK73FB2B220J	CHIP R 22 J 1/8W	
R125			R92-1061-05	JUMPER REST 0 OHM	
R140			RK73GB2A103J	CHIP R 10K J 1/10W	
R142			RK73GB2A000J	CHIP R 0 J 1/10W	
R145			RK73GB2A000J	CHIP R 0 J 1/10W	
R150			RK73GB2A000J	CHIP R 0 J 1/10W	
R156			RK73GB2A000J	CHIP R 0 J 1/10W	
R158			RK73GB2A000J	CHIP R 0 J 1/10W	
R900			RK73GB2A000J	CHIP R 0 J 1/10W	
R901			RK73GB2A182J	CHIP R 1.8K J 1/10W	
R902			RK73GB2A000J	CHIP R 0 J 1/10W	
R903			RK73GB2A681J	CHIP R 680 J 1/10W	
R905,906			RK73GB2A000J	CHIP R 0 J 1/10W	
R907			RK73GH2A153D	CHIP R 15K D 1/10W	
R909			RK73GB2A000J	CHIP R 0 J 1/10W	
R910			RK73GB2A182J	CHIP R 1.8K J 1/10W	
R911,912			RK73GB2A000J	CHIP R 0 J 1/10W	
R914			RK73GB2A222J	CHIP R 2.2K J 1/10W	
VR1			R32-0744-05	SEMI FIXED VARIABLE RESISTOR(220)	
VR2			R32-0754-05	SEMI FIXED VARIABLE RESISTOR(10K)	
VR902			R31-0668-15	VARIABLE RESISTOR(10K)	
D4			Z5W27V	SURGE ABSORBER	
D5			DSA3A1-FK	DIODE	
D6			1SS355	DIODE	
D7			02CZ5.6(Y)F	ZENER DIODE	
D9 ,10			HSB88WS	DIODE	
D11		*	L8103R	DIODE	
D16		*	L8103R	DIODE	
D19 ,20			RKP351KW-1P2	DIODE	
D902			AVRM16270MABB	VARISTOR	
IC1		*	INA195AIDBVT	ANALOGUE IC	
IC2			NJM2904E-ZB	ANALOGUE IC	
IC3			TA78L05FF	MOS-IC	
IC4 -6			NJM2904E-ZB	ANALOGUE IC	
IC7			S-8130AC	MOS-IC	
IC8			NJM2904E-ZB	ANALOGUE IC	
IC9			S24CS02AFJTBG	ROM IC	
IC10	1A		RA60H1317M1A	MOS-IC	
IC11	1B		NJM7808FA-ZB	BI-POLAR IC	
IC12	1B		NJM2388F12-ZB	BI-POLAR IC	
Q2			SSM3K15TE(F)	FET	
Q5 ,6			SSM3K15TE(F)	FET	
Q7		*	MTM13127	FET	
Q8			SSM3K15TE(F)	FET	

Ref. No.	Address	New parts	Parts No.	Description	Destination
CONTROL UNIT (X53-4132-71)					
C1 -5			CK73GB1H102K	CHIP C 1000PF K	
C6			CC73GCH1H101J	CHIP C 100PF J	
C7			CK73GB1H102K	CHIP C 1000PF K	
C8			CC73GCH1H101J	CHIP C 100PF J	
C9			CK73GB1H102K	CHIP C 1000PF K	
C10			CC73GCH1H101J	CHIP C 100PF J	
C12 -16			CK73GB1H102K	CHIP C 1000PF K	
C18 -28			CK73GB1H102K	CHIP C 1000PF K	
C29			CC73GCH1H101J	CHIP C 100PF J	
C30 -33			CK73GB1H102K	CHIP C 1000PF K	
C34			CC73GCH1H101J	CHIP C 100PF J	
C35			CK73GB1H102K	CHIP C 1000PF K	
C36			CC73GCH1H101J	CHIP C 100PF J	
C37			CK73GB1H104K	CHIP C 0.10UF K	
C39 -47			CK73GB1H102K	CHIP C 1000PF K	
C49			CC73GCH1H101J	CHIP C 100PF J	
C50 -53			CK73GB1H102K	CHIP C 1000PF K	
C54			CC73GCH1H101J	CHIP C 100PF J	
C55			CK73GB1H102K	CHIP C 1000PF K	
C56			CC73GCH1H101J	CHIP C 100PF J	
C57			CK73GB1H102K	CHIP C 1000PF K	
C58			CC73GCH1H101J	CHIP C 100PF J	
C60 -62			CK73GB1H102K	CHIP C 1000PF K	
C63			CK73GB1H104K	CHIP C 0.10UF K	
C64			CK73GB1H102K	CHIP C 1000PF K	
C65			CK73FB0J106K	CHIP C 10UF K	
C66			CK73GB1H102K	CHIP C 1000PF K	
C67			CK73FB0J106K	CHIP C 10UF K	
C68			CK73GB1H102K	CHIP C 1000PF K	
C69			CK73GB1H104K	CHIP C 0.10UF K	
C70			CK73GB1H102K	CHIP C 1000PF K	
C71			CK73FB0J106K	CHIP C 10UF K	
C72			CK73GB1E105K	CHIP C 1.0UF K	
C73			CC73GCH1H101J	CHIP C 100PF J	
C74			CK73GB1H104K	CHIP C 0.10UF K	
C75			CC73GCH1H101J	CHIP C 100PF J	
C76			CK73GB1H102K	CHIP C 1000PF K	
C77			C93-1824-05	CHIP C 100UF M	
C78			CK73FB0J106K	CHIP C 10UF K	
C79 -82			CK73GB1H104K	CHIP C 0.10UF K	
C83 -86			CK73FB0J106K	CHIP C 10UF K	
C87			C93-1824-05	CHIP C 100UF M	
C88			CK73GB1H103K	CHIP C 0.010UF K	
C89 ,90			CC73GCH1H221J	CHIP C 220PF J	
C92			CC73GCH1H100D	CHIP C 10PF D	
C95			C93-1824-05	CHIP C 100UF M	
C96			CC73GCH1H101J	CHIP C 100PF J	
C97			CK73GB1H104K	CHIP C 0.10UF K	
C98			CK73FB0J106K	CHIP C 10UF K	
C99			CK73GB1H102K	CHIP C 1000PF K	
C102			CC73GCH1H150J	CHIP C 15PF J	
C103			CC73GCH1H101J	CHIP C 100PF J	
C104-106			CD04BQ1H221M	ELECTRO 220UF 50WV	
C107			CK73GB1H102K	CHIP C 1000PF K	
C108			CK73GB1H104K	CHIP C 0.10UF K	
C109			CK73GB1H102K	CHIP C 1000PF K	
C110			C93-1824-05	CHIP C 100UF M	
C111			CK73GB1H104K	CHIP C 0.10UF K	

PARTS LIST

CONTROL UNIT (X53-4132-71)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C119			CC73GCH1H181J	CHIP C 180PF J		C220			CK73GB1H103K	CHIP C 0.010UF K	
C120			CK73GB1H102K	CHIP C 1000PF K		C222			CC73GCH1H150J	CHIP C 15PF J	
C121			CK73FB0J106K	CHIP C 10UF K		C223			CK73GB1H103K	CHIP C 0.010UF K	
C122			CC73GCH1H101J	CHIP C 100PF J		C224			CK73GB1E105K	CHIP C 1.0UF K	
C123			CK73GB1H472K	CHIP C 4700PF K		C225			CK73GB1H104K	CHIP C 0.10UF K	
C125			CK73GB1H472K	CHIP C 4700PF K		C226			CK73FB0J106K	CHIP C 10UF K	
C127			CK73GB1H182K	CHIP C 1800PF K		C227			CK73GB1H102K	CHIP C 1000PF K	
C128			CC73GCH1H101J	CHIP C 100PF J		C228			CK73GB1H104K	CHIP C 0.10UF K	
C130			CD04BQ1H221M	ELECTRO 220UF 50WV		C229			CC73GCH1H101J	CHIP C 100PF J	
C131			CE32AU1C330M	CHIP EL 33UF 16WV		C230			CK73GB1E105K	CHIP C 1.0UF K	
C133			CD04BQ1H221M	ELECTRO 220UF 50WV		C231			CK73GB1H104K	CHIP C 0.10UF K	
C134			CK73GB1H104K	CHIP C 0.10UF K		C233			CK73GB1H103K	CHIP C 0.010UF K	
C137,138			CK73GB1H102K	CHIP C 1000PF K		C234,235			CK73GB1H104K	CHIP C 0.10UF K	
C139,140			CE32AU1C330M	CHIP EL 33UF 16WV		C236			C90-4120-05	ELECTRO 470UF 35WV	
C141			CK73GB1H102K	CHIP C 1000PF K		C237			CK73GB1H104K	CHIP C 0.10UF K	
C144			CE32AU1C330M	CHIP EL 33UF 16WV		C238			CK73GB1H102K	CHIP C 1000PF K	
C145			CK73GB1H182K	CHIP C 1800PF K		C239			C92-0777-05	ELECTRO 1000UF 25WV	
C146			CK73GB1H104K	CHIP C 0.10UF K		C241			CK73GB1H103K	CHIP C 0.010UF K	
C152			CK73GB1H102K	CHIP C 1000PF K		C243			CK73GB1H103K	CHIP C 0.010UF K	
C155			CC73GCH1H181J	CHIP C 180PF J		C244			CK73GB1H104K	CHIP C 0.10UF K	
C157			CE32AU1C330M	CHIP EL 33UF 16WV		C245			CK73FB0J106K	CHIP C 10UF K	
C159			CK73GB1H102K	CHIP C 1000PF K		C246,247			CK73GB1H102K	CHIP C 1000PF K	
C161			CK73GB1H102K	CHIP C 1000PF K		C248,249			CK73GB1H104K	CHIP C 0.10UF K	
C162			CE32AU1C330M	CHIP EL 33UF 16WV		C250			CK73FB0J106K	CHIP C 10UF K	
C165			CK73GB1H102K	CHIP C 1000PF K		C251			CK73GB1H102K	CHIP C 1000PF K	
C166			CE32AU1C330M	CHIP EL 33UF 16WV		C252			CK73FB0J106K	CHIP C 10UF K	
C169			CK73FB0J106K	CHIP C 10UF K		C253-255			CK73GB1H103K	CHIP C 0.010UF K	
C170			CK73GB1H102K	CHIP C 1000PF K		C256			CK73GB1H104K	CHIP C 0.10UF K	
C172			CK73FB0J106K	CHIP C 10UF K		C257			CK73FB0J106K	CHIP C 10UF K	
C173			CC73GCH1H101J	CHIP C 100PF J		C258			CK73GB1H103K	CHIP C 0.010UF K	
C174			CK73GB1H102K	CHIP C 1000PF K		C262			CK73FB0J106K	CHIP C 10UF K	
C175			CC73GCH1H391J	CHIP C 390PF J		C263			CK73GB1H102K	CHIP C 1000PF K	
C177			CC73GCH1H101J	CHIP C 100PF J		C265			CK73GB1H104K	CHIP C 0.10UF K	
C178			CK73FB0J106K	CHIP C 10UF K		C266-270			CK73GB1H103K	CHIP C 0.010UF K	
C188,189			CK73GB1H104K	CHIP C 0.10UF K		C271			CK73FB0J106K	CHIP C 10UF K	
C190			CK73GB1E105K	CHIP C 1.0UF K		C272,273			CK73GB1H103K	CHIP C 0.010UF K	
C192,193			CK73GB1E105K	CHIP C 1.0UF K		C274			CK73GB1H472K	CHIP C 4700PF K	
C194			CC73GCH1H560J	CHIP C 56PF J		C275			CC73GCH1H120J	CHIP C 12PF J	
C195			CC73GCH1H181J	CHIP C 180PF J		C276			CC73GCH1H100D	CHIP C 10PF D	
C196			CC73GCH1H101J	CHIP C 100PF J		C277			CK73GB1H103K	CHIP C 0.010UF K	
C197			CC73GCH1H330J	CHIP C 33PF J		C278			CK73FB0J106K	CHIP C 10UF K	
C199			C93-1824-05	CHIP C 100UF M		C279			CK73GB1H103K	CHIP C 0.010UF K	
C200			CK73FB0J106K	CHIP C 10UF K		C280			CC73GCH1H100D	CHIP C 10PF D	
C202			CK73GB1E105K	CHIP C 1.0UF K		C281			CC73GCH1H150J	CHIP C 15PF J	
C203			CC73GCH1H101J	CHIP C 100PF J		C282			CK73GB1H103K	CHIP C 0.010UF K	
C204			CC73GCH1H121J	CHIP C 120PF J		C283			CK73GB1H104K	CHIP C 0.10UF K	
C205			CK73GB1H182K	CHIP C 1800PF K		C284-288			CK73GB1H103K	CHIP C 0.010UF K	
C206			C93-1824-05	CHIP C 100UF M		C289			CK73GB1H102K	CHIP C 1000PF K	
C207			CK73GB1H102K	CHIP C 1000PF K		C290-297			CK73GB1H103K	CHIP C 0.010UF K	
C208			CK73FB0J106K	CHIP C 10UF K		C299,300			CK73GB1H103K	CHIP C 0.010UF K	
C209			CK73GB1H103K	CHIP C 0.010UF K		C302			CK73GB1H103K	CHIP C 0.010UF K	
C210			CK73GB1E105K	CHIP C 1.0UF K		C304			CC73GCH1H101J	CHIP C 100PF J	
C211			CK73GB1H392K	CHIP C 3900PF K		C305,306			CK73GB1H102K	CHIP C 1000PF K	
C212			CC73GCH1H120J	CHIP C 12PF J		C307-310			CC73GCH1H101J	CHIP C 100PF J	
C213,214			CK73GB1H103K	CHIP C 0.010UF K		C311,312			CK73GB1H102K	CHIP C 1000PF K	
C215			CK73GB1H104K	CHIP C 0.10UF K		C313			CC73GCH1H101J	CHIP C 100PF J	
C216			CC73GCH1H100D	CHIP C 10PF D		C314			CK73GB1H102K	CHIP C 1000PF K	
C217			CK73GB1H103K	CHIP C 0.010UF K		C315			CC73GCH1H101J	CHIP C 100PF J	
C218			CC73GCH1H471J	CHIP C 470PF J		C316			CK73GB1H102K	CHIP C 1000PF K	
C219			CC73GCH1H100D	CHIP C 10PF D		C317			CK73GB1H103K	CHIP C 0.010UF K	

PARTS LIST

CONTROL UNIT (X53-4132-71)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C318			CC73GCH1H101J	CHIP C 100PF J		C416			CK73GB1H103K	CHIP C 0.010UF K	
C319			CK73GB1H102K	CHIP C 1000PF K		C417			CK73GB1E105K	CHIP C 1.0UF K	
C320			CK73GB1H103K	CHIP C 0.010UF K		C418-420			CK73GB1H102K	CHIP C 1000PF K	
C321			CC73GCH1H101J	CHIP C 100PF J		C421			CC73GCH1H101J	CHIP C 100PF J	
C322,323			CK73GB1H102K	CHIP C 1000PF K		C422-424			CK73GB1H102K	CHIP C 1000PF K	
C324			CK73GB1H103K	CHIP C 0.010UF K		C425,426			CC73GCH1H101J	CHIP C 100PF J	
C325			CC73GCH1H101J	CHIP C 100PF J		C427-435			CK73GB1H102K	CHIP C 1000PF K	
C326,327			CK73GB1H102K	CHIP C 1000PF K		C436			CK73GB1E105K	CHIP C 1.0UF K	
C328			CK73GB1H103K	CHIP C 0.010UF K		C437,438			CC73GCH1H101J	CHIP C 100PF J	
C329-331			CK73GB1H102K	CHIP C 1000PF K		C440			CK73GB1H102K	CHIP C 1000PF K	
C332			CK73GB1H103K	CHIP C 0.010UF K		C442			CC73GCH1H101J	CHIP C 100PF J	
C333-339			CK73GB1H102K	CHIP C 1000PF K		C444			CK73GB1H102K	CHIP C 1000PF K	
C340			CK73GB1H103K	CHIP C 0.010UF K		C445			CK73GB1H104K	CHIP C 0.10UF K	
C342,343			CK73GB1H102K	CHIP C 1000PF K		C446			CC73GCH1H391J	CHIP C 390PF J	
C344			CK73GB1H103K	CHIP C 0.010UF K		C447			CC73GCH1H101J	CHIP C 100PF J	
C345			CK73GB1H104K	CHIP C 0.10UF K		C448,449			CK73GB1H102K	CHIP C 1000PF K	
C346,347			CK73GB1H102K	CHIP C 1000PF K		C450			CC73GCH1H101J	CHIP C 100PF J	
C348			CK73GB1H103K	CHIP C 0.010UF K		C452,453			CK73GB1H102K	CHIP C 1000PF K	
C350			CK73GB1H102K	CHIP C 1000PF K		C456,457			CK73GB1H102K	CHIP C 1000PF K	
C351			CK73GB1H103K	CHIP C 0.010UF K		C463			CK73GB1H104K	CHIP C 0.10UF K	
C352,353			CK73GB1H102K	CHIP C 1000PF K		C467,468			CK73GB1H102K	CHIP C 1000PF K	
C354			CK73GB1H103K	CHIP C 0.010UF K		C469,470			CC73GCH1H101J	CHIP C 100PF J	
C355			CC73GCH1H101J	CHIP C 100PF J		C471			CK73GB1H102K	CHIP C 1000PF K	
C356			CK73GB1H102K	CHIP C 1000PF K		C473-475			CK73GB1H102K	CHIP C 1000PF K	
C357			CK73GB1H103K	CHIP C 0.010UF K		C477			CK73GB1E105K	CHIP C 1.0UF K	
C358			CK73GB1H102K	CHIP C 1000PF K		C499			C92-0905-05	OS-CON 47UF 35WV	
C359			CC73GCH1H101J	CHIP C 100PF J		C500			CK73GB1H104K	CHIP C 0.10UF K	
C360			CK73GB1H102K	CHIP C 1000PF K		C510			CK73FB0J106K	CHIP C 10UF K	
C361			CK73GB1H103K	CHIP C 0.010UF K		CN1 -3			E40-6656-05	PIN ASSY(36P)	
C362			CK73GB1H102K	CHIP C 1000PF K		CN4			E41-2673-05	PIN ASSY(4P)	
C363			CC73GCH1H101J	CHIP C 100PF J		CN56,57			E40-6656-05	PIN ASSY(36P)	
C364			CK73GB1H102K	CHIP C 1000PF K		CN58			E40-5960-05	PIN ASSY(30P)	
C365			CK73GB1H103K	CHIP C 0.010UF K		CN59			E40-6102-05	PIN ASSY(20P)	
C366-368			CK73GB1H102K	CHIP C 1000PF K		CN60			E41-2735-05	PIN ASSY(2P)	
C369			CK73GB1H103K	CHIP C 0.010UF K		F1 ,2			F53-0315-15	FUSE(250MA)	
C370-372			CK73GB1H102K	CHIP C 1000PF K		F3			F53-0328-15	FUSE(5A)	
C373			CC73GCH1H101J	CHIP C 100PF J		L3 -14			L92-0447-05	BEADS CORE	
C374			CK73GB1H103K	CHIP C 0.010UF K		L15			L33-1476-05	SMALL FIXED INDUCTOR(68UH)	
C375,376			CK73GB1H102K	CHIP C 1000PF K		L16			L33-1475-05	SMALL FIXED INDUCTOR(33UH)	
C377			CC73GCH1H101J	CHIP C 100PF J		L17 ,18			L92-0447-05	BEADS CORE	
C379,380			CK73GB1H102K	CHIP C 1000PF K		L19			L33-1475-05	SMALL FIXED INDUCTOR(33UH)	
C381			CC73GCH1H101J	CHIP C 100PF J		L20 -22			L92-0447-05	BEADS CORE	
C382			CK73GB1H103K	CHIP C 0.010UF K		L32 -40			L92-0447-05	BEADS CORE	
C383,384			CK73GB1H102K	CHIP C 1000PF K		L43			L92-0447-05	BEADS CORE	
C385			CC73GCH1H101J	CHIP C 100PF J		L44 -49			L92-0467-05	CHIP FERRITE	
C386,387			CK73GB1H102K	CHIP C 1000PF K		X1			L77-1984-05	CRYSTAL RESONATOR(14.7456MHZ)	
C388			CC73GCH1H101J	CHIP C 100PF J		X2			L77-1987-05	CRYSTAL RESONATOR(16.515072MHZ)	
C389,390			CK73GB1H102K	CHIP C 1000PF K		CP8			RK75GB1JR00	CHIP-COM 0 1/16W	
C394			C92-0905-05	OS-CON 47UF 35WV		CP10			RK75GB1JR00	CHIP-COM 0 1/16W	
C395			CK73GB1H103K	CHIP C 0.010UF K		CP13			RK75GB1JR00	CHIP-COM 0 1/16W	
C396-399			CK73GB1H102K	CHIP C 1000PF K		CP19			RK75GB1JR00	CHIP-COM 0 1/16W	
C400,401			CE32AU1C330M	CHIP EL 33UF 16WV		CP25,26			RK75GB1JR00	CHIP-COM 0 1/16W	
C403			CK73GB1E105K	CHIP C 1.0UF K		R1 ,2			RK73GB2A000J	CHIP R 0 J 1/10W	
C404			CK73FB0J106K	CHIP C 10UF K		R6			RK73GB2A101J	CHIP R 100 J 1/10W	
C405,406			CC73GCH1H101J	CHIP C 100PF J		R7 -17			RK73GB2A000J	CHIP R 0 J 1/10W	
C407			CK73GB1H102K	CHIP C 1000PF K		R18 ,19			RK73GB2A101J	CHIP R 100 J 1/10W	
C408-410			CK73GB1E105K	CHIP C 1.0UF K		R21 -45			RK73GB2A000J	CHIP R 0 J 1/10W	
C413			CK73GB1H104K	CHIP C 0.10UF K							
C414			CK73GB1H103K	CHIP C 0.010UF K							
C415			CK73GB1H104K	CHIP C 0.10UF K							

PARTS LIST

CONTROL UNIT (X53-4132-71)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R47 -49			RK73GB2A000J	CHIP R 0 J 1/10W		R160,161			RK73GB2A563J	CHIP R 56K J 1/10W	
R51 -61			RK73GB2A000J	CHIP R 0 J 1/10W		R162			RK73GB2A224J	CHIP R 220K J 1/10W	
R62			RK73GB2A101J	CHIP R 100 J 1/10W		R163			RK73GB2A000J	CHIP R 0 J 1/10W	
R63 ,64			RK73GB2A332J	CHIP R 3.3K J 1/10W		R165			RK73GB2A104J	CHIP R 100K J 1/10W	
R65			RK73GB2A123J	CHIP R 12K J 1/10W		R166			RK73GB2A333J	CHIP R 33K J 1/10W	
R66			RK73GB2A683J	CHIP R 68K J 1/10W		R167			RK73GB2A473J	CHIP R 47K J 1/10W	
R67			RK73GH2A822D	CHIP R 8.2K D 1/10W		R168			RK73GB2A563J	CHIP R 56K J 1/10W	
R68			RK73GH2A332D	CHIP R 3.3K D 1/10W		R169			RK73GB2A333J	CHIP R 33K J 1/10W	
R69 ,70			RK73GB2A000J	CHIP R 0 J 1/10W		R171			RK73GB2A183J	CHIP R 18K J 1/10W	
R71			RK73GH2A473D	CHIP R 47K D 1/10W		R172,173			RK73GB2A473J	CHIP R 47K J 1/10W	
R72 -76			RK73GB2A000J	CHIP R 0 J 1/10W		R174			RK73GB2A683J	CHIP R 68K J 1/10W	
R77			RK73GB2A104D	CHIP R 100K D 1/10W		R175			RK73GB2A393J	CHIP R 39K J 1/10W	
R78			RK73GB2A104J	CHIP R 100K J 1/10W		R176			RK73GB2A473J	CHIP R 47K J 1/10W	
R79			RK73GH2A332D	CHIP R 3.3K D 1/10W		R177,178			RK73GB2A000J	CHIP R 0 J 1/10W	
R80			RK73GB2A123J	CHIP R 12K J 1/10W		R179			RK73GB2A473J	CHIP R 47K J 1/10W	
R81 ,82			RK73GB2A563J	CHIP R 56K J 1/10W		R180			RK73GB2A223J	CHIP R 22K J 1/10W	
R83			RK73GB2A124J	CHIP R 120K J 1/10W		R181,182			RK73GB2A103J	CHIP R 10K J 1/10W	
R84			RK73GB2A473J	CHIP R 47K J 1/10W		R183			RK73GB2A000J	CHIP R 0 J 1/10W	
R85			RK73GB2A000J	CHIP R 0 J 1/10W		R184			RK73GB2A473J	CHIP R 47K J 1/10W	
R86			RK73GB2A473J	CHIP R 47K J 1/10W		R185			RK73GB2A103J	CHIP R 10K J 1/10W	
R87			RK73GB2A223J	CHIP R 22K J 1/10W		R186			RK73GB2A563J	CHIP R 56K J 1/10W	
R88			RK73GB2A000J	CHIP R 0 J 1/10W		R187			RK73GB2A223J	CHIP R 22K J 1/10W	
R89			RK73GB2A103J	CHIP R 10K J 1/10W		R190			RK73GB2A393J	CHIP R 39K J 1/10W	
R90			RK73GB2A153J	CHIP R 15K J 1/10W		R191			RK73GB2A000J	CHIP R 0 J 1/10W	
R91			RK73GB2A472J	CHIP R 4.7K J 1/10W		R192			RK73GB2A154J	CHIP R 150K J 1/10W	
R92			RK73GB2A562J	CHIP R 5.6K J 1/10W		R193			RK73GB2A103J	CHIP R 10K J 1/10W	
R93 ,94			RK73GB2A000J	CHIP R 0 J 1/10W		R194			RK73GB2A473J	CHIP R 47K J 1/10W	
R95			RK73GB2A470J	CHIP R 47 J 1/10W		R195,196			RK73GB2A000J	CHIP R 0 J 1/10W	
R96			RK73GB2A223J	CHIP R 22K J 1/10W		R197			RK73GB2A103J	CHIP R 10K J 1/10W	
R98			RK73GB2A103J	CHIP R 10K J 1/10W		R198			RK73GB2A473J	CHIP R 47K J 1/10W	
R100			RK73GB2A473J	CHIP R 47K J 1/10W		R199			RK73GB2A103J	CHIP R 10K J 1/10W	
R101			RK73GB2A000J	CHIP R 0 J 1/10W		R200,201			RK73GB2A000J	CHIP R 0 J 1/10W	
R102			RK73GB2A123J	CHIP R 12K J 1/10W		R202			RK73GB2A473J	CHIP R 47K J 1/10W	
R103-105			RK73GB2A473J	CHIP R 47K J 1/10W		R203			RK73GB2A104J	CHIP R 100K J 1/10W	
R106-108			RK73GB2A000J	CHIP R 0 J 1/10W		R204			RK73GB2A473J	CHIP R 47K J 1/10W	
R109			RK73GB2A153J	CHIP R 15K J 1/10W		R205			RK73GB2A104J	CHIP R 100K J 1/10W	
R111			RK73GB2A823J	CHIP R 82K J 1/10W		R206			RK73GB2A122J	CHIP R 1.2K J 1/10W	
R112			RK73GB2A123J	CHIP R 12K J 1/10W		R207,208			RK73GB2A473J	CHIP R 47K J 1/10W	
R113			RK73GB2A823J	CHIP R 82K J 1/10W		R209			RK73GB2A103J	CHIP R 10K J 1/10W	
R114			RK73GB2A223J	CHIP R 22K J 1/10W		R210			RK73GB2A000J	CHIP R 0 J 1/10W	
R115			RK73GB2A154J	CHIP R 150K J 1/10W		R211,212			RK73GB2A473J	CHIP R 47K J 1/10W	
R116			RK73GB2A223J	CHIP R 22K J 1/10W		R213			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R127			RK73GB2A473J	CHIP R 47K J 1/10W		R214			RK73GB2A824J	CHIP R 820K J 1/10W	
R128-130			RK73GB2A000J	CHIP R 0 J 1/10W		R215			RK73GB2A473J	CHIP R 47K J 1/10W	
R131-133			RK73GB2A473J	CHIP R 47K J 1/10W		R216,217			RK73GB2A000J	CHIP R 0 J 1/10W	
R135			RK73GB2A000J	CHIP R 0 J 1/10W		R218,219			RK73GB2A473J	CHIP R 47K J 1/10W	
R137			RK73GB2A102J	CHIP R 1.0K J 1/10W		R220,221			RK73GB2A000J	CHIP R 0 J 1/10W	
R138			RK73GB2A473J	CHIP R 47K J 1/10W		R222			RK73GB2A473J	CHIP R 47K J 1/10W	
R141-144			RK73GB2A000J	CHIP R 0 J 1/10W		R223			RK73GB2A103J	CHIP R 10K J 1/10W	
R145			RK73GB2A104J	CHIP R 100K J 1/10W		R224			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R146-148			RK73GB2A000J	CHIP R 0 J 1/10W		R225			RK73GB2A103J	CHIP R 10K J 1/10W	
R149			RK73GB2A333J	CHIP R 33K J 1/10W		R226			RK73GB2A822J	CHIP R 8.2K J 1/10W	
R150			RK73GB2A563J	CHIP R 56K J 1/10W		R228,229			RK73GB2A824J	CHIP R 820K J 1/10W	
R151			RK73GB2A124J	CHIP R 120K J 1/10W		R230,231			RK73GB2A473J	CHIP R 47K J 1/10W	
R152			RK73GB2A104J	CHIP R 100K J 1/10W		R232			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R153			RK73GB2A000J	CHIP R 0 J 1/10W		R233			RK73GB2A000J	CHIP R 0 J 1/10W	
R154,155			RK73GB2A333J	CHIP R 33K J 1/10W		R234,235			RK73GB2A473J	CHIP R 47K J 1/10W	
R156,157			RK73GH2A104D	CHIP R 100K D 1/10W		R237			RK73GB2A473J	CHIP R 47K J 1/10W	
R158			RK73GB2A333J	CHIP R 33K J 1/10W		R240-243			RK73GB2A473J	CHIP R 47K J 1/10W	
R159			RK73GB2A000J	CHIP R 0 J 1/10W		R245,246			RK73GB2A472J	CHIP R 4.7K J 1/10W	

PARTS LIST

CONTROL UNIT (X53-4132-71)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R247			RK73GB2A473J	CHIP R 47K J 1/10W		R477			RK73GB2A104J	CHIP R 100K J 1/10W	
R249,250			RK73GB2A000J	CHIP R 0 J 1/10W		R478			RK73GB2A103J	CHIP R 10K J 1/10W	
R251			RK73GB2A473J	CHIP R 47K J 1/10W		R479			RK73GB2A000J	CHIP R 0 J 1/10W	
R254			RK73GB2A473J	CHIP R 47K J 1/10W		R482			RK73GB2A000J	CHIP R 0 J 1/10W	
R261,262			RK73GB2A473J	CHIP R 47K J 1/10W		R484			RK73GB2A000J	CHIP R 0 J 1/10W	
R267-271			RK73GB2A473J	CHIP R 47K J 1/10W		R491-495			RK73GB2A000J	CHIP R 0 J 1/10W	
R273			RK73GB2A473J	CHIP R 47K J 1/10W		R501			RK73GB2A000J	CHIP R 0 J 1/10W	
R275			RK73GB2A473J	CHIP R 47K J 1/10W		R502			RK73GB2A183J	CHIP R 18K J 1/10W	
R277			RK73GB2A473J	CHIP R 47K J 1/10W		R507-510			RK73GB2A183J	CHIP R 18K J 1/10W	
R279			RK73GB2A103J	CHIP R 10K J 1/10W		R511-515			RK73GB2A123J	CHIP R 12K J 1/10W	
R281			RK73GB2A103J	CHIP R 10K J 1/10W		R522,523			RK73GB2A000J	CHIP R 0 J 1/10W	
R283			RK73GB2A000J	CHIP R 0 J 1/10W		R524,525			RK73GB2A473J	CHIP R 47K J 1/10W	
R286-288			RK73GB2A000J	CHIP R 0 J 1/10W		R526,527			RK73GB2A121J	CHIP R 120 J 1/10W	
R289			RK73GB2A473J	CHIP R 47K J 1/10W		R528-535			RK73GB2A000J	CHIP R 0 J 1/10W	
R290			RK73GB2A000J	CHIP R 0 J 1/10W		R536			RK73GB2A104J	CHIP R 100K J 1/10W	
R292-294			RK73GB2A000J	CHIP R 0 J 1/10W		R540			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R296,297			RK73GB2A473J	CHIP R 47K J 1/10W		R541			RK73GB2A123J	CHIP R 12K J 1/10W	
R299,300			RK73GB2A103J	CHIP R 10K J 1/10W		R552			RK73GB2A000J	CHIP R 0 J 1/10W	
R301,302			RK73GB2A104J	CHIP R 100K J 1/10W		D1 ,2			CMS05-Q	DIODE	
R303-315			RK73GB2A473J	CHIP R 47K J 1/10W		D3 ,4			DA204U	DIODE	
R316-338			RK73GB2A000J	CHIP R 0 J 1/10W		D5			1SS355	DIODE	
R340			RK73GB2A102J	CHIP R 1.0K J 1/10W		D6			02DZ18F-X	ZENER DIODE	
R342-351			RK73GB2A102J	CHIP R 1.0K J 1/10W		D7 -11			DA204U	DIODE	
R352			RK73GB2A471J	CHIP R 470 J 1/10W		D12			1SS355	DIODE	
R353-357			RK73GB2A102J	CHIP R 1.0K J 1/10W		D13			02DZ18F-X	ZENER DIODE	
R358			RK73GB2A122J	CHIP R 1.2K J 1/10W		D14 -18			DA204U	DIODE	
R359			RK73GB2A000J	CHIP R 0 J 1/10W		D20			DA204U	DIODE	
R360			RK73GB2A122J	CHIP R 1.2K J 1/10W		D23			DA204U	DIODE	
R361-377			RK73GB2A000J	CHIP R 0 J 1/10W		D24			SMD185F-2	VARISTOR	
R378,379			RK73GB2A122J	CHIP R 1.2K J 1/10W		D25			MINISMDCC020F	VARISTOR	
R380			RK73GB2A000J	CHIP R 0 J 1/10W		D26			1SS388F	DIODE	
R389-396			RK73GB2A000J	CHIP R 0 J 1/10W		D28			1SS355	DIODE	
R398-404			RK73GB2A000J	CHIP R 0 J 1/10W		D29			02DZ18F-X	ZENER DIODE	
R406-409			RK73GB2A000J	CHIP R 0 J 1/10W		D30			1SS355	DIODE	
R410			RK73GB2A684J	CHIP R 680K J 1/10W		D31			02DZ18F-X	ZENER DIODE	
R411			RK73GB2A224J	CHIP R 220K J 1/10W		D32			1SS355	DIODE	
R412			RK73GB2A103J	CHIP R 10K J 1/10W		D33			02DZ18F-X	ZENER DIODE	
R413			RK73GB2A104J	CHIP R 100K J 1/10W		D36 ,37			DA204U	DIODE	
R414			RK73GB2A000J	CHIP R 0 J 1/10W		D38 ,39			1SS388F	DIODE	
R415-418			RK73GB2A104J	CHIP R 100K J 1/10W		IC1			BU4094BCFV	MOS-IC	
R419,420			RK73GB2A000J	CHIP R 0 J 1/10W		IC2 ,3			BU4053BCFV	MOS-IC	
R426			RS14KB3D220J	FL-PROOF RS 22 J 2W		IC4			AK4550VTP	MOS-IC	
R427			RK73GB2A223J	CHIP R 22K J 1/10W		IC5			NJM2732V	BI-POLAR IC	
R428-430			RK73GB2A000J	CHIP R 0 J 1/10W		IC6			XC6209B332P-G	MOS-IC	
R432			RK73GB2A470J	CHIP R 47 J 1/10W		IC7			TA75S01F-F	MOS-IC	
R433			RK73GB2A473J	CHIP R 47K J 1/10W		IC8			M62364FP-F	MOS-IC	
R434			RK73GB2A470J	CHIP R 47 J 1/10W		IC9			NJM2734V	BI-POLAR IC	
R435			RK73GB2A473J	CHIP R 47K J 1/10W		IC10,11			NJM2340RB1	MOS-IC	
R436-446			RK73GB2A000J	CHIP R 0 J 1/10W		IC12			NJM2732V	BI-POLAR IC	
R448-454			RK73GB2A000J	CHIP R 0 J 1/10W		IC14			BU4053BCFV	MOS-IC	
R455			RK73GB2A104J	CHIP R 100K J 1/10W		IC15			BA33BC0FP	MOS-IC	
R457			RK73GB2A473J	CHIP R 47K J 1/10W		IC16			XC6209B502P-G	MOS-IC	
R458,459			RK73GB2A104J	CHIP R 100K J 1/10W		IC17			Note 1(BGA)	ROM IC	
R460,461			RK73GB2A103J	CHIP R 10K J 1/10W		IC18			XC6201P182M-G	MOS-IC	
R467,468			RK73GB2A000J	CHIP R 0 J 1/10W		IC19			NJM2732V	BI-POLAR IC	
R469			RK73GB2A103J	CHIP R 10K J 1/10W		IC20,21			NJM2734V	BI-POLAR IC	
R470			RK73GB2A000J	CHIP R 0 J 1/10W		IC22			BU4094BCFV	MOS-IC	
R471-473			RK73GB2A104J	CHIP R 100K J 1/10W		IC23		*	74AHC1G00GW	MOS-IC	
R474			RK73GB2A000J	CHIP R 0 J 1/10W		IC25			74HC1G66GW	MOS-IC	
R475			RK73GB2A104J	CHIP R 100K J 1/10W							

PARTS LIST

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CONTROL UNIT (X53-4140-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
IC26	2C		NJM2734V	BI-POLAR IC		C326-329			CK73HB1H102K	CHIP C 1000PF	K
IC27			TC7SET126FU-F	MOS-IC		C331			CK73HB1H102K	CHIP C 1000PF	K
IC28			TC7SH126FU-F	MOS-IC		C333-335			CK73HB1H102K	CHIP C 1000PF	K
IC29			LA4425A	MOS-IC		C337			CK73HB1H102K	CHIP C 1000PF	K
IC30		*	74AHC1G00GW	MOS-IC		C339			CC73HCH1H101J	CHIP C 100PF	J
IC31			TC74VHC4040FK	MOS-IC		C341,342			CK73HB1H102K	CHIP C 1000PF	K
IC32,33			TC7SH126FU-F	MOS-IC		C343			CC73HCH1H101J	CHIP C 100PF	J
IC34			30625MGP490GU	MICROPROCESSOR IC		C344			CK73HB1H102K	CHIP C 1000PF	K
IC35			S24CS02AFJTBG	ROM IC		C345			CC73HCH1H101J	CHIP C 100PF	J
IC36			TC74VHCT541AK	MOS-IC		C346-348			CK73HB1H102K	CHIP C 1000PF	K
IC37			320VC5402PGE	MICROPROCESSOR IC		C349			CC73HCH1H101J	CHIP C 100PF	J
IC38			TC7SET08FU-F	MOS-IC		C350			CK73HB1H102K	CHIP C 1000PF	K
IC39			TC7SH125FU-F	MOS-IC		C352			CK73HB1H102K	CHIP C 1000PF	K
IC40			TC7SH126FU-F	MOS-IC		C353			CC73HCH1H101J	CHIP C 100PF	J
IC41			KIC7SH08FU-P	MOS-IC		C354			CK73HB1H102K	CHIP C 1000PF	K
IC50			KIC7SH08FU-P	MOS-IC		C355			CK73HB1E103K	CHIP C 0.010UF	K
Q1			RT1N141M-T111	TRANSISTOR		C356			CC73HCH1H101J	CHIP C 100PF	J
Q2 ,3			2SJ506-E(S)	FET		C357,358			CK73HB1H102K	CHIP C 1000PF	K
Q4 ,5			2SC4738F	TRANSISTOR		C359,360			CK73HB1A104K	CHIP C 0.10UF	K
Q6		KRC401-P	DIGITAL TRANSISTOR		C361			CK73HB1H102K	CHIP C 1000PF	K	
Q7 ,8		RT1N141M-T111	TRANSISTOR		C362			CK73HB1E103K	CHIP C 0.010UF	K	
Q9		2SJ506-E(S)	FET		C364-366			CK73HB1H102K	CHIP C 1000PF	K	
Q10		2SC4738F	TRANSISTOR		C369,370			CK73HB1H102K	CHIP C 1000PF	K	
Q11		2SD2114K(W)	TRANSISTOR		C371			CK73HB1A104K	CHIP C 0.10UF	K	
Q12		2SC4738F	TRANSISTOR		C373,374			CK73HB1H102K	CHIP C 1000PF	K	
Q13		2SD2114K(W)	TRANSISTOR		C376-378			CK73HB1H102K	CHIP C 1000PF	K	
Q14		2SC4116(Y)F	TRANSISTOR		C379			CK73HB1A104K	CHIP C 0.10UF	K	
Q15		2SA1586(Y)F	TRANSISTOR		C380,381			CK73HB1H102K	CHIP C 1000PF	K	
Q16		2SC4116(Y)F	TRANSISTOR		C383-386			CK73HB1H102K	CHIP C 1000PF	K	
Q17		2SA1586(Y)F	TRANSISTOR		C388-390			CK73HB1H102K	CHIP C 1000PF	K	
Q18		KTK5132E-P	FET		C391			CK73GB1E105K	CHIP C 1.0UF	K	
Q19	*	HN1L02FU(F)	FET		C393-395			CK73HB1H102K	CHIP C 1000PF	K	
Q20		2SA1955A-F	TRANSISTOR		C397,398			CK73HB1H102K	CHIP C 1000PF	K	
Q21		RT1N441M-T111	TRANSISTOR		C401			CC73HCH1H101J	CHIP C 100PF	J	
Q22		2SA1955A-F	TRANSISTOR		C402			CK73HB1H102K	CHIP C 1000PF	K	
Q23		RT1N441M-T111	TRANSISTOR		C405,406			CK73HB1H102K	CHIP C 1000PF	K	
Q25 ,26		RT1N441M-T111	TRANSISTOR		C409			CK73HB1H102K	CHIP C 1000PF	K	
Q27 -29		2SD2114K(W)	TRANSISTOR		C410			CC73HCH1H101J	CHIP C 100PF	J	
CONTROL UNIT (X53-4140-10)						C412-415			CK73HB1H102K	CHIP C 1000PF	K
						C417,418			CE32AU1C330M	CHIP EL 33UF	16WV
C302			CC73HCH1H101J	CHIP C 100PF	J	C419			CC73HCH1H101J	CHIP C 100PF	J
C303			CK73HB1H102K	CHIP C 1000PF	K	C420			CK73HB1A104K	CHIP C 0.10UF	K
C305			CK73HB1A104K	CHIP C 0.10UF	K	C421			CK73HB1H102K	CHIP C 1000PF	K
C306			CK73HB1H102K	CHIP C 1000PF	K	C422			CE32AU1C330M	CHIP EL 33UF	16WV
C308,309			CK73HB1H102K	CHIP C 1000PF	K	C424			CK73HB1H102K	CHIP C 1000PF	K
C311			CK73HB1A104K	CHIP C 0.10UF	K	C426-430			CK73HB1H102K	CHIP C 1000PF	K
C312-317			CK73HB1H102K	CHIP C 1000PF	K	C433			CK73HB1H102K	CHIP C 1000PF	K
C320			CC73HCH1H101J	CHIP C 100PF	J	C435-437			CK73HB1H102K	CHIP C 1000PF	K
C322,323			CK73HB1H102K	CHIP C 1000PF	K	C439			CE32AU1C330M	CHIP EL 33UF	16WV
C324			CC73HCH1H101J	CHIP C 100PF	J	C440-442			CK73HB1H102K	CHIP C 1000PF	K
						C443,444			CE32AU1C330M	CHIP EL 33UF	16WV
						C445			CK73HB1A104K	CHIP C 0.10UF	K
						C447			CK73HB1A104K	CHIP C 0.10UF	K
						C448			CE32AU1C330M	CHIP EL 33UF	16WV
						C449,450			CK73HB1A104K	CHIP C 0.10UF	K
						C453			CK73GB1H103K	CHIP C 0.010UF	K
						C462			CK73HB1E103K	CHIP C 0.010UF	K
						C463			CC73HCH1H100D	CHIP C 10PF	D
						C466			CK73GB1H104K	CHIP C 0.10UF	K
						C467			CK73GB1H103K	CHIP C 0.010UF	K

If a part reference number is listed in a shaded box, that part does not come with the PCB.

PARTS LIST

CONTROL UNIT (X53-4140-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C471			CK73HB1H102K	CHIP C 1000PF K		C725			CK73HB1H102K	CHIP C 1000PF K	
C475			CK73FB0J106K	CHIP C 10UF K		C726			CK73FB0J106K	CHIP C 10UF K	
C476			CK73HB1A104K	CHIP C 0.10UF K		C727			CC73HCH1H020B	CHIP C 2.0PF B	
C478			CK73HB1H102K	CHIP C 1000PF K		C728			CK73HB1E103K	CHIP C 0.010UF K	
C480			CK73FB0J106K	CHIP C 10UF K		C729			CC73HCH1H020B	CHIP C 2.0PF B	
C482			CK73HB1A104K	CHIP C 0.10UF K		C730			CK73HB1A104K	CHIP C 0.10UF K	
C487			CK73HB1H102K	CHIP C 1000PF K		C732			CK73HB1H102K	CHIP C 1000PF K	
C491			CK73FB0J106K	CHIP C 10UF K		C733-741			CK73HB1A104K	CHIP C 0.10UF K	
C493,494			CK73HB1A104K	CHIP C 0.10UF K		C742			CK73FB0J106K	CHIP C 10UF K	
C495			CK73GB1E105K	CHIP C 1.0UF K		C743,744			CK73HB1A104K	CHIP C 0.10UF K	
C501			CK73HB1A104K	CHIP C 0.10UF K		C746-750			CK73GB1E105K	CHIP C 1.0UF K	
C504			CK73HB1A104K	CHIP C 0.10UF K		C751			CK73HB1E103K	CHIP C 0.010UF K	
C506			CK73HB1H472K	CHIP C 4700PF K		C754-758			CK73HB1A104K	CHIP C 0.10UF K	
C516			CK73HB1H102K	CHIP C 1000PF K		C767,768			CK73HB1H102K	CHIP C 1000PF K	
C526-529			CK73FB0J106K	CHIP C 10UF K		C769			CK73FB0J106K	CHIP C 10UF K	
C531			CK73HB1H102K	CHIP C 1000PF K		C770-773			CK73HB1A104K	CHIP C 0.10UF K	
C533-536			CK73HB1H102K	CHIP C 1000PF K		C775			CK73HB1H102K	CHIP C 1000PF K	
C537			CK73FB0J106K	CHIP C 10UF K		C776-780			CK73HB1E103K	CHIP C 0.010UF K	
C538,539			CK73HB1H102K	CHIP C 1000PF K		C781			CK73HB1A104K	CHIP C 0.10UF K	
C543			CK73FB0J106K	CHIP C 10UF K		C782,783			CC73HCH1H120G	CHIP C 12PF G	
C544-546			CK73HB1H102K	CHIP C 1000PF K		C784,785			CK73HB1A104K	CHIP C 0.10UF K	
C547			CK73FB0J106K	CHIP C 10UF K		C786			CC73HCH1H150J	CHIP C 15PF J	
C548			CK73HB1E103K	CHIP C 0.010UF K		C787			CC73HCH1H100D	CHIP C 10PF D	
C549			CC73HCH1H120G	CHIP C 12PF G		C788			CK73FB0J106K	CHIP C 10UF K	
C550,551			CC73HCH1H100D	CHIP C 10PF D		C789-793			CK73HB1A104K	CHIP C 0.10UF K	
C552			CC73HCH1H150J	CHIP C 15PF J		C794			CK73FB0J106K	CHIP C 10UF K	
C553			CK73HB1E103K	CHIP C 0.010UF K		C795			CK73HB1A104K	CHIP C 0.10UF K	
C557			CK73HB1H102K	CHIP C 1000PF K		C796,797			CK73HB1E103K	CHIP C 0.010UF K	
C565			CK73FB0J106K	CHIP C 10UF K		C798			CK73HB1A104K	CHIP C 0.10UF K	
C566			CK73HB1H102K	CHIP C 1000PF K		C799,800			CK73HB1E103K	CHIP C 0.010UF K	
C567			CK73HB1E103K	CHIP C 0.010UF K		C801			CK73HB1H102K	CHIP C 1000PF K	
C569			CE32AU1C330M	CHIP EL 33UF 16WV		C802,803			CK73HB1A104K	CHIP C 0.10UF K	
C570,571			CK73HB1H102K	CHIP C 1000PF K		C804			CK73FB0J106K	CHIP C 10UF K	
C572			CE32BM1E470M	CHIP EL 47UF 25WV		C805-807			CK73HB1E103K	CHIP C 0.010UF K	
C574			CK73HB1H102K	CHIP C 1000PF K		C808			CK73HB1H102K	CHIP C 1000PF K	
C575-588			CK73HB1E103K	CHIP C 0.010UF K		C809			CK73HB1A104K	CHIP C 0.10UF K	
C590-601			CK73HB1E103K	CHIP C 0.010UF K		C812			CK73HB1A104K	CHIP C 0.10UF K	
C700			CK73HB1E103K	CHIP C 0.010UF K		C813-815			CK73HB1H102K	CHIP C 1000PF K	
C701			CK73HB1A104K	CHIP C 0.10UF K		C816-818			CK73HB1A104K	CHIP C 0.10UF K	
C702			CK73HB1H102K	CHIP C 1000PF K		C819			CK73HB1H102K	CHIP C 1000PF K	
C703			CC73HCH1H150J	CHIP C 15PF J		C820,821			CK73HB1A104K	CHIP C 0.10UF K	
C704,705			CK73FB0J106K	CHIP C 10UF K		C822			CK73HB1H102K	CHIP C 1000PF K	
C706			CK73HB1H102K	CHIP C 1000PF K		C825			CK73HB1H102K	CHIP C 1000PF K	
C707			CC73HCH1H080D	CHIP C 8.0PF D		C826,827			CC73HCH1H101J	CHIP C 100PF J	
C708			CK73HB1A104K	CHIP C 0.10UF K		C828			CK73HB1H102K	CHIP C 1000PF K	
C709			CK73FB0J106K	CHIP C 10UF K		C829			CC73HCH1H101J	CHIP C 100PF J	
C710			CK73HB1E103K	CHIP C 0.010UF K		C830			CK73HB1H102K	CHIP C 1000PF K	
C711			CK73FB0J106K	CHIP C 10UF K		C831			CC73HCH1H101J	CHIP C 100PF J	
C712			CK73HB1H102K	CHIP C 1000PF K		C832			CK73HB1H102K	CHIP C 1000PF K	
C713			CK73HB1A104K	CHIP C 0.10UF K		C833,834			CK73HB1A104K	CHIP C 0.10UF K	
C714			CK73FB0J106K	CHIP C 10UF K		C835-837			CK73HB1H102K	CHIP C 1000PF K	
C715			CK73HB1A104K	CHIP C 0.10UF K		C838,839			CC73HCH1H101J	CHIP C 100PF J	
C716			CK73HB1H102K	CHIP C 1000PF K		C841-848			CC73GCH1H470J	CHIP C 47PF J	
C717			CK73HB1A104K	CHIP C 0.10UF K		C850			CC73GCH1H470J	CHIP C 47PF J	
C718			CC73HCH1H080D	CHIP C 8.0PF D		C851-869			CC73HCH1H470J	CHIP C 47PF J	
C719			CK73FB0J106K	CHIP C 10UF K		C870-873			CK73HB1H102K	CHIP C 1000PF K	
C720			CK73HB1A104K	CHIP C 0.10UF K		CN300			E04-0193-05	PIN SOCKET	
C721			CC73HCH1H100D	CHIP C 10PF D		CN400-402			E40-6656-05	PIN ASSY(36P)	
C722,723			CK73HB1H102K	CHIP C 1000PF K		CN713			E41-2263-05	PIN ASSY(9P)	
C724			CK73HB1A104K	CHIP C 0.10UF K							

PARTS LIST

CONTROL UNIT (X53-4140-10)
RX UNIT (X55-3092-72)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R913,914			RK73HB1J000J	CHIP R 0 J 1/16W	
R915			RK73HB1J473J	CHIP R 47K J 1/16W	
R916,917			RK73HB1J000J	CHIP R 0 J 1/16W	
R919-923			RK73HB1J000J	CHIP R 0 J 1/16W	
R924			RK73HB1J104J	CHIP R 100K J 1/16W	
R926			RK73HB1J473J	CHIP R 47K J 1/16W	
R927-933			RK73HB1J000J	CHIP R 0 J 1/16W	
R934,935			RK73HB1J474J	CHIP R 470K J 1/16W	
R936			RK73HB1J104J	CHIP R 100K J 1/16W	
R942			RK73HB1J104J	CHIP R 100K J 1/16W	
R943			RK73HB1J000J	CHIP R 0 J 1/16W	
R945-950			RK73HB1J000J	CHIP R 0 J 1/16W	
R951			RK73HB1J104J	CHIP R 100K J 1/16W	
R952,953			RK73HB1J000J	CHIP R 0 J 1/16W	
R960			RK73GB2A000J	CHIP R 0 J 1/10W	
R970,971			RK73HB1J000J	CHIP R 0 J 1/16W	
S700			S79-0473-05	DIP SWITCHES	
D300			1SS388F	DIODE	
D701			1SS388F	DIODE	
D702			1SS355	DIODE	
IC300,301			TC7SET126FU-F	MOS-IC	
IC302			ISL8485EIBZ	MOS-IC	
IC303			BU4829FVE	MOS-IC	
IC304			TC7SH125FU-F	MOS-IC	
IC305			XC6209B332P-G	MOS-IC	
IC306			BA15BC0FP	MOS-IC	
IC307			XC6201P152P-G	MOS-IC	
IC308			XC61CN2702N-G	MOS-IC	
IC309			AK4550VTP	MOS-IC	
IC312			ADCS7476AIMF	MOS-IC	
IC313			TC7WU04FK-F	MOS-IC	
IC314			Note 1(BGA)	ROM IC	
IC323,324			Note 1(BGA)	MICROPROCESSOR IC	
IC325			30625MGP490GU	MICROPROCESSOR IC	
IC327			KIC7SH08FU-P	MOS-IC	
IC329	1C		BA33DDOWT	MOS-IC	
IC330			TC7SH126FU-F	MOS-IC	
IC700			L102616LL70LI	SRAM IC	
IC701			RV5C386A	MOS-IC	
IC702			29PL127JKCDC	ROM IC	
IC703			Note 1(BGA)	MICROPROCESSOR IC	
IC704			EM639165TS6IG	DRAM IC	
IC705			ADM3202ARUZ	MOS-IC	
IC707			EM639165TS6IG	DRAM IC	
IC708			BU4829FVE	MOS-IC	
IC709			TC7SH126FU-F	MOS-IC	
IC710,711		*	74AHC1G00GW	MOS-IC	
IC712,713			TC7SH32FU-F	MOS-IC	
IC714-716			TC74LCX244FK	MOS-IC	
IC717,718			TC74LCX245FK	MOS-IC	
IC719			LAN91C1111-NU	MOS-IC	
IC720			AT93C46DN-SH	ROM IC	
IC721			KIC7SH08FU-P	MOS-IC	
IC722			TC7SH32FU-F	MOS-IC	
IC723		*	74AHC1G00GW	MOS-IC	
IC724			TC7SH125FU-F	MOS-IC	
IC725			TC7SH126FU-F	MOS-IC	
IC726			KIC7SH08FU-P	MOS-IC	
IC727,728			TC7SH126FU-F	MOS-IC	
Q301			RT1N141M-T111	TRANSISTOR	
Q302			2SA1955A-F	TRANSISTOR	
Q303			LTA044EUBFS8	TRANSISTOR	
Q304			2SC4738F	TRANSISTOR	
Q307,308			2SC4738F	TRANSISTOR	
Q309			SSM6N16FE-F	FET	
Q700			2SC4738F	TRANSISTOR	
Q702			2SC4738F	TRANSISTOR	
Q704,705			2SC4738F	TRANSISTOR	
Q706			RT1N141M-T111	TRANSISTOR	
Q707			RT1N441M-T111	TRANSISTOR	
BA300			W09-1004-05	LITHIUM CELL	
RX UNIT (X55-3092-72)					
D21			B30-2230-05	LED(YG)	
C10			CK73GB1H102K	CHIP C 1000PF	K
C12			CC73GCH1H060B	CHIP C 6.0PF	B
C14			CK73GB1H102K	CHIP C 1000PF	K
C15			CK73GB1H104K	CHIP C 0.10UF	K
C17			CK73GB1H102K	CHIP C 1000PF	K
C18			CK73GB1H104K	CHIP C 0.10UF	K
C20, 21			CC73GCH1H050B	CHIP C 5.0PF	B
C25			CK73GB1H104K	CHIP C 0.10UF	K
C26			CK73GB1H471K	CHIP C 470PF	K
C27			CK73GB1H102K	CHIP C 1000PF	K
C31			CS77BA1E010M	CHIP TNTL 1.0UF	25WV
C32			CC73GCH1H151J	CHIP C 150PF	J
C33			CC73GCH1H271J	CHIP C 270PF	J
C35			CK73GB1H471K	CHIP C 470PF	K
C36			CK73GB1H102K	CHIP C 1000PF	K
C37			CK73FB1E224K	CHIP C 0.22UF	K
C38		*	CS77MA1VR33M	CHIP TNTL 0.33UF	35WV
C39			CC73GCH1H271J	CHIP C 270PF	J
C41, 42			CK73GB1H102K	CHIP C 1000PF	K
C43			CC73GCH1H561J	CHIP C 560PF	J
C44			CK73GB1H103K	CHIP C 0.010UF	K
C45			CK73GB1H104K	CHIP C 0.10UF	K
C46			CC73GCH1H561J	CHIP C 560PF	J
C47			CK73GB1H102K	CHIP C 1000PF	K
C48			CK73GB1H104K	CHIP C 0.10UF	K
C50			CE32BM1E470M	CHIP EL 47UF	25WV
C51			CK73GB1H104K	CHIP C 0.10UF	K
C53			CC73GCH1H271J	CHIP C 270PF	J
C54			CC73GCH1H101J	CHIP C 100PF	J
C55			CC73GCH1H120J	CHIP C 12PF	J
C56			CC73GCH1H271J	CHIP C 270PF	J
C58		*	CS77BB21A470M	CHIP TNTL 47UF	10WV
C59			CK73GB1H104K	CHIP C 0.10UF	K
C60, 61			CK73GB1H102K	CHIP C 1000PF	K
C62-66			CK73GB1H104K	CHIP C 0.10UF	K

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

RX UNIT (X55-3092-72)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C67		*	CS77BB21A470M	CHIP TNTL 47UF 10WV		C162			CC73GCH1H070D	CHIP C 7.0PF D	
C68			CC73GCH1H101J	CHIP C 100PF J		C164			CK73GB1H104K	CHIP C 0.10UF K	
C69			CK73GB1H102K	CHIP C 1000PF K		C165		*	CS77MB21C100M	CHIP TNTL 10UF 16WV	
C70		*	CS77MC1C330M	CHIP TNTL 33UF 16WV		C166			CC73GCH1H220J	CHIP C 22PF J	
C74			CC73GCH1H100C	CHIP C 10PF C		C167			CC73GCH1H180J	CHIP C 18PF J	
C75		*	CS77MC1C330M	CHIP TNTL 33UF 16WV		C168			CK73GB1H102K	CHIP C 1000PF K	
C76			CC73GCH1H330J	CHIP C 33PF J		C169			CC73GCH1H270J	CHIP C 27PF J	
C77			CK73GB1H104K	CHIP C 0.10UF K		C170,171			CK73GB1H104K	CHIP C 0.10UF K	
C79			CS77BA1E010M	CHIP TNTL 1.0UF 25WV		C172			CK73GB1H473K	CHIP C 0.047UF K	
C81			CK73GB1H104K	CHIP C 0.10UF K		C173,174			CK73GB1H103K	CHIP C 0.010UF K	
C83-85			CK73GB1H102K	CHIP C 1000PF K		C175			CC73GCH1H101J	CHIP C 100PF J	
C86			CC73GCH1H100C	CHIP C 10PF C		C176			CK73GB1H104K	CHIP C 0.10UF K	
C87			CK73GB1H104K	CHIP C 0.10UF K		C177-179			CK73GB1H102K	CHIP C 1000PF K	
C88			CK73GB1H103K	CHIP C 0.010UF K		C180			CK73GB1H104K	CHIP C 0.10UF K	
C89			CC73GCH1H080B	CHIP C 8.0PF B		C183			CE32AU1E100M	CHIP EL 10UF 25WV	
C90			CK73GB1H103K	CHIP C 0.010UF K		C185,186			CK73GB1H102K	CHIP C 1000PF K	
C91			CC73GCH1H050B	CHIP C 5.0PF B		C187			CC73GCH1H150J	CHIP C 15PF J	
C92-95			CC73GCH1H070B	CHIP C 7.0PF B		C188			CK73GB1H103K	CHIP C 0.010UF K	
C96			CE32BM1E470M	CHIP EL 47UF 25WV		C189			CK73GB1H102K	CHIP C 1000PF K	
C97			CK73GB1H104K	CHIP C 0.10UF K		C193			CK73GB1H104K	CHIP C 0.10UF K	
C98,99			CK73GB1H102K	CHIP C 1000PF K		C194			CC73GCH1H270J	CHIP C 27PF J	
C100			CK73GB1H103K	CHIP C 0.010UF K		C195			CK73GB1H102K	CHIP C 1000PF K	
C102			CK73GB1H102K	CHIP C 1000PF K		C196,197			CK73GB1H103K	CHIP C 0.010UF K	
C103			CC73GCH1H150J	CHIP C 15PF J		C198			CK73GB1H102K	CHIP C 1000PF K	
C104			CK73GB1H102K	CHIP C 1000PF K		C199			CK73GB1H103K	CHIP C 0.010UF K	
C105,106			CC73GCH1H050B	CHIP C 5.0PF B		C203,204			CK73GB1H102K	CHIP C 1000PF K	
C107			CC73GCH1H330J	CHIP C 33PF J		C211,212			CK73GB1H103K	CHIP C 0.010UF K	
C108			CC73GCH1H560J	CHIP C 56PF J		C213			CK73GB1H473K	CHIP C 0.047UF K	
C109,110			CK73GB1H103K	CHIP C 0.010UF K		C214			CC73GCH1H150J	CHIP C 15PF J	
C112			CC73GCH1H220J	CHIP C 22PF J		C215			CK73GB1H103K	CHIP C 0.010UF K	
C113,114			CC73GCH1H070B	CHIP C 7.0PF B		C216			CK73GB1H473K	CHIP C 0.047UF K	
C115			CC73GCH1H150J	CHIP C 15PF J		C217			CK73GB1H104K	CHIP C 0.10UF K	
C116			CC73GCH1H560J	CHIP C 56PF J		C218			CK73GB1H473K	CHIP C 0.047UF K	
C117			CC73GCH1H121J	CHIP C 120PF J		C220			CC73GCH1H150J	CHIP C 15PF J	
C118-120			CK73GB1H102K	CHIP C 1000PF K		C221,222			CK73GB1H104K	CHIP C 0.10UF K	
C122			CC73GCH1H150J	CHIP C 15PF J		C223			CK73GB1H103K	CHIP C 0.010UF K	
C123,124			CC73GCH1H080B	CHIP C 8.0PF B		C224			CK73GB1H104K	CHIP C 0.10UF K	
C125			CC73GCH1H180J	CHIP C 18PF J		C225			CK73GB1H473K	CHIP C 0.047UF K	
C126			CK73GB1H104K	CHIP C 0.10UF K		C227			CK73GB1H102K	CHIP C 1000PF K	
C128			CC73GCH1H560J	CHIP C 56PF J		C228,229			CK73FB1E474K	CHIP C 0.47UF K	
C129,130			CK73GB1H103K	CHIP C 0.010UF K		C230			CC73GCH1H820J	CHIP C 82PF J	
C131		*	CS77MC1C330M	CHIP TNTL 33UF 16WV		C231			CK73GB1H473K	CHIP C 0.047UF K	
C132-134			CK73GB1H102K	CHIP C 1000PF K		C232			CC73GCH1H390J	CHIP C 39PF J	
C137			CC73GCH1H150J	CHIP C 15PF J		C233			CK73GB1H473K	CHIP C 0.047UF K	
C138			CC73GCH1H390J	CHIP C 39PF J		C234,235			CC73GCH1H270J	CHIP C 27PF J	
C139			CE32BM1E470M	CHIP EL 47UF 25WV		C236			CK73GB1H104K	CHIP C 0.10UF K	
C140,141			CK73GB1H103K	CHIP C 0.010UF K		C237			CK73GB1H102K	CHIP C 1000PF K	
C142,143			CC73FCH1H0R5B	CHIP C 0.5PF B		C239			CE32AU1C330M	CHIP EL 33UF 16WV	
C144-146			CK73GB1H104K	CHIP C 0.10UF K		C240		*	CS77MB21C100M	CHIP TNTL 10UF 16WV	
C147		*	CS77MC1C330M	CHIP TNTL 33UF 16WV		C241,242			CC73GCH1H220J	CHIP C 22PF J	
C149			CC73GCH1H220J	CHIP C 22PF J		C243			CC73GCH1H820J	CHIP C 82PF J	
C150			CC73GCH1H180J	CHIP C 18PF J		C244			CC73GCH1H330J	CHIP C 33PF J	
C151			CC73GCH1H220J	CHIP C 22PF J		C245			CK73GB1H102K	CHIP C 1000PF K	
C152			CC73GCH1H1R5C	CHIP C 1.5PF C		C248			CK73GB1H102K	CHIP C 1000PF K	
C153			CC73GCH1H070D	CHIP C 7.0PF D		C249			CC73GCH1H150J	CHIP C 15PF J	
C154,155			CK73GB1H104K	CHIP C 0.10UF K		C250,251			CK73GB1H104K	CHIP C 0.10UF K	
C156			CC73GCH1H180J	CHIP C 18PF J		C252			CC73GCH1H151J	CHIP C 150PF J	
C157,158			CK73GB1H102K	CHIP C 1000PF K		C253			CC73GCH1H080D	CHIP C 8.0PF D	
C159,160			CK73GB1H104K	CHIP C 0.10UF K		C254			CC73GCH1H120J	CHIP C 12PF J	
C161			CC73GCH1H1R5C	CHIP C 1.5PF C		C255			CK73GB1H104K	CHIP C 0.10UF K	

PARTS LIST

RX UNIT (X55-3092-72)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C256			CK73GB1H102K	CHIP C 1000PF K		C341,342			CK73GB1H473K	CHIP C 0.047UF K	
C257			CK73GB1H103K	CHIP C 0.010UF K		C343			CC73GCH1H220J	CHIP C 22PF J	
C258			CK73GB1H473K	CHIP C 0.047UF K		C347,348			CK73GB1H103K	CHIP C 0.010UF K	
C260			CK73GB1H102K	CHIP C 1000PF K		C349			CC73GCH1H680J	CHIP C 68PF J	
C261			CK73GB1H103K	CHIP C 0.010UF K		C350		*	CS77MC1C330M	CHIP TNTL 33UF 16WV	
C262,263			CK73GB1H102K	CHIP C 1000PF K		C351			CK73GB1H102K	CHIP C 1000PF K	
C264			CS77MA1ER47M	CHIP TNTL 0.47UF 25WV		C352			CK73GB1H473K	CHIP C 0.047UF K	
C265			CC73GCH1H470J	CHIP C 47PF J		C353			CK73GB1H102K	CHIP C 1000PF K	
C266,267			CK73GB1H102K	CHIP C 1000PF K		C355			CK73GB1H103K	CHIP C 0.010UF K	
C268,269			CK73GB1H473K	CHIP C 0.047UF K		C356			CK73GB1H473K	CHIP C 0.047UF K	
C270		*	CS77MA1ER68M	CHIP TNTL 0.68UF 25WV		C357			CK73GB1H103K	CHIP C 0.010UF K	
C271			CK73GB1H102K	CHIP C 1000PF K		C358			CK73GB1H473K	CHIP C 0.047UF K	
C272			CK73GB1H104K	CHIP C 0.10UF K		C359-361			CK73GB1H102K	CHIP C 1000PF K	
C273			CC73GCH1H220J	CHIP C 22PF J		C362			CC73GCH1H270J	CHIP C 27PF J	
C274			CK73GB1H473K	CHIP C 0.047UF K		C363			CK73GB1H473K	CHIP C 0.047UF K	
C275			CC73GCH1H020B	CHIP C 2.0PF B		C365,366			CK73GB1H104K	CHIP C 0.10UF K	
C277			CK73GB1H102K	CHIP C 1000PF K		C367,368			CC73GCH1H330J	CHIP C 33PF J	
C278			CC73GCH1H080D	CHIP C 8.0PF D		C369,370			CK73FB1E474K	CHIP C 0.47UF K	
C279			CK73GB1H473K	CHIP C 0.047UF K		C371			CK73GB1H102K	CHIP C 1000PF K	
C280			CC73GCH1H080B	CHIP C 8.0PF B		C372			CK73GB1H473K	CHIP C 0.047UF K	
C281			CC73GCH1H030B	CHIP C 3.0PF B		C373			CK73GB1H103K	CHIP C 0.010UF K	
C282		*	CS77MB21C150M	CHIP TNTL 15UF 16WV		C375			CK73GB1H103K	CHIP C 0.010UF K	
C284			CK73GB1H473K	CHIP C 0.047UF K		C377			CK73GB1H103K	CHIP C 0.010UF K	
C285			CC73GCH1H120J	CHIP C 12PF J		C379			CC73GCH1H121J	CHIP C 120PF J	
C287			CC73GCH1H390J	CHIP C 39PF J		C380			CC73GCH1H560J	CHIP C 56PF J	
C288			CC73GCH1H220J	CHIP C 22PF J		C381			CE32BM1E470M	CHIP EL 47UF 25WV	
C289			CC73GCH1H270J	CHIP C 27PF J		C382,383			CK73GB1H104K	CHIP C 0.10UF K	
C290,291			CK73GB1H473K	CHIP C 0.047UF K		C385,386			CK73GB1H104K	CHIP C 0.10UF K	
C292			CE32CL1V100M	CHIP EL 10UF 35WV		C387			CC73GCH1H270J	CHIP C 27PF J	
C295			CK73GB1H102K	CHIP C 1000PF K		C388			CC73GCH1H820J	CHIP C 82PF J	
C296		*	CS77MA1ER68M	CHIP TNTL 0.68UF 25WV		C389			CK73GB1H473K	CHIP C 0.047UF K	
C297			CC73GCH1H120J	CHIP C 12PF J		C390			CK73GB1H104K	CHIP C 0.10UF K	
C298			CK73GB1H102K	CHIP C 1000PF K		C391,392			CK73GB1H103K	CHIP C 0.010UF K	
C300			CC73GCH1H220G	CHIP C 22PF G		C394,395			CK73GB1H102K	CHIP C 1000PF K	
C301			CK73GB1H473K	CHIP C 0.047UF K		C396-398			CK73GB1H104K	CHIP C 0.10UF K	
C303,304			CK73GB1H473K	CHIP C 0.047UF K		C400			CC73GCH1H220J	CHIP C 22PF J	
C306			CK73GB1H102K	CHIP C 1000PF K		C401			CK73GB1H473K	CHIP C 0.047UF K	
C307,308			CK73GB1H103K	CHIP C 0.010UF K		C402			CC73GCH1H560J	CHIP C 56PF J	
C309			CK73GB1H471K	CHIP C 470PF K		C403			CK73GB1H104K	CHIP C 0.10UF K	
C310			CK73GB1H102K	CHIP C 1000PF K		C405			CK73GB1H102K	CHIP C 1000PF K	
C311			CC73GCH1H080D	CHIP C 8.0PF D		C406			CK73GB1H103K	CHIP C 0.010UF K	
C314			CK73GB1H104K	CHIP C 0.10UF K		C407			CC73GCH1H560J	CHIP C 56PF J	
C315			CC73GCH1H270G	CHIP C 27PF G		C408			CC73GCH1H220J	CHIP C 22PF J	
C316			CK73GB1H473K	CHIP C 0.047UF K		C409			CK73GB1H102K	CHIP C 1000PF K	
C317			CC73GCH1H151J	CHIP C 150PF J		C410			CK73GB1H104K	CHIP C 0.10UF K	
C318,319			CK73GB1H103K	CHIP C 0.010UF K		C411			CC73GCH1H121J	CHIP C 120PF J	
C320			CE32BM1E470M	CHIP EL 47UF 25WV		C412			CK73GB1H104K	CHIP C 0.10UF K	
C324			CK73GB1H102K	CHIP C 1000PF K		C413			CK73GB1H103K	CHIP C 0.010UF K	
C325			CC73GCH1H270G	CHIP C 27PF G		C414			CK73GB1H104K	CHIP C 0.10UF K	
C326			CC73GCH1H151J	CHIP C 150PF J		C415,416			CK73GB1H103K	CHIP C 0.010UF K	
C327			CK73GB1H102K	CHIP C 1000PF K		C417			CK73GB1H104K	CHIP C 0.10UF K	
C329			CK73GB1H103K	CHIP C 0.010UF K		C418,419			CK73GB1H103K	CHIP C 0.010UF K	
C330			CK73GB1H102K	CHIP C 1000PF K		C420			CK73GB1H102K	CHIP C 1000PF K	
C331			CC73GCH1H020B	CHIP C 2.0PF B		C421,422			CK73GB1H473K	CHIP C 0.047UF K	
C332			CK73GB1H104K	CHIP C 0.10UF K		C423,424			CK73GB1H103K	CHIP C 0.010UF K	
C333			CC73GCH1H151J	CHIP C 150PF J		C425			CK73GB1H104K	CHIP C 0.10UF K	
C334,335			CK73GB1H103K	CHIP C 0.010UF K		C427			CK73FB1E474K	CHIP C 0.47UF K	
C336			CK73GB1H102K	CHIP C 1000PF K		C428,429			CC73GCH1H560J	CHIP C 56PF J	
C337			CC73GCH1H560J	CHIP C 56PF J		C430			CK73GB1H102K	CHIP C 1000PF K	
C340		*	CS77MC1C330M	CHIP TNTL 33UF 16WV		C431			CK73GB1H473K	CHIP C 0.047UF K	

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Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C432			CK73GB1H102K	CHIP C 1000PF K		C537-540			CK73GB1H102K	CHIP C 1000PF K	
C434,435			CK73GB1H473K	CHIP C 0.047UF K		C541,542			CK73GB1H104K	CHIP C 0.10UF K	
C437			CK73GB1H102K	CHIP C 1000PF K		C543			CK73GB1H473K	CHIP C 0.047UF K	
C438			CK73GB1H473K	CHIP C 0.047UF K		C544			CC73GCH1H470J	CHIP C 47PF J	
C439			CK73GB1H104K	CHIP C 0.10UF K		C545-548			CK73GB1H102K	CHIP C 1000PF K	
C440-442			CK73FB1E474K	CHIP C 0.47UF K		C549			CC73GCH1H470J	CHIP C 47PF J	
C443,444			CK73GB1H473K	CHIP C 0.047UF K		C550-553			CK73GB1H103K	CHIP C 0.010UF K	
C446			CE32AU1E100M	CHIP EL 10UF 25WV		C554			CK73GB1H473K	CHIP C 0.047UF K	
C447			CK73FB1E474K	CHIP C 0.47UF K		C555			CE32BM1V220M	CHIP EL 22UF 35WV	
C448			CK73GB1H104K	CHIP C 0.10UF K		C556			CK73GB1H102K	CHIP C 1000PF K	
C449			CK73GB1H473K	CHIP C 0.047UF K		C557			CK73GB1H473K	CHIP C 0.047UF K	
C450,451			CK73FB1E474K	CHIP C 0.47UF K		C558			CK73GB1H102K	CHIP C 1000PF K	
C452,453			CK73GB1H104K	CHIP C 0.10UF K		C559			CK73GB1H104K	CHIP C 0.10UF K	
C454,455			CK73FB1E474K	CHIP C 0.47UF K		C560,561			CK73GB1H102K	CHIP C 1000PF K	
C456			CK73GB1H473K	CHIP C 0.047UF K		C562			CK73GB1H473K	CHIP C 0.047UF K	
C458			CK73GB1H104K	CHIP C 0.10UF K		C563			CK73GB1H102K	CHIP C 1000PF K	
C459			CC73GCH1H221J	CHIP C 220PF J		C564			CK73GB1H103K	CHIP C 0.010UF K	
C460			CK73FB1E474K	CHIP C 0.47UF K		C565			CK73GB1H102K	CHIP C 1000PF K	
C461			CC73GCH1H221J	CHIP C 220PF J		C566			CK73GB1H473K	CHIP C 0.047UF K	
C462			CK73GB1H104K	CHIP C 0.10UF K		C567			CE32CL1V100M	CHIP EL 10UF 35WV	
C463-465			CK73FB1E474K	CHIP C 0.47UF K		C568			CC73GCH1H470J	CHIP C 47PF J	
C466			CK73GB1H473K	CHIP C 0.047UF K		C569			CK73GB1H102K	CHIP C 1000PF K	
C467			CK73GB1H102K	CHIP C 1000PF K		C570			CC73GCH1H470J	CHIP C 47PF J	
C468			CK73GB1H104K	CHIP C 0.10UF K		C571			C92-0904-05	OS-CON 22UF 35WV	
C469			CK73GB1H473K	CHIP C 0.047UF K		C572,573			CK73GB1H103K	CHIP C 0.010UF K	
C470			CK73GB1H471K	CHIP C 470PF K		C574-576			CK73GB1H104K	CHIP C 0.10UF K	
C471,472			CK73GB1H104K	CHIP C 0.10UF K		C577			CK73GB1H103K	CHIP C 0.010UF K	
C473			CC73GCH1H270J	CHIP C 27PF J		C578			CC73GCH1H151J	CHIP C 150PF J	
C474			CK73FB1E474K	CHIP C 0.47UF K		C579			CC73GCH1H560J	CHIP C 56PF J	
C476			CE32AU1E100M	CHIP EL 10UF 25WV		C580-582			CK73GB1H103K	CHIP C 0.010UF K	
C477			CK73GB1H104K	CHIP C 0.10UF K		C583			CK73GB1H102K	CHIP C 1000PF K	
C478			CK73FB1E474K	CHIP C 0.47UF K		C584			CK73GB1H103K	CHIP C 0.010UF K	
C480-482			CE32CL1V100M	CHIP EL 10UF 35WV		C585			CC73GCH1H102J	CHIP C 1000PF J	
C484-489			CK73GB1H102K	CHIP C 1000PF K		C586			CC73GCH1H100C	CHIP C 10PF C	
C491			CK73GB1H104K	CHIP C 0.10UF K		C587-590			CK73FB1E474K	CHIP C 0.47UF K	
C492			C93-1824-05	CHIP C 100UF M		C591			CK73GB1H102K	CHIP C 1000PF K	
C493			CK73GB1H473K	CHIP C 0.047UF K		C618			CC73GCH1H101J	CHIP C 100PF J	
C494			CK73FB0J106K	CHIP C 10UF K		C619			CK73GB1H104K	CHIP C 0.10UF K	
C495			CK73GB1H104K	CHIP C 0.10UF K		C620			CK73GB1H102K	CHIP C 1000PF K	
C498			CC73GCH1H470J	CHIP C 47PF J		C621,622			CK73GB1H104K	CHIP C 0.10UF K	
C499			CK73FB0J106K	CHIP C 10UF K		C624			CC73GCH1H270J	CHIP C 27PF J	
C500-504			CK73GB1H102K	CHIP C 1000PF K		C625,626			CC73GCH1H040B	CHIP C 4.0PF B	
C505			CK73FB0J106K	CHIP C 10UF K		C627			CC73GCH1H050B	CHIP C 5.0PF B	
C506			CK73GB1H102K	CHIP C 1000PF K		C628			CC73GCH1H270J	CHIP C 27PF J	
C507			CK73GB1H104K	CHIP C 0.10UF K		C629			CC73GCH1H050B	CHIP C 5.0PF B	
C508			CK73FB0J106K	CHIP C 10UF K		C631,632			CC73GCH1H040B	CHIP C 4.0PF B	
C509			CC73GCH1H101J	CHIP C 100PF J		C633			CC73GCH1H050B	CHIP C 5.0PF B	
C510			CK73GB1H104K	CHIP C 0.10UF K		C634			CC73GCH1H270J	CHIP C 27PF J	
C516			CK73GB1H473K	CHIP C 0.047UF K		C635			CC73GCH1HR75B	CHIP C 0.75PF B	
C517			CK73FB0J106K	CHIP C 10UF K		C636			CC73GCH1H010B	CHIP C 1.0PF B	
C518			CK73GB1H104K	CHIP C 0.10UF K		C637			CC73GCH1HR75B	CHIP C 0.75PF B	
C519			CK73GB1H102K	CHIP C 1000PF K		C638			CC73GCH1H010B	CHIP C 1.0PF B	
C520			CK73GB1H103K	CHIP C 0.010UF K		C639			CC73GCH1HR75B	CHIP C 0.75PF B	
C521			CK73GB1H104K	CHIP C 0.10UF K		C640			CC73GCH1H010B	CHIP C 1.0PF B	
C522			CK73GB1H103K	CHIP C 0.010UF K		C641			CC73GCH1HR75B	CHIP C 0.75PF B	
C523			CK73GB1H104K	CHIP C 0.10UF K		C642			CC73GCH1H010B	CHIP C 1.0PF B	
C524			CK73FB1H333K	CHIP C 0.033UF K		C643			CC73GCH1HR75B	CHIP C 0.75PF B	
C527			CK73GB1H104K	CHIP C 0.10UF K		C644			CC73GCH1H010B	CHIP C 1.0PF B	
C532			CK73GB1H104K	CHIP C 0.10UF K		C645			CC73GCH1HR75B	CHIP C 0.75PF B	
C533-536			CE32CL1V100M	CHIP EL 10UF 35WV		C646			CC73GCH1H010B	CHIP C 1.0PF B	

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Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C647			CK73GB1H102K	CHIP C 1000PF K		L26			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)	
C648,649			CC73GCH1H150J	CHIP C 15PF J		L27			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
C650			CC73GCH1H270J	CHIP C 27PF J		L28			L34-4599-05	AIR-CORE COIL(5.5T)	
C651			CE32BM1E470M	CHIP EL 47UF 25WV		L29			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
C652-654			CK73GB1H104K	CHIP C 0.10UF K		L30			L34-4586-05	AIR-CORE COIL(4.5T)	
C655			CK73FB0J106K	CHIP C 10UF K		L31			L41-3975-33	SMALL FIXED INDUCTOR(0.039UH)	
C657			CC73GCH1H270J	CHIP C 27PF J		L32			L41-8275-33	SMALL FIXED INDUCTOR(0.082UH)	
C658			CK73FB1E474K	CHIP C 0.47UF K		L33			L41-2785-33	SMALL FIXED INDUCTOR(0.27UH)	
C659			CC73GCH1H050B	CHIP C 5.0PF B		L34			L41-1205-33	SMALL FIXED INDUCTOR(12UH)	
C660			CC73GCH1H050C	CHIP C 5.0PF C		L35			L41-3395-33	SMALL FIXED INDUCTOR(3.3UH)	
C661			CK73GB1H104K	CHIP C 0.10UF K		L36			L41-3975-33	SMALL FIXED INDUCTOR(0.039UH)	
C662,663			CC73GCH1H080B	CHIP C 8.0PF B		L37			L41-1205-33	SMALL FIXED INDUCTOR(12UH)	
C664			CC73GCH1H050B	CHIP C 5.0PF B		L38			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)	
C665			CC73GCH1H080B	CHIP C 8.0PF B		L39			L41-3975-33	SMALL FIXED INDUCTOR(0.039UH)	
C666,667			CK73GB1H102K	CHIP C 1000PF K		L40,41			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
C668			CC73GCH1H070B	CHIP C 7.0PF B		L42			L41-3375-33	SMALL FIXED INDUCTOR(0.033UH)	
C669			CC73GCH1H080B	CHIP C 8.0PF B		L43,44			L41-3395-33	SMALL FIXED INDUCTOR(3.3UH)	
C670			CC73GCH1H060B	CHIP C 6.0PF B		L45			L41-3375-33	SMALL FIXED INDUCTOR(0.033UH)	
C671			CK73GB1H104K	CHIP C 0.10UF K		L46,47			L34-4749-05	COIL	
C673-675			CE32BM1E470M	CHIP EL 47UF 25WV		L48			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)	
C676			CC73GCH1H070B	CHIP C 7.0PF B		L49			L41-2705-33	SMALL FIXED INDUCTOR(27UH)	
C677			CK73GB1H104K	CHIP C 0.10UF K		L50			L41-1085-33	SMALL FIXED INDUCTOR(0.1UH)	
TC1 -8			C05-0301-05	CERAMIC TRIMMER CAPACITOR(7PF)		L51			L92-0140-05	CHIP FERRITE	
CN1 -4			E23-1280-05	TERMINAL		L52,53			L34-4749-05	COIL	
CN5			E04-0460-05	RF COAXIAL RECEPTACLE(SMB)		L54			L41-1075-33	SMALL FIXED INDUCTOR(0.01UH)	
CN8 -35			E23-1280-05	TERMINAL		L55			L41-1085-33	SMALL FIXED INDUCTOR(0.1UH)	
CN38,39			E23-1280-05	TERMINAL		L56			L41-8295-33	SMALL FIXED INDUCTOR(8.2UH)	
CN41			E04-0154-05	PIN SOCKET		L57			L41-4775-33	SMALL FIXED INDUCTOR(0.047UH)	
CN42			E40-6656-05	PIN ASSY(36P)		L58,59			L41-1885-33	SMALL FIXED INDUCTOR(0.18UH)	
CN43			E04-0193-05	PIN SOCKET		L60,61			L41-3375-33	SMALL FIXED INDUCTOR(0.033UH)	
CN44			E41-2672-05	PIN ASSY(3P)		L62			L41-1075-33	SMALL FIXED INDUCTOR(0.01UH)	
CN45			E04-0193-05	PIN SOCKET		L66,67			L41-8275-33	SMALL FIXED INDUCTOR(0.082UH)	
CN46,47			E41-2735-05	PIN ASSY(2P)		L68			L41-8295-33	SMALL FIXED INDUCTOR(8.2UH)	
CN61,62			E23-1280-05	TERMINAL		L69			L41-1595-33	SMALL FIXED INDUCTOR(1.5UH)	
CN69			E23-1330-05	TERMINAL		L70			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)	
E1			F10-2379-04	SHIELDING CASE		L71			L41-1595-33	SMALL FIXED INDUCTOR(1.5UH)	
E2			F10-2409-04	SHIELDING CASE		L72			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)	
E3			F10-3080-04	SHIELDING CASE		L73			L41-2285-33	SMALL FIXED INDUCTOR(0.22UH)	
CF1			L72-1019-05	CERAMIC FILTER(6MHZ)		L74,75			L34-4749-05	COIL	
CF2			L72-1028-05	CERAMIC FILTER(450KHZ)		L76			L41-4775-33	SMALL FIXED INDUCTOR(0.047UH)	
CF3,4			L72-1027-05	CERAMIC FILTER(450KHZ)		L77			L92-0140-05	CHIP FERRITE	
CF5,6			L72-1028-05	CERAMIC FILTER(450KHZ)		L78			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
CF7			L72-1027-05	CERAMIC FILTER(450KHZ)		L79			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)	
L2			L34-4616-05	AIR-CORE COIL(10T)		L80			L41-4775-33	SMALL FIXED INDUCTOR(0.047UH)	
L5			L41-2275-33	SMALL FIXED INDUCTOR(0.022UH)		L81			L41-8285-33	SMALL FIXED INDUCTOR(0.82UH)	
L8,9			L41-1875-33	SMALL FIXED INDUCTOR(0.018UH)		L82			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
L10			L41-6885-33	SMALL FIXED INDUCTOR(0.68UH)		L83			L41-6895-33	SMALL FIXED INDUCTOR(6.8UH)	
L11			L41-1295-33	SMALL FIXED INDUCTOR(1.2UH)		L86			L41-1585-33	SMALL FIXED INDUCTOR(0.15UH)	
L12			L41-6875-33	SMALL FIXED INDUCTOR(0.068UH)		L87			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
L13			L41-1295-33	SMALL FIXED INDUCTOR(1.2UH)		L88			L41-8295-33	SMALL FIXED INDUCTOR(8.2UH)	
L14			L41-1805-33	SMALL FIXED INDUCTOR(18UH)		L89			L41-6895-33	SMALL FIXED INDUCTOR(6.8UH)	
L15			L41-2275-45	SMALL FIXED INDUCTOR(22NH)		L90,91			L34-4749-05	COIL	
L16			L41-2705-33	SMALL FIXED INDUCTOR(27UH)		L92			L41-1075-33	SMALL FIXED INDUCTOR(0.01UH)	
L17,18			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		L93			L41-1085-33	SMALL FIXED INDUCTOR(0.1UH)	
L20			L41-2705-33	SMALL FIXED INDUCTOR(27UH)		L94,95			L39-1476-05	TOROIDAL COIL	
L21,22			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		L96			L41-6895-33	SMALL FIXED INDUCTOR(6.8UH)	
L23			L41-2705-33	SMALL FIXED INDUCTOR(27UH)		L97			L41-1005-33	SMALL FIXED INDUCTOR(10UH)	
L24,25			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		L98,99			L41-1895-33	SMALL FIXED INDUCTOR(1.8UH)	
						L100			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)	
						L101			L41-1595-33	SMALL FIXED INDUCTOR(1.5UH)	

PARTS LIST

RX UNIT (X55-3092-72)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R291			RK73GB2A122J	CHIP R 1.2K J 1/10W		R417			RK73GB2A000J	CHIP R 0 J 1/10W	
R292			RK73GB2A000J	CHIP R 0 J 1/10W		R432			RK73GB2A103J	CHIP R 10K J 1/10W	
R293			RK73GB2A183J	CHIP R 18K J 1/10W		R433,434			RN73GE1J331D	METAL FILM 330 D 1/16W	
R294			RK73GB2A223J	CHIP R 22K J 1/10W		R435			RK73GB2A473J	CHIP R 47K J 1/10W	
R295			RK73GB2A104J	CHIP R 100K J 1/10W		R436			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R296-298			RK73GB2A473J	CHIP R 47K J 1/10W		R437			RK73GB2A000J	CHIP R 0 J 1/10W	
R300			RK73GB2A000J	CHIP R 0 J 1/10W		R453			RK73GB2A000J	CHIP R 0 J 1/10W	
R306			RK73GB2A473J	CHIP R 47K J 1/10W		R455			RK73GB2A104J	CHIP R 100K J 1/10W	
R307-310			RK73GB2A000J	CHIP R 0 J 1/10W		R456			RK73GB2A101J	CHIP R 100 J 1/10W	
R311			RK73GB2A474J	CHIP R 470K J 1/10W		R459			RK73GB2A000J	CHIP R 0 J 1/10W	
R317-319			RK73GB2A100J	CHIP R 10 J 1/10W		R462			RK73GB2A000J	CHIP R 0 J 1/10W	
R321			RK73GB2A104J	CHIP R 100K J 1/10W		D1			HSC119	DIODE	
R323			RK73GB2A000J	CHIP R 0 J 1/10W		D3 -8	*		1SV283-KENW,E	VARIABLE CAPACITANCE DIODE	
R324,325			RK73GB2A104J	CHIP R 100K J 1/10W		D9 ,10			JDP4P02U	DIODE	
R326			RK73GB2A100J	CHIP R 10 J 1/10W		D11			KV1470-G	VARIABLE CAPACITANCE DIODE	
R328			RK73GB2A000J	CHIP R 0 J 1/10W		D12	*		1SV283-KENW,E	VARIABLE CAPACITANCE DIODE	
R330			RK73GB2A104J	CHIP R 100K J 1/10W		D13 ,14			JDP4P02U	DIODE	
R332			RK73GB2A101J	CHIP R 100 J 1/10W		D15 ,16			KDS112E-P	DIODE	
R333			RK73GB2A104J	CHIP R 100K J 1/10W		D17 ,18			MA3J742	DIODE	
R334			RK73GB2A101J	CHIP R 100 J 1/10W		D19 ,20			KDS112E-P	DIODE	
R335			RK73GB2A104J	CHIP R 100K J 1/10W		D22 ,23	*		1SV283-KENW,E	VARIABLE CAPACITANCE DIODE	
R337			RK73GB2A102J	CHIP R 1.0K J 1/10W		IC4			TA75S01F-F	MOS-IC	
R338			RK73GB2A472J	CHIP R 4.7K J 1/10W		IC5			ADF4111BCP7	MOS-IC	
R340-342			RK73GB2A102J	CHIP R 1.0K J 1/10W		IC6			LMC7101BIM5	MOS-IC	
R343			RK73GB2A104J	CHIP R 100K J 1/10W		IC7			AD9835BRUZ	MOS-IC	
R344			RK73GB2A473J	CHIP R 47K J 1/10W		IC8			NJU6368PF1	MOS-IC	
R345,346			RK73GB2A472J	CHIP R 4.7K J 1/10W		IC9			UPB1509GV	BI-POLAR IC	
R347			RK73GB2A101J	CHIP R 100 J 1/10W		IC10			TK11230CMCL-G	BI-POLAR IC	
R348			RK73GB2A331J	CHIP R 330 J 1/10W		IC11			ADF4111BCP7	MOS-IC	
R349			RK73GB2A470J	CHIP R 47 J 1/10W		IC12			TA31137FNG	MOS-IC	
R350,351			RK73GB2A221J	CHIP R 220 J 1/10W		IC13			AD607Z	BI-POLAR IC	
R352			RK73GB2A473J	CHIP R 47K J 1/10W		IC14			AD8051ART	ANALOGUE IC	
R353			RK73GB2A470J	CHIP R 47 J 1/10W		IC15,16			NJM78L05UA-ZB	BI-POLAR IC	
R357			RK73GB2A471J	CHIP R 470 J 1/10W		IC17-19			NJM78M05DL1AZB	ANALOGUE IC	
R358			RK73GB2A100J	CHIP R 10 J 1/10W		IC20			NJM4558E-ZB	ANALOGUE IC	
R359			RK73GB2A221J	CHIP R 220 J 1/10W		IC22			XC6204B332M-G	MOS-IC	
R360			RK73GB2A682J	CHIP R 6.8K J 1/10W		IC23			BH2220FVM	ANALOGUE IC	
R361			RK73GB2A332J	CHIP R 3.3K J 1/10W		IC24,25	2D		NJM7808FA-ZB	BI-POLAR IC	
R362			RK73GB2A101J	CHIP R 100 J 1/10W		IC26,27			NJM2386ADL3-09	ANALOGUE IC	
R363			RK73GB2A100J	CHIP R 10 J 1/10W		IC28			AD1582	ANALOGUE IC	
R364			RK73GB2A470J	CHIP R 47 J 1/10W		IC29			NJM2732V	BI-POLAR IC	
R366,367			RK73GB2A331J	CHIP R 330 J 1/10W		IC30			AD7908BRU	MOS-IC	
R368-370			RK73GB2A272J	CHIP R 2.7K J 1/10W		IC31			S24CS02AFJTBG	ROM IC	
R371,372			RK73GB2A391J	CHIP R 390 J 1/10W		IC32			NJM2732V	BI-POLAR IC	
R373			RK73GB2A272J	CHIP R 2.7K J 1/10W		IC33			LMC7101BIM5	MOS-IC	
R375,376			RK73GB2A105J	CHIP R 1.0M J 1/10W		IC35			LM50BIM3/NOPB	MOS-IC	
R377			RK73GB2A000J	CHIP R 0 J 1/10W		Q1		*	2SC5337(QR)	TRANSISTOR	
R379			RK73GB2A101J	CHIP R 100 J 1/10W		Q2		*	2SC4116(BL)F	TRANSISTOR	
R380			RK73GB2A104J	CHIP R 100K J 1/10W		Q3		*	KTC4075E-P(GR)	TRANSISTOR	
R381			RK73GB2A223J	CHIP R 22K J 1/10W		Q4		*	2SC4116(BL)F	TRANSISTOR	
R382-384			RK73GB2A104J	CHIP R 100K J 1/10W		Q5		*	KTC4075E-P(GR)	TRANSISTOR	
R385			RK73GB2A101J	CHIP R 100 J 1/10W		Q6			2SC4116(BL)F	TRANSISTOR	
R388			RK73GB2A000J	CHIP R 0 J 1/10W		Q7 ,8			2SK508NV(K53)	FET	
R390			RK73GB2A471J	CHIP R 470 J 1/10W		Q9 -11			2SC4116(BL)F	TRANSISTOR	
R391,392			RK73GB2A000J	CHIP R 0 J 1/10W		Q12		*	KTC4075E-P(GR)	TRANSISTOR	
R395			RK73GB2A101J	CHIP R 100 J 1/10W		Q13			2SA1832F	TRANSISTOR	
R400,401			RK73GB2A000J	CHIP R 0 J 1/10W		Q14 ,15			SSM3K15TE(F)	FET	
R403			RK73GB2A000J	CHIP R 0 J 1/10W		Q16 ,17			2SC3356-A(R24)	TRANSISTOR	
R405			RK73GB2A153J	CHIP R 15K J 1/10W		Q18 -20			RD01MUS1-T113	FET	
R406			RK73GB2A682J	CHIP R 6.8K J 1/10W							

PARTS LIST

RX UNIT (X55-3092-72)
TX UNIT (X56-3112-72)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
Q21			2SC4725	TRANSISTOR		C138,139			CC73GCH1H020B	CHIP C 2.0PF	B
Q22		*	KTC4075E-P(GR)	TRANSISTOR		C140,141			CC73GCH1H471J	CHIP C 470PF	J
Q23			2SC3356-A(R24)	TRANSISTOR		C142			CC73GCH1H100C	CHIP C 10PF	C
Q24			2SK508NV(K52)	FET		C143			CC73GCH1H090D	CHIP C 9.0PF	D
Q25			SSM3J01F	FET		C145			CC73GCH1H100C	CHIP C 10PF	C
Q26			SSM3K15TE(F)	FET		C146			CC73GCH1H471J	CHIP C 470PF	J
Q27			2SC4116(BL)F	TRANSISTOR		C147			CC73GCH1HR75B	CHIP C 0.75PF	B
Q28 ,29			3SK317-E	FET		C148			CC73GCH1H150J	CHIP C 15PF	J
Q30		*	KTC4075E-P(GR)	TRANSISTOR		C149			CK73GB1H103K	CHIP C 0.010UF	K
Q31			SSM3K15TE(F)	FET		C151			CE32CL1V100M	CHIP EL 10UF	35WV
Q32			SSM3J01F	FET		C152			CC73GCH1H471J	CHIP C 470PF	J
Q33			2SC4725	TRANSISTOR		C153			CC73GCH1H090D	CHIP C 9.0PF	D
Q34			2SA1832F	TRANSISTOR		C154		*	CS77MC1C330M	CHIP TNL 33UF	16WV
Q35 ,36			2SC4725	TRANSISTOR		C156,157			CC73GCH1H471J	CHIP C 470PF	J
Q37			SSM3K15TE(F)	FET		C158		*	CS77MC1C330M	CHIP TNL 33UF	16WV
Q38			2SC4725	TRANSISTOR		C160			CC73GCH1H471J	CHIP C 470PF	J
Q39		*	KTC4075E-P(GR)	TRANSISTOR		C161			CE32BM1E470M	CHIP EL 47UF	25WV
Q40		*	KTC4075E-P(BL)	TRANSISTOR		C162,163			CC73GCH1H471J	CHIP C 470PF	J
Q50 ,51			SSM3K15TE(F)	FET		C164			CC73GCH1H470J	CHIP C 47PF	J
Q52			2SJ484	FET		C166			CC73GCH1H120J	CHIP C 12PF	J
Q53			2SC4725	TRANSISTOR		C167			CC73GCH1H100D	CHIP C 10PF	D
Q56			SSM3K15TE(F)	FET		C168			CC73GCH1H120J	CHIP C 12PF	J
Q57			DTA144EE	DIGITAL TRANSISTOR		C169,170			CC73GCH1H471J	CHIP C 470PF	J
Q58 -61			SSM3K15TE(F)	FET		C171			CK73GB1H103K	CHIP C 0.010UF	K
TH2 ,3			157-103-53007	THERMISTOR		C172-174			CC73GCH1H471J	CHIP C 470PF	J
A1			W02-1940-05	DBM		C175			CC73GCH1H100D	CHIP C 10PF	D
-			212-1514-05	INSULATING TUBE		C176			CC73GCH1H471J	CHIP C 470PF	J
TX UNIT (X56-3112-72)						C177-180			CK73GB1H104K	CHIP C 0.10UF	K
D202			B30-2230-05	LED(YG)		C181			CC73GCH1H471J	CHIP C 470PF	J
D301			B30-2230-05	LED(YG)		C182			CC73GCH1H270J	CHIP C 27PF	J
D920-924			B30-2265-05	LED(BR/PG)		C183			CC73GCH1H030B	CHIP C 3.0PF	B
D925-932			B30-2171-05	LED(D)		C186			CC73GCH1H040B	CHIP C 4.0PF	B
C102			CK73GB1E105K	CHIP C 1.0UF	K	C187			C93-1824-05	CHIP C 100UF	M
C103-105			CC73GCH1H471J	CHIP C 470PF	J	C188			CC73GCH1H471J	CHIP C 470PF	J
C106,107			CK73GB1H103K	CHIP C 0.010UF	K	C189			CC73GCH1H100C	CHIP C 10PF	C
C108			CC73GCH1H471J	CHIP C 470PF	J	C190,191			CC73GCH1H020B	CHIP C 2.0PF	B
C109			CK73GB1H104K	CHIP C 0.10UF	K	C192			CC73GCH1H471J	CHIP C 470PF	J
C110			CC73GCH1H471J	CHIP C 470PF	J	C193,194			CC73GCH1H100C	CHIP C 10PF	C
C111,112			CK73GB1H104K	CHIP C 0.10UF	K	C195			CC73GCH1HR75B	CHIP C 0.75PF	B
C113			CC73GCH1H471J	CHIP C 470PF	J	C196-198			CC73GCH1H471J	CHIP C 470PF	J
C114			CK73GB1H104K	CHIP C 0.10UF	K	C201			CC73GCH1H471J	CHIP C 470PF	J
C115-117			CC73GCH1H471J	CHIP C 470PF	J	C209			CK73GB1H102K	CHIP C 1000PF	K
C120			CK73GB1H103K	CHIP C 0.010UF	K	C210			CC73GCH1H180J	CHIP C 18PF	J
C122			CC73GCH1H471J	CHIP C 470PF	J	C211			CC73GCH1H100C	CHIP C 10PF	C
C123			CS77MA1ER47M	CHIP TNL 0.47UF	25WV	C212,213			CK73GB1H102K	CHIP C 1000PF	K
C126			CC73GCH1H471J	CHIP C 470PF	J	C214			CC73GCH1H330J	CHIP C 33PF	J
C132			CC73GCH1H1R5B	CHIP C 1.5PF	B	C215			CK73GB1H102K	CHIP C 1000PF	K
C133			CC73GCH1H180J	CHIP C 18PF	J	C216			CK73GB1H103K	CHIP C 0.010UF	K
C134			CC73GCH1H020B	CHIP C 2.0PF	B	C217			CC73GCH1H102J	CHIP C 1000PF	J
C135			CC73GCH1H471J	CHIP C 470PF	J	C218			CC73GCH1H180J	CHIP C 18PF	J
C136			CC73GCH1H090B	CHIP C 9.0PF	B	C219			CK73GB1H102K	CHIP C 1000PF	K
C137			CK73GB1H103K	CHIP C 0.010UF	K	C220			CK73GB1H104K	CHIP C 0.10UF	K
						C221			CK73GB1H102K	CHIP C 1000PF	K
						C223			CK73GB1H102K	CHIP C 1000PF	K
						C224			CK73GB1H104K	CHIP C 0.10UF	K
						C225,226			CK73GB1H102K	CHIP C 1000PF	K
						C227			CK73GB1H103K	CHIP C 0.010UF	K
						C228			CK73GB1H102K	CHIP C 1000PF	K
						C229			CC73GCH1H020C	CHIP C 2.0PF	C
						C230			CC73GCH1H120J	CHIP C 12PF	J

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PARTS LIST

TX UNIT (X56-3112-72)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C231			CK73GB1H103K	CHIP C 0.010UF K		C331			CK73GB1H104K	CHIP C 0.10UF K	
C233			CC73GCH1H010C	CHIP C 1.0PF C		C332			CC73GCH1H331J	CHIP C 330PF J	
C234			CK73GB1H102K	CHIP C 1000PF K		C333		*	CS77MC1C100M	CHIP TNTL 10UF 16WV	
C235			CK73GB1H103K	CHIP C 0.010UF K		C334			CK73GB1H103K	CHIP C 0.010UF K	
C237			CK73GB1H102K	CHIP C 1000PF K		C335			CK73GB1H102K	CHIP C 1000PF K	
C240			CC73GCH1H221J	CHIP C 220PF J		C336			CC73GCH1H180J	CHIP C 18PF J	
C241			CC73GCH1H820J	CHIP C 82PF J		C337			CK73GB1H103K	CHIP C 0.010UF K	
C242			CC73GCH1H330J	CHIP C 33PF J		C338		*	CS77BB21A470M	CHIP TNTL 47UF 10WV	
C243,244			CC73GCH1H471J	CHIP C 470PF J		C339			CC73GCH1H221J	CHIP C 220PF J	
C245			CC73GCH1H470J	CHIP C 47PF J		C340			CK73GB1H103K	CHIP C 0.010UF K	
C246,247			CC73GCH1H471J	CHIP C 470PF J		C341			CK73GB1H104K	CHIP C 0.10UF K	
C248			CC73GCH1H151J	CHIP C 150PF J		C342		*	CS77BB21A470M	CHIP TNTL 47UF 10WV	
C249			CE32CL1V100M	CHIP EL 10UF 35WV		C343,344			CK73GB1H103K	CHIP C 0.010UF K	
C250			CK73GB1H104K	CHIP C 0.10UF K		C345			CK73GB1H104K	CHIP C 0.10UF K	
C251,252			CK73GB1H103K	CHIP C 0.010UF K		C346,347			CK73GB1H103K	CHIP C 0.010UF K	
C253			CE32CL1V100M	CHIP EL 10UF 35WV		C348			CC73GCH1H221J	CHIP C 220PF J	
C254			CK73GB1H104K	CHIP C 0.10UF K		C349,350			CC73GCH1H100D	CHIP C 10PF D	
C255,256			CK73GB1H103K	CHIP C 0.010UF K		C351		*	CS77MC1C100M	CHIP TNTL 10UF 16WV	
C257-260			CK73GB1H104K	CHIP C 0.10UF K		C352			CC73GCH1H180J	CHIP C 18PF J	
C263			CC73GCH1H390J	CHIP C 39PF J		C353			CK73GB1H103K	CHIP C 0.010UF K	
C265			CC73GCH1H680J	CHIP C 68PF J		C354			CC73GCH1H331J	CHIP C 330PF J	
C267			CC73GCH1H390J	CHIP C 39PF J		C355			CC73GCH1H470J	CHIP C 47PF J	
C269-272			CK73GB1H104K	CHIP C 0.10UF K		C356			CK73GB1H103K	CHIP C 0.010UF K	
C275			CC73GCH1H471J	CHIP C 470PF J		C357			CC73GCH1H181J	CHIP C 180PF J	
C276			CC73GCH1H271J	CHIP C 270PF J		C358			CK73GB1H104K	CHIP C 0.10UF K	
C277			CC73GCH1H471J	CHIP C 470PF J		C359			CC73GCH1H100D	CHIP C 10PF D	
C278			CC73GCH1H391J	CHIP C 390PF J		C360			CK73GB1H103K	CHIP C 0.010UF K	
C279			CC73GCH1H471J	CHIP C 470PF J		C361			CK73GB1H104K	CHIP C 0.10UF K	
C280			CC73GCH1H271J	CHIP C 270PF J		C362			CC73GCH1H471J	CHIP C 470PF J	
C281			CC73GCH1H471J	CHIP C 470PF J		C363,364			CK73GB1H103K	CHIP C 0.010UF K	
C282-285			CK73GB1H104K	CHIP C 0.10UF K		C365			CC73GCH1H471J	CHIP C 470PF J	
C286			CK73GB1H103K	CHIP C 0.010UF K		C366			CC73GCH1H100D	CHIP C 10PF D	
C287			CK73GB1H104K	CHIP C 0.10UF K		C367			CK73GB1H103K	CHIP C 0.010UF K	
C288		*	CS77MA1C2R2M	CHIP TNTL 2.2UF 16WV		C369,370			CK73GB1H103K	CHIP C 0.010UF K	
C290		*	CS77BB21A470M	CHIP TNTL 47UF 10WV		C372			CC73GCH1H180J	CHIP C 18PF J	
C292			CS77BA1C4R7M	CHIP TNTL 4.7UF 16WV		C373			CC73GCH1H470J	CHIP C 47PF J	
C301		*	CS77MA1C2R2M	CHIP TNTL 2.2UF 16WV		C375			CK73GB1H103K	CHIP C 0.010UF K	
C302			CC73GCH1H100D	CHIP C 10PF D		C376			CC73GCH1H471J	CHIP C 470PF J	
C303			CK73GB1H103K	CHIP C 0.010UF K		C378			CK73FB1C105K	CHIP C 1.0UF K	
C304			CC73GCH1H331J	CHIP C 330PF J		C379			CK73GB1H103K	CHIP C 0.010UF K	
C305			CC73GCH1H180J	CHIP C 18PF J		C381			CK73GB1H103K	CHIP C 0.010UF K	
C306			CK73FB0J106K	CHIP C 10UF K		C382			CC73GCH1H221J	CHIP C 220PF J	
C307			CK73GB1H104K	CHIP C 0.10UF K		C383			CC73GCH1H331J	CHIP C 330PF J	
C308			CC73GCH1H471J	CHIP C 470PF J		C384			CC73GCH1H181J	CHIP C 180PF J	
C309			CC73GCH1H331J	CHIP C 330PF J		C386			CE32CL1V100M	CHIP EL 10UF 35WV	
C310			CK73FB0J106K	CHIP C 10UF K		C387			CK73GB1H104K	CHIP C 0.10UF K	
C311			C93-1824-05	CHIP C 100UF M		C388			CC73GCH1H471J	CHIP C 470PF J	
C312			CK73GB1H103K	CHIP C 0.010UF K		C389			CK73GB1H102K	CHIP C 1000PF K	
C313			CC73GCH1H121J	CHIP C 120PF J		C390			CK73GB1H222K	CHIP C 2200PF K	
C314,315			CK73GB1H103K	CHIP C 0.010UF K		C391			C93-1824-05	CHIP C 100UF M	
C316			CC73GCH1H100D	CHIP C 10PF D		C392,393			CC73GCH1H100D	CHIP C 10PF D	
C317			CK73GB1H104K	CHIP C 0.10UF K		C401			CK73GB1H103K	CHIP C 0.010UF K	
C318			CE32BM1E470M	CHIP EL 47UF 25WV		C402,403			CK73GB1H104K	CHIP C 0.10UF K	
C319			CK73GB1H104K	CHIP C 0.10UF K		C404			CK73GB1H103K	CHIP C 0.010UF K	
C320			CK73GB1H103K	CHIP C 0.010UF K		C405			CC73GCH1H471J	CHIP C 470PF J	
C321			CC73GCH1H471J	CHIP C 470PF J		C406-412			CK73GB1H103K	CHIP C 0.010UF K	
C323-326			CK73GB1H103K	CHIP C 0.010UF K		C413			CC73GCH1H471J	CHIP C 470PF J	
C327			CC73GCH1H181J	CHIP C 180PF J		C414-416			CK73GB1H103K	CHIP C 0.010UF K	
C328,329			C93-1824-05	CHIP C 100UF M		C419			CK73FB0J106K	CHIP C 10UF K	
C330			CC73GCH1H470J	CHIP C 47PF J		C420			CK73GB1H103K	CHIP C 0.010UF K	

PARTS LIST

TX UNIT (X56-3112-72)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C422			CK73GB1H103K	CHIP C 0.010UF K		C521-527			CK73GB1H104K	CHIP C 0.10UF K	
C423			CE32BM1E470M	CHIP EL 47UF 25WV		C529-532			CK73GB1H104K	CHIP C 0.10UF K	
C425			CC73GCH1H181J	CHIP C 180PF J		C533			CC73GCH1H471J	CHIP C 470PF J	
C427			CC73GCH1H470J	CHIP C 47PF J		C534-537			CK73GB1H104K	CHIP C 0.10UF K	
C429			CC73GCH1H331J	CHIP C 330PF J		C538			CC73GCH1H471J	CHIP C 470PF J	
C430			CC73GCH1H180J	CHIP C 18PF J		C539			CK73GB1H104K	CHIP C 0.10UF K	
C433			CC73GCH1H221J	CHIP C 220PF J		C541,542			CC73GCH1H100D	CHIP C 10PF D	
C435			CK73GB1H104K	CHIP C 0.10UF K		C543-547			CK73GB1H104K	CHIP C 0.10UF K	
C436		*	CS77MA1C2R2M	CHIP TNTL 2.2UF 16WV		C548			CC73GCH1H471J	CHIP C 470PF J	
C437			CK73GB1H103K	CHIP C 0.010UF K		C549-552			CK73GB1H104K	CHIP C 0.10UF K	
C439-443			CK73GB1H103K	CHIP C 0.010UF K		C554-556			CK73GB1H104K	CHIP C 0.10UF K	
C445			CS77MA1VR22M	CHIP TNTL 0.22UF 35WV		C557			CC73GCH1H030C	CHIP C 3.0PF C	
C446			CK73FB1E473K	CHIP C 0.047UF K		C558,559			CK73GB1H104K	CHIP C 0.10UF K	
C447			CK73FB0J106K	CHIP C 10UF K		C562			CK73GB1H104K	CHIP C 0.10UF K	
C448			CK73GB1H104K	CHIP C 0.10UF K		C563			CC73GCH1H121J	CHIP C 120PF J	
C449			CK73GB1H103K	CHIP C 0.010UF K		C564			CC73GCH1H470J	CHIP C 47PF J	
C451			CK73GB1H104K	CHIP C 0.10UF K		C565			CK73GB1H104K	CHIP C 0.10UF K	
C452			CK73FB0J106K	CHIP C 10UF K		C568			CC73GCH1H221J	CHIP C 220PF J	
C453			CC73GCH1H181J	CHIP C 180PF J		C569			CC73GCH1H271J	CHIP C 270PF J	
C454			CC73GCH1H470J	CHIP C 47PF J		C570			CC73GCH1H221J	CHIP C 220PF J	
C455			CK73GB1H103K	CHIP C 0.010UF K		C571			CC73GCH1H331J	CHIP C 330PF J	
C456			CC73GCH1H331J	CHIP C 330PF J		C573,574			CC73GCH1H331J	CHIP C 330PF J	
C457			CC73GCH1H181J	CHIP C 180PF J		C575,576			CC73GCH1H180J	CHIP C 18PF J	
C458			CC73GCH1H470J	CHIP C 47PF J		C577,578			CC73GCH1H331J	CHIP C 330PF J	
C459			CC73GCH1H180J	CHIP C 18PF J		C579,580			CC73GCH1H820J	CHIP C 82PF J	
C460			CC73GCH1H331J	CHIP C 330PF J		C581,582			CC73GCH1H471J	CHIP C 470PF J	
C461			CC73GCH1H221J	CHIP C 220PF J		C583			CK73GB1H104K	CHIP C 0.10UF K	
C462			CC73GCH1H180J	CHIP C 18PF J		C601-605			CK73GB1H104K	CHIP C 0.10UF K	
C463			CK73GB1H104K	CHIP C 0.10UF K		C610			CK73GB1H104K	CHIP C 0.10UF K	
C464,465			CK73GB1H103K	CHIP C 0.010UF K		C612,613			CK73GB1H104K	CHIP C 0.10UF K	
C466			CC73GCH1H221J	CHIP C 220PF J		C614			CC73GCH1H100D	CHIP C 10PF D	
C467			CK73FB1C105K	CHIP C 1.0UF K		C616			CC73GCH1H270J	CHIP C 27PF J	
C468,469			CK73GB1H103K	CHIP C 0.010UF K		C619			CC73GCH1H100D	CHIP C 10PF D	
C470			CK73GB1H104K	CHIP C 0.10UF K		C620-623			CK73GB1H104K	CHIP C 0.10UF K	
C471-482			CK73GB1H103K	CHIP C 0.010UF K		C624-627			CC73GCH1H560J	CHIP C 56PF J	
C483-486			CK73GB1H104K	CHIP C 0.10UF K		C628-631			CK73GB1H104K	CHIP C 0.10UF K	
C487			CK73GB1H103K	CHIP C 0.010UF K		C632-634			CK73GB1H103K	CHIP C 0.010UF K	
C488-490			CK73GB1H104K	CHIP C 0.10UF K		C635,636			CK73GB1H104K	CHIP C 0.10UF K	
C491			CC73GCH1H470J	CHIP C 47PF J		C637			CK73GB1H103K	CHIP C 0.010UF K	
C492-495			CK73GB1H104K	CHIP C 0.10UF K		C638			CC73GCH1H470J	CHIP C 47PF J	
C496			CC73GCH1H221J	CHIP C 220PF J		C639			CC73GCH1H180J	CHIP C 18PF J	
C497			CK73GB1H104K	CHIP C 0.10UF K		C640			CC73GCH1H181J	CHIP C 180PF J	
C498			CC73GCH1H121J	CHIP C 120PF J		C641			CC73GCH1H331J	CHIP C 330PF J	
C499			CK73GB1H104K	CHIP C 0.10UF K		C642			CC73GCH1H221J	CHIP C 220PF J	
C500			CC73GCH1H271J	CHIP C 270PF J		C643			CC73GCH1H471J	CHIP C 470PF J	
C501,502			CK73GB1H104K	CHIP C 0.10UF K		C645			CC73GCH1H471J	CHIP C 470PF J	
C503			CC73GCH1H470J	CHIP C 47PF J		C656,657			CK73GB1H103K	CHIP C 0.010UF K	
C504			CC73GCH1H221J	CHIP C 220PF J		C658			CK73GB1H104K	CHIP C 0.10UF K	
C505			CK73GB1H104K	CHIP C 0.10UF K		C659,660			CK73GB1H103K	CHIP C 0.010UF K	
C506			CC73GCH1H820J	CHIP C 82PF J		C661			CK73FB0J106K	CHIP C 10UF K	
C507,508			CC73GCH1H331J	CHIP C 330PF J		C662,663			CK73GB1H104K	CHIP C 0.10UF K	
C509,510			CK73GB1H104K	CHIP C 0.10UF K		C703			CK73GB1H104K	CHIP C 0.10UF K	
C511			CC73GCH1H470J	CHIP C 47PF J		C704			CK73FB0J106K	CHIP C 10UF K	
C512			CC73GCH1H271J	CHIP C 270PF J		C707			CK73GB1H102K	CHIP C 1000PF K	
C513			CC73GCH1H221J	CHIP C 220PF J		C708			CK73GB1H104K	CHIP C 0.10UF K	
C514			CC73GCH1H121J	CHIP C 120PF J		C709			CE32CL1V100M	CHIP EL 10UF 35WV	
C515			CC73GCH1H030C	CHIP C 3.0PF C		C710			CK73GB1H104K	CHIP C 0.10UF K	
C516,517			CK73GB1H104K	CHIP C 0.10UF K		C711			CK73GB1H103K	CHIP C 0.010UF K	
C519			CK73GB1H104K	CHIP C 0.10UF K		C712,713			CC73GCH1H471J	CHIP C 470PF J	
C520			CC73GCH1H221J	CHIP C 220PF J		C714			CK73GB1H103K	CHIP C 0.010UF K	

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Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
L405			L41-3385-33	SMALL FIXED INDUCTOR(0.33UH)		R137			RK73GB2A102J	CHIP R 1.0K J 1/10W	
L406			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		R138			RK73GB2A103J	CHIP R 10K J 1/10W	
L407			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)		R139			RK73GB2A102J	CHIP R 1.0K J 1/10W	
L408			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)		R141			RK73GB2A101J	CHIP R 100 J 1/10W	
L409,410			L41-3385-33	SMALL FIXED INDUCTOR(0.33UH)		R142			RK73GB2A221J	CHIP R 220 J 1/10W	
L411			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)		R144,145			RK73GB2A000J	CHIP R 0 J 1/10W	
L412			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)		R146			RK73GB2A121J	CHIP R 120 J 1/10W	
L413			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)		R147			RK73GB2A470J	CHIP R 47 J 1/10W	
L414,415			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)		R148			RK73GB2A121J	CHIP R 120 J 1/10W	
L416,417			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		R149			RK73GB2A221J	CHIP R 220 J 1/10W	
L418			L41-5685-33	SMALL FIXED INDUCTOR(0.56UH)		R150			RK73GB2A820J	CHIP R 82 J 1/10W	
L419,420			L41-6885-33	SMALL FIXED INDUCTOR(0.68UH)		R151			RK73GB2A101J	CHIP R 100 J 1/10W	
L421			L41-5685-33	SMALL FIXED INDUCTOR(0.56UH)		R152			RK73GB2A000J	CHIP R 0 J 1/10W	
L422			L39-1517-05	TOROIDAL COIL		R153			RK73GB2A271J	CHIP R 270 J 1/10W	
L423			L41-3305-33	SMALL FIXED INDUCTOR(33UH)		R154			RK73GB2A180J	CHIP R 18 J 1/10W	
L424			L41-3395-33	SMALL FIXED INDUCTOR(3.3UH)		R155			RK73GB2A682J	CHIP R 6.8K J 1/10W	
L425			L41-3305-33	SMALL FIXED INDUCTOR(33UH)		R156			RK73GB2A332J	CHIP R 3.3K J 1/10W	
L426			L41-3395-33	SMALL FIXED INDUCTOR(3.3UH)		R157			RK73GB2A271J	CHIP R 270 J 1/10W	
L427			L39-1517-05	TOROIDAL COIL		R158			RK73GB2A103J	CHIP R 10K J 1/10W	
L430			L41-5685-33	SMALL FIXED INDUCTOR(0.56UH)		R159-161			RK73GB2A104J	CHIP R 100K J 1/10W	
L431			L41-6885-33	SMALL FIXED INDUCTOR(0.68UH)		R164			RK73GB2A104J	CHIP R 100K J 1/10W	
L433,434			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)		R165-168			RK73GB2A102J	CHIP R 1.0K J 1/10W	
L435			L41-3395-33	SMALL FIXED INDUCTOR(3.3UH)		R170			RK73GB2A000J	CHIP R 0 J 1/10W	
L601,602			L41-3305-33	SMALL FIXED INDUCTOR(33UH)		R171,172			RK73GB2A470J	CHIP R 47 J 1/10W	
L603,604			L41-4705-33	SMALL FIXED INDUCTOR(47UH)		R173,174			RK73GB2A102J	CHIP R 1.0K J 1/10W	
L605			L41-2205-33	SMALL FIXED INDUCTOR(22UH)		R176			RK73GB2A000J	CHIP R 0 J 1/10W	
L606,607			L41-1205-33	SMALL FIXED INDUCTOR(12UH)		R178			RK73GB2A000J	CHIP R 0 J 1/10W	
L608			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		R179			RK73GB2A224J	CHIP R 220K J 1/10W	
L609			L92-0140-05	CHIP FERRITE		R180			RK73GB2A101J	CHIP R 100 J 1/10W	
L610			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		R181			RK73GB2A104J	CHIP R 100K J 1/10W	
L611			L92-0140-05	CHIP FERRITE		R182			RN73GE1J101D	METAL FILM 100 D 1/16W	
L612			L41-3385-33	SMALL FIXED INDUCTOR(0.33UH)		R183			RN73GE1J271D	METAL FILM 270 D 1/16W	
L613			L41-3985-33	SMALL FIXED INDUCTOR(0.39UH)		R184			RK73GB2A470J	CHIP R 47 J 1/10W	
L614			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		R185,186			RK73GB2A103J	CHIP R 10K J 1/10W	
L801			L41-1095-33	SMALL FIXED INDUCTOR(1.0UH)		R187,188			RK73GB2A000J	CHIP R 0 J 1/10W	
L810,811			L41-5675-33	SMALL FIXED INDUCTOR(0.056UH)		R189-191			RK73GB2A103J	CHIP R 10K J 1/10W	
L812			L41-1005-33	SMALL FIXED INDUCTOR(10UH)		R202			RK73GB2A000J	CHIP R 0 J 1/10W	
X301		*	L77-1981-25	VCXO(19.2MHZ)		R209			RK73GB2A101J	CHIP R 100 J 1/10W	
X401		*	L77-3065-15	VCXO(19.2MHZ)		R210			RK73GB2A680J	CHIP R 68 J 1/10W	
X601		*	L77-3034-05	TCXO(19.2MHZ)		R211			RK73GB2A101J	CHIP R 100 J 1/10W	
CP920			RK74GB1J102J	CHIP-COM 1.0K J 1/16W		R212			RK73GB2A562J	CHIP R 5.6K J 1/10W	
CP923			RK74GB1J102J	CHIP-COM 1.0K J 1/16W		R213			RK73GB2A222J	CHIP R 2.2K J 1/10W	
CP924			RK75GB1JR00	CHIP-COM 0 1/16W		R214			RK73GB2A221J	CHIP R 220 J 1/10W	
CP926			RK74GB1J681J	CHIP-COM 680 J 1/16W		R215			RK73GB2A000J	CHIP R 0 J 1/10W	
CP928			RK74GB1J681J	CHIP-COM 680 J 1/16W		R216			RK73GB2A470J	CHIP R 47 J 1/10W	
CP961,962			RK74GB1J102J	CHIP-COM 1.0K J 1/16W		R217			RK73GB2A271J	CHIP R 270 J 1/10W	
CP965,966			RK74GB1J102J	CHIP-COM 1.0K J 1/16W		R218			RK73GB2A180J	CHIP R 18 J 1/10W	
CP970,971			RK74GB1J102J	CHIP-COM 1.0K J 1/16W		R219			RK73GB2A271J	CHIP R 270 J 1/10W	
CP973,974			RK74GB1J102J	CHIP-COM 1.0K J 1/16W		R220			RK73GB2A560J	CHIP R 56 J 1/10W	
R101			RK73GB2A000J	CHIP R 0 J 1/10W		R221			RK73GB2A103J	CHIP R 10K J 1/10W	
R118			RK73GB2A000J	CHIP R 0 J 1/10W		R222			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R120			RK73GB2A100J	CHIP R 10 J 1/10W		R223			RK73GB2A123J	CHIP R 12K J 1/10W	
R123			RK73GB2A000J	CHIP R 0 J 1/10W		R224			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R124,125			RK73GB2A105J	CHIP R 1.0M J 1/10W		R225			RK73GB2A474J	CHIP R 470K J 1/10W	
R129			RK73GB2A101J	CHIP R 100 J 1/10W		R226,227			RK73GB2A000J	CHIP R 0 J 1/10W	
R131			RN73GE1J101D	METAL FILM 100 D 1/16W		R229			RK73GB2A563J	CHIP R 56K J 1/10W	
R132			RN73GE1J271D	METAL FILM 270 D 1/16W		R230			RK73FB2B4R7J	CHIP R 4.7 J 1/8W	
R133			RK73GB2A470J	CHIP R 47 J 1/10W		R231,232			RK73GB2A000J	CHIP R 0 J 1/10W	
R134			RK73GB2A220J	CHIP R 22 J 1/10W		R233			RK73GB2A104J	CHIP R 100K J 1/10W	
R135			RK73GB2A472J	CHIP R 4.7K J 1/10W		R234,235			RK73GB2A474J	CHIP R 470K J 1/10W	

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Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R236			RK73GB2A821J	CHIP R 820 J 1/10W		R340			RK73GB2A101J	CHIP R 100 J 1/10W	
R240			RK73GB2A104J	CHIP R 100K J 1/10W		R341			RK73GB2A221J	CHIP R 220 J 1/10W	
R241			RK73GB2A000J	CHIP R 0 J 1/10W		R342			RK73GB2A470J	CHIP R 47 J 1/10W	
R242			RK73GB2A474J	CHIP R 470K J 1/10W		R343			RK73GB2A000J	CHIP R 0 J 1/10W	
R243			RK73GB2A392J	CHIP R 3.9K J 1/10W		R344-351			RK73GB2A104J	CHIP R 100K J 1/10W	
R244-246			RK73GB2A102J	CHIP R 1.0K J 1/10W		R352			RK73GB2A123J	CHIP R 12K J 1/10W	
R248,249			RK73GB2A104J	CHIP R 100K J 1/10W		R353			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R250			RK73GB2A473J	CHIP R 47K J 1/10W		R355			RK73GB2A221J	CHIP R 220 J 1/10W	
R251			RK73GB2A100J	CHIP R 10 J 1/10W		R356			RK73GB2A100J	CHIP R 10 J 1/10W	
R252			RK73GB2A104J	CHIP R 100K J 1/10W		R357			RK73GB2A101J	CHIP R 100 J 1/10W	
R253			RK73GB2A331J	CHIP R 330 J 1/10W		R358			RK73GB2A105J	CHIP R 1.0M J 1/10W	
R254			RK73GB2A100J	CHIP R 10 J 1/10W		R360			RK73GB2A104J	CHIP R 100K J 1/10W	
R255			RK73GB2A274J	CHIP R 270K J 1/10W		R362			RK73GB2A100J	CHIP R 10 J 1/10W	
R256			RK73GB2A102J	CHIP R 1.0K J 1/10W		R363			RK73GB2A471J	CHIP R 470 J 1/10W	
R257,258			RK73GB2A000J	CHIP R 0 J 1/10W		R364			RK73GB2A104J	CHIP R 100K J 1/10W	
R259			RK73GB2A562J	CHIP R 5.6K J 1/10W		R367			RK73GB2A104J	CHIP R 100K J 1/10W	
R260			RK73GB2A331J	CHIP R 330 J 1/10W		R368			RK73GB2A822J	CHIP R 8.2K J 1/10W	
R261			RK73GB2A562J	CHIP R 5.6K J 1/10W		R369			RK73GB2A000J	CHIP R 0 J 1/10W	
R262			RK73GB2A102J	CHIP R 1.0K J 1/10W		R370			RK73GB2A182J	CHIP R 1.8K J 1/10W	
R263			RK73GB2A563J	CHIP R 56K J 1/10W		R371			RK73GB2A2R2J	CHIP R 2.2 J 1/10W	
R264			RK73GB2A100J	CHIP R 10 J 1/10W		R374			RK73GB2A000J	CHIP R 0 J 1/10W	
R265			RK73GB2A471J	CHIP R 470 J 1/10W		R375,376			RK73GB2A563J	CHIP R 56K J 1/10W	
R266			RK73GB2A000J	CHIP R 0 J 1/10W		R377,378			RK73GB2A104J	CHIP R 100K J 1/10W	
R267			RK73GB2A271J	CHIP R 270 J 1/10W		R379			RK73GB2A000J	CHIP R 0 J 1/10W	
R268			RK73GB2A180J	CHIP R 18 J 1/10W		R380			RK73GB2A470J	CHIP R 47 J 1/10W	
R269			RK73GB2A271J	CHIP R 270 J 1/10W		R381			RK73GB2A104J	CHIP R 100K J 1/10W	
R270,271			RK73GB2A472J	CHIP R 4.7K J 1/10W		R382			RK73GB2A470J	CHIP R 47 J 1/10W	
R272			RK73GB2A100J	CHIP R 10 J 1/10W		R401			RK73GB2A000J	CHIP R 0 J 1/10W	
R274			RK73GB2A331J	CHIP R 330 J 1/10W		R402			RK73GB2A474J	CHIP R 470K J 1/10W	
R276			RK73GB2A000J	CHIP R 0 J 1/10W		R403,404			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R278,279			RK73GB2A000J	CHIP R 0 J 1/10W		R406-408			RK73GB2A100J	CHIP R 10 J 1/10W	
R281			RK73GB2A000J	CHIP R 0 J 1/10W		R409			RK73GB2A000J	CHIP R 0 J 1/10W	
R301,302			RK73GB2A473J	CHIP R 47K J 1/10W		R410			RK73GB2A331J	CHIP R 330 J 1/10W	
R303			RK73GB2A000J	CHIP R 0 J 1/10W		R411			RK73GB2A000J	CHIP R 0 J 1/10W	
R304			RK73GB2A471J	CHIP R 470 J 1/10W		R412			RK73GB2A331J	CHIP R 330 J 1/10W	
R305			RK73GB2A104J	CHIP R 100K J 1/10W		R413			RK73GB2A123J	CHIP R 12K J 1/10W	
R306-309			RK73GB2A102J	CHIP R 1.0K J 1/10W		R414			RK73GB2A562J	CHIP R 5.6K J 1/10W	
R310,311			RK73GB2A104J	CHIP R 100K J 1/10W		R415			RK73GB2A123J	CHIP R 12K J 1/10W	
R312			RK73GB2A154J	CHIP R 150K J 1/10W		R416			RK73GB2A562J	CHIP R 5.6K J 1/10W	
R313			RK73GB2A2R2J	CHIP R 2.2 J 1/10W		R417,418			RK73GB2A000J	CHIP R 0 J 1/10W	
R314			RK73GB2A000J	CHIP R 0 J 1/10W		R422-424			RK73GB2A474J	CHIP R 470K J 1/10W	
R316			RK73GB2A563J	CHIP R 56K J 1/10W		R425			RK73GB2A104J	CHIP R 100K J 1/10W	
R317			RK73GB2A104J	CHIP R 100K J 1/10W		R427			RK73GB2A100J	CHIP R 10 J 1/10W	
R318			RK73GB2A472J	CHIP R 4.7K J 1/10W		R430,431			RK73GB2A100J	CHIP R 10 J 1/10W	
R319			RK73GB2A104J	CHIP R 100K J 1/10W		R433			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R320			RK73GB2A470J	CHIP R 47 J 1/10W		R434			RK73GB2A000J	CHIP R 0 J 1/10W	
R321-323			RK73GB2A100J	CHIP R 10 J 1/10W		R435			RK73GB2A104J	CHIP R 100K J 1/10W	
R324			RK73GB2A682J	CHIP R 6.8K J 1/10W		R436,437			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R325			RK73GB2A332J	CHIP R 3.3K J 1/10W		R438			RK73GB2A104J	CHIP R 100K J 1/10W	
R326			RK73GB2A100J	CHIP R 10 J 1/10W		R439			RK73GB2A2R2J	CHIP R 2.2 J 1/10W	
R327,328			RK73GB2A000J	CHIP R 0 J 1/10W		R440			RK73GB2A103J	CHIP R 10K J 1/10W	
R329,330			RK73GB2A104J	CHIP R 100K J 1/10W		R442			RK73GB2A470J	CHIP R 47 J 1/10W	
R331,332			RK73GB2A471J	CHIP R 470 J 1/10W		R447			RK73GB2A000J	CHIP R 0 J 1/10W	
R333			RK73GB2A000J	CHIP R 0 J 1/10W		R452,453			RK73GB2A000J	CHIP R 0 J 1/10W	
R334			RK73GB2A333J	CHIP R 33K J 1/10W		R454,455			RK73GB2A105J	CHIP R 1.0M J 1/10W	
R335			RK73GB2A223J	CHIP R 22K J 1/10W		R457,458			RK73GB2A104J	CHIP R 100K J 1/10W	
R336			RK73GB2A274J	CHIP R 270K J 1/10W		R459			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R337			RK73GB2A273J	CHIP R 27K J 1/10W		R460			RK73GB2A183J	CHIP R 18K J 1/10W	
R338			RK73GB2A105J	CHIP R 1.0M J 1/10W		R461			RK73GB2A000J	CHIP R 0 J 1/10W	
R339			RK73GB2A104J	CHIP R 100K J 1/10W		R463			RK73GB2A000J	CHIP R 0 J 1/10W	

PARTS LIST

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Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
R464			RK73GB2A221J	CHIP R 220 J 1/10W		R538			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R465			RK73GB2A000J	CHIP R 0 J 1/10W		R539			RK73GB2A100J	CHIP R 10 J 1/10W	
R466			RK73GB2A470J	CHIP R 47 J 1/10W		R540			RK73GB2A474J	CHIP R 470K J 1/10W	
R469,470			RK73GB2A000J	CHIP R 0 J 1/10W		R541			RK73FB2B1R0J	CHIP R 1 J 1/8W	
R471			RK73GB2A102J	CHIP R 1.0K J 1/10W		R542			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R474			RK73GB2A682J	CHIP R 6.8K J 1/10W		R543			RK73GB2A220J	CHIP R 22 J 1/10W	
R475			RK73GB2A332J	CHIP R 3.3K J 1/10W		R544			RK73GB2A104J	CHIP R 100K J 1/10W	
R476,477			RK73GB2A000J	CHIP R 0 J 1/10W		R545			RK73GB2A470J	CHIP R 47 J 1/10W	
R478			RK73GB2A153J	CHIP R 15K J 1/10W		R547			RK73GB2A563J	CHIP R 56K J 1/10W	
R479			RK73GB2A2R2J	CHIP R 2.2 J 1/10W		R548			RK73GB2A473J	CHIP R 47K J 1/10W	
R480			RK73GB2A682J	CHIP R 6.8K J 1/10W		R549			RK73GB2A391J	CHIP R 390 J 1/10W	
R481			RK73GB2A182J	CHIP R 1.8K J 1/10W		R550			RK73GB2A104J	CHIP R 100K J 1/10W	
R482			RK73GB2A103J	CHIP R 10K J 1/10W		R551			RK73GB2A473J	CHIP R 47K J 1/10W	
R483			RK73GB2A562J	CHIP R 5.6K J 1/10W		R552			RK73GB2A564J	CHIP R 560K J 1/10W	
R484			RK73GB2A101J	CHIP R 100 J 1/10W		R553			RK73GH2A154D	CHIP R 150K J 1/10W	
R485			RK73GB2A392J	CHIP R 3.9K J 1/10W		R554			RK73GB2A120J	CHIP R 12 J 1/10W	
R486			RK73GB2A221J	CHIP R 220 J 1/10W		R555			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R487			RK73GB2A102J	CHIP R 1.0K J 1/10W		R557			RK73GB2A563J	CHIP R 56K J 1/10W	
R488			RK73GB2A822J	CHIP R 8.2K J 1/10W		R558,559			RK73GB2A391J	CHIP R 390 J 1/10W	
R489			RK73GB2A272J	CHIP R 2.7K J 1/10W		R560			RK73GB2A120J	CHIP R 12 J 1/10W	
R490			RK73GB2A470J	CHIP R 47 J 1/10W		R562			RK73GB2A564J	CHIP R 560K J 1/10W	
R492			RK73GB2A471J	CHIP R 470 J 1/10W		R563			RK73GB2A473J	CHIP R 47K J 1/10W	
R493			RK73GB2A104J	CHIP R 100K J 1/10W		R564			RK73GH2A154D	CHIP R 150K J 1/10W	
R494			RK73GB2A123J	CHIP R 12K J 1/10W		R565			RK73GB2A391J	CHIP R 390 J 1/10W	
R495			RK73GB2A332J	CHIP R 3.3K J 1/10W		R566			RK73GB2A473J	CHIP R 47K J 1/10W	
R496,497			RK73GB2A100J	CHIP R 10 J 1/10W		R567			RK73GB2A104J	CHIP R 100K J 1/10W	
R498			RK73GB2A471J	CHIP R 470 J 1/10W		R568			RK73GB2A224J	CHIP R 220K J 1/10W	
R499			RK73GB2A682J	CHIP R 6.8K J 1/10W		R569			RK73GB2A561J	CHIP R 560 J 1/10W	
R500			RK73GB2A332J	CHIP R 3.3K J 1/10W		R570			RK73GB2A473J	CHIP R 47K J 1/10W	
R501			RK73GB2A221J	CHIP R 220 J 1/10W		R571			RK73GB2A100J	CHIP R 10 J 1/10W	
R502			RK73GB2A000J	CHIP R 0 J 1/10W		R573			RK73GB2A104J	CHIP R 100K J 1/10W	
R503			RK73GB2A100J	CHIP R 10 J 1/10W		R574			RK73GB2A103J	CHIP R 10K J 1/10W	
R504			RK73GB2A104J	CHIP R 100K J 1/10W		R575			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R505			RK73GB2A000J	CHIP R 0 J 1/10W		R576			RK73FB2B1R0J	CHIP R 1 J 1/8W	
R506			RK73GB2A101J	CHIP R 100 J 1/10W		R577			RK73GB2A104J	CHIP R 100K J 1/10W	
R507			RK73GB2A100J	CHIP R 10 J 1/10W		R578			RK73GB2A000J	CHIP R 0 J 1/10W	
R508-510			RK73GB2A000J	CHIP R 0 J 1/10W		R580			RK73GB2A220J	CHIP R 22 J 1/10W	
R511			RK73GB2A102J	CHIP R 1.0K J 1/10W		R581			RK73GB2A104J	CHIP R 100K J 1/10W	
R512			RK73GB2A181J	CHIP R 180 J 1/10W		R582			RK73GB2A474J	CHIP R 470K J 1/10W	
R513			RK73GB2A471J	CHIP R 470 J 1/10W		R583			RK73GB2A391J	CHIP R 390 J 1/10W	
R514			RK73GB2A100J	CHIP R 10 J 1/10W		R586			RK73GB2A473J	CHIP R 47K J 1/10W	
R515			RK73GB2A470J	CHIP R 47 J 1/10W		R588			RK73GB2A333J	CHIP R 33K J 1/10W	
R518			RK73GB2A104J	CHIP R 100K J 1/10W		R591			RK73FB2B271J	CHIP R 270 J 1/8W	
R519			RK73GB2A124J	CHIP R 120K J 1/10W		R592			RK73GB2A473J	CHIP R 47K J 1/10W	
R521			RK73GB2A223J	CHIP R 22K J 1/10W		R593			RK73FB2B180J	CHIP R 18 J 1/8W	
R522			RK73GB2A822J	CHIP R 8.2K J 1/10W		R594			RK73FB2B271J	CHIP R 270 J 1/8W	
R523,524			RK73GB2A221J	CHIP R 220 J 1/10W		R595			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R525			RK73GB2A470J	CHIP R 47 J 1/10W		R596			RK73GH2A333D	CHIP R 33K J 1/10W	
R526			RK73GB2A473J	CHIP R 47K J 1/10W		R597			RK73GH2A473D	CHIP R 47K J 1/10W	
R527			RK73GB2A271J	CHIP R 270 J 1/10W		R601			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R528			RK73GB2A152J	CHIP R 1.5K J 1/10W		R602			RK73GB2A104J	CHIP R 100K J 1/10W	
R529			RK73GB2A333J	CHIP R 33K J 1/10W		R603,604			RK73GB2A473J	CHIP R 47K J 1/10W	
R530			RK73GB2A180J	CHIP R 18 J 1/10W		R605			RK73GB2A333J	CHIP R 33K J 1/10W	
R531			RK73GB2A474J	CHIP R 470K J 1/10W		R606			RK73GB2A391J	CHIP R 390 J 1/10W	
R532			RK73GB2A271J	CHIP R 270 J 1/10W		R607			RK73GB2A100J	CHIP R 10 J 1/10W	
R533			RK73GB2A104J	CHIP R 100K J 1/10W		R608			RK73GB2A103J	CHIP R 10K J 1/10W	
R534			RK73GB2A391J	CHIP R 390 J 1/10W		R610			RK73GB2A104J	CHIP R 100K J 1/10W	
R535			RK73GB2A104J	CHIP R 100K J 1/10W		R611			RK73GB2A100J	CHIP R 10 J 1/10W	
R536			RK73GB2A102J	CHIP R 1.0K J 1/10W		R612			RK73GB2A471J	CHIP R 470 J 1/10W	
R537			RK73GB2A103J	CHIP R 10K J 1/10W		R613			RK73GB2A682J	CHIP R 6.8K J 1/10W	

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Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R614			RK73GB2A332J	CHIP R 3.3K J 1/10W		R942			RK73GB2A000J	CHIP R 0 J 1/10W	
R615			RK73GB2A471J	CHIP R 470 J 1/10W		R943			RK73GH2A224D	CHIP R 220K D 1/10W	
R616			RK73GB2A000J	CHIP R 0 J 1/10W		R944,945			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R617			RK73GB2A471J	CHIP R 470 J 1/10W		R946			RK73GB2A103J	CHIP R 10K J 1/10W	
R618			RK73GB2A104J	CHIP R 100K J 1/10W		R947			RK73GB2A000J	CHIP R 0 J 1/10W	
R619			RK73GB2A100J	CHIP R 10 J 1/10W		R948,949			RK73GH2A104D	CHIP R 100K D 1/10W	
R620			RK73GB2A104J	CHIP R 100K J 1/10W		R950			RK73GH2A822D	CHIP R 8.2K D 1/10W	
R621			RK73GB2A471J	CHIP R 470 J 1/10W		R951			RK73GB2A122J	CHIP R 1.2K J 1/10W	
R622			RK73GB2A331J	CHIP R 330 J 1/10W		R960-965			RK73GB2A000J	CHIP R 0 J 1/10W	
R623			RK73GB2A392J	CHIP R 3.9K J 1/10W		R966,967			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R624			RK73GB2A474J	CHIP R 470K J 1/10W		S920-925			S70-0502-05	TACT SWITCH	
R625			RK73GB2A000J	CHIP R 0 J 1/10W		D101,102	*		1SV283-KENW,E	VARIABLE CAPACITANCE DIODE	
R626-628			RK73GB2A102J	CHIP R 1.0K J 1/10W		D106			1SV278F	VARIABLE CAPACITANCE DIODE	
R629			RK73GB2A101J	CHIP R 100 J 1/10W		D107,108	*		1SV283-KENW,E	VARIABLE CAPACITANCE DIODE	
R630			RK73GB2A102J	CHIP R 1.0K J 1/10W		D112			1SV278F	VARIABLE CAPACITANCE DIODE	
R631			RK73GB2A561J	CHIP R 560 J 1/10W		D201			HSM88AS-E	DIODE	
R637,638			RK73GB2A472J	CHIP R 4.7K J 1/10W		D401-403			HSM88AS-E	DIODE	
R639,640			RK73GH2A104D	CHIP R 100K D 1/10W		D404,405			HSC277	DIODE	
R705			RK73GB2A2R2J	CHIP R 2.2 J 1/10W		D406,407			HSC119	DIODE	
R706-708			RK73GB2A100J	CHIP R 10 J 1/10W		D408			HSM88AS-E	DIODE	
R709			RK73GB2A474J	CHIP R 470K J 1/10W		D409			CSA70-401L	SURGE ABSORBER	
R711			RK73GB2A104J	CHIP R 100K J 1/10W		D410,411			HSC277	DIODE	
R712,713			RK73GB2A472J	CHIP R 4.7K J 1/10W		D601,602			HSC277	DIODE	
R714			RK73GB2A104J	CHIP R 100K J 1/10W		D603-606			UDZW3.0(B)	ZENER DIODE	
R715			RK73GB2A474J	CHIP R 470K J 1/10W		D607,608			HSC277	DIODE	
R716-718			RK73GB2A100J	CHIP R 10 J 1/10W		D933,934			HSM88AS-E	DIODE	
R719,720			RK73GB2A104J	CHIP R 100K J 1/10W		D935,936			1SS355	DIODE	
R721			RK73GB2A100J	CHIP R 10 J 1/10W		D960,961			PSA05-11SRWA	LED	
R722			RK73GB2A474J	CHIP R 470K J 1/10W		IC101			LMX2352TMX/NP	ANALOGUE IC	
R725			RK73GB2A100J	CHIP R 10 J 1/10W		IC102			BU7261G	MOS-IC	
R801			RK73GB2A102J	CHIP R 1.0K J 1/10W		IC104			NJM2386ADL3-09	ANALOGUE IC	
R802,803			RK73GB2A104J	CHIP R 100K J 1/10W		IC201			NJM2904E-ZB	ANALOGUE IC	
R804-807			RK73GB2A100J	CHIP R 10 J 1/10W		IC202			AD9835BRUZ	MOS-IC	
R812-824			RK73GB2A000J	CHIP R 0 J 1/10W		IC301			NJM2732V	BI-POLAR IC	
R830-837			RK73GB2A000J	CHIP R 0 J 1/10W		IC302			NJU6368PF1	MOS-IC	
R840			RK73GB2A000J	CHIP R 0 J 1/10W		IC303			ADF4001BRUZ	MOS-IC	
R845			RK73GB2A000J	CHIP R 0 J 1/10W		IC304			M62364FP-F	MOS-IC	
R855			RK73GB2A560J	CHIP R 56 J 1/10W		IC305			NJM2732V	BI-POLAR IC	
R856			RK73GB2A220J	CHIP R 22 J 1/10W		IC306			BU7261G	MOS-IC	
R865			RK73GB2A104J	CHIP R 100K J 1/10W		IC307			NJU6368PF1	MOS-IC	
R866,867			RK73GB2A000J	CHIP R 0 J 1/10W		IC308			NJM2732V	BI-POLAR IC	
R869			RK73GB2A104J	CHIP R 100K J 1/10W		IC401			BU7261G	MOS-IC	
R870			RK73GB2A101J	CHIP R 100 J 1/10W		IC404			ADF4001BRUZ	MOS-IC	
R871			RK73GB2A104J	CHIP R 100K J 1/10W		IC405,406			TC75S59F-F	MOS-IC	
R873			RK73GB2A103J	CHIP R 10K J 1/10W		IC407			NJU6368PF1	MOS-IC	
R877			RK73GB2A104J	CHIP R 100K J 1/10W		IC408,409			TA75S01F-F	MOS-IC	
R878			RK73GB2A000J	CHIP R 0 J 1/10W		IC601			AD9835BRUZ	MOS-IC	
R879			RK73GB2A104J	CHIP R 100K J 1/10W		IC602			NJU6368PF1	MOS-IC	
R884			RK73GB2A000J	CHIP R 0 J 1/10W		IC603			XC6204B332M-G	MOS-IC	
R887-889			RK73GB2A102J	CHIP R 1.0K J 1/10W		IC701			BH2220FVM	ANALOGUE IC	
R891			RK73GB2A102J	CHIP R 1.0K J 1/10W		IC702			S24CS02AFJTBG	ROM IC	
R893			RK73GB2A103J	CHIP R 10K J 1/10W		IC703			BU4094BCFV	MOS-IC	
R894,895			RK73GB2A000J	CHIP R 0 J 1/10W		IC704	*		NJM78M08DL1AZB	ANALOGUE IC	
R920-932			RK73GB2A000J	CHIP R 0 J 1/10W		IC705,706			NJM78M05DL1AZB	ANALOGUE IC	
R933			RK73GB2A821J	CHIP R 820 J 1/10W		IC801			AD1582	ANALOGUE IC	
R934,935			RK73GB2A000J	CHIP R 0 J 1/10W		IC802			AD5312BRM	MOS-IC	
R936,937			RK73GB2A122J	CHIP R 1.2K J 1/10W		IC803			AD7908BRU	MOS-IC	
R938,939			RK73GB2A821J	CHIP R 820 J 1/10W		IC804			LM50BIM3/NOPB	MOS-IC	
R940			RK73GB2A122J	CHIP R 1.2K J 1/10W		IC805,806			TC7SET126FU-F	MOS-IC	
R941			RK73GB2A821J	CHIP R 820 J 1/10W							

PARTS LIST

TX UNIT (X56-3112-72)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
IC807	1B		NJM78M05DL1AZB	ANALOGUE IC							
IC808,809			NJM7808FA-ZB	BI-POLAR IC							
IC810			TK11230CMCL-G	BI-POLAR IC							
IC811			PE3511-52	MOS-IC							
IC812			TC7W53FK(F)	MOS-IC							
IC920-922			TC7SET126FU-F	MOS-IC							
IC923-925			BU4094BCFV	MOS-IC							
IC926			NJM2732V	BI-POLAR IC							
IC960-963			BU4094BCFV	MOS-IC							
Q101			SSM3K15TE(F)	FET							
Q102,103			2SK508NV(K52)	FET							
Q104			2SC3356-A(R24)	TRANSISTOR							
Q105			2SC4116(BL)F	TRANSISTOR							
Q106			2SC3356-A(R24)	TRANSISTOR							
Q107,108			2SC4116(BL)F	TRANSISTOR							
Q109			2SA1832F	TRANSISTOR							
Q110			SSM3K15TE(F)	FET							
Q202			2SC5337	TRANSISTOR							
Q203		RD01MUS1-T113	FET								
Q204		SSM3K15TE(F)	FET								
Q205		SSM3J01F	FET								
Q210		SSM3K15TE(F)	FET								
Q211-213	*	KTC4075E-P(GR)	TRANSISTOR								
Q301,302		SSM3K15TE(F)	FET								
Q303		2SA1832F	TRANSISTOR								
Q304,305	*	KTC4075E-P(GR)	TRANSISTOR								
Q307	*	KTC4075E-P(GR)	TRANSISTOR								
Q401,402	*	KTC4075E-P(GR)	TRANSISTOR								
Q405		SSM3K15TE(F)	FET								
Q407-409		SSM3K15TE(F)	FET								
Q410		2SA1832F	TRANSISTOR								
Q412	*	KTC4075E-P(GR)	TRANSISTOR								
Q413,414		SSM3K15TE(F)	FET								
Q415-419	*	KTC4075E-P(GR)	TRANSISTOR								
Q420		3SK294-FP	FET								
Q421		SSM6L05FU-F	FET								
Q422		RD01MUS1-T113	FET								
Q423		SSM6L05FU-F	FET								
Q424		SSM3K15TE(F)	FET								
Q425		RD01MUS1-T113	FET								
Q426		SSM3J01F	FET								
Q428,429		SSM3K15TE(F)	FET								
Q430,431		3SK294-FP	FET								
Q601		SSM3J01F	FET								
Q602		SSM3K15TE(F)	FET								
Q603	*	KTC4075E-P(GR)	TRANSISTOR								
Q604		SSM3K15TE(F)	FET								
Q605		SSM3J01F	FET								
Q606	*	KTC4075E-P(GR)	TRANSISTOR								
Q607-609		SSM3K15TE(F)	FET								
Q701,702		SSM3K15TE(F)	FET								
Q920-930		UMG1N	TRANSISTOR								
Q931		2SC4116(Y)F	TRANSISTOR								
Q932		2SA1586(Y)F	TRANSISTOR								
Q960-976		UMG1N	TRANSISTOR								
TH101,102		157-302-65801	THERMISTOR								

If a part reference number is listed in a shaded box, that part does not come with the PCB.

NXR-700

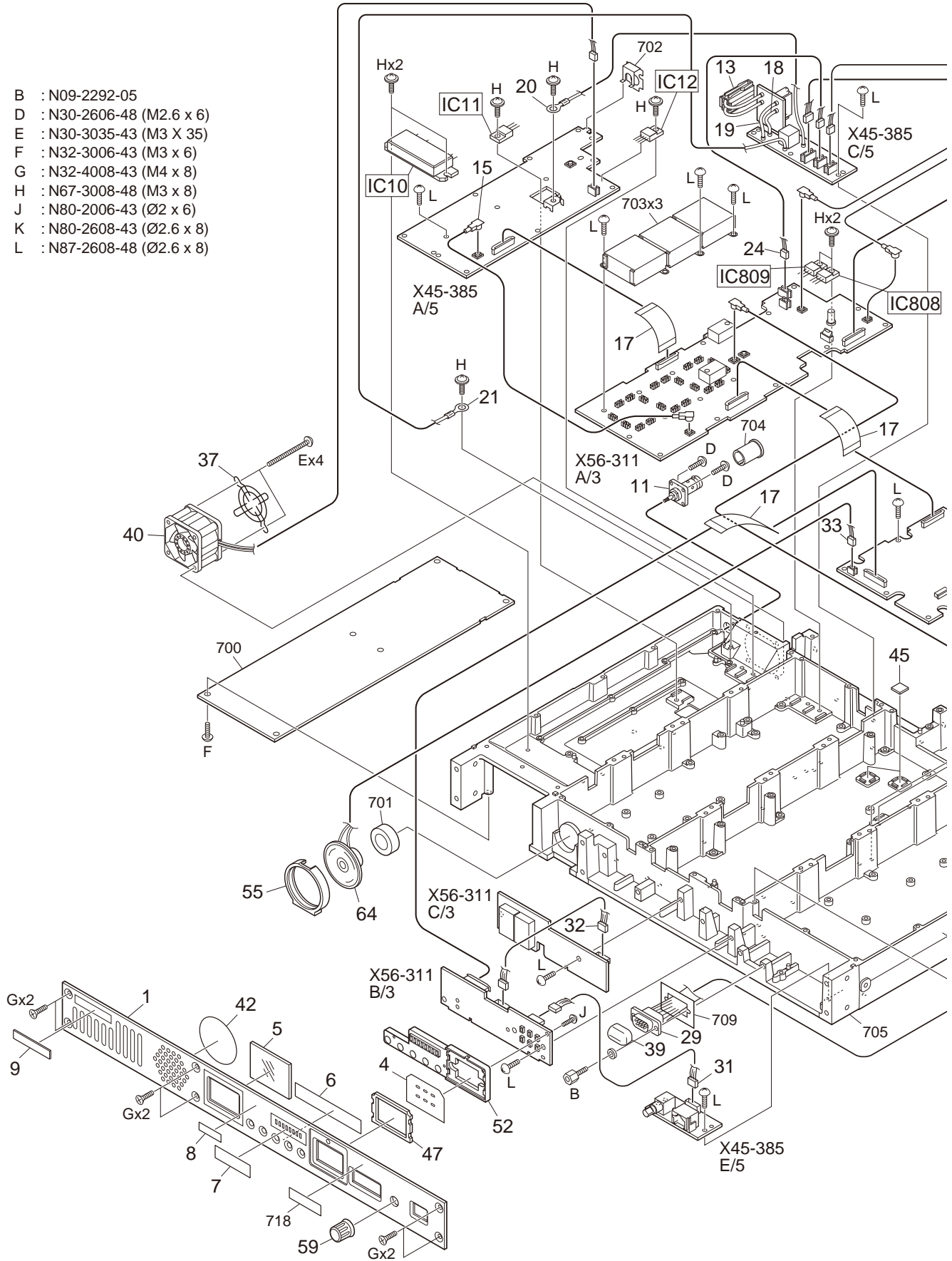
EXPLODED VIEW

- B : N09-2292-05
- D : N30-2606-48 (M2.6 x 6)
- E : N30-3035-43 (M3 X 35)
- F : N32-3006-43 (M3 x 6)
- G : N32-4008-43 (M4 x 8)
- H : N67-3008-48 (M3 x 8)
- J : N80-2006-43 (Ø2 x 6)
- K : N80-2608-43 (Ø2.6 x 8)
- L : N87-2608-48 (Ø2.6 x 8)

1

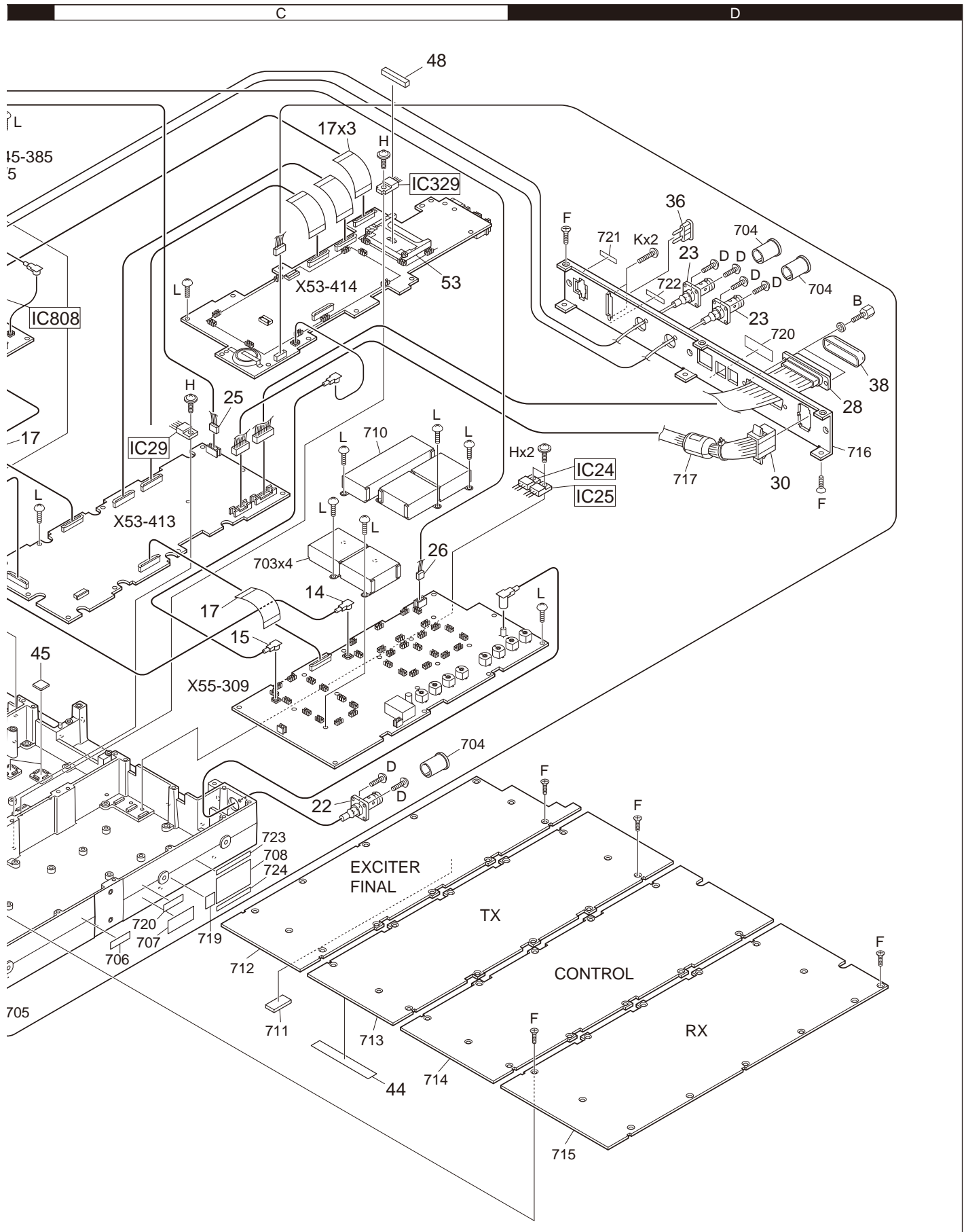
2

3



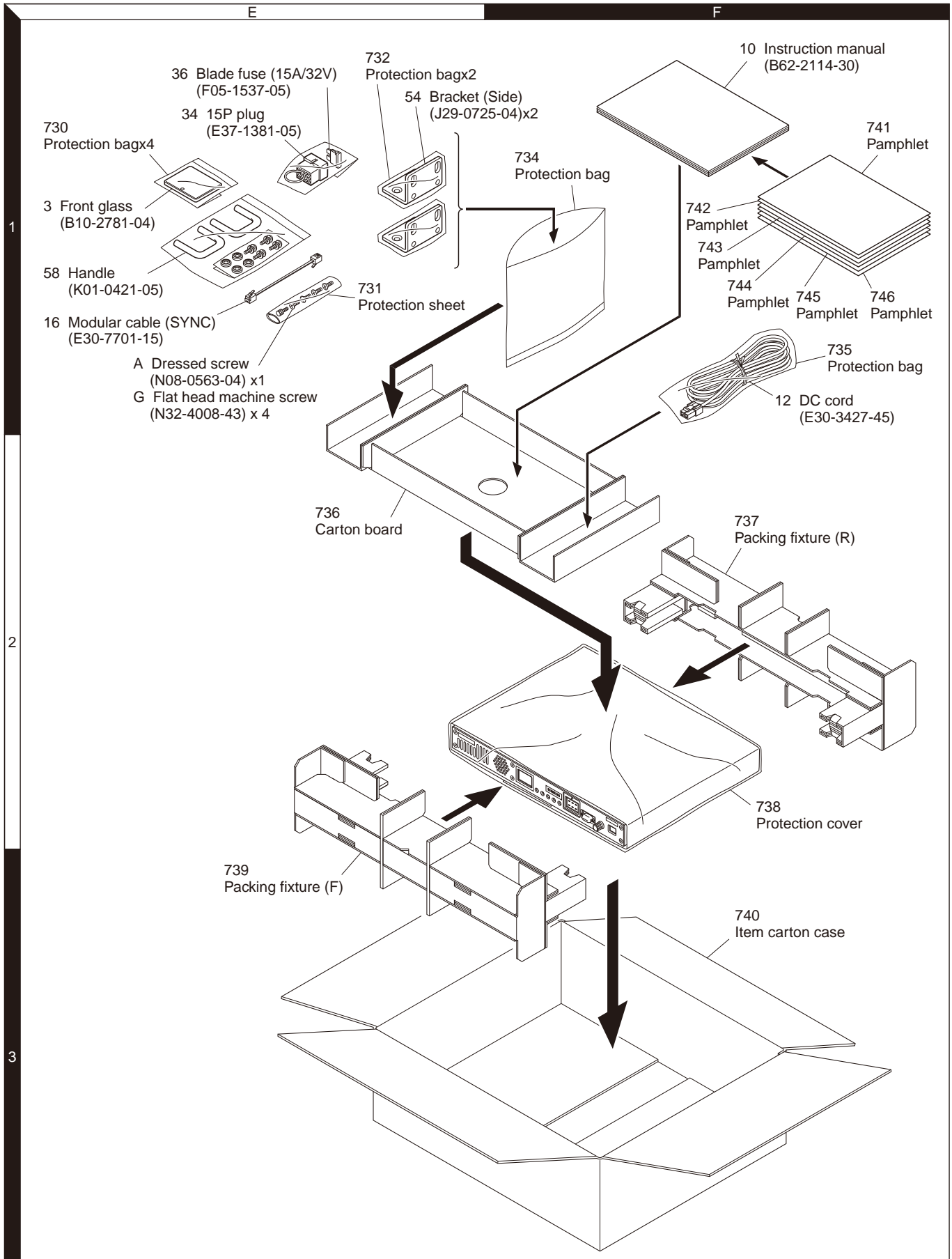
70 Parts with the exploded numbers larger than 700 are not supplied.
 If a part reference number is listed in a box on the exploded view of the PCB, that part does not come with the PCB.
 These parts must be ordered separately.

EXPLODED VIEW



▲ 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

Procedure for Traceability of BGA Package and How to Replace Control Unit

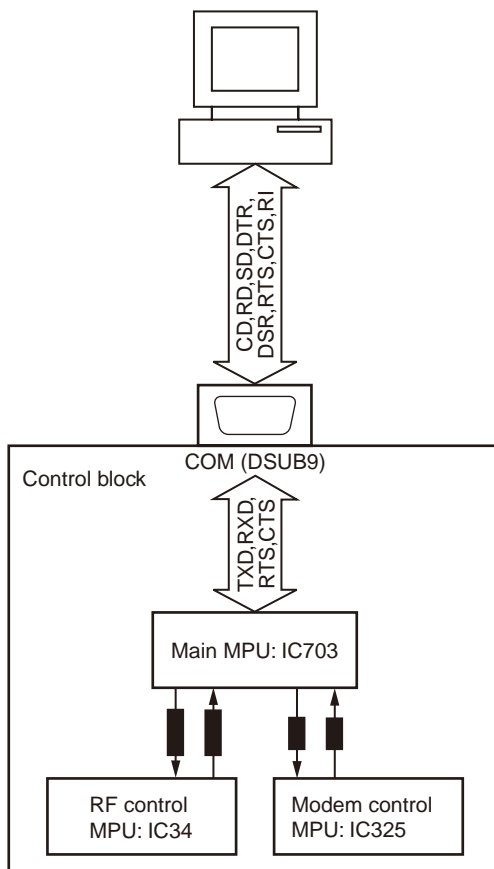
This clause is procedure when you replace Control unit on you repair. Implement traceability of BGA package in order to make sure BGA failure in prior to replace Control Unit. You choose appropriate procedure accordingly.

1. Traceability of BGA Package ICs in Control Unit

The control unit (X53-414) of NXR-700 series have BGA package ICs. BGA package IC is difficult to trace whether it be broken. So, control unit is difficult to confirm whether it has a problem. This document shows a simple method by PC to confirm the control unit has problem. The two methods for traceability in BGA packages IC are provided as below.

1-1. Simplified traceability

- Open the top cover of control unit.
- Slide the tab on DIP_SW4 (Ref No. S700) to the ON position. (See Fig. 1.)
- Connect a cross-wired RS-232C cable to COM port on the front panel of NXR-700. Plug the other end of the cable to PC. (See Fig. 2.)
- Run a communication software, example a Hyper Terminal in Windows, and set the following parameters.
- COM port: COM port of NXR-700 used in step c.



Configuration in communication port

Communication speed: 115200bps

Data Length: 8-bit

Parity: None

Stop bits: 1

Flow control: Hardware

- Apply 13.2VDC to NXR-700. When BGA ICs mounted in this control unit works correctly, the following messages appears on the screen of communication software. If the software doesn't show below messages, it's supposed that BGA package IC is broken.

NEXEDGE IPL 1.00 *1

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CPU[R] Version 1.00 *2

CPU[M] Version 1.00 *3

- Appearing this information means the boot program in Main MPU (IC703) is correctly working.
- Appearing this information means the boot program at the RF control MPU (IC34) is correctly working.
- Appearing this information means the boot program at the Modem control in MPU(IC325) is correctly working.

Note: IPL and CPU[R], CPU[M] version will be updated by any modification or improvement in future.

- After that slide the tab on DIP_SW4 to OFF position, before close the top cover of control unit.

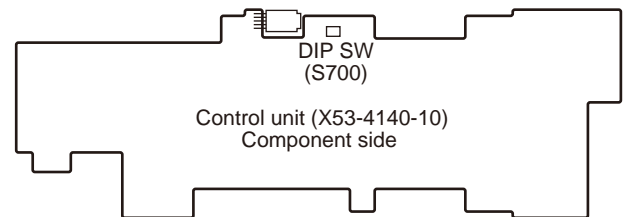


Fig. 1

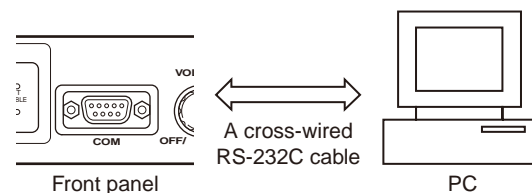
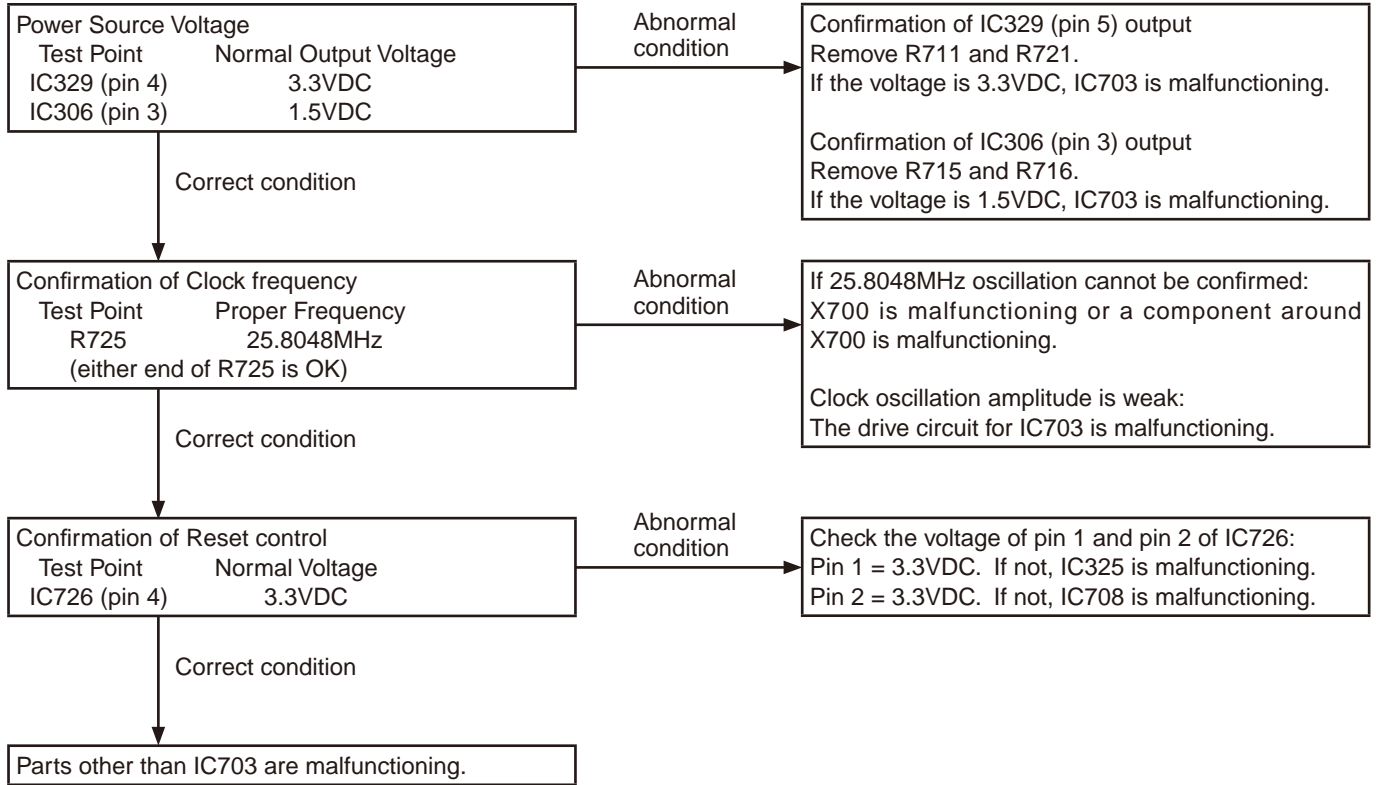


Fig. 2

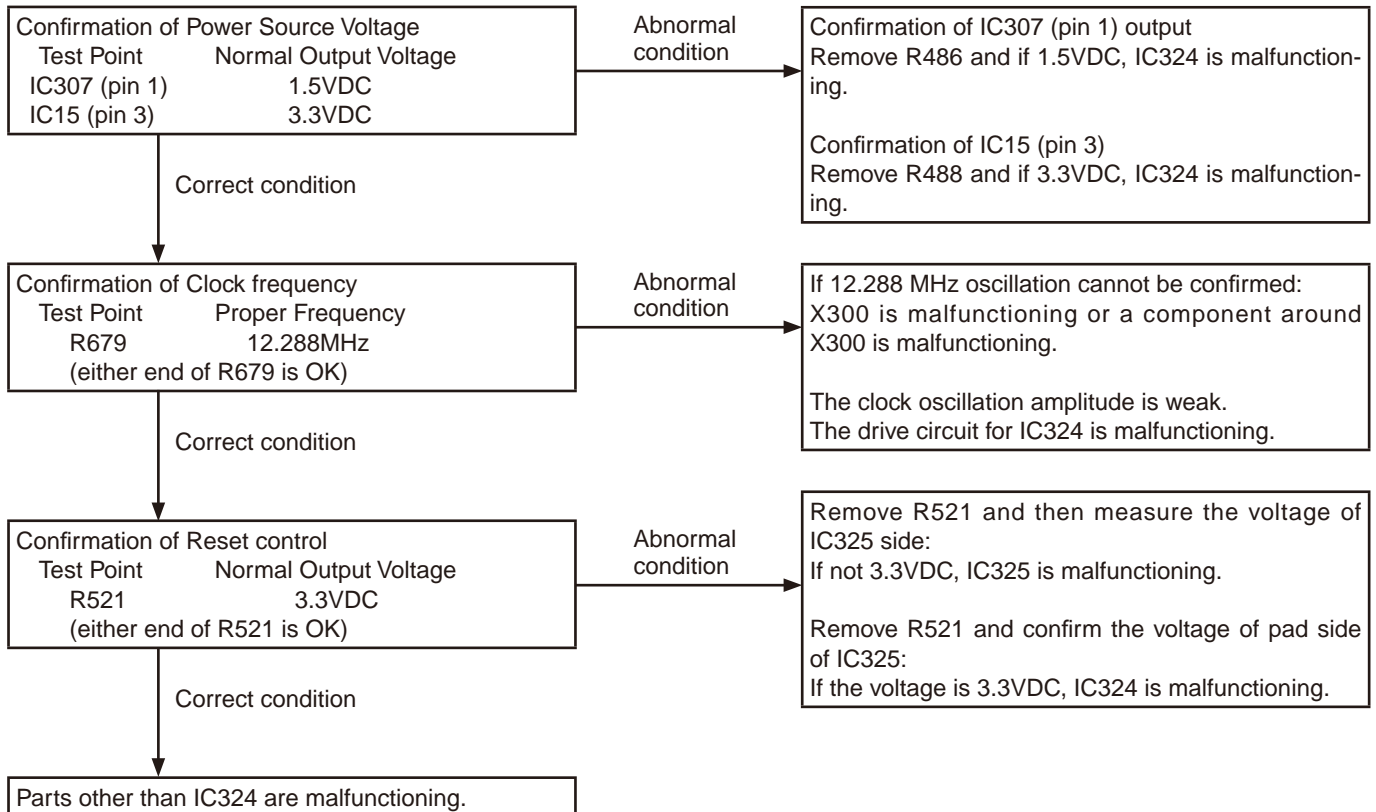
TROUBLE SHOOTING

1-2. Hardware Traceability (Method 1)

■ Procedure for IC703 (Main MPU) traceability

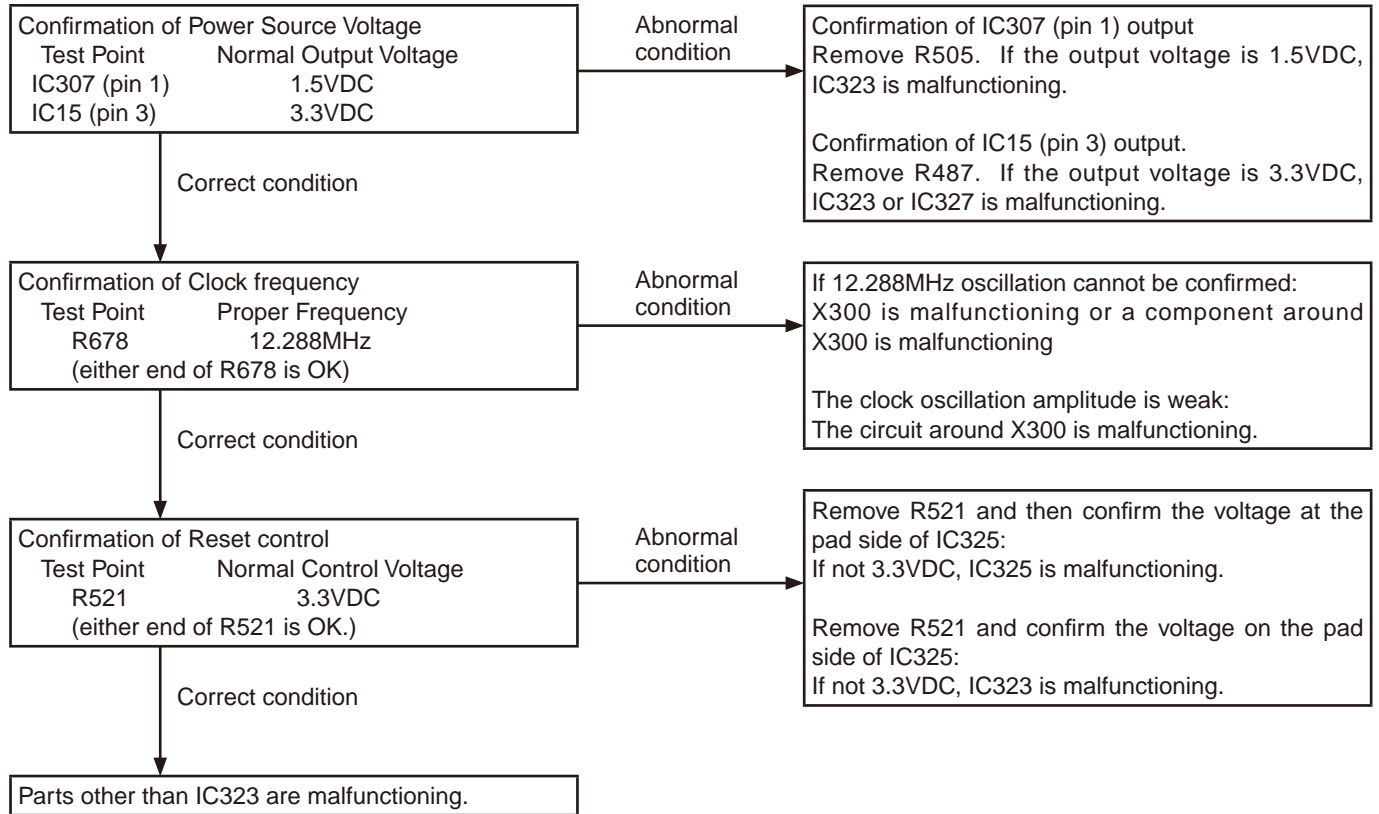


■ Traceability Procedure of IC324 (TX Vocoder_DSP)

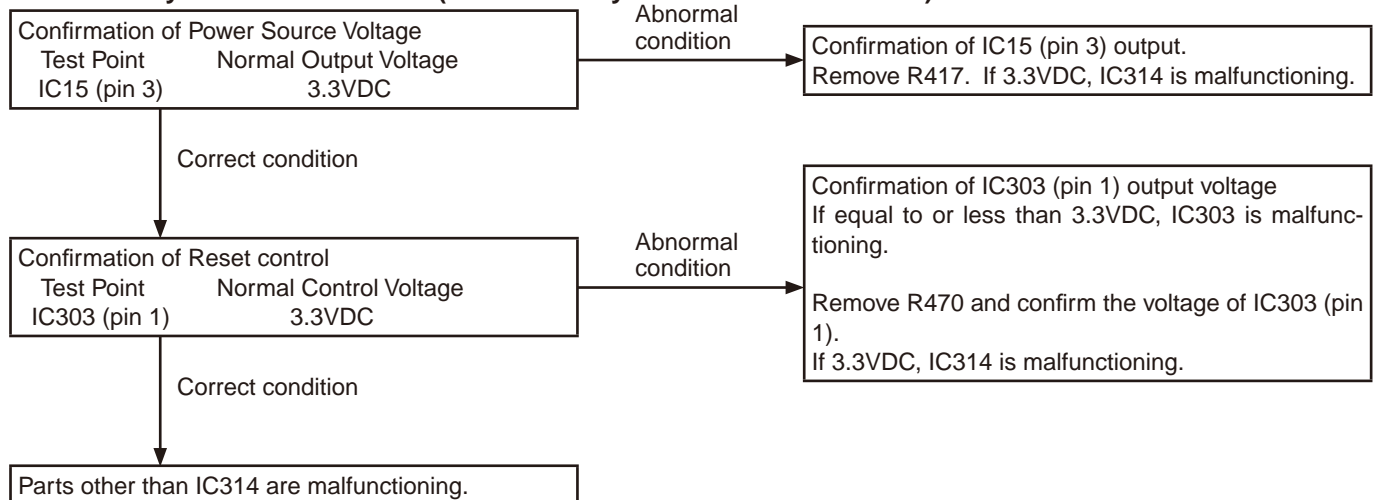


TROUBLE SHOOTING

■ Traceability Procedure of IC323 (RX_DSP)

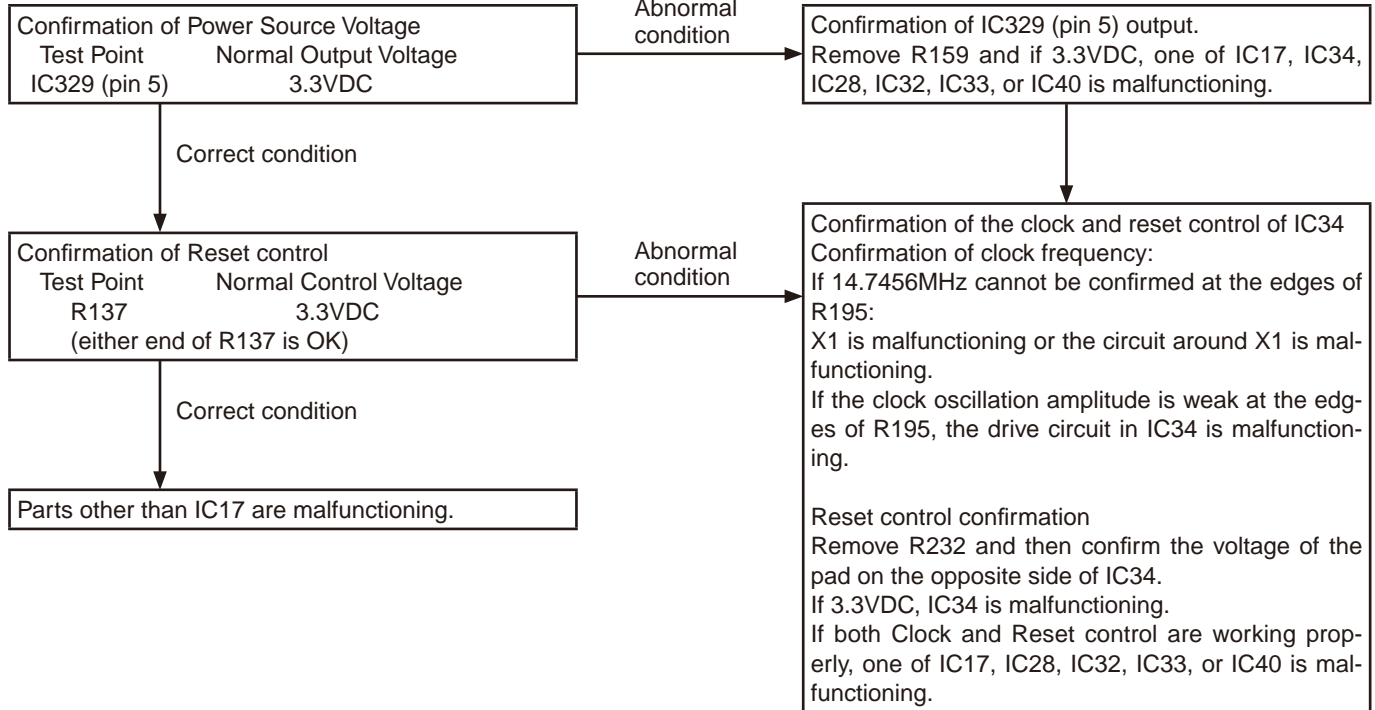


■ Traceability Procedure of IC314 (Flash Memory of modem control MPU)

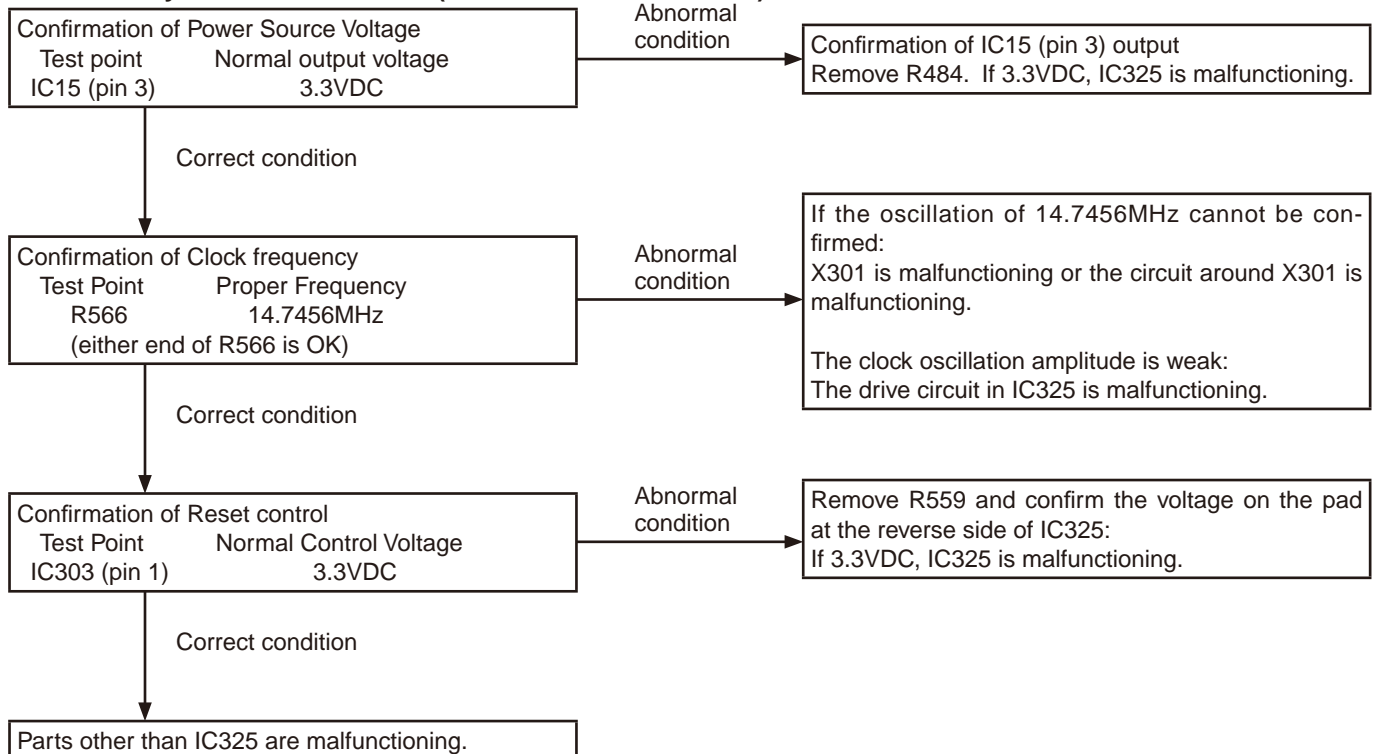


TROUBLE SHOOTING

■ Traceability Procedure of IC17 (Flash Memory of RF control MPU)

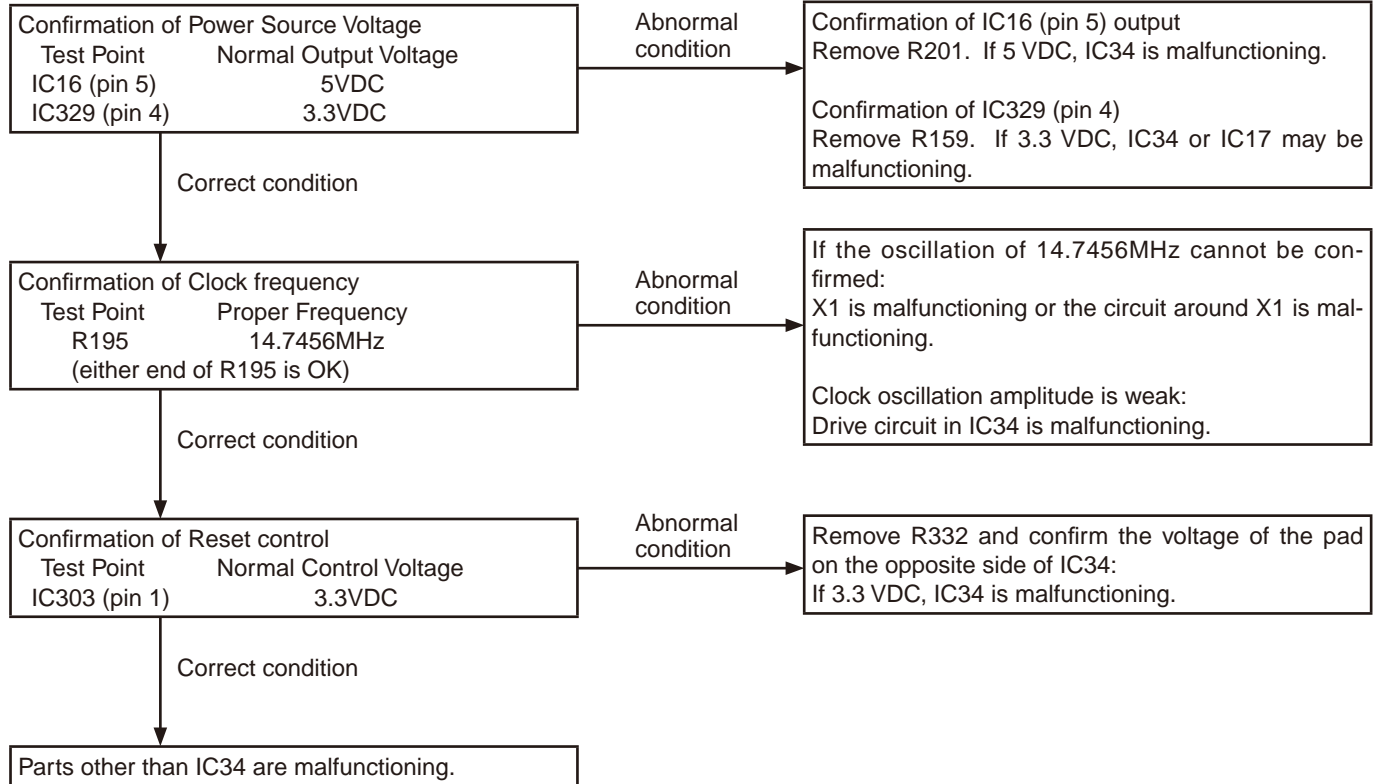


■ Traceability Procedure of IC325 (The Modem control MPU)



TROUBLE SHOOTING

■ Traceability Procedure of IC34 (The RF control MPU)



1-3. Hardware traceability (Method 2)

The NXR-700 control circuit executes the following procedures when the system starts up.

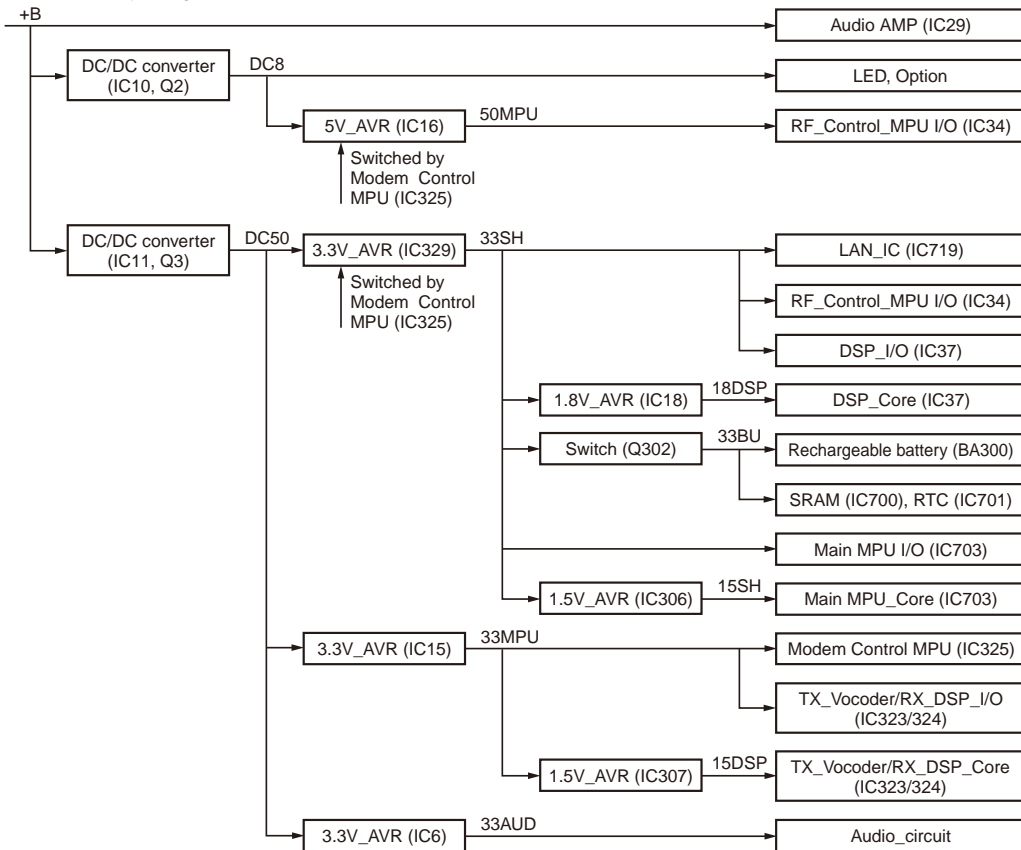
1. An external DC 13.2V power source is applied to the NXR-700 terminal.
2. The Modem control MPU (IC325) starts up.
3. The Modem control MPU (IC325) initiates all circuit blocks.
4. The Main MPU (IC703) and the RF control MPU (IC34) start up.
5. The Main MPU (IC703) confirms the operational status of the Modem control MPU (IC325) and the RF control MPU (IC34) by using 115.2kbps UART communications and then the operation transfer commands will be exchanged in order to integrate all hardware blocks.

The above steps 1 to 5 will be executed as follows.

TROUBLE SHOOTING

External DC 13.2V Power Source applied to the NXR-700 Terminal

Refer to the power supply diagram sequence below.

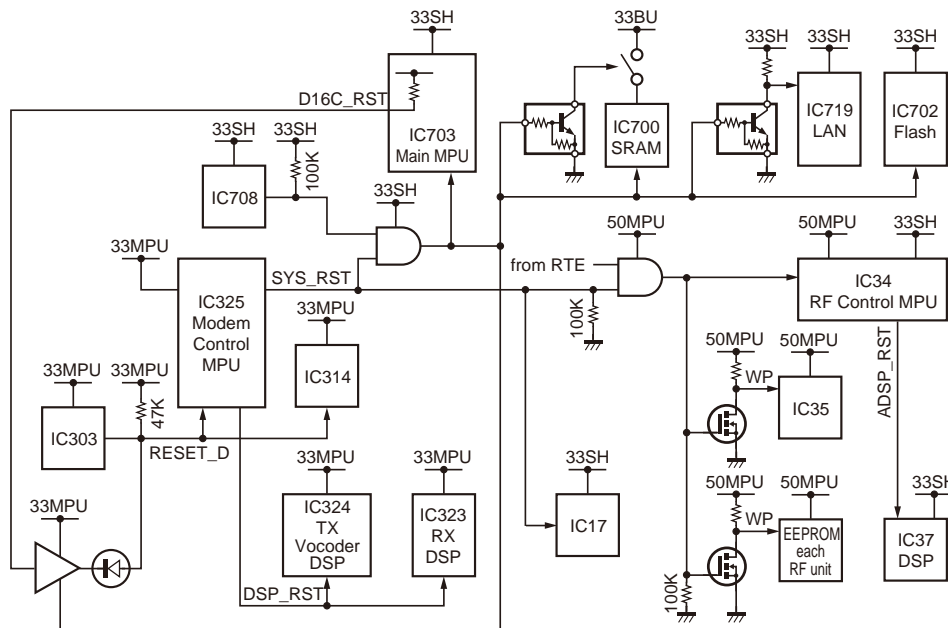


Initialization of the Modem control MPU (IC325) (normal oscillation of X301 and normal reset-unlock of IC303)

Refer to Traceability procedure for IC325.

Unlocking "SYS_RST" Signal on the Modem control MPU (IC325) starts Up all Hardware Blocks

Refer to the Reset circuit below.



Reset circuit

TROUBLE SHOOTING

■ Start-up of each Control Block

• Main MPU Block

- Component elements:
- Main MPU: IC703
 - Flash memory: IC702
 - SDRAM: IC704 and IC707
 - LAN IC: IC719
 - RTC: IC701

Overview of Start-up Operation:

When MPU reset line logic switches as high, the MPU starts reading the program from the flash memory and expands the program to SDRAM. Linux OS begins operation on the SDRAM after main MPU transfers the program. Main MPU works usage of Linux OS codes. The other higher-level applications software to the Linux OS will also be expanded in SDRAM. On starting up, main MPU verify the status of the registers in LAN IC except SDRAM which is purpose of backup data even if abnormal symptom detects in either LAN IC or SDRAM, the start-up process is not affected by this error; main MPU behaves operation as if it works properly. To express another word, either Flash memory or SDRAM has defective, a circuit behaves as if main MPU happens malfunction. After executing all initialization routines, the Main MPU verifies the operational status of each MPU then transmits/ receives the operation transfer command set to from the Modem control MPU (IC325) and the RF control MPU (IC34) using 115.2kbps UART communications.

• RF Control MPU Block

- Component elements:
- RF control MPU: IC34
 - Flash memory: IC17
 - DSP: IC37

Overview of Start-up Operation:

When the RF control MPU (IC34) reset line logic switches as high, this MPU reads the boot program from the internal ROM of MPU and then initializes the peripheral devices. After this boot process completes, the MPU starts working with the programs (application programs) stored in flash memory (IC17) to process the preprogrammed tasks. During the process, the MPU transfers the program to the DSP IC (IC37). It also verifies the operating status of DSP at certain interval.

After a series of processes completes, the RF control MPU verifies the operational status and then transmits and receives the operation transfer command set to/from Main MPU (IC703) using 115200bps UART communications.

• Modem Control MPU Block

- Component elements:
- Modem control MPU: IC325
 - Flash memory: IC314
 - RX DSP: IC323
 - TX Vocoder DSP: IC324

Overview of Start-up Operation

When the Modem control MPU (IC325) reset line logic switches as high, the MPU reads the boot program from the internal ROM of MPU and then initializes the peripheral devices. After this boot-up process completes, the MPU starts working with the programs (application programs) stored in flash memory (IC314) to process the preprogrammed tasks. During the process, the MPU transfers the program to the RX DSP IC (IC323) and TX Vocoder DSP IC (IC324). It also confirms the operating status of these DSP ICs. After a series of processes completes, the Modem control MPU confirms the operational status and then transmits and receives the operation transfer command set to/from Main MPU (IC703) using 115200 bps UART communications.

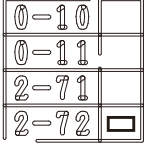
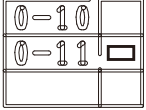
• Possible Symptoms if the Block (mainly BGA IC) Malfunctions

Ref. No.	Element of Block	Presumption Symptoms
IC703	Main MPU	<ul style="list-style-type: none"> • Since the boot program cannot be executed at all, the LEDs do not light or flash. • The operations that should be executed by IC703 are not processed. • Runaway of IC703.
IC17	Flash Memory on RF control MPU block	<ul style="list-style-type: none"> • Migrated to the programming mode (Write). ("PG" appears on the 17-segment LED display.) • The operations that should be executed by IC34 are not processed. • Runaway of IC34.
IC314	Flash Memory on Modem control block	<ul style="list-style-type: none"> • Migrated to the programming mode (Write). ("PG" appears on the 17-segment LED display.) • The operations that should be executed by IC325 are not processed. • Runaway of IC325.
IC323	RX DSP	<ul style="list-style-type: none"> • While the boot program is executed, the operation stops (the status LED is flashing). • The operations that should be executed by IC323 are not processed. • Runaway of IC323.
IC324	TX Vocoder DSP	<ul style="list-style-type: none"> • While the boot program is executed, the operation stops (the status LED is flashing). • The operations that should be executed by IC324 are not processed. • Runaway of IC324.

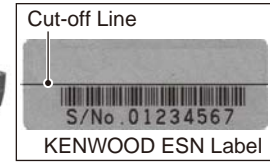
TROUBLE SHOOTING

2. Replacing Control Unit

2-1. Control Unit Information

Original Control Unit	Control Unit (Service unit)	Difference between original unit and Service Unit
X53-4132-71	X53-4132-72	Mounted chip at 2-72 location for Service Unit. 
X53-4140-10	X53-4140-11	Mounted chip at 0-11 location for Service Unit. 

Rear View



Side View



2-2. Supplied Accessories

Item (Including Part Number)	Quantity	
	X53-413	X53-414
Control Unit (X53-413)	1	-
Control Unit (X53-414)	-	1
KENWOOD ESN Label	-	2
NXDN ESN Label	-	1
Addendum (B59-2536-XX)	1	1

2-3. Printed Circuit Board Data

The following data is written on the circuit board:

Data Type	Description
Firmware	NXR-700/800 Firmware
FPU Data (PC programming mode)	NXR-700 E type data.
Various Adjustment Data (PC test mode)	General adjustment values for the NXR-700/800.
KENWOOD ESN (X53-414 only)	Model Name: NXR-700/800S Type: E2 The same number as the KENWOOD ESN label is written.
NXDN ESN (X53-414 only)	The same number as the NXDN ESN label is written.

Note: For the X53-414, 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.

2-4. After Changing the PCB

- After changing the printed circuit board, write the up-to-date Firmware following the instructions in the "REALIGNMENT 4. Firmware Programming Mode".
- Using the KPG-109D, select your desired item (Model Name and Frequency) from the Model > Product Information menu, then use Program > Write Data to the repeater to write the FPU data (PC Programming mode). When writing to the repeater, a Warning Message, corresponding to the item selected, appears. Click [OK] to continue writing the data.
- Enter Program > Test mode, then adjust the various adjustment data (PC Test mode) as described in the "ADJUSTMENT".
- For the X53-414, attach the new labels corresponding to the new printed circuit board. (Refer to the images below for label placement.)
- If necessary, write the FPU data used by the customer with the KPG-109D or KPG-110SM.

Note:

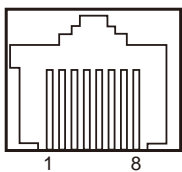
- When a new printed circuit board is used, the KENWOOD ESN changes, as does the Repeater Information display of the KPG-109D, but this does not have any effect on the operation of the transceiver.
- If changing to the original KENWOOD ESN and NXDN ESN, please contact our service center.
- Re-installing other parts from original unit to Service unit is not required after changing to Service unit.

ADJUSTMENT

Test Equipment Required for Alignment

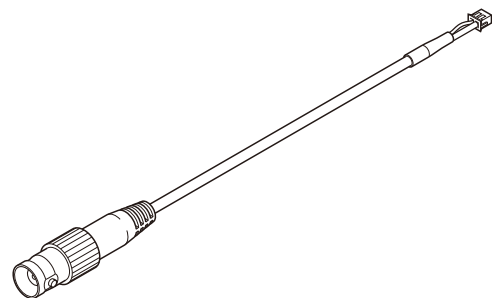
Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range Modulation Output	136 to 174MHz Frequency modulation and external modulation 0.1μV to greater than 1mV
2. RF Power Meter	Input Impedance Operation Frequency Measurement Capability	50Ω 136 to 174MHz or more Vicinity of 100W
3. Deviation Meter	Frequency Range	136 to 174MHz
4. Digital Volt Meter (DVM)	Measuring Range Input Impedance	1V 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 600MHz 0.2ppm or less
7. DC Ammeter		15A or more
8. AF Volt Meter (AF VM)	Frequency Range Voltage Range	50Hz to 10kHz 3mV to 3V
9. Audio Generator (AG)	Frequency Range Output	50Hz to 5kHz 0 to 1V
10. Distortion Meter	Capability Input Level	1% or less at 1kHz 50mV to 10Vrms
11. Voltmeter	Measuring Range Input Impedance	10V to 1.5V DC or less 50kΩ/V or greater
12. 4Ω Dummy Load		Approx. 4Ω, 5W
13. Spectrum Analyzer	Frequency Range Input Level Input Sensitivity Resolution Bandwidth Video Bandwidth	40MHz to 520MHz Up to +20dBm -100dBm 100Hz 100Hz
14. Tracking Generator	Frequency Range Output Level	40MHz to 520MHz -30dBm to 0dBm

MIC connector (Front panel view)

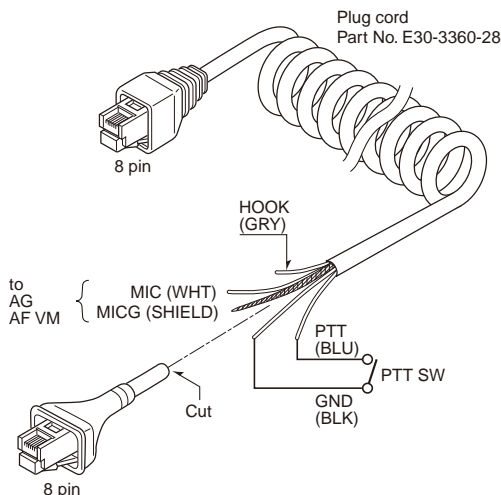


- 1: NC
- 2: SB
- 3: GND
- 4: PTT
- 5: MIG
- 6: MIC
- 7: HOOK
- 8: NC

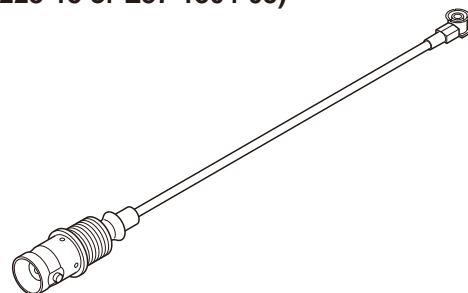
Jig for MCF adjustment (W05-1000-00)



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

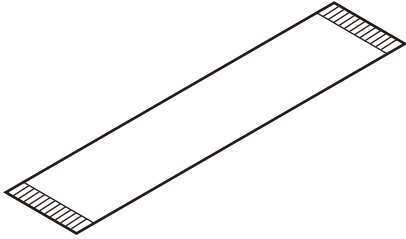


Jig for Drive AMP adjustment (E30-3228-15 or E37-1304-05)

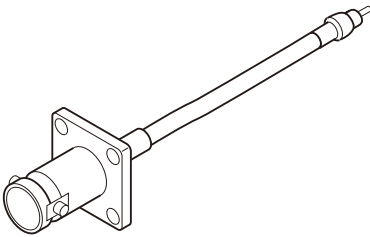


ADJUSTMENT

Flat cable (36-pin) about 256mm (E37-0979-05)



ANT Jig for BPF adjustment (E30-3418-08)



Test Signaling

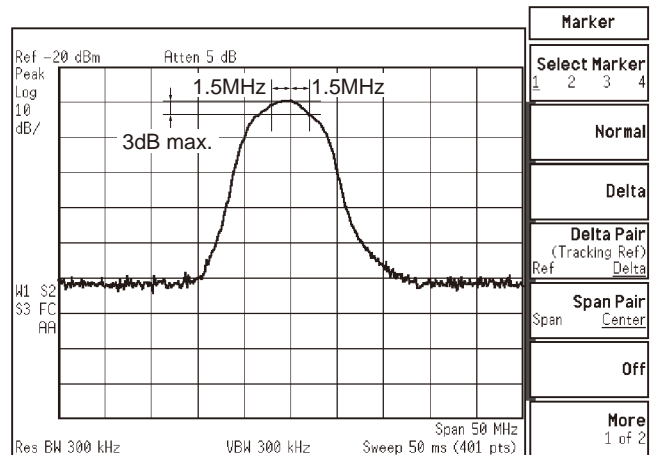
■ Analog

No.	RX (Decode Signaling)	TX (Encode Signaling)
1	None	None
2	None	100Hz square wave
3	QT 67.0Hz	QT 67.0Hz
4	QT 151.4Hz	QT 151.4Hz
5	QT 210.7Hz	QT 210.7Hz
6	QT 254.1Hz	1QT 254.1Hz
7	DQT D023N	DQT D023N
8	DQT D754I	DQT D754I
9	None	CWID encode (ID: VVV)
10	None	Single tone
11	DTMF decode (Code: 159D)	DTMF encode (Code: 159D)
12	None	DTMF encode (Code: 9)
13	None	Courtesy tone

■ NXDN

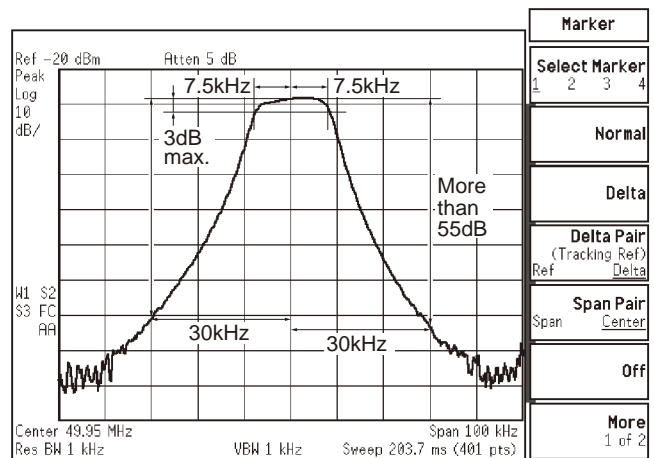
No.	RX (Decode Signaling)	TX (Encode Signaling)
1	RAN1	RAN1
2	RAN1	PN9
3	RAN1	Maximum deviation pattern

- Signaling number 1 is used for link test with voice.
- Signaling number 2 is used for TX modulation signal quality test. i.e, TX adjacent channel power, FSK error, Occupied bandwidth, Emission mask, etc.
- Signaling number 3 is used for TX deviation test. If the modulation mode is very narrow, the modulation frequency is 600Hz. If the modulation mode is narrow, the modulation frequency is 1200Hz.



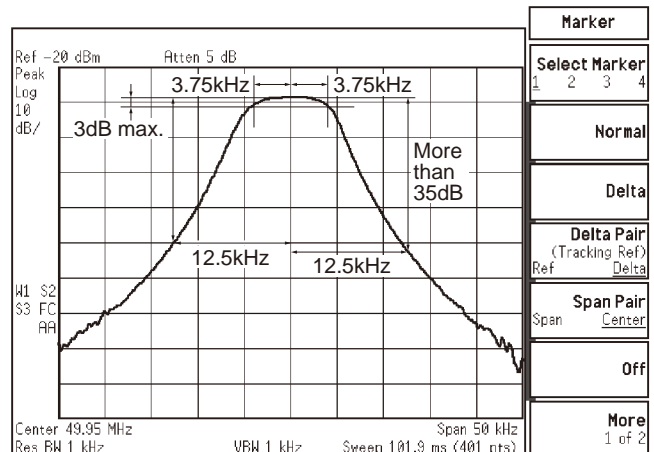
BPF center frequency (Production default)
E2: 145MHz
Pass bandwidth: ± 1.5 MHz at 3dB

Fig. 1



Center frequency: 49.95MHz
Pass bandwidth: ± 7.5 MHz at 3dB

Fig. 2

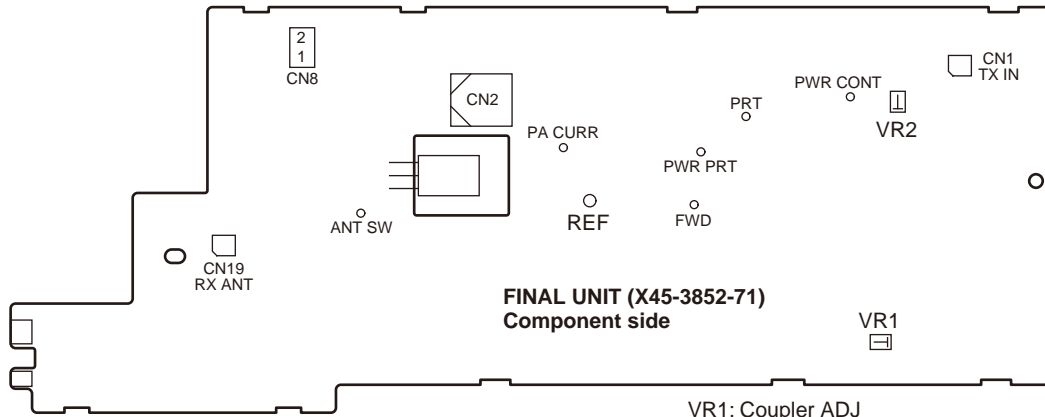


Center frequency: 49.95MHz
Pass bandwidth: ± 3.75 MHz at 3dB

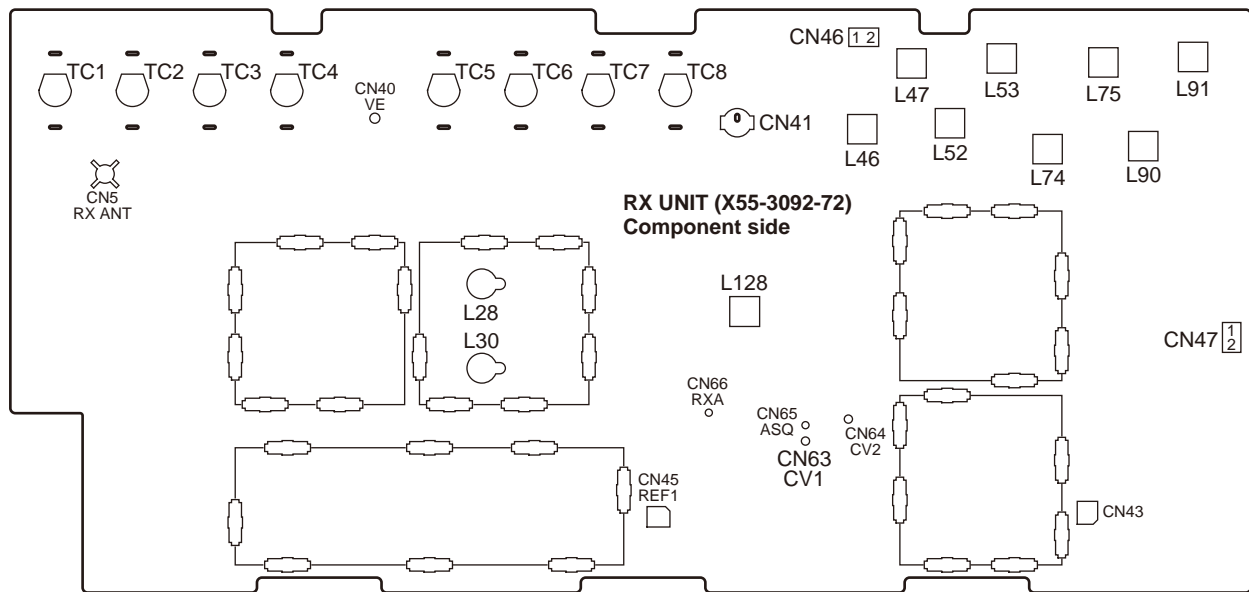
Fig. 3

ADJUSTMENT

Adjustment Points

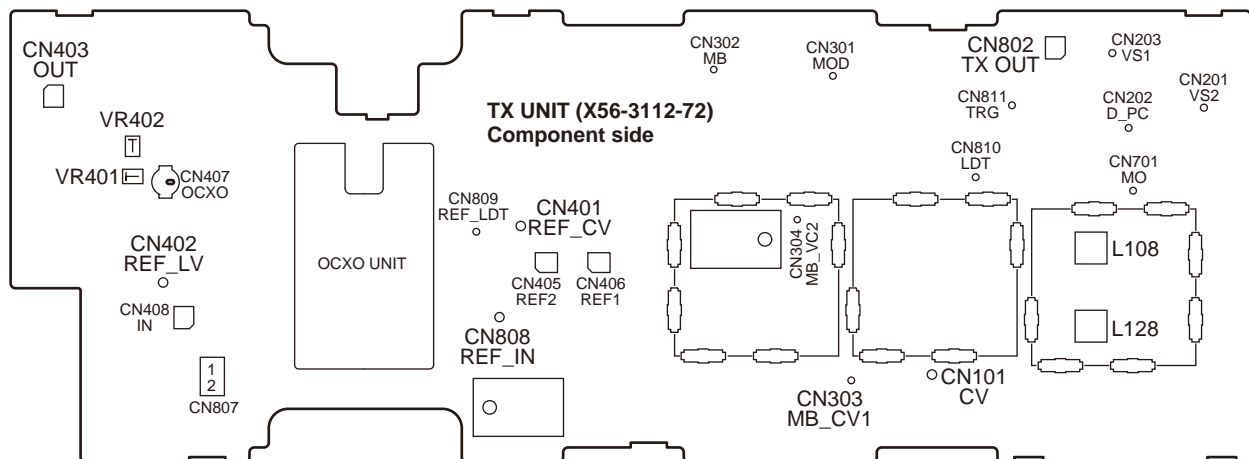


VR1: Coupler ADJ
VR2: High Transmit Power (Pre ADJ)



L28,30: Receive VCO Lock Voltage (Adjustment)
TC1~8: BPF

L46,52,74,90: MCF WIDE
L47,53,75,91: MCF NARROW
L128: Discriminator



L108,128: Transmit VCO Lock Voltage (Adjustment)
VR401,402: Reference Signal

ADJUSTMENT

Alignment

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Connect the DC power output to the rear panel DC terminal (13.2V). 2) Connect the front panel COM port (D-sub 9-pin connector) to the PC serial port with a cross-wired cable. 3) Activate the FPU to go to the test mode.							
2. Temperature Sensor	1) Receive unit (Celsius or Fahrenheit)	Thermometer		Room temperature	RX	PC ADJ	Measuring room temperature, write the value with PC.	
	2) Transmit unit (Celsius or Fahrenheit)				TX			
3. Driver Amplifier Power (Pre ADJ)	1) Low 2) High					PC ADJ	Value: 1	Fixed value writing
4. RF Power Down Detection	1) High 2) Low					PC ADJ	Value: 1	Fixed value writing
5. VCO Lock Voltage	1) REF Low SSG frequency: 10MHz -10ppm (9.9999MHz) SSG output: 0dBm	SSG DVM	TX	REF IN REF CV (CN401)			Check	0.9V or more
	2) REF High SSG frequency: 10MHz +10ppm (10.0001MHz) SSG output: 0dBm							2.5V or less
	3) MOD Low SSG frequency: 10MHz -10ppm (9.9999MHz) SSG output: 0dBm			1.5V or more				
	4) MOD High SSG frequency: 10MHz +10ppm (10.0001MHz) SSG output: 0dBm			3.5V or less				
6. Transmit VCO Lock Voltage (Adjustment)	1) A: Low	DVM	TX	CV	TX	L128	Adjust the interval of the L128. 1.5V	±0.05V
	2) B: Low							L108
7. Receive VCO Lock Voltage (Adjustment) Pre ADJ	1) A: Low	DVM	RX	CV1	RX	L28	Adjust the interval of the L28. 1.3V	±0.05V
	2) B: Low							L30
8. Fixation of Oscillation Coil	1) Apply the high-frequency varnish to the adjusted Transmit VCO coil (L128, L108) and cover it with a shield cover. 2) Apply the high-frequency varnish to the adjusted Receive VCO coil (L28, L30) and cover it with a shield cover.							

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks			
		Test-equipment	Unit	Terminal	Unit	Parts	Method				
9. Transmit VCO Lock Voltage (Check)	1) A: Low	DVM	TX	CV			Check	1.0V or more			
	2) A: High							3.8V or less			
	3) B: Low							1.0V or more			
	4) B: High							3.8V or less			
10. Receive VCO Lock Voltage (Adjustment & Check)	1) A: Low	DVM PC	RX	CV1		PC ADJ	0.9V	±0.05V			
	2) A: High						Check	4.2V or less			
	3) B: Low					PC ADJ	0.9V	±0.05V			
	4) B: High					Check	4.2V or less				
11. Reference Signal The switching circuit to switch the OCXO and the internal reference oscillation	1) Connecting SSG to REF IN and 50Ω-load parallel. SSG frequency: 10MHz SSG output: +0dBm (224mV)	SSG Spectrum analyzer	Rear TX	REF IN REF OUT			Check	REF OUT: +5dBm or more The OCXO LED (orange) lights.			
	2) SSG frequency: 10MHz SSG output: +0dBm (224mV)							SSG Oscilloscope	Rear TX	REF IN REF_LV	REF_LV: 2.0Vp-p or more The OCXO LED (green) lights.
	3) SSG frequency: 10MHz SSG output: +10dBm (708mV)							SSG Spectrum analyzer	Rear TX	REF IN REF OUT	REF OUT: +10dBm or less The OCXO LED (orange) lights.
	4) SSG frequency: 10MHz SSG output: -7dBm (99.9mV)										REF OUT: -50dBm or less The OCXO LED goes off.
12. VCXO	1) Confirm that there is no OCXO and external reference input.	F. counter PC	TX	REF_IN		PC ADJ	5.99MHz+0.3ppm	±0.15ppm (5.99000270~ 5.99000090MHz) It takes a time from movement of adjustment value to stability.			
13. Maximum Deviation (NXDN)	1) NXDN Narrow					PC ADJ	Value: 22800	Fixed value writing			
	2) NXDN Very Narrow						Value: 10000				
14. Driver Amplifier Power	Disconnect the cable from TX OUT and insert a cable from power meter. After the adjustment, connect the cable to TX OUT. 1) Low 2) Center 3) High	Power meter	TX	TX OUT (CN802)		PC ADJ	+20.0dBm (100mW)	±0.1dB Disconnect the cable from TX OUT and insert a cable from power meter. After the adjustment, connect the cable to TX OUT.			

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
15. High Transmit Power (Pre ADJ)	1) Center	Power meter PC	Rear	TX ANT		PC ADJ	Value: 1024	Fixed value writing
					Final	VR2	25W	±0.5W
16. Coupler ADJ	1) Center	DVM Power meter	Final	REF	Final	VR1	Adjust to the minimum value.	
17. High Transmit Power (Max power limit ADJ)	1) Center	Power meter PC	Rear	TX ANT		PC ADJ	Value: 1024	Fixed value writing
					Final	VR2	30.0W	±1.0W
18. High Transmit Power	Frequency 1) Low 2) Center 3) High Attach the EXCITER/FINAL shield cover.	Power meter Ammeter	Rear	TX ANT		PC ADJ	25.0W	±0.5W 10.0A or less
							5.0W	±0.1W 5.5A or less
19. Low Transmit Power	Frequency 1) Low 2) Center 3) High Attach the EXCITER/FINAL shield cover.							
20. Deviation (The transmission VCO band is separated into A and B. 3-points for each, i.e., total of 6-points shall be adjusted.)	Modulation pattern : 100Hz square signal Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 15kHz De-emp: OFF Detector: (p-p)/2 1) A: Low 2) A: Center 3) A: High 4) B: Low 5) B: Center 6) B: High	Deviation meter Oscilloscope PC	Rear	TX ANT		PC ADJ	±1.10kHz Adjust it into clean square wave with changing "Sub-audible Gain" and "Audible Gain".	±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.
	Exit "Deviation" screen to "Test Mode" screen, then set test signaling mode to be "NXDN" and signaling number to be "3". Set Wide/Narrow drop down list to be "Narrow". Set test channel to be "1". Deviation meter setting HPF: OFF LPF: 15kHz De-emp: OFF Detector: +peak, -peak Push "Transmit" button, then measure the deviation.						Check	±3.06kHz±0.20kHz Clean sine wave.

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
21. Maximum Deviation (Analog)	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 15kHz De-emp: OFF Detector: +peak, -peak AG setting: 1kHz/45mVrms (Sine wave, Terminal load)	Deviation meter AG DVM	Rear Front	TX ANT MIC		PC ADJ	±4.1kHz	±0.2kHz Connect the deviation meter to the TX ANT end via the ATT.
	±3.20kHz						±0.2kHz	
	±1.7kHz						±0.1kHz	
22. Standard Modulation Check	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 15kHz De-emp: OFF Detector: (p-p)/2 AG setting : 1kHz/±3kHz DEV (Sine wave, Terminal load)					Check	4.5mV±1.5mV Connect the deviation meter to the TX ANT end via the ATT.	
	2) Channel: 3 (Center) Wide/Narrow: Analog Narrow Connect the deviation meter to the TX ANT end via the ATT. AG setting : 1kHz/±1.5kHz DEV (Sine wave, Terminal load)						5.5mV±1.5mV	
23. QT Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 3kHz De-emp: OFF Detector: p-p/2	Deviation meter	Rear	TX ANT		PC ADJ	±0.75kHz ±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.	

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
23. QT Deviation	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k	Deviation meter	Rear	TX ANT		PC ADJ	±0.6kHz	±0.05kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±0.35kHz	±0.05kHz
24. DQT Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 3kHz De-emp: OFF Detector: Peak hold	Deviation meter	Rear	TX ANT		PC ADJ	±0.75kHz	±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.
	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k						±0.6kHz	±0.05kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±0.35kHz	±0.05kHz
25. CW ID Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 15kHz De-emp: OFF Detector: +peak, -peak	Deviation meter	Rear	TX ANT		PC ADJ	±2.00kHz	±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.
	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k						±1.6kHz	±0.05kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±1.00kHz	±0.05kHz
26. Test Tone Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF, LPF: 15kHz De-emp: OFF Detector: (p-p)/2	Deviation meter	Rear	TX ANT		PC ADJ	±3.00kHz	±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.
	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k						±2.4kHz	±0.05kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±1.50kHz	±0.05kHz

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
27. DTMF Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF, LPF: 15kHz De-emp: OFF Detector: (p-p)/2	Deviation meter	Rear	TX ANT		PC ADJ	±2.85kHz	±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.
	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k						±2.4kHz	±0.05kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±1.50kHz	±0.05kHz
28. Courtesy Tone Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF, LPF: 15kHz De-emp: OFF Detector: (p-p)/2	Deviation meter	Rear	TX ANT		PC ADJ	±1.00kHz	±0.05kHz Connect the deviation meter to the TX ANT end via the ATT.
	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k						±0.8kHz	±0.05kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±0.50kHz	±0.05kHz
29. TD Deviation	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF, LPF: 3kHz De-emp: OFF Detector: +peak, -peak AG setting : 0.1kHz/0.5Vp-p (177mVrms)	Deviation meter AG DVM	Rear	TX ANT CONTROL I/O jack TD (pin 8)		PC ADJ	±0.75kHz	±0.02kHz Connect the deviation meter to the TX ANT end via the ATT.
	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k						±0.75kHz	±0.02kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±0.75kHz	±0.02kHz
30. Transmit Audio Input (TA)	1) Channel: 3 (Center) Wide/Narrow: Analog Wide 5k Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF, LPF: 15kHz De-emp: OFF Detector: +peak, -peak AG setting : 1kHz/280mVrms	Deviation meter AG DVM	Rear	TX ANT CONTROL I/O jack TA (pin 9)		PC ADJ	±3.00kHz	±0.03kHz Connect the deviation meter to the TX ANT end via the ATT.

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
30. Transmit Audio Input (TA)	2) Channel: 3 (Center) Wide/Narrow: Analog Wide 4k	Deviation meter AG DVM	Rear	TX ANT CONTROL I/O jack TA (pin 9)		PC ADJ	±2.4kHz	±0.03kHz
	3) Channel: 3 (Center) Wide/Narrow: Analog Narrow						±1.50kHz	±0.02kHz
31. BPF	1) Tracking generator Output: -20dBm Spectrum analyzer Frequency: Desired frequency Span: 50MHz	Tracking generator Spectrum analyzer	Rear RX	RX ANT CN41	RX	TC1~ TC8	Adjust it by the programmed frequency to look like the wave in figure 1.	Refer to Fig. 1. (Page 82)
32. MCF	1) Wide Tracking generator Output: -20dBm Spectrum analyzer Frequency: 49.95MHz Span: 100kHz	Tracking generator Spectrum analyzer	Rear RX	CN46 CN47	RX	L46 L52 L74 L90	Adjust it to look like the wave in figure 2.	Refer to Fig. 2. (Page 82)
	2) Narrow Spectrum analyzer Span: 50kHz			L47 L53 L75 L91		Adjust it to look like the wave in figure 3.	Refer to Fig. 3. (Page 82)	
33. Discriminator	1) Narrow Frequency: Desired frequency SSG output: -53dBm (501µV) SSG MOD: 1kHz SSG DEV: 1.5kHz AF output: 2V/4Ω	SSG AF V.M	Rear	RX ANT TEST/ SPKR jack SPO (pin 12) 4Ω load	RX	L128	Adjust AF output max.	
34. RD Level	1) Wide/Narrow: Analog Wide 5k Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency Output: -53dBm (501µV) MOD: 1kHz DEV: ±3.0kHz	SSG AF V.M	Rear	RX ANT CONTROL I/O jack RD (pin 10)		PC ADJ	80mV	±5mV
	2) Wide/Narrow: Analog Wide 4k SSG setting DEV: ±2.4kHz							
	3) Wide/Narrow: Analog Narrow SSG setting DEV: ±1.5kHz							
35. RA Level	1) Wide/Narrow: Analog Wide 5k Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency Output: -53dBm (501µV) MOD: 1kHz DEV: ±3.0kHz	SSG AF V.M	Rear	RX ANT CONTROL I/O jack RA (pin 11)		PC ADJ	400mV	±20mV

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
35. RA Level	2) Wide/Narrow: Analog Wide 4k SSG setting DEV: ± 2.4 kHz	SSG AF V.M	Rear	RX ANT CONTROL I/O jack RA (pin 11)		PC ADJ	400mV	± 20 mV
	3) Wide/Narrow: Analog Narrow SSG setting DEV: ± 1.5 kHz							
36. Receiver Sensitivity Check	1) Wide/Narrow: Analog Wide 5k Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency MOD: 1kHz DEV: ± 3.0 kHz AF: 0.45V/4 Ω	SSG Distortion meter	Rear	RX ANT TEST/ SPKR jack SPO (pin 12) 4 Ω load			Check	-115dBm (0.4 μ V) or less
	2) Wide/Narrow: Analog Wide 4k SSG setting DEV: ± 2.4 kHz							
	3) Wide/Narrow: Analog Narrow SSG setting DEV: ± 1.5 kHz							
37. Tight Squelch	1) Wide/Narrow: Analog Wide 5k Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency Output: 12dB SINAD level +7dB MOD: 1kHz DEV: ± 3.0 kHz	SSG Oscilloscope Audio analyzer	Rear	RX ANT TEST/ SPKR jack SPO (pin 12) 4 Ω load		PC ADJ	Adjust it to the level to open the squelch.	
	2) SSG output: OFF						Check	The squelch shall be closed.
	3) Wide/Narrow: Analog Wide 4k SSG setting DEV: ± 2.4 kHz					PC ADJ	Adjust it to the level to open the squelch.	
	4) SSG output: OFF					Check	The squelch shall be closed.	
	5) Wide/Narrow: Analog Narrow SSG setting DEV: ± 1.5 kHz					PC ADJ	Adjust it to the level to open the squelch.	
	6) SSG output: OFF					Check	The squelch shall be closed.	
38. Open Squelch	1) Wide/Narrow: Analog Wide 5k Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency Output: 12dB SINAD level -2dB MOD: 1kHz DEV: ± 3.0 kHz	SSG Oscilloscope Audio analyzer	Rear	RX ANT TEST/ SPKR jack SPO (pin 12) 4 Ω load		PC ADJ	Adjust it to the level to open the squelch.	

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications / Remarks	
		Test-equipment	Unit	Terminal	Unit	Parts	Method		
38. Open Squelch	2) SSG output: OFF	SSG Oscilloscope Audio analyzer	Rear	RX ANT TEST/ SPKR jack SPO (pin 12) 4Ω load			Check	The squelch shall be closed.	
	3) Wide/Narrow: Analog Wide 4k SSG setting DEV: ±2.4kHz						PC ADJ	Adjust it to the level to open the squelch.	
	4) SSG output: OFF							Check	The squelch shall be closed.
	5) Wide/Narrow: Analog Narrow SSG setting DEV: ±1.5kHz						PC ADJ	Adjust it to the level to open the squelch.	
	6) SSG output: OFF							Check	The squelch shall be closed.
39. RSSI	Wide/Narrow: Analog Narrow Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency MOD: 1kHz DEV: ±1.5kHz 1) SSG output: -53dBm (501μV)	SSG AF V.M	Rear	RX ANT TEST/ SPKR jack RSSI (pin 8)		PC ADJ	3.5V	±0.1V	
	2) Point: High Level SSG output : 12dB SINAD level +7dB						PC ADJ (Vin4)	Apply the value (Vin4)	
	3) Point: Low Level SSG output : 12dB SINAD level -2dB								
40. Repeater Gain	1) Wide/Narrow: Analog Wide 5k Connect the SSG to the RX ANT. SSG setting Frequency: Desired frequency Output: -53dBm (501μV) MOD: 1.0kHz DEV: ±1.0kHz Connect the deviation meter to the TX ANT end via the ATT. Deviation meter setting HPF: OFF LPF: 15kHz De-emp: OFF Detector: +peak, -peak	SSG Deviation meter	Rear	RX ANT TX ANT		PC ADJ	±1.00kHz	±0.10kHz	
	2) Wide/Narrow: Analog Wide 4k							±1.00kHz	±0.10kHz
	3) Wide/Narrow: Analog Narrow							±1.00kHz	±0.10kHz

ADJUSTMENT

Adjustment for KXK-3 (M2) (OCXO unit)

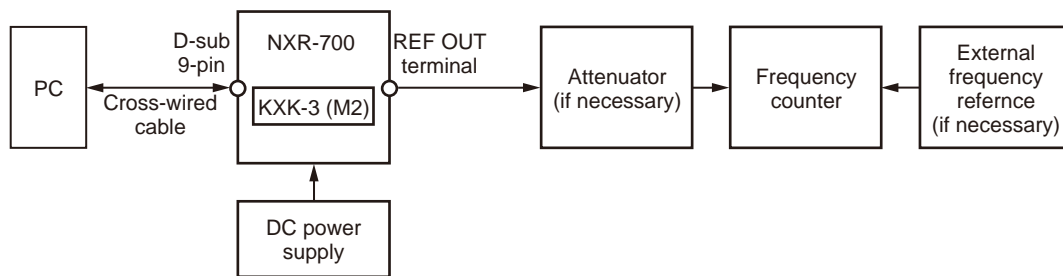
We recommend that the frequency adjustment be checked each time the radio is serviced, or at least once per year. Maintenance should only be performed under normal temperatures.

■ Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Frequency Counter	Frequency Range	Up to 50MHz
	Resolution	9 digits
	Reference Frequency Accuracy	Smaller than 0.01ppm
	Input level	Up to 5Vpp

■ Adjustment Setup

The KXK-3 (M2) OCXO unit must be mounted on the NXR-700 repeater. Adjustment setup is shown as follows.



To adjust the KXK-3 (M2) OCXO unit, some preparations are required.

1. The NXR-700 with the KXK-3 (M2) OCXO unit must be warmed up at least 24 hours before the adjustment is made. The environment temperature must be stable.
2. The frequency counter (or reference oscillator) must be warmed up as defined by the equipment manufacturer.

■ Adjustment

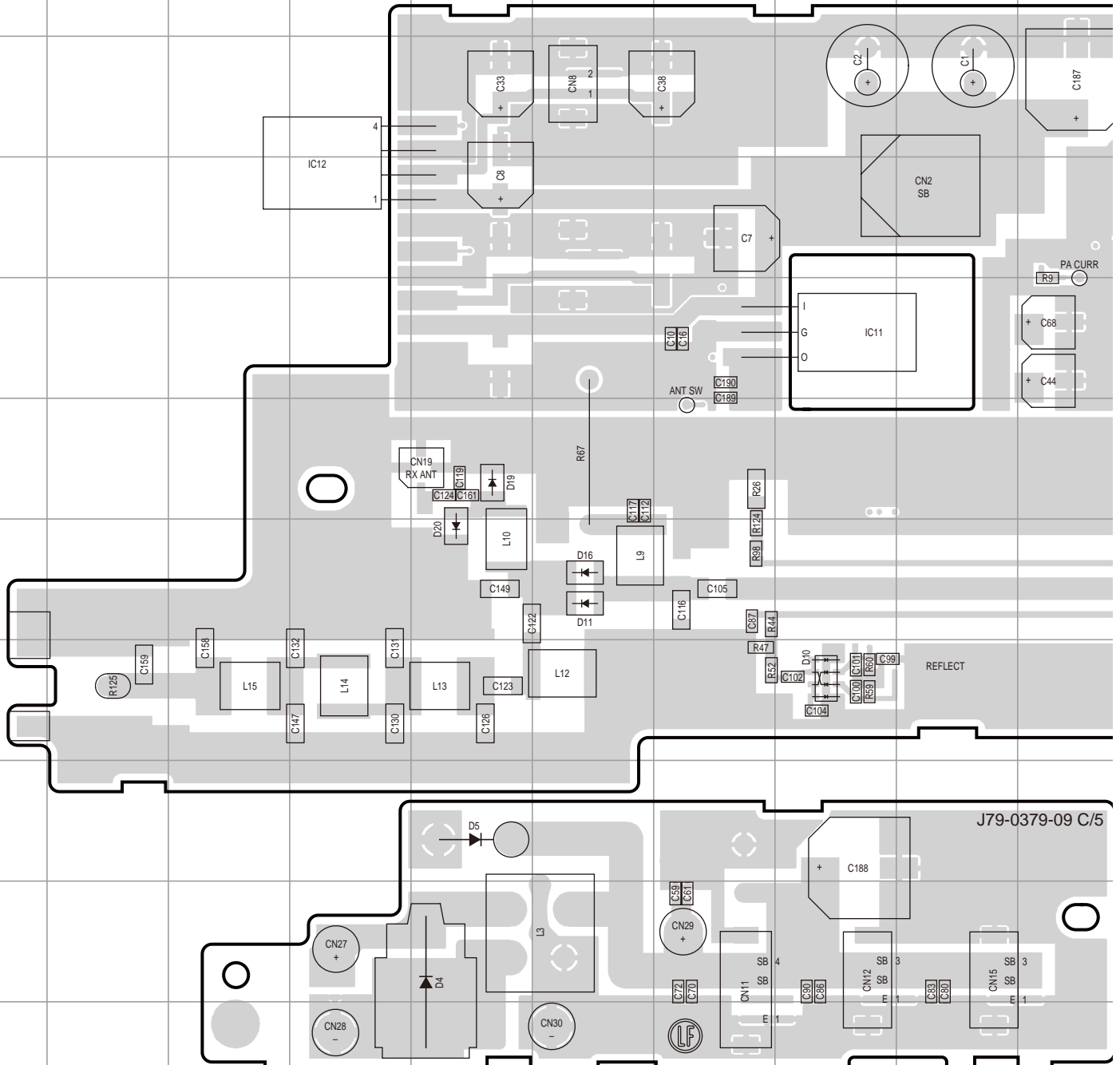
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		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Connect the DC power output to the rear panel DC terminal (13.2V). 2) Connect the "REF OUT" terminal to the frequency counter. 3) Warm-up the equipment and KXK-3 (M2) properly. 4) Connect the front panel COM port (D-sub 9-pin connector) to the PC serial port with a cross-wired cable. 5) Activate the FPU to go to the test mode.							
2. OCXO frequency adjustment		f. counter	Rear	REF OUT		PC ADJ		±0.15ppm 9.9999850MHz~ 10.00000150MHz

Note:

Adjusted data is stored in the KXK-3 (M2) internal memory, therefore no re-adjustment is required when the adjusted KXK-3 (M2) is moved to another NXR-700.

NXR-700 PC BOARD

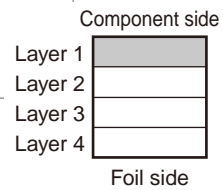
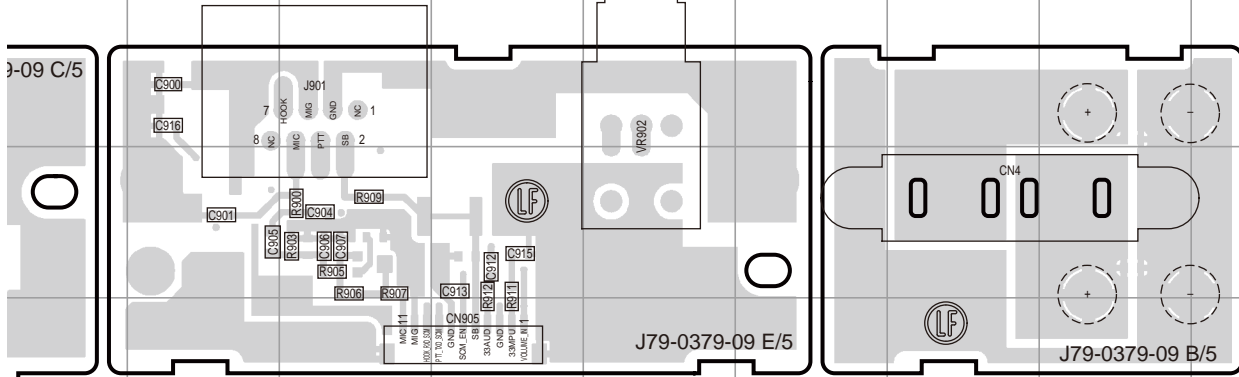
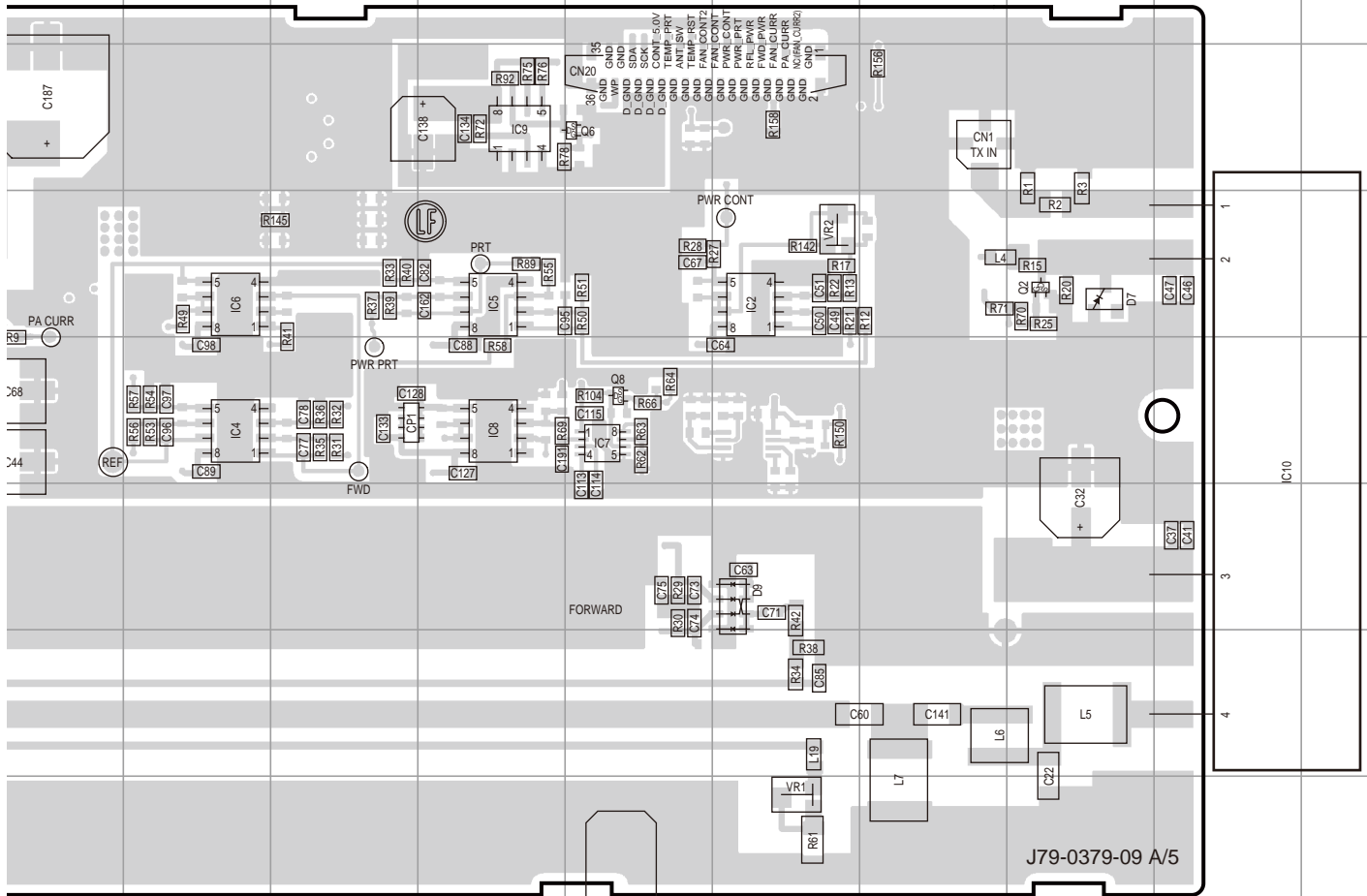
FINAL UNIT (X45-3852-71) Component side view (J79-0379-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC2	4O	IC8	5M	Q2	4Q	D7	4Q	D19	6E
IC4	5K	IC9	3M	Q6	3N	D9	6O	D20	7E
IC5	4M	IC10	5R	Q8	5N	D10	8H		
IC6	4K	IC11	5H	D4	10E	D11	7F		
IC7	5N	IC12	4D	D5	9E	D16	7F		

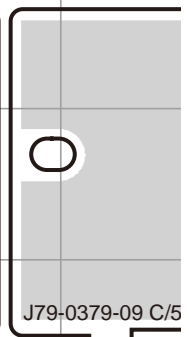
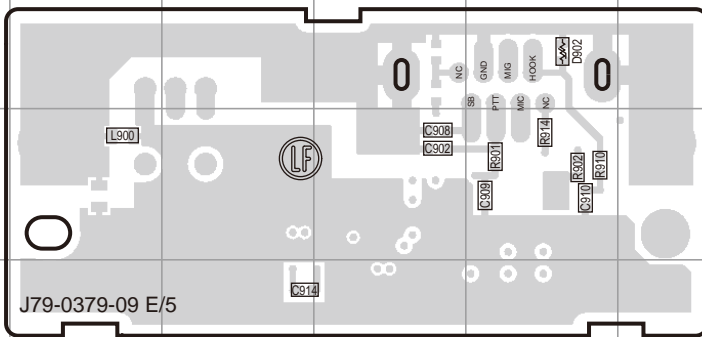
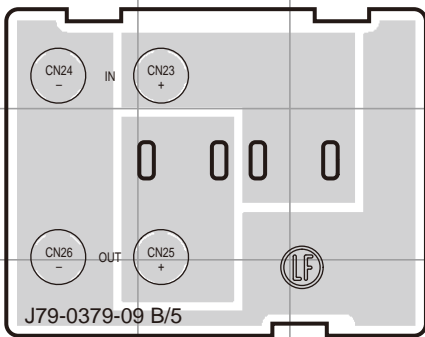
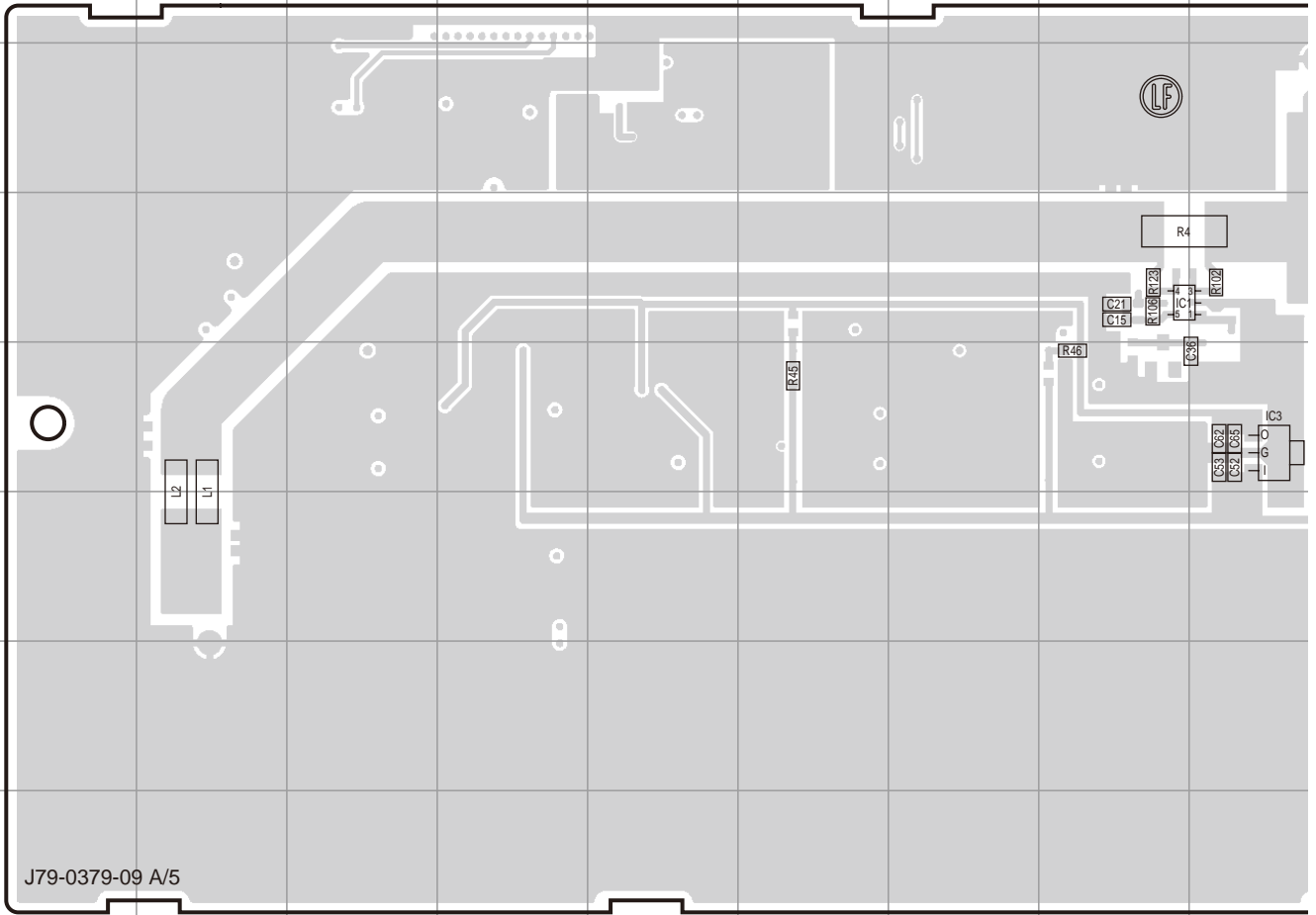
PC BOARD NXR-700

FINAL UNIT (X45-3852-71) Component side view (J79-0379-09)



NXR-700 PC BOARD

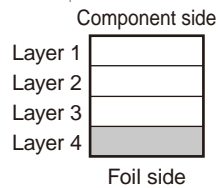
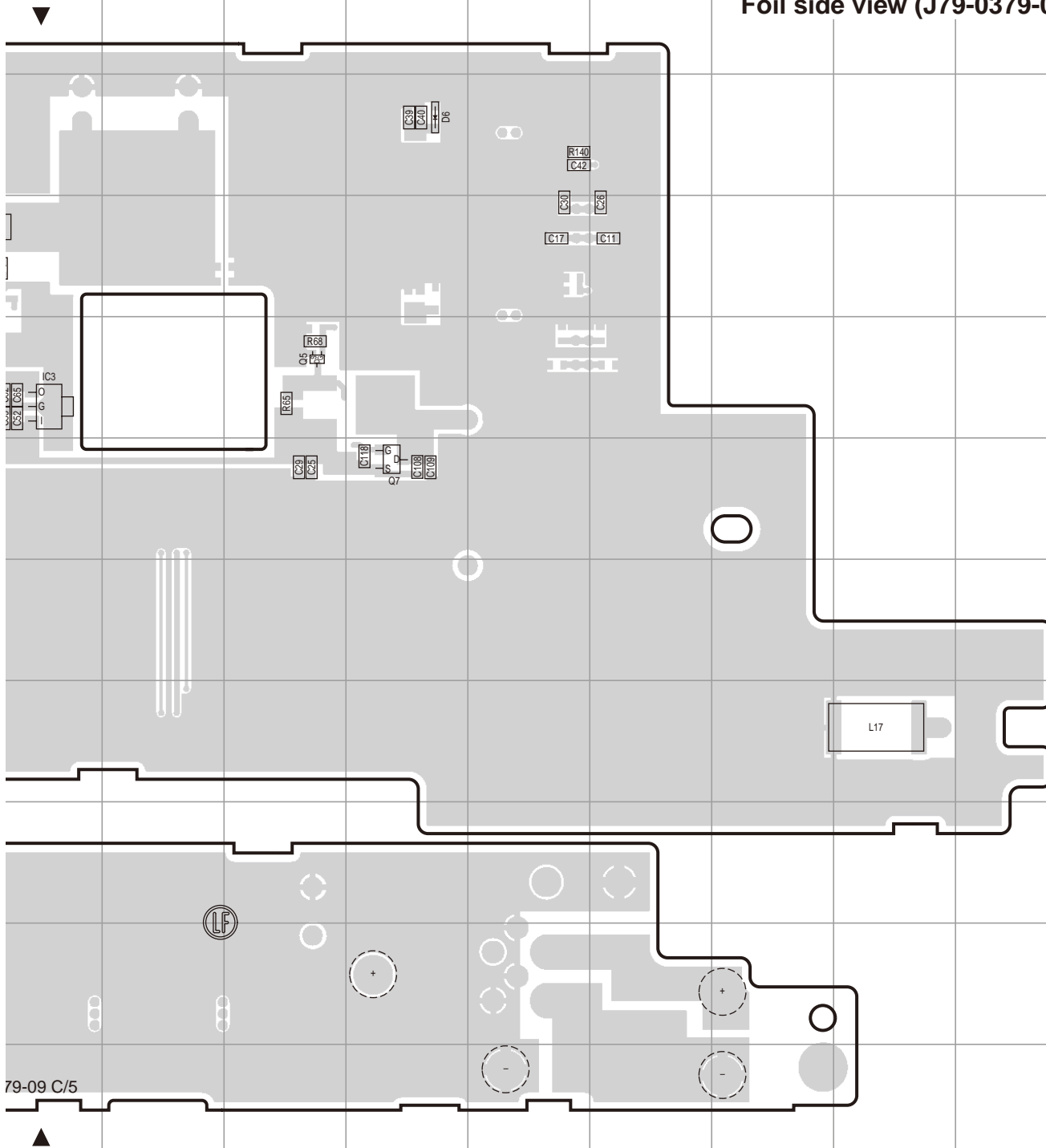
FINAL UNIT (X45-3852-71)
Foil side view (J79-0379-09)



Ref. No.	Address	Ref. No.	Address
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IC3	5J	D902	9H
Q5	5L		
Q7	6M		

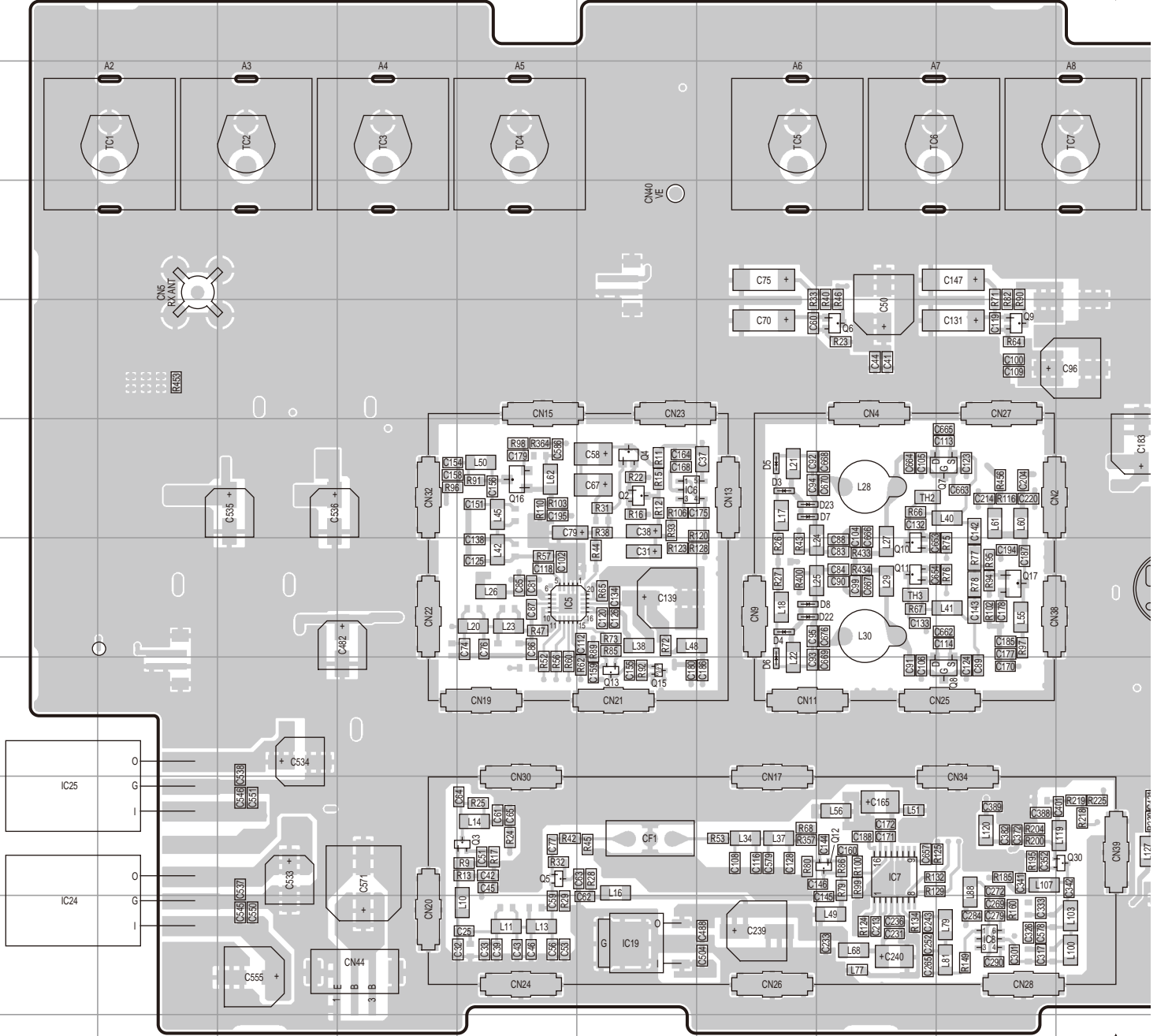
PC BOARD NXR-700

FINAL UNIT (X45-3852-71)
Foil side view (J79-0379-09)



NXR-700 PC BOARD

RX UNIT (X55-3092-72)
Component side view (J79-0220-09)

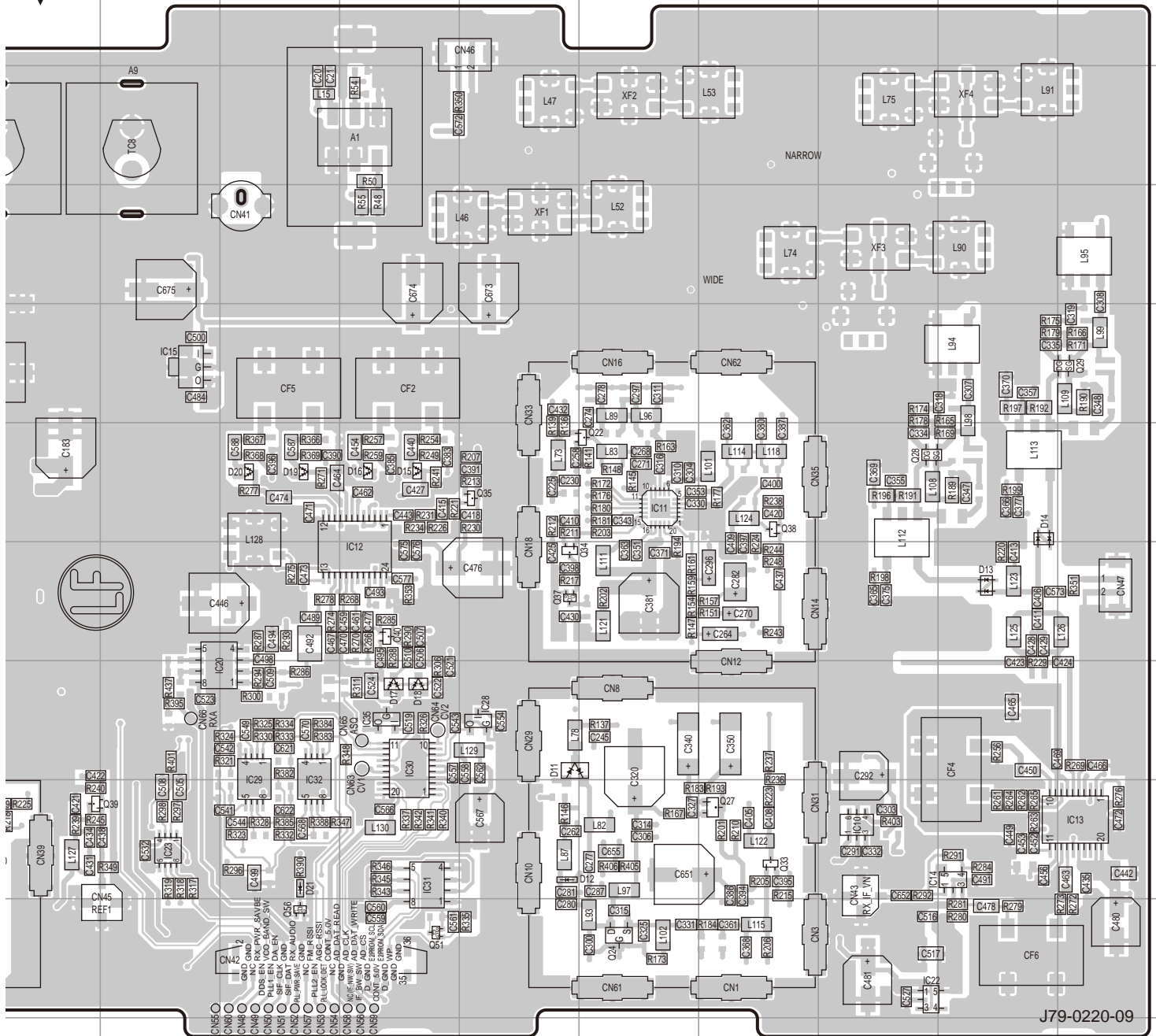


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC5	7E	IC15	5K	IC30	8M	Q7	6I	Q17	7I	Q35	6N	D5	6G	D16	6M
IC6	6F	IC19	10F	IC31	9M	Q8	8I	Q22	6O	Q37	7N	D6	8G	D17	8M
IC7	9H	IC20	8K	IC32	8L	Q9	5I	Q24	10O	Q38	6P	D7	6G	D18	8M
IC8	10I	IC22	10Q	IC35	8M	Q10	7H	Q27	9P	Q39	9J	D8	7G	D19	6L
IC10	9Q	IC23	9K	Q2	6F	Q11	7H	Q28	6Q	Q40	7M	D11	8N	D20	6L
IC11	6O	IC24	10A	Q3	9E	Q12	9H	Q29	5S	Q51	10M	D12	9N	D21	9L
IC12	7M	IC25	9A	Q4	6F	Q13	8F	Q30	9J	Q56	10L	D13	7R	D22	7G
IC13	9S	IC28	8N	Q5	9E	Q15	8F	Q33	9P	D3	6G	D14	6R	D23	6G
IC14	9R	IC29	8L	Q6	5H	Q16	6E	Q34	7N	D4	7G	D15	6M		

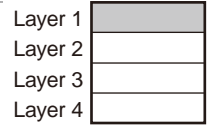
PC BOARD NXR-700

RX UNIT (X55-3092-72)

Component side view (J79-0220-09)



Component side

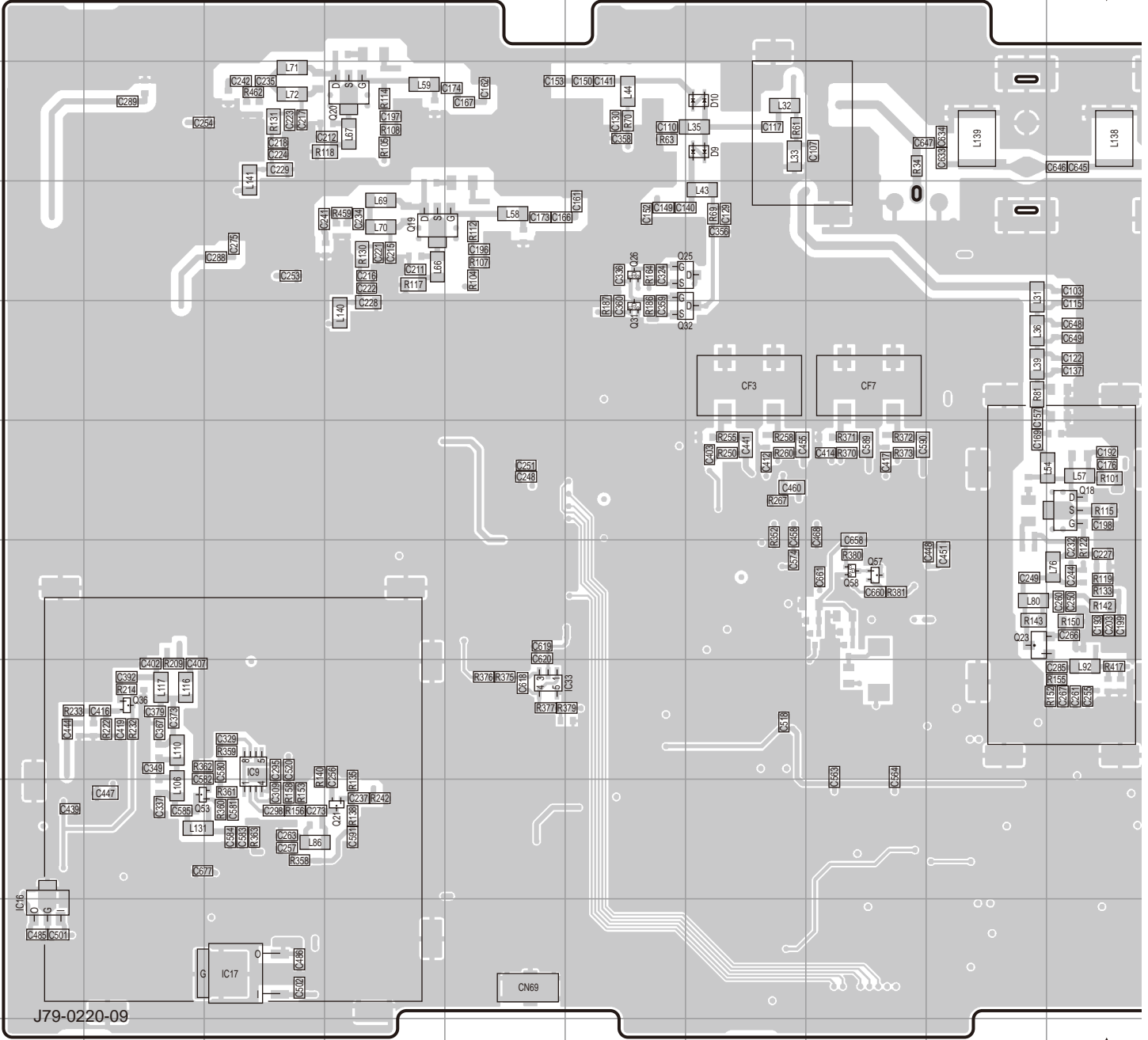


Foil side

J79-0220-09

NXR-700 PC BOARD

RX UNIT (X55-3092-72)
Foil side view (J79-0220-09)

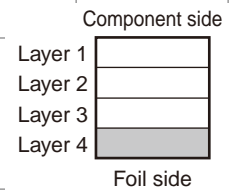
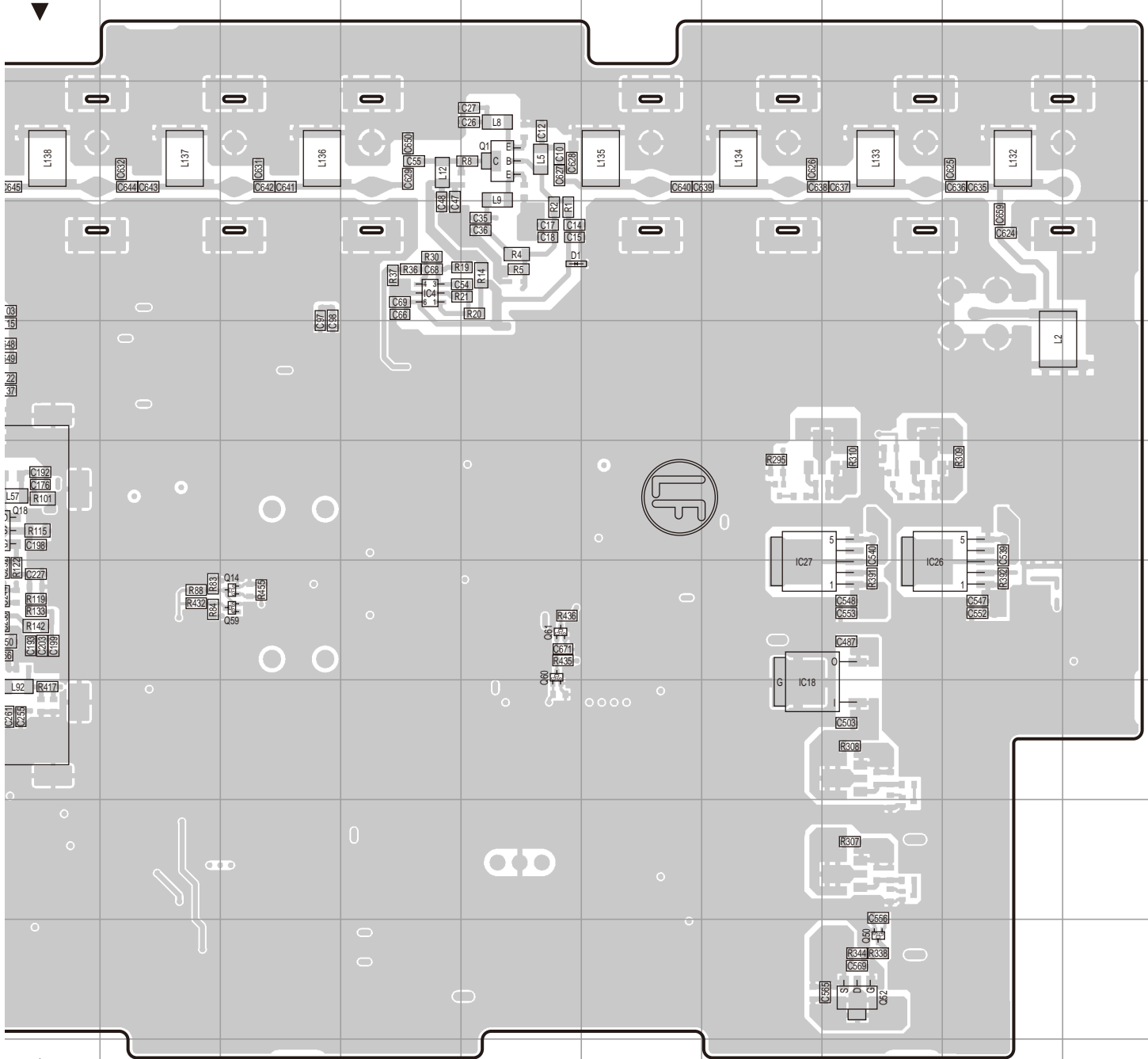


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC4	4M	Q14	7L	Q32	5G	Q61	7N
IC9	8C	Q18	6J	Q36	8B	D1	4N
IC16	10A	Q19	4D	Q50	10Q	D9	3G
IC17	10C	Q20	3D	Q52	10Q	D10	3G
IC18	8P	Q21	9D	Q53	9B		
IC26	7Q	Q23	7I	Q57	7H		
IC27	7P	Q25	4G	Q58	7H		
IC33	8E	Q26	4F	Q59	7L		
Q1	3N	Q31	5F	Q60	7N		

PC BOARD NXR-700

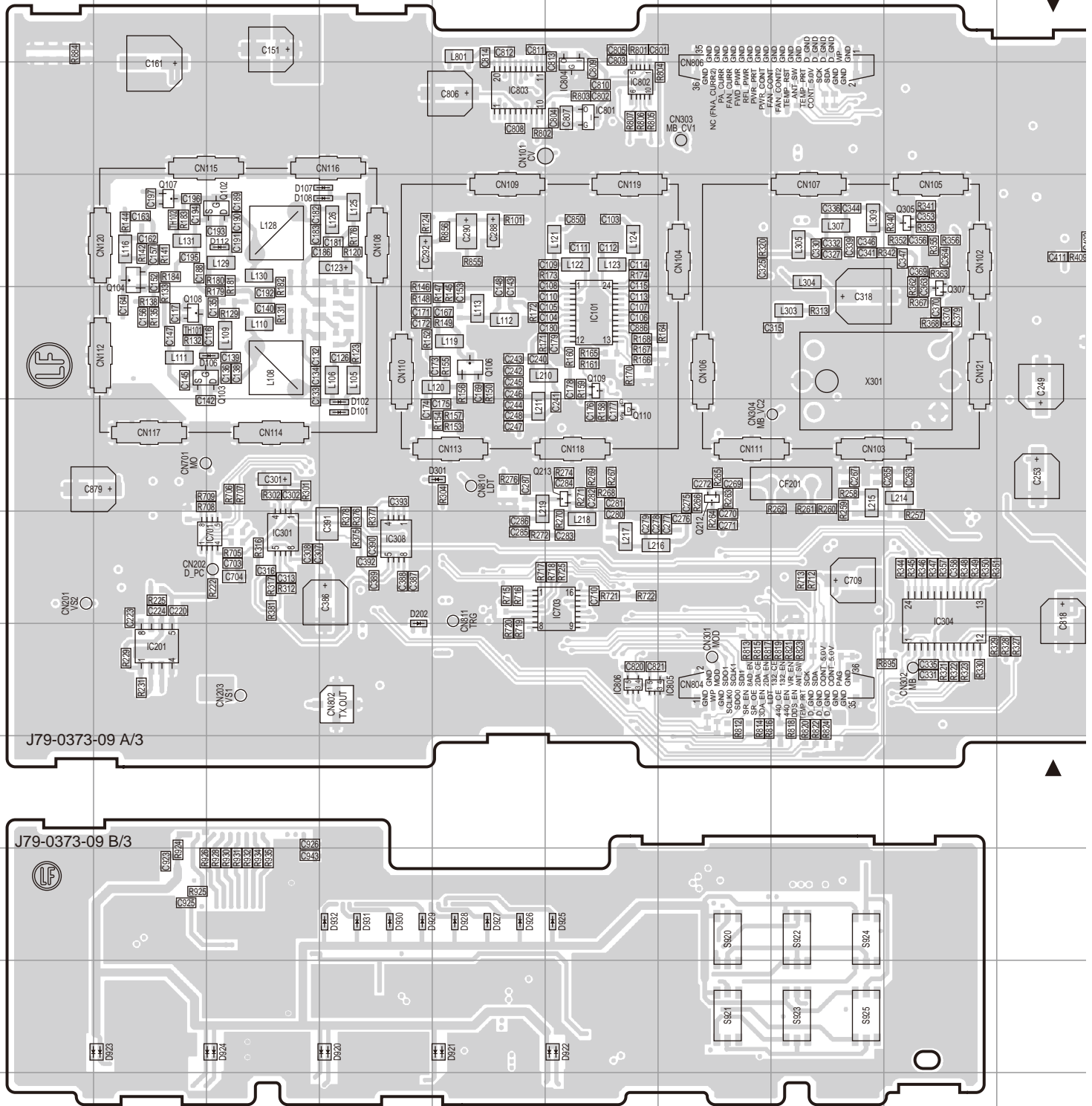
RX UNIT (X55-3092-72)

Foil side view (J79-0220-09)



NXR-700 PC BOARD

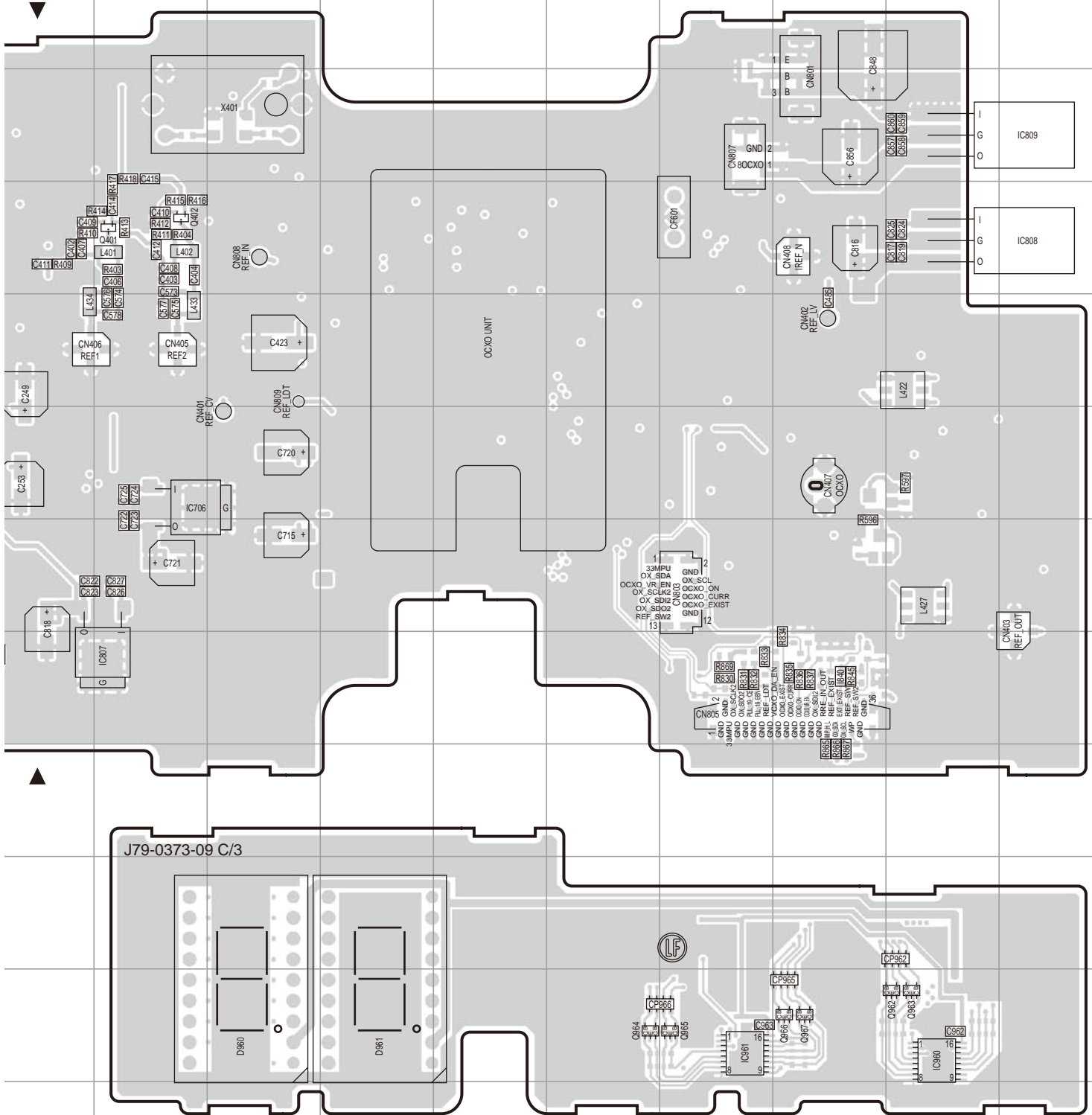
TX UNIT (X56-3112-72) Component side view (J79-0373-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC101	5F	IC706	6K	IC807	8K	Q104	4B	Q213	6F	Q964	11O	D107	4D	D922	11F
IC201	8B	IC801	3F	IC808	4S	Q106	5E	Q305	4I	Q965	11P	D108	4D	D923	11B
IC301	7C	IC802	3F	IC809	3S	Q107	4B	Q307	5I	Q966	11Q	D112	4C	D924	11C
IC304	7I	IC803	3E	IC960	11R	Q108	5B	Q401	4K	Q967	11Q	D202	7D	D925	10F
IC308	7D	IC804	3F	IC961	11P	Q109	5F	Q402	4K	D101	6D	D301	6E	D926	10E
IC701	7C	IC805	8F	Q102	4C	Q110	6F	Q962	11R	D102	6D	D920	11D	D927	10E
IC703	7F	IC806	8F	Q103	5C	Q212	6G	Q963	11R	D106	5C	D921	11E	D928	10E

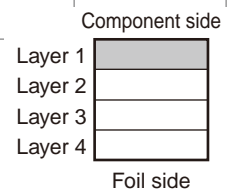
PC BOARD NXR-700

TX UNIT (X56-3112-72) Component side view (J79-0373-09)



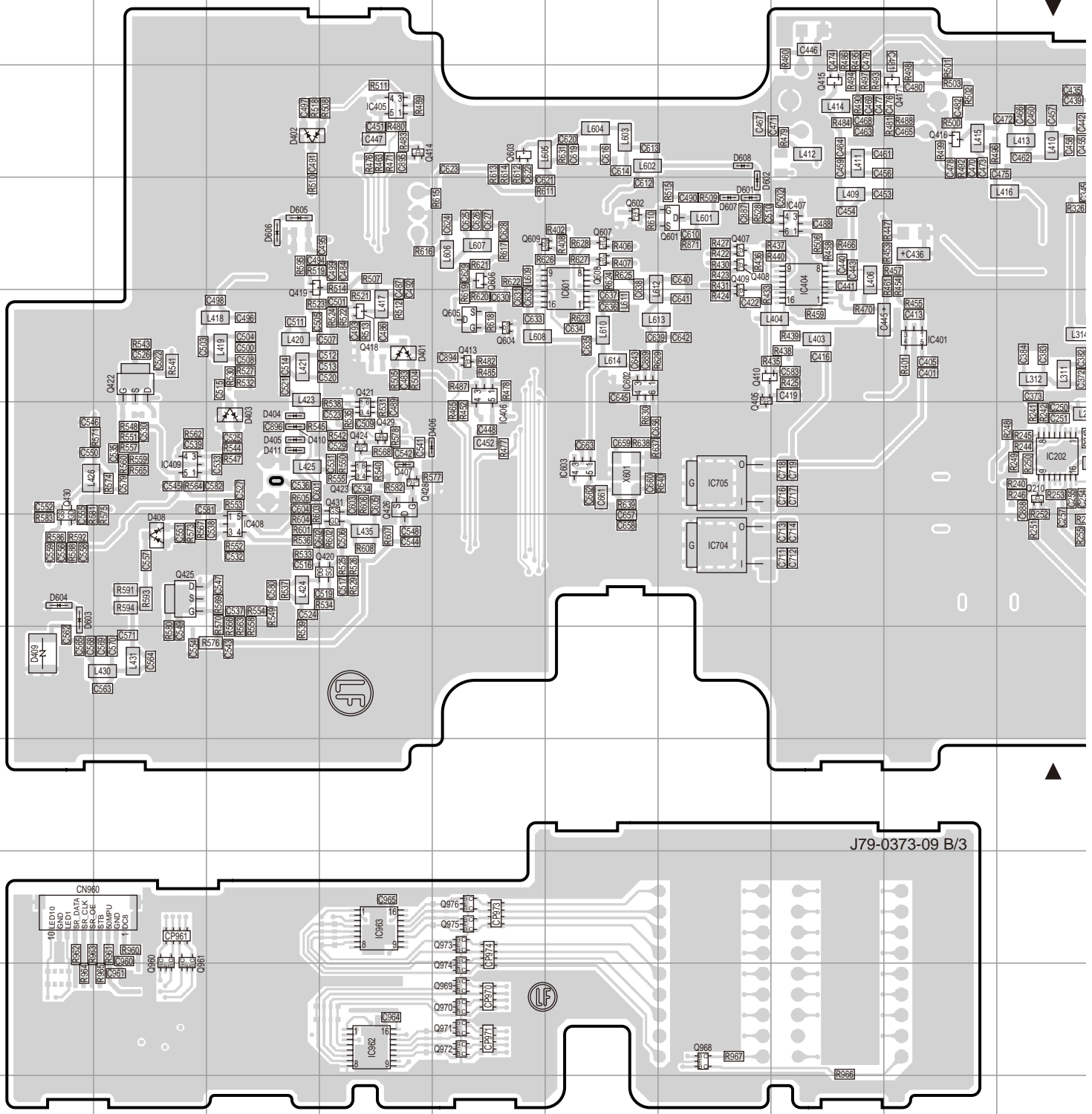
J79-0373-09 C/3

No.	Address
29	10D
30	10D
31	10D
32	10D
60	11L
61	11M



NXR-700 PC BOARD

TX UNIT (X56-3112-72)
Foil side view (J79-0373-09)

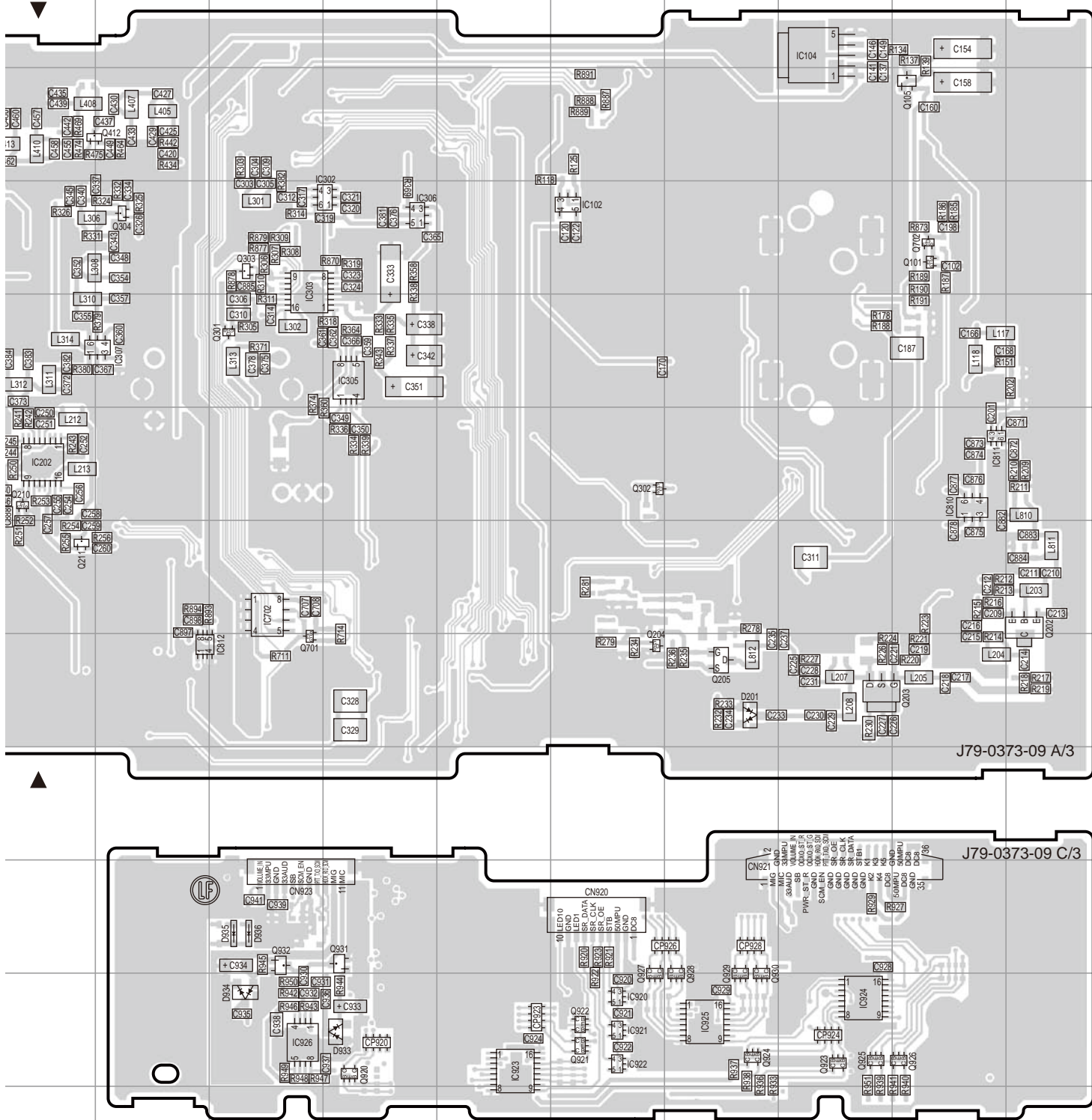


J79-0373-09 B/3

IC102	4O	IC404	4H	IC702	7L	IC923	11N	Q203	8Q	Q405	5G	Q416	3I	Q425	7B	Q604	5E
IC104	2Q	IC405	3D	IC704	7G	IC924	11Q	Q204	7P	Q407	4G	Q417	3I	Q426	6D	Q605	5E
IC202	6J	IC406	5E	IC705	6G	IC925	11P	Q205	8P	Q408	4G	Q418	5D	Q428	6D	Q606	4E
IC302	4M	IC407	4H	IC810	6R	IC926	11L	Q210	6J	Q409	4G	Q419	5C	Q429	6D	Q607	4F
IC303	4L	IC408	7C	IC811	6R	IC962	11D	Q211	7J	Q410	5H	Q420	7D	Q430	6A	Q608	4F
IC305	5M	IC409	6B	IC812	8K	IC963	10D	Q301	5L	Q412	3J	Q421	6D	Q431	6D	Q609	4F
IC306	4M	IC601	4F	IC920	11O	Q101	4R	Q302	6O	Q413	5E	Q422	5B	Q601	4G	Q701	8L
IC307	5K	IC602	5F	IC921	11O	Q105	3R	Q303	4L	Q414	3D	Q423	6D	Q602	4F	Q702	4R
IC401	5H	IC603	6F	IC922	11O	Q202	7S	Q304	4K	Q415	3H	Q424	6D	Q603	3E	Q920	11N

PC BOARD NXR-700

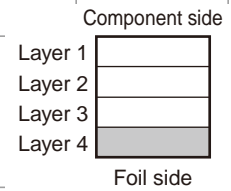
TX UNIT (X56-3112-72)
Foil side view (J79-0373-09)



J79-0373-09 A/3

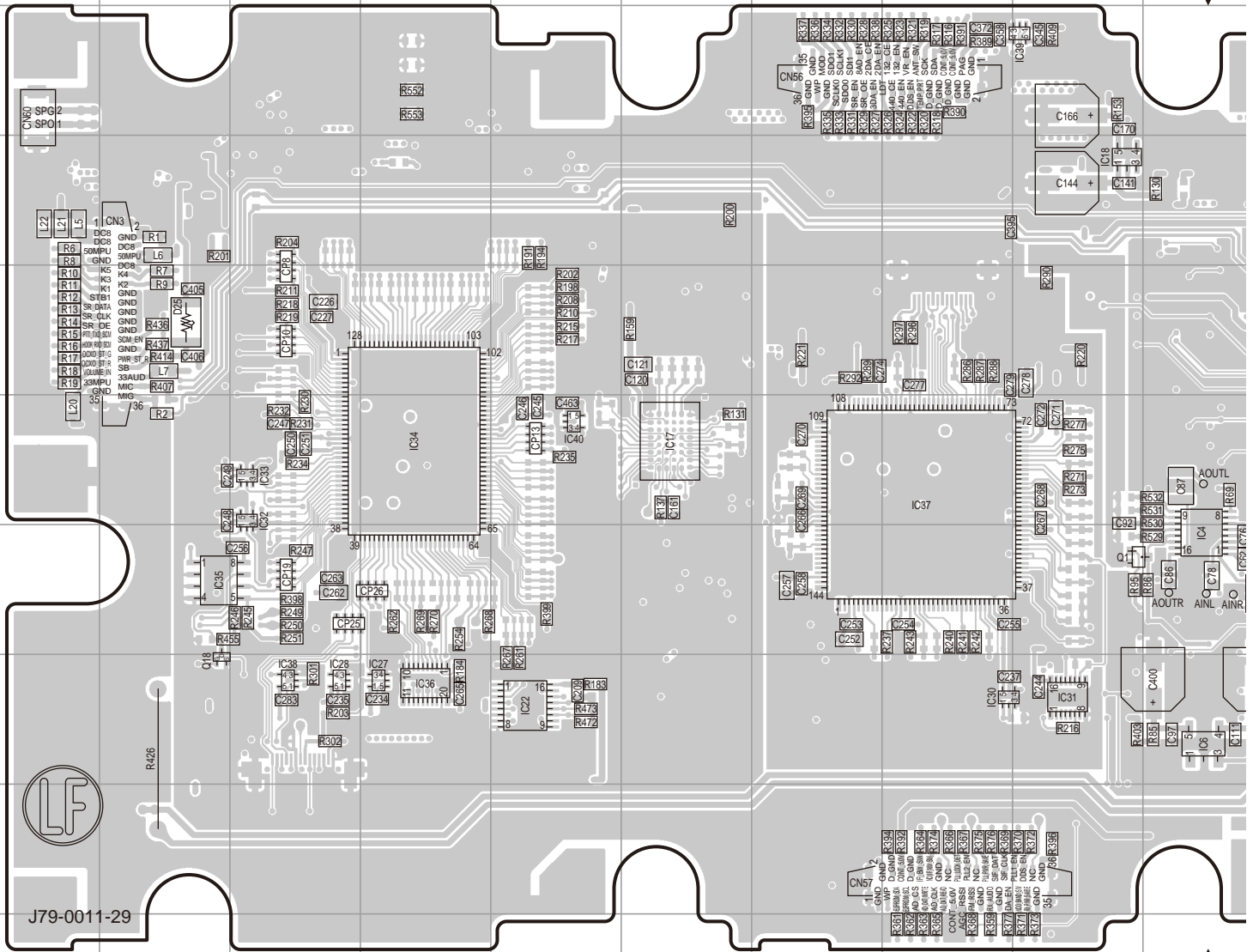
J79-0373-09 C/3

No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
04	5E	Q921	11O	Q930	11P	Q972	11E	D404	6C	D602	3G	D935	10L
05	5E	Q922	11O	Q931	10M	Q973	10E	D405	6C	D603	7A	D936	10L
06	4E	Q923	11Q	Q932	10L	Q974	11E	D406	6D	D604	7A		
07	4F	Q924	11P	Q960	10B	Q975	10E	D407	6D	D605	4C		
08	4F	Q925	11Q	Q961	10B	Q976	10E	D408	7B	D606	4C		
09	4F	Q926	11R	Q968	11G	D201	8P	D409	8A	D607	4G		
01	8L	Q927	11O	Q969	11E	D401	5D	D410	6C	D608	3G		
02	4R	Q928	11P	Q970	11E	D402	3C	D411	6C	D933	11M		
20	11M	Q929	11P	Q971	11E	D403	6C	D601	4G	D934	11L		



NXR-700 PC BOARD

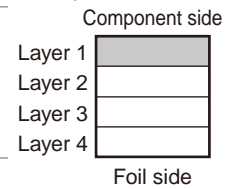
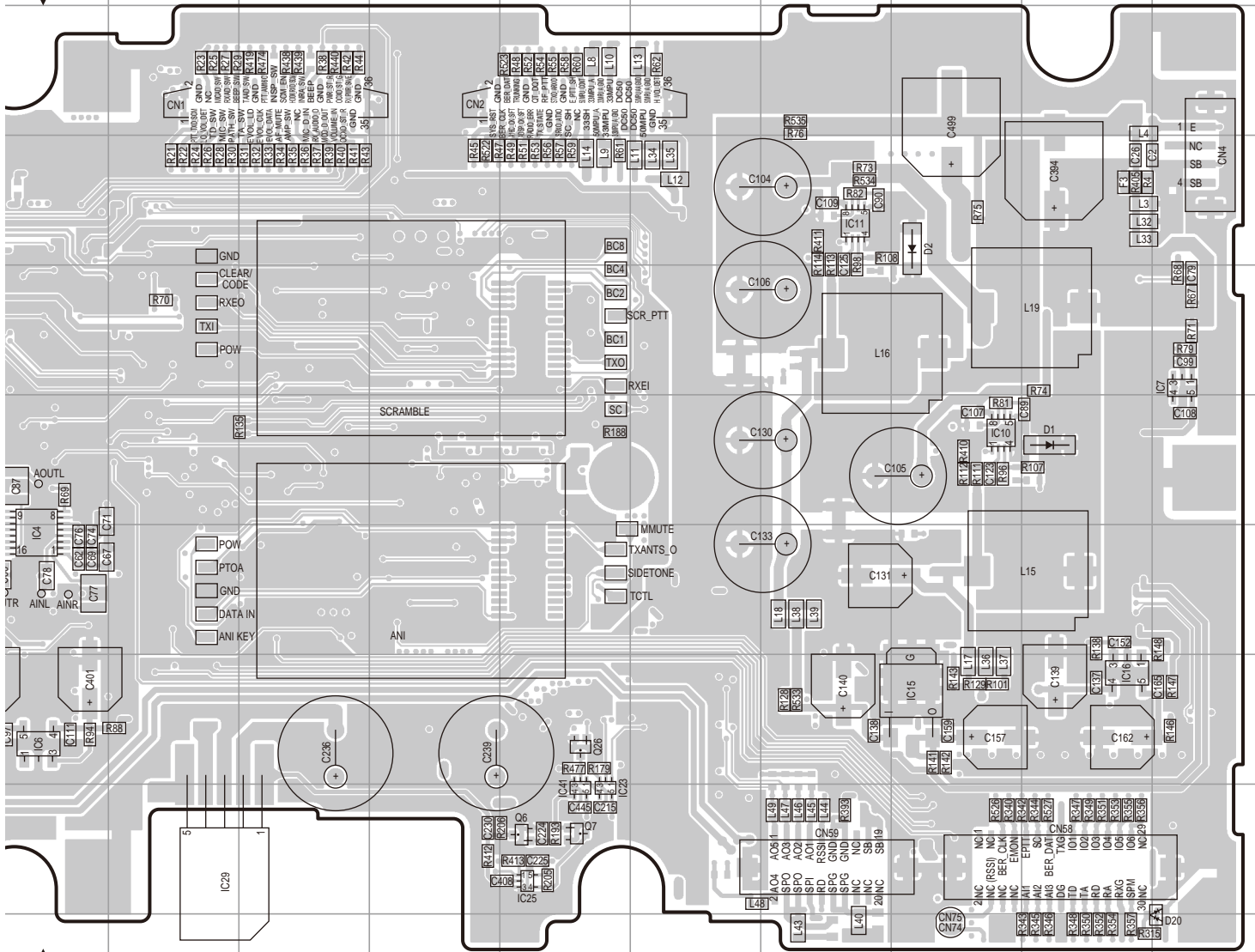
CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Component side view (J79-0011-29)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC4	7J	IC22	8E	IC33	6C	Q1	7I
IC6	8J	IC23	9N	IC34	6D	Q6	9N
IC7	5S	IC25	9N	IC35	7B	Q7	9N
IC10	6Q	IC27	8D	IC36	8D	Q18	8B
IC11	4P	IC28	8C	IC37	6H	Q26	8N
IC15	8Q	IC29	9K	IC38	8C	D1	6R
IC16	8R	IC30	8H	IC39	3I	D2	4Q
IC17	6F	IC31	8I	IC40	6E	D20	10S
IC18	4I	IC32	6C	IC41	9N	D25	5B

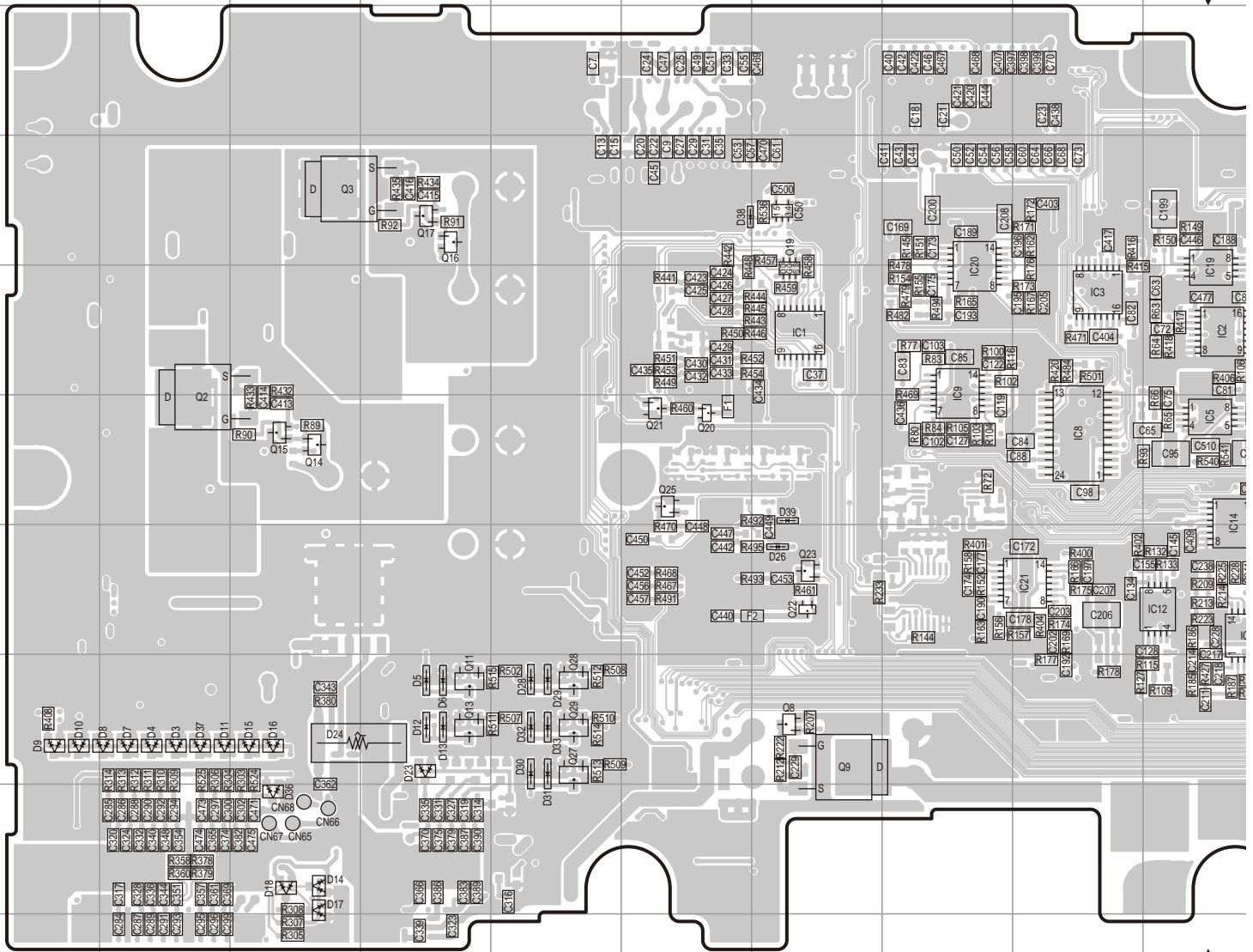
PC BOARD NXR-700

CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Component side view (J79-0011-29)



NXR-700 PC BOARD

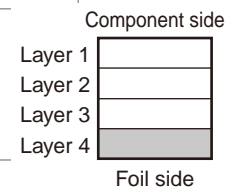
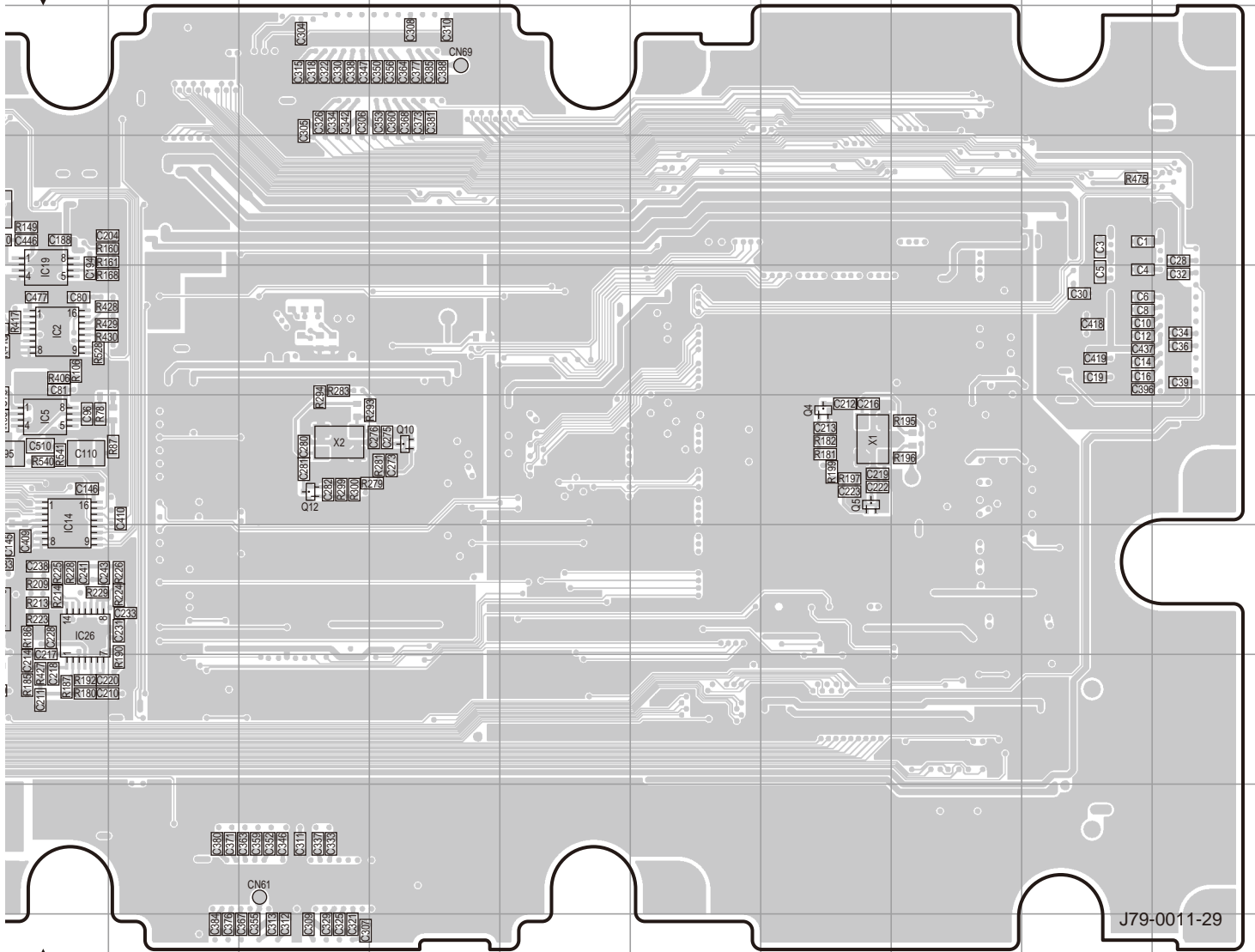
CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Foil side view (J79-0011-29)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	5G	Q2	6B	Q17	4D	D6	8D	D23	8D
IC2	5J	Q3	4C	Q19	5G	D7	8B	D24	8C
IC3	5I	Q4	6P	Q20	6F	D8	8B	D26	7G
IC5	6J	Q5	6P	Q21	6F	D9	8A	D28	8E
IC8	6I	Q8	8G	Q22	7G	D10	8A	D29	8E
IC9	5H	Q9	8G	Q23	7G	D11	8B	D30	8E
IC12	7J	Q10	6M	Q25	6F	D12	8D	D31	8E
IC14	6J	Q11	8D	Q27	8E	D13	8D	D32	8E
IC19	5J	Q12	6L	Q28	8E	D14	9C	D33	8E
IC20	5H	Q13	8D	Q29	8E	D15	8C	D36	9C
IC21	7I	Q14	6C	D3	8B	D16	8C	D37	8B
IC26	7J	Q15	6C	D4	8B	D17	9C	D38	4F
IC50	4G	Q16	4D	D5	8D	D18	9C	D39	6G

PC BOARD NXR-700

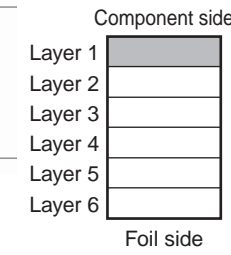
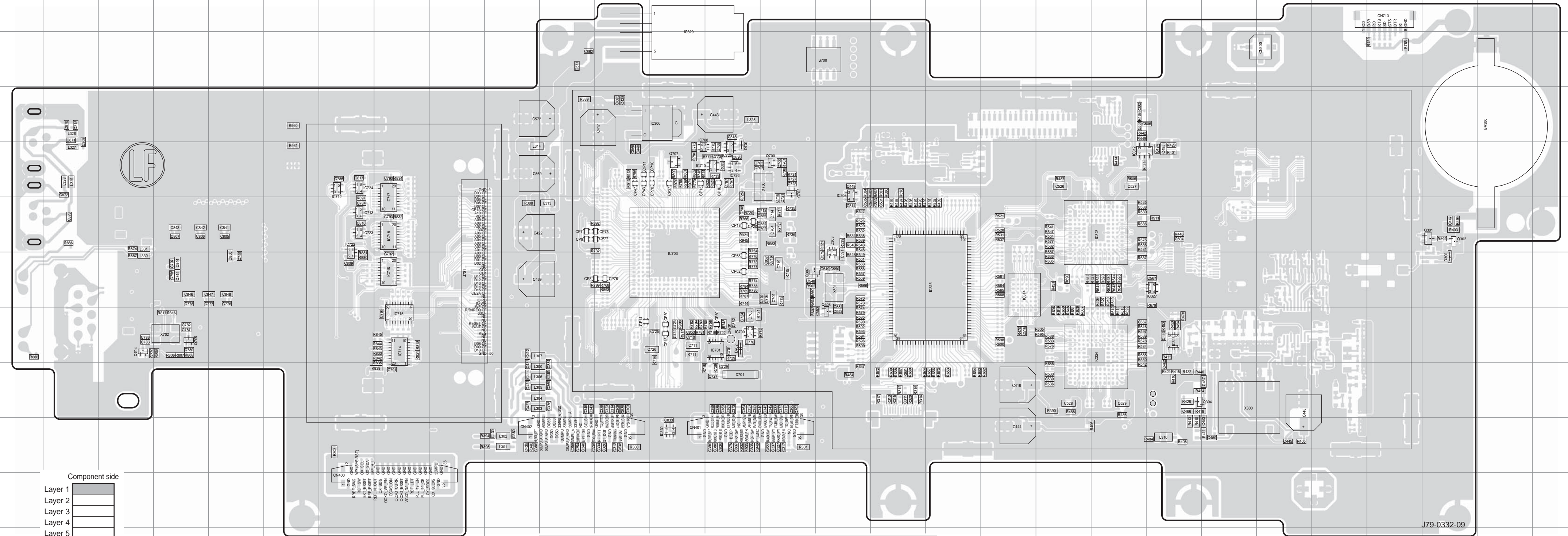
CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Foil side view (J79-0011-29)



PC BOARD NXR-700

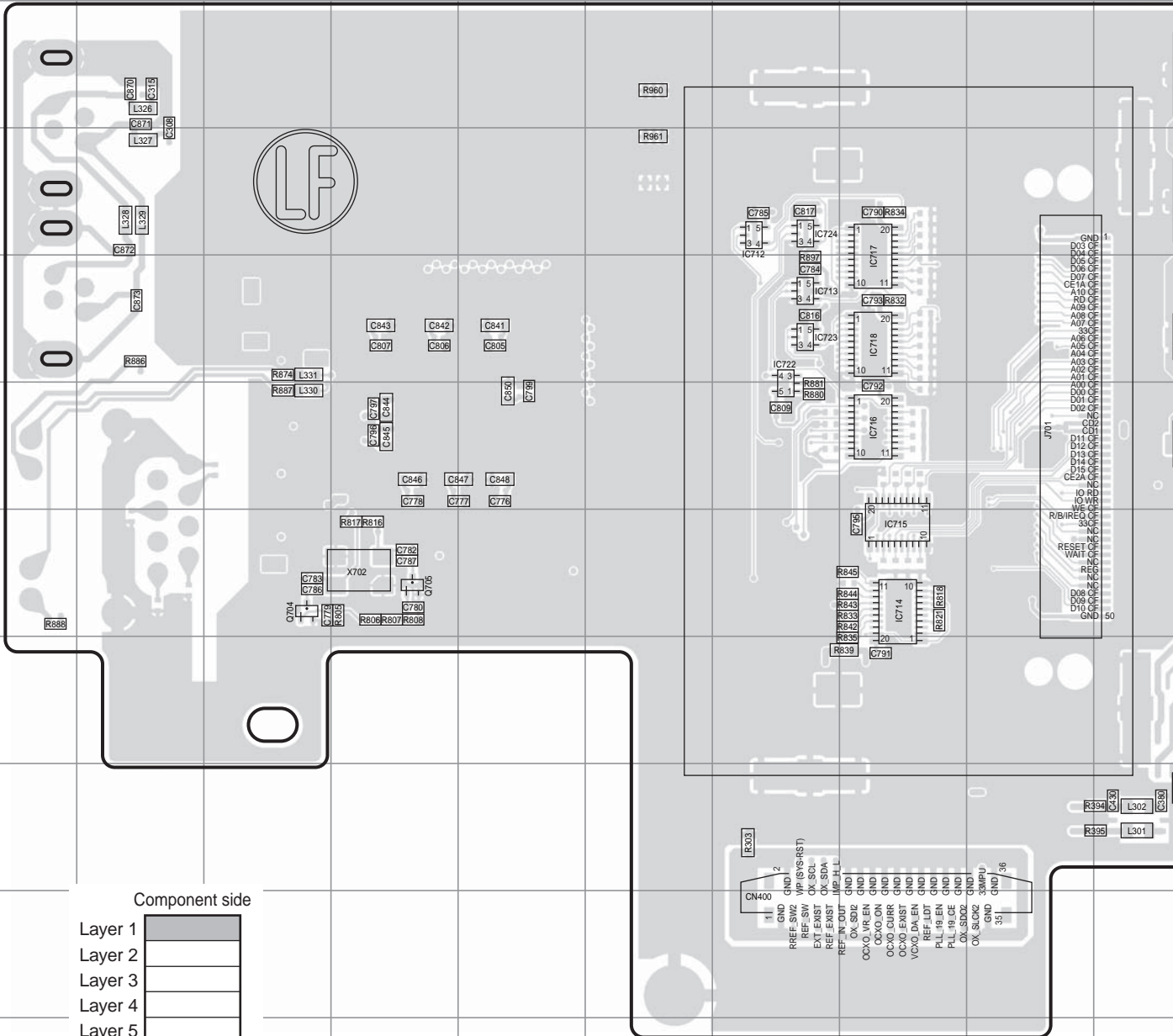
CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Component side view (J79-0332-09)

CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Component side view (J79-0332-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC303	7P	IC324	8U	IC708	5M	IC716	7H	IC726	5N	Q702	5O
IC306	4M	IC325	7R	IC709	8N	IC717	5H	Q301	6AA	Q704	8C
IC308	5P	IC327	7V	IC710	5N	IC718	6H	Q302	6AA	Q705	8D
IC312	5U	IC329	3M	IC712	5G	IC722	7G	Q304	9V	Q707	5M
IC313	8V	IC330	10M	IC713	6G	IC723	6G	Q307	7O	D300	7AA
IC314	7S	IC701	8N	IC714	8H	IC724	5G	Q308	8P	D701	5N
IC323	6U	IC703	7M	IC715	8H	IC725	5N	Q700	5O	D702	8N

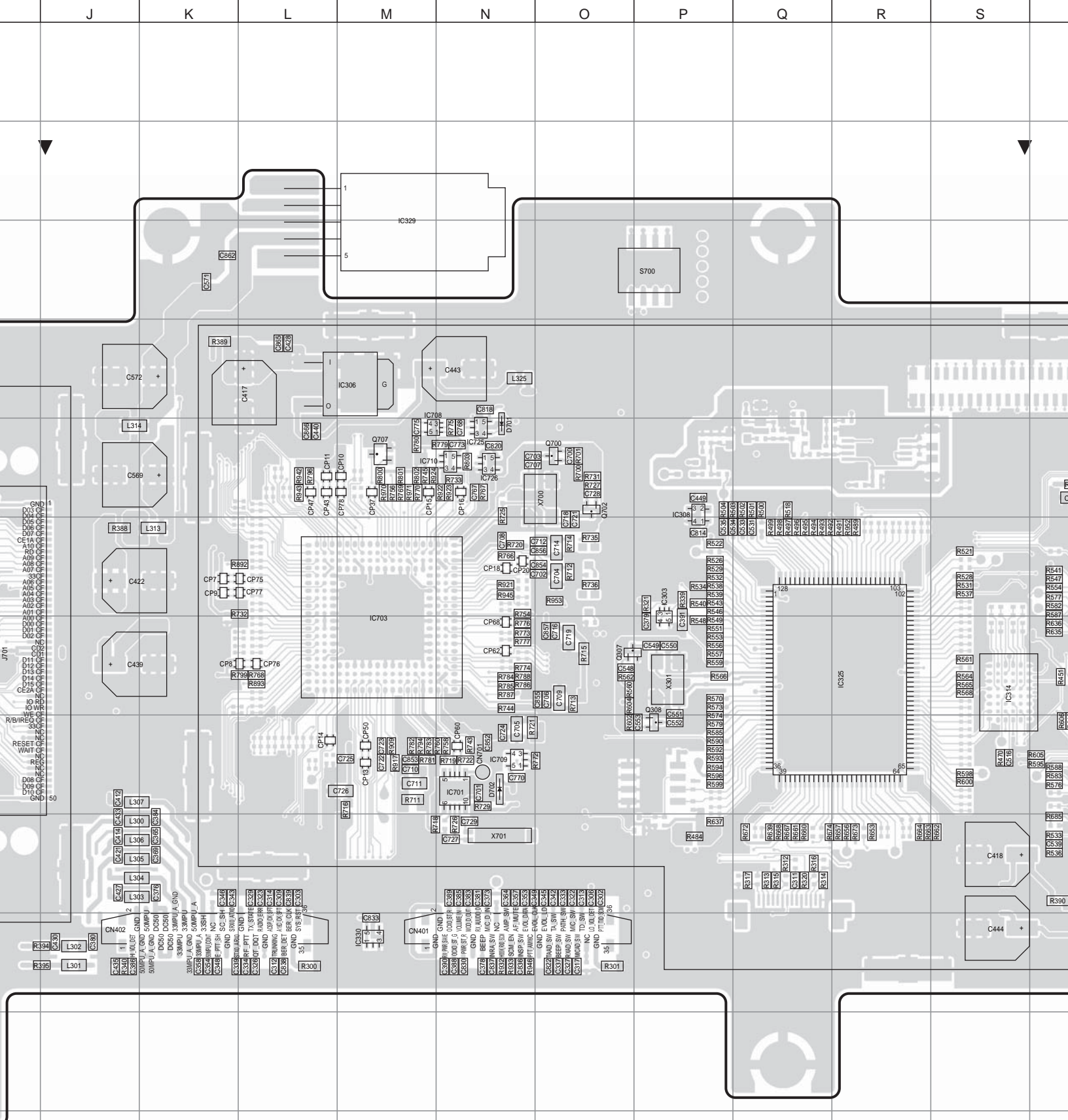
CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Component side view (J79-0332-09)



Component side

Layer 1
Layer 2
Layer 3
Layer 4
Layer 5
Layer 6
Foil side

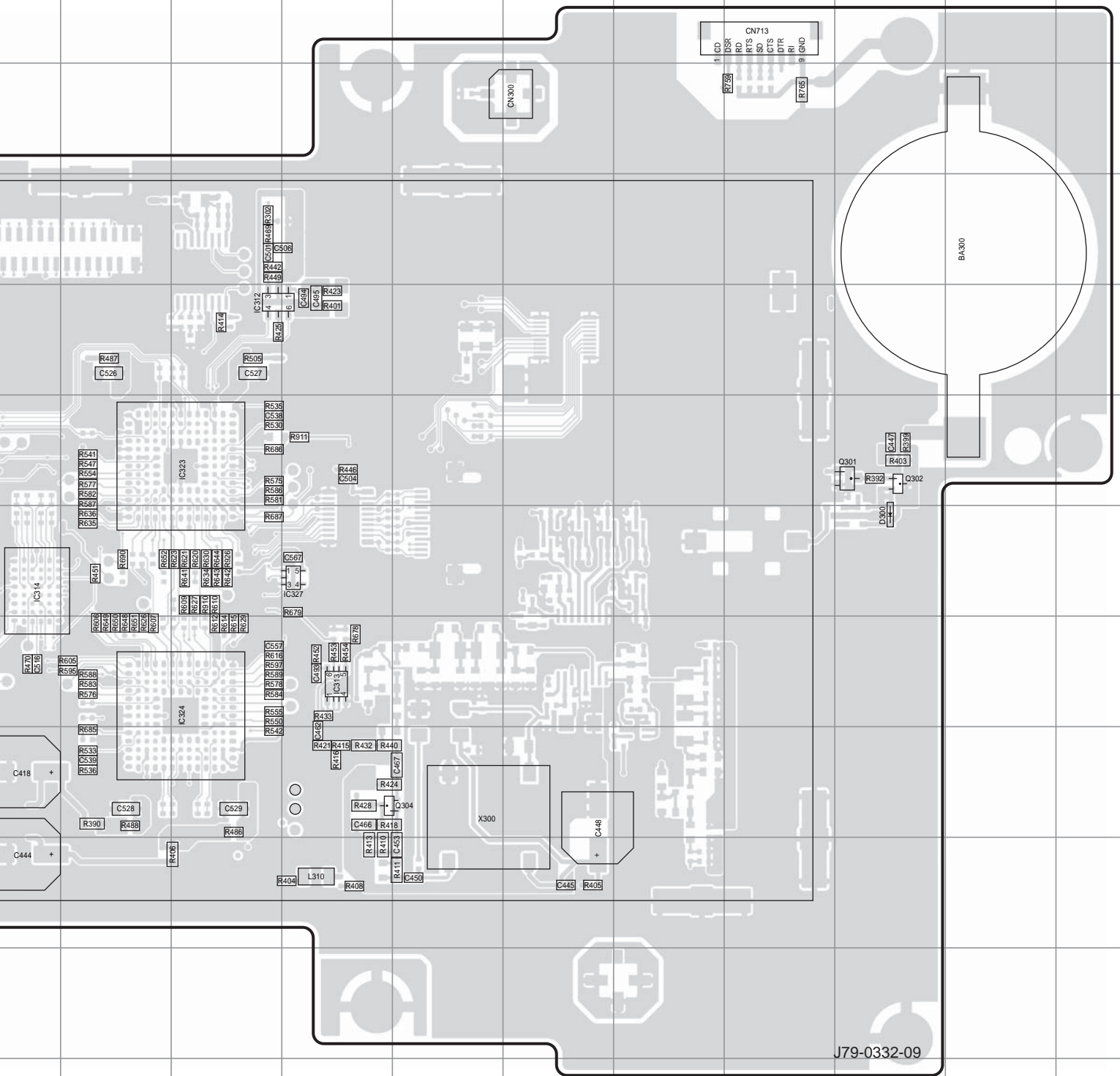
1	GND
2	GND
3	REF_SW2
4	REF_SW1
5	EXT_SW
6	EXT_SW
7	REF_SW1
8	REF_SW2
9	MP_HLL
10	MP_HLL
11	MP_HLL
12	MP_HLL
13	MP_HLL
14	MP_HLL
15	MP_HLL
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30	MP_HLL
31	MP_HLL
32	MP_HLL
33	MP_HLL
34	MP_HLL
35	MP_HLL
36	MP_HLL



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC303	7P	IC324	8U	IC708	5M	IC716	7H	IC726	5N	Q702	5O
IC306	4M	IC325	7R	IC709	8N	IC717	5H	Q301	6AA	Q704	8C
IC308	5P	IC327	7V	IC710	5N	IC718	6H	Q302	6AA	Q705	8D
IC312	5U	IC329	3M	IC712	5G	IC722	7G	Q304	9V	Q707	5M
IC313	8V	IC330	10M	IC713	6G	IC723	6G	Q307	7O	D300	7AA
IC314	7S	IC701	8N	IC714	8H	IC724	5G	Q308	8P	D701	5N
IC323	6U	IC703	7M	IC715	8H	IC725	5N	Q700	5O	D702	8N

PC BOARD NXR-700

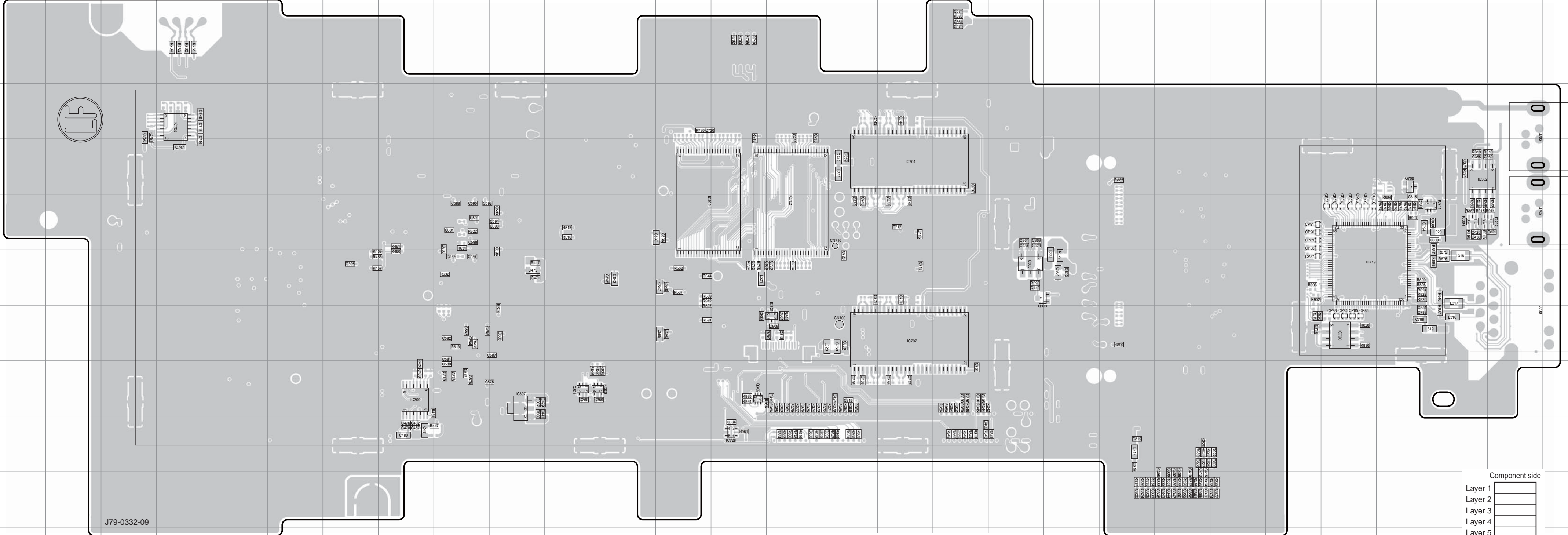
CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Component side view (J79-0332-09)



NXR-700 PC BOARD

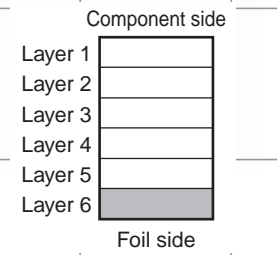
CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Foil side view (J79-0332-09)

CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Foil side view (J79-0332-09)



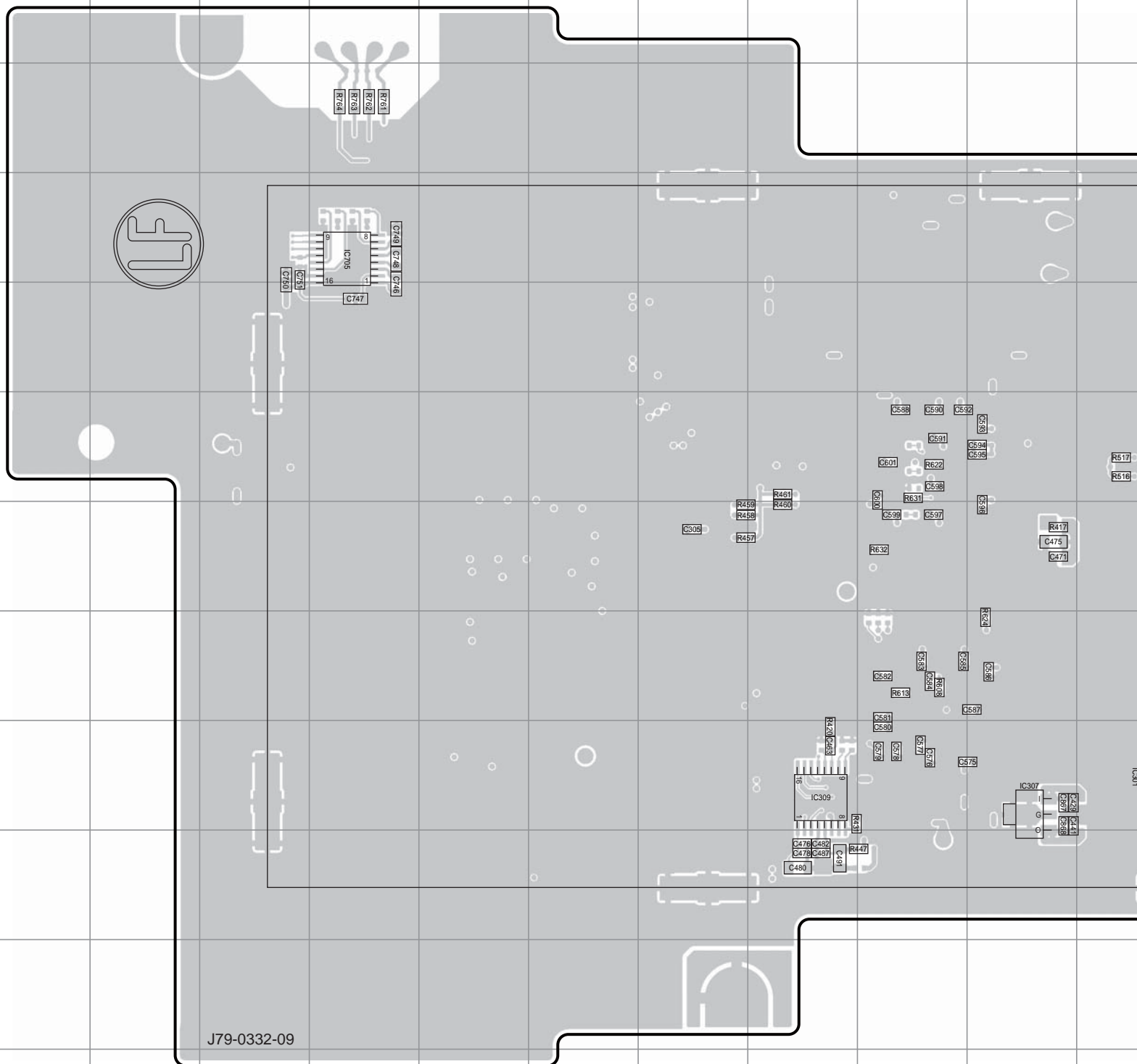
J79-0332-09

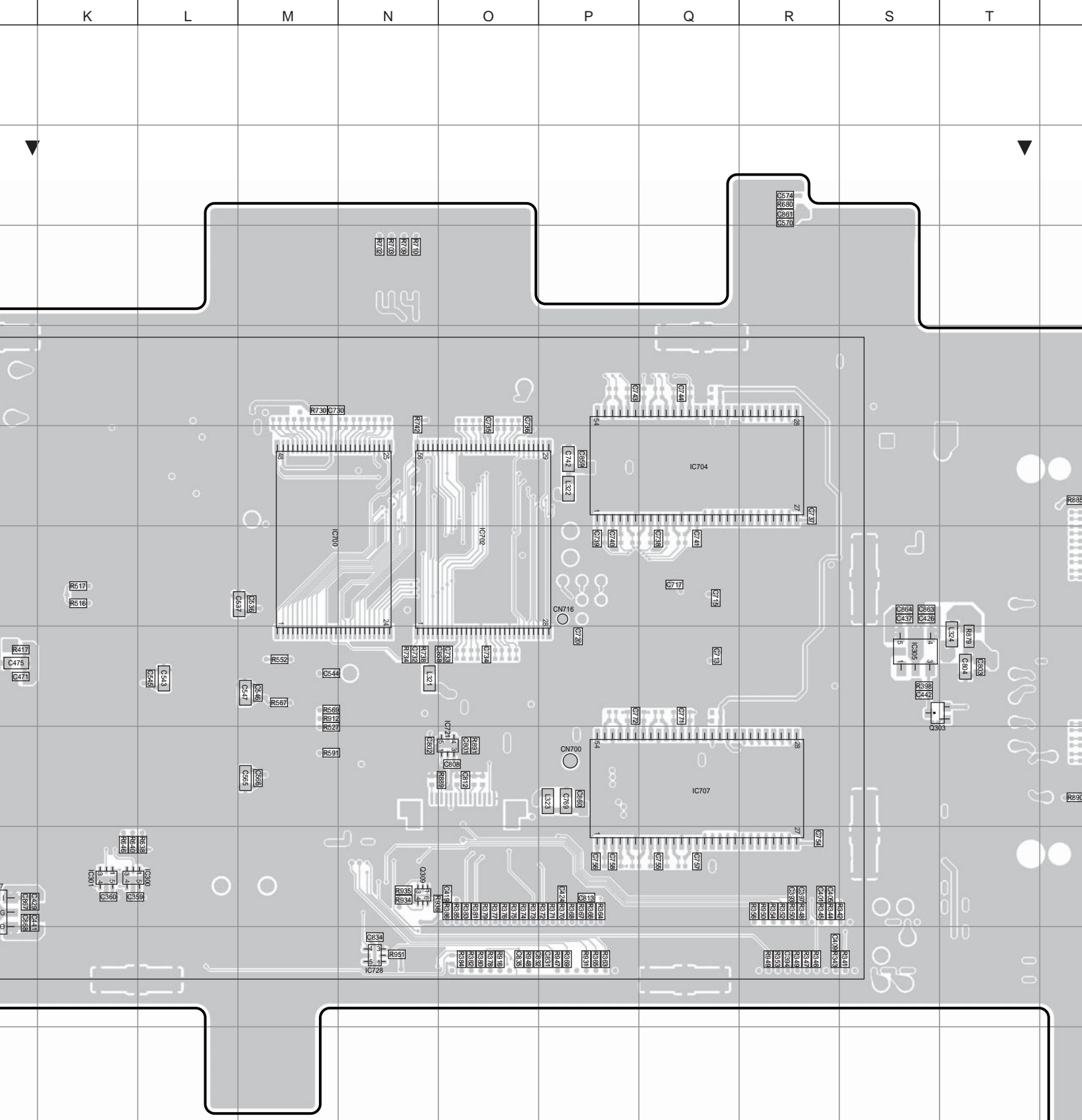
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC300	9K	IC700	6M	IC720	8Y
IC301	9K	IC702	6O	IC721	8O
IC302	5AA	IC704	5Q	IC727	6AB
IC304	6AA	IC705	4D	IC728	10N
IC305	7S	IC707	8Q	Q303	7S
IC307	9J	IC711	6Z	Q309	9N
IC309	9H	IC719	7Y	Q706	5Z



NXR-700 PC BOARD

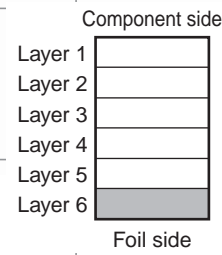
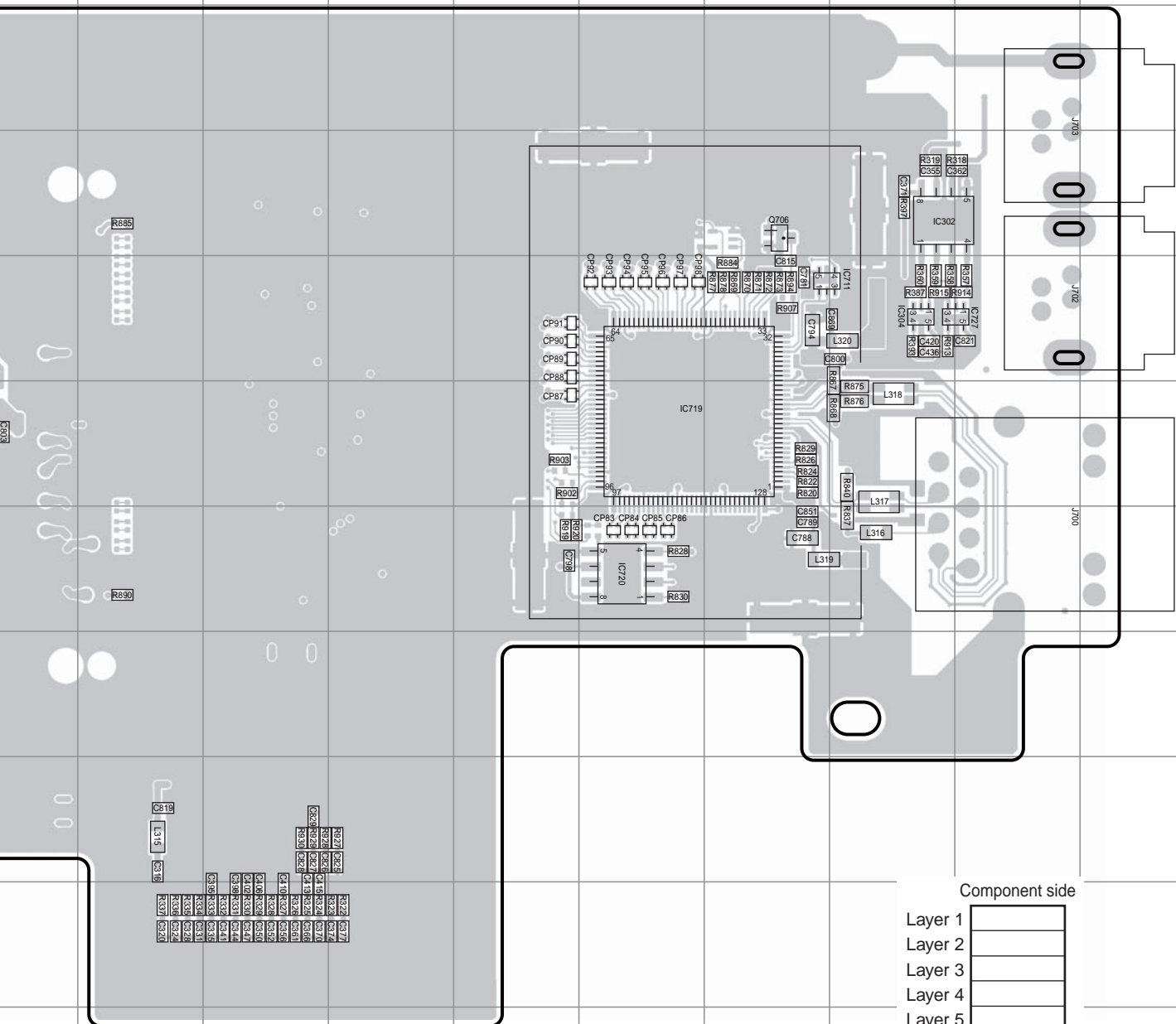
CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Foil side view (J79-0332-09)





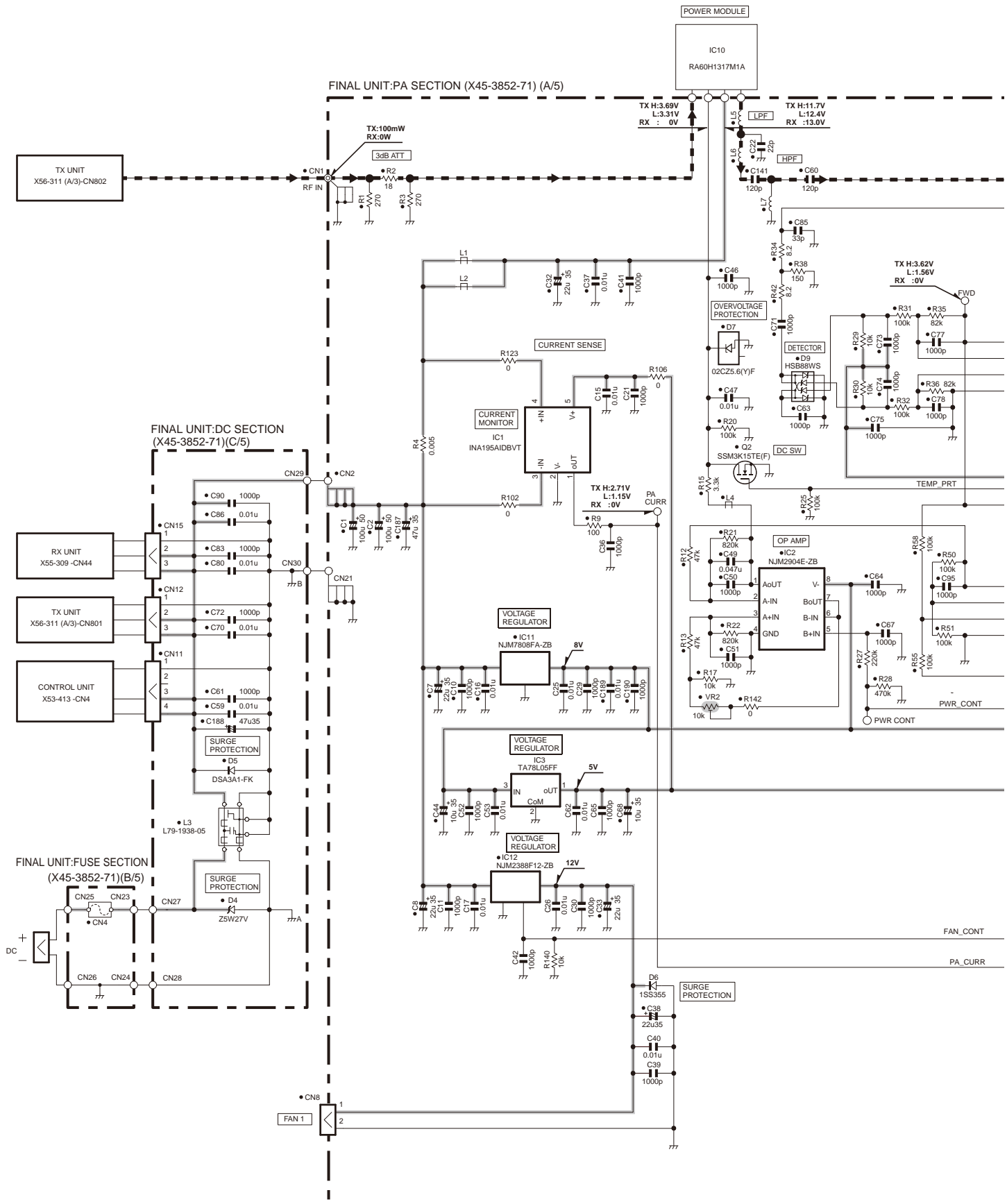
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC300	9K	IC700	6M	IC720	8Y
IC301	9K	IC702	6O	IC721	8O
IC302	5AA	IC704	5Q	IC727	6AB
IC304	6AA	IC705	4D	IC728	10N
IC305	7S	IC707	8Q	Q303	7S
IC307	9J	IC711	6Z	Q309	9N
IC309	9H	IC719	7Y	Q706	5Z

CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Foil side view (J79-0332-09)



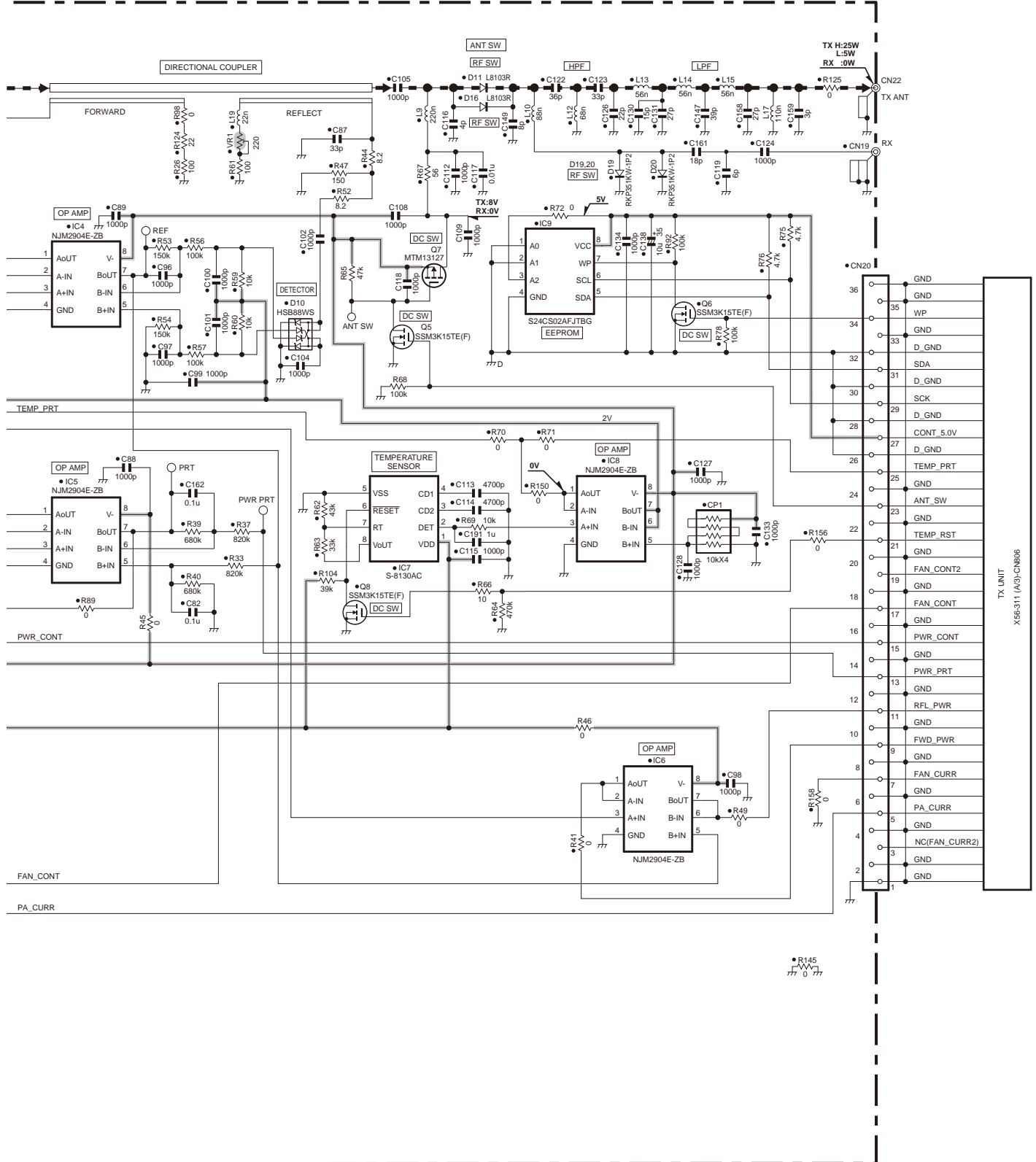
MEMO

NXR-700 SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM NXR-700

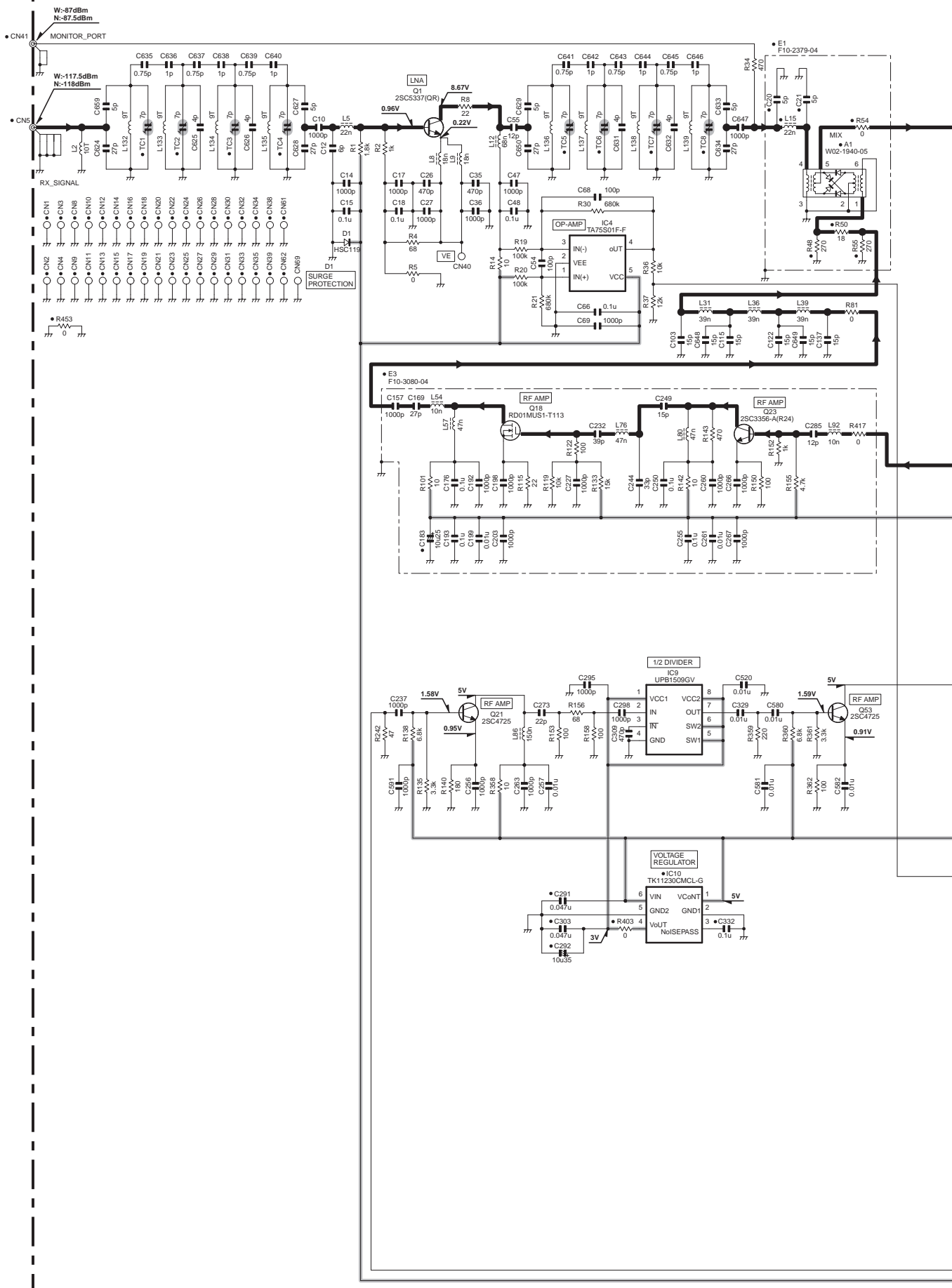
FINAL UNIT (PA SECTION)
(X45-3852-71) (A/5)



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

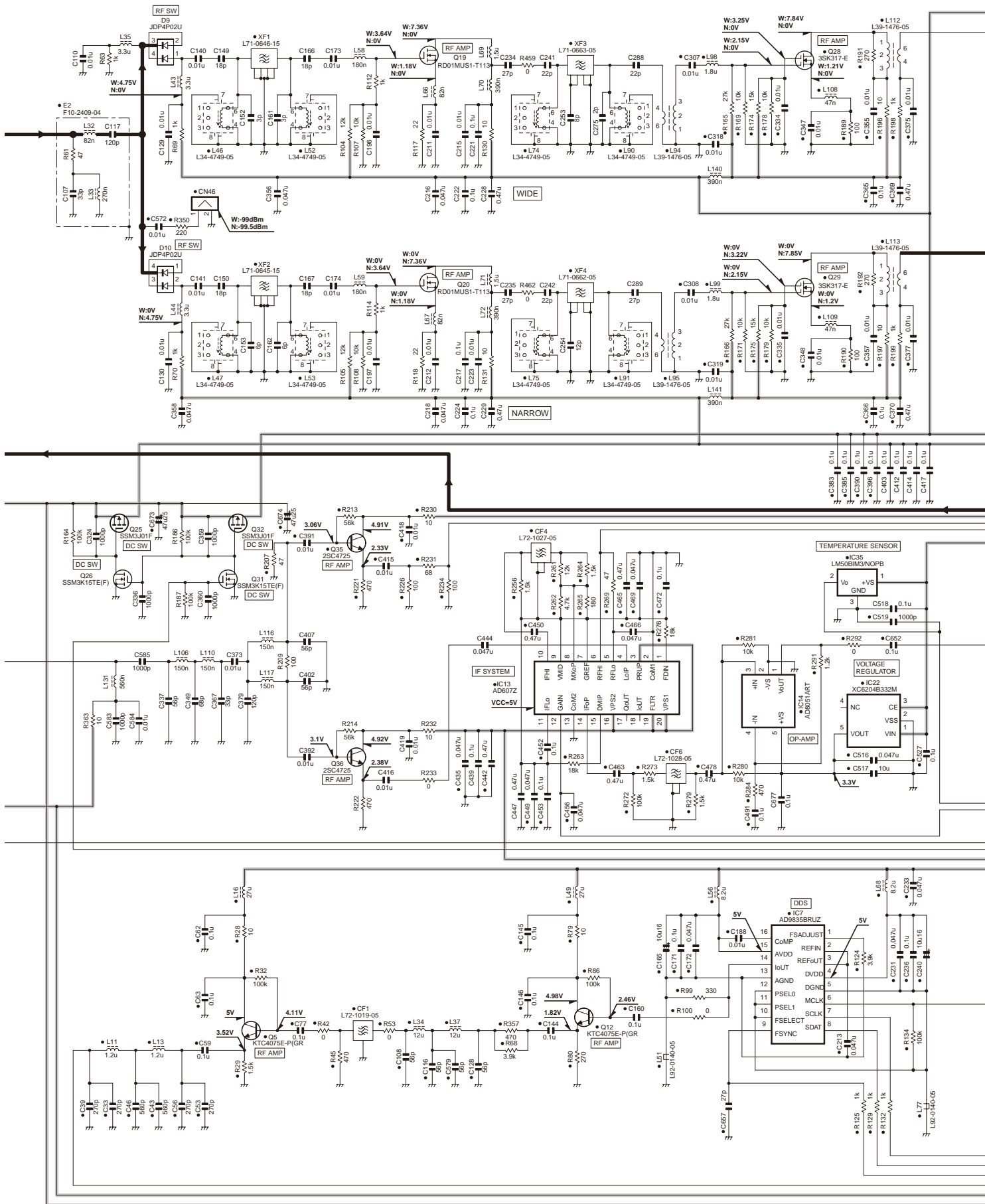
NXR-700 SCHEMATIC DIAGRAM

RX UNIT(X55-3092-72)



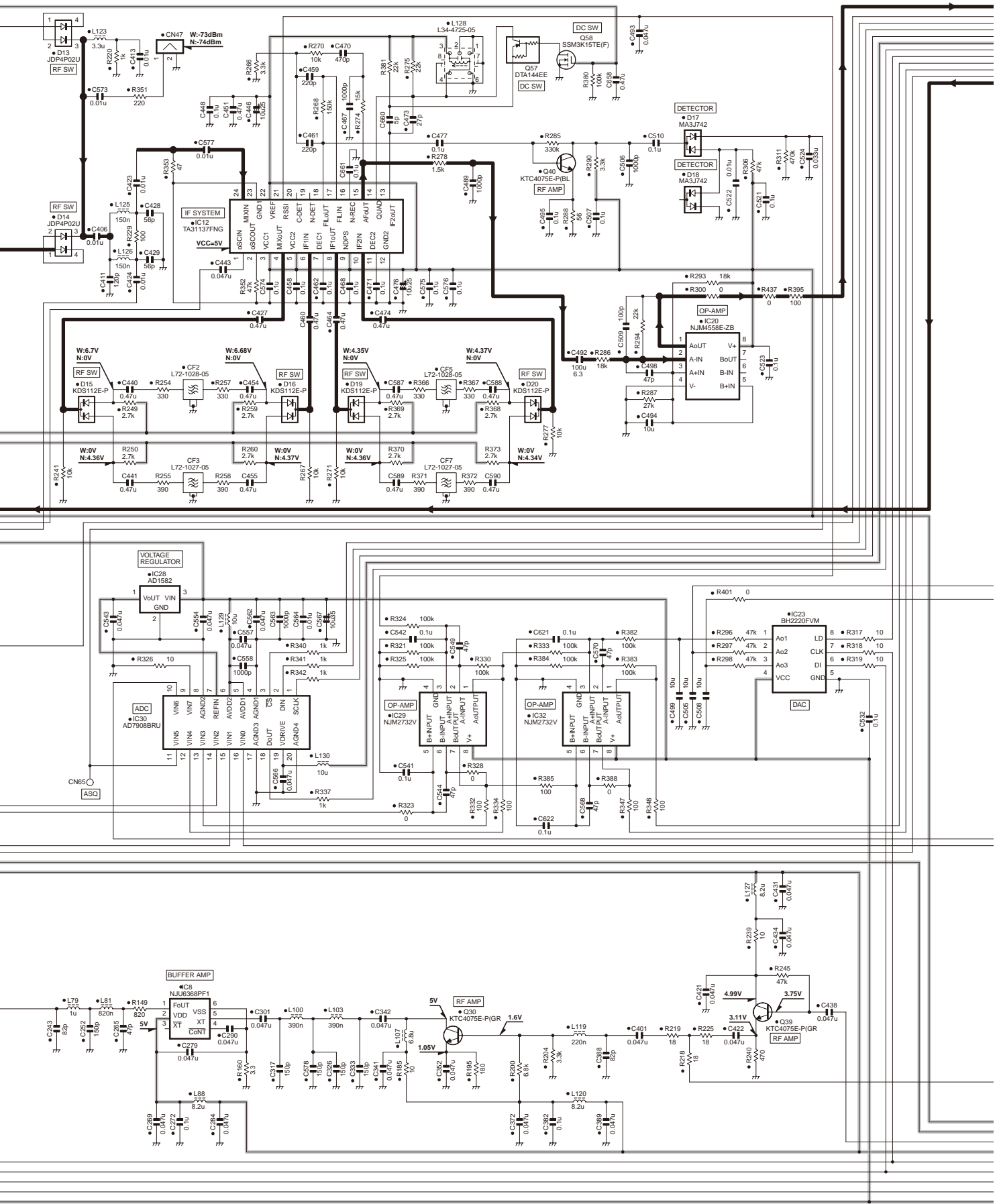
SCHEMATIC DIAGRAM NXR-700

RX UNIT (X55-3092-72)



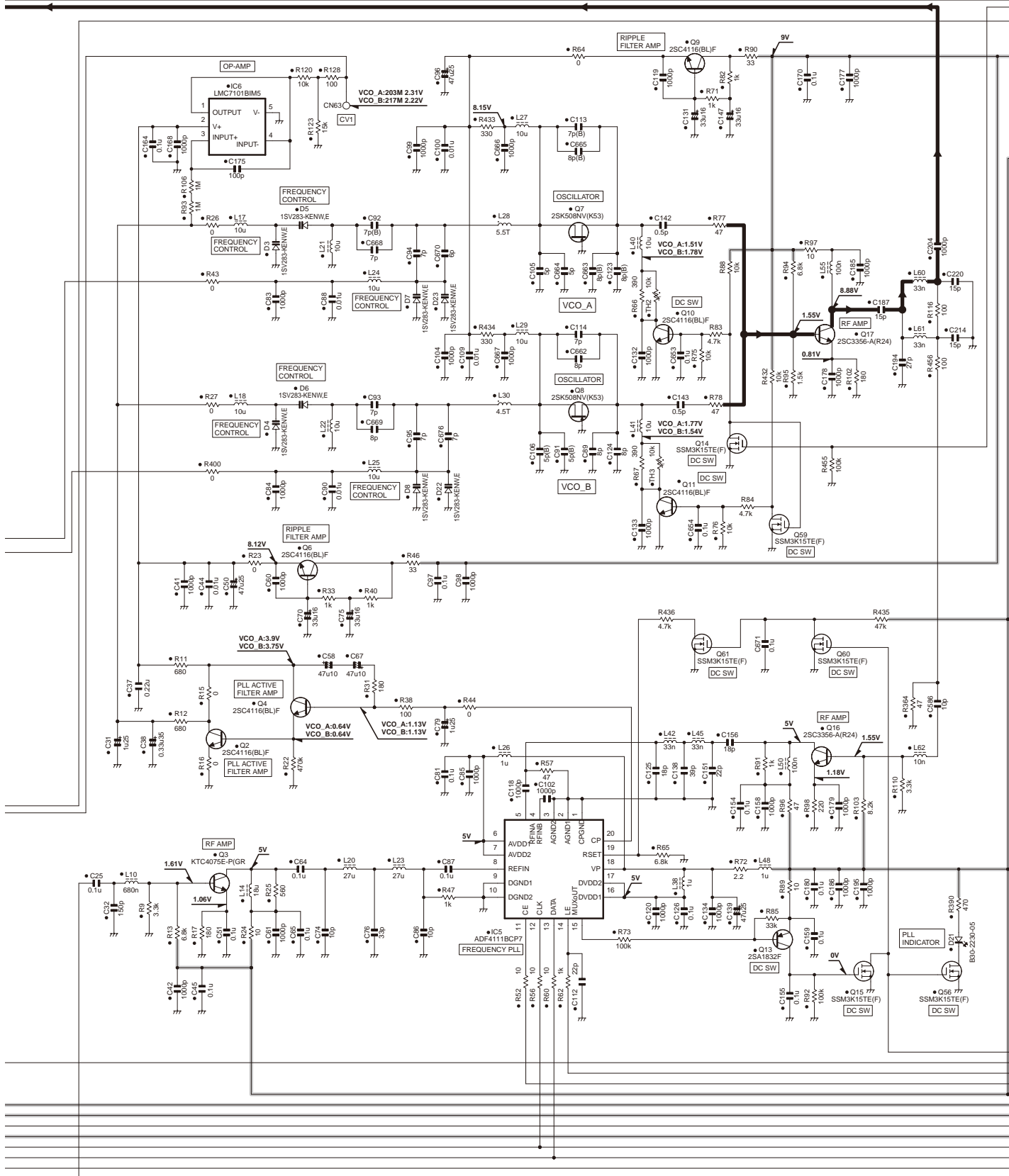
NXR-700 SCHEMATIC DIAGRAM

RX UNIT (X55-3092-72)



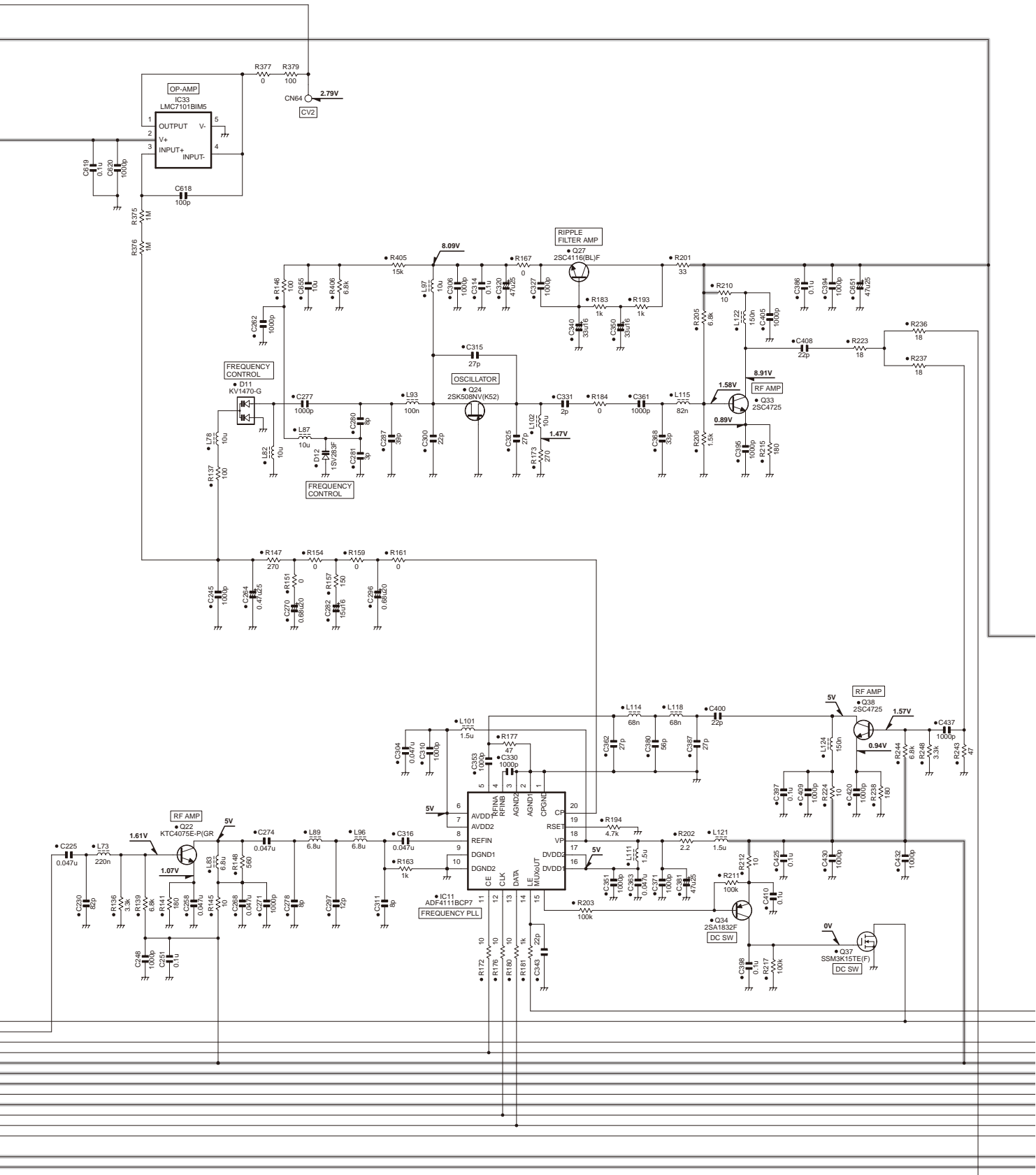
SCHEMATIC DIAGRAM NXR-700

RX UNIT (X55-3092-7Z)



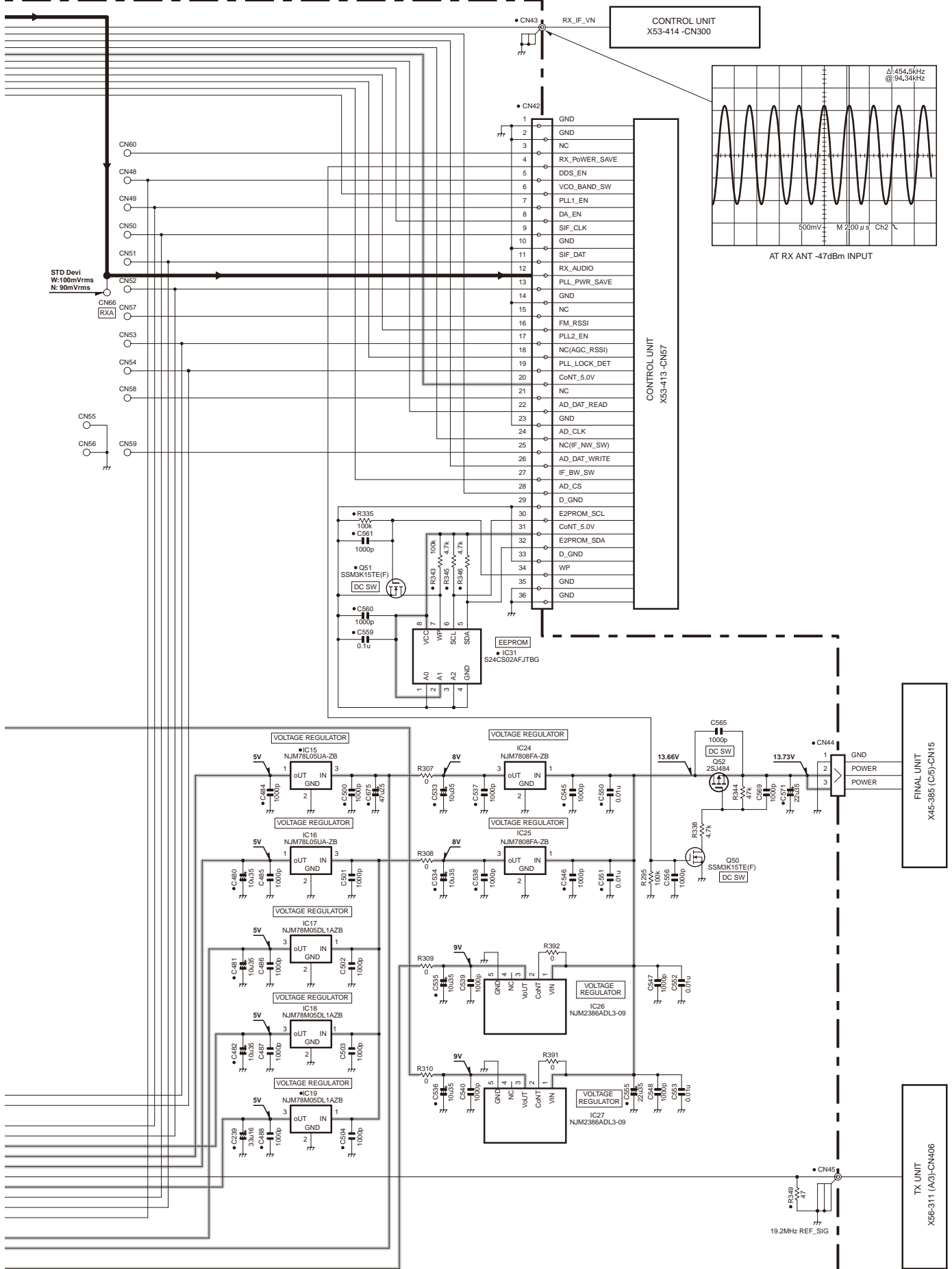
NXR-700 SCHEMATIC DIAGRAM

RX UNIT (X55-3092-72)



SCHEMATIC DIAGRAM NXR-700

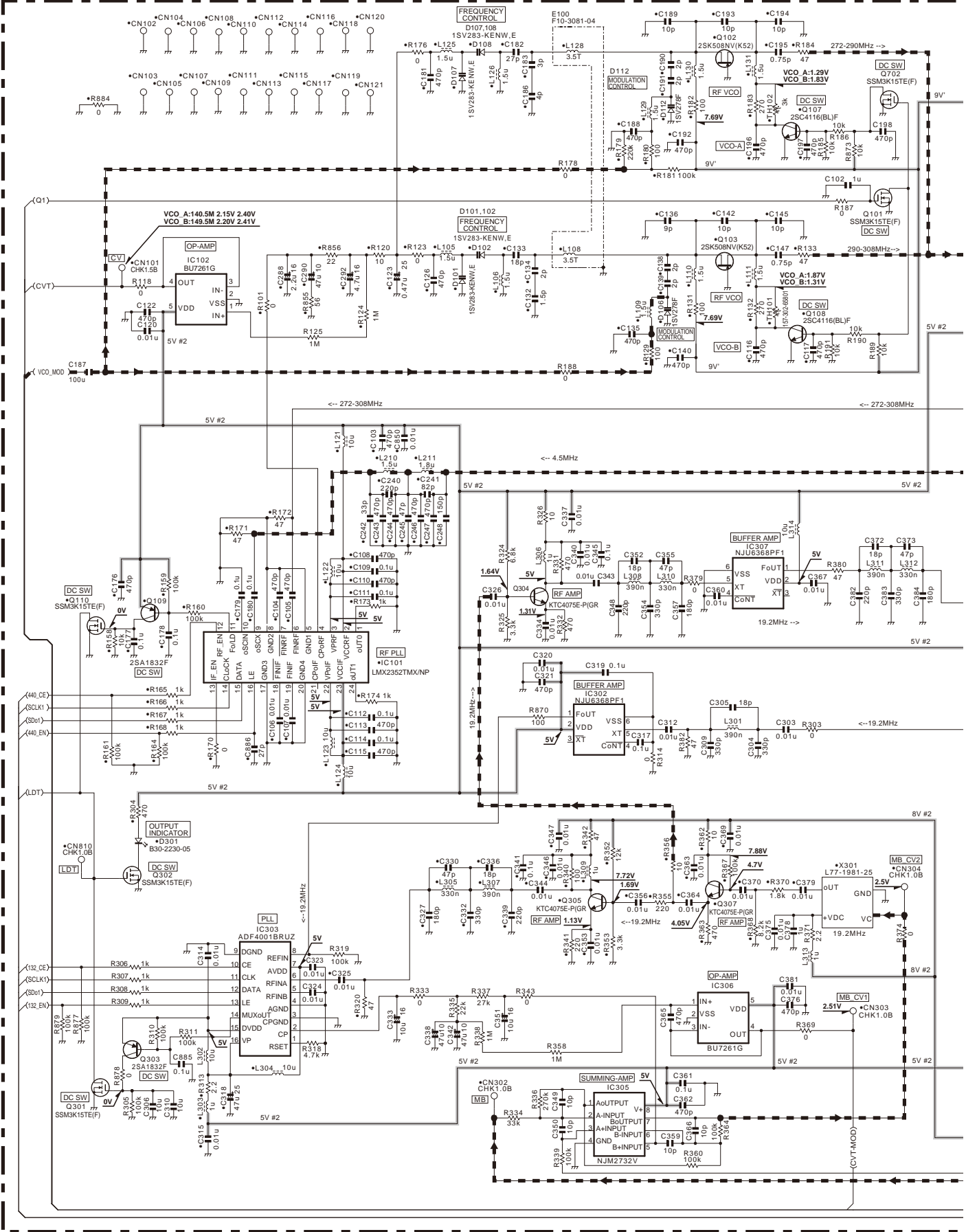
RX UNIT (X55-3092-72)



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

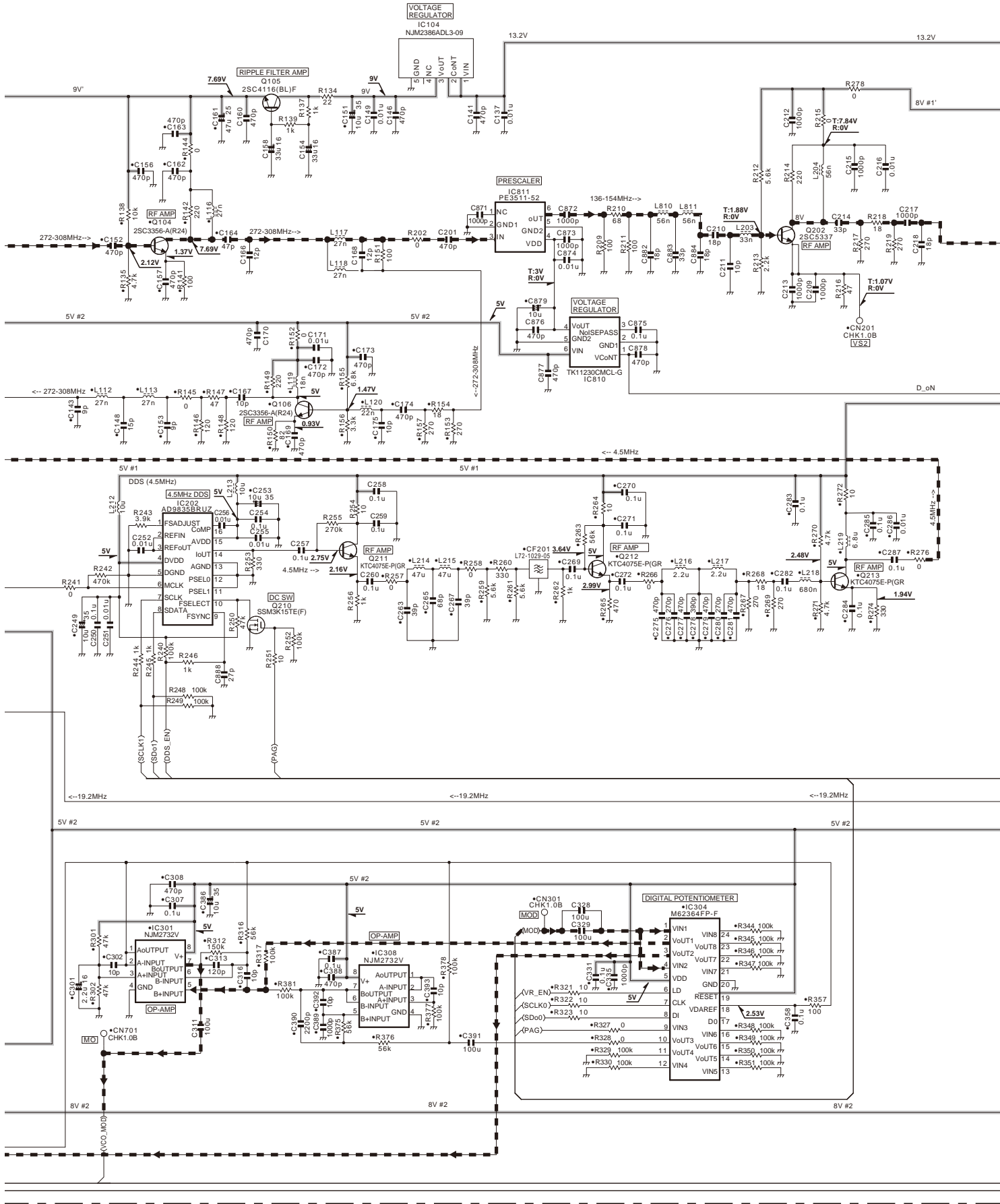
NXR-700 SCHEMATIC DIAGRAM

TX UNIT(X56-3112-72)(A/3)



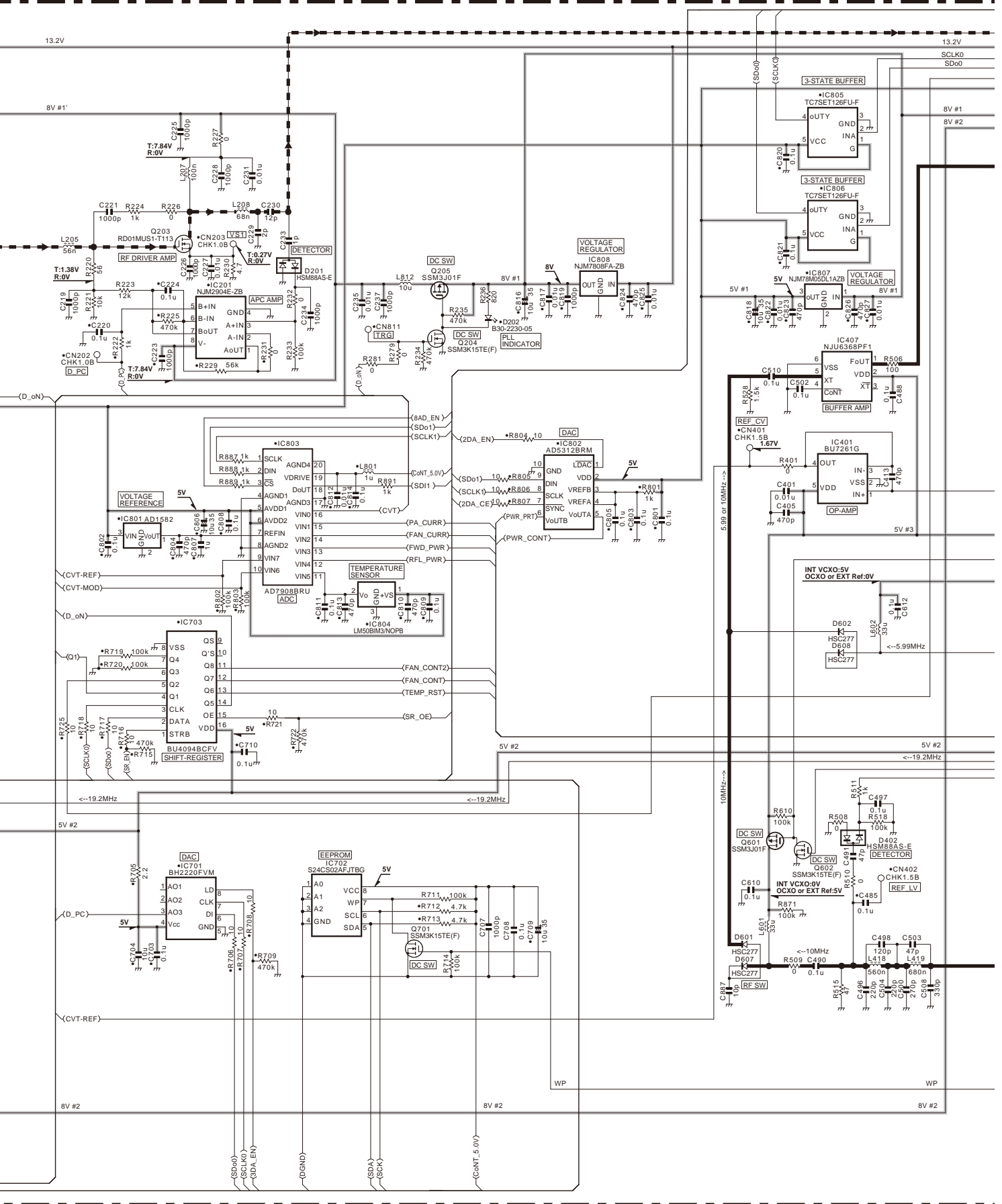
SCHEMATIC DIAGRAM NXR-700

TX UNIT (X56-3112-72) (A/3)



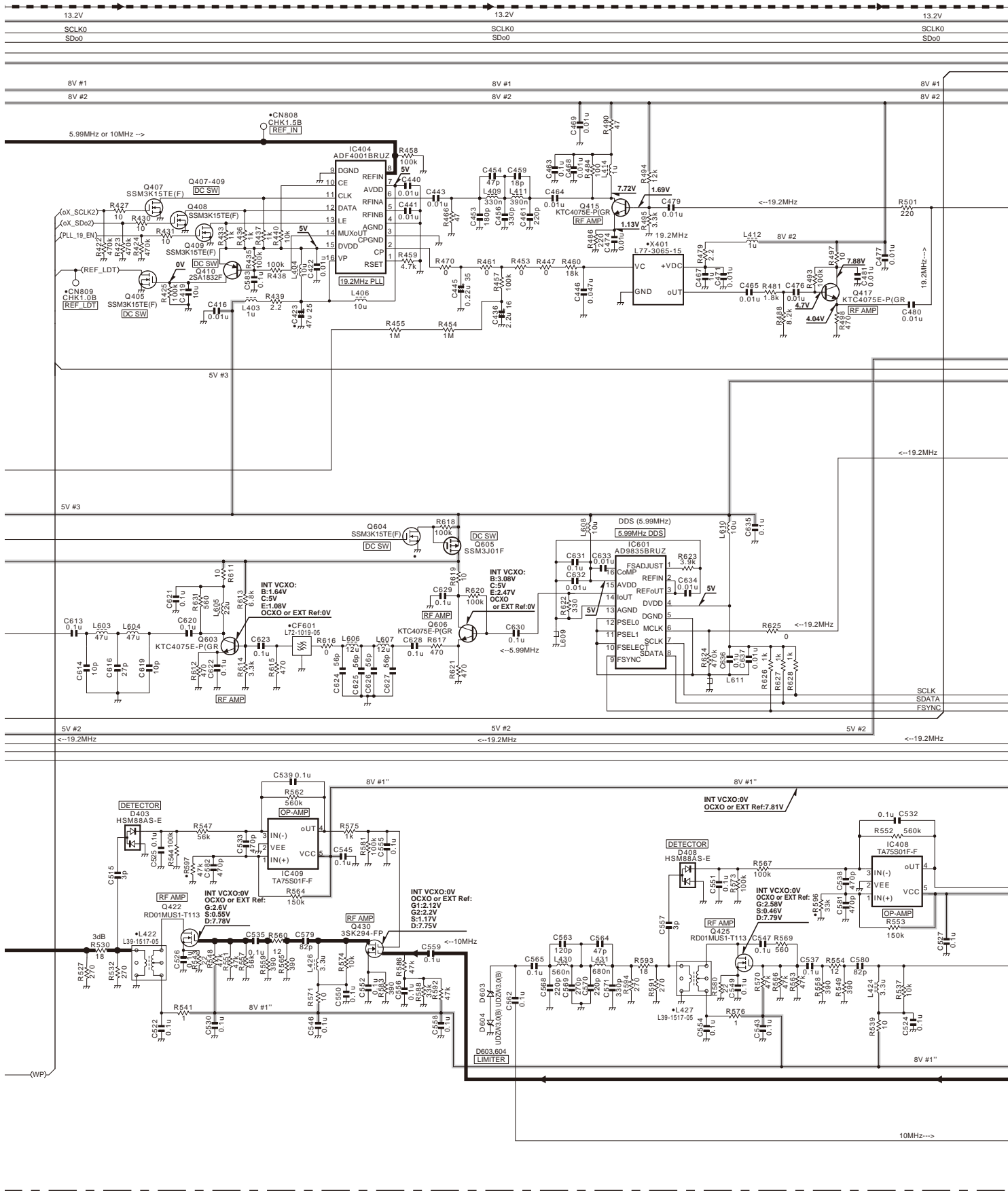
NXR-700 SCHEMATIC DIAGRAM

TX UNIT (X56-3112-72) (A/3)



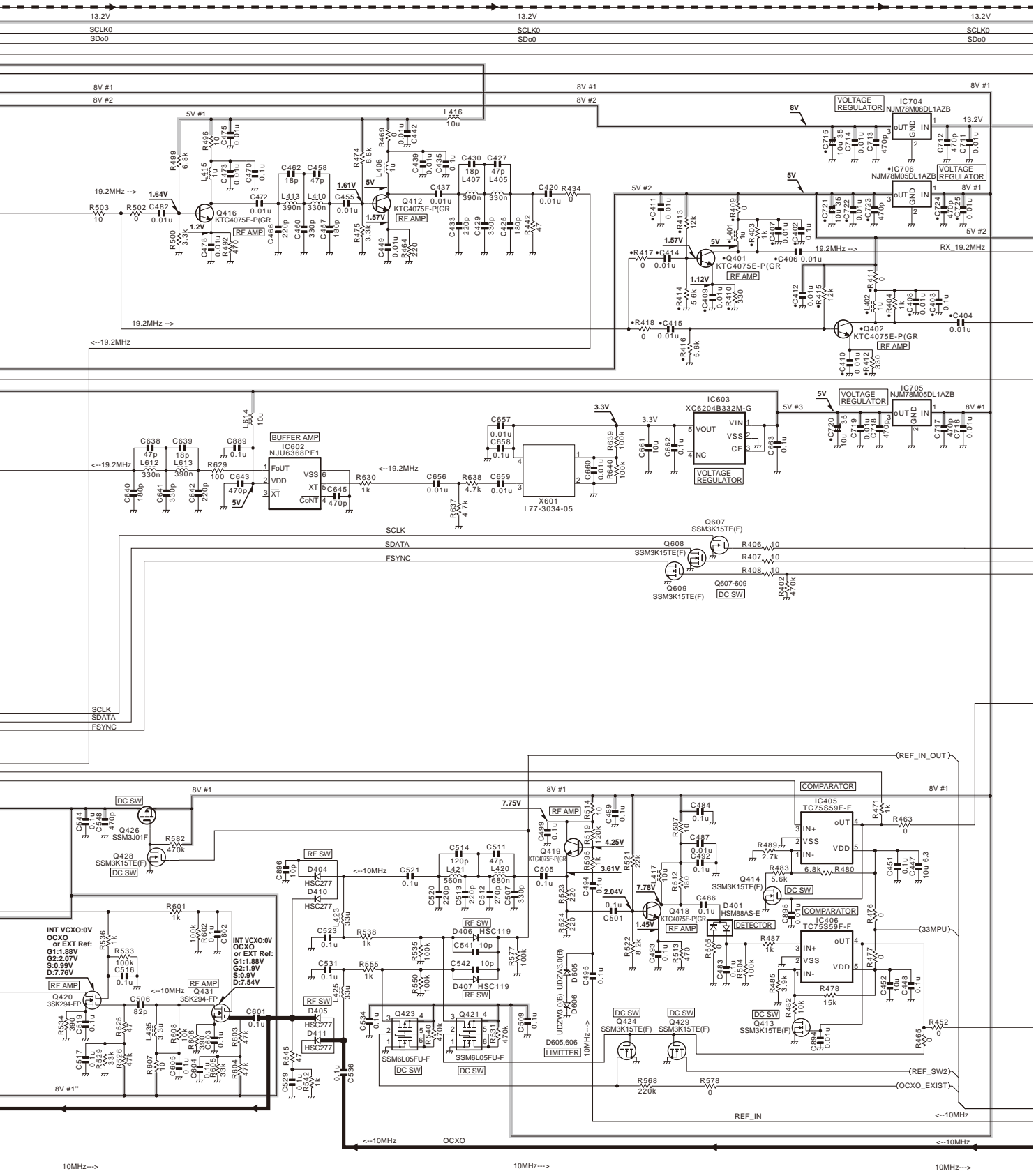
SCHEMATIC DIAGRAM NXR-700

TX UNIT (X56-3112-72) (A/3)



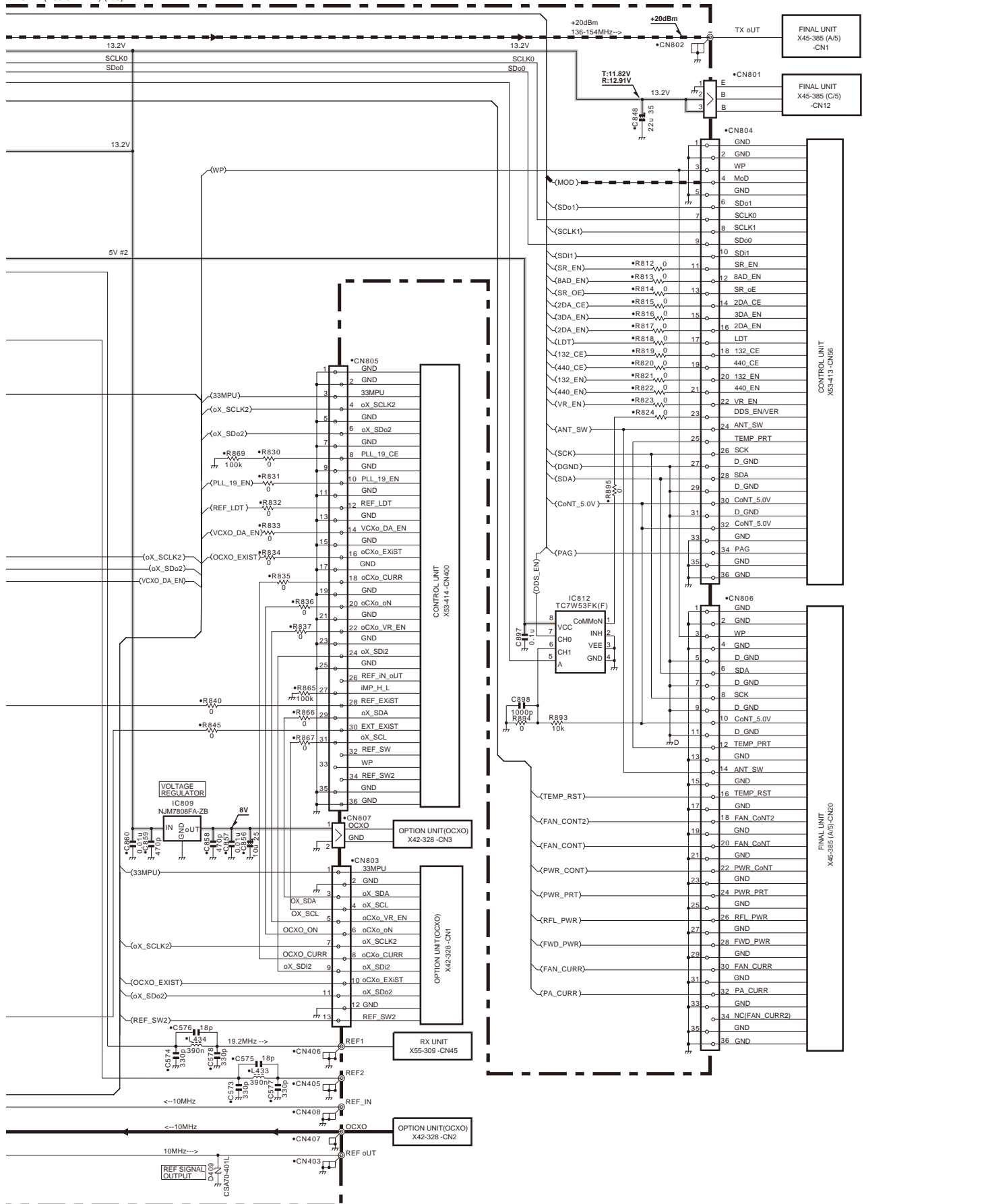
NXR-700 SCHEMATIC DIAGRAM

TX UNIT (X56-3112-72) (A/3)



SCHEMATIC DIAGRAM NXR-700

TX UNIT (X56-3112-72) (A/3)

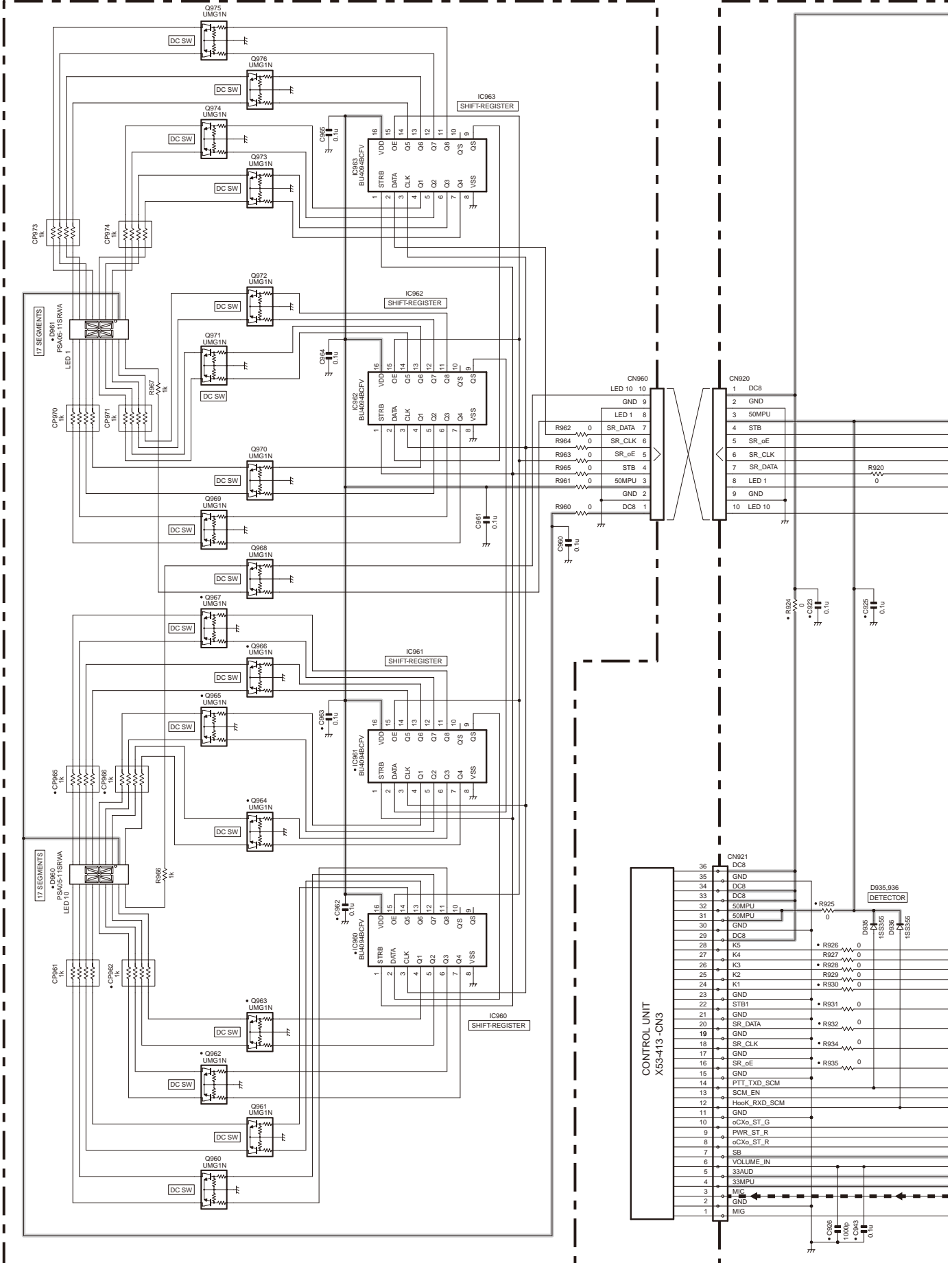


Note : The components marked with a dot (•) are parts of layer 1.

NXR-700 SCHEMATIC DIAGRAM

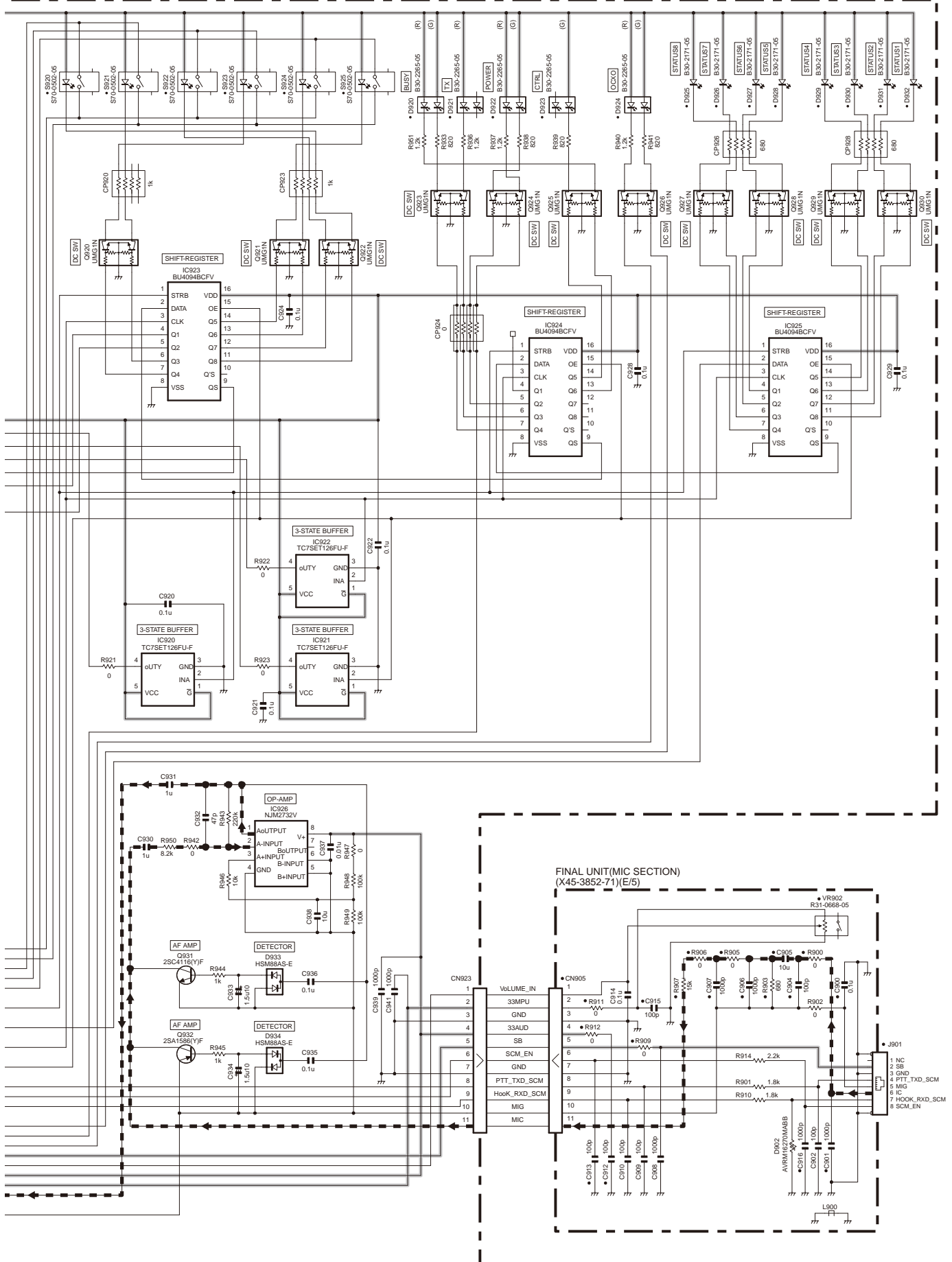
TX UNIT(17SEG)
(X56-3112-72) (C/3)

TX UNIT(LED)
(X56-3112-72) (B/3)



SCHEMATIC DIAGRAM NXR-700

TX UNIT (LED)
(X56-3112-72) (B/3)



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

NXR-700

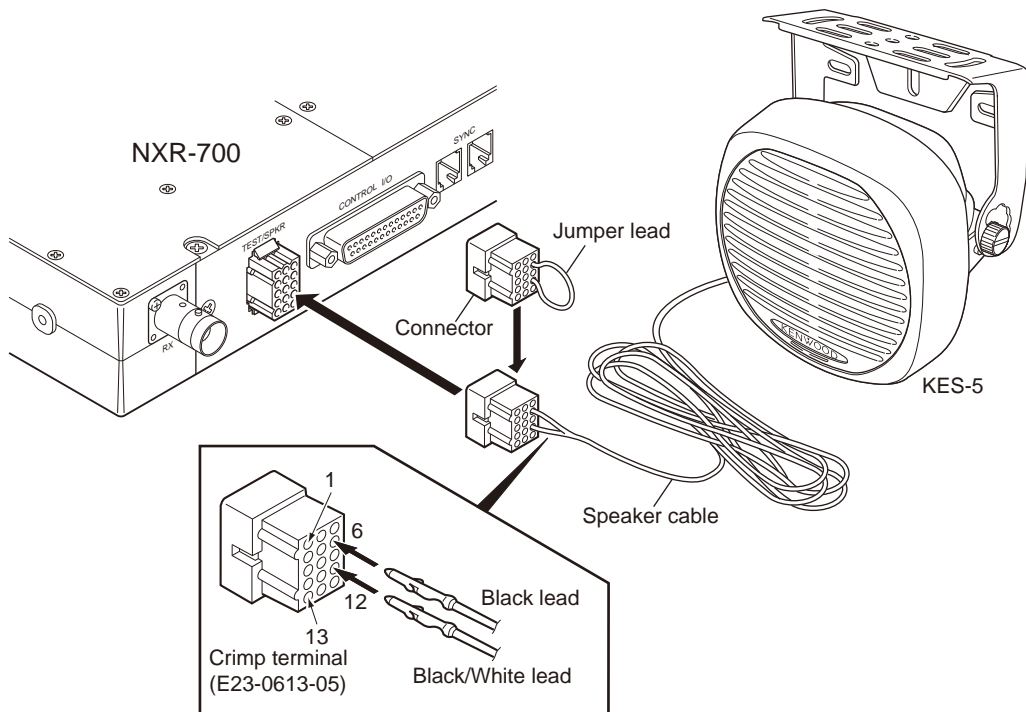
OPTIONAL ACCESSORIES: KES-5 (EXTERNAL SPEAKER)

When Using an External Speaker

1. Make sure the unit's power is tuned off.
2. When using the external speaker, remove the jumper lead from the connector, and attach the speaker cable.
3. When not using the external speaker, replace the jumper lead and insert the connector into the speaker jack (pin 9 and 12).

Specifications

Maximum input power	40W
Impedance.....	4Ω
Dimensions (W x H x D) projection not included	129 x 129 x 77 mm (5.08 x 5.08 x 3.03 in)
Weight	820g (1.8 lb)



MEMO

SPECIFICATIONS

GENERAL

Frequency Range	136~154MHz
Channel Spacing	
Analogue	12.5/20/25kHz
Digital	6.25/12.5kHz
PLL Channel Step	2.5/ 3.125/ 5/ 6.25kHz
Frequency Stability	±1.5ppm
with OCXO unit	±1.0ppm
Operating Voltage	10.8~15.6V DC
Operating Temperature Range	-30°C~+60°C
Antenna Impedance	50Ω
Dimensions (W x H x D) (Projections not included)	
.....	483 x 44 x 331 mm
Weight	5kg

TRANSMITTER

RF Power Output	5~25W
Spurious Emission.....	-36dBm≤1GHz, -30dBm>1GHz
FM Noise (EIA) (Analogue)	
.....	25kHz: 55dB 20kHz: 55dB 12.5kHz: 50dB
Modulation	16K0F3E, 14K0F3E, 14K0F2D, 12K0F2D, 8K50F3E, 7K50F2D, 8K30F1E, 8K30F1D, 8K30F7W, 4K00F1E, 4K00F1D, 4K00F7W, 4K00F2D

RECEIVER

Sensitivity (Analogue)	
EIA 12dB SINAD	0.30μV
EN 20dB SINAD.....	0dBμV (0.50μV)
Sensitivity (Digital)	
3% BER	12.5kHz: 0.33μV, 6.25kHz: 0.27μV
1% BER	
...12.5kHz: -1dBμV (0.45μV), 6.25kHz: -3dBμV (0.35μV)	
Adjacent Channel Selectivity (Analogue)*1	
25kHz	90dB
20kHz.....	87dB
12.5kHz.....	82dB
Intermodulation (Analogue).....	72dB
Spurious Respons Rejection (Analogue).....	95dB
Audio Distortion	Less than 2%
Audio Output (EXT. SP)	3W/4Ω

*1: Analogue measurements made per TIA/EIA 603, EN300-086.

Without *1: Analogue measurements made per TIA/EIA 603A.

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

NXR-700

JVCKENWOOD Corporation

3-12, Moriyacho, Kanagawa-ku, Yokohama-shi,
Kanagawa, 221-0022 Japan

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CA 90801-5745, U.S.A.

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Kenwood Electronics Deutschland GmbH

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Kenwood Electronics France S.A.

L'Etoile Paris Nord 2, 50 Allée des Impressionnistes,
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Kenwood Ibérica, S.A.

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Barcelona, Spain

JVCKENWOOD Australia Pty. Ltd.

Talavera Business Park Building A, 4 Talavera Road,
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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

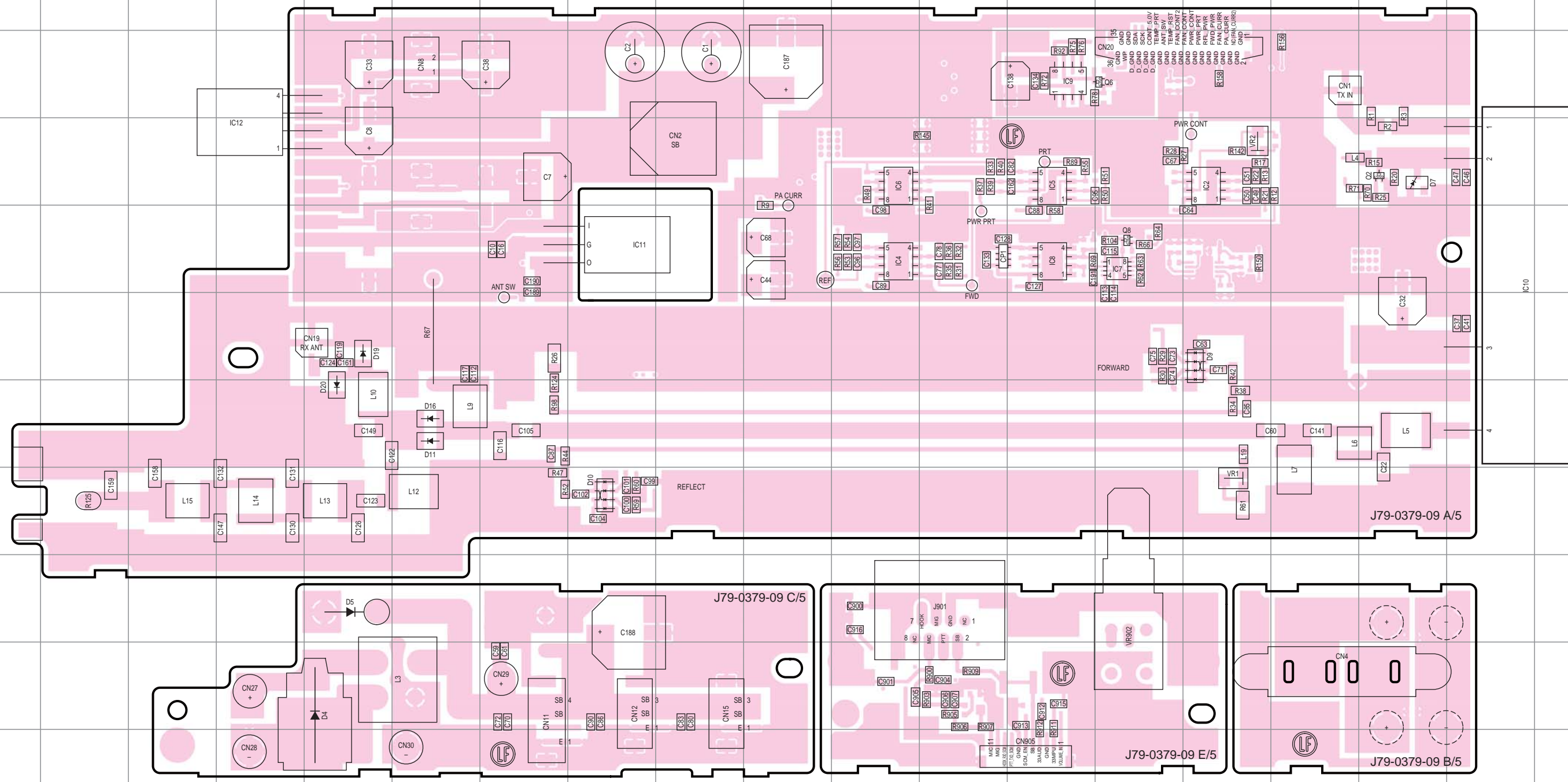
1 Ang Mo Kio Street 63, Singapore 569110

NXR-700 PC BOARD

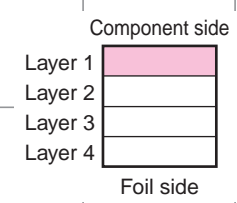
PC BOARD NXR-700

FINAL UNIT (X45-3852-71)
Component side view (J79-0379-09)

FINAL UNIT (X45-3852-71)
Component side view (J79-0379-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC2	4O	IC8	5M	Q2	4Q	D7	4Q	D19	6E
IC4	5K	IC9	3M	Q6	3N	D9	6O	D20	7E
IC5	4M	IC10	5R	Q8	5N	D10	8H		
IC6	4K	IC11	5H	D4	10E	D11	7F		
IC7	5N	IC12	4D	D5	9E	D16	7F		

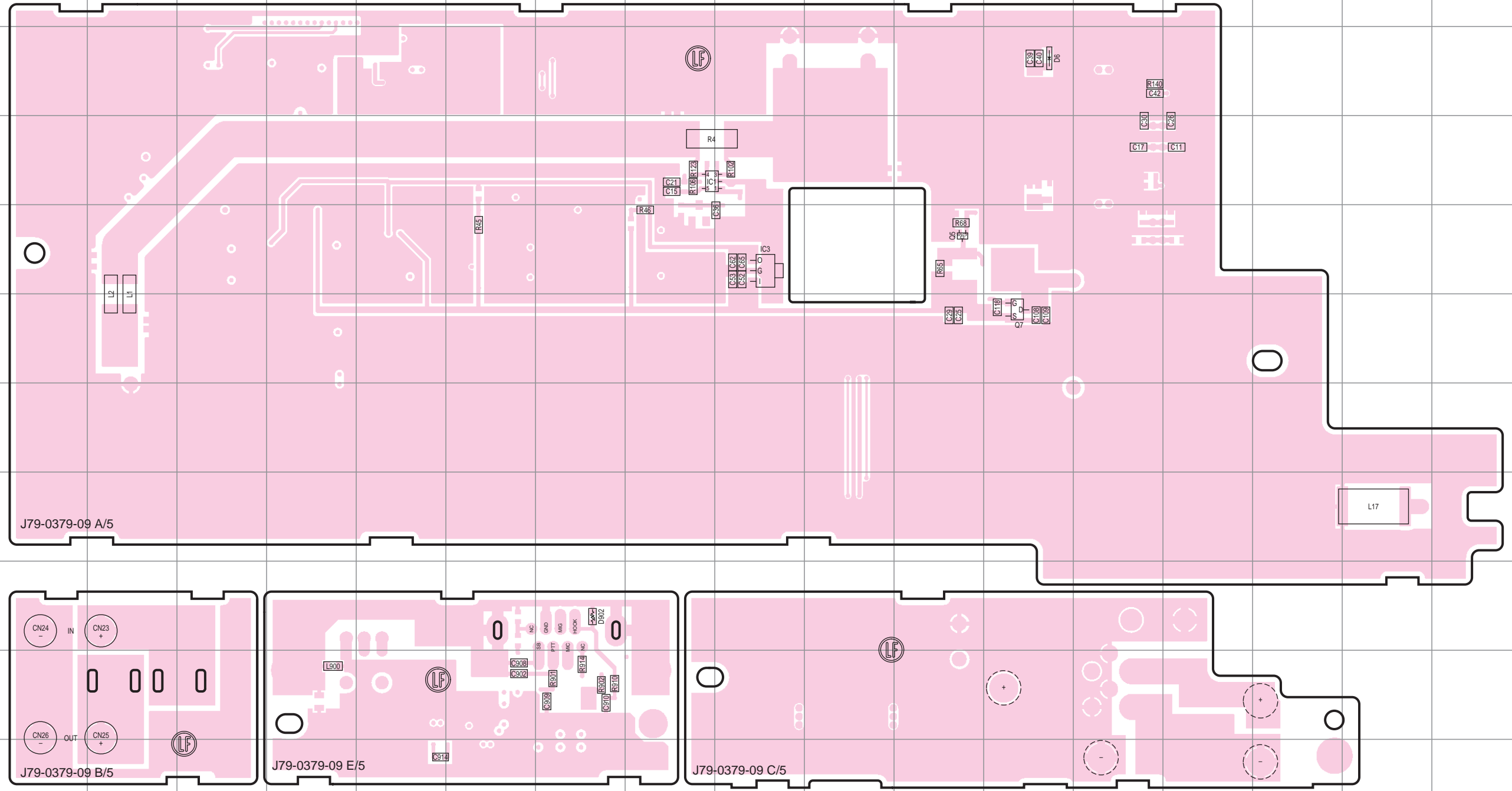


NXR-700 PC BOARD

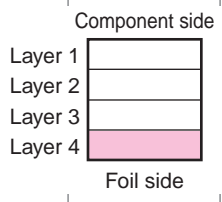
PC BOARD NXR-700

FINAL UNIT (X45-3852-71)
Foil side view (J79-0379-09)

FINAL UNIT (X45-3852-71)
Foil side view (J79-0379-09)



Ref. No.	Address	Ref. No.	Address
IC1	4I	D6	3M
IC3	5J	D902	9H
Q5	5L		
Q7	6M		

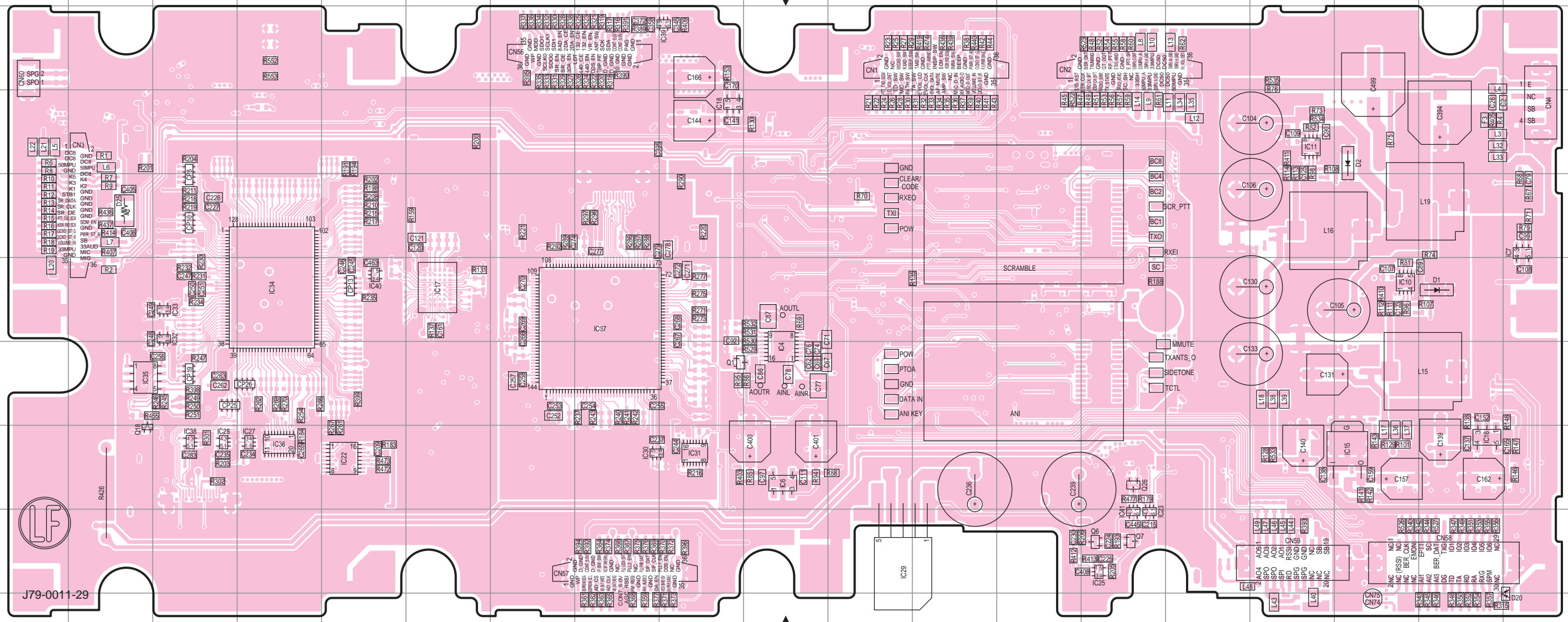


NXR-700 PC BOARD

PC BOARD NXR-700

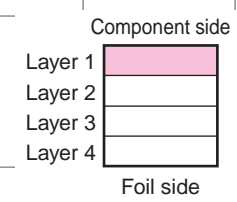
CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Component side view (J79-0011-29)

CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Component side view (J79-0011-29)



J79-0011-29

Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC4	7J	IC22	8E	IC33	6C	Q1	7I
IC6	8J	IC23	9N	IC34	6D	Q6	9N
IC7	5S	IC25	9N	IC35	7B	Q7	9N
IC10	6Q	IC27	8D	IC36	8D	Q18	8B
IC11	4P	IC28	8C	IC37	6H	Q26	8N
IC15	8Q	IC29	9K	IC38	8C	D1	6R
IC16	8R	IC30	8H	IC39	3I	D2	4Q
IC17	6F	IC31	8I	IC40	6E	D20	10S
IC18	4I	IC32	6C	IC41	9N	D25	5B

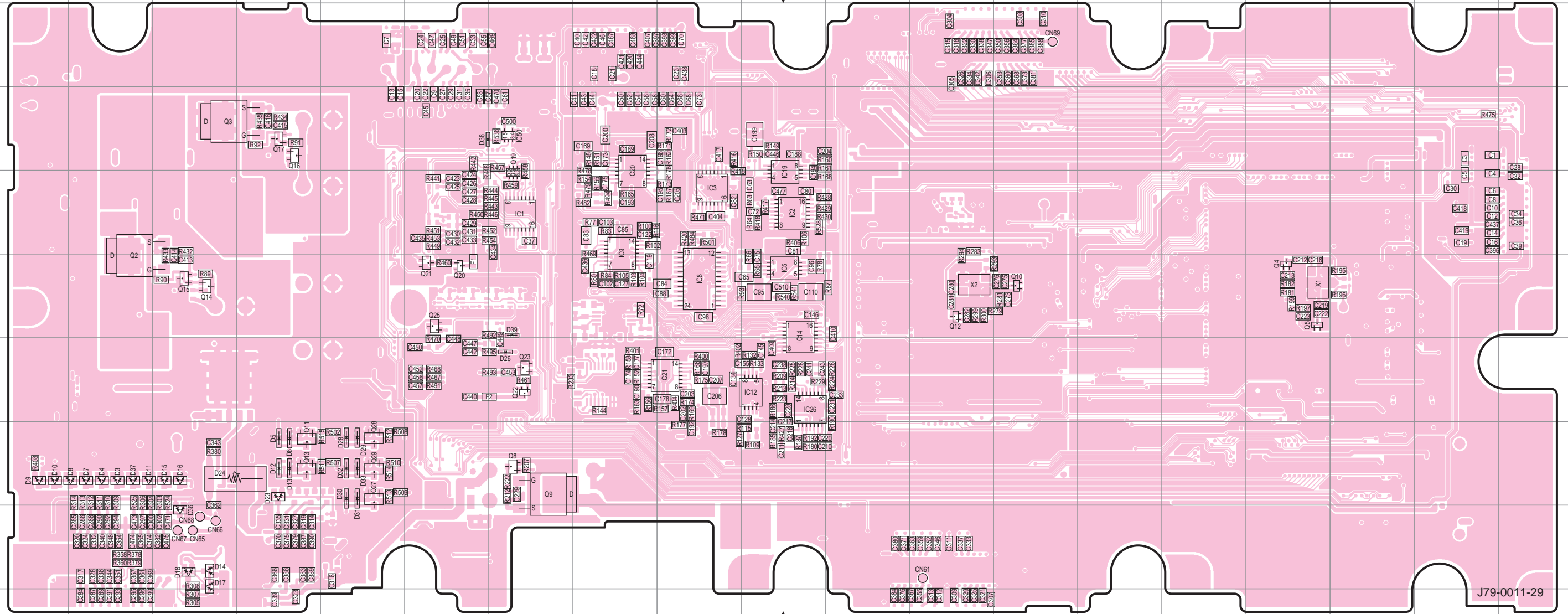


NXR-700 PC BOARD

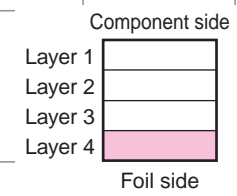
PC BOARD NXR-700

CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Foil side view (J79-0011-29)

CONTROL UNIT (X53-4132-XX) -71 : E2 -72 : For service
Foil side view (J79-0011-29)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	5G	Q2	6B	Q17	4D	D6	8D	D23	8D
IC2	5J	Q3	4C	Q19	5G	D7	8B	D24	8C
IC3	5I	Q4	6P	Q20	6F	D8	8B	D26	7G
IC5	6J	Q5	6P	Q21	6F	D9	8A	D28	8E
IC8	6I	Q8	8G	Q22	7G	D10	8A	D29	8E
IC9	5H	Q9	8G	Q23	7G	D11	8B	D30	8E
IC12	7J	Q10	6M	Q25	6F	D12	8D	D31	8E
IC14	6J	Q11	8D	Q27	8E	D13	8D	D32	8E
IC19	5J	Q12	6L	Q28	8E	D14	9C	D33	8E
IC20	5H	Q13	8D	Q29	8E	D15	8C	D36	9C
IC21	7I	Q14	6C	D3	8B	D16	8C	D37	8B
IC26	7J	Q15	6C	D4	8B	D17	9C	D38	4F
IC50	4G	Q16	4D	D5	8D	D18	9C	D39	6G

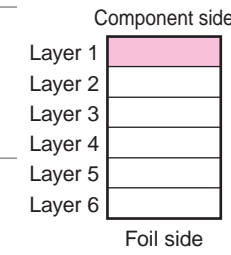
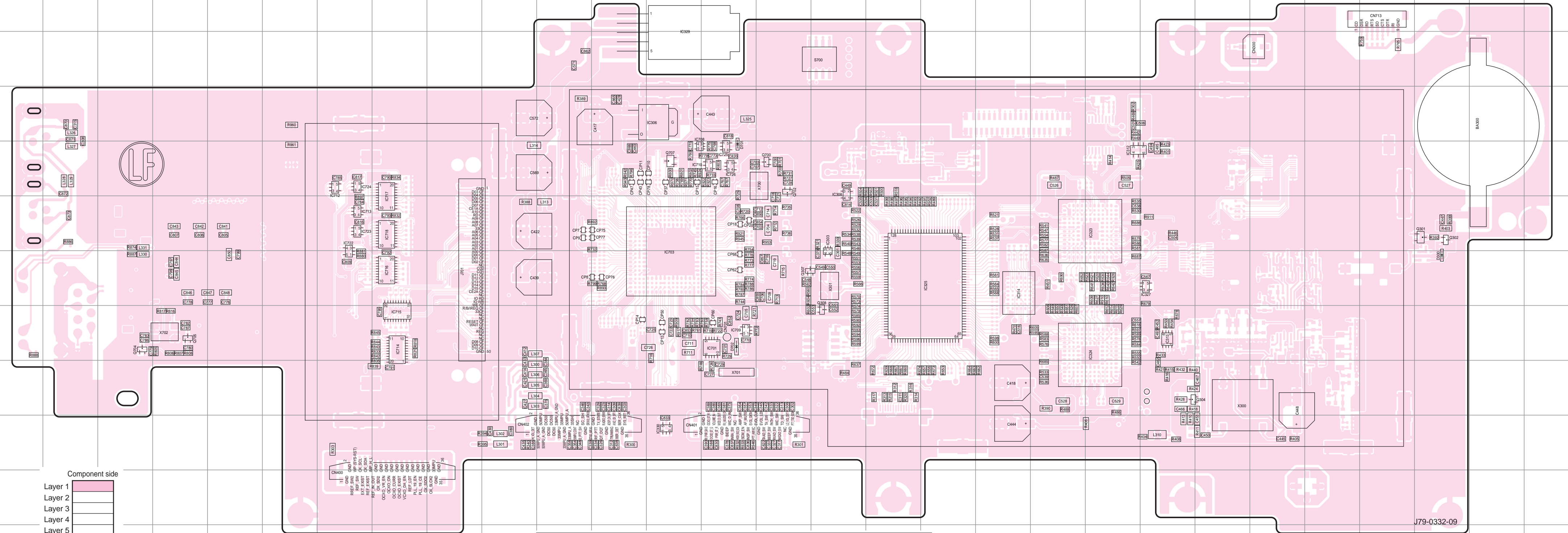


J79-0011-29

PC BOARD NXR-700

CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Component side view (J79-0332-09)

CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Component side view (J79-0332-09)



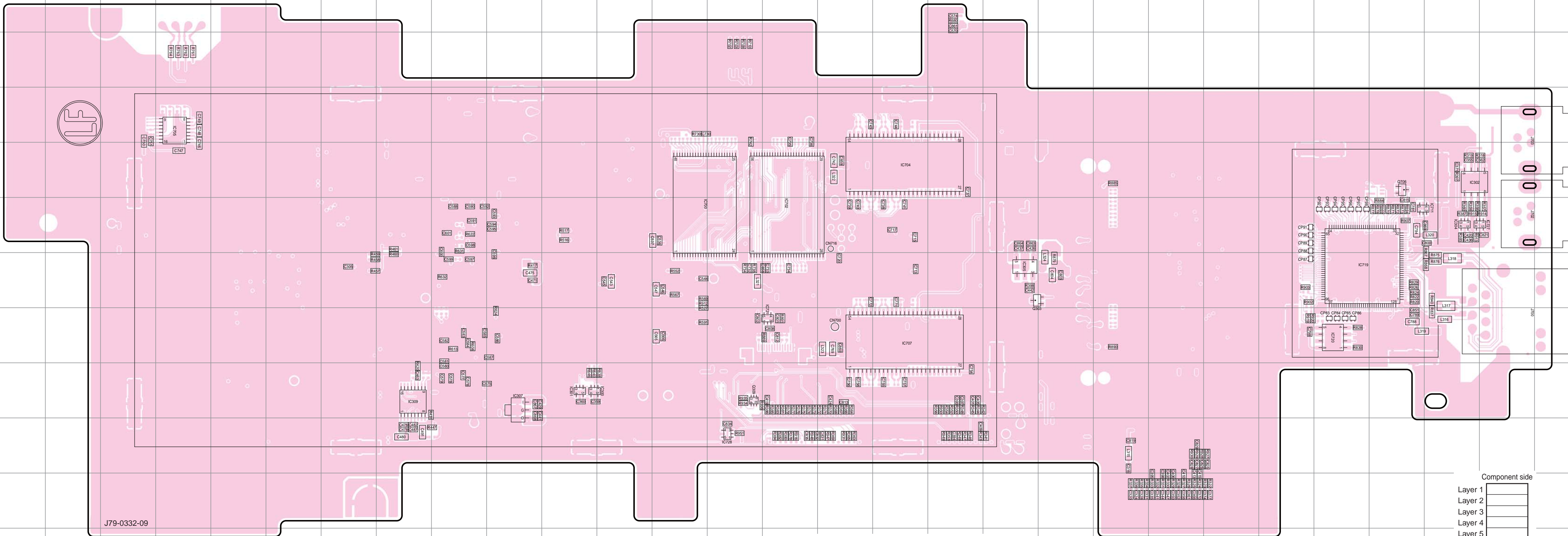
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IC306	4M	IC325	7R	IC709	8N	IC717	5H	Q301	6AA	Q704	8C
IC308	5P	IC327	7V	IC710	5N	IC718	6H	Q302	6AA	Q705	8D
IC312	5U	IC329	3M	IC712	5G	IC722	7G	Q304	9V	Q707	5M
IC313	8V	IC330	10M	IC713	6G	IC723	6G	Q307	7O	D300	7AA
IC314	7S	IC701	8N	IC714	8H	IC724	5G	Q308	8P	D701	5N
IC323	6U	IC703	7M	IC715	8H	IC725	5N	Q700	5O	D702	8N

J79-0332-09

NXR-700 PC BOARD

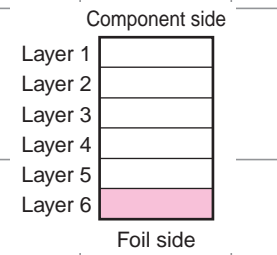
CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Foil side view (J79-0332-09)

CONTROL UNIT (X53-4140-XX) -10 : E2 -11 : For service
Foil side view (J79-0332-09)



J79-0332-09

Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC300	9K	IC700	6M	IC720	8Y
IC301	9K	IC702	6O	IC721	8O
IC302	5AA	IC704	5Q	IC727	6AB
IC304	6AA	IC705	4D	IC728	10N
IC305	7S	IC707	8Q	Q303	7S
IC307	9J	IC711	6Z	Q309	9N
IC309	9H	IC719	7Y	Q706	5Z

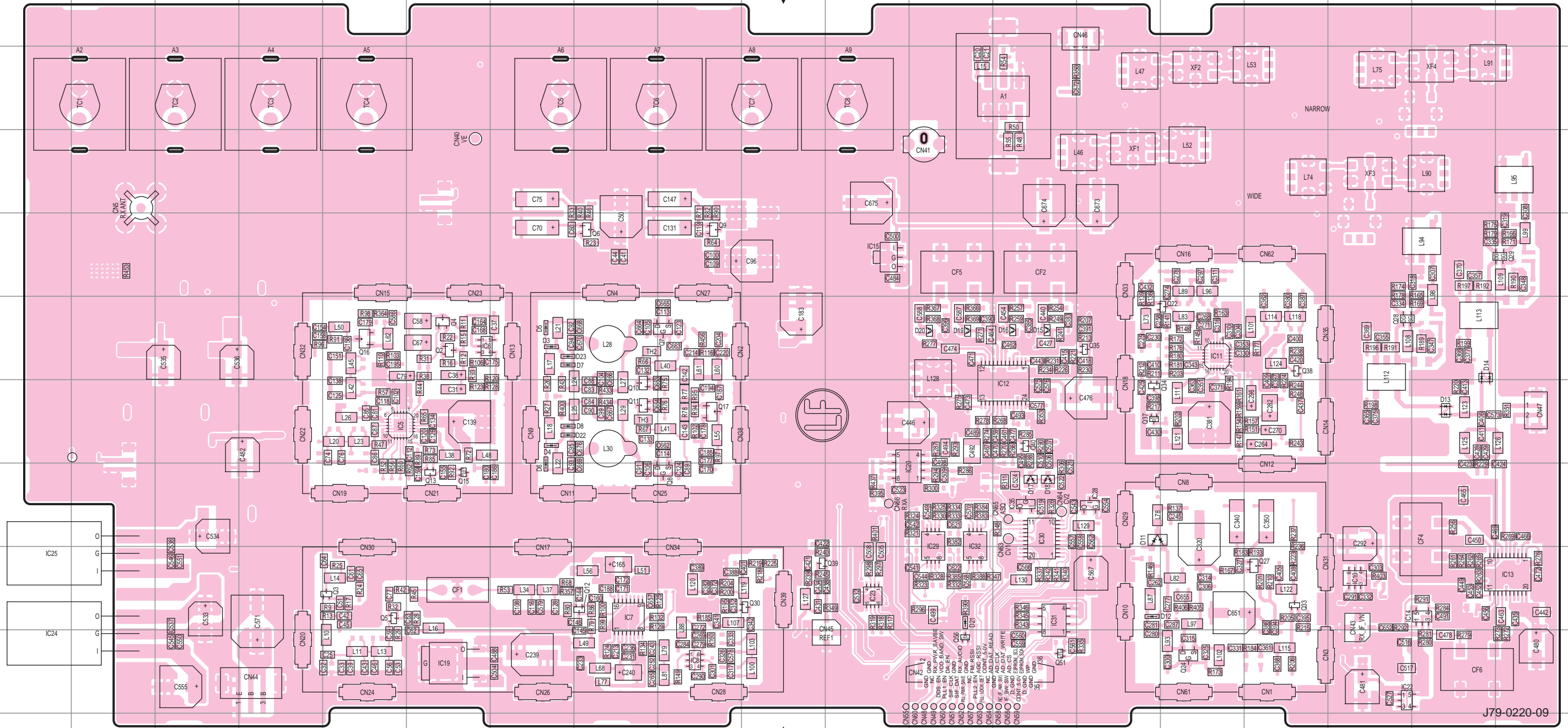


NXR-700 PC BOARD

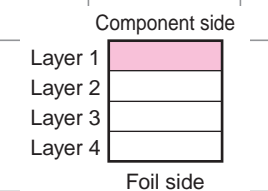
PC BOARD NXR-700

RX UNIT (X55-3092-72)
Component side view (J79-0220-09)

RX UNIT (X55-3092-72)
Component side view (J79-0220-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address		
IC5	7E	IC15	5K	IC30	8M	Q7	6I	Q17	7I	Q35	6N	D5	6G	D16	6M		
IC6	6F	IC19	10F	IC31	9M	Q8	8I	Q22	6O	Q37	7N	D6	8G	D17	8M		
IC7	9H	IC20	8K	IC32	8L	Q9	5I	Q24	10O	Q38	6P	D7	6G	D18	8M		
IC8	10I	IC22	10Q	IC35	8M	Q10	7H	Q27	9P	Q39	9J	D8	7G	D19	6L		
IC10	9Q	IC23	9K	Q2	6F	Q11	7H	Q28	6Q	Q40	7M	D11	8N	D20	6L		
IC11	6O	IC24	10A	Q3	9E	Q12	9H	Q29	5S	Q51	10M	D12	9N	D21	9L		
IC12	7M	IC25	9A	Q4	6F	Q13	8F	Q30	9J	Q56	10L	D13	7R	D22	7G		
IC13	9S	IC28	8N	Q5	9E	Q15	8F	Q33	9P	D3	6G	D14	6R	D23	6G		
IC14	9R	IC29	8L	Q6	5H	Q16	6E	Q34	7N	D4	7G	D15	6M				



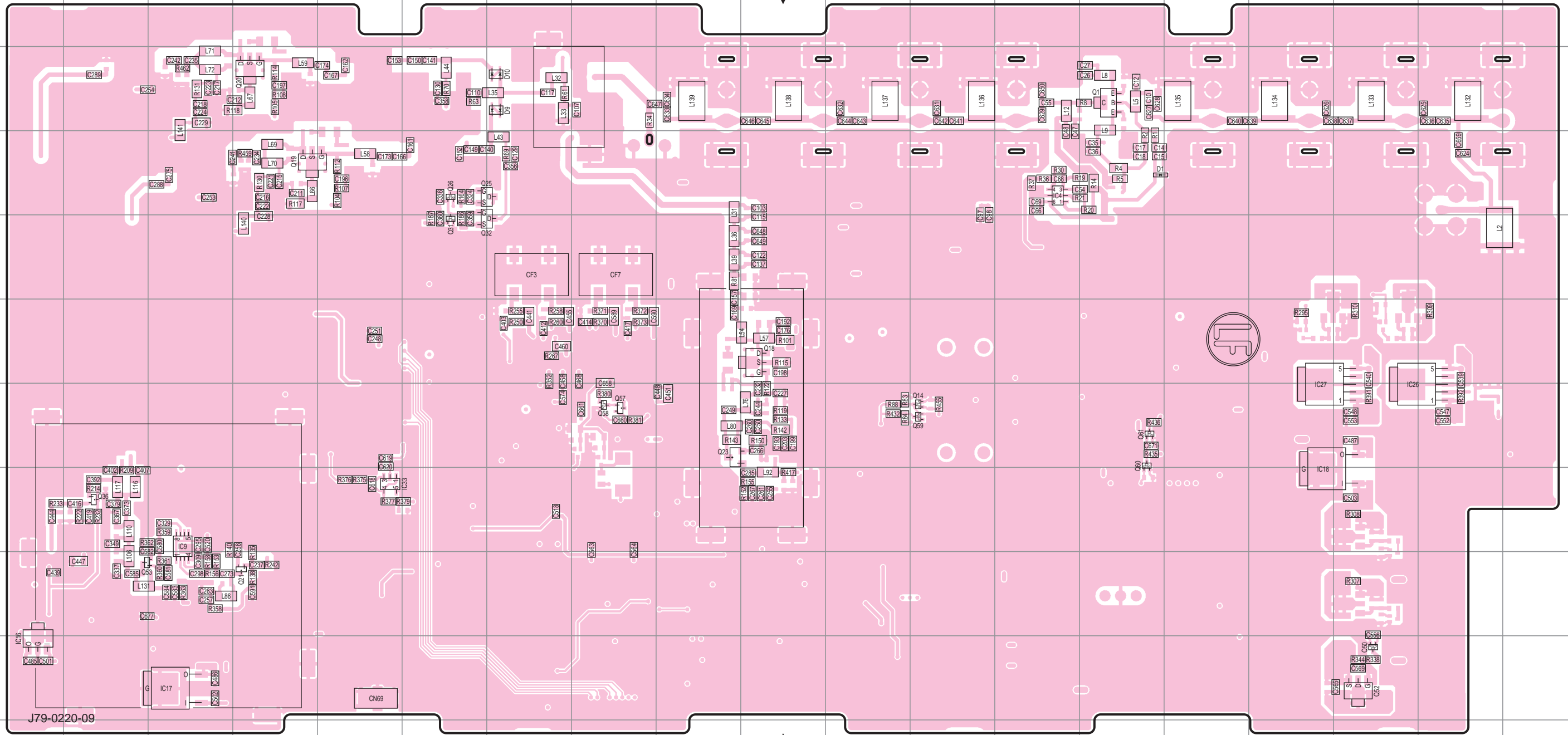
J79-0220-09

NXR-700 PC BOARD

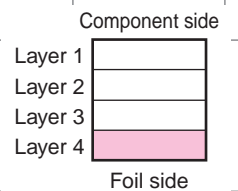
PC BOARD NXR-700

RX UNIT (X55-3092-72)
Foil side view (J79-0220-09)

RX UNIT (X55-3092-72)
Foil side view (J79-0220-09)

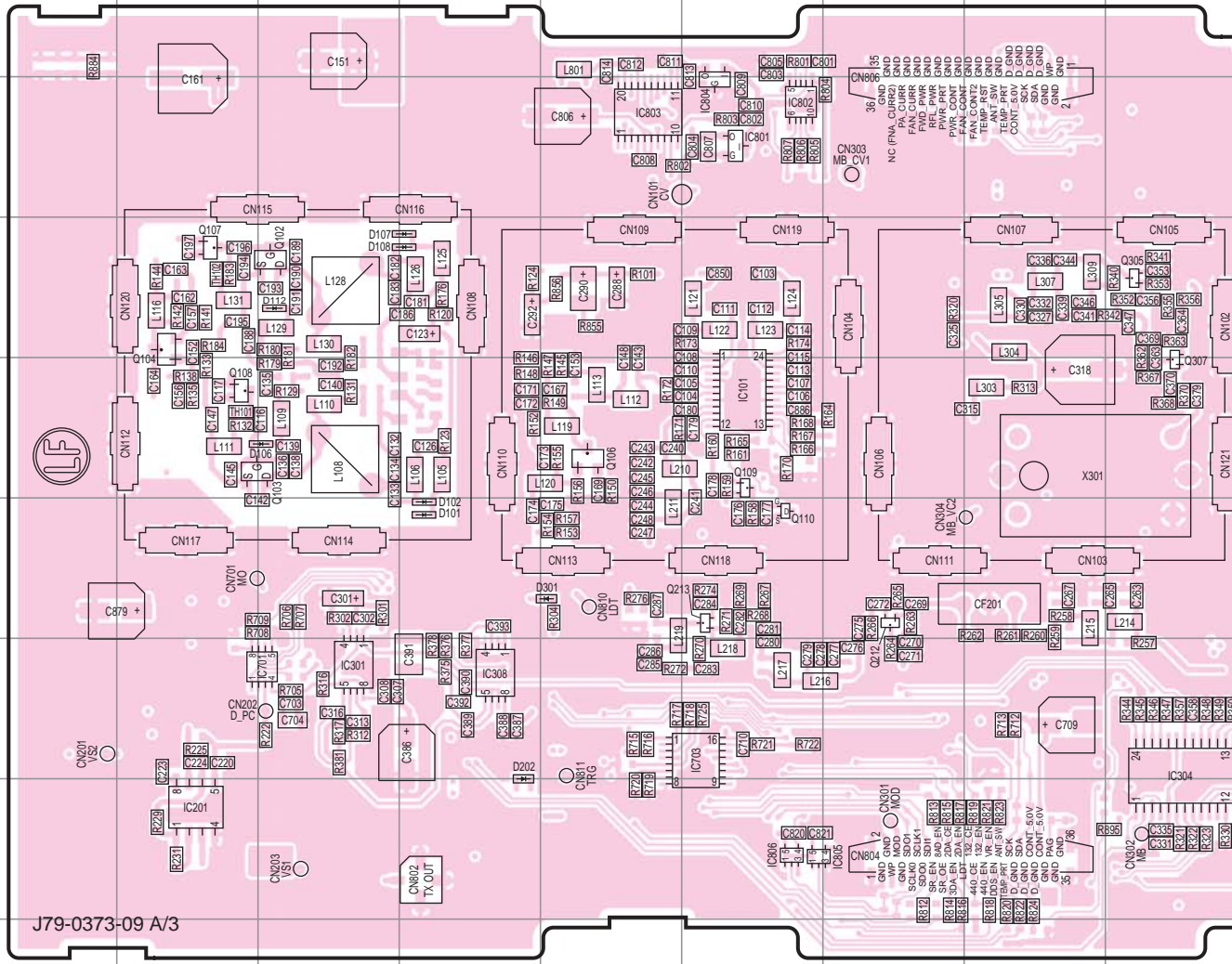


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC4	4M	Q14	7L	Q32	5G	Q61	7N
IC9	8C	Q18	6J	Q36	8B	D1	4N
IC16	10A	Q19	4D	Q50	10Q	D9	3G
IC17	10C	Q20	3D	Q52	10Q	D10	3G
IC18	8P	Q21	9D	Q53	9B		
IC26	7Q	Q23	7I	Q57	7H		
IC27	7P	Q25	4G	Q58	7H		
IC33	8E	Q26	4F	Q59	7L		
Q1	3N	Q31	5F	Q60	7N		



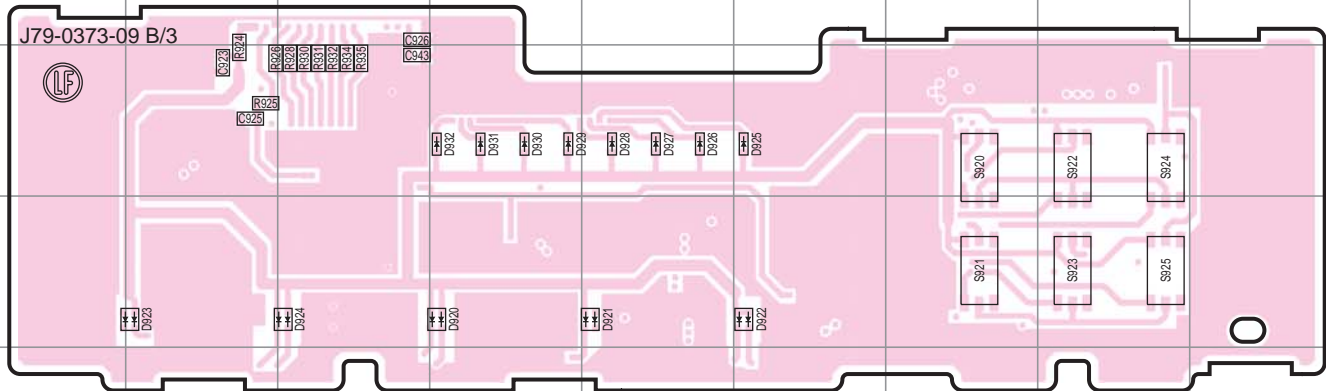
NXR-700 PC BOARD

TX UNIT (X56-3112-72) Component side view (J79-0373-09)

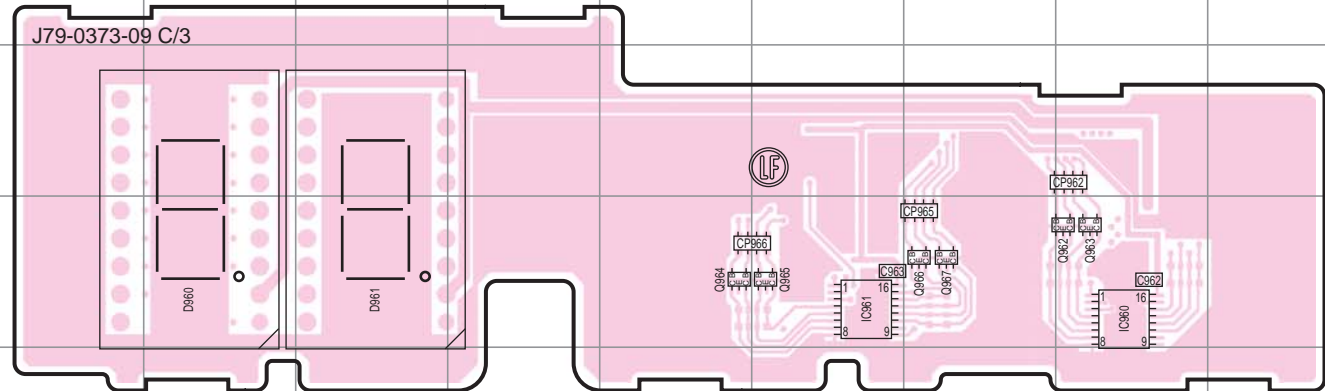


J79-0373-09 A/3

J79-0373-09 B/3

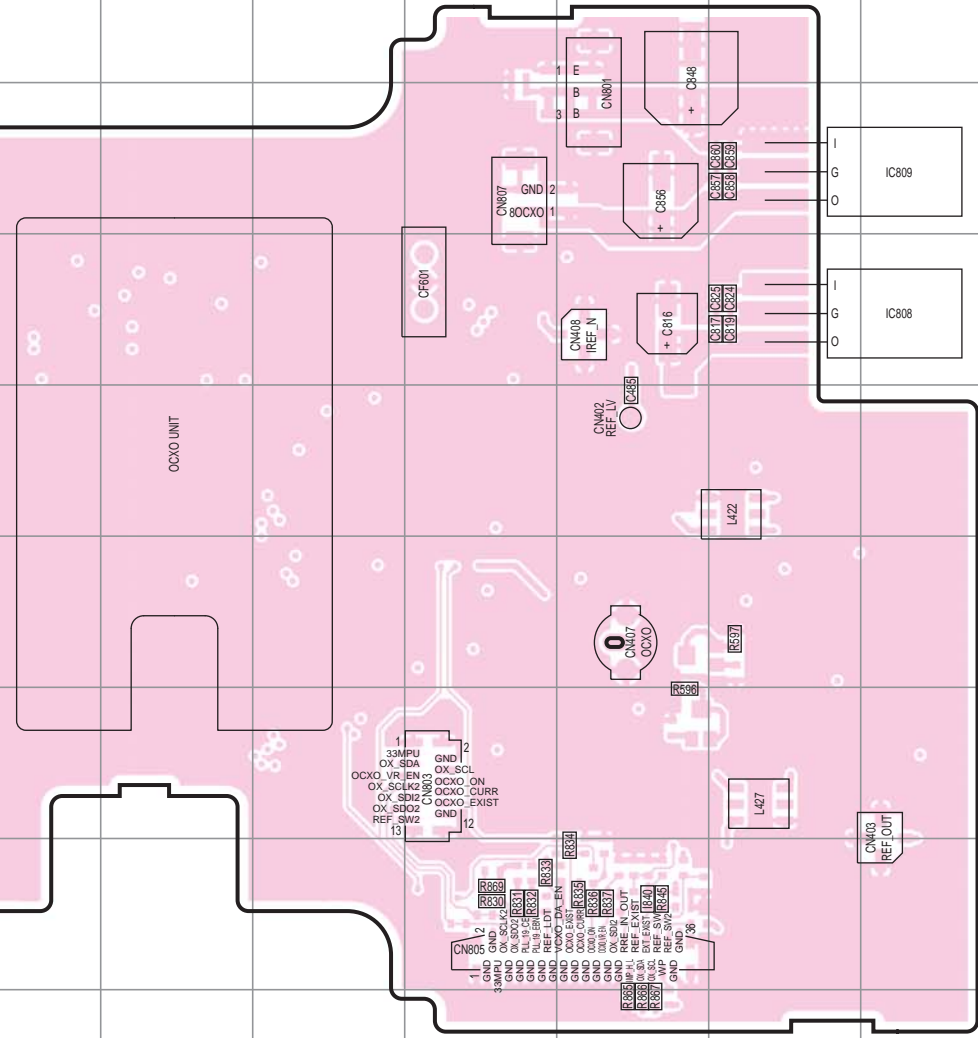


J79-0373-09 C/3

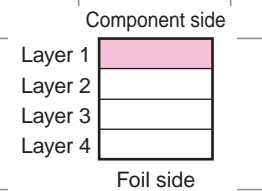


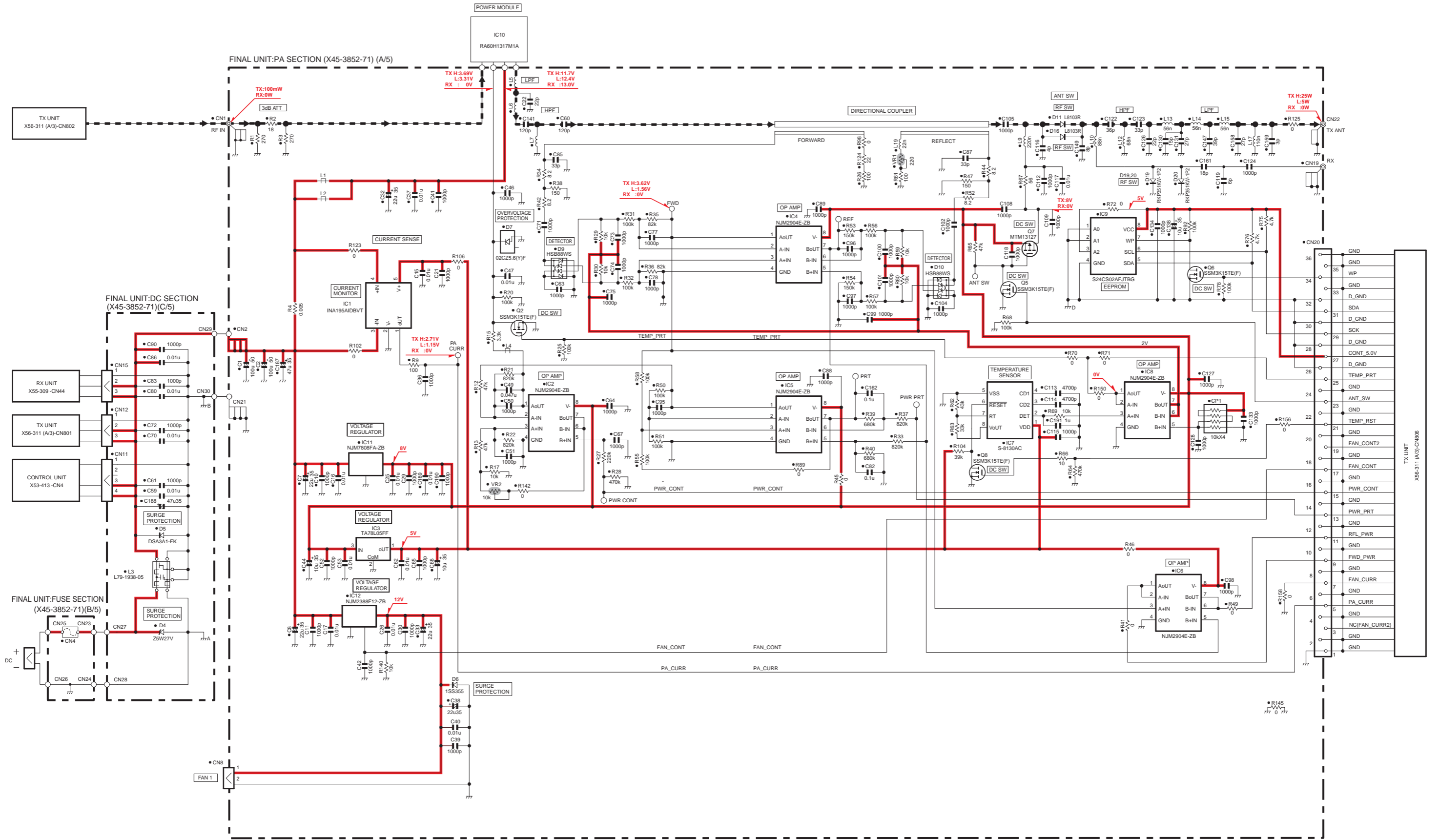
PC BOARD NXR-700

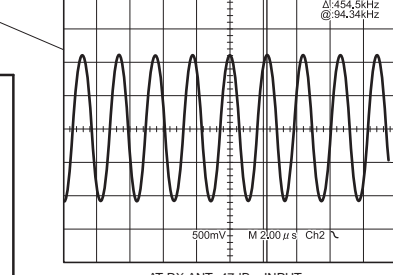
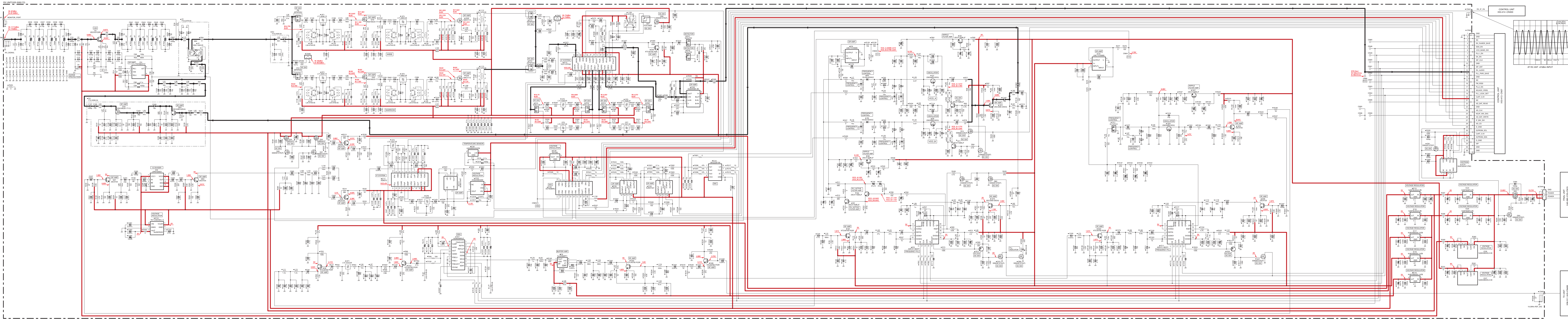
TX UNIT (X56-3112-72) Component side view (J79-0373-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC101	5F	IC706	6K	IC807	8K	Q104	4B	Q213	6F	Q964	11O	D107	4D	D922	11F
IC201	8B	IC801	3F	IC808	4S	Q106	5E	Q305	4I	Q965	11P	D108	4D	D923	11B
IC301	7C	IC802	3F	IC809	3S	Q107	4B	Q307	5I	Q966	11Q	D112	4C	D924	11C
IC304	7I	IC803	3E	IC960	11R	Q108	5B	Q401	4K	Q967	11Q	D202	7D	D925	10F
IC308	7D	IC804	3F	IC961	11P	Q109	5F	Q402	4K	D101	6D	D301	6E	D926	10E
IC701	7C	IC805	8F	Q102	4C	Q110	6F	Q962	11R	D102	6D	D920	11D	D927	10E
IC703	7F	IC806	8F	Q103	5C	Q212	6G	Q963	11R	D106	5C	D921	11E	D928	10E





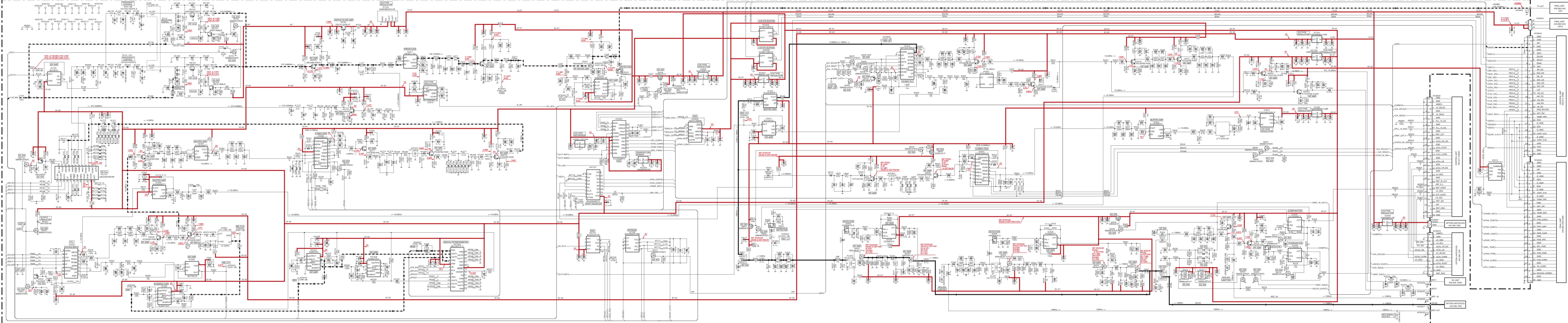


CONTROL UNIT X53-414-CN00

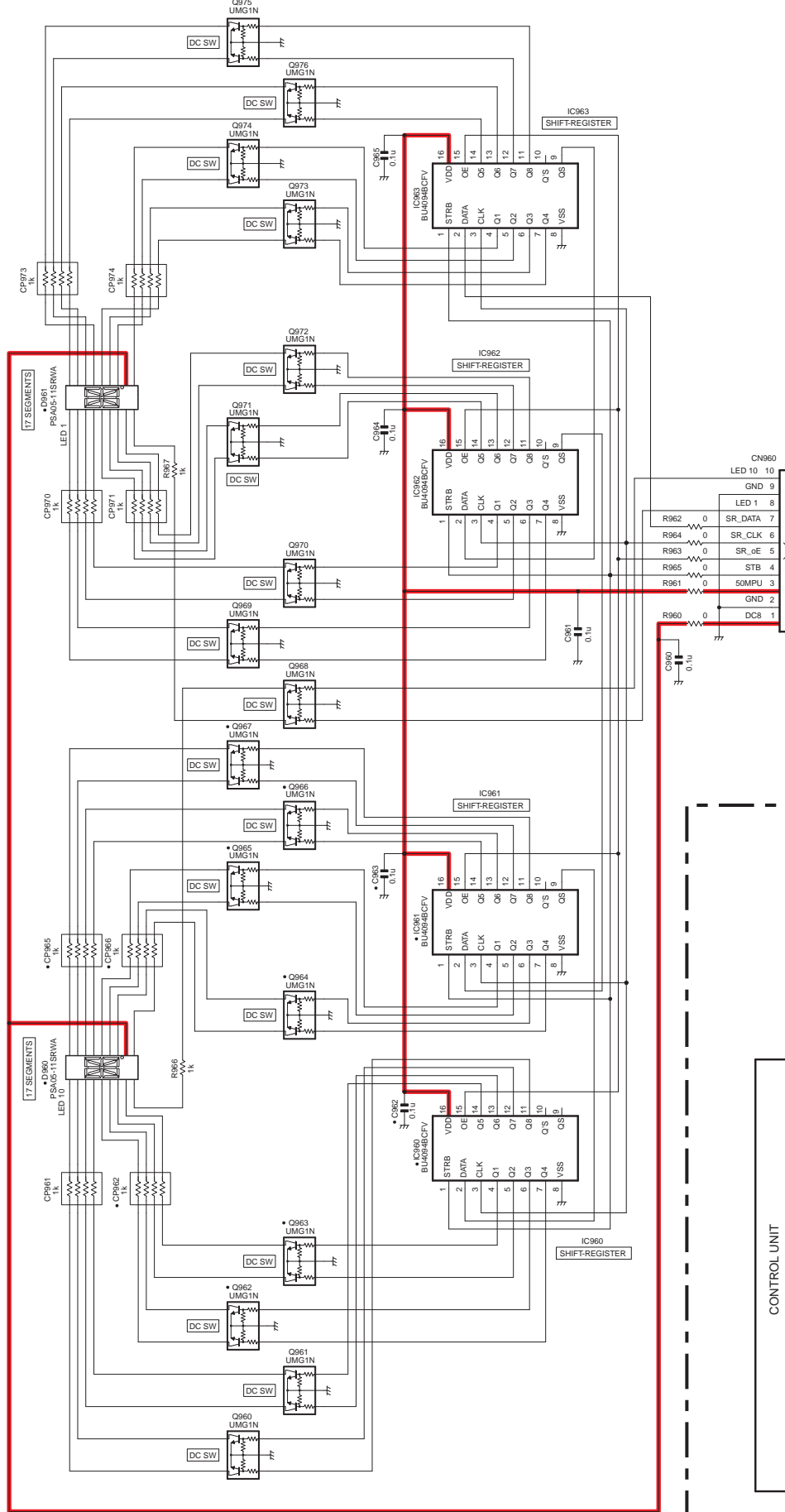
1	GND
2	RF POWER SAVE
3	RF EN
4	VCO_BAND_SW
5	PULL_IN
6	RF_CLK
7	GND
8	RF_DET
9	RF_AUDIO
10	PAL_PWR_SAVE
11	FC
12	PAL_RESET
13	PAL_SW
14	RFVDC_RSSB
15	PULL_LOCK_DET
16	RF_DET
17	AD_READ
18	RF_SW_SW
19	AD_WRITE
20	RF_SW_SW
21	AD_CS
22	AD_READ
23	AD_CS
24	AD_WRITE
25	AD_CS
26	AD_READ
27	AD_CS
28	AD_WRITE
29	AD_CS
30	AD_READ
31	AD_CS
32	AD_WRITE
33	AD_CS
34	AD_READ
35	AD_CS
36	AD_WRITE
37	AD_CS
38	AD_READ
39	AD_CS
40	AD_WRITE
41	AD_CS
42	AD_READ
43	AD_CS
44	AD_WRITE
45	AD_CS
46	AD_READ
47	AD_CS
48	AD_WRITE
49	AD_CS
50	AD_READ
51	AD_CS
52	AD_WRITE
53	AD_CS
54	AD_READ
55	AD_CS
56	AD_WRITE
57	AD_CS
58	AD_READ
59	AD_CS
60	AD_WRITE
61	AD_CS
62	AD_READ
63	AD_CS
64	AD_WRITE
65	AD_CS
66	AD_READ
67	AD_CS
68	AD_WRITE
69	AD_CS
70	AD_READ
71	AD_CS
72	AD_WRITE
73	AD_CS
74	AD_READ
75	AD_CS
76	AD_WRITE
77	AD_CS
78	AD_READ
79	AD_CS
80	AD_WRITE

POWER UNIT X56-300-C0015

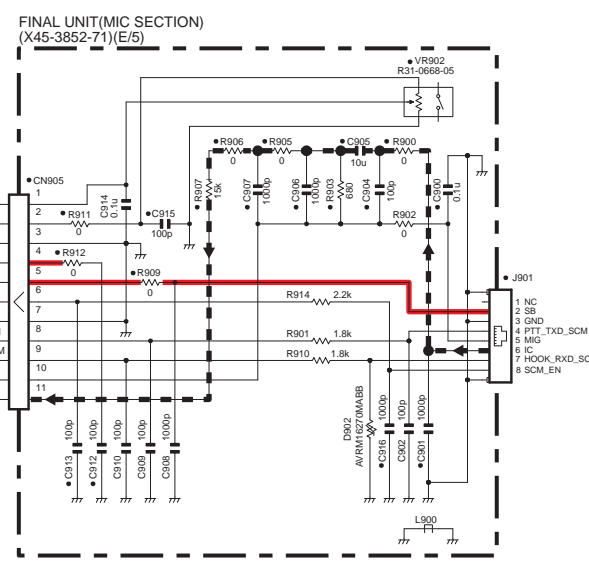
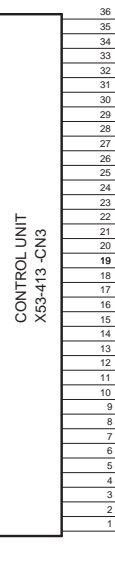
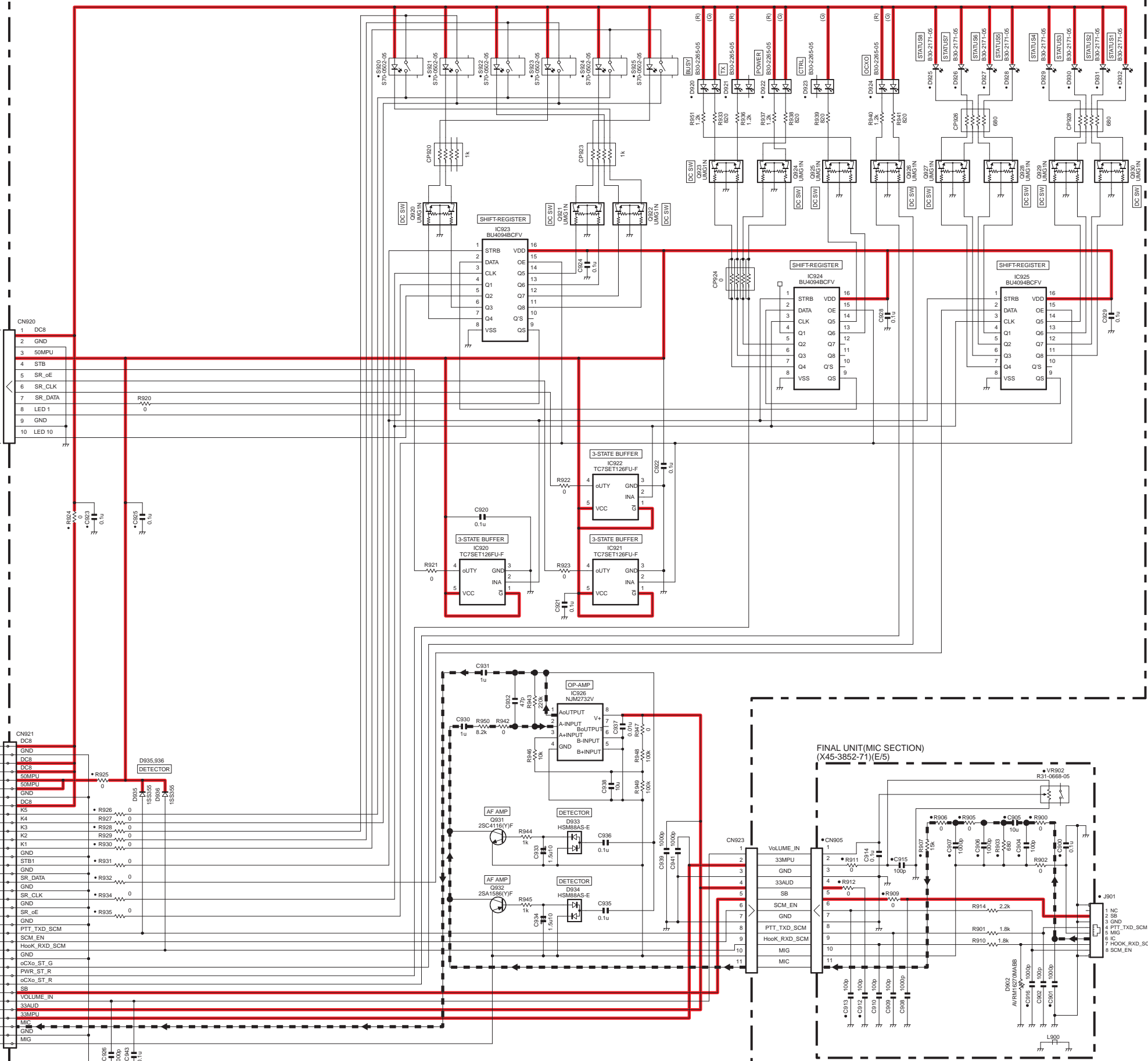
POWER UNIT X56-311-002005



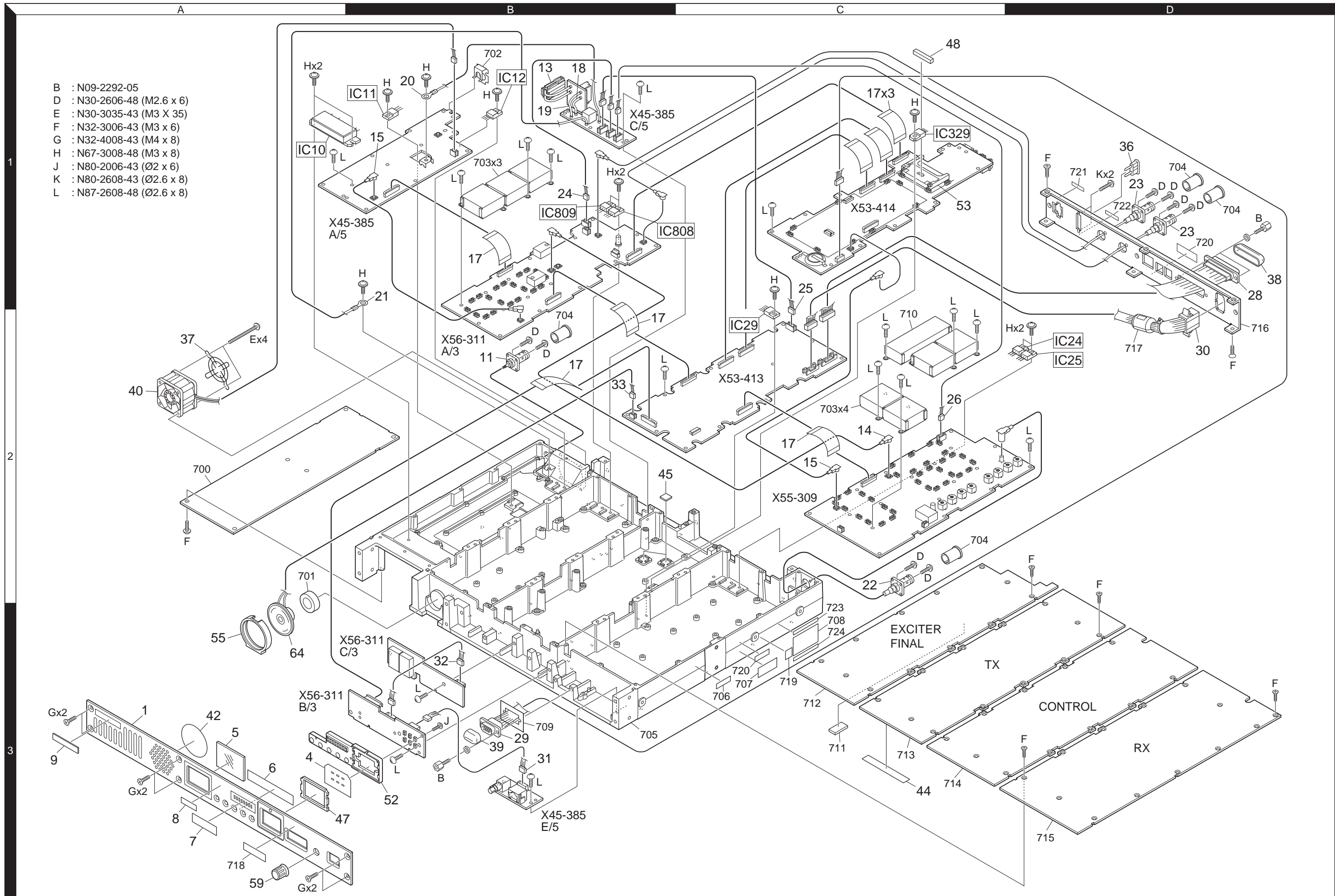
TX UNIT(17SEG)
(X56-3112-72) (C/3)

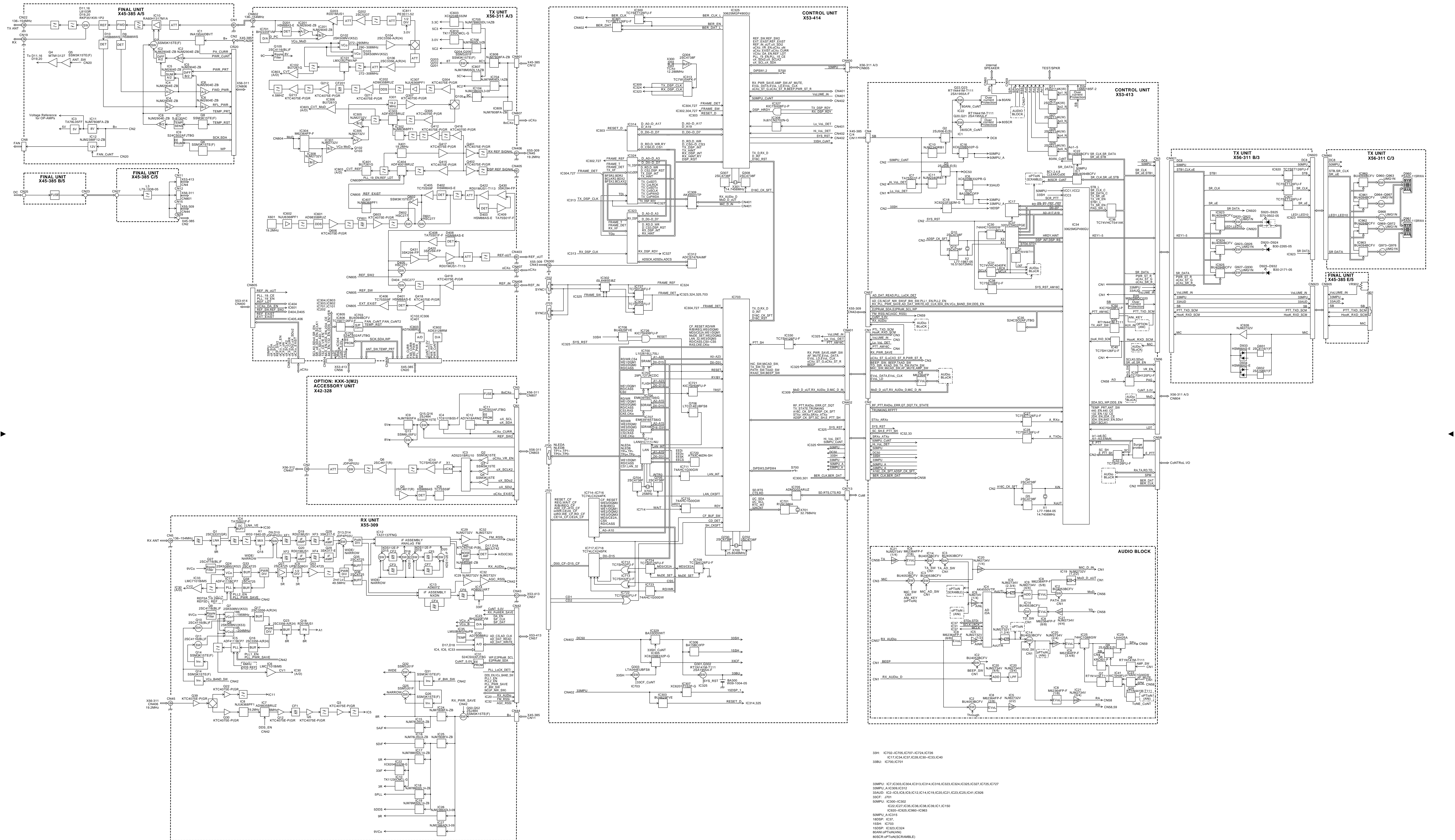


TX UNIT(LED)
(X56-3112-72) (B/3)



- B : N09-2292-05
- D : N30-2606-48 (M2.6 x 6)
- E : N30-3035-43 (M3 X 6)
- F : N32-3006-43 (M3 x 6)
- G : N32-4008-43 (M4 x 8)
- H : N67-3008-48 (M3 x 8)
- J : N80-2006-43 (Ø2 x 8)
- K : N80-2608-43 (Ø2.6 x 8)
- L : N87-2608-48 (Ø2.6 x 8)

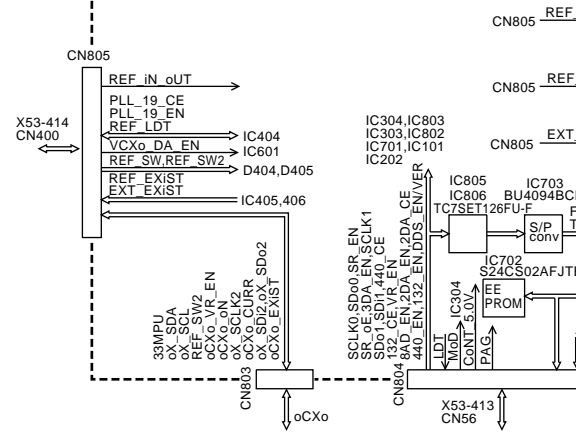
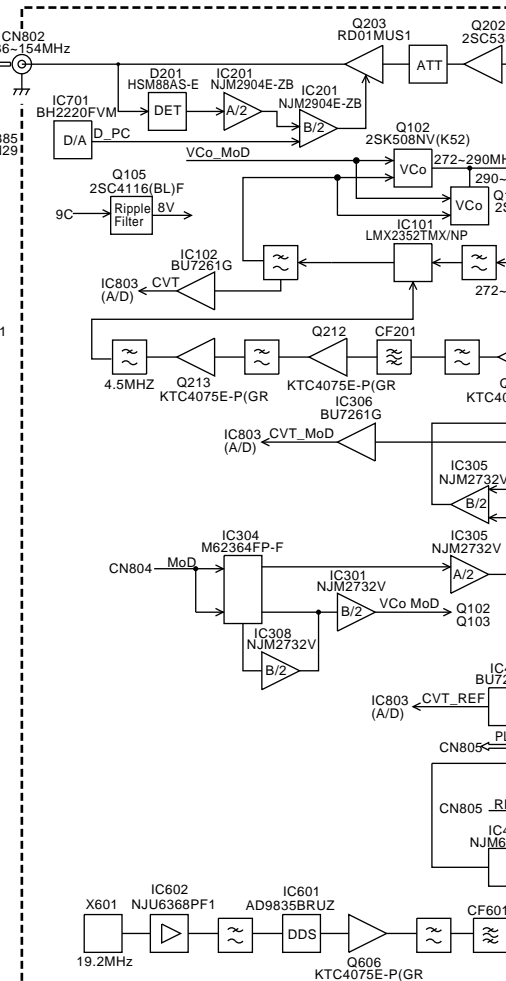
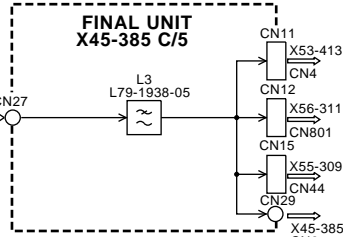
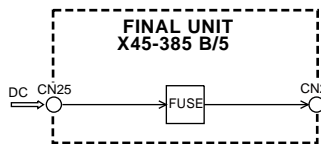
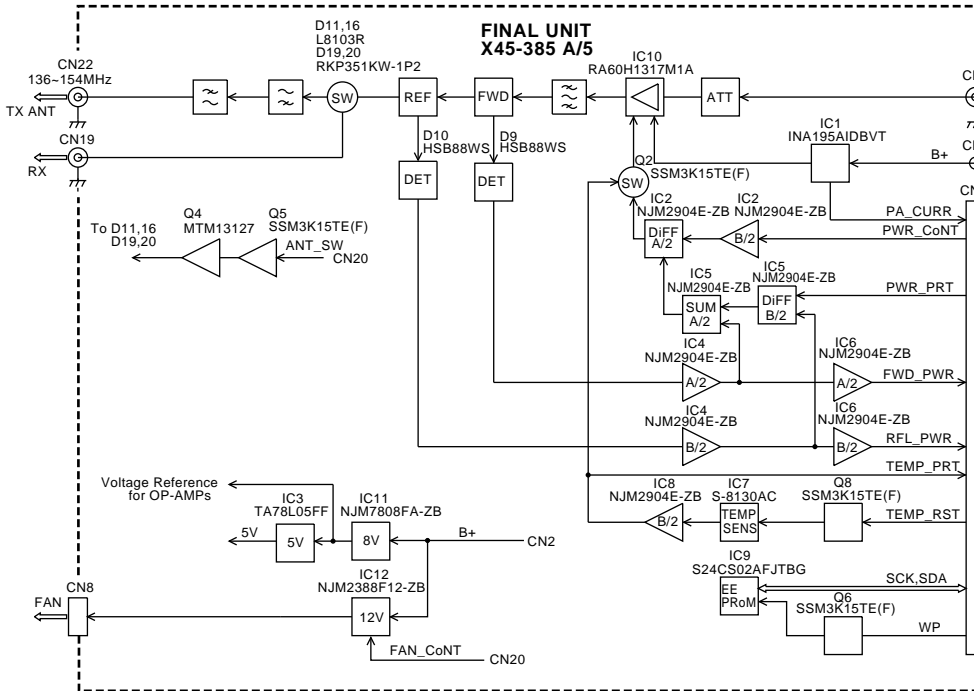




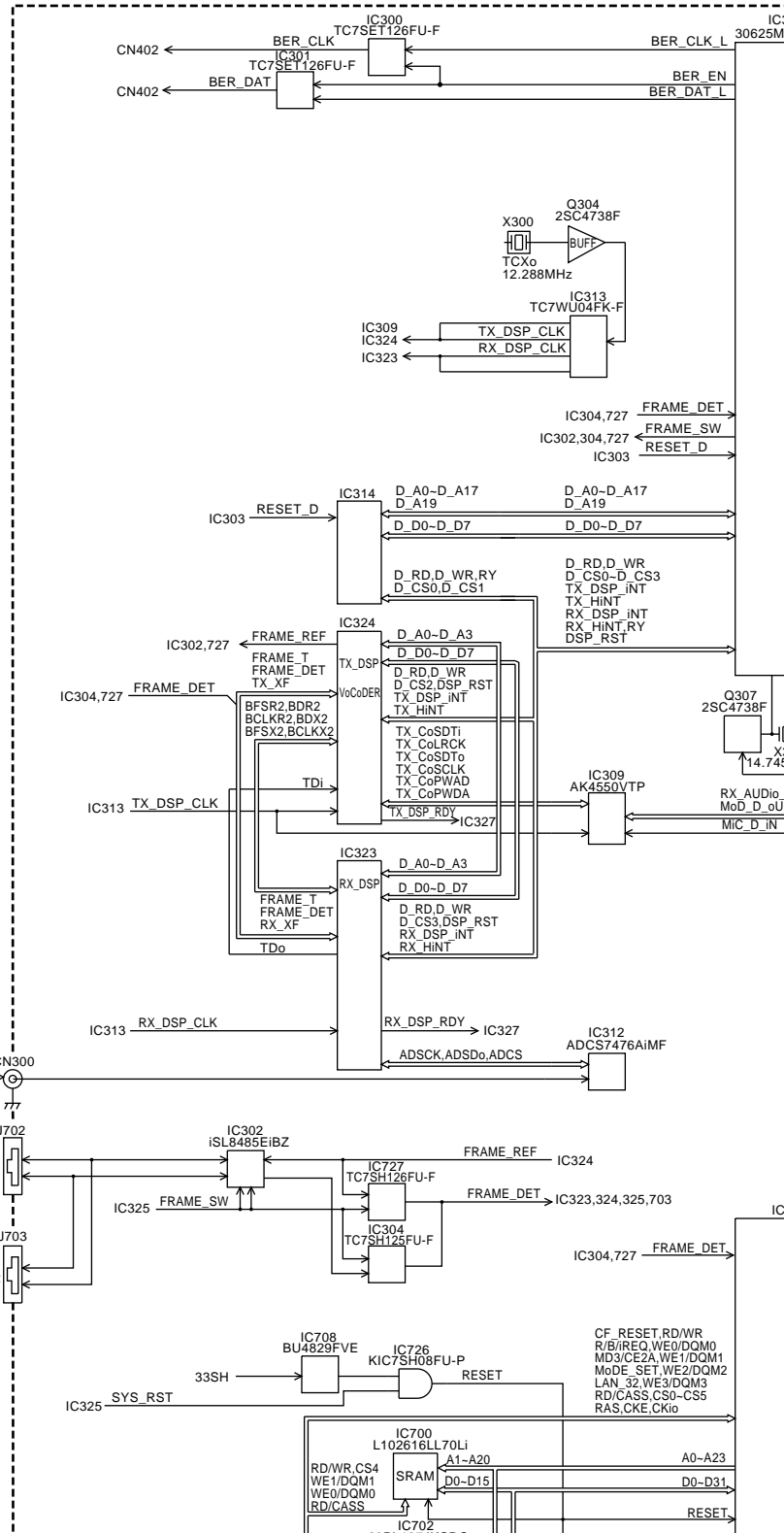
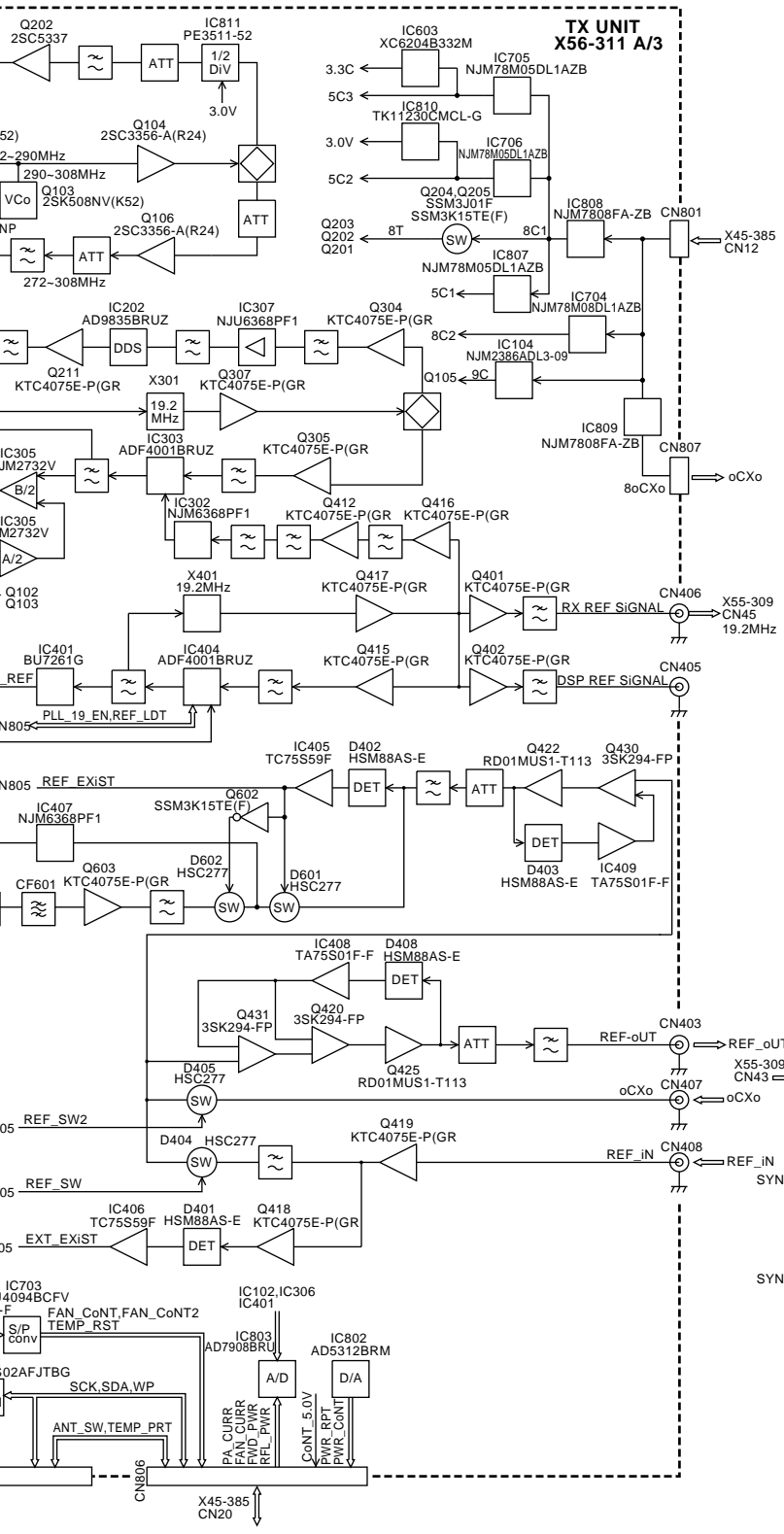
39H IC102-IC105,IC107-IC109,IC128
 IC17-IC34,IC37-IC28,IC30-IC33,IC40
 38U IC70,IC71

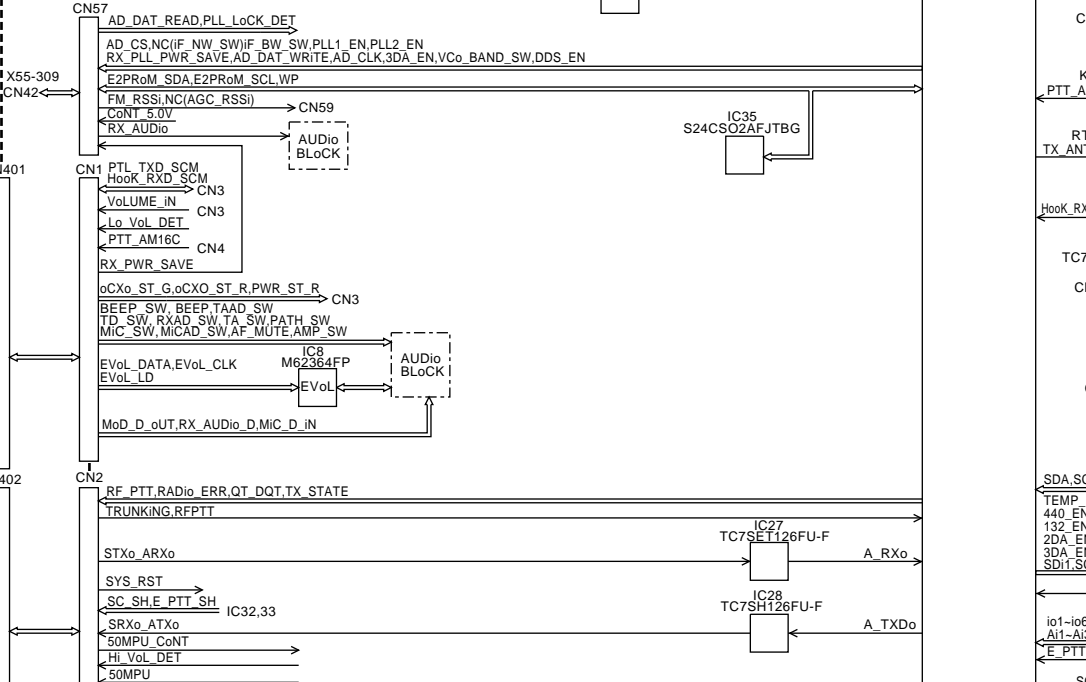
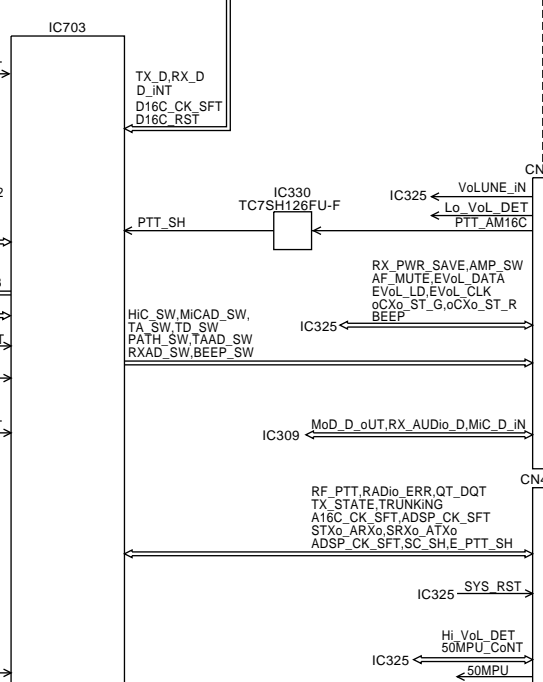
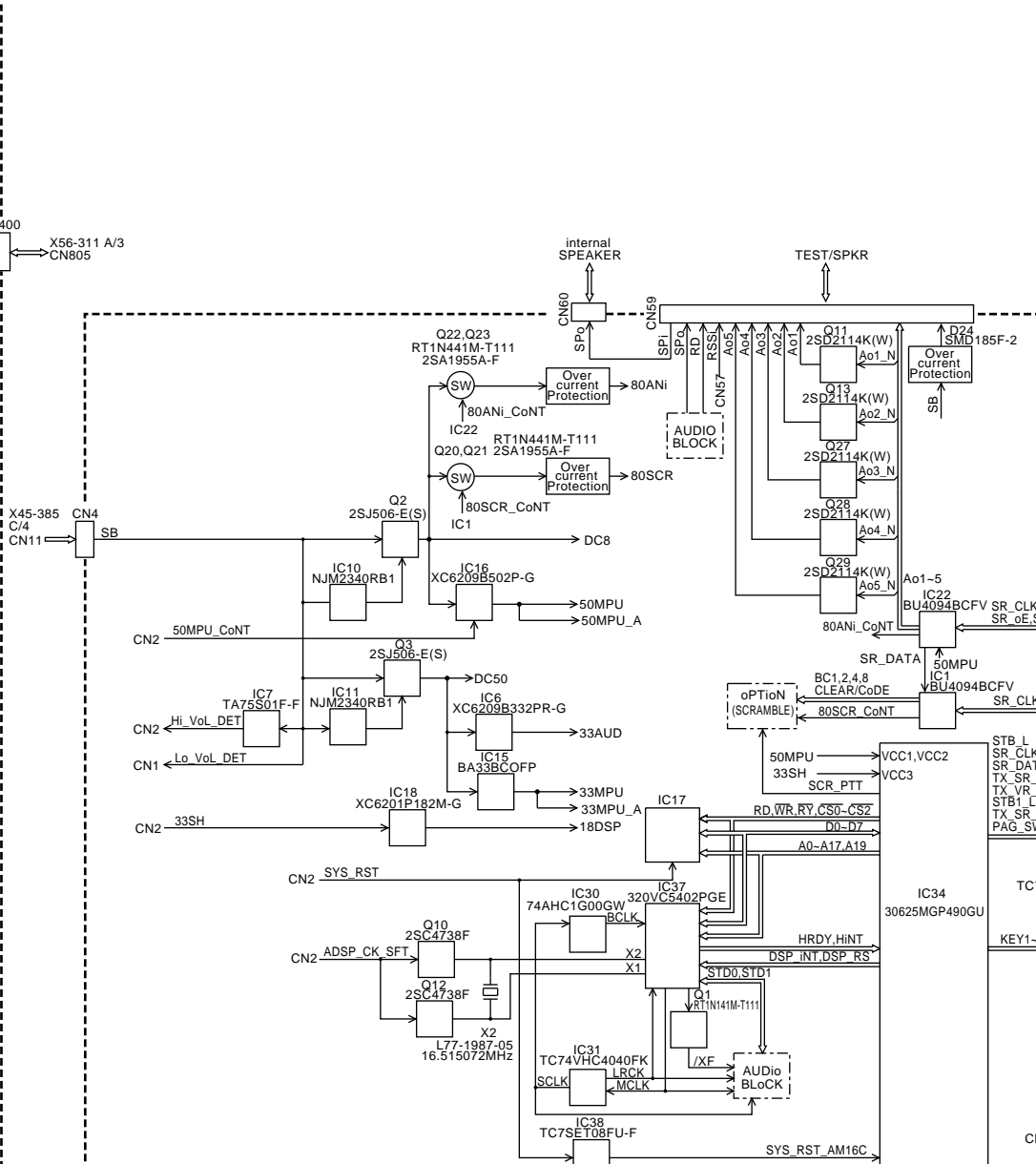
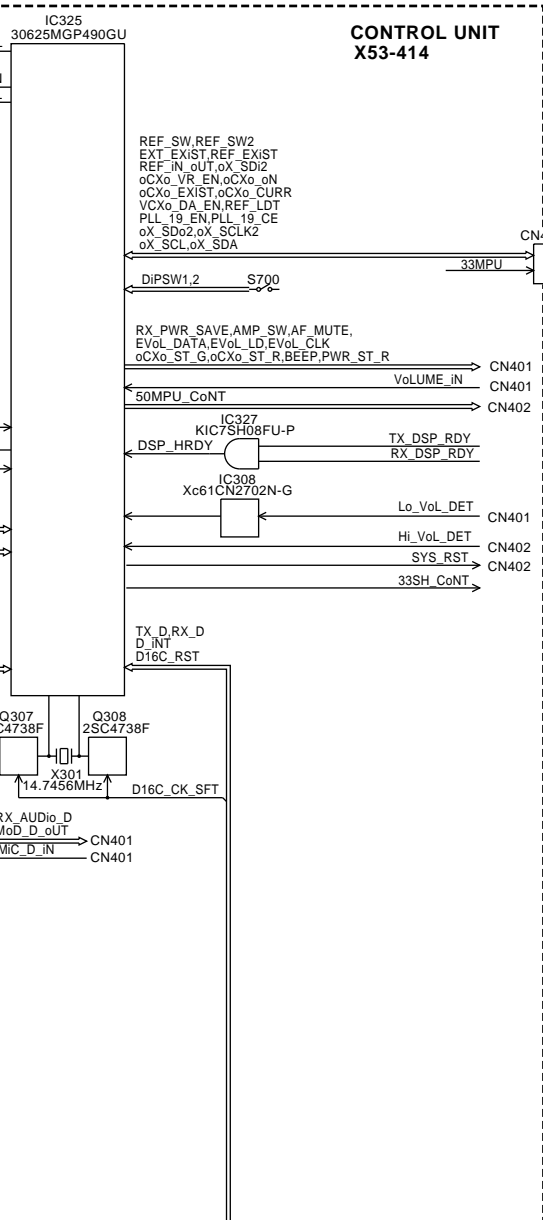
38MPU IC7,IC8,IC10,IC11,IC13,IC14,IC16,IC23,IC24,IC25,IC27,IC28,IC29,IC32
 38MPU_A IC30B,IC312
 38AUD IC2-IC5,IC8,IC12,IC14,IC19,IC20,IC21,IC23,IC25,IC41,IC102B
 38CF JP1
 38MPU IC300-IC302
 IC22-IC27,IC38,IC39,IC38,IC39,IC1,IC150
 IC800-IC825,IC860-IC863

38MPU_A IC315
 38OSP IC37
 38SD IC33,IC33A
 38DP JP1
 38CAN IC33,IC33A
 38CAN IC33,IC33A
 38CAN IC33,IC33A

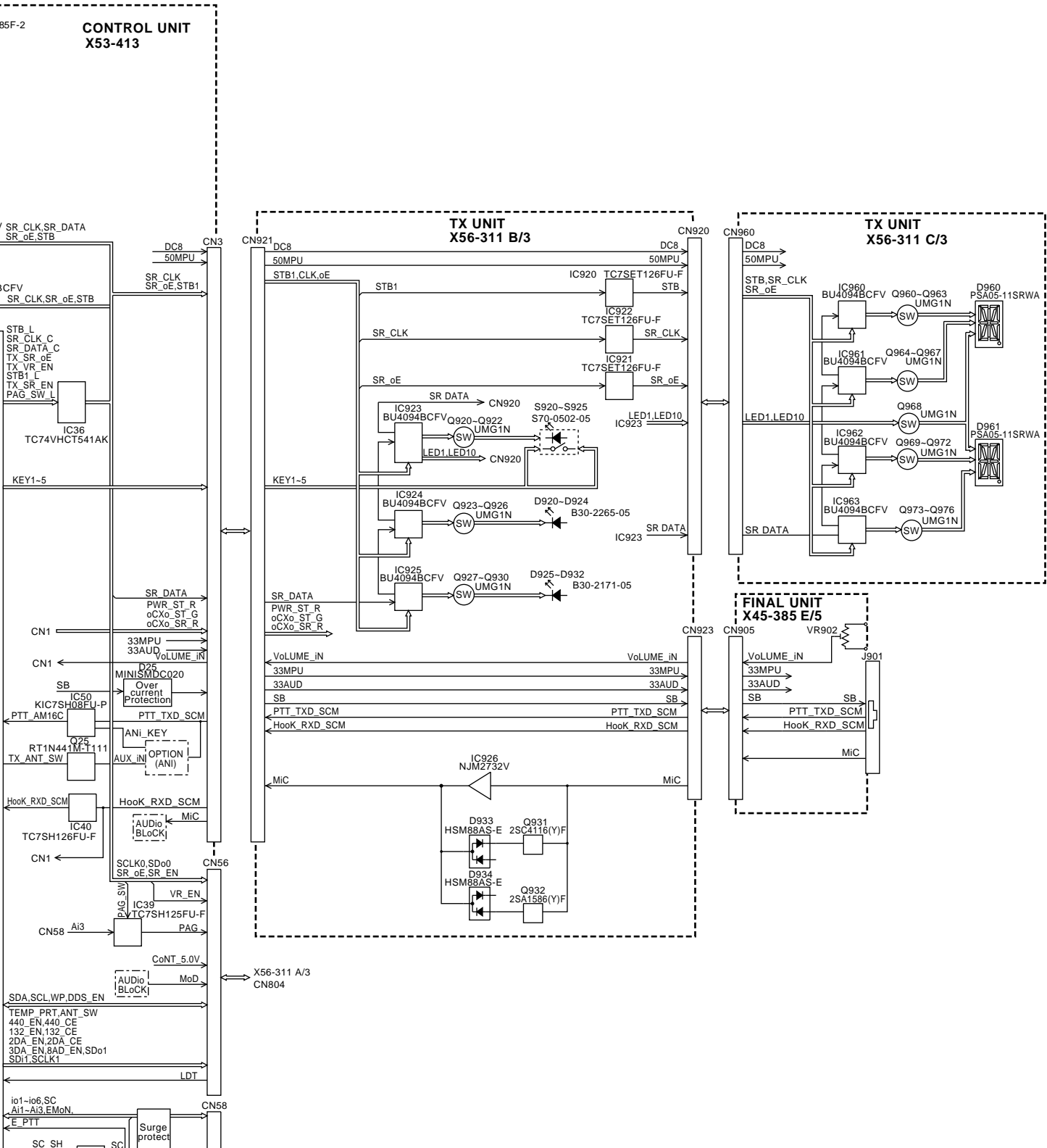


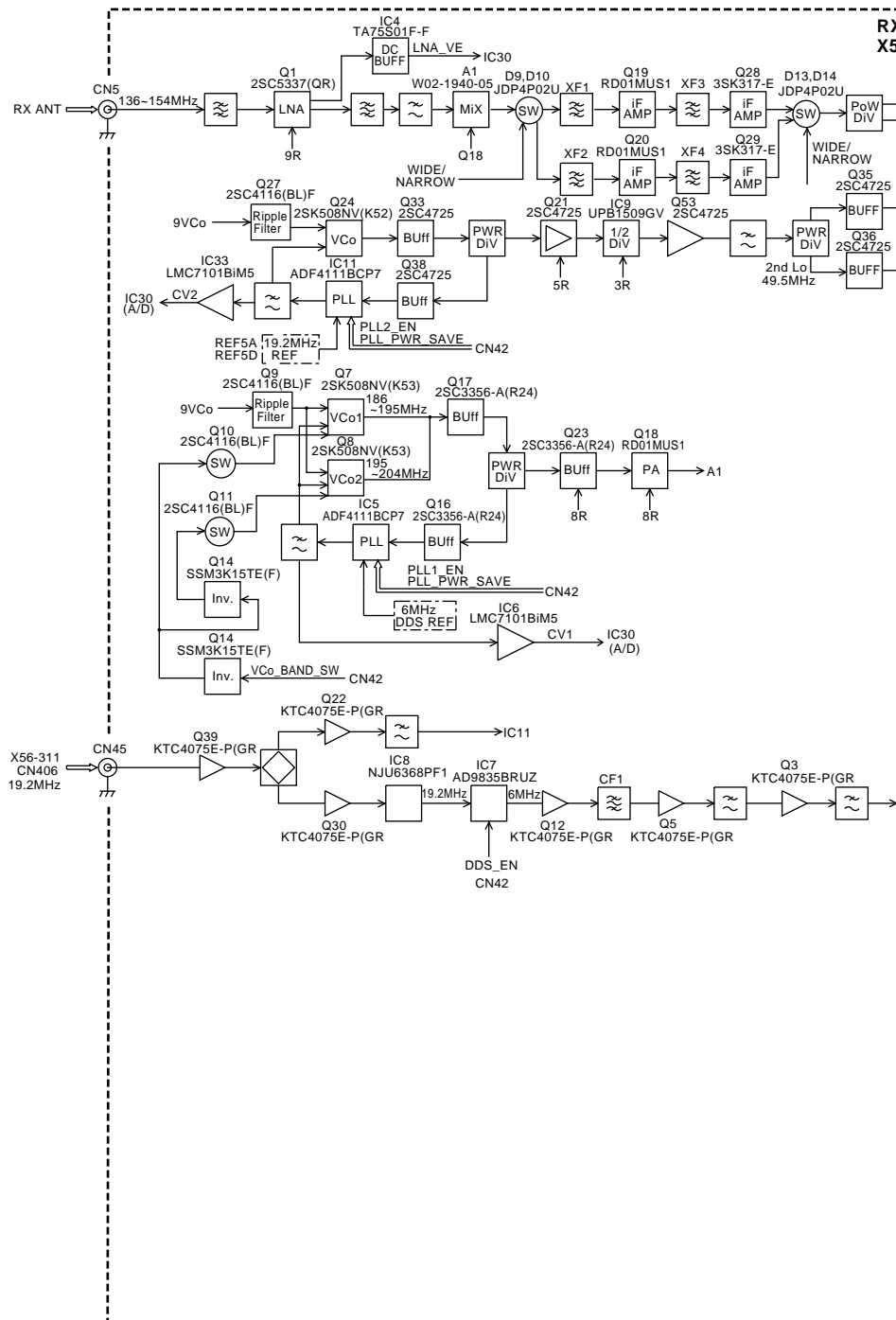
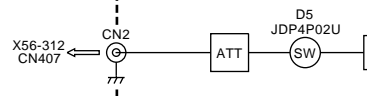
**OPTION: KXK-3(M2)
ACCESSORY UNIT
X42-328**

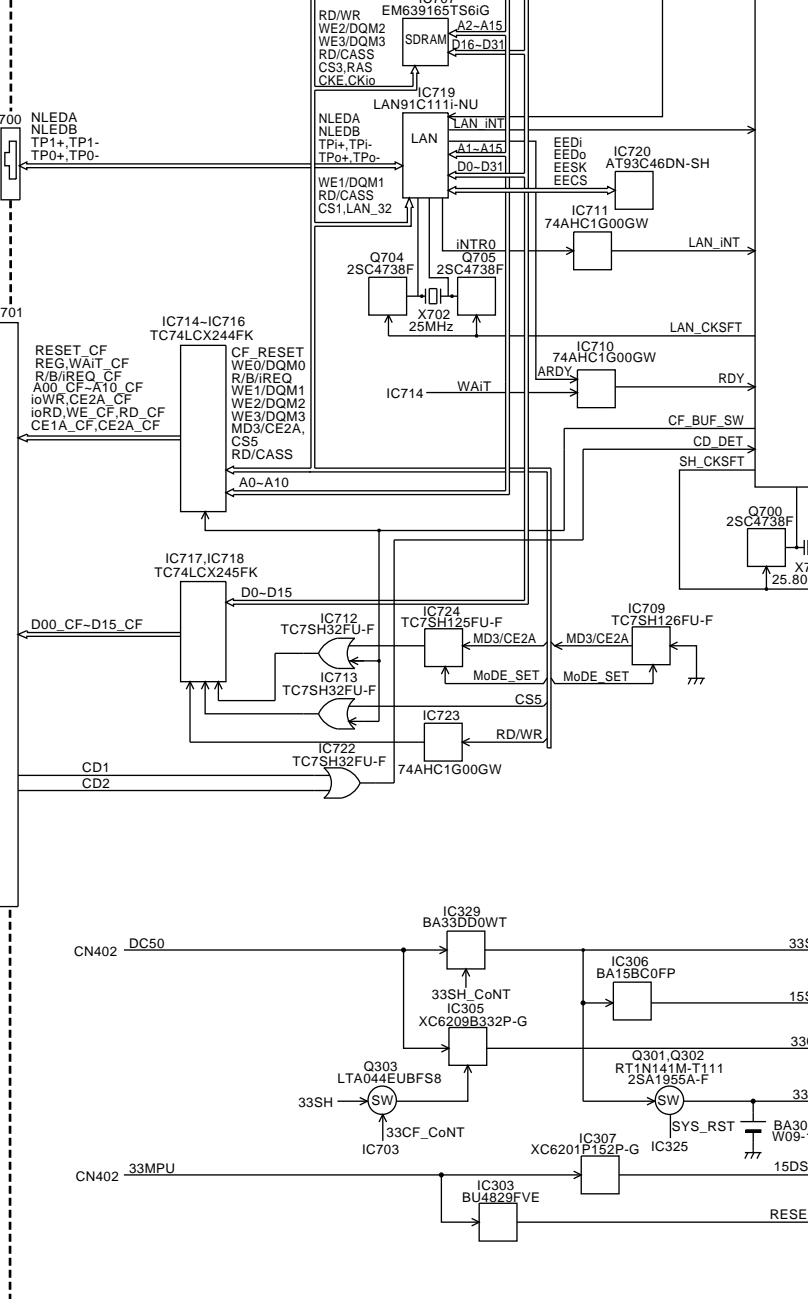
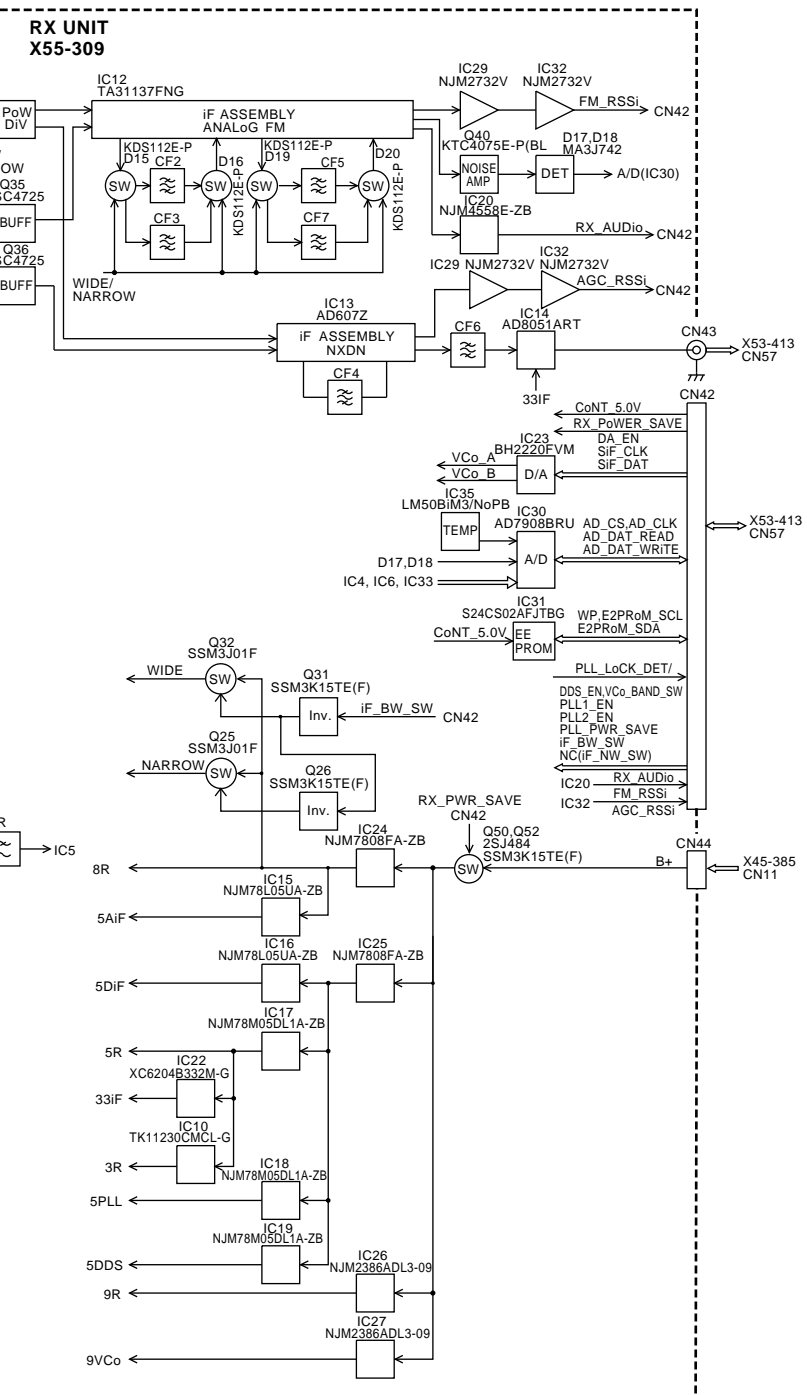
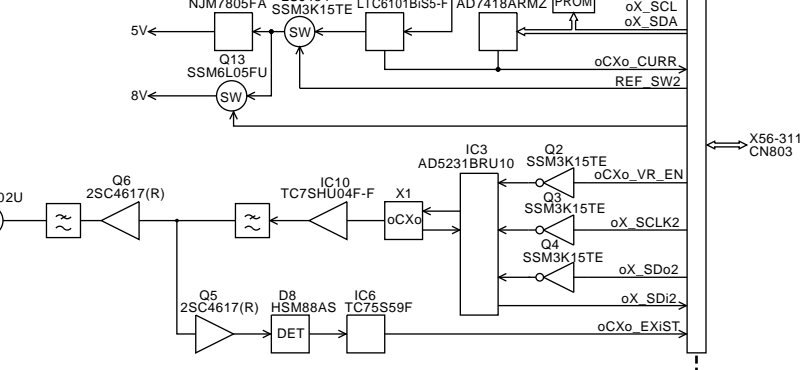


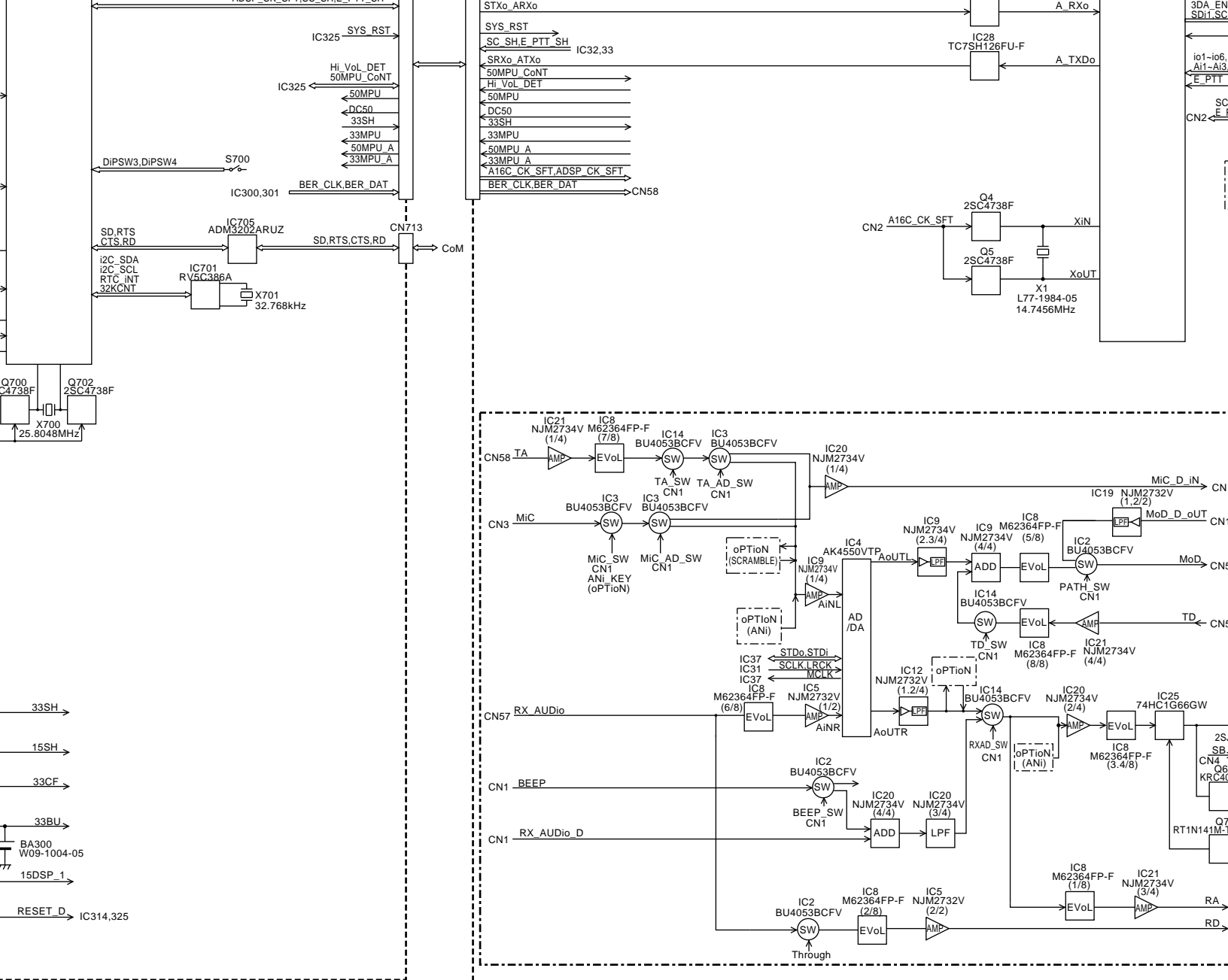


NXR-700 APPENDIX 1 (BLOCK DIAGRAM)



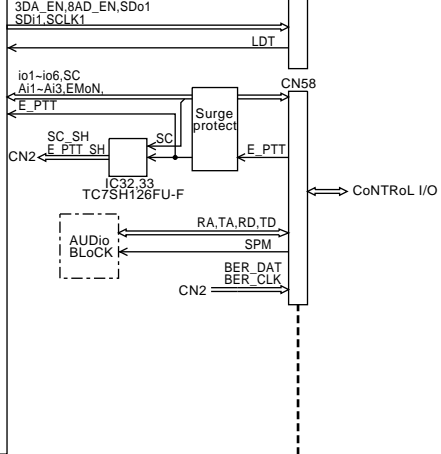




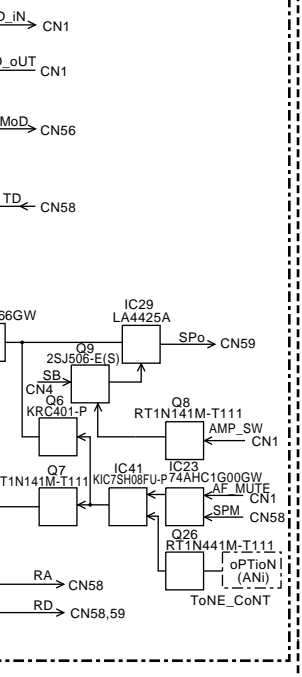


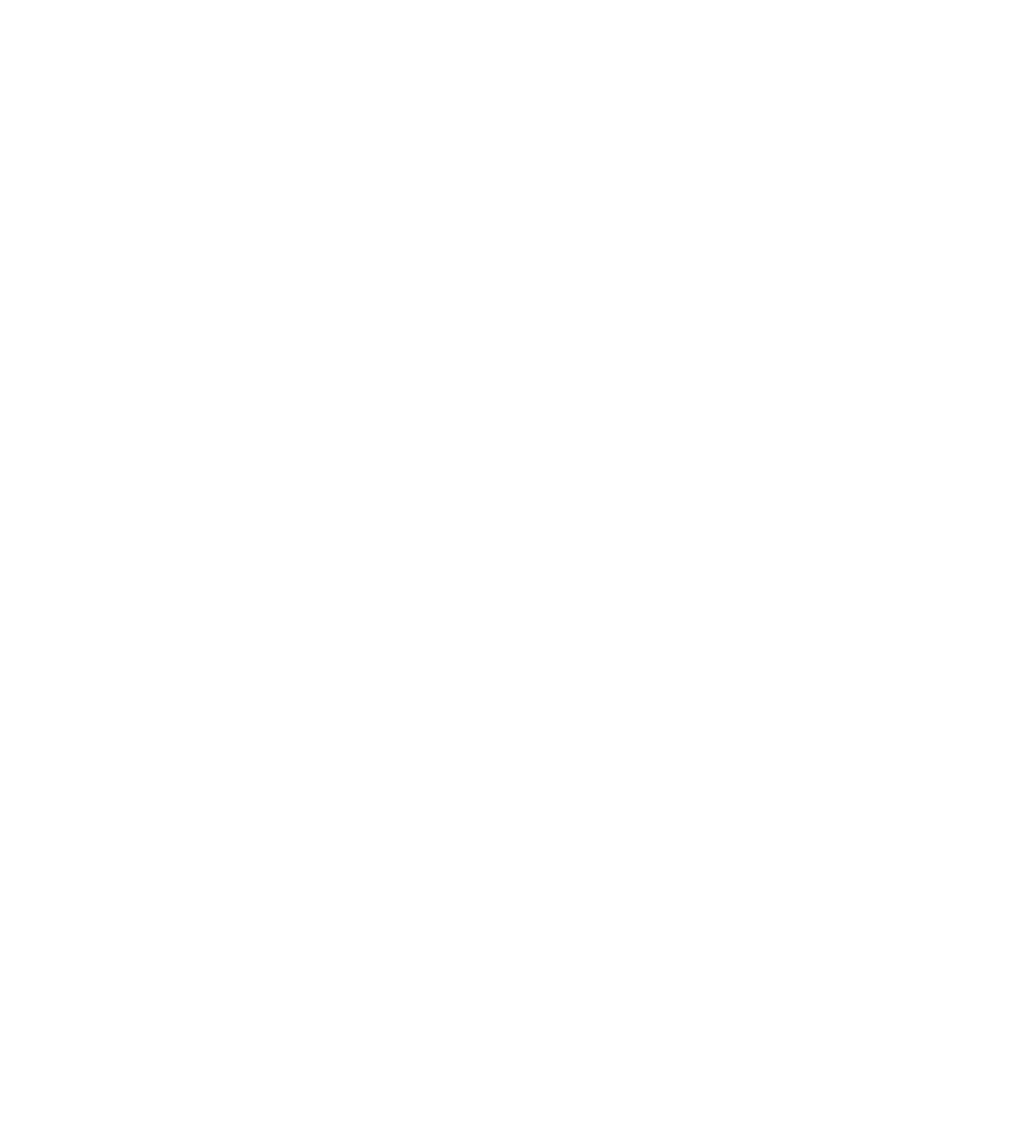
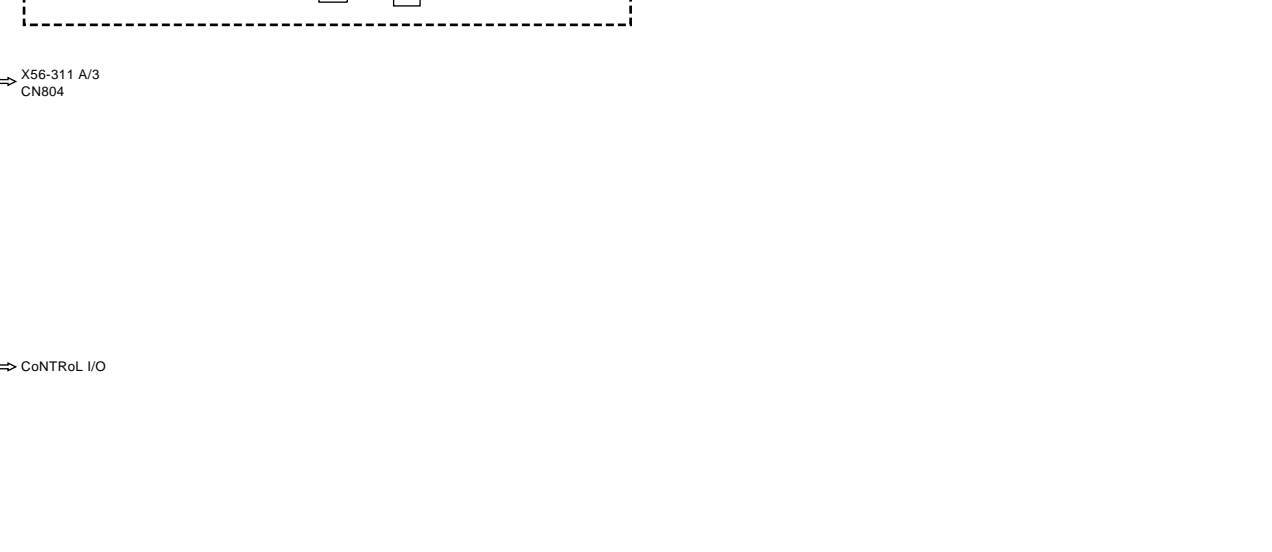
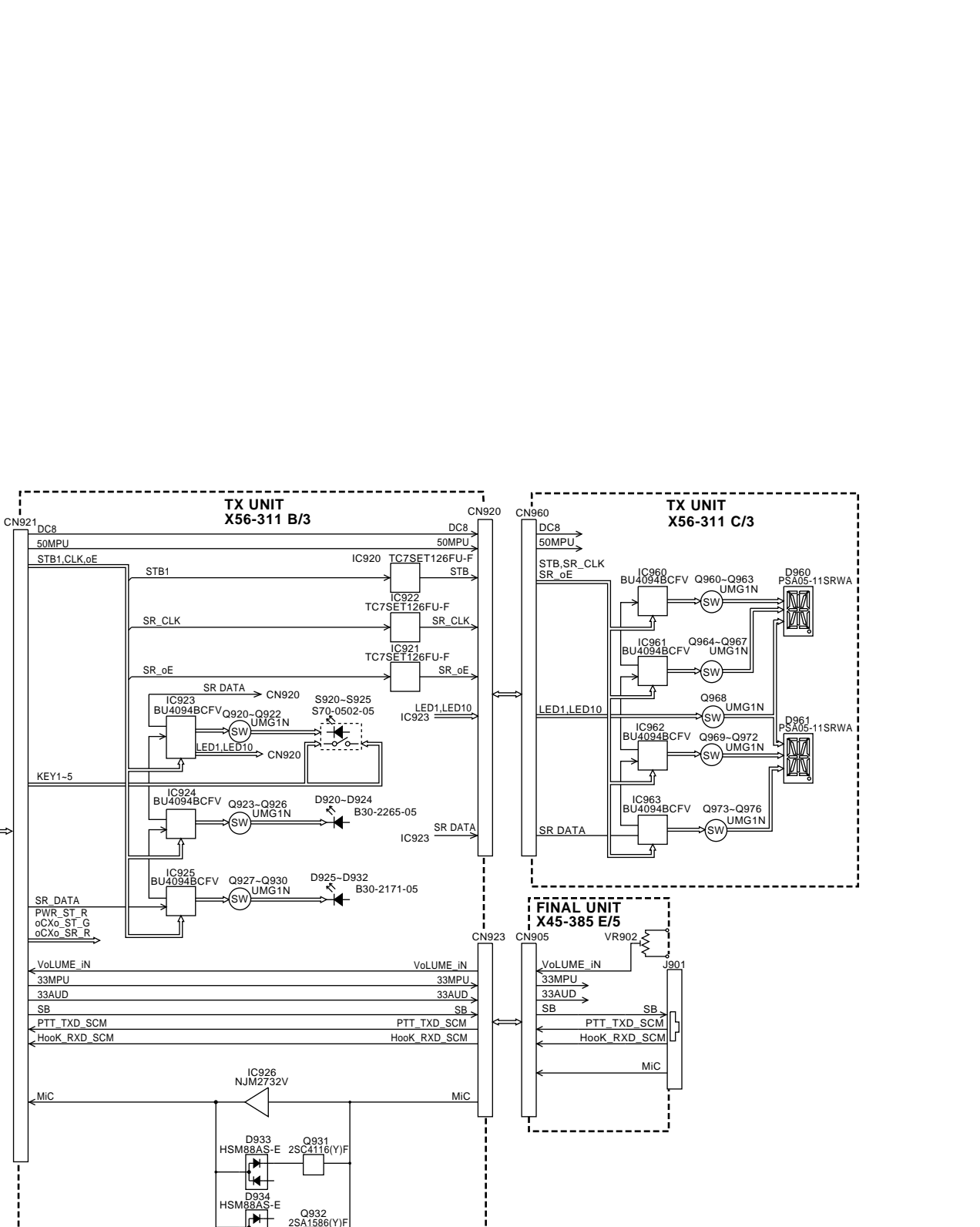
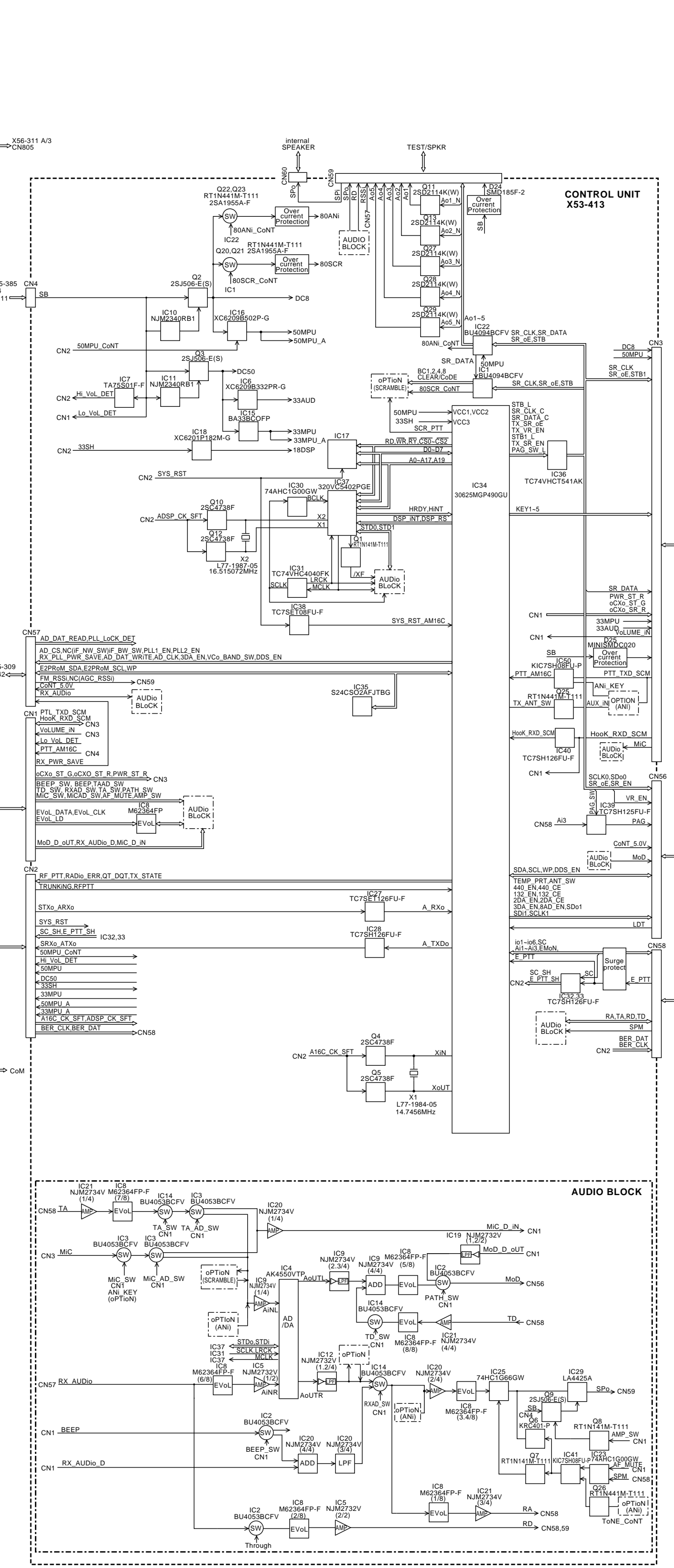
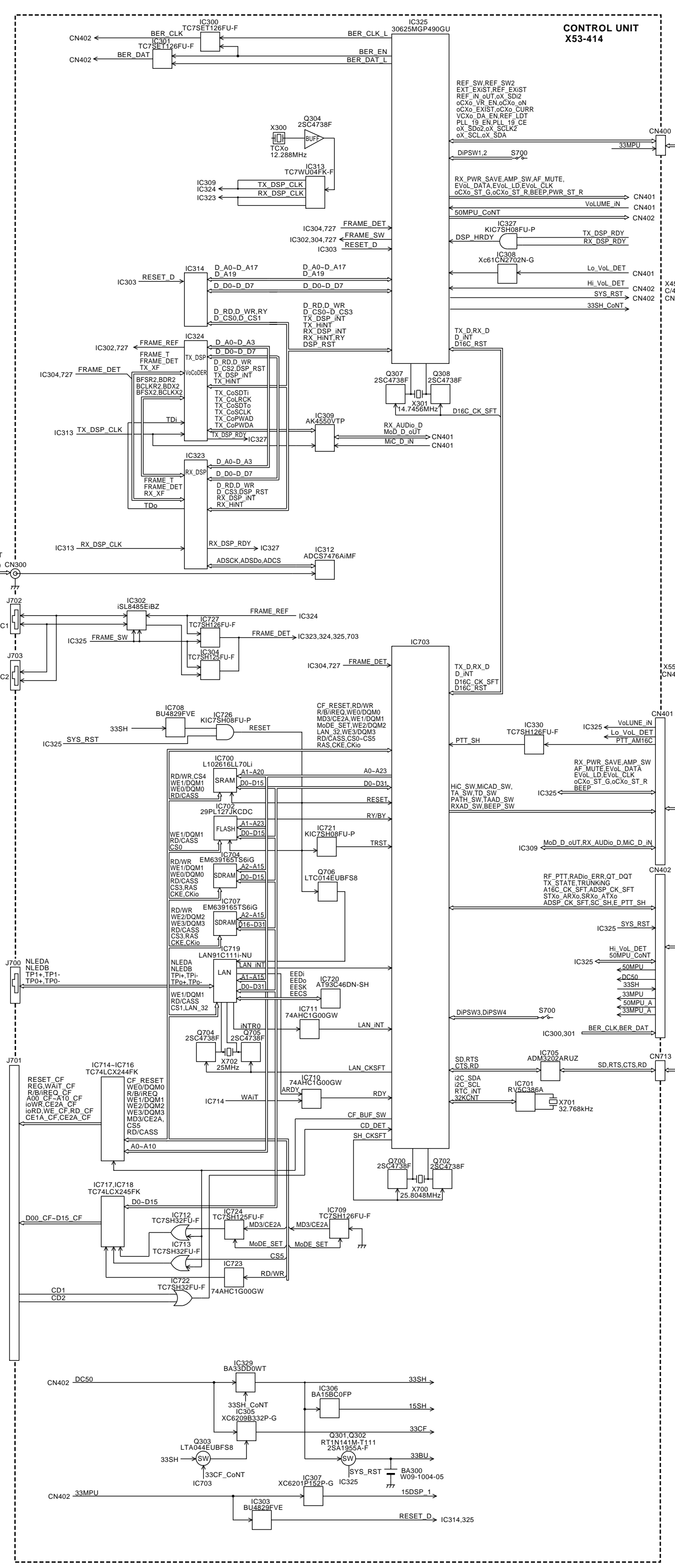
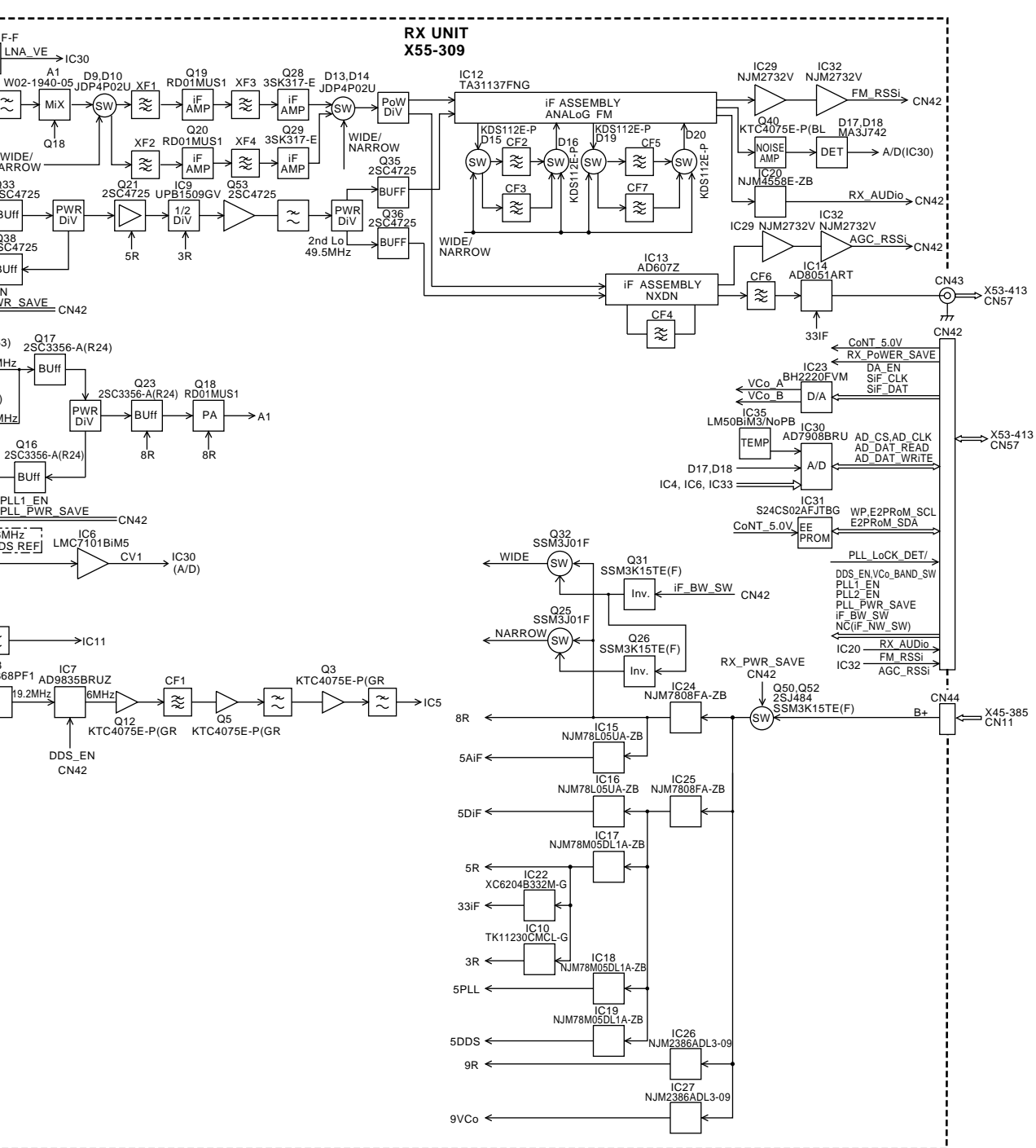
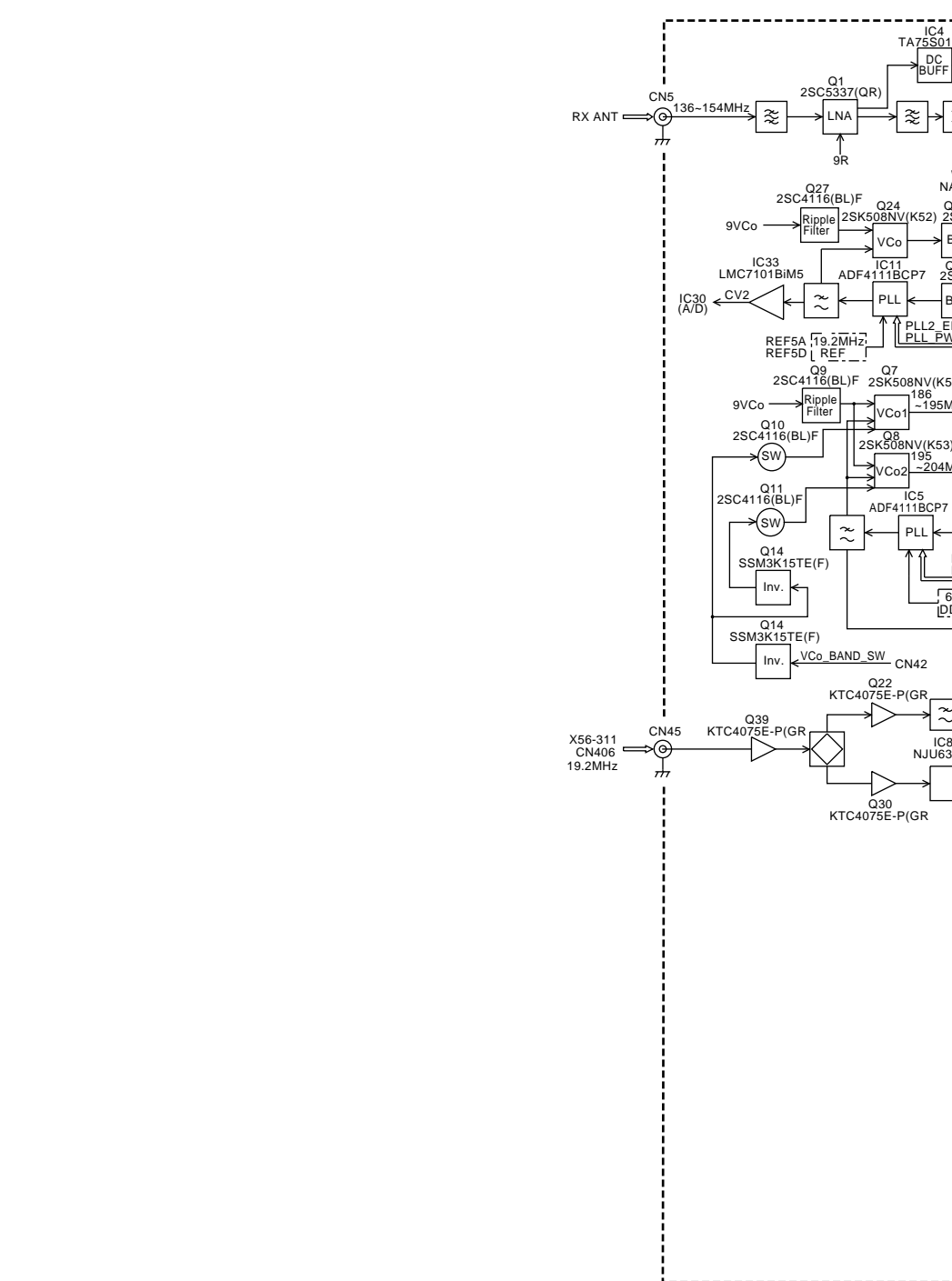
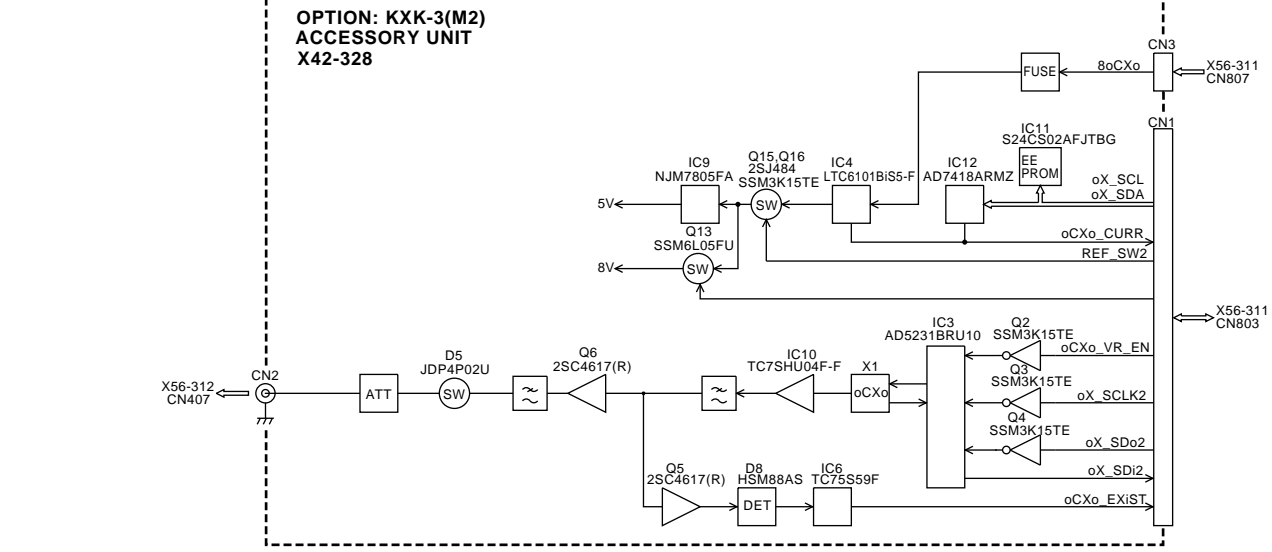
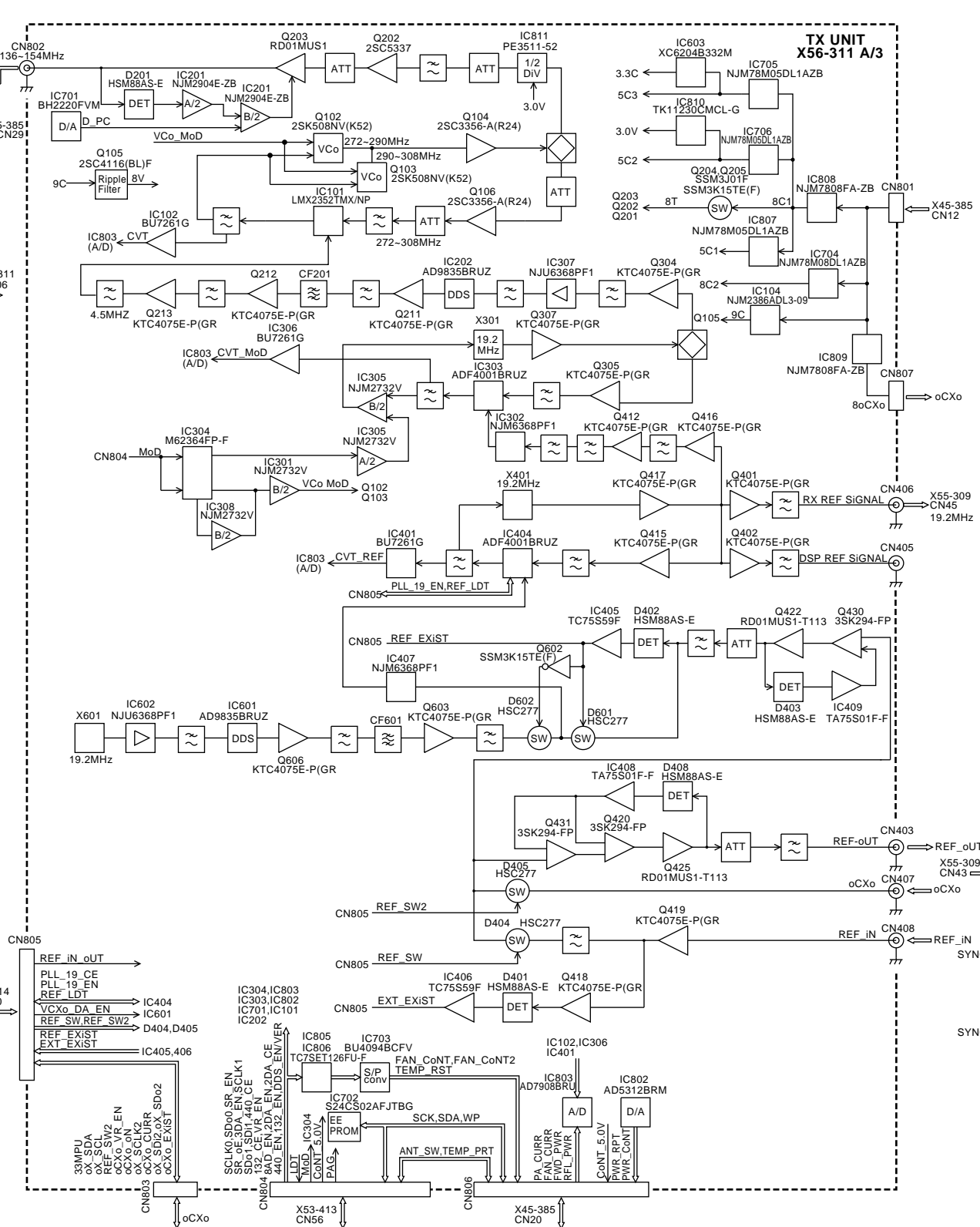
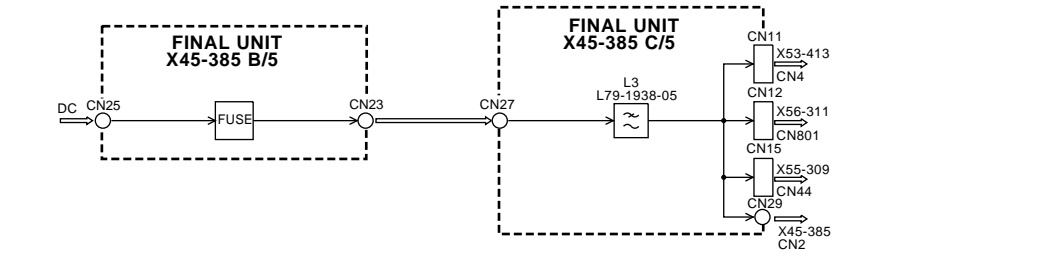
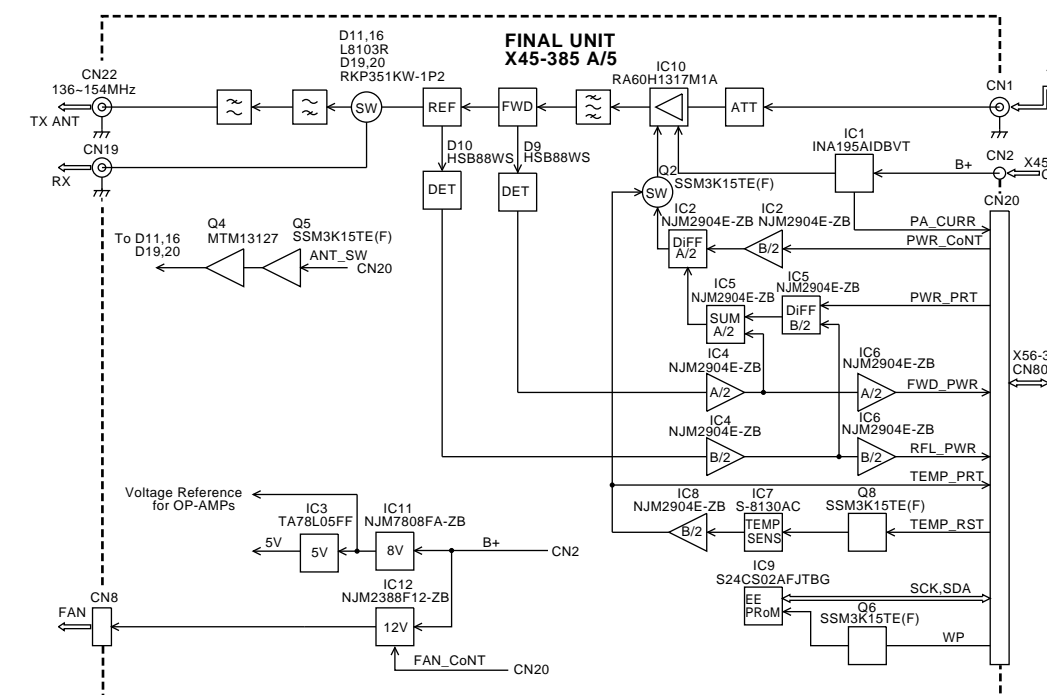
33H: IC702-IC705,IC707-IC724,IC726
 IC17,IC34,IC37,IC28,IC30-IC33,IC40
 33BU: IC700,IC701

33MPU: IC7,IC303,IC304,IC313,IC314,IC316,IC323,IC324,IC325,IC327,IC725,IC727
 33MPU_A:IC309,IC312
 33AUD: IC2-IC5,IC8,IC9,IC12,IC14,IC19,IC20,IC21,IC23,IC25,IC41,IC926
 33CF: J701
 50MPU: IC300-IC302
 IC22,IC27,IC35,IC36,IC38,IC39,IC1,IC150
 IC920-IC925,IC960-IC963
 50MPU_A:IC315
 18DSP: IC37,
 15SH: IC703
 15DSP: IC323,IC324
 80ANI:oPTIoN(ANI)
 80SCR:oPTIoN(SCRAMBLE)



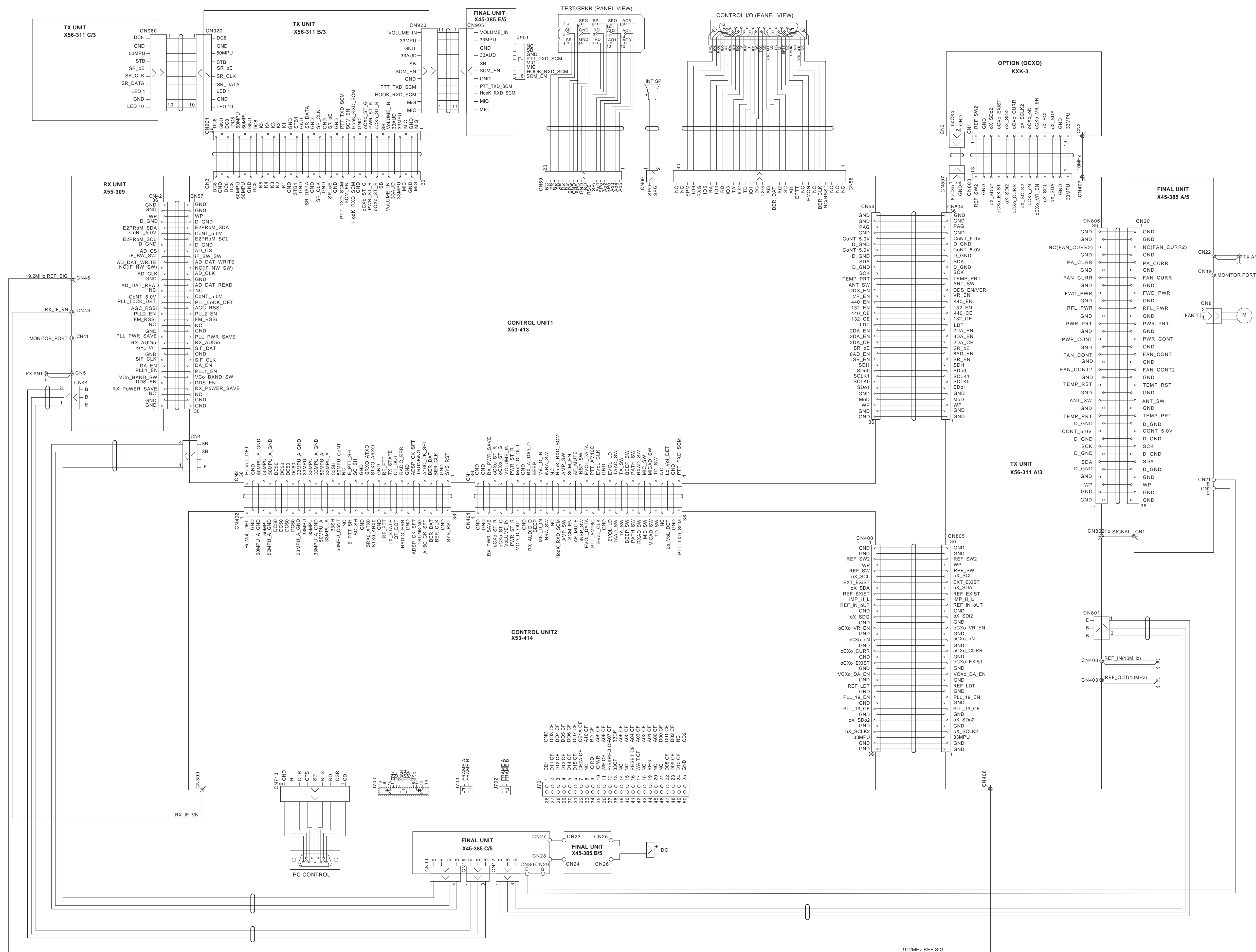
AUDIO BLOCK

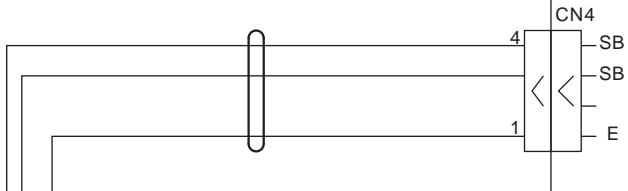
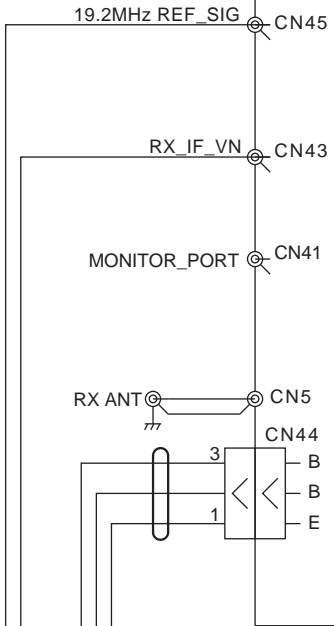
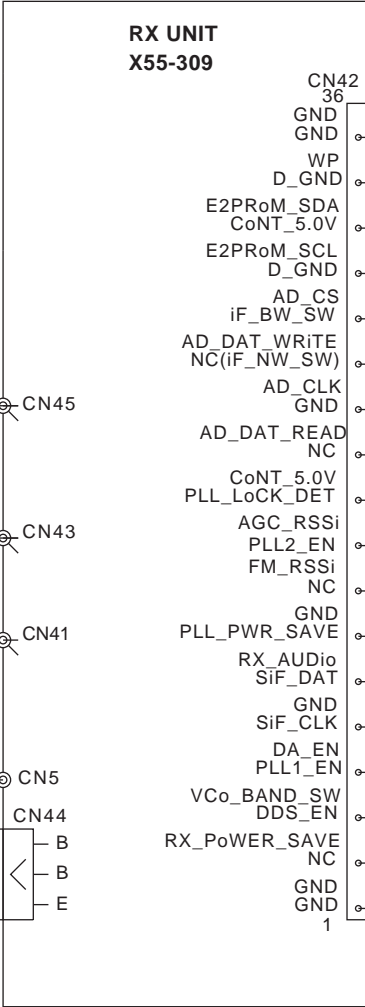
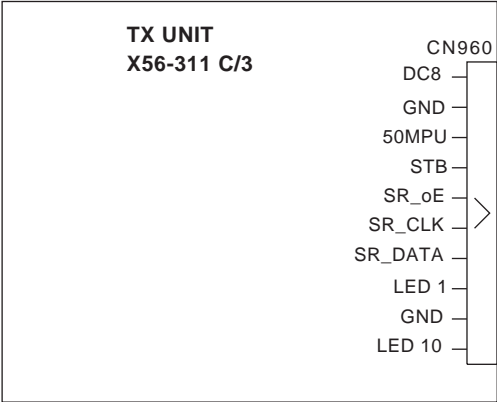


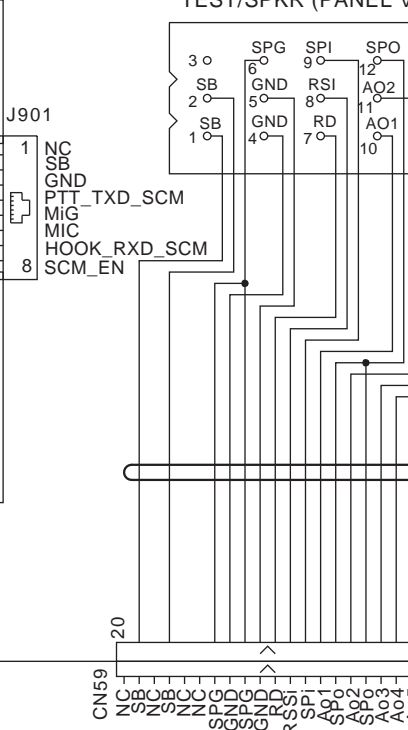
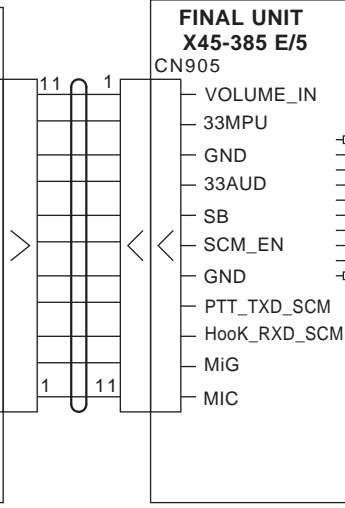
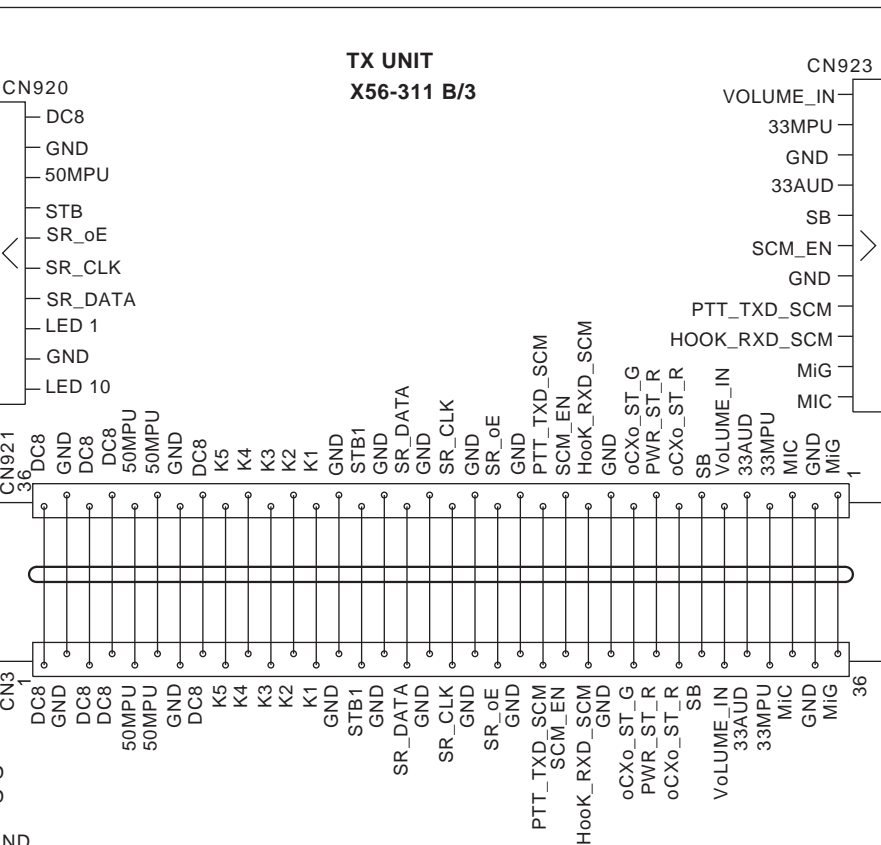


- 39H IC102-IC105,IC107-IC124,IC128
- IC17,IC34,IC37,IC38,IC30-IC33,IC40
- 38U IC70,IC71

- 33MPU IC7,IC8,IC10,IC13,IC14,IC16,IC23,IC24,IC25,IC27,IC25,IC27
- 33MPU_A,IC30B,IC312
- 33AUD IC2-IC5,IC8,IC12,IC14,IC19,IC20,IC21,IC23,IC25,IC41,IC102B
- 33CF JP1
- 30MPU IC300-IC302
- IC22,IC27,IC28,IC29,IC38,IC39,IC1,IC15
- IC90-IC92S,IC960-IC963
- 30MPU_A,IC315
- 380SP IC37
- 15SH IC70
- 150SP IC33,IC34
- 30AN (OPTIONA)
- 380CF (OPTIONA)



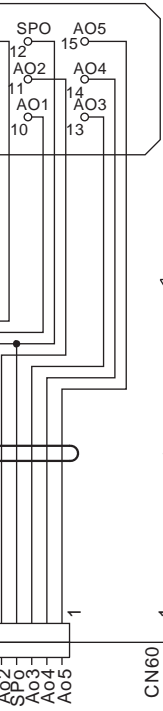




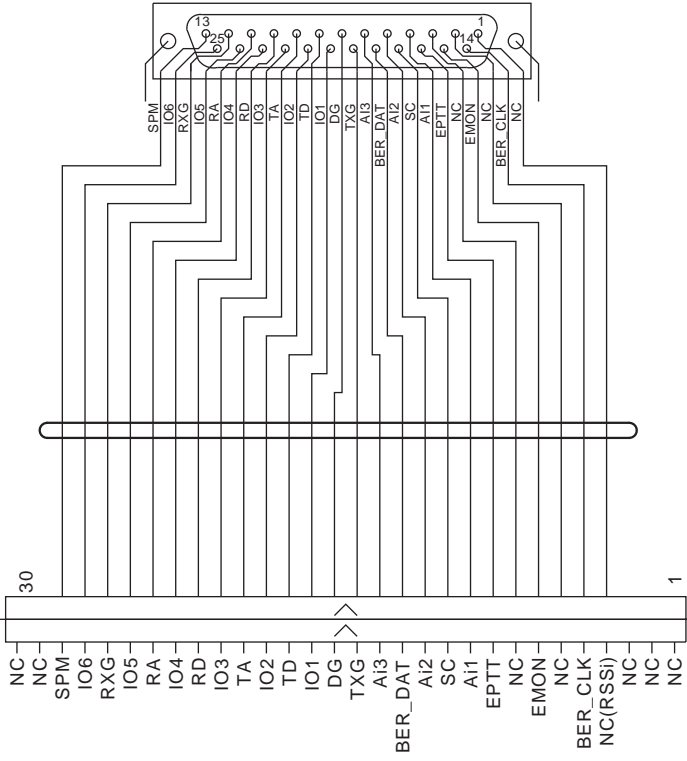
TEST/SPKR (PANEL V)

CONTROL UNIT1 X53-413

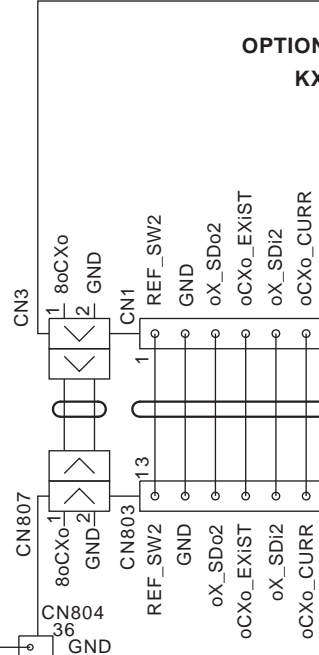
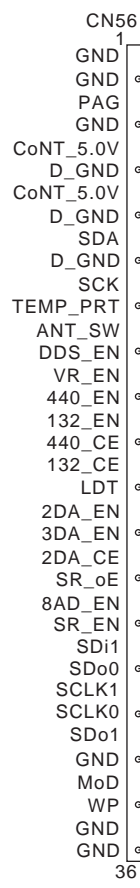
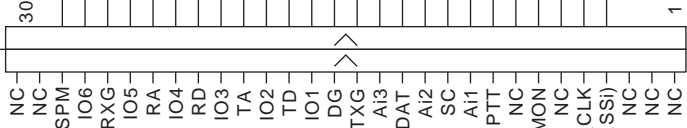
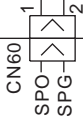
FRONT PANEL VIEW



CONTROL I/O (PANEL VIEW)



INT SP

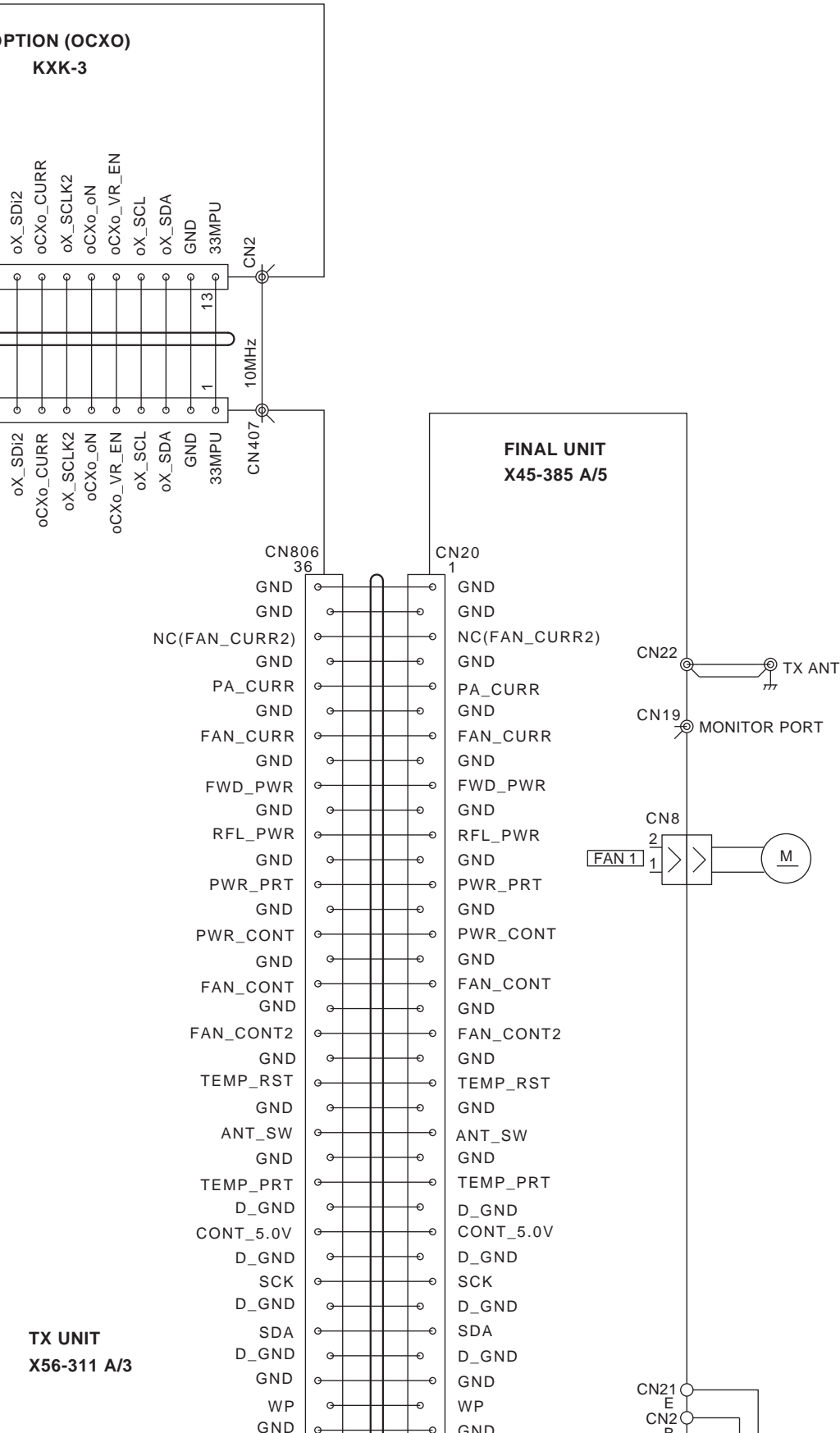


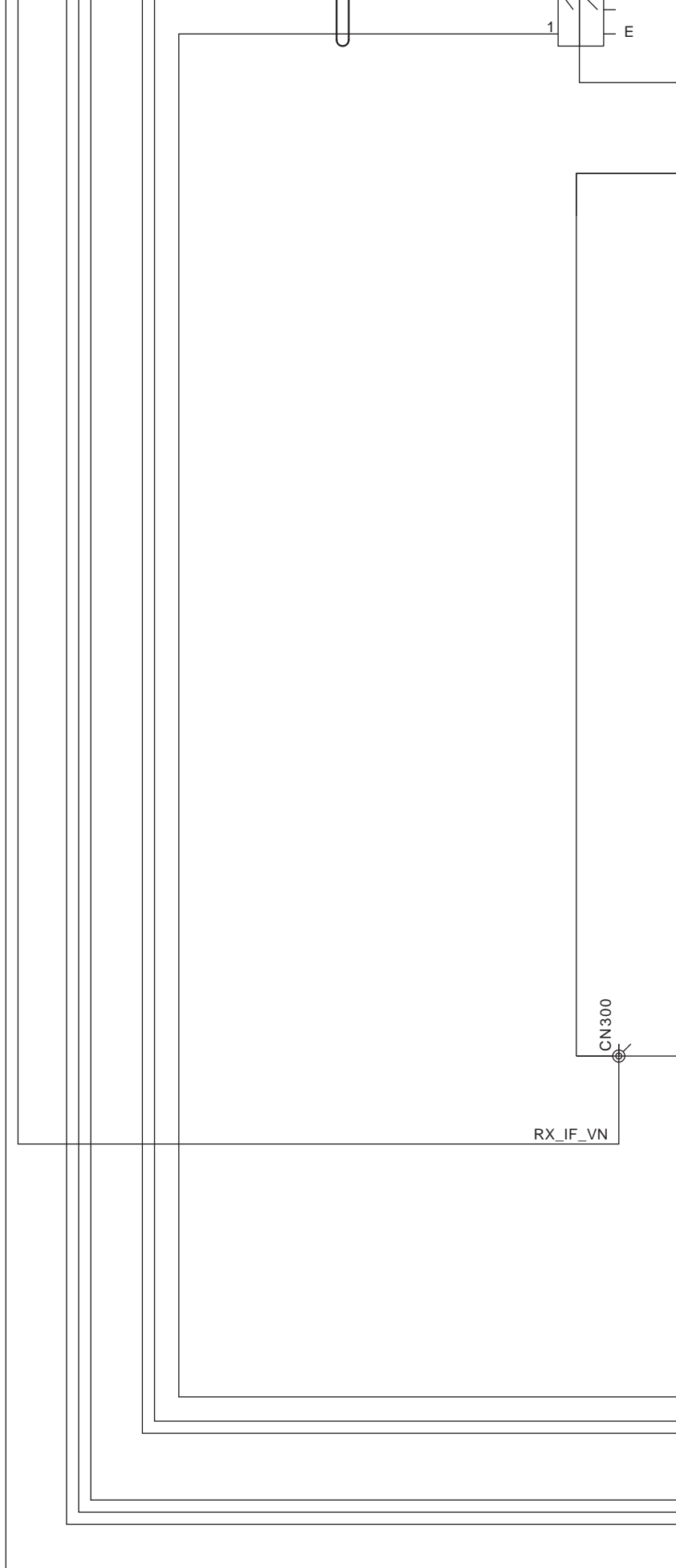
OPTIONAL KEY

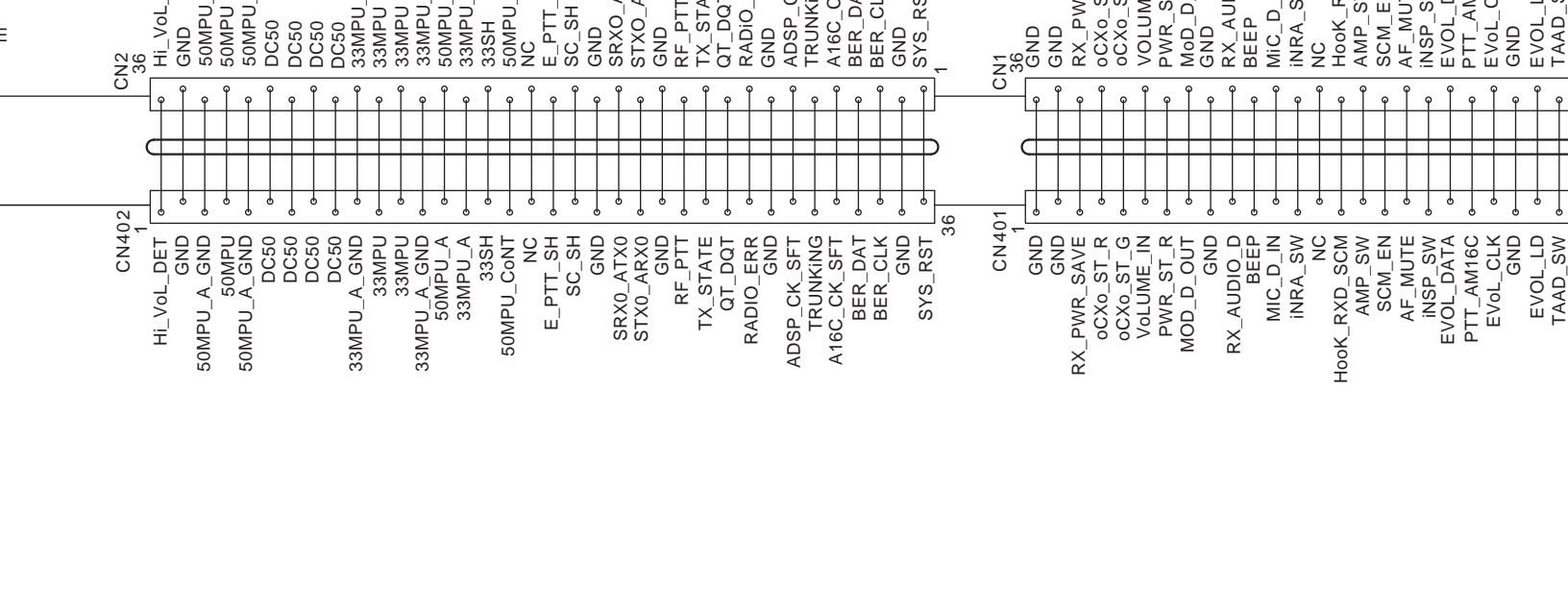


TX X5

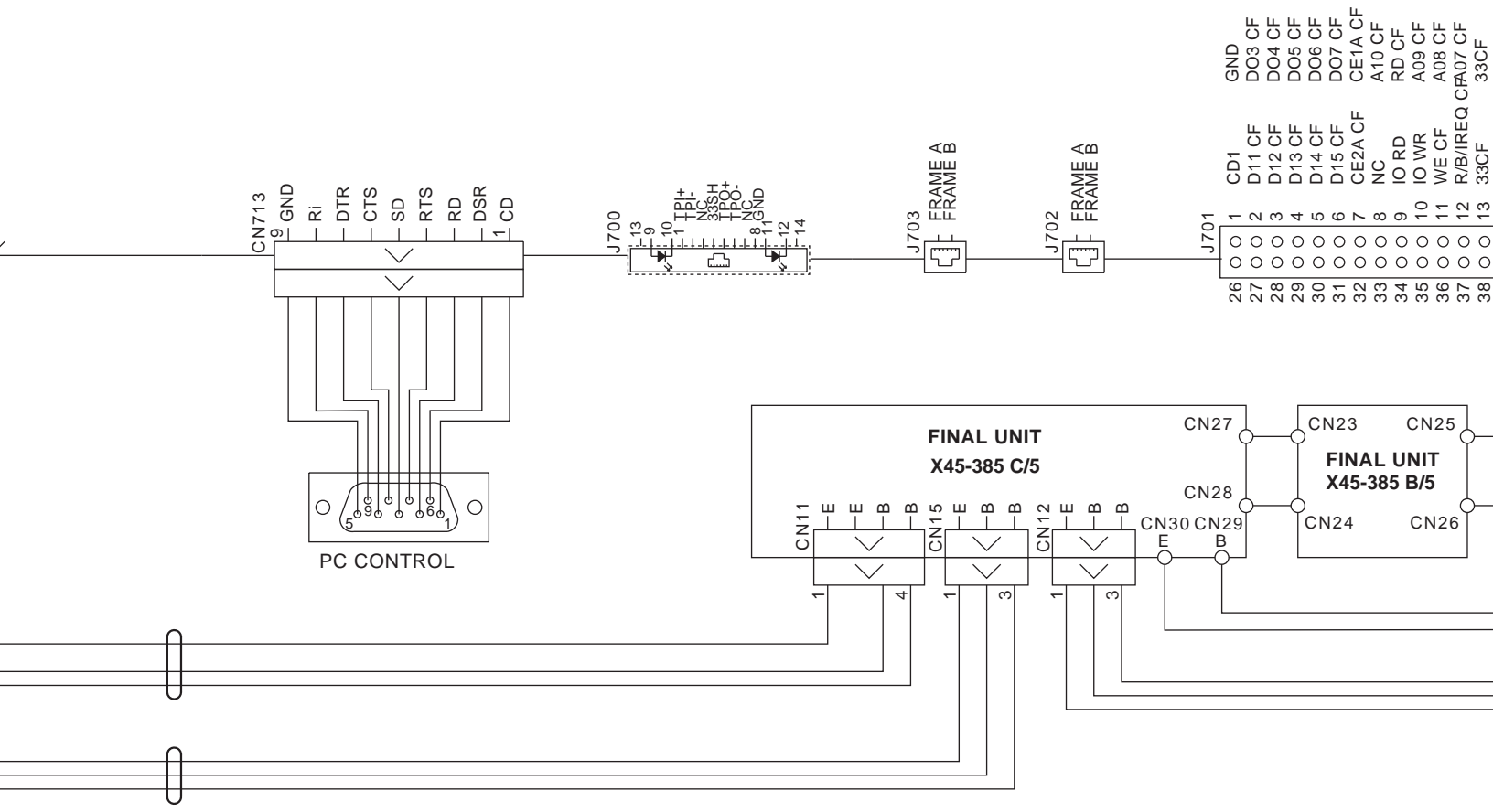
NXR-700 APPENDIX 2 (INTERCONNECTION DIAGRAM)



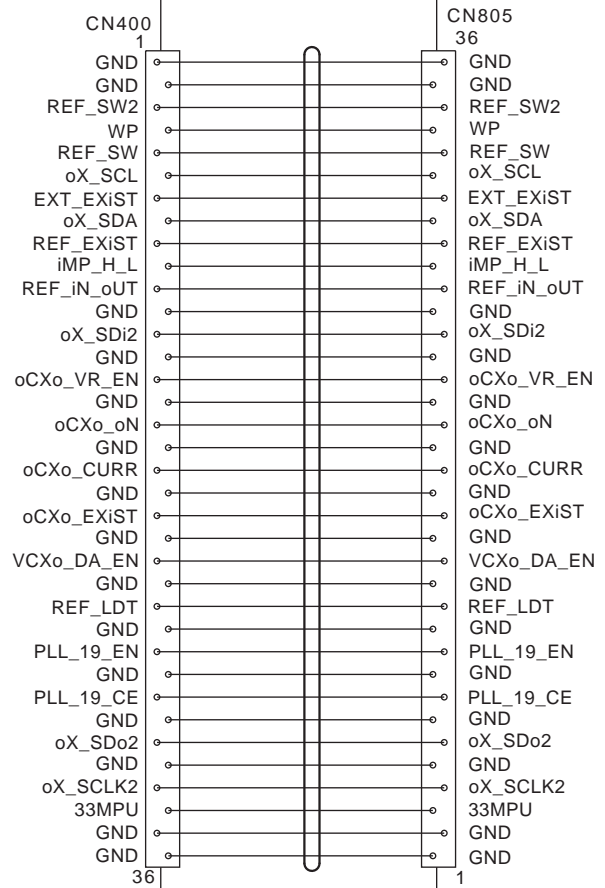
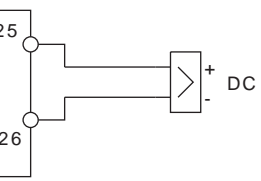
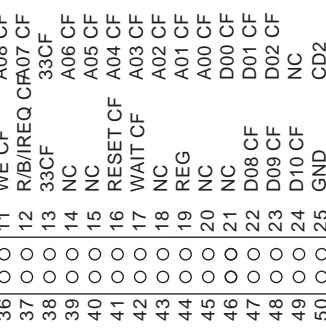
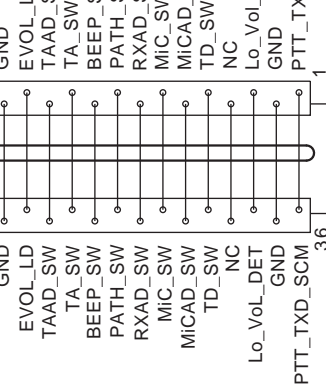




**CONTROL UNIT2
X53-414**



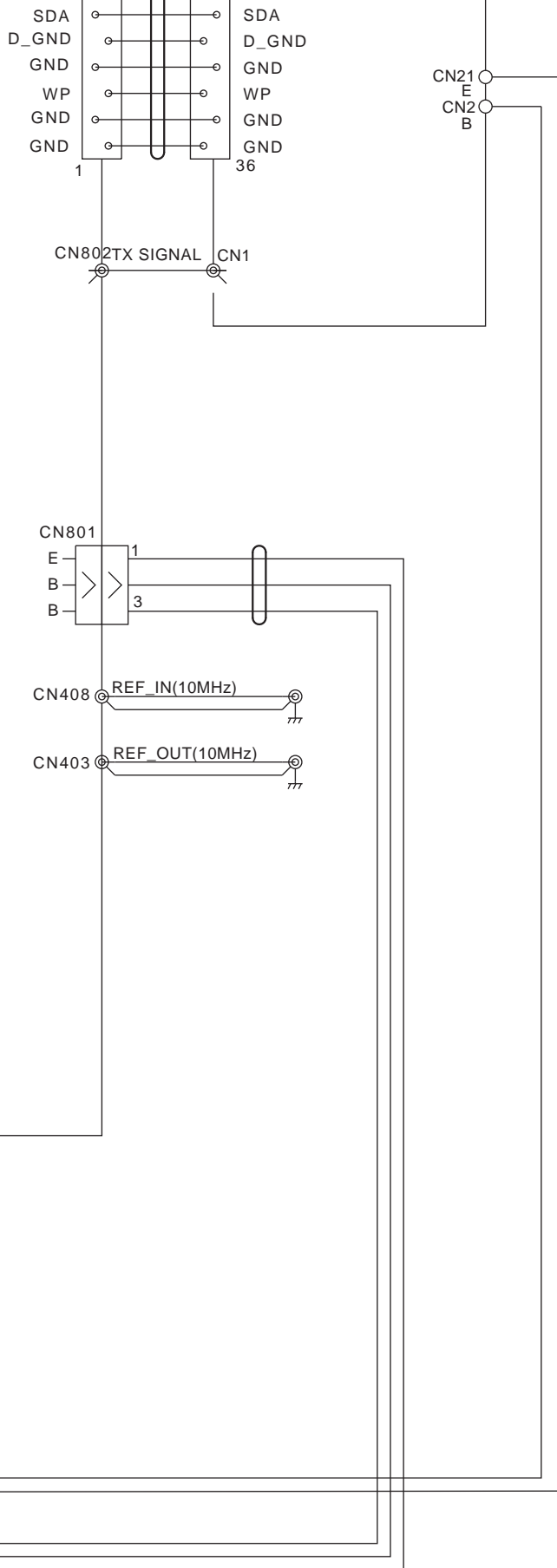
26	O	O	1	CD1	GND
27	O	O	2	D11 CF	D03 CF
28	O	O	3	D12 CF	D04 CF
29	O	O	4	D13 CF	D05 CF
30	O	O	5	D14 CF	D06 CF
31	O	O	6	D15 CF	D07 CF
32	O	O	7	CE2A CF	CE1A CF
33	O	O	8	NC	A10 CF
34	O	O	9	IO RD	RD CF
35	O	O	10	IO WR	A09 CF
36	O	O	11	WE CF	A08 CF
37	O	O	12	R/B/IREQ	CF#07 CF
38	O	O	13	33CF	33CF

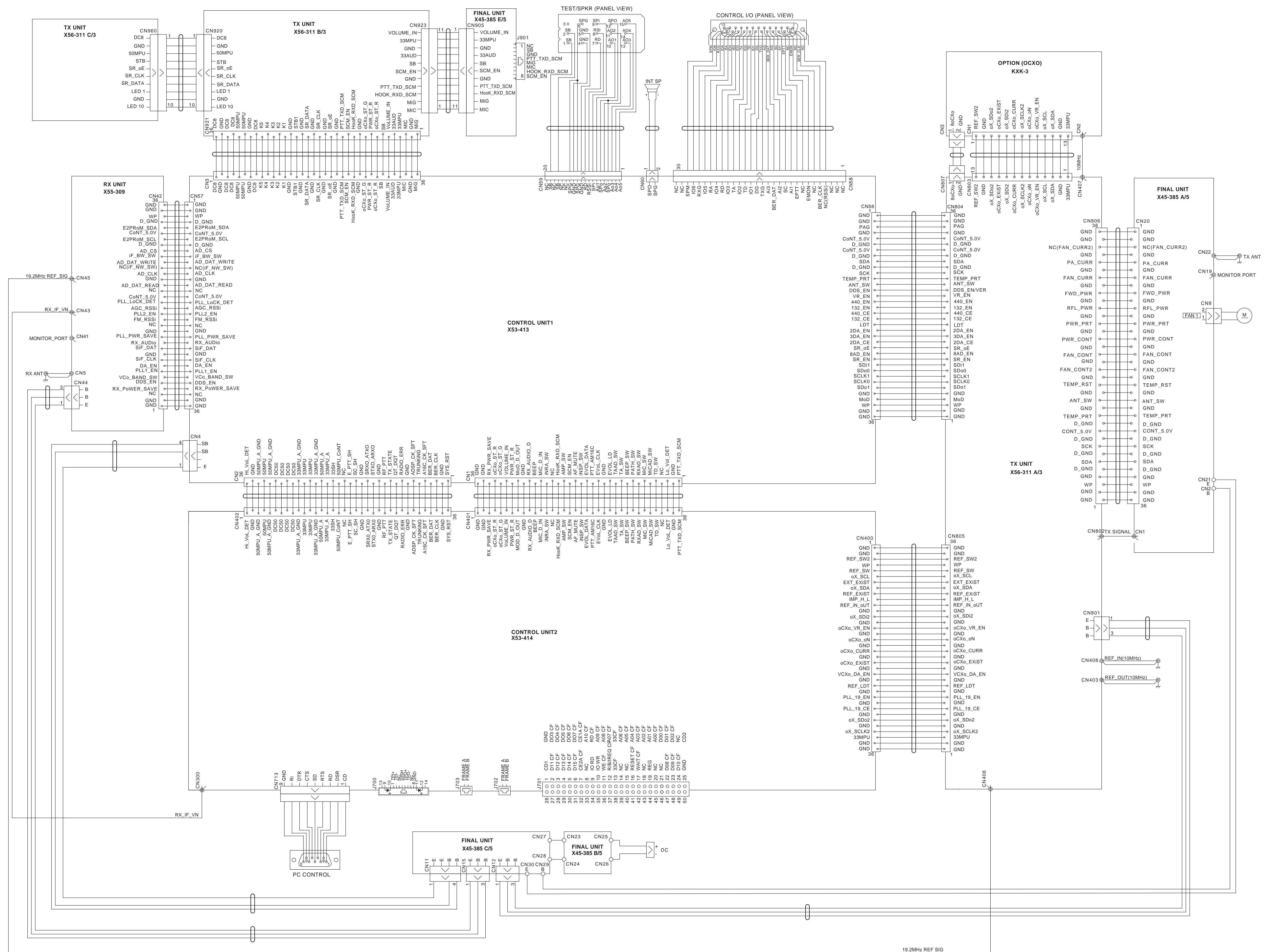


CN406

19.2MHz REF SIG

TX UNIT
X56-311 A/3

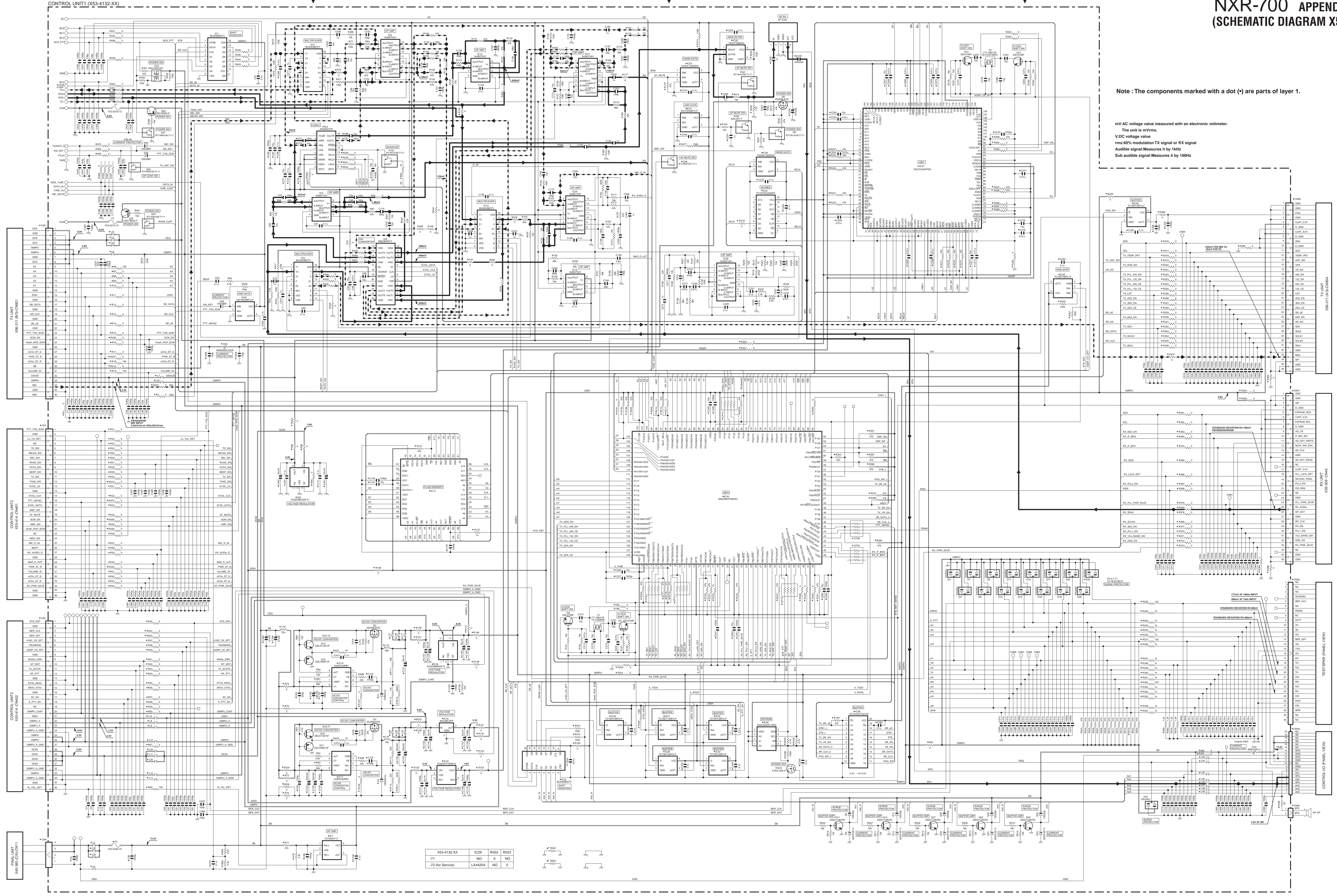




19.2MHz REF SIG

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

mV:AC voltage value measured with an electronic voltmeter.
The unit is mVrms.
V:DC voltage value
rms:60% modulation TX signal or RX signal
Audible signal: Measures it by 1kHz
Sub audible signal: Measures it by 100Hz



X53-413-XX	R53-413-XX	R52	R53
-71	NO	NO	NO
-72 (for Service)	LA4425A	NO	0

2

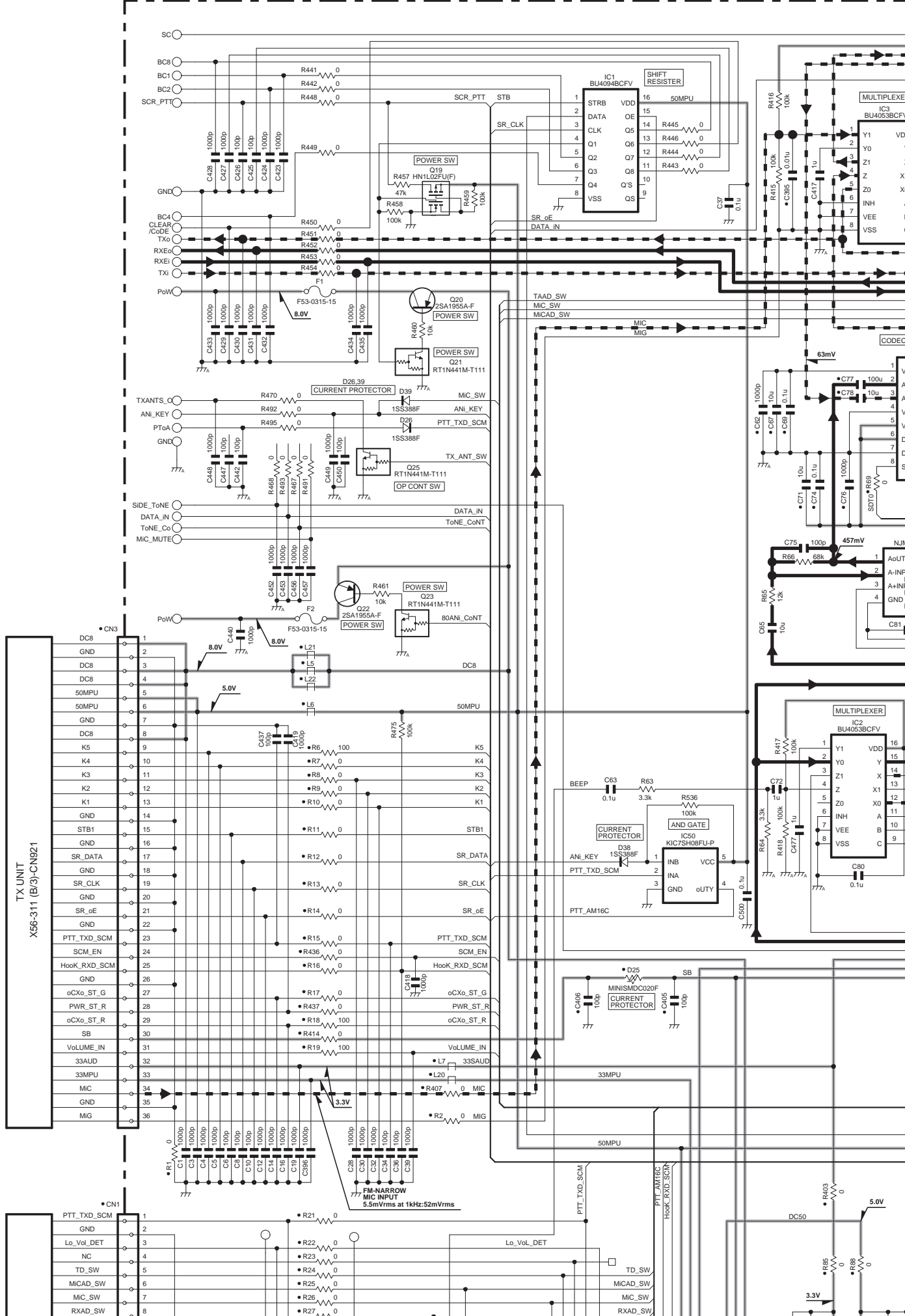
3

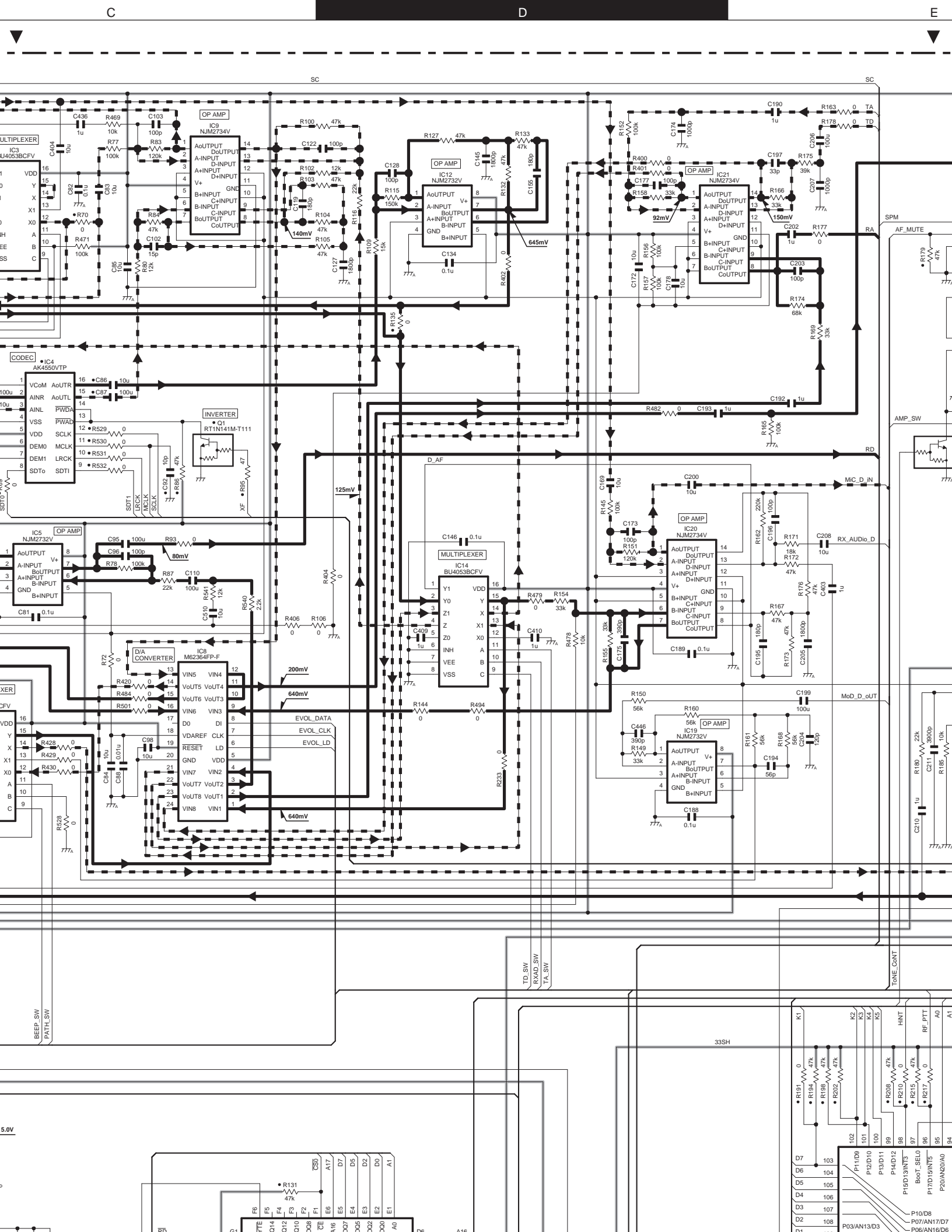
4

5

6

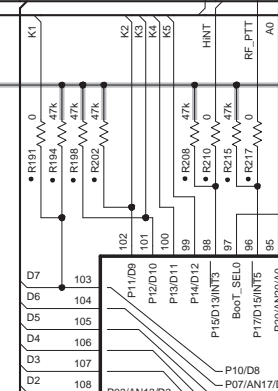
CONTROL UNIT1 (X53-4132-XX)

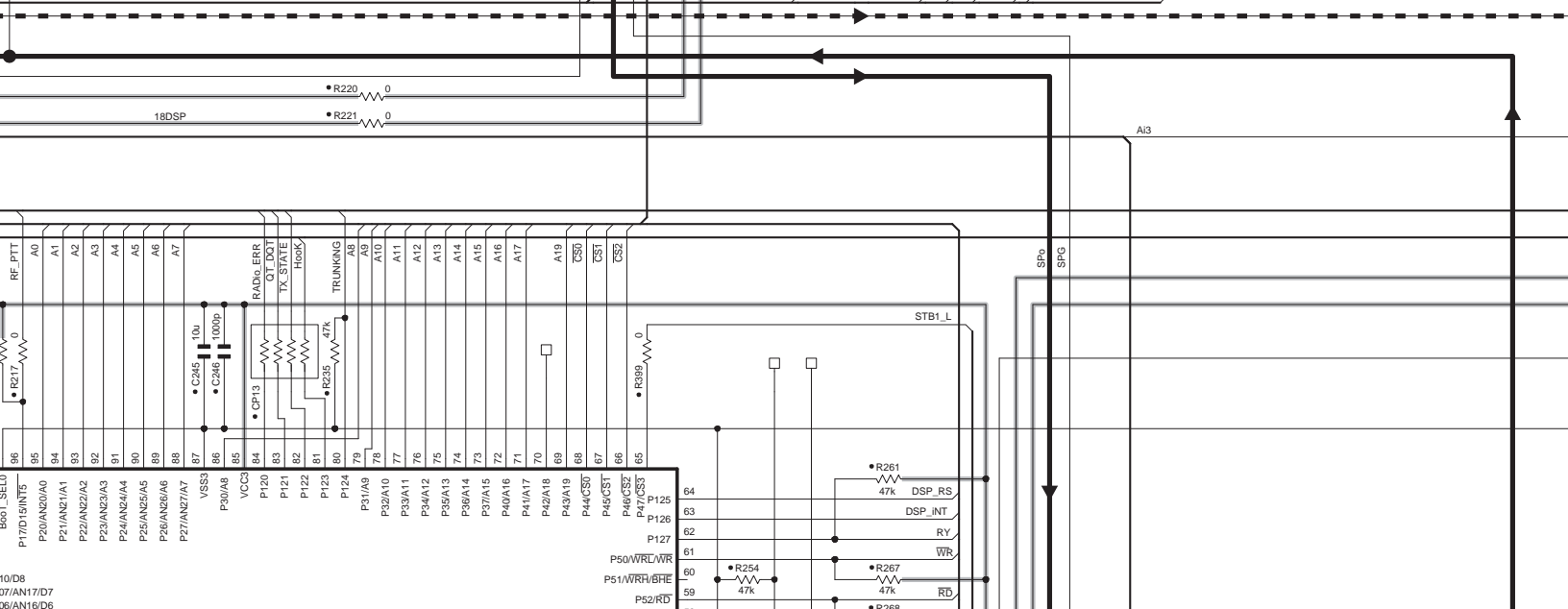
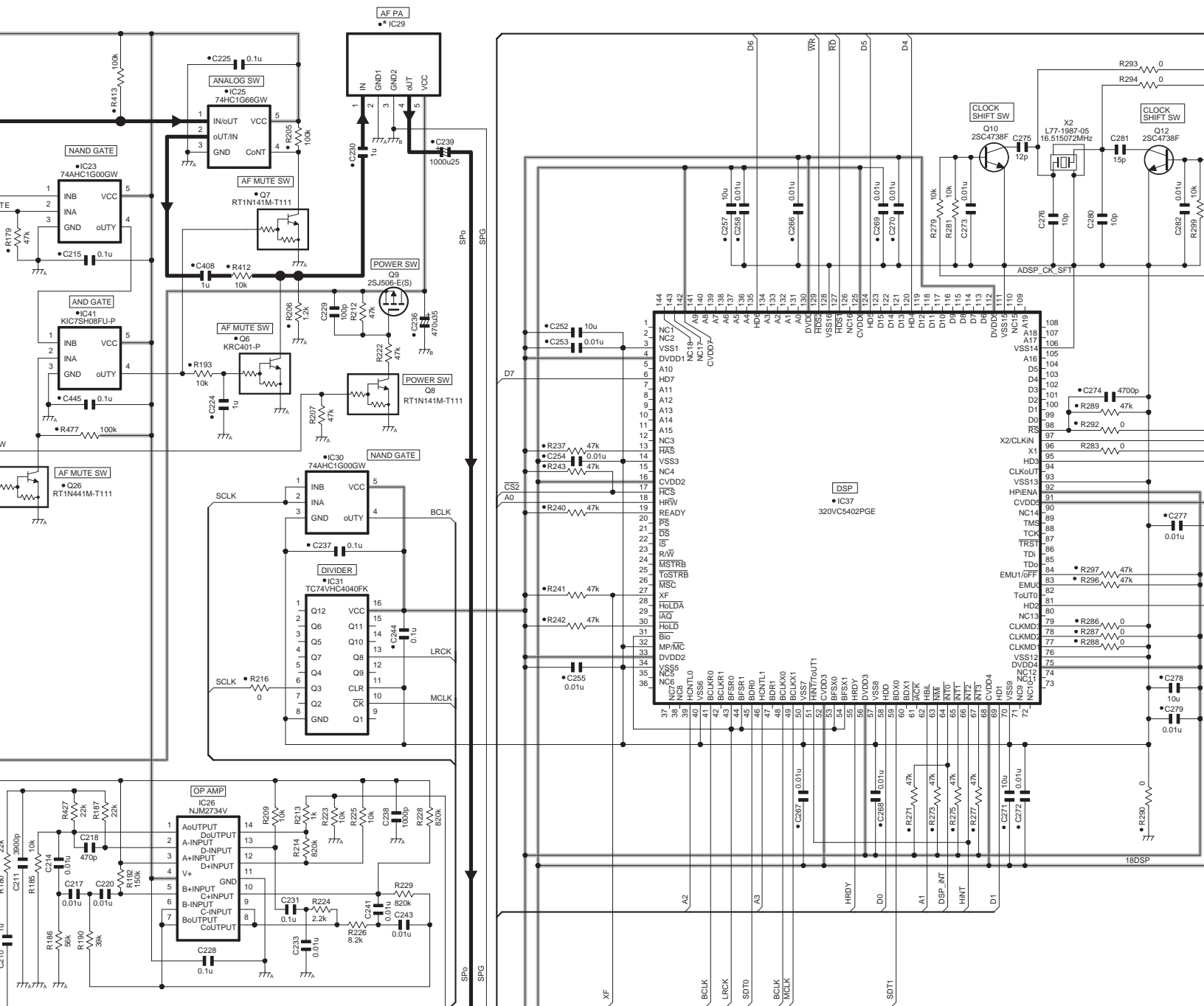




5.0V

33SH





NXR-700 APPENDIX 3 (SCHEMATIC DIAGRAM X53-413)

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

mV:AC voltage value measured with an electronic voltmeter.

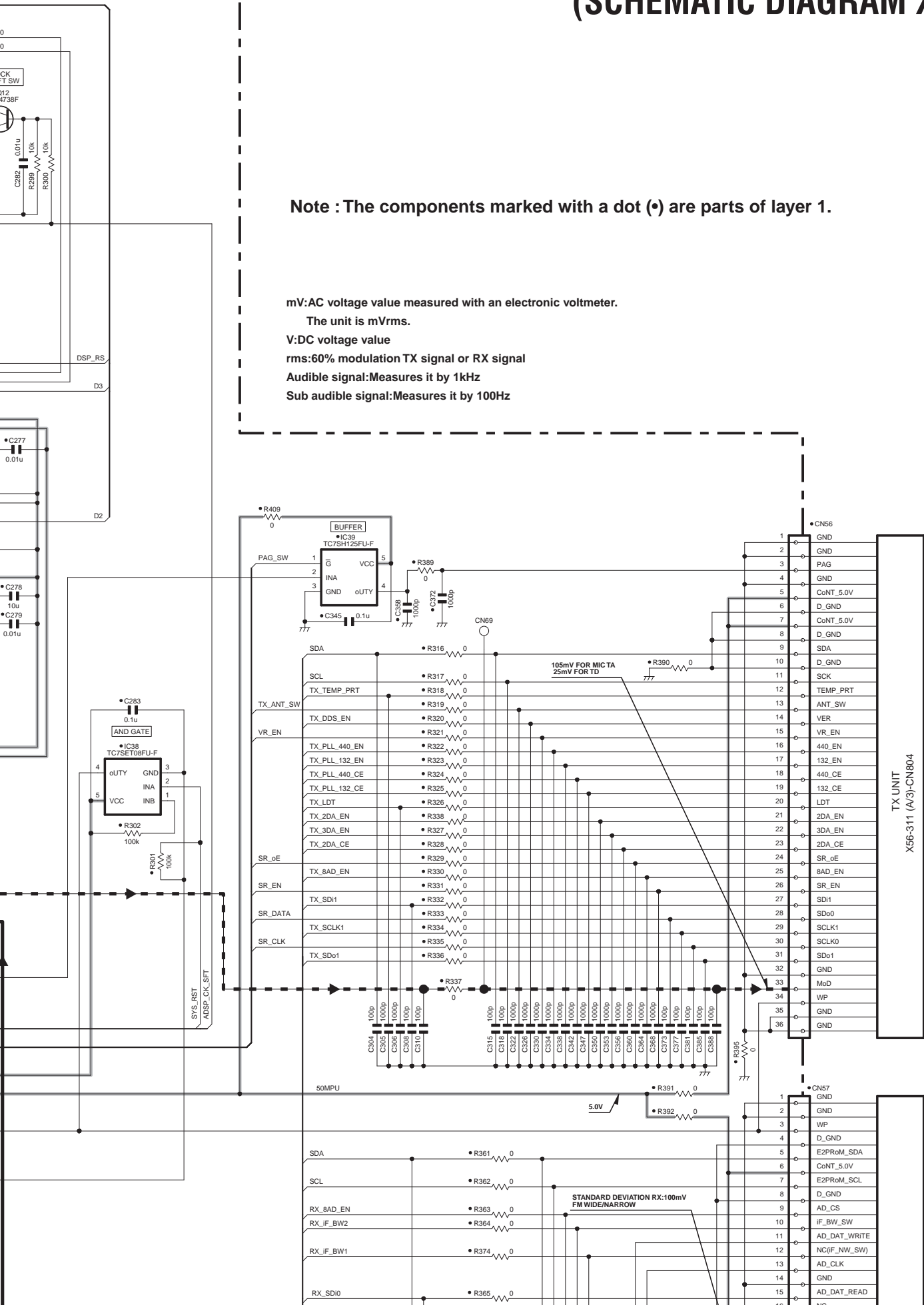
The unit is mVrms.

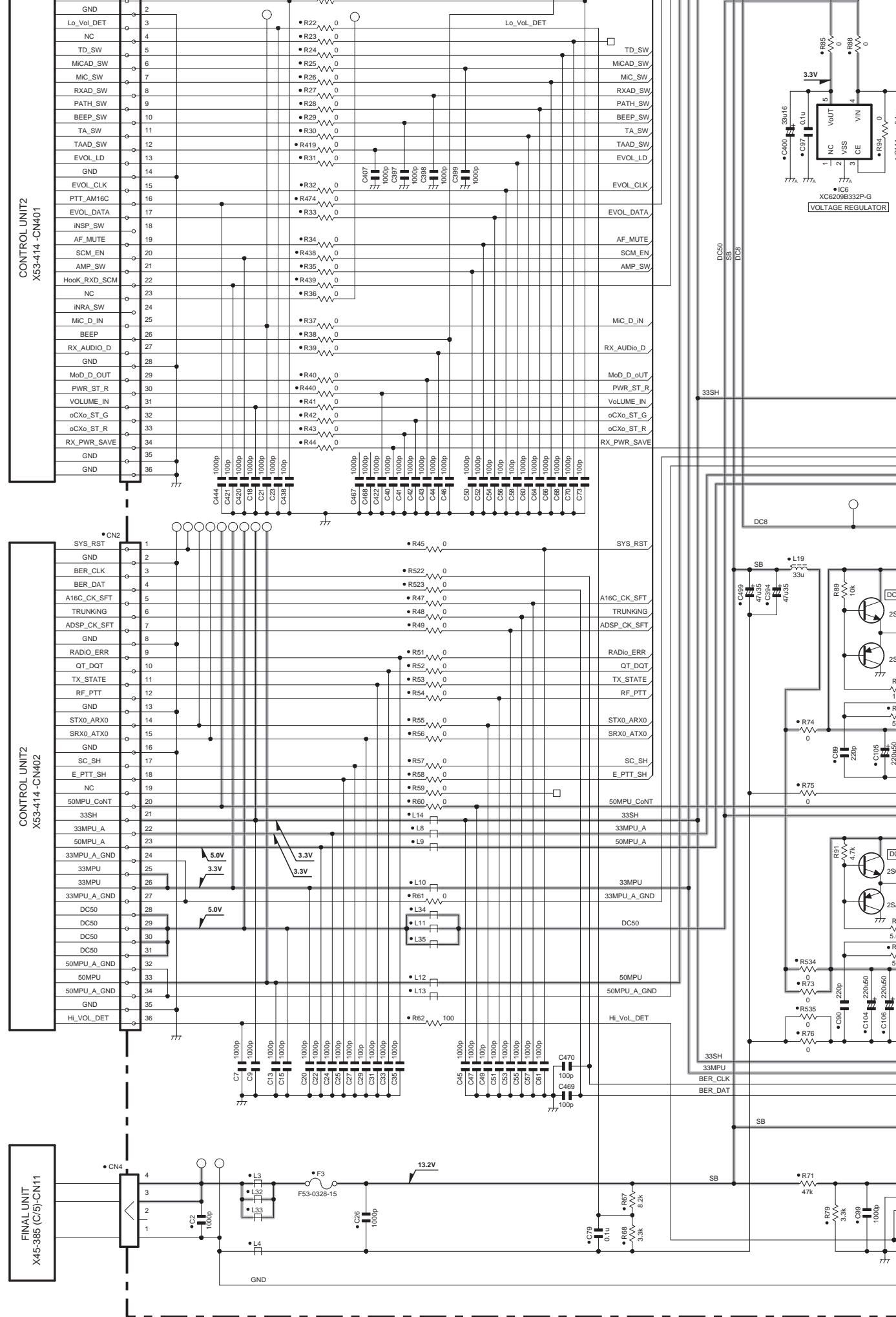
V:DC voltage value

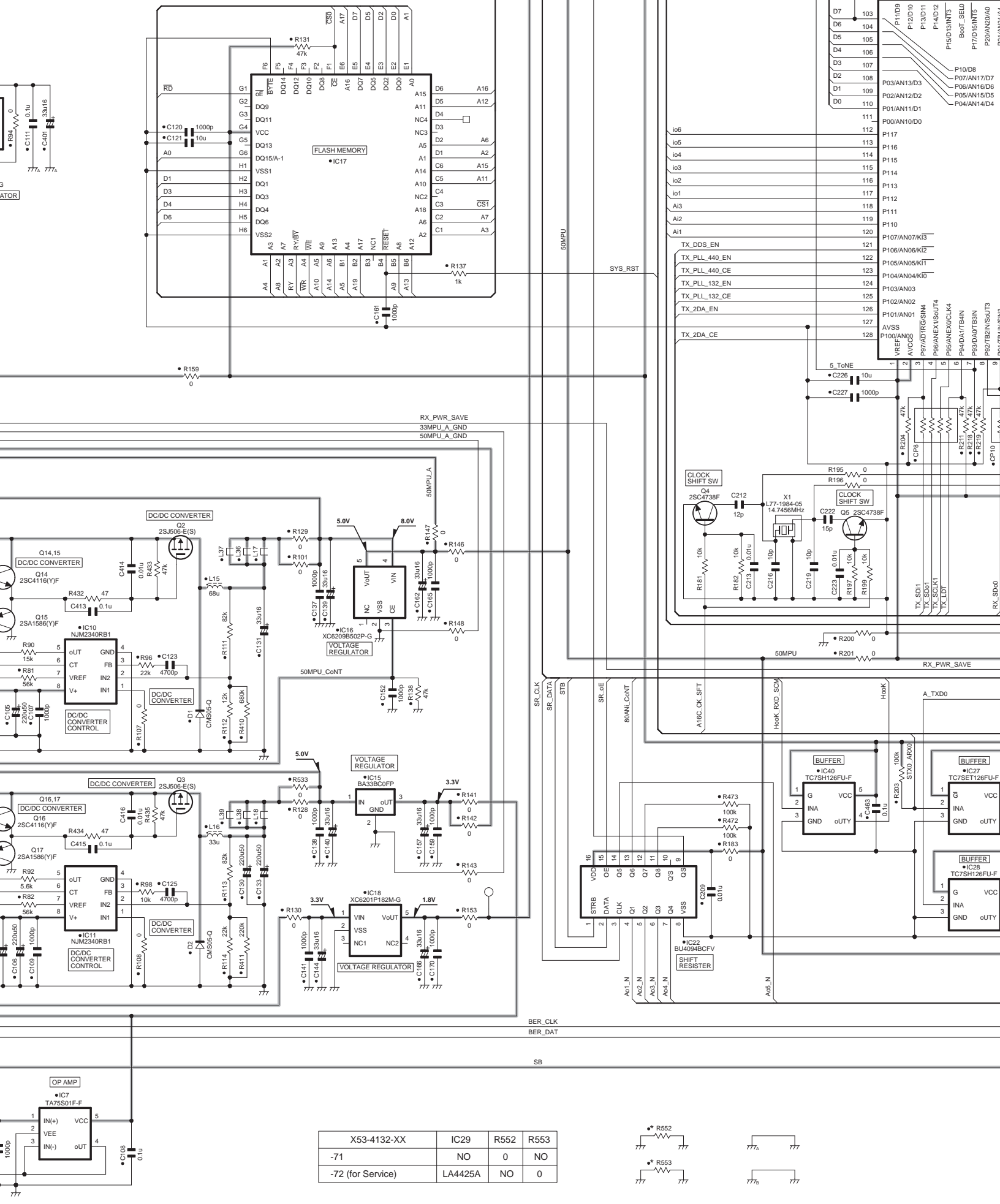
rms:60% modulation TX signal or RX signal

Audible signal:Measures it by 1kHz

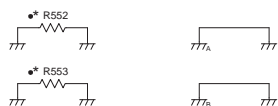
Sub audible signal:Measures it by 100Hz



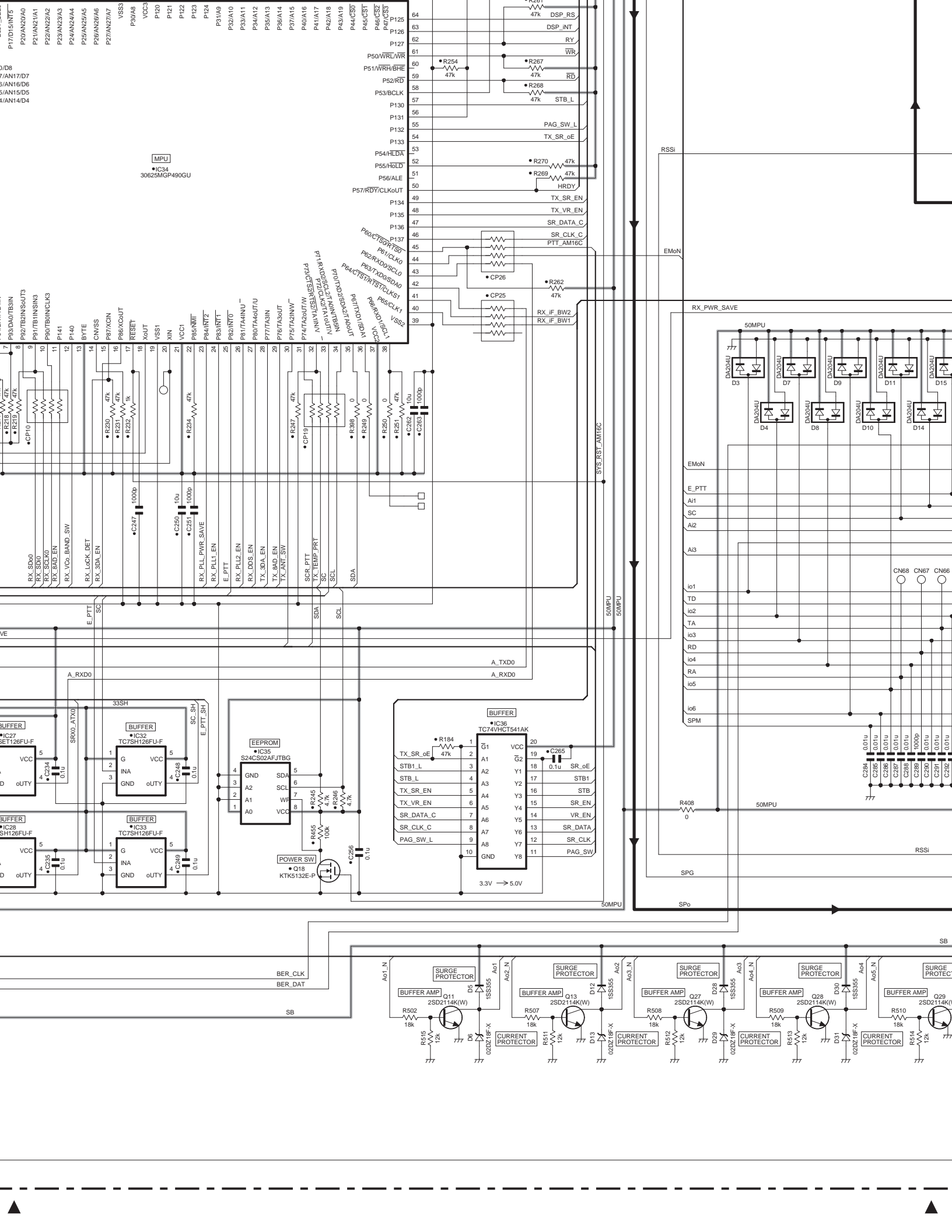


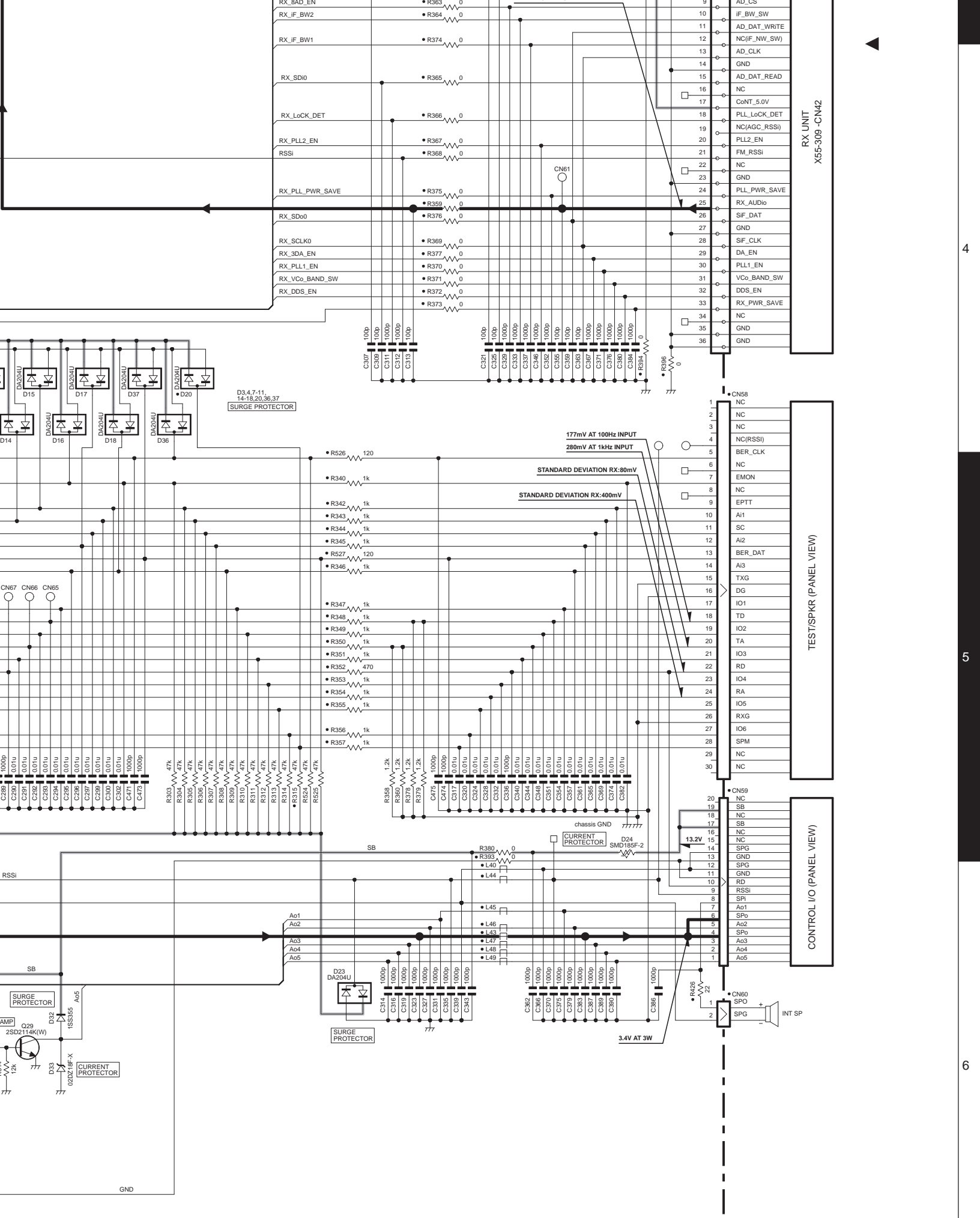


X53-4132-XX	IC29	R552	R553
-71	NO	0	NO
-72 (for Service)	LA4425A	NO	0

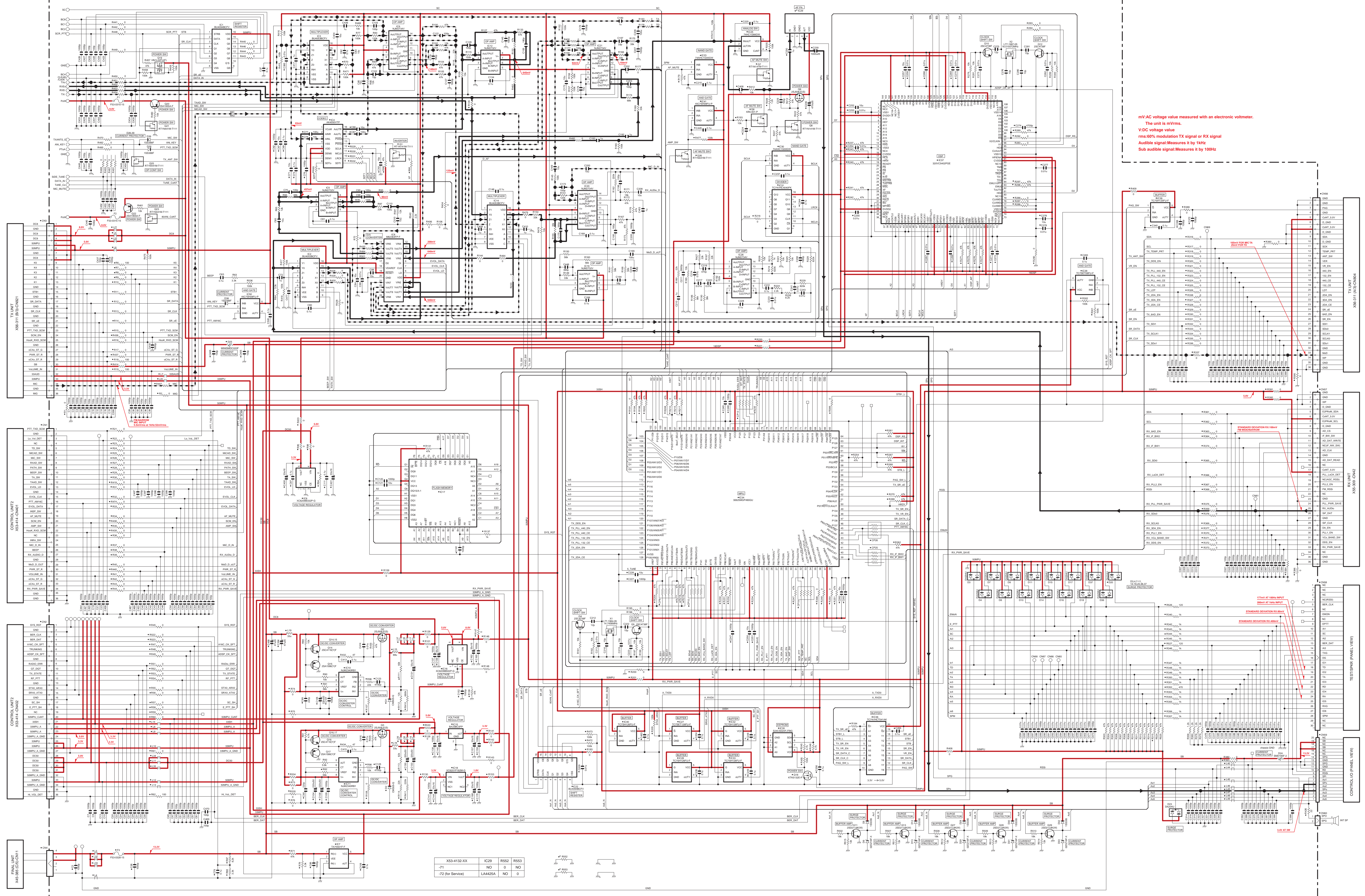


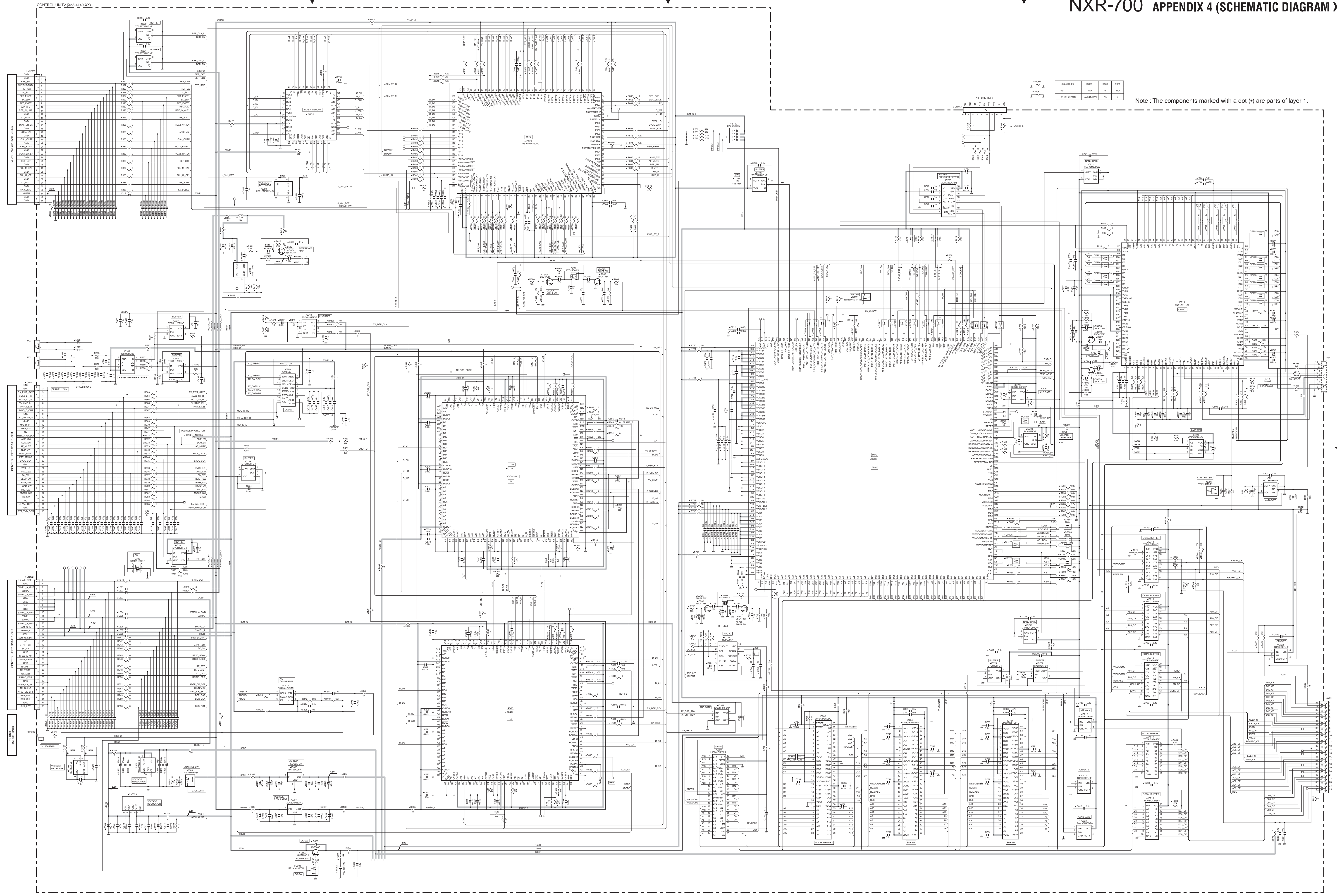
GND





CONTROL UNIT1 (X53-4132-XX)





PC CONTROL	IC50	IC51	IC52	IC53	IC54
PC CONTROL	NO	NO	NO	NO	NO
PC CONTROL	NO	NO	NO	NO	NO

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

2

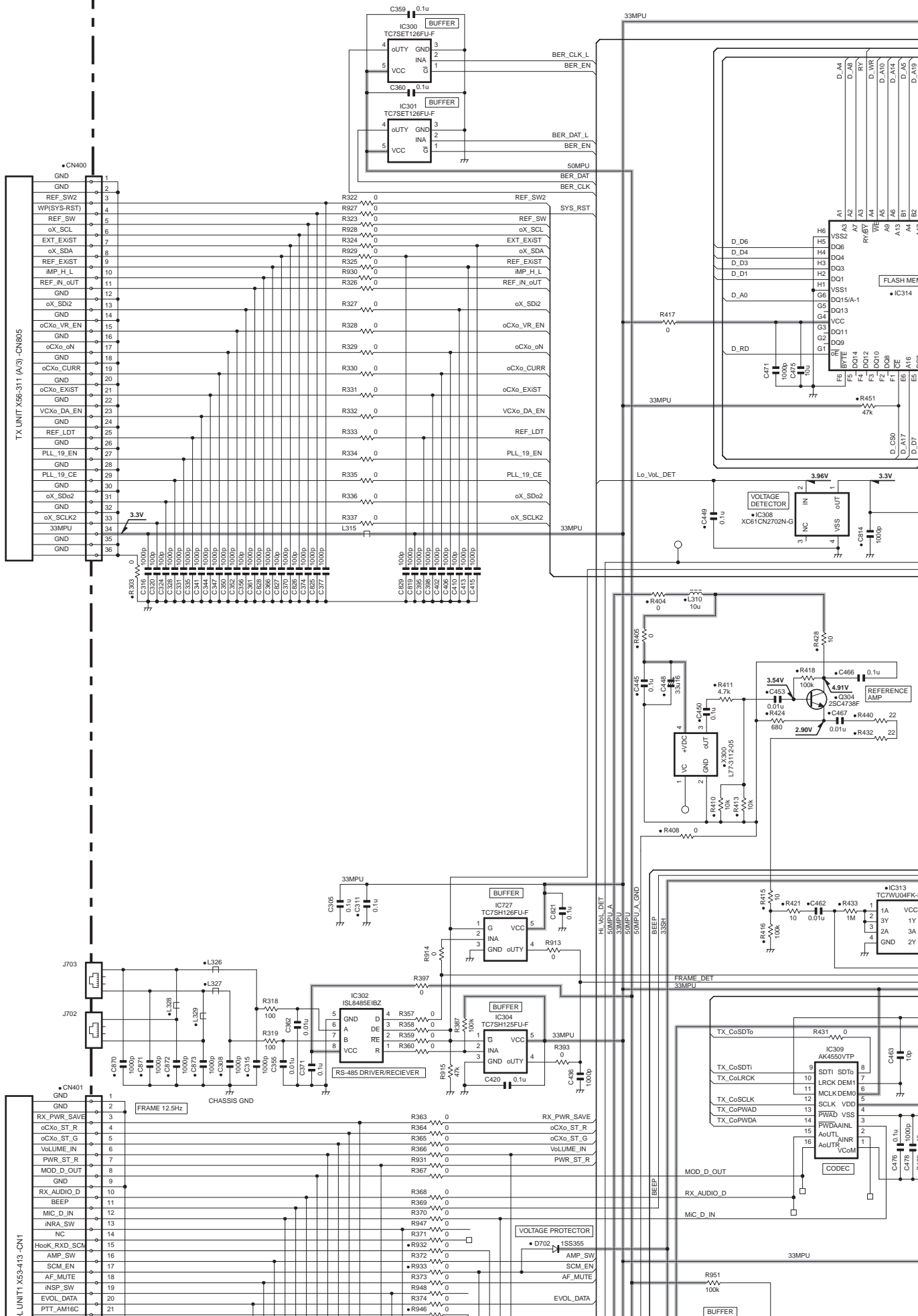
3

4

5

6

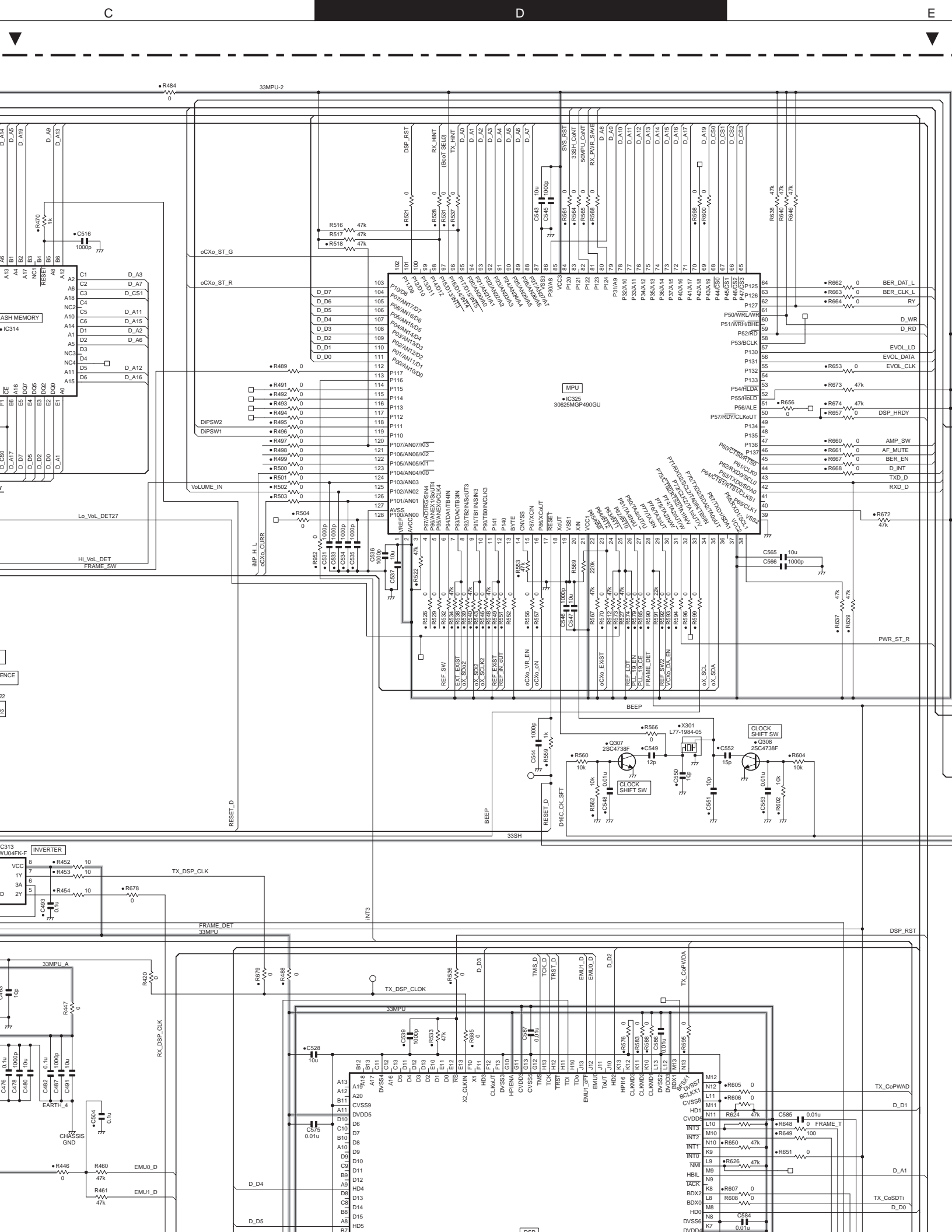
CONTROL UNIT2 (X53-4140-XX)

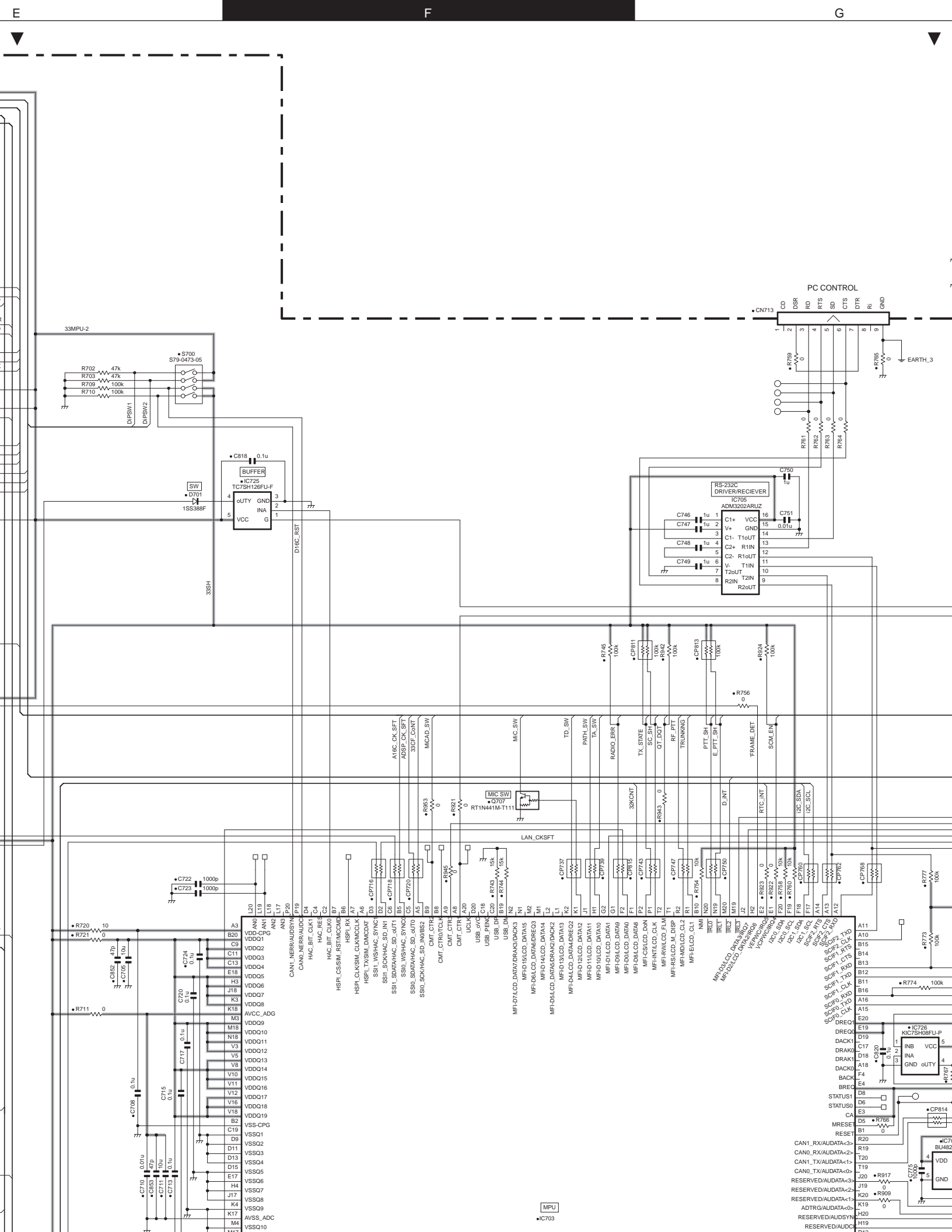


1

2

3





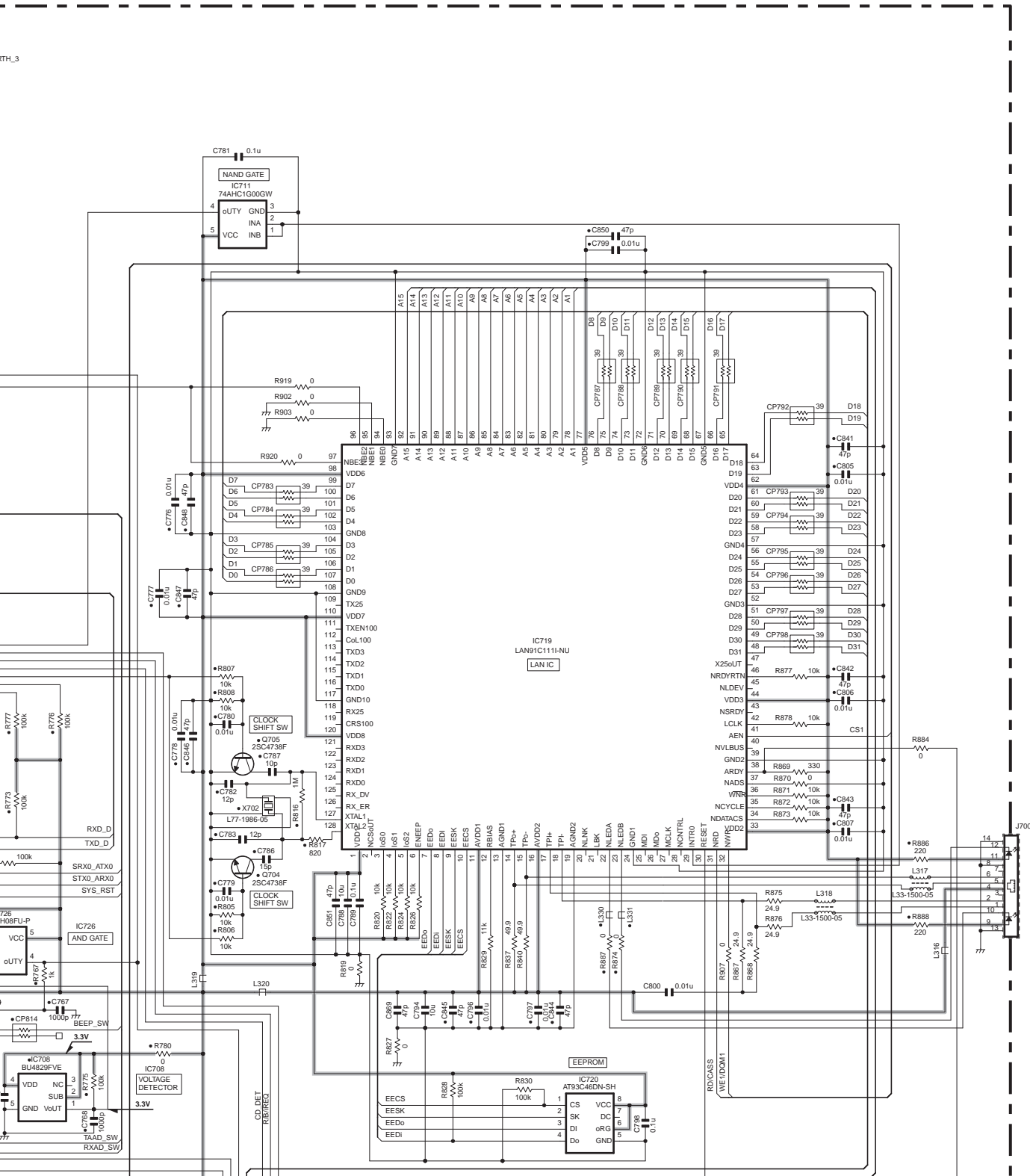
NXR-700 APPENDIX 4 (SCHEMATIC DIAGRAM X53-414)

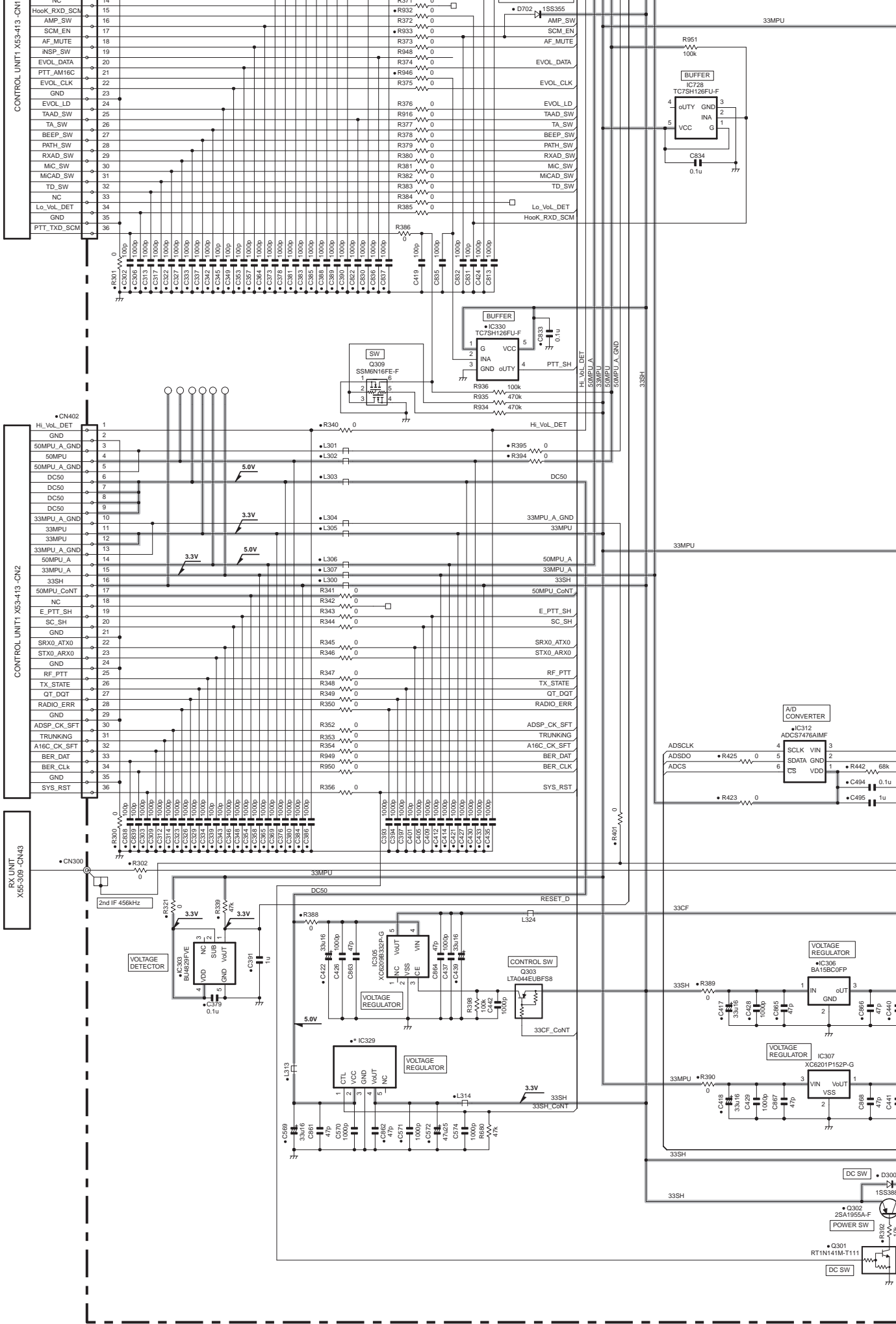


X53-414-XX	IC329	R960	R961
-10	NO	0	NO
-11 (for Service)	BA33DD0WT	NO	0

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

PTH_3





4

5

6

