



CONTENTS

| | | | |
|----------------------------------------|-----------|--------------------------------------------------|-----------|
| GENERAL | 2 | PACKING | 32 |
| SYSTEM SET-UP | 3 | ADJUSTMENT | 33 |
| OPERATING FEATURES | 4 | TERMINAL FUNCTION | 40 |
| REALIGNMENT | 8 | PC BOARD VIEWS | |
| INSTALLATION | 10 | TX-RX UNIT (X57-6100-XX) (A/3, C/3) | 41 |
| CIRCUIT DESCRIPTION | 13 | TX-RX UNIT (X57-6100-XX) (B/3) | 47 |
| SEMICONDUCTOR DATA | 18 | SCHEMATIC DIAGRAM | 51 |
| DESCRIPTION OF COMPONENTS | 20 | BLOCK DIAGRAM | 57 |
| PARTS LIST | 22 | SPECIFICATIONS | 59 |
| EXPLODED VIEW | 31 | | |

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 data. 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.

PERSONNEL SAFETY

The following precautions are recommended for personnel safety :

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

PRE-INSTALLATION CONSIDERATIONS

1. UNPACKING

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

2. LICENSING REQUIREMENTS

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

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

3. PRE-INSTALLATION CHECKOUT

3-1. Introduction

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

3-2. Testing

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

4. PLANNING THE INSTALLATION

4-1. General

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

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

4-2. Antenna

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

4-3. Radio

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

4-4. DC Power and wiring

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

GENERAL / SYSTEM SET-UP

5. INSTALLATION PLANNING – CONTROL STATIONS

5-1. Antenna system

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

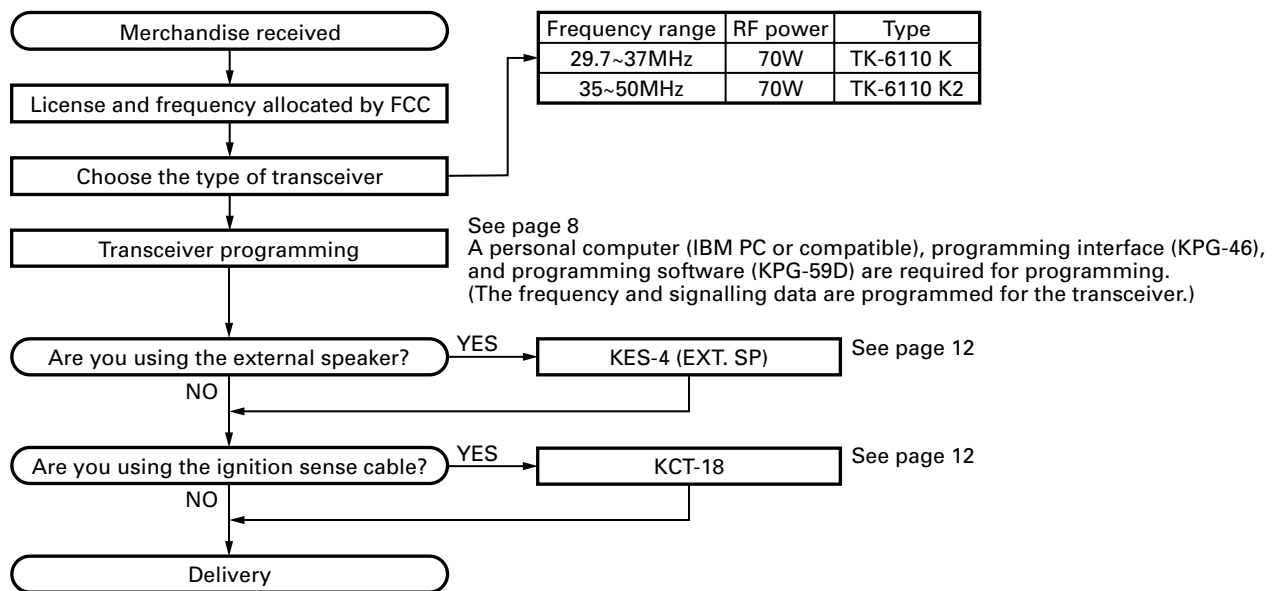
5-2. Radio location

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

SERVICE

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

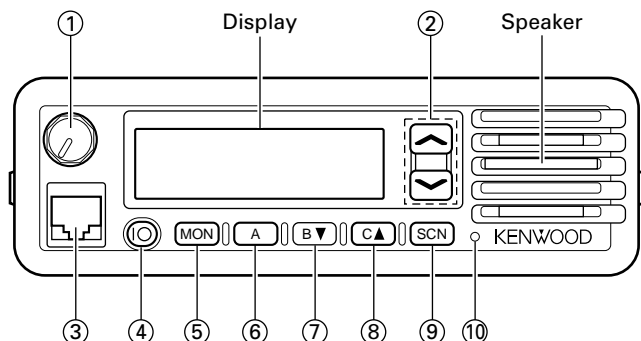
SYSTEM SET-UP



OPERATING FEATURES

1. Controls and Functions

1-1. Front Panel



① Volume control

Turn clockwise to increase the volume. Turn counter-clockwise to decrease the volume.

② ^/∨ keys

Press these keys to activate their programmable functions. The default settings of these keys are "Channel Up" (^) and "Channel Down" (∨).

③ Microphone jack

Insert the microphone plug into this jack.

④ IO (Power) switch

Press to switch the power ON. Press and hold for approximately 1 second to switch the power OFF.

⑤ MON key

Press MON to activate its programmable function. The default setting of this key is "Monitor".

⑥ A key

⑦ B∨ key

⑧ C▲ key

Press these PF (programmable function) keys to activate their programmable functions. The default setting of these keys is "No Function".

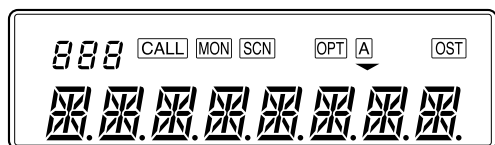
⑨ SCN key

Press SCN to activate its programmable function. The default setting of this key is "Scan".

⑩ LED

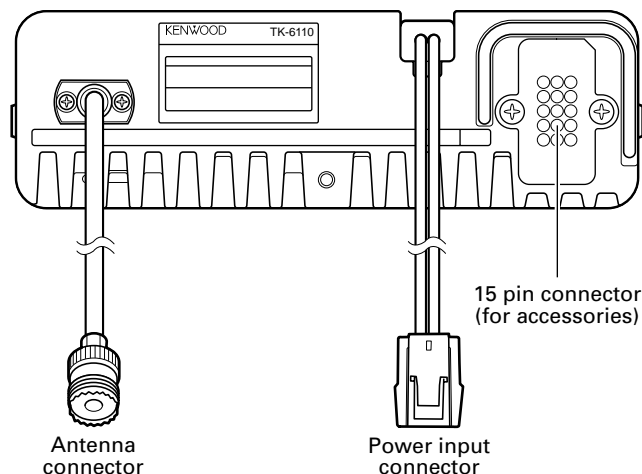
Lights red while transmitting. Lights green while the selected channel is busy. Blinks orange when you receive a call by 2-Tone or DTMF.

1-2. Display

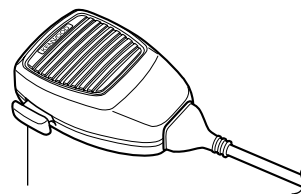


| | |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Displays the operating Channel number, the Channel name, and the transceiver status. |
| | Displays the operating channel number and the channel status: P indicates a Priority channel HC indicates a Home Channel tA indicates Talk Around mode |
| | Flashes when a call is received by DTMF or 2-Tone signaling. Appears during and after transmitting if set by the dealer. |
| | Appears when signaling squelch is turned OFF. |
| | Appears while scanning is in progress. |
| | Appears when the optional scrambler board is enabled. |
| | Appears when the selected channel is in the scanning sequence. |
| | Appears when Aux is ON. |
| | Appears when Operator Selectable Tone is enabled. |

1-3. Rear Panel



1-4. Microphone



PTT (Push To Talk) switch

Press and hold to transmit, then speak into the microphone. Release to receive.

OPERATING FEATURES

2. Scanning

2-1. Start Scanning

You can start scanning when 1 priority channel and at least 1 ADD channel, or 2 or more ADD channels are selected. The transceiver must be in the normal receiving mode (releasing PTT).

Press the key programmed to the scan, the scan starts. The "SCN" (scan) icon appears on the main display and "SCAN" or revert channel appears on the 8-digit alphanumeric display.

2-2. Stop Scanning

The scan stops temporarily if the following conditions are satisfied.

- 1) A carrier is detected, then signalling matches on channel for which receive the signalling is set by the programming software.
- 2) A carrier is detected on the channel for which receiving signalling is not set by the programming software or when the monitor (signalling cancel) function is activated.

2-3. Types of Scan Channel

- 1) Priority channel is the most important channel for the scan, and always detects a signal during scan and when the scan stops temporarily.
- 2) Non-priority channels detects a signal during scan and when scan stops temporarily.

2-4. Setting Priority Channel

Priority channel can be set as follows with the programming software (KPG-59D).

- 1) Specify priority channel as fixed priority channel.
- 2) Make selected channels, priority channels.

2-5. Scan Type Depending on the Priority Channel

- 1) When no priority channels are set : Only the non-priority channels are scanned.

If the transceiver stops on a non-priority channel, priority channel is still checked for signals at the specified time intervals.

If the transceiver detects a signal on a priority channel, it pauses at the priority channel and starts receiving the calls.

- 2) When priority channel is set : Either priority channel is scanned.

If a priority channel stops temporarily, it stops until there is no signal on the priority channel.

2-6. Revert Channel

The revert channel is used to transmit during scanning and set by the programming software (KPG-59D).

- 1) Last called channel
The transceiver reverts to the last called channel during the scan.
- 2) Last used channel
The transceiver reverts to the last used (transmitted) channel during scan. "Last used" revert channel includes talkback function.

- 3) Selected with talkback
The transceiver reverts to the channel before scanning or the channel that you changed during scan.
- 4) Selected channel
The transceiver reverts to the channel before scanning or the channel that you changed during scan.
While the transceiver pauses scanning, the revert channel becomes the channel you selected with [CH UP], [CH DW], [CH1] to [CH5] in the last step.
- 5) Priority with talkback
The transceiver reverts to the priority channel.
If you press PTT during a resume timer (dropout delay time, TX dwell time) or calling, you can transmit on current channel to answer to the call however revert channel is set to priority channel.
After resume time, scan re-starts and transmission channel is return to priority channel.
- 6) Priority
The transceiver reverts to the priority channel.

2-7. Scan End

When you press the key once again, programmed to the scan function during scan mode, the scan ends.

The scan icon "SCN" and "SCAN" or revert channel (programmable) display goes off.

2-8. Temporarily Delete/Add

It is possible to delete or add channel temporarily during scan. When scan stops on unnecessary channel for example by interference of the other party, activate the delete/add function (for example press the key), then that channel is deleted temporarily and scan re-start immediately.

When you would like to add the deleted channel temporarily to scan sequence, select the desired (deleted) channel during scan, activate the delete/add function (for example press the key) before scan re-start.

That channel is added temporarily to scan sequence. The temporary deleted or added channels are returns to pre-set delete/add, when the transceiver exits from scan mode.

3. Optional Features

You can use these features using the programming software (KPG-59D).

3-1. Beep Tones

The beep tones (power on tone, control tone, warning tone, alert tone) are individually programmable to the fixed level 0 to 31 or follow the mechanical volume position.

3-2. Minimum Volume

The minimum volume is programmable (0 to 31). The transceiver remains the minimum volume level however the mechanical volume position is set to zero.

3-3. BCL (Busy Channel Lockout) Override

You can transmit in spite of Busy Channel Lockout situation. For example : To make an emergency voice call.

To transmit under busy channel lockout situation, press PTT once more within approx. 500ms after the PTT release.

OPERATING FEATURES

3-4. Sub LCD Display

You can use 3-digit 7-segment the display to display the channel number. It is useful when the main (8-digit 13-segment) display indicates channel name.

3-5. Emergency Channel Display

The transceiver can be programmed to display "EMERGENCY" channel name when it is in emergency mode.

If you set to "off" by KPG-59D the transceiver shows selected group/channel/status before entering to the emergency mode however the transceiver is in an emergency mode.

3-6. Clear to Transpond

The transceiver waits the transpond of 2-Tone/DTMF if channel is busy until channel open. This feature replies to the transpond signal when the caller returns to receive.

3-7. Mode (Enable/Disable)

The transceiver has many special modes mainly for maintenance.

- Panel Test mode
- Clone mode
- Main programming mode

It is possible to set enable/disable for each mode. We recommend to set these mode to Disable after set up to save contents.

3-8. ID

The transceiver is capable to have ID. The format is DTMF. The timing that the transceiver sends ID is programmable.

Begin of TX : Connect ID is send on beginning of transmission.

End of TX : Disconnect ID is send on end of transmission.

Both : Connect ID is send on beginning of transmission and disconnect ID is send on end of transmission.

Off : Sending ID function is disabled.

There is also "PTT ID" setting for each channel. Refer "PTT ID" of channel feature.

3-9. OST (Operator Selectable Tone)

The transceiver is capable to have "OST" function and 16 tone pair (QT/DQT) with max 8-digit name for each tone pair.

• "OST" Back Up

The transceiver is programmable the selected "OST" code is memorized or not. If you set to Disable (no memorized), the "OST" function always starts at "off".

3-10. "TOT" (Time-Out Timer)

The transceiver has the "TOT". This parameter selects the period of time users can continuously transmit.

When the selected period passes, the transceiver generates an warning tone and stops the transmission.

3-11. "TOT" Pre-Alert

The transceiver has "TOT" pre-alert timer. This parameter selects the time at which the transceiver generates "TOT" pre-alert tone before "TOT" is expired.

"TOT" will be expired when the selected time passes from a TOT pre-alert tone.

3-12. "TOT" Re-Key Time

The transceiver has "TOT" re-key timer. This timer is the time you can not transmit after "TOT" exceeded. After "TOT" re-key time expired you can transmit again.

3-13. "TOT" Reset Time

The transceiver has "TOT" reset timer. This timer is the minimum wait time allowed during a transmission that will reset the "TOT" count.

"TOT" reset time causes the "TOT" to continue even after PTT is released unless the "TOT" reset timer has expired.

3-14. Signalling

Signalling "AND/OR" sets the audio unmute condition for any channel programmed with the option signalling (2-Tone/ DTMF).

AND : "AND" requires both the valid option signalling and the programmed QT/DQT to be received for audio to unmute (and initiate an option signalling decode alert).

OR : "OR" requires either the valid option signalling or the programmed QT/DQT to be received for audio to unmute (an option signalling decode alert is only initiated if the proper option signalling is decoded).

4. Channel Features

You can use these features using the programming software (KPG-59D).

4-1. Alphanumeric Display (Channel Name)

The programming software (KPG-59D) enables you to set the alphanumeric display for channel name. The total text size of channel name are 8-digits.

The characters can be used as shown in Figure 1.

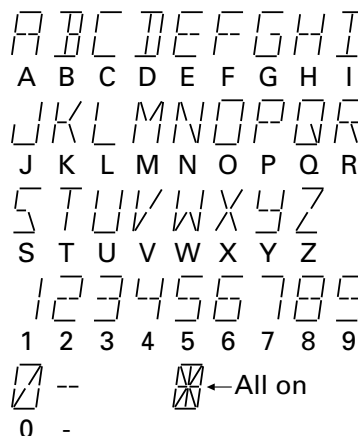


Fig. 1

OPERATING FEATURES

4-2. Option Signalling

The transceiver is programmable to the option signalling (2-Tone decode program 1, 2-Tone decode program 2, 2-Tone decode program 3, DTMF decode) to each channel. It is useful to receive an individual call.

Receive format is selectable "AND" or "OR" with QT/DQT. The radio response of option signalling is programmable call Alert and "Transpond" for each option signalling (2-Tone decode program 1, 2-Tone decode program 2, 2-Tone decode program 3, DTMF).

4-3. PTT ID

PTT ID provides a DTMF ANI to be sent with every time PTT (connect ID at beginning of transmission, disconnect ID at end of transmission, or both).

You can program PTT ID "on" or "off" for each channel. The contents of ID are programmed for each transceiver.

4-4. Busy Channel Lockout

Transmission is inhibited when the channel is busy. It is able to set this feature "Yes" or "No" for each channel.

4-5. Scan Delete/Add

Scanning "delete/add" is programmable for each channel. Set the currently selected channel required to include in the scan sequence to "add".

The operator can change the "delete/add" information using the key programmed to "delete/add" function.

5. Key Functions

5-1. No Function

Sounds error operation beep, and no action will occur. Use this function when the transceiver is required to be more simple operated.

5-2. AUX.

The AUX function can be programmed for push key.

If this key is pressed, the "A" icon lights on the LCD and the AUX port which is contained in 15-pin connector located at the rear of the transceiver goes to low level.

If pressed again, the "A" icon goes off and the AUX port goes to Open-collector.

5-3. Channel Down

If this key is pressed once, the channel number decreases by one step. If this key is hold down, the channel number decreases continuously.

5-4. Channel Up

If this key is pressed once, the channel number increases by one step. If this key is hold down, channel number increases continuously.

5-5. Channel Name

This key switches the LCD display between the current channel number and programmed channel name.

5-6. Delete/Add

This key switches the currently displayed channel between "Delete" and "Add".

The "Add" channel contained in the scan sequence, and "Delete" channel is not contained. In the scan mode, this key switches the channel delete or add temporarily.

5-7. Home Channel

Press this key once, the channel switches to the pre-programmed home channel. Press this key again, the channel goes back to the previous channel.

5-8. Monitor

Monitor the channel before a transmission. Press this key once, "MON" appears and unmutes speaker if a carrier is present, regardless of the specified signalling (including option signalling). Press this key again, "MON" disappears and mutes speaker.

Press this key after the Option Signalling is matched, the Option Signaling is reset. DBD (Dead Beat Disable) mode is not reset by this operation.

Press and hold the Monitor key for 2 seconds to disable the squelch.

5-9. Operator Selectable Tone

When this key is pressed, the "OST" icon lights and Encode/Decode QT/DQT is switched to the OST Tone pair. If pressed again, the "OST" icon goes off and Encode/Decode QT/DQT returns to KPG-59D pre-set.

When this key is held down for 1 second, the transceiver enters "OST Select Mode". In this mode, the display shows OST No. or OST Name which is set to the channel and operator can select one of OST Tone pair using UP key and DW key.

If pressed this key again, the displayed OST code is memorized to the channel, the transceiver exits from the OST Select Mode, returns to normal channel display and "OST" icon lights.



16 kinds of tone pair for OST can be programmed by KPG-59D. OST is useful to access the repeater with same radio frequency and different tone (QT/DQT).

5-10. Scan

Press this key starts scanning. Pressing this key stops scanning.

5-11. Squelch Level

The preset squelch level is varied in user mode (0 to 15). Press the key programmed to "squelch level", the transceiver enters to "squelch level adjust mode".

The squelch level can be adjusted by  . Press the key programmed to "squelch level" again, the adjusted level is memorized and returns to the normal user mode.

5-12. Talk Around

Press this key, the transceiver uses the receive frequency and the tone for transmission.

The operator can call the other party directory (without repeater). Press this key again, the talk around function goes off.

TK-6110

OPERATING FEATURES / REALIGNMENT

5-13. Emergency Call

When the Emergency function (key) is activated, the radio enters the "Emergency Mode".

In this mode, the radio automatically switches to the programmed "Emergency Channel" and starts transmission with the Emergency ID Code programmed in an installed ANI Board (dependent on ANI board capabilities and programming). The LCD display (Emergency Text) and the TX LED operation are dependent on the "Emergency CH Display" settings.

6.2-Tone

2-Tone signalling opens the squelch only when the RADIO receives a proper 2-Tone code that is the same as the pre-programmed 2-Tone for the channel. When the RADIO receives a 2-Tone code, the CALL icon flashes.

If Transpond has been programmed, the RADIO will return an acknowledgment signal automatically after receiving the 2-Tone code.

If Alert Tone has been programmed, an Alert Tone sounds after receiving a 2-Tone code. Unmute condition is canceled and the CALL icon goes off when ; (1) pressing the [MON] Key, (2) hanging the microphone on its hook, (3) muting continues for 10 seconds. (If "Auto Reset" has been programmed)

7. DTMF

DTMF Signalling opens the squelch only when the RADIO receives a proper DTMF code that is the same as the pre-programmed "Primary Code (Individual ; 1~7digits)" or "Secondary Code (Group ; 1~7digits)". When the RADIO receives a correct code, the CALL icon flashes.

If Transpond has been programmed, the RADIO will return an acknowledgment signal automatically after receiving the DTMF code.

If Alert Tone has been programmed, an Alert Tone sounds after receiving a DTMF code. Unmute condition is canceled and the CALL icon goes off when ; (1) pressing the [MON] Key, (2) hanging the microphone on its hook, (3) muting continues for 10 seconds (If "Auto Reset" has been programmed), and (4) receiving reset code. (Primary code + "#" or secondary code + "#")

8. Data Programming (PC Mode)

8-1. Preparation and Connection

The TK-6110 transceiver is programmed by using a personal computer, programming interface cable KPG-46, and programming software KPG-59D.

The programming software can be used with an IBM-PC or compatible machine. Figure 2 shows the setup for programming.

8-2. Programming Interface Cable KPG-46 Description

The KPG-46 is required to interface the transceiver with the computer. It has a circuit in its D-sub 25pin connector case that converts RS-232C logic level to TTL level.

KPG-46 is used to connect between transceiver microphone connector and RS-232C serial port of computer.

8-3. Programming Software KPG-59D Description

KPG-59D is the programming software for TK-6110 supplied on two 3.5" floppy disks. This software runs under MS-DOS version 3.1 or later, and Windows MS-DOS prompt on an IBM-PC or compatible machine.

The data can be input to or read from TK-6110 and edited on the screen. The programmed or edited data can be printed out. It is also possible to tune the transceiver.

We recommend that install KPG-59D for example to harddisk first then use it.

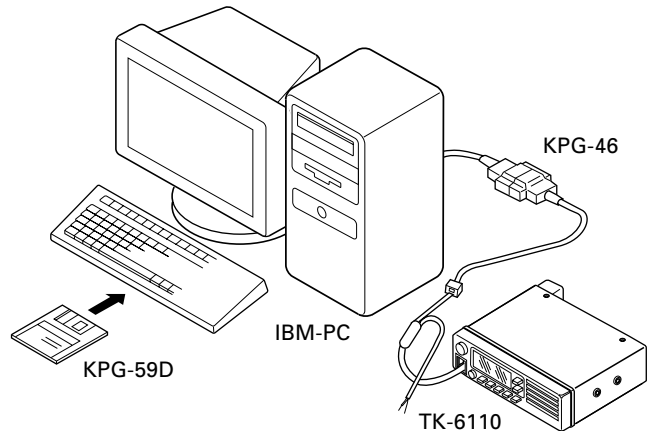
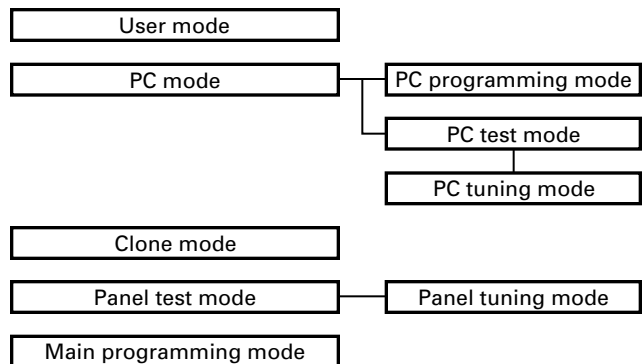


Fig. 2

REALIGNMENT

1. Mode



| Mode | Function |
|---------------------------------------|-----------------------------------------------------------------------------------|
| User mode | Customer use this mode |
| PC mode | Communication between the radio and PC (IBM compatible). It requires the KPG-59D. |
| PC programming mode | Frequency, signalling and features write to the radio and read from the radio. |
| PC test mode | Check the radio using the PC. This feature is included in the FPU. |
| Panel test mode (Refer to ADJUSTMENT) | Dealer uses to check the fundamental characteristics. |
| Main programming mode | Re-write to firmware of the flash ROM. |

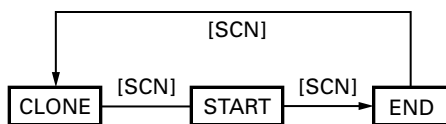
REALIGNMENT

2. How to Enter Each Mode

| Mode | Operation |
|-----------------------|--------------------------------------------------------------------------------------------|
| User mode | Power on |
| PC mode | Turn on the transceiver. Then, set the transceiver to PC mode from the menu in KPG-59D. |
| Panel test mode | Hold down the [MON] key, turn the radio power on. |
| Main programming mode | Hold down the [A] key, turn the radio power on. |

3. Clone Mode

1. Turn the master side transceiver power on with the [SCN] key held down. The master side transceiver displays "CLONE".
2. Set the power switch on the slave side transceiver to ON.
3. Connect the cloning cable (E30-3382-05) between the master side transceiver (source) and slave side transceiver (clone).
4. Press the [SCN] key on the master side transceiver to start cloning.
5. The TX LED on the master side transceiver flashes when cloning starts and an "END" message appears when cloning ends.
6. The BUSY LED on the slave side transceiver flashes.
7. When a problem occurs during cloning, an "ERROR" message appears on the slave side transceiver.
8. Pressing the [SCN] key sets clone mode again.



4. Main Programming Mode

4-1. Preface

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

4-2. Connection Procedure

Connect the transceiver to the personal computer (IBM PC or compatible) with the interface cable (KPG-46). (Connection is the same as in the PC Mode.)

4-3. Programming

1. Set the transceiver to Main Programming Mode.
2. Connect the KPG-46 to the transceiver.
3. Start up the programming software (KPG-59D), select "firmware program" in the "Program" item, and press the Return key on the personal computer. This starts up the firmware programmer.
4. The top screen is displayed. Press any key to advance to the next screen.
5. Set the communications speed (normally, 115,200bps) and communications port in the Setup item.
6. Set the firmware to be updated by File select.
7. Held down the [A] key. Turn the transceiver power on. Until the display change to "PROG1152"
8. Check the connection between the transceiver and the personal computer, and make sure that the transceiver is in the Main Programming Mode.
9. Press F10 on the personal computer. A window opens on the display to indicate progress of writing. When the transceiver starts to receive data, "PG" is appeared on 2 digit sub display.
10. If writing ends successfully, the TX LED on the transceiver lights and the checksum is displayed.
11. If you want to continue programming other transceivers, repeat steps 5 to 8.

Notes :

- To start the Firmware Programmer from KPG-59D, the Fpro path must be set up by KPG-59D setup.
- This mode cannot be entered if the Main Programming mode is set to Disable in the Programming software (KPG-59D).

4-4. Function

1. If you press the [SCN] key while "PROG1152" is displayed, the checksum is displayed. If you press the [C] key while the checksum is displayed, "PROG1152" is redisplayed.
2. A transmission speed can be selected by pressing the [C] key while "PROG1152" is displayed.

115200bps : PROG1152
 19200bps : PROG 192
 38400bps : PROG 384
 57600bps : PROG 576

Note :

Normally, write in the high-speed mode.

5. Panel Test Mode

Setting method refer to ADJUSTMENT.

INSTALLATION

1. Optional Voice Scrambler Function

The optional voice scrambler function can be used by two methods.

1. Assign this function to any programmable keys by using the programming software (KPG-59D).

When the programmed key is pressed, the **[OPT]** indicator appears and optional scrambler function is enabled. When the programmed key is pressed again, the **[OPT]** indicator disappears and the function is disabled.

2. Assign the optional scrambler function to each channel by using the programming software (KPG-59D). The optional scrambler function can be used without pressing the programmed key.

1-1. Scrambler Code Setting

The code can be configured by two methods.

1. Hold down the programmed OPT key to enter the code setting mode.

Select a new code by pressing [**^**] or [**v**] key to change.

When the programmed key is pressed again, the new code is stored and exit the code setting mode.

2. Set a code for each channel by using the programming software (KPG-59D).

2. Option Board Terminal

Terminals for mounting the option board are provided at the center of the TX-RX unit. The table shows the correspondence between the board and terminals. Disconnect R725 and R778 in TX-RX unit when the voice scrambler board is attached.

Connect the option board to the connection terminals of the TX-RX unit.

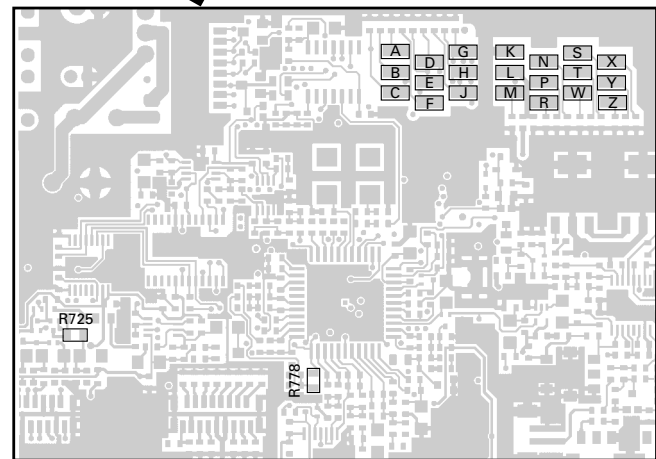
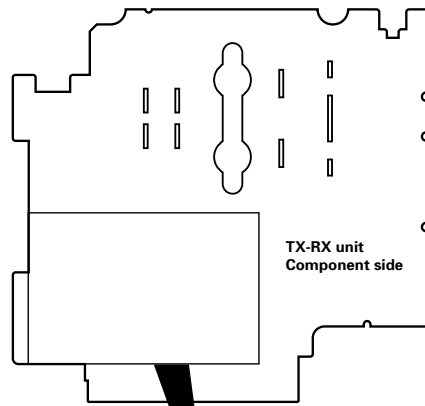


Fig. 1

2-1. Option Port 1 (For ANI board etc.)

| Port name | | | Description | Connection | Note |
|--------------------|----------------------------------|-----------|-----------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------|
| Abbreviation (PCB) | Abbreviation (Schematic diagram) | Name | | | |
| B | RX IN | Data in | Board data input. Transceiver (Receiver demodulation circuit) → ANI board | Connected to the circuit | Reference 1kHz STD DEV → 250~350mVrms |
| T | DATA OUT | Data out | Board data output. ANI board → Transceiver (Transmitter modulation circuit) | Connected to the circuit | Reference 1kHz/150mVrms → 2.5~3.5kHz (Wide), 1.25~1.75kHz (Narrow) |
| Z | TCONT | T control | Audio amplifier power control → TX-RX unit microprocessor | CPU input | L : Audio amp on H : Audio amp off |

INSTALLATION

| Port name | | | Description | Connection | Note |
|--------------------|----------------------------------|--------------------|----------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------|
| Abbreviation (PCB) | Abbreviation (Schematic diagram) | Name | | | |
| X | STONE | Side tone | Beep during PTT ID | Connected to the circuit | |
| R | AUDI IH | Audio inhibit | Microphone muting during PTT ID | Connected to the circuit | |
| K | GND | Ground | Ground | Ground | |
| W | AUX | Aux | Emergency channel request → TX-RX unit microprocessor | CPU input | L : EMG CH request H : No EMG CH request |
| J | PTTO | PTT | Microprocessor PTT logic → ANI board | CPU output | L : TX, H : RX |
| P | EMERG | Emergency | Microprocessor emergency channel logic → ANI board | CPU output | L : Emergency operation request H : No emergency operation request |
| N | BUSY | Channel busy | Microprocessor busy logic → ANI board | CPU output | L : Busy, H : Not busy |
| Y | KEY | (Transmission) Key | Transmission start control GE-star → TX-RX unit microprocessor | CPU input | L : Transmission request H : No transmission request |
| L | +8V | Board power supply | Switched B | Power supply | |

2-2. Option Port 2 (For voice scrambler etc.)

| Port name | | | Description | Connection | Note |
|--------------------|----------------------------------|--------------------|------------------------------------------------------|--------------------------|----------------------------------------------------------------------------|
| Abbreviation (PCB) | Abbreviation (Schematic diagram) | Name | | | |
| G | CODE 1 | Scrambler code 1 | First of four bits of scrambler code | CPU output | Board code selection (Logic by binary code) |
| D | CODE 2 | Scrambler code 2 | Second of four bits of scrambler code | | |
| E | CODE 3 | Scrambler code 3 | Third of four bits of scrambler code | | |
| F | CODE 4 | Scrambler code 4 | Fourth of four bits of scrambler code | | |
| A | TXOUT | TX out | Board → Transceiver (Transmitter modulation circuit) | Connected to the circuit | Reference 1kHz/15mVrms → 2.5~3.5kHz (Wide), 1.25~1.75kHz (Narrow) |
| M | RXOUT | RX out | Board → Transceiver (Audio amp) | Connected to the circuit | |
| K | GND | Ground | Ground | Ground | |
| J | PTTO | | Scrambler modulation/demodulation control | CPU output | L : TX, H : RX |
| H | CLRC | Clear/Code | Specifies whether to scramble | CPU output | L : Scramble, H : Normal |
| B | RXIN | RX in | Transceiver (Microphone circuit) → Board | Connected to the circuit | Reference 1kHz STD DEV → 250~350mVrms |
| C | TXIN | TX in | transceiver (Microphone circuit) → Board | Connected to the circuit | |
| L | +8V | Board power supply | Switched B | Power supply | |

INSTALLATION

3. Ignition Sense Cable (KCT-18)

The KCT-18 is an optional cable to use the following functions:

3-1. Ignition function

The ignition function allows you to turn the transceiver's power on and off with the ignition key of your car. When you are driving with the ignition key on, the horn alert function is disabled.

3-2. Timed power off function

The timed power off function turns the transceiver's power off the time specified with the programming software (KPG-59D) after the ignition key is turned off. When you are driving with the ignition key on, the horn alert function is disabled.

The ignition sense function and the timed power off function can be used at the same time.

3-3. Modification

1. Remove the short plug from the accessory connector (15 pins) on the back of the transceiver.
2. Insert the KCT-18 into pin 3 (IGN).

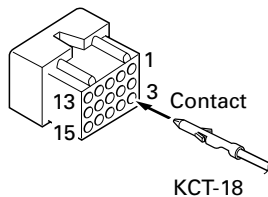


Fig. 2

4. External Speaker (KES-4)

1. The external speaker output from the accessory connector (15 pins) on the back of the transceiver is 10W/4 ohms. Use the KES-4.

4-1. Connection for the KES-4 with the TK-6110

- **When taking the AF output from the accessory 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

1. Remove the connector with jumper from the external speaker connector on the rear panel of the radio (Fig. 3-1).

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. 3-2)

- 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 6, and the terminal with the black lead into hole number 12 (Fig. 3-3).
 4. Attach the connector to the external speaker connector on the radio.

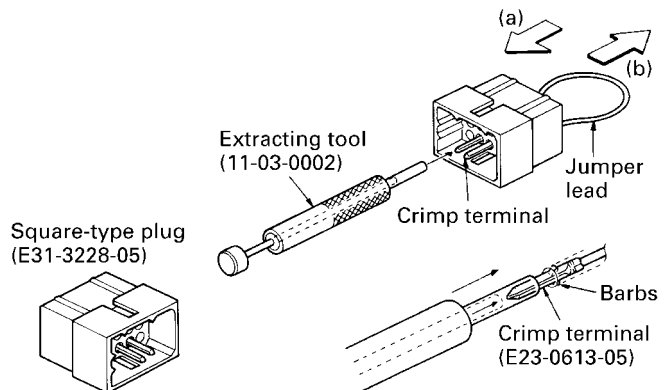


Fig. 3-1

Fig. 3-2

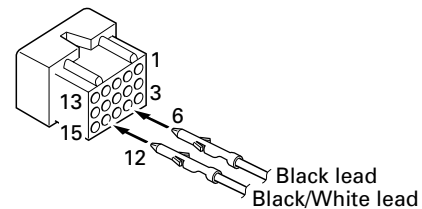


Fig. 3-3

5. Horn Alert Function

The HR pin of the accessory connector (15-pin) on the rear of the transceiver is an open collector and the maximum current is 100mA. The maximum available current can be increased to 1A by installing a relay.

Program the Horn Alert Function, using KPG-59D.

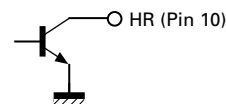


Fig. 4

CIRCUIT DESCRIPTION

1. Overview

The KENWOOD model TK-6110 is a VHF/FM transceiver designed to operate in the frequency range of 29.7 to 37MHz (K), 35.0 to 50.0MHz (K2), the unit consists of a receiver, a transmitter, a phase-locked loop (PLL) frequency synthesizer, power supply circuits, a control unit.

2. Circuit Configuration by Frequency

The receiver is a double-conversion superheterodyne with a first intermediate frequency (IF) of 128.55MHz and a second IF of 455kHz. Incoming signals from the antenna are mixed with the local signal from the PLL1 to produce the first IF of 128.55MHz.

This is then mixed with the 129.005MHz second local oscillator output to produce the 455kHz second IF. This is detected to give the demodulated signal.

The transmit signal is modulated PLL2-VCO2 (129.005 MHz) from the microphone. The transmit signal frequency is down-conversion with PLL2 and PLL1. It is then amplified and sent to the antenna.

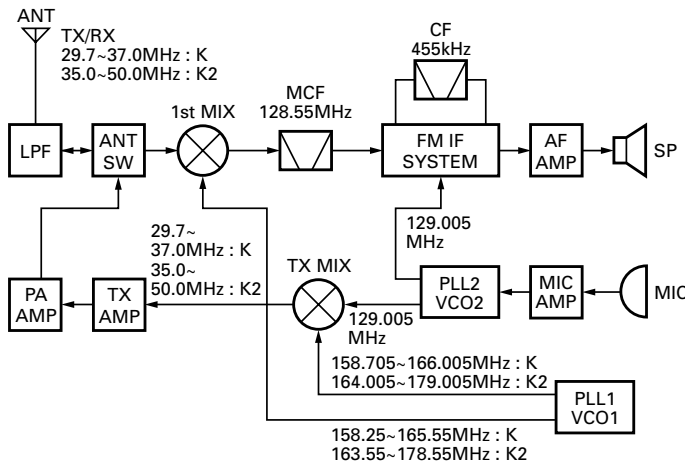


Fig. 1 Frequency configuration

3. Receiver System

3-1. Front-End RF Amplifier

An incoming signal from the antenna is applied to a band-pass filter (L202) after going through a low-pass filter and an antenna switch (K1). The signal is then amplified by the RF amplifier (Q201) and again filtered by another band-pass filter (L203, L206 and L207).

3-2. First Mixer

The signal from the band-pass filter is heterodyned with the first local oscillator signal from the PLL frequency synthesizer circuit at the first mixer (IC201) to become a 128.55MHz first intermediate frequency (IF) signal.

The first IF signal is fed through two monolithic crystal filters (XF201) to further remove spurious signals.

3-3. IF Amplifier

The first IF signal is amplified by Q202 and Q205, and then enters IC202 (FM processing IC). The signal is heterodyned again with a second local oscillator signal (129.005MHz) with in IC202 to become a 455kHz second IF signal. The second IF signal is fed through a 455kHz ceramic filter, CF201 and CF202 to further eliminate unwanted signals before it is amplified and FM detected in IC202.

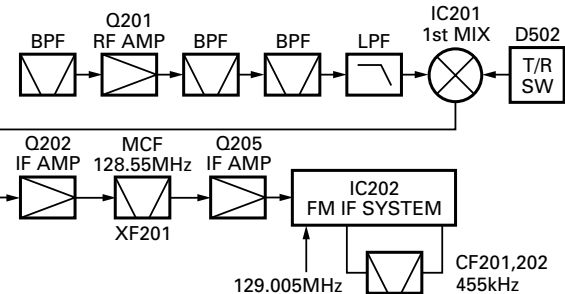


Fig. 2 Receiver section

| Item | Rating |
|--------------------------|-----------------------------------------|
| Nominal center frequency | 128.55MHz |
| Pass bandwidth | ±7.5kHz or more at 3dB |
| Attenuation bandwidth | ±35kHz or less at 40dB |
| Ripple | 1.0dB or less |
| Insertion loss | 5dB or less |
| Guaranteed attenuation | 70dB or more at $f_o \pm 910\text{kHz}$ |
| Terminating impedance | 1000Ω |

**Table 1 Crystal filter (L71-0560-05)
(TX-RX unit XF201)**

CIRCUIT DESCRIPTION

3-4. Audio Amplifier Circuit

The recovered audio signal obtained from IC202 is amplified by IC709, IC713, low-pass filtered by IC713 high-pass filtered by IC713 and band-eliminate filtered by IC713.

The audio signals then passed through a de-emphasized by IC713. The processed audio signal passes through an audio volume control and is amplified to a sufficient level to drive a loudspeaker by an audio power amplifier BTL (IC102).

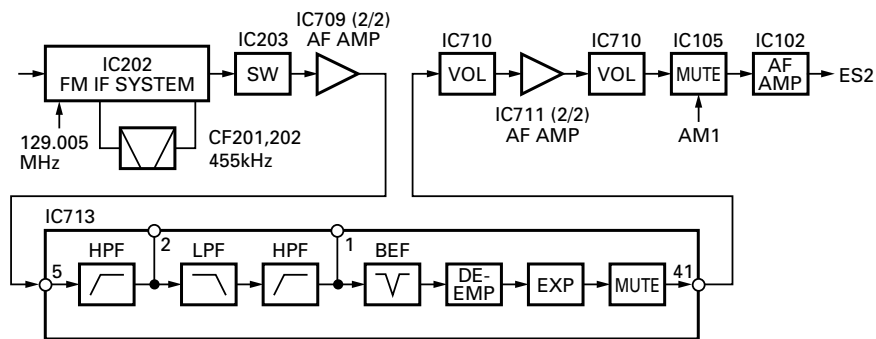


Fig. 3 Audio amplifier circuit

3-5. Squelch Circuit

The output signal from IC202 enters FM IC again, then passed through a band-pass filter. The noise component output from IC202 is amplified by Q206 and rectified by D206 to produce a DC 0 voltage corresponding to the noise level. The DC voltage is sent to the analog port of the CPU (IC604).

And IC202 outputs a DC voltage (RSSI) corresponding to the input of the IF amplifier.

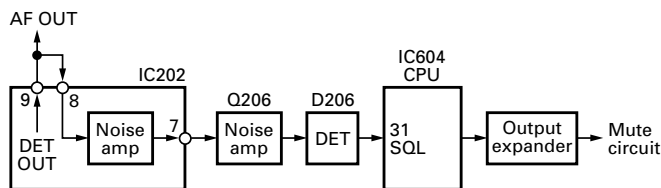


Fig. 4 squelch circuit

4. Transmitter System

4-1. Microphone Amplifier

The signal from the microphone is high-pass filtered by IC713, passed through microphone mute and microphone amplifier circuit (Q703 and IC714), limited and pre-emphasized by IC713 and D711.

4-2. Modulator Circuit

The output of Audio-processor (IC703) is passed to the D/A converter (IC710) for maximum deviation adjustment and the summing amplifier (IC711) before being applied to a varactor diode in the voltage controlled oscillator (VCO) located in the frequency synthesizer section.

4-3. Down-Mixer

At Q503, a modulated VCO2 signal is mixed with 2nd local oscillator signal, 129.005MHz. The difference of the two signals is used for the transmission signal 29.7~37MHz (K), 35.0~50.0MHz (K2). The output was filtered through a low-pass filter.

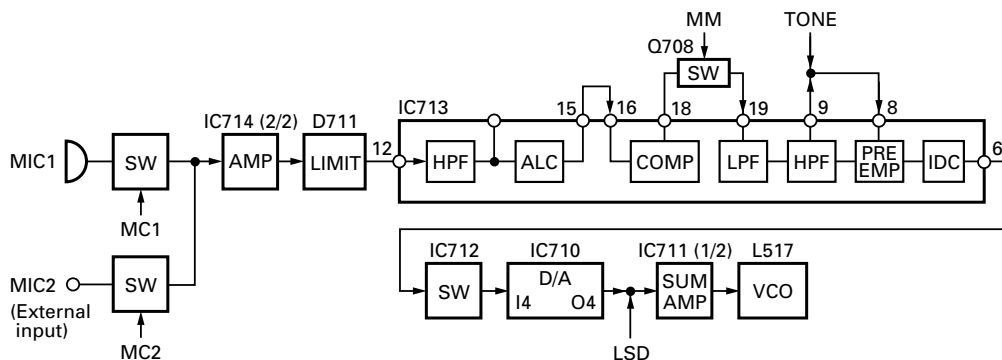


Fig. 5 Microphone circuit

CIRCUIT DESCRIPTION

4-4. Driver and Final Power amplifier Circuits

The transmit signal is generated by the TX mixer (Q503). The transmit signal obtained from the buffer amplifier Q1 and Q2, is amplified by Q3 to approximately 30dBm. This amplified signal is amplified by Q4 and Q5 to approximately 8W, and this signal is passed to the final stage.

The RF power amplifier consists of transistor (Q6 and Q7) and is capable of reducing up to 70W of RF power.

4-5. Transmit/Receive Switching Circuit

The final output signal is passed through a transmit/receive switching circuit (K1) before it is passed to the antenna terminal.

4-6. Automatic Power Control, Circuit and Transmitter

The APC circuit consists of an RF level detector, an exciter control section and a temperature sensing circuit. The RF level detector senses the forward and reflected power. The transmitter output power is kept constant by the exciter control circuit which monitors the forward power and regulates the supply voltage applied to the exciter section.

If the antenna load becomes abnormal, the reflected power increases, causing the exciter control circuit to reduce the supply voltage to the exciter. In case of an abnormal temperature rise in the power amplifier section, the temperature sensing circuit detects this condition and send the information to the APC circuit. These actions reduce the transmitter output power to a safe operating level.

5. PLL Frequency Synthesizer

The frequency synthesizer consists of the VCXO (X501), VCO (L517), PLL IC (IC501) and buffer amplifiers.

The VCXO generates 16.8MHz reference frequency. The frequency stability is within ± 5.0 ppm (temperature range of -30 to $+60^\circ\text{C}$). The output of the VCXO is applied to pin 8 of the PLL IC.

VCO (L517) has 2 internal VCOs. One for the 1st local oscillator (K : 158.25~166.005MHz, K2 : 163.55~179.005 MHz) and another one for the 2nd local oscillator (129.005MHz). Each output is connected to a dual PLL IC (IC501).

VCO1 oscillates at K : 158.705~166.005MHz, K2 : 164.005~179.005MHz during transmission and it oscillates at K : 158.25~165.55MHz, K2 : 163.55~178.55MHz during reception.

VCO2 oscillates at 129.005MHz during both reception and transmission. However, the oscillated signal is modulated during transmission. Each PLL circuit has LPFs and buffer amplifiers.

The output of VCO1 goes through the buffer amplifier, then the output is switched either for the 1st local oscillator circuit of the receiver or TX mixer.

The output of VCO2 goes through the buffer amplifier, then the output is switched either for the 2nd local oscillator circuit of the receiver or TX mixer.

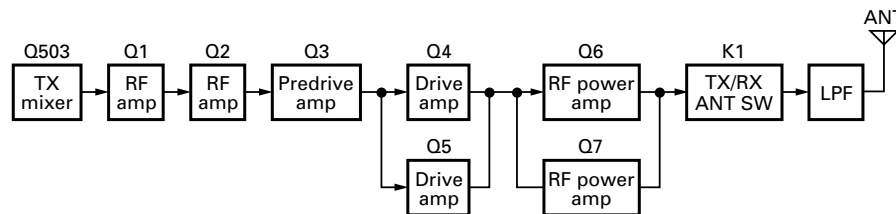


Fig. 6 Drive and final amplifier

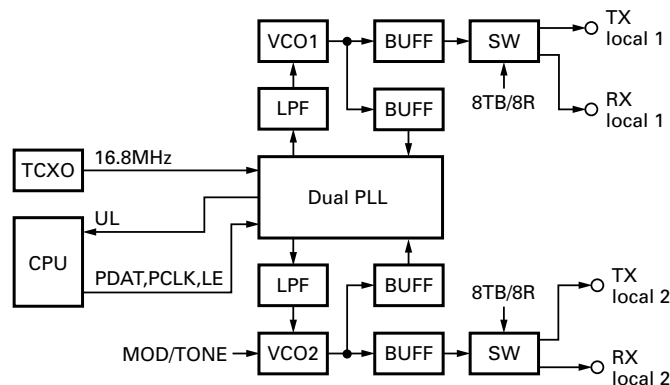


Fig. 7 PLL block diagram

CIRCUIT DESCRIPTION

6. Power Supply Circuit

The power (+B), which is supplied via a power connector, is routed to the TX drive amplifier (Q4 and Q5), the TX final amplifier (Q6 and Q7), and the audio power amplifier (IC102).

The power switch (Q110) converts the power (+B) to SB. The 8V REG (IC103) converts SB to 8C.

The two, 5V REGs (IC104 and IC602) converts 8C to 5C and 5CM respectively. The 5CM is the power supplied to the CPU. 8C is distributed between the TX circuit power (8T and 8TB) and the RX circuit power (8R).

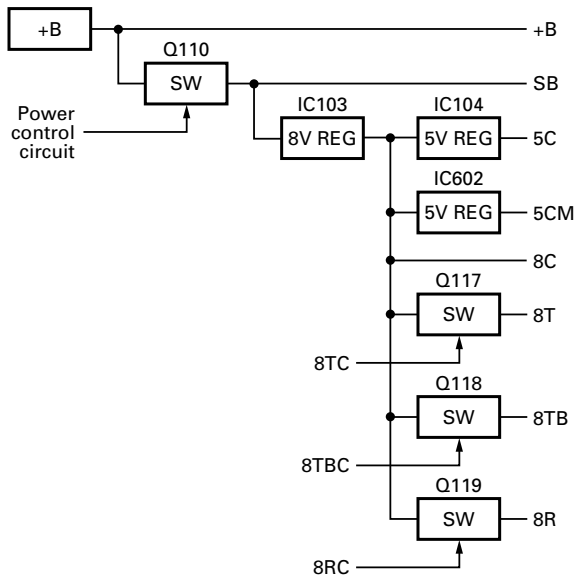


Fig. 8 Power supply circuit

7. Control Circuit

The control unit circuit consists of microprocessor IC604 and flash memory IC607. It controls the TX-RX unit and transfers data to and from the Display unit. The CPU (IC604) mainly performs the following :

- 1) Switching between transmission and reception by PTT signal input.
- 2) Reading channel, frequency, and program data from the memory circuit.
- 3) Sending frequency program data to the PLL.
- 4) Controlling squelch on/off from the squelch circuit.
- 5) Controlling the audio mute circuit by decode data input.
- 6) Transmitting encode data (QT, DQT).
- 7) Sending serial data to output expander (IC704, IC701, IC702 and IC703) to control various function in the unit.

7-1. Memory Circuit

IC607 has a flash memory with a capacity of 2M bits that contains the transceiver control program for the CPU and data such as transceiver channels and operating features.

This program can be easily written from an external devices. Data, such as DTMF memories and operating status, are programmed into the EEPROM (IC605).

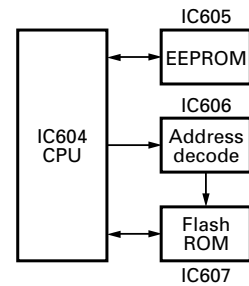


Fig. 9 Memory circuit

7-2. CPU Clock

The CPU clock is generated by VCXO (16.8MHz) and it is fed through an inverter, IC603. This clock was divided into a half cycle (1/2 frequency) at the internal CPU. The CPU further divides this clock to utilize it as the various clocks.

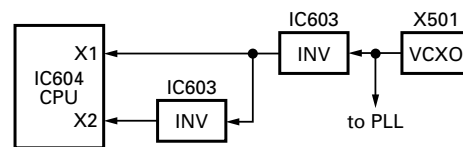


Fig. 10 CPU clock circuit

7-3. Shift Register

IC704, IC701, IC702 and IC703 is an interface IC for output port expansion. It is used to expand the CPU (IC604) output ports.

7-4. D/A Converter

IC715 and IC710 is used as a conventional semi-fixed-resistor converter. It sets the following :

- 1) RX filter tuning
- 2) Transmission power tuning
- 3) Modulation level tuning
- 4) Audio power tuning

7-5. Key Input (Display unit)

K1 or K2 becomes High when any key is pressed (or enable signal on the optional circuit).

When K1 or K2 becomes High, to trigger the interrupt to IC604 in order to start the key scan.

When the key scan starts, the output terminals IC901 (Q1~Q5) become Low. Only the key sensing circuit remains High. When a key is pressed, the signal is routed through K1 or K2 to the microprocessor. Then, the microprocessor determines which key is pressed using this signals.

CIRCUIT DESCRIPTION

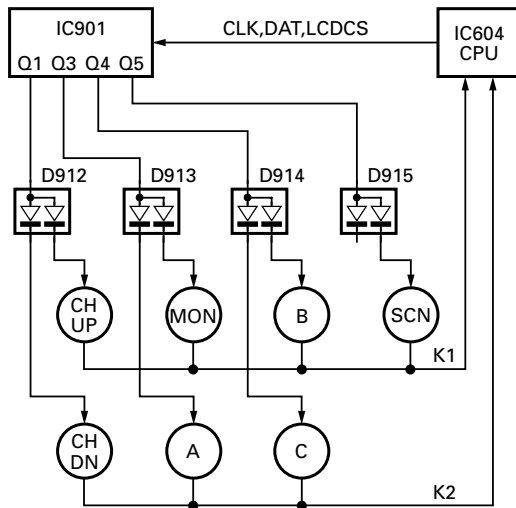


Fig. 11 Key input

8. Signalling Circuit

8-1. Encode

The CPU (IC604) transmits the encode data selected by the program.

- **Low-speed data (QT, DQT)**

Low-speed data is output from pin 34 of the CPU. The signal passes through a low-pass filter consisting of IC706 (2/2), and goes to the summing amplifier (IC711 1/2). The signal is mixed with the audio signal and goes to the VCO (L517).

- **High-speed data (DTMF)**

High-speed data is output from pin 35 of the CPU. The signal passes through a low-pass filter consisting of IC706 (1/2), and provides a TX DTMF tone and a RX DTMF tone including a beep tone. The TX DTMF tone is passed to the D/A convertor (IC710) for DTMF deviation adjustment, and then applied to the audio processor (IC713).

The signal is mixed with the audio signal and goes to the VCO. The RX DTMF tone is passed the D/A convertor (IC710) for audio control summing amplifier (IC711 2/2), audio power amplifier and then to the speaker.

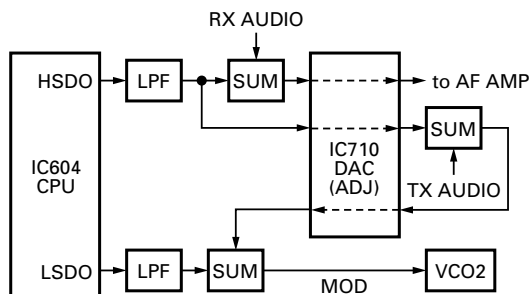


Fig. 12 Encode

8-2. Decode

- **Low-speed data (QT, DQT)**

The demodulated signal from the FM IC (IC202) is amplified by IC709 (2/2) and passes through a low-pass filter (IC705) to remove audio components. The signal is input to pin 28 of the CPU.

The CPU digitizes this signal, performs processing such as DC restoration, and decodes the signal.

- **High-speed data (DTMF)**

The DTMF input signal from the FM IC (IC202) is amplified by IC709 (2/2) and goes to IC708, the DTMF decoder. The decoded information is then processed by the CPU. During transmission and standby, the PD terminal is High. When the line is busy, the PD terminal becomes Low, the power down mode is canceled and decoding is carried out.

- **High-speed data (2-tone)**

The demodulated signal from the FM IC (IC202) is amplified by IC709 (2/2) and passes through an audio processor (IC713) and low-pass filter (IC709 1/2) to remove a low-speed data.

The CPU digitizes this signal, performs processing such as DC restoration, and decodes the signal.

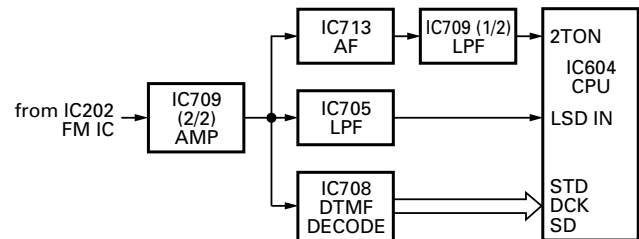


Fig. 13 Decode

SEMICONDUCTOR DATA

Microprocessor : 784214GC0618EU (TX-RX Unit IC604)

• Terminal function

| Pin No. | Pin name | I/O | Action |
|---------|-----------|-----|--------------------------------|
| 1 | FCLR | O | Modem FCLR |
| 2 | POF | O | Power off |
| 3 | LD | O | D/A converter CS (M62364FP) |
| 4 | MSKE | O | Modem MSK enable |
| 5 | MDAT | O | Modem Data/TX Data |
| 6 | MD1 | I | Model select 1 |
| 7 | MD2 | I | Model select 2 |
| 8 | NC | | |
| 9 | VDD | - | +5V |
| 10 | X2 | - | Ext. clock |
| 11 | X1 | - | Ext. clock |
| 12 | VSS | - | GND |
| 13 | XT2 | - | Open |
| 14 | XT1 | - | GND |
| 15 | RESET | - | CPU reset |
| 16 | SENSB | I | GE-STAR SENS B |
| 17 | TRD | I | Modem TRD |
| 18 | RTM | I | Modem RTM |
| 19 | STD | I | DTMF decoder STD |
| 20 | NC | | |
| 21 | PSW | I | Power SW detect |
| 22 | HK1 | I | MIC hook 1 (RXD1) |
| 23 | AVDD | - | +5V |
| 24 | AVREF0 | - | +5V |
| 25 | AUXGE | I | GE-STAR AUX |
| 26 | VOL | I | AF volume |
| 27 | TMP | I | Temperature |
| 28 | LSD IN | I | QT/DQT input |
| 29 | IGN | I | Ignition sense L : ON, H : OFF |
| 30 | UL | I | PLL unlock detect |
| 31 | SQL | I | SQL level |
| 32 | RSSI | I | RSSI level |
| 33 | AVSS | - | GND |
| 34 | LSDO | O | QT/DQT output |
| 35 | HSDO | O | DTMF/BEEP output |
| 36 | AVREF1 | - | +5V |
| 37,38 | NC | | |
| 39 | PDAT | O | PLL data |
| 40 | RXD1 | I | Serial interface RXD |
| 41 | PTT1/TXD1 | I/O | MIC PTT/ Serial interface TXD |
| 42 | MSTB | O | Modem STB |
| 43 | DCK | O | DTMF decoder clock |
| 44 | SD | I | DTMF SD |
| 45 | LCDCS | O | LCD CS |

| Pin No. | Pin name | I/O | Action |
|---------|----------|-----|--------------------------------------------|
| 46 | STB1 | O | Shift register 1 STB |
| 47 | STB2 | O | Shift register 2 STB |
| 48~71 | | | Cannot use. Flash ROM access port. |
| 72 | VSS | - | GND |
| 73~74 | | | Cannot use. Flash ROM access port. |
| 75 | | | Cannot use. Flash ROM (4Mbit) access port. |
| 76 | | | Cannot use open |
| 77~78 | | | Cannot use. Flash ROM access port. |
| 79 | KEY | I | GE-STAR KEY |
| 80 | NC | | Cannot use open |
| 81 | VDD | - | +5V |
| 82 | SCL | O | EEPROM clock |
| 83 | SDA | I/O | EEPROM data |
| 84 | CLK | O | Common clock |
| 85 | DATA | O | Common data |
| 86 | CM | I | DTMF MIC key pad data |
| 87 | K1 | I | Key scan counter return 1 |
| 88 | K2 | I | Key scan counter return 2 |
| 89 | PCLK | O | PLL clock |
| 90 | KES | O | Key scan counter enable |
| 91 | 2TON | I | 2-Tone |
| 92 | SOE | O | Shift register output enable |
| 93 | LE | O | PLL latch enable |
| 94 | TEST | - | GND |
| 95 | TCNT | I | GE-STAR TCNT |
| 96 | PTT2 | I | EXT PTT |
| 97 | HK2 | I | EXT hook |
| 98 | FSW | I | Foot SW |
| 99 | LD2 | O | D/A converter CS (M62354GP) |
| 100 | RDT | I | Modem RDT |

Shift Register Output

• Shift Register 1 (TX-RX unit IC704)

| Pin No. | Port | Name | Action |
|---------|------|------|--------------------------------|
| 4 | Q1 | 8RBC | 8RB control SW L : OFF, H : ON |
| 5 | Q2 | 8RC | 8R control SW L : OFF, H : ON |
| 6 | Q3 | 8TBC | 8TB control SW L : OFF, H : ON |
| 7 | Q4 | 8TC | 8R control SW L : OFF, H : ON |
| 14 | Q5 | - | Reserved |
| 13 | Q6 | - | Not used |
| 12 | Q7 | - | Reserved |
| 11 | Q8 | NBS | NB control SW L : OFF, H : ON |

SEMICONDUCTOR DATA

• Shift Register 2 (TX-RX unit IC701)

| Pin No. | Port | Name | Action |
|---------|------|------|-----------------------------------|
| 4 | Q1 | AM1 | Audio mute 1 L : Mute, H : Unmute |
| 5 | Q2 | REG1 | Modem REG1 |
| 6 | Q3 | REG2 | Modem REG2 |
| 7 | Q4 | PD | DTMF PD |
| 14 | Q5 | AUX | ACC AUX |
| 13 | Q6 | - | Not used |
| 12 | Q7 | AM2 | Audio mute 2 L : Unmute, H : Mute |
| 11 | Q8 | - | Not used |

• Shift Register 3 (TX-RX unit IC702)

| Pin No. | Port | Name | Action |
|---------|------|-------|----------------------------------------|
| 4 | Q1 | BLC | LCD, KEY back light SW L : OFF, H : ON |
| 5 | Q2 | RXLED | Busy LED SW L : ON, H : OFF |
| 6 | Q3 | TXLED | TX LED SW L : ON, H : OFF |
| 7 | Q4 | MM | Modem, GE-STAR L : Mute, H : Unmute |
| 14 | Q5 | HRC | Horn alert control SW L : OFF, H : ON |
| 13 | Q6 | MC1 | Internal MIC SW L : Mute, H : Unmute |
| 12 | Q7 | MC2 | External MIC SW L : Mute, H : Unmute |
| 11 | Q8 | - | Not used |

• Shift Register 4 (TX-RX unit IC703)

| Pin No. | Port | Name | Action |
|---------|------|------|------------------------------------|
| 4 | Q1 | PTTO | GE-STAR, Scrambler PTT |
| 5 | Q2 | CLRC | Scrambler CLR code L : ON, H : OFF |
| 6 | Q3 | CHBS | GE-STAR Channel Busy |
| 7 | Q4 | EMRG | GE-STAR EMRG |
| 14 | Q5 | COD1 | Scrambler code set |
| 13 | Q6 | COD2 | Scrambler code set |
| 12 | Q7 | COD3 | Scrambler code set |
| 11 | Q8 | COD4 | Scrambler code set |

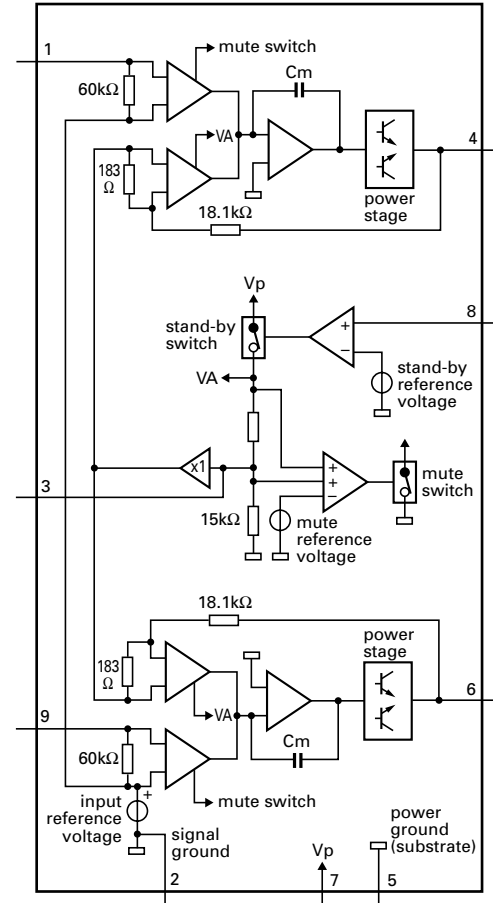
RF Final Amplifier : 2SC2540 (TX-RX Unit Q6,Q7)

• Absolute maximum ratings

| Symbol | Parameter | Condition | Rating |
|------------------|------------------------------|--------------------|------------|
| V _{CBO} | Collector to base voltage | | 35V |
| V _{EBO} | Emitter to base voltage | | 4V |
| V _{CEO} | Collector to emitter voltage | R _{BE} =∞ | 17V |
| I _c | Collector current | | 10A |
| P _c | Collector dissipation | | 75W |
| T _j | Junction temperature | | +175°C |
| T _{stg} | Storage temperature | | -55~+175°C |

Audio Power Amplifier : TDA1519A (TX-RX Unit IC102)

• Block Diagram



• Terminal function

| Pin No. | Symbol | Description |
|---------|----------------|---------------------------------|
| 1 | NINV | Non-inverting input |
| 2 | GND1 | Ground (signal) |
| 3 | RR | Supply voltage ripple rejection |
| 4 | OUT1 | Output 1 |
| 5 | GND2 | Ground (substrate) |
| 6 | OUT2 | Output 2 |
| 7 | V _p | Positive supply voltage |
| 8 | M/SS | Mute/stand-by switch |
| 9 | INV | Inverting input |

DESCRIPTION OF COMPONENTS

TX-RX Unit (X57-6100-XX) (A/3)

-10 : K -11 : K2

| Ref. No. | Use/Function | Operation/Condition |
|-----------|------------------------------------|-------------------------------------------|
| IC2 | APC comparator | APC control |
| IC101 | D Flip-Flop | Power supply control |
| IC102 | Audio power amplifier | 10W/4Ω, BTL method |
| IC103 | Voltage regulator | Input : SB, Output : 8V |
| IC104 | Voltage regulator | Input : 8V, Output : 5V |
| IC105 | Analog switch | Audio mute switch |
| IC201 | Active DBM | RX 1st mixer |
| IC202 | FM IF system | 2nd mixer, Detector, IF amp, Noise amp |
| IC203 | Analog switch | Audio mute switch |
| IC401 | AGC amplifier | |
| IC501 | Dual-PLL | |
| IC601 | Voltage detector | Microprocessor reset |
| IC602 | Voltage regulator | Input : 8V, Output : 5V |
| IC603 | Buffer amplifier | Microprocessor clock |
| IC604 | Microprocessor | |
| IC605 | EEPROM | |
| IC606 | NOR gate | Address decode latch |
| IC607 | Flash ROM | |
| IC701~704 | Shift register | Output expander |
| IC705 | Active low pass filter | LPF for LSD input |
| IC706 | Active low pass filter | LPF for HSD, LSD output |
| IC707 | Buffer amplifier | 1/2V Ref, Ext. DET amplifier |
| IC708 | DTMF decoder | |
| IC709 | Buffer amplifier/ Active filter | DET amplifier/LPF for 2-tone |
| IC710 | D/A converter | Audio adjustment |
| IC711 | Summing/Buffer amplifier | For MOD/For AF |
| IC712 | Analog switch | Audio switch |
| IC713 | Audio processor | |
| IC714 | AF/ Buffer amplifier | For MOD/For DI |
| IC715 | D/A converter | |
| Q1~3 | TX pre-drive amplifier | |
| Q4,5 | TX drive amplifier | |
| Q6,7 | TX final amplifier | |
| Q8 | DC switch | |
| Q9 | DC amplifier | APC controller |
| Q10 | DC switch | TX/RX switch |

| Ref. No. | Use/Function | Operation/Condition |
|----------|----------------------------|-------------------------------|
| Q11 | DC switch | APC control |
| Q12 | DC amplifier | APC controller |
| Q13 | DC switch | APC control |
| Q101 | DC switch | On when push the power switch |
| Q102 | DC switch | On when power off |
| Q103 | DC switch | On when power on |
| Q104 | DC switch | On when power off |
| Q105 | Mute switch | On when power on and AM2 "L" |
| Q106 | DC switch | On when 18V or more |
| Q107 | DC switch | On when power on and AM2 "L" |
| Q108 | DC switch | On when power on |
| Q109 | DC switch | On when AM2 "H" |
| Q110 | Power switch | On when power on |
| Q111 | DC switch | On when ignition sense "H" |
| Q112 | DC switch | On when ignition sense "H" |
| Q113 | 8T switch | On when 8TC "H" |
| Q114 | 8TB switch | On when 8TBC "H" |
| Q115 | 8R switch | On when 8RC "H" |
| Q117 | Current driver, 8T switch | On when 8TC "H" |
| Q118 | Current driver, 8TB switch | On when 8TBC "H" |
| Q119 | Current driver, 8R switch | On when 8RC "H" |
| Q121 | DC switch | |
| Q122 | Mute switch | AM1 "L" : Mute, "H" : Unmute |
| Q201 | RF front amplifier | RX frequency |
| Q202 | If amplifier | 128.55 MHz |
| Q203,204 | NB gate | |
| Q205 | If amplifier | 128.55 MHz |
| Q206 | SQL amplifier | Noise amplifier |
| Q401 | RF amplifier | |
| Q402,403 | Detector | |
| Q404~406 | Amplifier | |
| Q407,408 | DC switch | |
| Q501 | Ripple filter | |
| Q503 | TX mixer | |
| Q504 | RF amplifier | Sub VCO |
| Q505 | RF amplifier | Main VCO |
| Q506 | RF buffer amplifier | Main VCO |
| Q507 | RF buffer amplifier | Sub VCO |
| Q601 | DC switch | On when push the power switch |
| Q602 | DC switch | On when ignition sense "H" |

DESCRIPTION OF COMPONENTS

| Ref. No. | Use/Function | Operation/Condition |
|----------|----------------------------------|------------------------------|
| Q701 | DC switch | On when AUX |
| Q702 | DC switch | On when horn alert |
| Q703 | Internal MIC switch | MC1 "L" : Mute, "H" : Unmute |
| Q704 | DC switch | MC1 "L" : Mute, "H" : Unmute |
| Q705 | External MIC switch | MC2 "L" : Mute, "H" : Unmute |
| Q706 | DC switch | MC2 "L" : Mute, "H" : Unmute |
| Q707 | DC switch | |
| Q708 | MIC mute switch | MM "L" : Mute, "H" : Unmute |
| Q709 | DC switch | |
| D1 | Reflected wave rectification | |
| D3 | Forward wave rectification | |
| D4 | Surge absorption | |
| D5 | Protector | |
| D101 | Protection of reverse connection | |
| D102 | Surge absorption | |
| D103 | Voltage reference | Voltage protection |
| D104 | DC switch | |
| D105 | Voltage reference | Voltage protection |
| D106 | DC switch | |
| D107 | Surge absorption | |
| D108 | DC switch | |
| D109 | Voltage reference | Protection of high voltage |
| D202~205 | B.P.F. tuning | Vari-cap tuning |
| D206 | Noise detector | |
| D207 | DC switch | On when TX |
| D208 | Voltage reference | Voltage protection |
| D401 | DC switch | |
| D501~504 | RF switch | TX/RX |
| D701~710 | Surge absorption | |
| D711 | Voltage clamp | |

Display Unit (X57-6100-XX) (B/3)

-10 : K -11 : K2

| Ref. No. | Use/Function | Operation/Condition |
|----------|----------------------------------|---------------------------|
| IC901 | Shift register | Output expander |
| IC902 | LCD driver | |
| Q901 | Current driver, TX LED switch | TXLED "L" : On, "H" : Off |
| Q902 | Current driver, RX LED switch | RXLED "L" : On, "H" : Off |
| Q903 | LCD back light switch | BLC "L" : Off, "H" : On |
| Q904 | LCD back light switch | BLC "L" : Off, "H" : On |
| Q905 | KEY back light switch | BLC "L" : Off, "H" : On |
| D901 | LED for TX, RX LED light | |
| D902~907 | LED for LCD back light | |
| D908~911 | LED for KEY back light | |
| D912~915 | Protection of reverse current | |
| D916 | Speed up | |

TK-6110

PARTS LIST

*New Parts. Δ indicates safety critical components.

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

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

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

L : Scandinavia

Y : PX (Far East, Hawaii)

Y : AAFES (Europe)

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

TK-6110

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------------|---------|-----------|-------------|---------------------------------------|-------------|
| TK-6110 | | | | | |
| 1 | 1B | * | A01-2170-03 | CABINET | |
| 2 | 3A | * | A62-0761-13 | PANEL ASSY | |
| 4 | 3B | | B11-1148-14 | ILLUMINATION GUIDE (LCD) | |
| 5 | 3B | | B11-1149-04 | FILTER (LCD) | |
| 6 | 3B | | B38-0800-05 | LCD | |
| 7 | 7B | * | B41-1837-04 | CAUTION LABEL | |
| 8 | 2B | | B42-2455-04 | STICKER (M4X8 MAX) | |
| 9 | 2B | | B42-5650-04 | S/NO. LABEL | |
| 11 | 1C | * | B62-1216-10 | INSTRUCTION MANUAL ACSY | |
| 12 | 2B | * | B72-1633-04 | MODEL NAME PLATE | K |
| 12 | 2B | * | B72-1729-04 | MODEL NAME PLATE | K2 |
| 14 | 3B | * | E29-1192-04 | INTER CONNECTOR (LCD) | |
| 15 | 2B | | E30-2145-15 | ANTENNA CABLE | |
| 16 | 1D | | E30-3339-05 | DC CORD ACSY | |
| 17 | 1D | | E31-3228-05 | LEAD WIRE WITH CONNECTOR ACSY | |
| 18 | 3A | * | E37-0831-05 | FLAT CABLE (MIC&VOL UNIT:13P) | |
| 19 | 2A | * | E37-0833-15 | LEAD WIRE WITH CONNECTOR (SP) | |
| 20 | 2B | * | E37-0838-05 | LEAD WIRE WITH CONNECTOR (15P) | |
| 21 | 3A | * | E37-0899-05 | FLAT CABLE (DISPLAY UNIT:17P) | |
| 23 | 2A | * | F10-2326-13 | SHIELDING PLATE (FINAL) | |
| 24 | 1A | * | F10-2370-04 | SHIELDING PLATE | |
| 25 | 1A | * | F10-2380-04 | SHIELDING PLATE (LPF) | |
| 26 | 2A | * | F10-2386-04 | SHIELDING PLATE (NB) | |
| 27 | 1D | | F51-0018-05 | FUSE (6*30 20A) ACSY | |
| 29 | 1A | | G02-0715-04 | FLAT SPRING (VOLTAGE REGULATOR:IC103) | |
| 30 | 1A | * | G02-0861-04 | FLAT SPRING (AUDIO POWER AMP:IC102) | |
| 31 | 2A | * | G10-1242-04 | FIBROUS SHEET (CHASSIS UPPER) | |
| 32 | 3B | * | G10-1245-04 | FIBROUS SHEET (CHASSIS SP) | |
| 33 | 2A,2B | * | G10-1253-04 | FIBROUS SHEET (CHASSIS SIDE) | |
| 34 | 1B | * | G10-1270-04 | FIBROUS SHEET (CASE) | |
| 35 | 3B | * | G10-1271-04 | FIBROUS SHEET (CHASSIS LOWER) | |
| 36 | 2B | * | G11-2613-04 | RUBBER SHEET | |
| 37 | 2B | | G13-1468-04 | CUSHION (CHASSIS REAR) | |
| 38 | 2B | * | G13-1752-04 | CUSHION (SP) | |
| 39 | 2B | * | G13-1788-04 | CUSHION (CHASSIS SP UPPER) | |
| 40 | 3B | * | G13-1799-04 | CUSHION (CHASSIS SP LOWER) | |
| 41 | 3B | * | G53-0893-03 | PACKING (SP) | |
| 42 | 1B | * | G53-1509-03 | PACKING (CASE) | |
| 44 | 2D | * | H02-0616-03 | INNER PACKING CASE | |
| 45 | 2C | * | H12-3083-12 | PACKING FIXTURE (FRONT) | |
| 46 | 2C | * | H12-3084-12 | PACKING FIXTURE (REAR) | |
| 47 | 2C | | H25-0723-04 | PROTECTION BAG (230X400:MAIN BODY) | |
| 48 | 3C | * | H52-1504-02 | ITEM CARTON CASE | |
| 50 | 1D | | J19-1584-05 | HOLDER ACSY | |
| 51 | 2B | * | J21-8387-04 | HARDWARE FIXTURE (15P CONNECTOR) | |
| 52 | 2B | * | J21-8388-04 | HARDWARE FIXTURE (SP) | |
| 53 | 3B | * | J21-8413-04 | HARDWARE FIXTURE (LCD) | |
| 54 | 1D | * | J29-0662-03 | BRACKET ACSY | |
| 55 | 1B | * | J42-0515-05 | BUSHING (15P CONNECTOR) | |
| 56 | 1A | * | J42-0702-05 | BUSHING (W1) | |
| 57 | 2B | * | J99-0356-04 | ADHESIVE TAPE (SP) | |
| 59 | 3A | * | K29-5388-02 | KEY TOP | |

| Ref. No. | Address | New parts | Parts No. | Description | Destination |
|--------------------------------------------------|----------|-----------|---------------|--------------------------------------|-------------|
| 60 | 3A | * | K29-5389-03 | KNOB (VOL) | |
| A | 1B | | N33-2606-45 | OVAL HEAD MACHINE SCREW (CASE) | |
| B | 1A | | N67-3008-46 | PAN HEAD SEMS SCREW W (FINAL AMP) | |
| C | 2B | | N87-2606-45 | BRAZIER HEAD TAPTITE SCREW (ANT,15P) | |
| D | 1A,1B,2B | | N87-2606-46 | BRAZIER HEAD TAPTITE SCREW (PCB) | |
| 62 | 2D | | N99-0395-05 | SCREW SET ACSY | |
| 64 | 3B | | T07-0265-05 | SPEAKER | |
| 65 | 1D | | T91-0621-05 | MICROPHONE ACSY | |
| TX-RX UNIT (X57-6100-XX) -10 : K -11 : K2 | | | | | |
| D901 | | | B30-2151-05 | LED (RED/GREEN) | |
| D902-907 | | | B30-2140-05 | LED (Y/8) | |
| D908-911 | | | B30-2050-05 | LED | |
| C1 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C3 | | | CC73GCH1H270J | CHIP C 27PF J | K2 |
| C3 | | | CC73GCH1H470J | CHIP C 47PF J | K |
| C4 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C5 | | | CC73GCH1H101J | CHIP C 100PF J | K2 |
| C6 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C7 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C8 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C9 | | | CC73GCH1H101J | CHIP C 100PF J | K |
| C9 | | | CC73GCH1H680J | CHIP C 68PF J | K2 |
| C11 | | | CC73GCH1H101J | CHIP C 100PF J | K |
| C11 | | | CK73GB1H103K | CHIP C 0.010UF K | K2 |
| C13 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C14 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C15,16 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C17-19 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C20 | | | CC73GCH1H470J | CHIP C 47PF J | K2 |
| C20 | | | CC73GCH1H560J | CHIP C 56PF J | K |
| C21,22 | | | CC73GCH1H101J | CHIP C 100PF J | K2 |
| C21,22 | | | CC73GCH1H121J | CHIP C 120PF J | K |
| C23 | | | CC73GCH1H470J | CHIP C 47PF J | K2 |
| C23 | | | CC73GCH1H560J | CHIP C 56PF J | K |
| C24 | | | CC73GCH1H390J | CHIP C 39PF J | K2 |
| C24 | | | CC73GCH1H680J | CHIP C 68PF J | K |
| C25 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C28,29 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C30 | | * | C93-0596-05 | CHIP C 270PF K | K2 |
| C30 | | | C93-0600-05 | CHIP C 560PF K | K |
| C31 | | | CE04EW1E470M | ELECTRO 47UF 25WV | |
| C32 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C33 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C34 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C35 | | | C92-0633-05 | CHIP-TAN 22UF 10WV | |
| C36 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C39,40 | | * | C93-0684-05 | CERAMIC 6800PF K | |
| C45 | | * | C90-4085-05 | ELECTRO 47UF 20WV | |
| C46 | | | CK73FB1E104K | CHIP C 0.10UF K | |
| C47 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C48 | | | CC73GCH1H101J | CHIP C 100PF J | |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Desti- nation | Ref. No. | Address | New parts | Parts No. | Description | Desti- nation |
|----------|---------|-----------|---------------|---------------------|------------------|----------|---------|-----------|---------------|---------------------|------------------|
| C49 | | | CK73FB1E104K | CHIP C 0.10UF K | | C111 | | | CE04EW1E101M | ELECTRO 100UF 25WV | |
| C50 | | | CK73GB1H103K | CHIP C 0.010UF K | | C112 | | | CE04EW1E470M | ELECTRO 47UF 25WV | |
| C51 | | | CK73FB1E103K | CHIP C 0.010UF K | | C113 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C52 | | | CK73GB1H103K | CHIP C 0.010UF K | | C114,115 | | | CK73FB1E224K | CHIP C 0.22UF K | |
| C54 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C116,117 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C55 | | | CC73GCH1H820J | CHIP C 82PF J | | C118,119 | | | CK73FB1E104K | CHIP C 0.10UF K | |
| C56 | | | CK73GB1H103K | CHIP C 0.010UF K | | C120 | | | CE04EW1E470M | ELECTRO 47UF 25WV | |
| C58 | | | CK73FB1E104K | CHIP C 0.10UF K | | C121 | | | CK73FF1C105Z | CHIP C 1.0UF Z | |
| C59-61 | | | CK73GB1H103K | CHIP C 0.010UF K | | C122 | | | CK73GB1H471K | CHIP C 470PF K | |
| C62 | | | CC73GCH1H680J | CHIP C 68PF J | | C123-126 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C63 | | | CK73GB1H103K | CHIP C 0.010UF K | | C128 | | | CK73FF1C105Z | CHIP C 1.0UF Z | |
| C64 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C129 | | | CK73GB1H471K | CHIP C 470PF K | |
| C65,66 | | | CC73GCH1H220J | CHIP C 22PF J | K2 | C130 | | | C92-0589-05 | CHIP-TAN 47UF 6.3WV | |
| C65,66 | | | CC73GCH1H390J | CHIP C 39PF J | K | C131 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C68,69 | | | CK73GB1C473K | CHIP C 0.047UF K | | C132,133 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C70 | | | CM73F2H470J | CHIP C 47PF J | K2 | C134 | | | CK73FB1E104K | CHIP C 0.10UF K | |
| C70 | | | CM73F2H820J | CHIP C 82PF J | K | C135,136 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C71 | | | CM73F2H080D | CHIP C 8.0PF D | K | C137,138 | | | CK73FB1E224K | CHIP C 0.22UF K | |
| C71 | | | CM73F2H090D | CHIP C 9.0PF D | K2 | C139 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C72 | | | CM73F2H101J | CHIP C 100PF J | K2 | C140 | | | CK73FB1E224K | CHIP C 0.22UF K | |
| C72 | | | CM73F2H181J | CHIP C 180PF J | K | C141 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C73 | | | CK73GB1H103K | CHIP C 0.010UF K | | C142 | | | CK73GB1H471K | CHIP C 470PF K | |
| C75 | | | CM73F2H180J | CHIP C 18PF J | K | C197,198 | | | CM73F2H121J | CHIP C 120PF J | K |
| C75 | | | CM73F2H220J | CHIP C 22PF J | K2 | C196,199 | | | CM73F2H181J | CHIP C 180PF J | K2 |
| C76 | | | CM73F2H470J | CHIP C 47PF J | K2 | C196,199 | | | CM73F2H330J | CHIP C 33PF J | K |
| C76,77 | | | CM73F2H820J | CHIP C 82PF J | K | C197,198 | | | CM73F2H331J | CHIP C 330PF J | K2 |
| C77 | | | CM73F2H390J | CHIP C 39PF J | K2 | C203 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C78 | | | CM73F2H510J | CHIP C 51PF J | | C204 | | | CC73GCH1H050C | CHIP C 5.0PF C | K2 |
| C79 | | | CM73F2H390J | CHIP C 39PF J | K2 | C205 | | | CC73GCH1H390J | CHIP C 39PF J | K |
| C79 | | | CM73F2H820J | CHIP C 82PF J | K | C205 | | | CC73GCH1H470J | CHIP C 47PF J | K2 |
| C80 | | | CK73GB1H103K | CHIP C 0.010UF K | | C206 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C81 | | | CC73GCH1H470J | CHIP C 47PF J | K2 | C208 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C81 | | | CC73GCH1H560J | CHIP C 56PF J | K | C209 | | | C92-0628-05 | CHIP-TAN 10UF 10WV | |
| C82 | | | CC73GCH1H101J | CHIP C 100PF J | K2 | C210-212 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C82 | | | CC73GCH1H121J | CHIP C 120PF J | K | C213 | | | CC73GCH1H050C | CHIP C 5.0PF C | K2 |
| C83 | | | CC73GCH1H470J | CHIP C 47PF J | K2 | C214 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C83 | | | CC73GCH1H560J | CHIP C 56PF J | K | C215 | | | CC73GCH1H390J | CHIP C 39PF J | K |
| C84,85 | | | CC73GCH1H220J | CHIP C 22PF J | K2 | C215 | | | CC73GCH1H470J | CHIP C 47PF J | K2 |
| C84,85 | | | CC73GCH1H390J | CHIP C 39PF J | K | C217-219 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C86 | | | CC73GCH1H270J | CHIP C 27PF J | K2 | C221 | | | CC73GCH1H050C | CHIP C 5.0PF C | K2 |
| C86 | | | CC73GCH1H560J | CHIP C 56PF J | K | C222 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C87,88 | | | CC73GCH1H220J | CHIP C 22PF J | K2 | C225 | | | CC73GCH1H270J | CHIP C 27PF J | |
| C87,88 | | | CC73GCH1H390J | CHIP C 39PF J | K | C226 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C89 | | | CC73GCH1H470J | CHIP C 47PF J | K2 | C227 | | | CC73GCH1H100D | CHIP C 10PF D | |
| C89 | | | CC73GCH1H560J | CHIP C 56PF J | K | C228 | | | CC73GCH1H180J | CHIP C 18PF J | |
| C90 | | | CC73GCH1H101J | CHIP C 100PF J | K2 | C229 | | | CC73GCH1H040C | CHIP C 4.0PF C | |
| C90 | | | CC73GCH1H121J | CHIP C 120PF J | K | C230 | | | CC73GCH1H680J | CHIP C 68PF J | |
| C91 | | | CC73GCH1H470J | CHIP C 47PF J | K2 | C231,232 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C91 | | | CC73GCH1H560J | CHIP C 56PF J | K | C233 | | | CK73GB1H471K | CHIP C 470PF K | |
| C92-96 | | | CK73GB1H103K | CHIP C 0.010UF K | | C235 | | | CK73GB1H471K | CHIP C 470PF K | |
| C99 | | | C93-0601-05 | CHIP C 680PF K | | C236-238 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C100 | | | CM73F2H561J | CHIP C 560PF J | | C239 | | | CC73GCH1H030C | CHIP C 3.0PF C | |
| C101 | | | CE04EW1E471M | ELECTRO 470UF 25WV | | C240 | | | CC73GCH1H180J | CHIP C 18PF J | |
| C102 | | | CK73GB1H472K | CHIP C 4700PF K | | C241 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C103 | | | C92-0777-05 | ELECTRO 1000UF 25WV | | C242 | | | CK73GB1C473K | CHIP C 0.047UF K | |
| C104 | | | CE04NW1E4R7M | ELECTRO 4.7UF 25WV | | C243 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C105,106 | | | CK73FB1E104K | CHIP C 0.10UF K | | C245 | | | CC73GCH1H1R5B | CHIP C 1.5PF B | |
| C107 | | | CK73FB1E224K | CHIP C 0.22UF K | | C246 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C108 | | | CE04EW1E470M | ELECTRO 47UF 25WV | | C247,248 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C109,110 | | | CK73FB1E104K | CHIP C 0.10UF K | | C249 | | | CC73GCH1H010B | CHIP C 1.0PF B | |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|---------------|---------------------|-------------|----------|---------|-----------|---------------|----------------------|-------------|
| C250 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C416 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C251 | | | CC73GCH1H010B | CHIP C 1.0PF B | | C417 | | | CC73GCH1H221J | CHIP C 220PF J | |
| C252 | | | CK73GB1H102K | CHIP C 1000PF K | | C418 | | | CC73GCH1H680J | CHIP C 68PF J | |
| C253 | | | CK73GB1H103K | CHIP C 0.010UF K | | C419-421 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C255 | | | CK73GB1H102K | CHIP C 1000PF K | | C422 | | | CC73GCH1H221J | CHIP C 220PF J | |
| C256 | | | CK73GB1C104K | CHIP C 0.10UF K | | C423 | | | C92-0543-05 | CHIP-TAN 3.3UF 10WV | |
| C257-259 | | | CK73GB1H102K | CHIP C 1000PF K | | C424 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C260 | | | CC73GCH1H030C | CHIP C 3.0PF C | | C425 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C262 | | | CK73GB1C104K | CHIP C 0.10UF K | | C501 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C263 | | | CK73GB1H102K | CHIP C 1000PF K | | C502 | | | CC73GCH1H100D | CHIP C 10PF D | |
| C264 | | | C92-0004-05 | CHIP-TAN 1.0UF 16WV | | C503 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C266 | | | CC73GCH1H270J | CHIP C 27PF J | | C504,505 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C267,268 | | | CK73GB1C104K | CHIP C 0.10UF K | | C507 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C269 | | | CK73GB1H102K | CHIP C 1000PF K | | C510 | | | C92-0589-05 | CHIP-TAN 47UF 6.3WV | |
| C270 | | | CC73GCH1H221J | CHIP C 220PF J | | C511,512 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C271 | | | CK73GB1H103K | CHIP C 0.010UF K | | C513 | | | CC73GCH1H100D | CHIP C 10PF D | |
| C272 | | | CC73GCH1H221J | CHIP C 220PF J | | C514 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C273 | | | CK73GB1E223K | CHIP C 0.022UF K | | C516 | | | CC73GCH1H100D | CHIP C 10PF D | |
| C274 | | | CK73GB1H472K | CHIP C 4700PF K | | C517,518 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C275,276 | | | CK73GB1H102K | CHIP C 1000PF K | | C519 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C277 | | | CK73FB1H223K | CHIP C 0.022UF K | | C521 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C278 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | | C522 | | | C92-0507-05 | CHIP-TAN 4.7UF 6.3WV | |
| C279 | | | CK73FB1C334K | CHIP C 0.33UF K | | C523,524 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C280 | | | CK73GB1H103K | CHIP C 0.010UF K | | C525 | | | CK73GB1H222K | CHIP C 2200PF K | |
| C281 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | | C526 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C282 | | | CK73GB1H103K | CHIP C 0.010UF K | | C527 | | | C92-0507-05 | CHIP-TAN 4.7UF 6.3WV | |
| C284 | | | CC73GCH1H390J | CHIP C 39PF J | K | C528 | | | CC73GCH1H120J | CHIP C 12PF J | |
| C284 | | | CC73GCH1H470J | CHIP C 47PF J | K2 | C529 | | | CC73GCH1H470J | CHIP C 47PF J | |
| C285,286 | | | CC73GCH1H150J | CHIP C 15PF J | | C530 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C287 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C531-533 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C288 | | | CC73GCH1H150J | CHIP C 15PF J | | C534,535 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C290 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C536 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C291 | | | CC73GCH1H101J | CHIP C 100PF J | | C537 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C293 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C538 | | | CC73GCH1H180J | CHIP C 18PF J | |
| C294 | | | CC73GCH1H150J | CHIP C 15PF J | | C539 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C296 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C540 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C297 | | | CC73GCH1H180J | CHIP C 18PF J | | C541 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C299 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C542 | | | C92-0001-05 | CHIP C 0.1UF 35WV | |
| C300 | | | CC73GCH1H270J | CHIP C 27PF J | | C543 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C301 | | | CC73GCH1H040C | CHIP C 4.0PF C | | C544 | | | C92-0004-05 | CHIP-TAN 1.0UF 16WV | |
| C302 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C545,546 | | | C92-0589-05 | CHIP-TAN 47UF 6.3WV | |
| C303 | | | CC73GCH1H220J | CHIP C 22PF J | | C547 | | | CK73GB1C473K | CHIP C 0.047UF K | |
| C304 | | | CC73GCH1H040C | CHIP C 4.0PF C | | C548 | | | CK73GB1H102K | CHIP C 1000PF K | K2 |
| C305 | | | CC73GCH1H020B | CHIP C 2.0PF B | | C548,549 | | | CK73GB1H102K | CHIP C 1000PF K | K |
| C306 | | | CC73GCH1H330J | CHIP C 33PF J | | C549 | | | CC73GCH1H101J | CHIP C 100PF J | K2 |
| C307,308 | | | CK73GB1H102K | CHIP C 1000PF K | | C550 | | | CC73GCH1H070D | CHIP C 7.0PF D | K2 |
| C309 | | | CC73GCH1H010B | CHIP C 1.0PF B | | C550 | | | CC73GCH1H100D | CHIP C 10PF D | K |
| C401 | | | C92-0543-05 | CHIP-TAN 3.3UF 10WV | | C551 | | | C92-0004-05 | CHIP-TAN 1.0UF 16WV | |
| C402 | | | CC73GCH1H680J | CHIP C 68PF J | | C552 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C403 | | | CK73GB1H103K | CHIP C 0.010UF K | | C553 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C404 | | | CK73GB1C104K | CHIP C 0.10UF K | | C554 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C405 | | | C92-0543-05 | CHIP-TAN 3.3UF 10WV | | C555 | | | CC73GCH1H060D | CHIP C 6.0PF D | |
| C406 | | | CK73GB1H103K | CHIP C 0.010UF K | | C557 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C407 | | | CC73GCH1H220J | CHIP C 22PF J | | C559 | | | CC73GCH1H220J | CHIP C 22PF J | |
| C408 | | | CC73GCH1H470J | CHIP C 47PF J | | C560,561 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C409,410 | | | CK73GB1H103K | CHIP C 0.010UF K | | C564 | | | CC73GCH1H180J | CHIP C 18PF J | |
| C411 | | | CK73GB1H102K | CHIP C 1000PF K | | C565 | | | CC73GCH1H470J | CHIP C 47PF J | |
| C412,413 | | | CK73GB1C104K | CHIP C 0.10UF K | | C568 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C414 | | | CK73GB1H103K | CHIP C 0.010UF K | | C569 | | | CC73GCH1H390J | CHIP C 39PF J | |
| C415 | | | CC73GCH1H220J | CHIP C 22PF J | | C570 | | | CC73GCH1H220J | CHIP C 22PF J | |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation |
|----------|---------|-----------|---------------|---------------------|--------------|----------|---------|-----------|---------------|----------------------|--------------|
| C571 | | | CK73GB1H102K | CHIP C 1000PF K | | C768 | | | CK73GB1C333K | CHIP C 0.033UF K | |
| C573 | | | CC73GCH1H090D | CHIP C 9.0PF D | | C770 | | | CC73GCH1H121J | CHIP C 120PF J | |
| C574 | | | CC73GCH1H180J | CHIP C 18PF J | | C771 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C575,576 | | | CK73GB1H102K | CHIP C 1000PF K | | C772 | | | CK73GB1C273K | CHIP C 0.027UF K | |
| C577 | | | CC73GCH1H270J | CHIP C 27PF J | | C773 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C578 | | | CC73GCH1H150J | CHIP C 15PF J | | C774 | | | CK73GB1H222K | CHIP C 2200PF K | |
| C579 | | | CC73GCH1H070D | CHIP C 7.0PF D | | C775 | | | CC73GCH1H271J | CHIP C 270PF J | |
| C580 | | | CC73GCH1H060D | CHIP C 6.0PF D | K | C776 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C581 | | | CC73GCH1H040C | CHIP C 4.0PF C | | C777 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C582 | | | CK73GB1H102K | CHIP C 1000PF K | | C778 | | | CK73GB1E123K | CHIP C 0.012UF K | |
| C583 | | | CC73GCH1H270J | CHIP C 27PF J | | C779 | | | CK73GB1C683K | CHIP C 0.068UF K | |
| C584 | | | CC73GCH1H150J | CHIP C 15PF J | | C780 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C585 | | | CK73GB1H102K | CHIP C 1000PF K | | C781 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C586 | | | CC73GCH1H100D | CHIP C 10PF D | | C782 | | | C92-0003-05 | CHIP-TAN 0.47UF 25WV | |
| C587 | | | CC73GCH1H090D | CHIP C 9.0PF D | | C783 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C588-594 | | | CK73GB1H102K | CHIP C 1000PF K | | C784 | | | CK73GB1C473K | CHIP C 0.047UF K | |
| C595 | | | CC73GCH1H220J | CHIP C 22PF J | | C785 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C596 | | | CK73GB1H103K | CHIP C 0.010UF K | | C786-788 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C598 | | | CK73GB1H103K | CHIP C 0.010UF K | | C789 | | | C92-0507-05 | CHIP-TAN 4.7UF 6.3WV | |
| C599 | | | CC73GCH1H470J | CHIP C 47PF J | | C791 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C601 | | | CK73GB1H102K | CHIP C 1000PF K | | C792,793 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C602 | | | CK73FF1C105Z | CHIP C 1.0UF Z | | C794 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C603 | | | CK73GB1H471K | CHIP C 470PF K | | C795 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C604 | | | CK73GB1H103K | CHIP C 0.010UF K | | C796 | | | CC73GCH1H471J | CHIP C 470PF J | |
| C605 | | | CK73GB1H222K | CHIP C 2200PF K | | C797 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C606 | | | CK73FF1C105Z | CHIP C 1.0UF Z | | C798 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C607 | | | CK73GB1H222K | CHIP C 2200PF K | | C800 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C608 | | | CK73GB1H471K | CHIP C 470PF K | | C801 | | | CK73GB1H122J | CHIP C 1200PF J | |
| C609 | | | C92-0589-05 | CHIP-TAN 47UF 6.3WV | | C802 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C610 | | | CK73GB1H102K | CHIP C 1000PF K | | C803-805 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C611-639 | | | CC73HCH1H101J | CHIP C 100PF J | | C806,807 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C640 | | | CK73GB1H102K | CHIP C 1000PF K | | C808 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C641 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | | C809 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C642 | | | CK73GB1H102K | CHIP C 1000PF K | | C810-812 | | | CK73GB1H562J | CHIP C 5600PF J | |
| C643 | | | CK73GB1C104K | CHIP C 0.10UF K | | C813 | | | CK73GB1H272J | CHIP C 2700PF J | |
| C703 | | | CK73GB1C104K | CHIP C 0.10UF K | | C814 | | | CC73GCH1H470J | CHIP C 47PF J | |
| C704 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | | C815 | | | CK73GB1C333K | CHIP C 0.033UF K | |
| C707 | | | CC73GCH1H151J | CHIP C 150PF J | | C816,817 | | | CK73GB1H272J | CHIP C 2700PF J | |
| C711 | | | CK73GB1C104K | CHIP C 0.10UF K | | C818 | | | CC73GCH1H090D | CHIP C 9.0PF D | |
| C715 | | | CK73GB1C104K | CHIP C 0.10UF K | | C819 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C716 | | | CK73GB1H471K | CHIP C 470PF K | | C820 | | | CC73GCH1H151J | CHIP C 150PF J | |
| C720 | | | CK73GB1H103K | CHIP C 0.010UF K | | C821 | | | CC73GCH1H090D | CHIP C 9.0PF D | |
| C723 | | | CK73GB1H103K | CHIP C 0.010UF K | | C822 | | | CK73GB1H122J | CHIP C 1200PF J | |
| C725,726 | | | CC73GCH1H101J | CHIP C 100PF J | | C823 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C728 | | | CK73GB1H471K | CHIP C 470PF K | | C824 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C730,731 | | | CC73GCH1H101J | CHIP C 100PF J | | C825 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C733 | | | CK73GB1C104K | CHIP C 0.10UF K | | C826 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C734,735 | | | CC73GCH1H101J | CHIP C 100PF J | | C827-830 | | | CK73GB1C104K | CHIP C 0.10UF K | |
| C737 | | | CK73GB1C104K | CHIP C 0.10UF K | | C831 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C738,739 | | | CC73GCH1H101J | CHIP C 100PF J | | C832 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | |
| C741,742 | | | CC73GCH1H101J | CHIP C 100PF J | | C833 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C744,745 | | | CC73GCH1H101J | CHIP C 100PF J | | C834 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C747,748 | | | CC73GCH1H101J | CHIP C 100PF J | | C836 | | | CK73GB1H472K | CHIP C 4700PF K | |
| C750,751 | | | CC73GCH1H101J | CHIP C 100PF J | | C837 | | | C92-0507-05 | CHIP-TAN 4.7UF 6.3WV | |
| C753,754 | | | CC73GCH1H101J | CHIP C 100PF J | | C838 | | | CK73GB1E153K | CHIP C 0.015UF K | |
| C756 | | | CC73GCH1H101J | CHIP C 100PF J | | C839 | | | CC73GCH1H101J | CHIP C 100PF J | |
| C757 | | | CK73GB1H102K | CHIP C 1000PF K | | C840 | | | CK73FB1H563K | CHIP C 0.056UF K | |
| C759 | | | CC73GCH1H101J | CHIP C 100PF J | | C841 | | | C92-0507-05 | CHIP-TAN 4.7UF 6.3WV | |
| C760 | | | C92-0560-05 | CHIP-TAN 10UF 6.3WV | | C843 | | | CK73GB1H102K | CHIP C 1000PF K | |
| C764-767 | | | CK73GB1H102K | CHIP C 1000PF K | | C844 | | | CK73GB1H272K | CHIP C 2700PF K | |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|-----------|---------|-----------|---------------|------------------------------|-------------|-----------|---------|-----------|--------------|---------------------------------|-------------|
| C845 | | | CK73GB1C104K | CHIP C 0.10UF K | | L216 | | | L39-1272-05 | TOROIDAL COIL | |
| C902,903 | | | CK73GB1H102K | CHIP C 1000PF K | | L217 | | | L40-1885-92 | SMALL FIXED INDUCTOR (180NH) | |
| C906 | | | CK73GB1H102K | CHIP C 1000PF K | | L218 | | | L40-1295-34 | SMALL FIXED INDUCTOR (1.2UH) | |
| C907 | | | C92-0004-05 | CHIP-TAN 1.0UF 16WV | | L219 | | | L34-4616-05 | AIR-CORE COIL | |
| C908 | | | CC73GCH1H101J | CHIP C 100PF J | | L220 | | | L40-1295-34 | SMALL FIXED INDUCTOR (1.2UH) | |
| TC202 | | | C05-0384-05 | CERAMIC TRIMMER CAP (10PF) | | L221 | | | L40-2205-34 | SMALL FIXED INDUCTOR (22UH) | |
| TC204 | | | C05-0384-05 | CERAMIC TRIMMER CAP (10PF) | | L222 | | * | L34-4648-05 | COIL | |
| CN1 | | * | E40-6053-05 | FLAT CABLE CONNECTOR (17P) | | L223 | | | L34-4625-05 | COIL | |
| CN2 | | | E40-5737-05 | PIN ASSY (8P) | | L224 | | * | L34-4648-05 | COIL | |
| CN3 | | * | E40-6050-05 | FLAT CABLE CONNECTOR (13P) | | L225 | | | L34-4625-05 | COIL | |
| CN4 | | | E40-3242-05 | PIN ASSY (7P) | | L226,227 | | | L40-1885-92 | SMALL FIXED INDUCTOR (180NH) | |
| CN5 | | | E40-3246-05 | PIN ASSY (2P) | | L228 | | | L40-1585-92 | SMALL FIXED INDUCTOR (150NH) | |
| CN201-204 | | | E40-5538-05 | PIN ASSY (2P) | | L229-236 | | | L34-4520-05 | AIR-CORE COIL | |
| CN902 | | * | E40-6050-05 | FLAT CABLE CONNECTOR (13P) | | L237 | | | L34-4530-05 | COIL | |
| CN904 | | * | E40-6053-05 | FLAT CABLE CONNECTOR (17P) | | L401 | | | L40-1005-34 | SMALL FIXED INDUCTOR (10UH) | |
| J901 | 3A | * | E08-0877-05 | MODULAR JACK | | L402 | | | L40-5695-34 | SMALL FIXED INDUCTOR (5.6UH) | |
| W1 | | * | E37-0900-05 | PROCESSED LEAD WIRE | | L403 | | | L40-1015-34 | SMALL FIXED INDUCTOR (100UH) | |
| W2 | 2B | | E30-3340-05 | DC CORD | | L404 | | | L40-5695-34 | SMALL FIXED INDUCTOR (5.6UH) | |
| F1 | | | F53-0130-05 | FUSE (3.0A) | | L501,502 | | | L92-0138-05 | FERRITE CHIP | |
| F701 | | | F53-0108-05 | FUSE (1.8A) | | L503 | | | L40-4795-34 | SMALL FIXED INDUCTOR (4.7UH) | |
| CF201 | | | L72-0916-05 | CERAMIC FILTER (455KHZ) | | L504-510 | | | L92-0138-05 | FERRITE CHIP | |
| CF202 | | | L72-0924-05 | CERAMIC FILTER (455KHZ) | | L511 | | | L40-1285-92 | SMALL FIXED INDUCTOR (120NH) | |
| L1 | | | L40-4705-34 | SMALL FIXED INDUCTOR (47UH) | | L512 | | | L40-2785-34 | SMALL FIXED INDUCTOR (270NH) | |
| L2 | | | L40-2285-34 | SMALL FIXED INDUCTOR (220NH) | K2 | L513 | | | L92-0138-05 | FERRITE CHIP | |
| L2 | | | L40-3385-34 | SMALL FIXED INDUCTOR (330NH) | K | L514 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | |
| L3,4 | | | L92-0148-05 | FERRITE CHIP | | L515 | | | L92-0138-05 | FERRITE CHIP | |
| L5 | | | L40-1095-48 | SMALL FIXED INDUCTOR (1UH) | K | L516 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| L5 | | | L40-2285-48 | SMALL FIXED INDUCTOR (220NH) | K2 | L517 | | | L78-0481-05 | VCO | |
| L6-8 | | | L40-1585-34 | SMALL FIXED INDUCTOR (150NH) | | L518 | | | L40-2285-92 | SMALL FIXED INDUCTOR (220NH) | |
| L9 | | | L39-1439-05 | TOROIDAL COIL | | L519-522 | | | L92-0138-05 | FERRITE CHIP | |
| L10 | | | L33-0666-05 | CHOKE COIL | | L523 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | |
| L11 | | * | L39-1433-15 | TOROIDAL COIL | | L524 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L12 | | | L33-0625-15 | TOROIDAL COIL | | L525 | | | L40-5675-92 | SMALL FIXED INDUCTOR (56NH) | |
| L13 | | * | L39-1432-05 | TOROIDAL COIL | | L526 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L14 | | | L40-2205-34 | SMALL FIXED INDUCTOR (22UH) | | L527 | | | L40-1285-92 | SMALL FIXED INDUCTOR (120NH) | |
| L15 | | | L39-1420-15 | TOROIDAL COIL | | L528 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | |
| L16 | | | L40-2205-34 | SMALL FIXED INDUCTOR (22UH) | | L529 | | | L40-3975-92 | SMALL FIXED INDUCTOR (39NH) | |
| L18 | | | L34-1150-05 | AIR-CORE COIL | K | L530 | | | L40-8275-92 | SMALL FIXED INDUCTOR (82NH) | |
| L18,19 | | | L34-1151-05 | AIR-CORE COIL | K2 | L531,532 | | | L40-1085-92 | SMALL FIXED INDUCTOR (100NH) | |
| L19 | | | L34-1241-05 | AIR-CORE COIL | K | L533 | | | L40-1285-92 | SMALL FIXED INDUCTOR (120NH) | |
| L20 | | | L34-1256-05 | AIR-CORE COIL | K2 | L534 | | | L40-3375-92 | SMALL FIXED INDUCTOR (33NH) | |
| L20 | | | L34-1259-05 | AIR-CORE COIL | K | L535 | | | L40-8275-92 | SMALL FIXED INDUCTOR (82NH) | |
| L21 | | | L40-4785-34 | SMALL FIXED INDUCTOR (470NH) | | L536 | | | L40-3375-92 | SMALL FIXED INDUCTOR (33NH) | |
| L22,23 | | | L40-1585-92 | SMALL FIXED INDUCTOR (150NH) | | L537 | | | L40-1085-92 | SMALL FIXED INDUCTOR (100NH) | |
| L24,25 | | | L40-1585-34 | SMALL FIXED INDUCTOR (150NH) | | L538 | | | L40-1585-92 | SMALL FIXED INDUCTOR (150NH) | |
| L26 | | | L40-6875-92 | SMALL FIXED INDUCTOR (68NH) | K2 | L602 | | | L92-0138-05 | FERRITE CHIP | |
| L202,203 | | * | L34-4639-05 | COIL | K2 | L604 | | | L40-1005-34 | SMALL FIXED INDUCTOR (10UH) | |
| L202,203 | | * | L34-4646-05 | COIL | K | L701-703 | | | L92-0138-05 | FERRITE CHIP | |
| L204 | | | L40-4775-92 | SMALL FIXED INDUCTOR (47NH) | | L704-706 | | | L92-0140-05 | FERRITE CHIP | |
| L205 | | | L40-1005-34 | SMALL FIXED INDUCTOR (10UH) | | L901 | | | L92-0138-05 | FERRITE CHIP | |
| L206,207 | | * | L34-4639-05 | COIL | K2 | X501 | | | L77-1832-05 | VCXO (16.8MHZ) | |
| L206,207 | | * | L34-4646-05 | COIL | K | X701 | | | L77-1708-05 | CRYSTAL RESONATOR (3.579545MHZ) | |
| L208 | | | L40-6875-92 | SMALL FIXED INDUCTOR (68NH) | | XF201 | | * | L71-0560-05 | MCF (128.55MHZ) | |
| L209,210 | | | L40-8275-92 | SMALL FIXED INDUCTOR (82NH) | | CP601-609 | | | R90-0741-05 | MULTIPLE RESISTOR 1K X2 | |
| L211 | | | L40-1285-92 | SMALL FIXED INDUCTOR (120NH) | | CP610-624 | | | R90-0740-05 | MULTIPLE RESISTOR 100 X2 | |
| L212 | | | L40-2785-92 | SMALL FIXED INDUCTOR (270NH) | | CP625 | | | R90-0743-05 | MULTIPLE RESISTOR 47K X2 | |
| L213,214 | | | L39-1272-05 | TOROIDAL COIL | | CP626,627 | | | R90-0741-05 | MULTIPLE RESISTOR 1K X2 | |
| L215 | | | L92-0138-05 | FERRITE CHIP | | R1 | | | RK73GB1J333J | CHIP R 33K J 1/16W | K2 |
| | | | | | | R1 | | | RK73GB1J473J | CHIP R 47K J 1/16W | K |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Desti-nation | Ref. No. | Address | New parts | Parts No. | Description | Desti-nation |
|----------|---------|-----------|--------------|----------------------|--------------|----------|---------|-----------|--------------|---------------------|--------------|
| R2 | | | RK73GB1J471J | CHIP R 470 J 1/16W | | R118 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | |
| R3 | | | RK73GB1J100J | CHIP R 10 J 1/16W | | R119-121 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R4 | | | RK73GB1J122J | CHIP R 1.2K J 1/16W | | R123 | | | RK73GB1J152J | CHIP R 1.5K J 1/16W | |
| R5 | | | RK73GB1J220J | CHIP R 22 J 1/16W | | R124,125 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | |
| R6 | | | RK73GB1J181J | CHIP R 180 J 1/16W | | R127 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R8 | | | RK73GB1J100J | CHIP R 10 J 1/16W | K2 | R128 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R8 | | | R92-1252-05 | CHIP R 0 OHM | K | R129-132 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R10 | | | RK73GB1J560J | CHIP R 56 J 1/16W | | R133 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R11 | | | RK73GB1J123J | CHIP R 12K J 1/16W | K2 | R134 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R11 | | | RK73GB1J183J | CHIP R 18K J 1/16W | K | R135 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R12 | | | RK73GB1J683J | CHIP R 68K J 1/16W | | R136 | | | RK73GB1J394J | CHIP R 390K J 1/16W | |
| R13 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R137 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R14 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | | R138,139 | | | RK73GB1J394J | CHIP R 390K J 1/16W | |
| R15-18 | | | RK73FB2A101J | CHIP R 100 J 1/10W | | R140,141 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R19-22 | | | R92-1264-05 | CHIP R 5.6 J 1W | | R142 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R23,24 | | | RS14DB3F101J | FL-PROOF RS 100 J 3W | | R143,144 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R25 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R145 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R26 | | | RK73GB1J123J | CHIP R 12K J 1/16W | | R201 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R27 | | | RK73GB1J105J | CHIP R 1.0M J 1/16W | | R202,203 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R28 | | | RK73GB1J330J | CHIP R 33 J 1/16W | | R204 | | | RK73GB1J393J | CHIP R 39K J 1/16W | |
| R29 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R205 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R30,31 | | | RK73GB1J270J | CHIP R 27 J 1/16W | | R206-208 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R32 | | | RK73GB1J220J | CHIP R 22 J 1/16W | | R211 | | | RK73GB1J560J | CHIP R 56 J 1/16W | |
| R33 | | | RK73GB1J183J | CHIP R 18K J 1/16W | | R212 | | | RK73GB1J330J | CHIP R 33 J 1/16W | |
| R35 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R215 | | | R92-1252-05 | CHIP R 0 OHM | |
| R36 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R216 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R37 | | | R92-1252-05 | CHIP R 0 OHM | | R218 | | | R92-1252-05 | CHIP R 0 OHM | |
| R38 | | | RK73GB1J471J | CHIP R 470 J 1/16W | | R221 | | | R92-1252-05 | CHIP R 0 OHM | |
| R39 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R223 | | | R92-1252-05 | CHIP R 0 OHM | |
| R42 | | | R92-1252-05 | CHIP R 0 OHM | | R225 | | | R92-1252-05 | CHIP R 0 OHM | |
| R44,45 | | | R92-1252-05 | CHIP R 0 OHM | | R226 | | | RK73GB1J151J | CHIP R 150 J 1/16W | |
| R46 | | | RK73GB1J153J | CHIP R 15K J 1/16W | | R227 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | |
| R47 | | | R92-1252-05 | CHIP R 0 OHM | | R228 | | | RK73GB1J101J | CHIP R 100 J 1/16W | |
| R48 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R229 | | | R92-1252-05 | CHIP R 0 OHM | |
| R49 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | | R230 | | | RK73GB1J680J | CHIP R 68 J 1/16W | |
| R50 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R231 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R52 | | | R92-1252-05 | CHIP R 0 OHM | | R232 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R53 | | | RK73GB1J681J | CHIP R 680 J 1/16W | | R233 | | | R92-1252-05 | CHIP R 0 OHM | |
| R54 | | | RK73GB1J391J | CHIP R 390 J 1/16W | | R234 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R55 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R235 | | | RK73GB1J822J | CHIP R 8.2K J 1/16W | |
| R56-59 | | | RK73GB1J562J | CHIP R 5.6K J 1/16W | | R236 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R60 | | | RK73GB1J153J | CHIP R 15K J 1/16W | | R237,238 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | |
| R61 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R239,240 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R62 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R241 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | |
| R63 | | | RK73GB1J152J | CHIP R 1.5K J 1/16W | | R242 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R101 | | | RS14DB3D2R2J | FL-PROOF RS 2.2 J 2W | | R243,244 | | | R92-1252-05 | CHIP R 0 OHM | |
| R102 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R245 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R103 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R246 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R104 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R249 | | | R92-1252-05 | CHIP R 0 OHM | |
| R105 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R251 | | | RK73GB1J223J | CHIP R 22K J 1/16W | |
| R106 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R252 | | | RK73GB1J274J | CHIP R 270K J 1/16W | |
| R107 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R253 | | | RK73GB1J334J | CHIP R 330K J 1/16W | |
| R108 | | | RK73GB1J333J | CHIP R 33K J 1/16W | | R254 | | | R92-1252-05 | CHIP R 0 OHM | |
| R109 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R255 | | | RK73GB1J182J | CHIP R 1.8K J 1/16W | |
| R110 | | | R92-0670-05 | CHIP R 0 OHM | | R256 | | | RK73GB1J332J | CHIP R 3.3K J 1/16W | |
| R111 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R257 | | | RK73GB1J153J | CHIP R 15K J 1/16W | |
| R112 | | | RK73GB1J471J | CHIP R 470 J 1/16W | | R258,259 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R113 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R260 | | | RK73GB1J223J | CHIP R 22K J 1/16W | |
| R114 | | | RK73GB1J333J | CHIP R 33K J 1/16W | | R261 | | | RK73GB1J474J | CHIP R 470K J 1/16W | |
| R115-117 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R262 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|--------------|---------------------|-------------|----------|---------|-----------|--------------|---------------------|-------------|
| R263 | | | RK73GB1J823J | CHIP R 82K J 1/16W | | R524 | | | R92-1252-05 | CHIP R 0 OHM | K2 |
| R264 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R525 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R265 | | | R92-1252-05 | CHIP R 0 OHM | | R526 | | | RK73GB1J182J | CHIP R 1.8K J 1/16W | |
| R266 | | | RK73GB1J271J | CHIP R 270 J 1/16W | | R527 | | | R92-1252-05 | CHIP R 0 OHM | |
| R267 | | | RK73GB1J180J | CHIP R 18 J 1/16W | | R528 | | | RK73GB1J154J | CHIP R 150K J 1/16W | |
| R268 | | | RK73GB1J271J | CHIP R 270 J 1/16W | | R529 | | | RK73GB1J104J | CHIP R 100K J 1/16W | K |
| R269 | | | RK73GB1J563J | CHIP R 56K J 1/16W | | R529 | | | RK73GB1J124J | CHIP R 120K J 1/16W | K2 |
| R270 | | | R92-1252-05 | CHIP R 0 OHM | | R530,531 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R401 | | | R92-1252-05 | CHIP R 0 OHM | | R532 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R402 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R533,534 | | | RK73GB1J223J | CHIP R 22K J 1/16W | |
| R403 | | | RK73GB1J333J | CHIP R 33K J 1/16W | | R535 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | |
| R404 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R536 | | | RK73GB1J223J | CHIP R 22K J 1/16W | |
| R405 | | | RK73GB1J823J | CHIP R 82K J 1/16W | | R537 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R406 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R538 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | |
| R407 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R539 | | | RK73GB1J560J | CHIP R 56 J 1/16W | |
| R408 | | | RK73GB1J101J | CHIP R 100 J 1/16W | | R541 | | | RK73GB1J331J | CHIP R 330 J 1/16W | K |
| R409 | | | RK73GB1J471J | CHIP R 470 J 1/16W | | R541 | | | RK73GB1J391J | CHIP R 390 J 1/16W | K2 |
| R410 | | | RK73GB1J330J | CHIP R 33 J 1/16W | | R542-545 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | |
| R411 | | | RK73GB1J563J | CHIP R 56K J 1/16W | | R546 | | | R92-1252-05 | CHIP R 0 OHM | |
| R412 | | | RK73GB1J684J | CHIP R 680K J 1/16W | | R547 | | | RK73GB1J101J | CHIP R 100 J 1/16W | |
| R413 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R548 | | | RK73GB1J561J | CHIP R 560 J 1/16W | |
| R414 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R549 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R415 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R550 | | | RK73GB1J224J | CHIP R 220K J 1/16W | |
| R416 | | | RK73GB1J562J | CHIP R 5.6K J 1/16W | | R552 | | | RK73GB1J331J | CHIP R 330 J 1/16W | |
| R417 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R553 | | | RK73GB1J223J | CHIP R 22K J 1/16W | |
| R418 | | | RK73GB1J562J | CHIP R 5.6K J 1/16W | | R555 | | | RK73GB1J470J | CHIP R 47 J 1/16W | |
| R419 | | | RK73GB1J273J | CHIP R 27K J 1/16W | | R556,557 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R420 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R558 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R421 | | | RK73GB1J334J | CHIP R 330K J 1/16W | | R559 | | | RK73GB1J334J | CHIP R 330K J 1/16W | |
| R422 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R560 | | | RK73GB1J470J | CHIP R 47 J 1/16W | |
| R423 | | | RK73GB1J684J | CHIP R 680K J 1/16W | | R561 | | | R92-1252-05 | CHIP R 0 OHM | |
| R424 | | | RK73GB1J222J | CHIP R 2.2K J 1/16W | | R562,563 | | | RK73GB1J470J | CHIP R 47 J 1/16W | |
| R425 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R564 | | | RK73GB1J101J | CHIP R 100 J 1/16W | |
| R426 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R565,566 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R427 | | | RK73GB1J101J | CHIP R 100 J 1/16W | | R567 | | | R92-1252-05 | CHIP R 0 OHM | |
| R428 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R570 | | | R92-1252-05 | CHIP R 0 OHM | |
| R429 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R572 | | | RK73GB1J101J | CHIP R 100 J 1/16W | K |
| R430 | | | RK73GB1J101J | CHIP R 100 J 1/16W | | R572 | | | R92-1252-05 | CHIP R 0 OHM | K2 |
| R431 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R601 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R432,433 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R602 | | | RK73GB1J474J | CHIP R 470K J 1/16W | |
| R434 | | | RK73GB1J151J | CHIP R 150 J 1/16W | | R603 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R503 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R604 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R504 | | | RK73GB1J220J | CHIP R 22 J 1/16W | | R605 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R505 | | | R92-1252-05 | CHIP R 0 OHM | | R606 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R506 | | | RK73GB1J392J | CHIP R 3.9K J 1/16W | | R607 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R507 | | | R92-1252-05 | CHIP R 0 OHM | | R608 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R511 | | | RK73GB1J560J | CHIP R 56 J 1/16W | | R609 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R512 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R610 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R513,514 | | | RK73GB1J100J | CHIP R 10 J 1/16W | | R611-617 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R515 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R618 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | |
| R516,517 | | | RK73GB1J100J | CHIP R 10 J 1/16W | | R619 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R518 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R620 | | | R92-1252-05 | CHIP R 0 OHM | |
| R519 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R621 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R520 | | | RK73GB1J471J | CHIP R 470 J 1/16W | | R622 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R521 | | | R92-1252-05 | CHIP R 0 OHM | K2 | R623-627 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R521,522 | | | R92-1252-05 | CHIP R 0 OHM | K | R628 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R522 | | | RK73GB1J100J | CHIP R 10 J 1/16W | K2 | R629 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R523 | | | RK73GB1J101J | CHIP R 100 J 1/16W | K2 | R630,631 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R523 | | | RK73GB1J331J | CHIP R 330 J 1/16W | K | R632 | | | R92-1252-05 | CHIP R 0 OHM | |
| R524 | | | RK73GB1J100J | CHIP R 10 J 1/16W | K | R634,635 | | | R92-1252-05 | CHIP R 0 OHM | |

PARTS LIST

TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|----------|---------|-----------|--------------|---------------------|-------------|----------|---------|-----------|--------------|------------------------------------|-------------|
| R637,638 | | | R92-1252-05 | CHIP R 0 OHM | | R780 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R700 | | | RK73GB1J393J | CHIP R 39K J 1/16W | | R781 | | | RN73GH1J682D | CHIP R 6.8K D 1/16W | |
| R701-705 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | | R782 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | |
| R706 | | | R92-1252-05 | CHIP R 0 OHM | | R783 | | | RK73GB1J155J | CHIP R 1.5M J 1/16W | |
| R707 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R784,785 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | |
| R708 | | | R92-0670-05 | CHIP R 0 OHM | | R786 | | | RN73GH1J683D | CHIP R 68K D 1/16W | |
| R710 | | | R92-1252-05 | CHIP R 0 OHM | | R787 | | | RK73GB1J474J | CHIP R 470K J 1/16W | |
| R711 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R788 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | |
| R712 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R789 | | | RN73GH1J682D | CHIP R 6.8K D 1/16W | |
| R713 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R790 | | | RK73GB1J101J | CHIP R 100 J 1/16W | |
| R714 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R791,792 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R715-720 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R793 | | | RK73GB1J224J | CHIP R 220K J 1/16W | |
| R722 | | | R92-0670-05 | CHIP R 0 OHM | | R794 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R723 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R795 | | | RK73GB1J223J | CHIP R 22K J 1/16W | |
| R725 | | | R92-0670-05 | CHIP R 0 OHM | | R797 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R726-728 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R798 | | | RK73GB1J224J | CHIP R 220K J 1/16W | |
| R729 | | | RK73GB1J154J | CHIP R 150K J 1/16W | | R799 | | | RK73GB1J393J | CHIP R 39K J 1/16W | |
| R730,731 | | | RK73GB1J334J | CHIP R 330K J 1/16W | | R800 | | | RK73GB1J563J | CHIP R 56K J 1/16W | |
| R732,733 | | | R92-1252-05 | CHIP R 0 OHM | | R801 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R734,735 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R802 | | | RK73GB1J394J | CHIP R 390K J 1/16W | |
| R737 | | | R92-1252-05 | CHIP R 0 OHM | | R803,804 | | | RK73GB1J271J | CHIP R 270 J 1/16W | |
| R738 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R805 | | | RK73GB1J470J | CHIP R 47 J 1/16W | |
| R739 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R806 | | | RK73GB1J220J | CHIP R 22 J 1/16W | |
| R740 | | | RK73GB1J473J | CHIP R 47K J 1/16W | | R807 | | | RK73GB1J333J | CHIP R 33K J 1/16W | |
| R741 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R808 | | | R92-1252-05 | CHIP R 0 OHM | |
| R742,743 | | | RK73GB1J184J | CHIP R 180K J 1/16W | | R809 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R744 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R810 | | | RK73GB1J184J | CHIP R 180K J 1/16W | |
| R745 | | | RK73GB1J153J | CHIP R 15K J 1/16W | | R811 | | | RK73GB1J224J | CHIP R 220K J 1/16W | |
| R746 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | R812 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R747 | | | RK73GB1J394J | CHIP R 390K J 1/16W | | R814 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R748 | | | RK73GB1J101J | CHIP R 100 J 1/16W | | R815 | | | R92-1252-05 | CHIP R 0 OHM | |
| R749 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | R901,902 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R751 | | | RK73GB1J153J | CHIP R 15K J 1/16W | | R903,904 | | | R92-2572-05 | RESISTOR 330 1/2W | |
| R752 | | | R92-1252-05 | CHIP R 0 OHM | | R905-907 | | | R92-1252-05 | CHIP R 0 OHM | |
| R754 | | | RK73GB1J563J | CHIP R 56K J 1/16W | | R908 | | | R92-2572-05 | RESISTOR 330 1/2W | |
| R755 | | | RK73GB1J154J | CHIP R 150K J 1/16W | | R909,910 | | | R92-1201-05 | CHIP R 220 1/2W | |
| R756 | | | R92-1252-05 | CHIP R 0 OHM | | R911 | | | R92-2572-05 | RESISTOR 330 1/2W | |
| R757 | | | RK73GB1J562J | CHIP R 5.6K J 1/16W | | R912 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R758 | | | RK73GB1J474J | CHIP R 470K J 1/16W | | R913 | | | RK73GB1J473J | CHIP R 47K J 1/16W | |
| R759 | | | RK73GB1J562J | CHIP R 5.6K J 1/16W | | R914,915 | | | R92-1201-05 | CHIP R 220 1/2W | |
| R760 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | | R916-923 | | | RK73GB1J102J | CHIP R 1.0K J 1/16W | |
| R761 | | | RK73GB1J333J | CHIP R 33K J 1/16W | | R924 | | | RK73GB1J104J | CHIP R 100K J 1/16W | |
| R762 | | | R92-1252-05 | CHIP R 0 OHM | | R925 | | | RK73GB1J274J | CHIP R 270K J 1/16W | |
| R763 | | | RK73GB1J472J | CHIP R 4.7K J 1/16W | | R926-928 | | | RK73GB1J103J | CHIP R 10K J 1/16W | |
| R764 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | R929 | | | RK73GB1J100J | CHIP R 10 J 1/16W | |
| R765 | | | RK73GB1J334J | CHIP R 330K J 1/16W | | R930 | | | R92-1281-05 | RESISTOR 4.7 1/4W | |
| R766 | | | RK73GB1J104J | CHIP R 100K J 1/16W | | VR701 | | | R32-0635-05 | SEMI FIXED VARIABLE RESISTOR (470) | |
| R767 | | | RK73GB1J124J | CHIP R 120K J 1/16W | | VR901 | 3A | * | R31-0630-05 | VARIABLE RESISTOR (10K) | |
| R768 | | | RK73GB1J223J | CHIP R 22K J 1/16W | | K1 | | * | S76-0425-05 | RELAY | |
| R769 | | | R92-1252-05 | CHIP R 0 OHM | | D1 | | | HSM88AS | DIODE | |
| R770 | | | RN73GH1J913D | CHIP R 91K D 1/16W | | D3 | | | HSM88AS | DIODE | |
| R771 | | | RN73GH1J683D | CHIP R 68K D 1/16W | | D4,5 | | | 1SS355 | DIODE | |
| R772 | | | RK73GB1J103J | CHIP R 10K J 1/16W | | D101 | | | DSA3A1-FK | DIODE | |
| R773 | | | RN73GH1J333D | CHIP R 33K D 1/16W | | D102 | | | ZSA5A27 | ZENER DIODE | |
| R774 | | | RN73GH1J913D | CHIP R 91K D 1/16W | | D103 | | | 02DZ15(X,Y) | ZENER DIODE | |
| R775 | | | RN73GH1J274D | CHIP R 270K D 1/16W | | D104 | | | 1SS355 | DIODE | |
| R776 | | | RK73GB1J564J | CHIP R 560K J 1/16W | | D105 | | | 02DZ15(X,Y) | ZENER DIODE | |
| R777 | | | RN73GH1J913D | CHIP R 91K D 1/16W | | D106 | | | 1SS355 | DIODE | |
| R778 | | | R92-0670-05 | CHIP R 0 OHM | | D107 | | | DA204U | DIODE | |
| R779 | | | R92-1252-05 | CHIP R 0 OHM | | | | | | | |

PARTS LIST

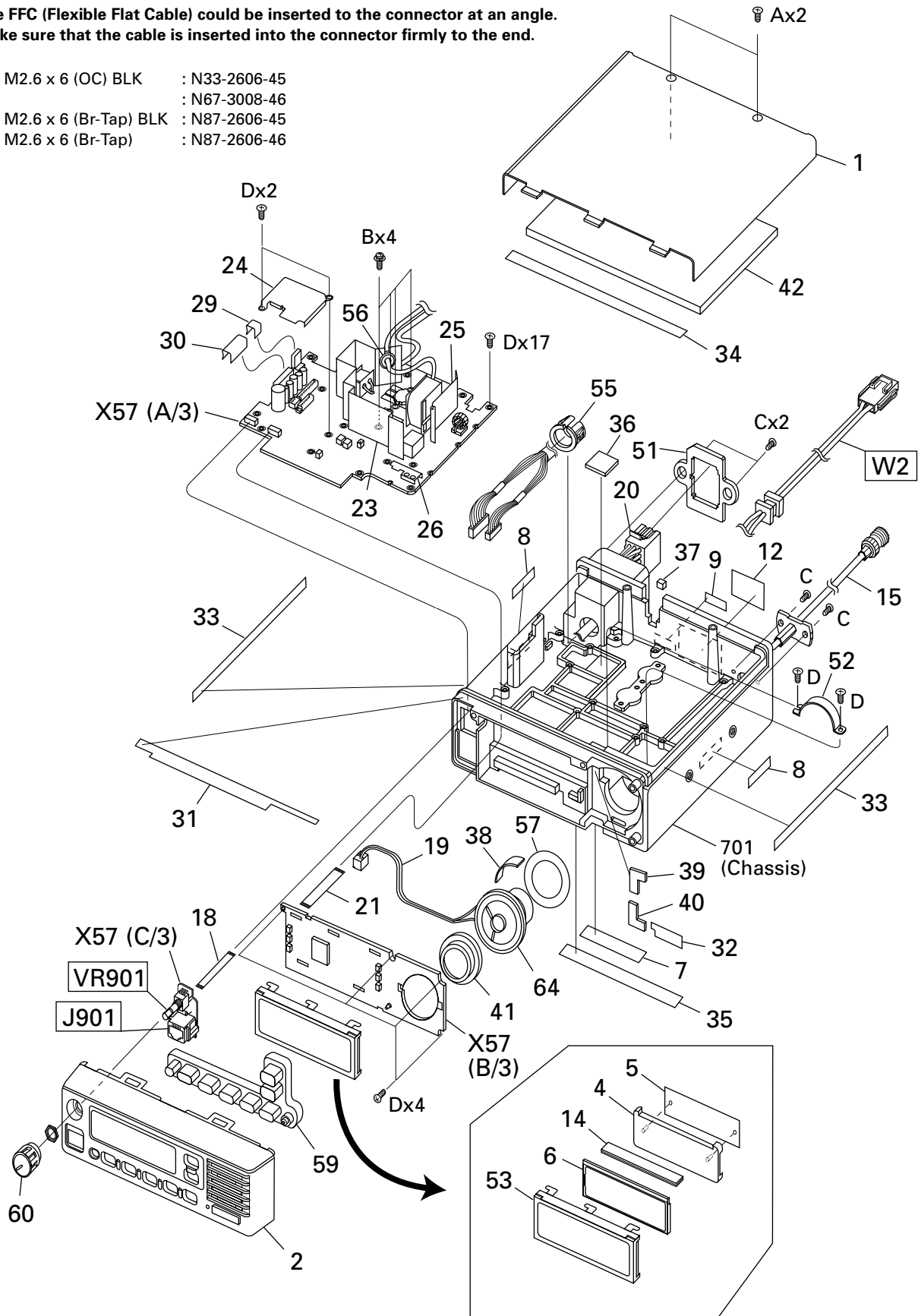
TX-RX UNIT (X57-6100-XX)

| Ref. No. | Address | New parts | Parts No. | Description | Destination | Ref. No. | Address | New parts | Parts No. | Description | Destination |
|-----------|---------|-----------|----------------|-------------------------------|-------------|----------|---------|-----------|---------------|--------------------|-------------|
| D108 | | | 1SS355 | DIODE | | Q107 | | | 2SK1824 | FET | |
| D109 | | | 02DZ18(X,Y) | ZENER DIODE | | Q108 | | | DTC114EE | DIGITAL TRANSISTOR | |
| D202-205 | | * | KV1470 | VARIABLE CAPACITANCE DIODE | | Q109 | | | 2SK1824 | FET | |
| D206 | | | MA742 | DIODE | | Q110 | | | 2SJ506(S) | FET | |
| D207 | | | MA2S111 | DIODE | | Q111 | | | DTA114YE | DIGITAL TRANSISTOR | |
| D208 | | | 02DZ5.1(Y) | ZENER DIODE | | Q112 | | | DTC114TE | DIGITAL TRANSISTOR | |
| D401 | | | 1SS301 | DIODE | | Q113-115 | | | 2SK1824 | FET | |
| D501-504 | | | MA2S077 | DIODE | | Q117 | | | 2SB1132(Q,R) | TRANSISTOR | |
| D701-710 | | | DA204U | DIODE | | Q118,119 | | | 2SA1362(Y) | TRANSISTOR | |
| D711 | | | MA742 | DIODE | | Q121,122 | | | 2SK1824 | FET | |
| D912-915 | | | DAP202U | DIODE | | Q201 | | | 2SK2596 | FET | |
| D916 | | | 1SS373 | DIODE | | Q202-204 | | | 2SK508NV(K52) | FET | |
| IC2 | | | TA75S01F | IC (APC COMPARATOR) | | Q205 | | | 2SC4215(Y) | TRANSISTOR | |
| IC101 | | | TC4013BF(N) | IC (D FLIP-FLOP) | | Q206 | | | 2SC4617(S) | TRANSISTOR | |
| IC102 | | * | TDA1519A | IC (AUDIO POWER AMP) | | Q401 | | | 3SK131(L) | FET | |
| IC103 | | | TA7808S | IC (VOLTAGE REGULATOR) | | Q402 | | | 2SA1832(GR) | TRANSISTOR | |
| IC104 | | | TK11250BM | IC (VOLTAGE REGULATOR) | | Q403-406 | | | 2SC4738(GR) | TRANSISTOR | |
| IC105 | | | BU4066BCFV | IC (ANALOG SWITCH) | | Q407 | | | 2SK1824 | FET | |
| IC201 | | | GN2011(Q) | IC (ACTIVE DBM) | | Q408 | | | 2SA1832(GR) | TRANSISTOR | |
| IC202 | | | TA31136FN | IC (FM IF SYSTEM) | | Q501 | | | 2SC4617(S) | TRANSISTOR | |
| IC203 | | | TC7S66FU | IC (ANALOG SWITCH) | | Q503 | | | 3SK131(L) | FET | |
| IC401 | | | MC1350D | IC (AGC AMP) | | Q504 | | | 2SC4617(S) | TRANSISTOR | |
| IC501 | | | LMX2332LTMX | IC (DUAL-PLL) | | Q505,506 | | | 2SC4649(N,P) | TRANSISTOR | |
| IC601 | | | PST9132NR | IC (VOLTAGE DETECTOR) | | Q507 | | | 2SC4617(S) | TRANSISTOR | |
| IC602 | | | TK11250BM | IC (VOLTAGE REGULATOR) | | Q601,602 | | | 2SK1824 | FET | |
| IC603 | | | TC7WU04FU | IC (BUFFER AMP) | | Q701,702 | | | DTD114EK | DIGITAL TRANSISTOR | |
| IC604 | | | 784214GC0618EU | IC (MICROPROCESSOR) | | Q703 | | | 2SJ243 | FET | |
| IC605 | | | AT2408N10SI2.5 | IC (EEPROM) | | Q704 | | | 2SK1824 | FET | |
| IC606 | | | TC7S02FU | IC (NOR GATE) | | Q705 | | | 2SJ243 | FET | |
| IC607 | | | AT29C020-90TI | IC (FLASH ROM) | | Q706-709 | | | 2SK1824 | FET | |
| IC701-704 | | | BU4094BCFV | IC (SHIFT REGISTER) | | Q901,902 | | | 2SC4617(S) | TRANSISTOR | |
| IC705 | | | TA75W01FU | IC (ACTIVE LOW PASS FILTER) | | Q903-905 | | | 2SK1824 | FET | |
| IC706,707 | | | TC75W51FU | IC (ACTIVE LOW PASS FILTER) | | TH1 | | | 157-503-65001 | THERMISTOR | |
| IC708 | | | LC73872M | IC (DTMF DECODER) | | TH2,3 | | | 157-104-53001 | THERMISTOR | |
| IC709 | | | TC75W51FU | IC (BUFFER AMP/ACTIVE FILTER) | | TH201 | | | 157-503-65001 | THERMISTOR | |
| IC710 | | | M62364FP | IC (D/A CONVERTER) | | | | | | | |
| IC711 | | | TC75W51FU | IC (SUMMING/BUFFER AMP) | | | | | | | |
| IC712 | | | BU4066BCFV | IC (ANALOG SWITCH) | | | | | | | |
| IC713 | | | TC35453F | IC (AUDIO PROCESSOR) | | | | | | | |
| IC714 | | | TA75W01FU | IC (AF/BUFFER AMP) | | | | | | | |
| IC715 | | | M62354GP | IC (D/A CONVERTER) | | | | | | | |
| IC901 | | | BU4094BCF | IC (SHIFT REGISTER) | | | | | | | |
| IC902 | | | LC75824W | IC (LCD DRIVER) | | | | | | | |
| Q1 | | | 2SC4649(N,P) | TRANSISTOR | | | | | | | |
| Q2 | | | 2SC3357 | TRANSISTOR | | | | | | | |
| Q3 | | | 2SK2596 | FET | | | | | | | |
| Q4,5 | | | 2SK3075 | FET | | | | | | | |
| Q6,7 | | * | 2SC2540 | TRANSISTOR | | | | | | | |
| Q8 | | | 2SK1824 | FET | | | | | | | |
| Q9 | | | 2SA1362(Y) | TRANSISTOR | | | | | | | |
| Q10 | | | 2SK1824 | FET | | | | | | | |
| Q11 | | | DTC114TE | DIGITAL TRANSISTOR | | | | | | | |
| Q12 | | | 2SB1132(Q,R) | TRANSISTOR | | | | | | | |
| Q13 | | | 2SK1824 | FET | | | | | | | |
| Q101 | | | DTA114EE | DIGITAL TRANSISTOR | | | | | | | |
| Q102 | | | DTA114YE | DIGITAL TRANSISTOR | | | | | | | |
| Q103 | | | DTA114EE | DIGITAL TRANSISTOR | | | | | | | |
| Q104 | | | DTC114YE | DIGITAL TRANSISTOR | | | | | | | |
| Q105 | | | DTA144TE | DIGITAL TRANSISTOR | | | | | | | |
| Q106 | | | DTC114EE | DIGITAL TRANSISTOR | | | | | | | |

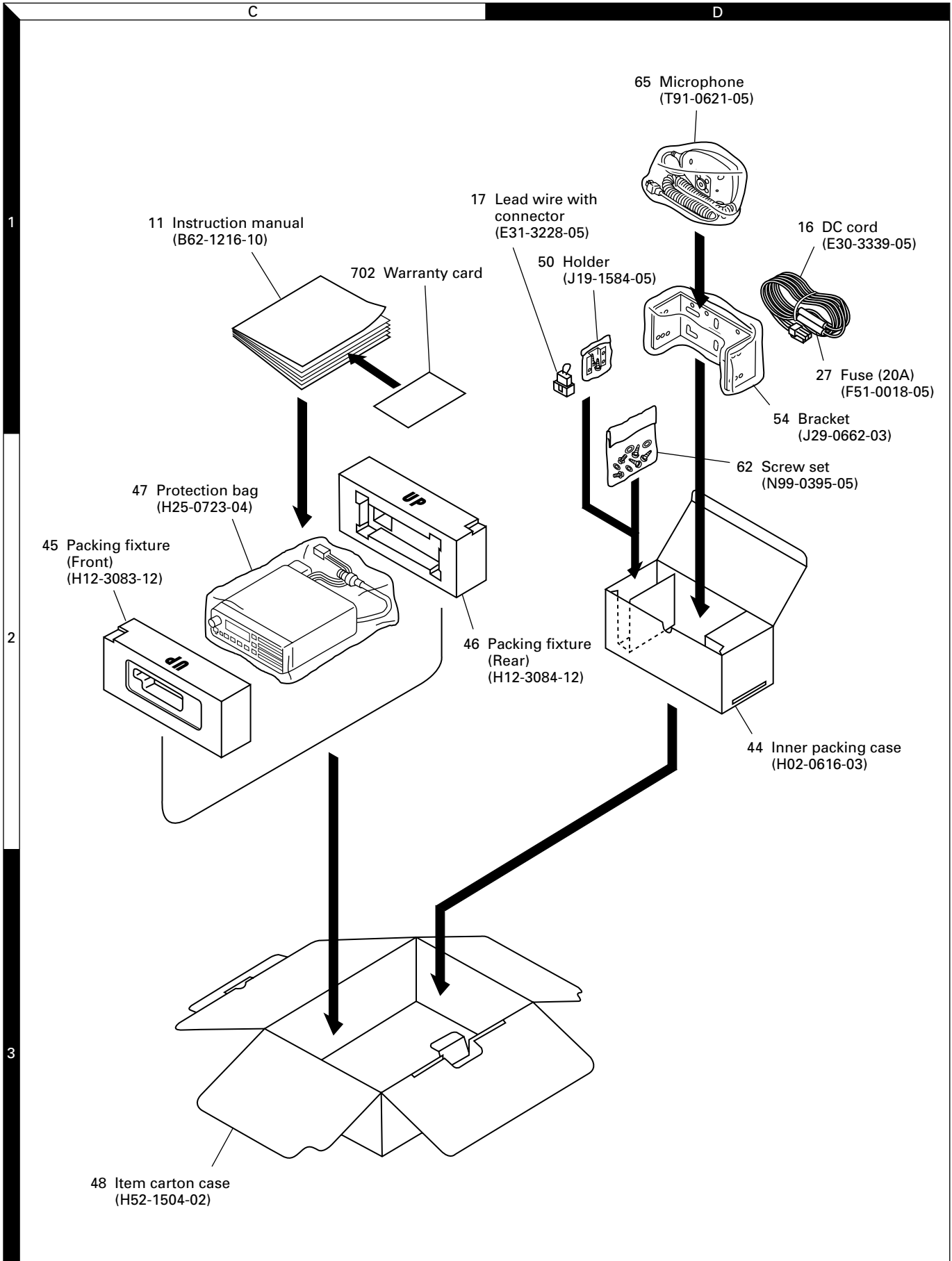
EXPLODED VIEW

The FFC (Flexible Flat Cable) could be inserted to the connector at an angle.
Make sure that the cable is inserted into the connector firmly to the end.

- A M2.6 x 6 (OC) BLK : N33-2606-45
- B : N67-3008-46
- C M2.6 x 6 (Br-Tap) BLK : N87-2606-45
- D M2.6 x 6 (Br-Tap) : N87-2606-46



PACKING

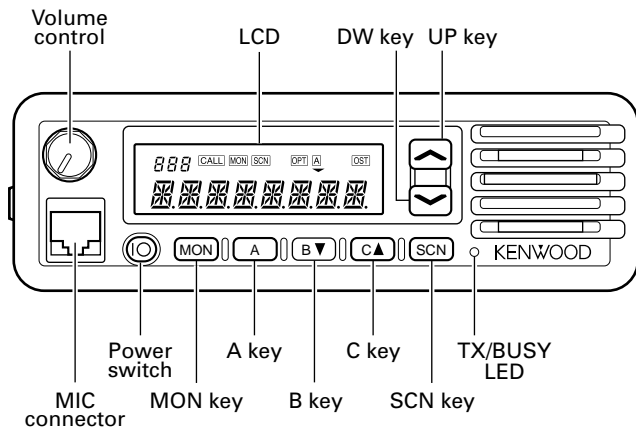


ADJUSTMENT

Key Functions in Panel Test Mode and Panel Tune Mode

| Knob/Key | Test mode | Tune mode |
|----------|--------------------------------|----------------------|
| ⤴ | Test mode/Tune mode changeover | |
| ⤵ | Monitor ON/OFF | |
| SCN | NB ON/OFF | Tuning value back up |
| MON | Frequency CH down | Tuning item down |
| A | Frequency CH up | Tuning item up |
| B | Signalling CH down | Tuning value down |
| C | Signalling CH up | Tuning value up |

Function panel

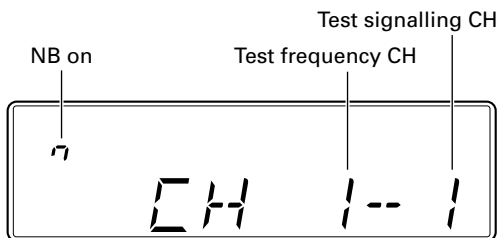


Panel Test Mode

The transceiver's transmission output, receive sensitivity, and other items are measured and QT, DQT, 2-tone and DTMF signaling is decoded in this mode.

■ To enter the panel test mode

Hold down [MON] and turn the power switch on to enter this mode. The test frequency channel and test signalling channel will be displayed.



Note : When a key other than GRP down is pressed, the optional signalling is reset.

■ Test frequency channel (MHz) : Default setting

| CH | K | | K2 | |
|------------|--------|--------|--------|--------|
| | TX | RX | TX | RX |
| 1 (Center) | 33.300 | 33.400 | 42.500 | 42.600 |
| 2 (Low) | 29.700 | 29.800 | 35.000 | 35.100 |
| 3 (High) | 37.000 | 36.900 | 50.000 | 49.900 |
| 4 | 33.300 | 33.300 | 42.500 | 42.500 |
| 5 | 33.500 | 33.500 | 42.700 | 42.700 |
| 6 | 33.700 | 33.700 | 42.900 | 42.900 |

■ Test signalling channel : Default setting

| CH No. | Encode tone | Decode tone |
|--------|--------------------|----------------------|
| 1 | None | None |
| 2 | 100Hz square wave | None |
| 3 | QT 67.0Hz | QT 67.0Hz |
| 4 | QT 151.4Hz | QT 151.4Hz |
| 5 | QT 210.7Hz | QT 210.7Hz |
| 6 | DQT 023N | DQT 023N |
| 7 | Single tone 1633Hz | 2-tone 321.7/928.1Hz |
| 8 | DTMF [9] | DTMF [159] |
| 9 | MSK | None |

Panel Tune Mode

The transceiver is adjusted in this mode.

■ To enter the panel tune mode

Press the [⤴] key in the panel test mode.

The adjustment items, the frequency and signalling, other than the maximum deviation and sensitivity, return to the values that were effective for the test frequency channel and test signalling channel before entering the panel tune mode.

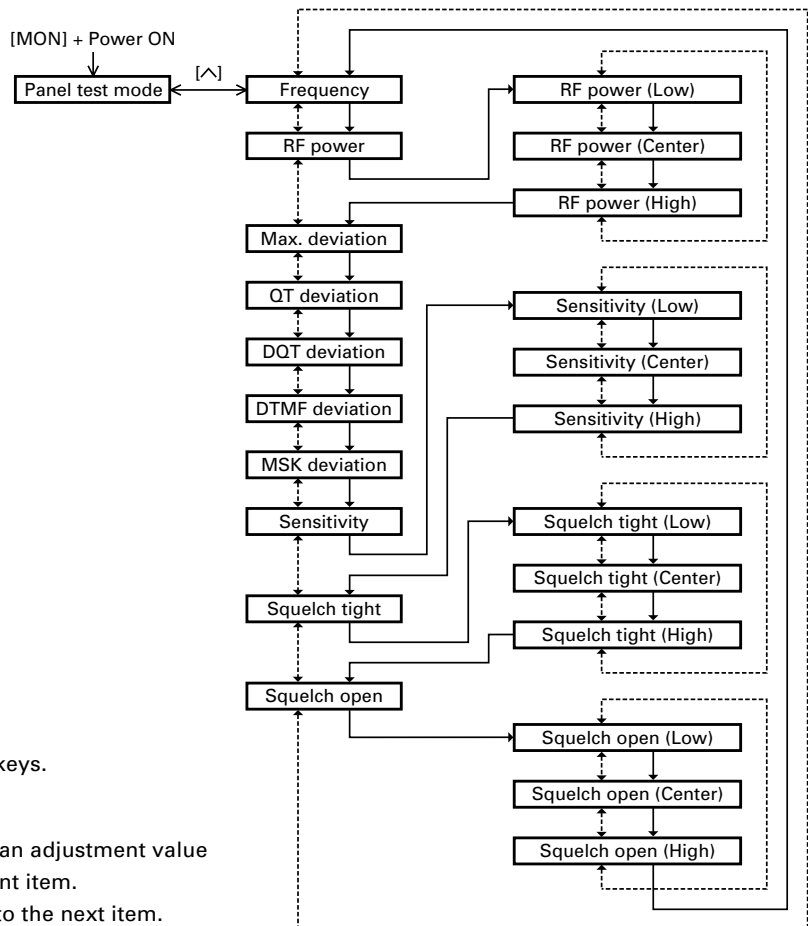
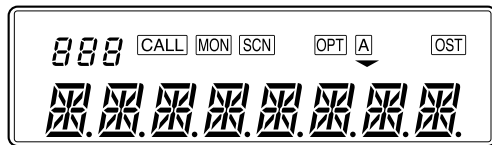
ADJUSTMENT

■ Tuning item and display (XXX : 0~255)

| Tuning item | Display | Note |
|------------------------|----------|--------------------------------------------------------------------------------------------|
| Frequency | FREQ_XXX | |
| RF power | _POW_XXX | |
| RF power (Low) | _POW_XXX | Three digits on the upper left side: “_ _ L”. Transmission and reception at the low edge. |
| RF power (Center) | _POW_XXX | Three digits on the upper left side: “_ _ C”. Transmission and reception at the center. |
| RF power (High) | _POW_XXX | Three digits on the upper left side: “_ _ H”. Transmission and reception at the high edge. |
| Max. deviation | MXDV_XXX | |
| QT deviation | QTDV_XXX | |
| DQT deviation | DQDV_XXX | |
| DTMF deviation | DTDV_XXX | |
| MSK deviation | MSDV_XXX | |
| Sensitivity | SENS_XXX | |
| Sensitivity (Low) | SENS_XXX | Three digits on the upper left side: “_ _ L”. Transmission and reception at the low edge. |
| Sensitivity (Center) | SENS_XXX | Three digits on the upper left side: “_ _ C”. Transmission and reception at the center. |
| Sensitivity (High) | SENS_XXX | Three digits on the upper left side: “_ _ H”. Transmission and reception at the high edge. |
| Squelch tight point | SQ_T_XXX | |
| Squelch tight (Low) | SQ_T_XXX | Three digits on the upper left side: “_ _ L”. Transmission and reception at the low edge. |
| Squelch tight (Center) | SQ_T_XXX | Three digits on the upper left side: “_ _ C”. Transmission and reception at the center. |
| Squelch tight (High) | SQ_T_XXX | Three digits on the upper left side: “_ _ H”. Transmission and reception at the high edge. |
| Squelch open point | SQ_O_XXX | |
| Squelch open (Low) | SQ_O_XXX | Three digits on the upper left side: “_ _ L”. Transmission and reception at the low edge. |
| Squelch open (Center) | SQ_O_XXX | Three digits on the upper left side: “_ _ C”. Transmission and reception at the center. |
| Squelch open (High) | SQ_O_XXX | Three digits on the upper left side: “_ _ H”. Transmission and reception at the high edge. |

Caution : When squelch open level data is memorized, RSSI level data is memorized at the same time.

• Display



↑↓ : Use the [MON] and [A] keys.

↓ : Use the [SCN] key.

Use the [B] or [C] key to set an adjustment value (0 to 255) for each adjustment item.

Use the [SCN] key to move to the next item.

ADJUSTMENT

Test Equipment Required for Alignment

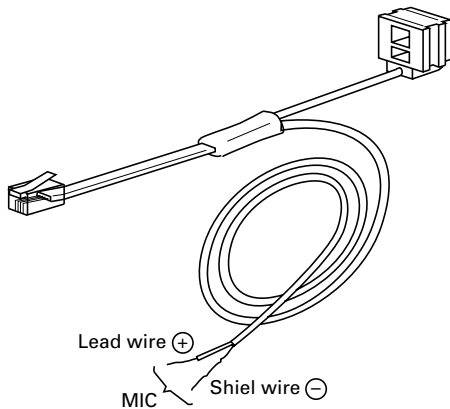
| No. | Test Equipment | Major Specifications | |
|-----|------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1 | Standard Signal Generator (SSG) | Frequency Range Modulation Output | 50kHz to 1000MHz. Frequency modulation and external modulation. 0.1μV to greater than 1mV. |
| 2 | Power Meter | Input Impedance Operation Frequency Measurement Capability | 50Ω. 50MHz or less. Vicinity of 100W. |
| 3 | Deviation Meter | Frequency Range | 29.7 to 50.0MHz. |
| 4 | Digital Volt Meter (DVM) | Measuring Range Accuracy | 1 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 200MHz. 0.2ppm or less. |
| 7 | Ammeter | | 30A. |
| 8 | AF Volt Meter (AFVTVM) | Frequency Range Voltage Range | 50Hz to 10kHz. 3mV to 3V. |
| 9 | Audio Generator (AG) | Frequency Range Output | 50Hz to 5kHz or more. 0 to 1V. |
| 10 | Distortion Meter | Capability Input Level | 3% or less at 1kHz. 50mV to 10Vrms. |
| 11 | Voltmeter | Measuring Range Input Impedance | 10 to 1.5V DC or less. 50kΩ/V or greater. |
| 12 | 4Ω Dummy Load | | Approx. 4Ω 30W. |
| 13 | Regulated Power Supply | | (Adjustable from 9 to 17V, 30A). Useful if ammeter equipped. |

Caution

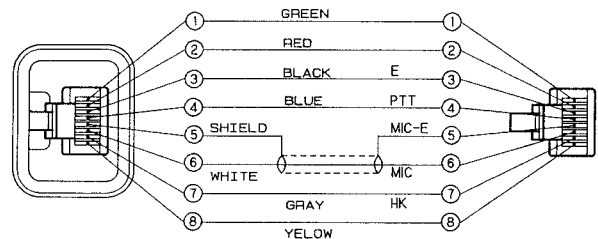
Since the RX AF output is a BTL output, there is a DC Component. Isolate this with a capacitor or transformer as shown in the figure.

Tuning cable (E30-3383-05)

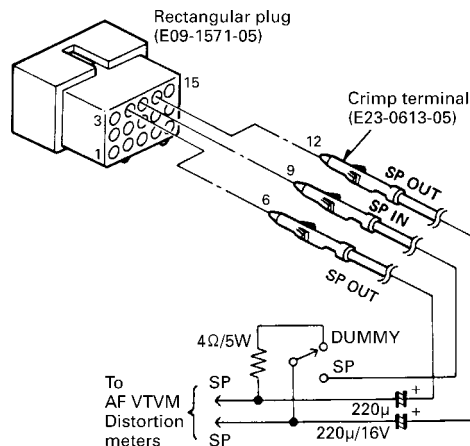
Adapter cable (E30-3383-05) is required for injecting an audio if PC tuning is used. See "PC Mode" section for the connection.



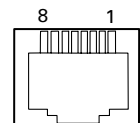
Test cable for microphone input (E30-3360-08)



Test cable for speaker output



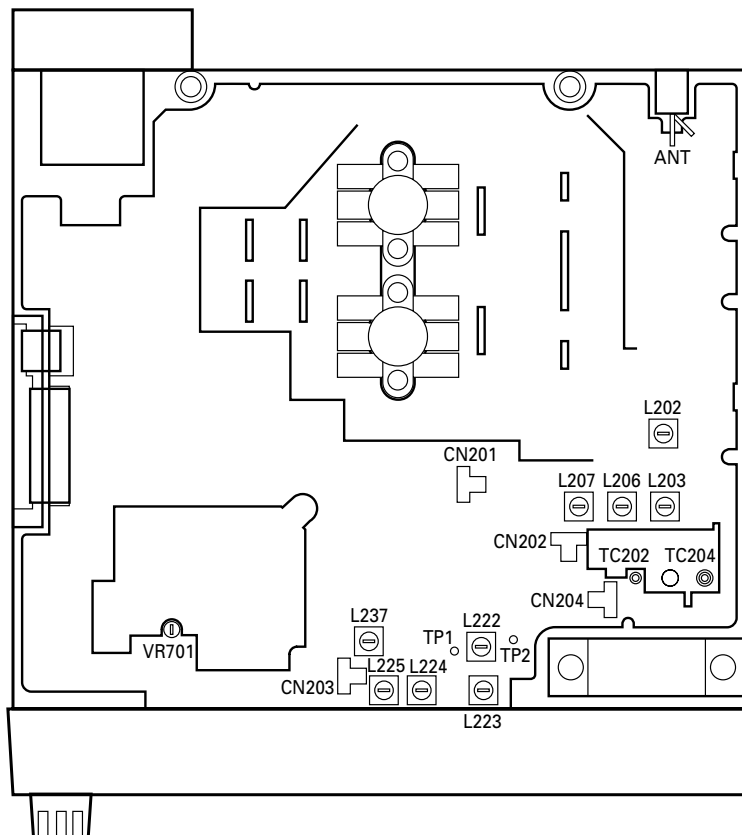
MIC connector (Front view)



- 1 : BLC
- 2 : PSB
- 3 : E
- 4 : PTT
- 5 : ME
- 6 : MIC
- 7 : HOOK
- 8 : CM

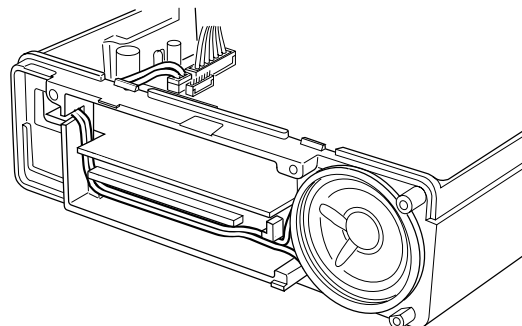
ADJUSTMENT

Adjustment Points



Disassembly for Repair (Speaker)

To install the speaker and to style wiring from the speaker, follow the instructions given in the diagram below.



| Item | Condition | Measurement | | | Adjustment | | | Specifications/Remarks |
|---------------------------------------|----------------------------------------------------------------|---------------------------|----------------|----------|-------------|----------------|---------------|------------------------|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 1. PLL lock voltage check Main VCO | 1) CH-SIG : 2-1 | DC VM Power meter | TX-RX (A/3) | TP1 | | | Check | 1.0~1.6V : K |
| | 2) CH-SIG : 3-1 | | | | | | | 1.7~2.6V : K |
| | 3) CH-SIG : 1-1 | | | TP2 | | | | 3.0~4.3V : K2 |
| Sub RX-center | | | | | | | 1.7~3.3V | |
| 2. Transmit frequency | 1) CH-SIG : 1-1 Select FREQ_XXX in tune mode PTT : ON | Power meter f. counter | Rear panel | ANT | Front panel | B key C key | CH1 frequency | ±100Hz |

ADJUSTMENT

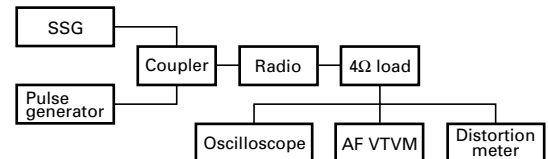
| Item | Condition | Measurement | | | Adjustment | | | Specifications/Remarks |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------|--------------------|-------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 3. BPF | 1) CH-SIG : 2-1 Select __L SENS_ _75 : K SENS_ _50 : K2 in tune mode Spectrum analyzer Span : 50MHz Scale : 10dB/div Tracking generator Output : -20dBm | Spectrum analyzer Tracking generator | TX-RX (A/3) Rear panel | CN201 ANT | TX-RX (A/3) | L202 L203 L206 L207 | Adjust the coils in the following order : L202, L203, L206, L207 | Adjust it so it is almost symmetrical, and so the gain is maximum. |
| | | | | | | | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>K</p> </div> <div style="text-align: center;"> <p>K2</p> </div> </div> | |
| 4. MCF | 1) CH-SIG : 1-1 Spectrum analyzer Span : 25kHz Scale : 10dB/div Center frequency : 128.55MHz Tracking generator Output : -20dBm | Spectrum analyzer Tracking generator | TX-RX (A/3) | CN203 CN204 | TX-RX (A/3) | L222 L223 L224 L225 | Adjust it so it is almost symmetrical, and so the gain is maximum. Adjust the coils in the following order : L222, L223, L224, L225. | |
| | | | | | | | | |
| 5. Delay line NB | 1) CH-SIG : 1-1 Spectrum analyzer Span : 20MHz Scale : 10dB/div Center frequency : 128.55MHz Tracking generator Output : -20dBm | Spectrum analyzer Tracking generator | TX-RX (A/3) | CN204 CN202 | TX-RX (A/3) | TC202 TC204 | Adjust it so it is almost symmetrical, and so the gain is maximum. | |
| | | | | | | | | |
| 6. Distortion | 1) CH-SIG : 1-1 SSG output : -53dBm/501μV AF output : 1V/4Ω | SSG Distortion meter AF VTVM Oscilloscope 4Ω dummy load | Rear panel | ANT EXT.SP | TX-RX (A/3) | L237 | Adjust it, and so the distortion is minimum. | Distortion is minimum. |

ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications/Remarks |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------|----------|----------------|----------------|--------------------|-------------------------------|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | |
| 7. RF power | 1) RF power _POW_XXX Adjust the RF power. All values in Low, Center and High frequencies changes one time. 2) Select __L _POW_XXX in tune mode PTT : ON 3) Select __C _POW_XXX in tune mode PTT : ON 4) Select __H _POW_XXX in tune mode PTT : ON | Power meter Ammeter | Rear panel | ANT | Front panel | B key C key | 70W 15A or less | 70w \pm 1.0W 15A or less |
| 8. Maximum deviation | 1) CH-SIG : 1-1 Select MXDV_XXX in tune mode PTT : ON Deviation meter filter HPF : OFF, LPF : 15kHz De-emphasis : OFF AG : 1kHz/50mV | Power meter Deviation meter | Rear panel | ANT | Front panel | B key C key | \pm 4.05kHz | \pm 0.1kHz |
| 9. MIC sensitivity | 1) CH-SIG : 1-1 PTT : ON Deviation meter filter HPF : OFF LPF : 15kHz De-emphasis : OFF AG : 1kHz/5mV | AF VTVM AG Oscilloscope | Front panel | MIC | TX-RX (A/3) | VR701 | Check | 2.2~3.8kHz |
| 10. QT deviation | 1) CH-SIG : 1-4 Select QTDV_XXX in tune mode PTT : ON Deviation meter filter HPF : OFF LPF : 3kHz De-emphasis : OFF | | | | Front panel | B key C key | \pm 0.75kHz | \pm 0.05kHz |
| 11. DQT deviation | 1) CH-SIG : 1-6 Select DQDV_XXX in tune mode PTT : ON Deviation meter filter HPF : OFF, LPF : 3kHz De-emphasis : OFF | | | | | | \pm 0.75kHz | \pm 0.05kHz |
| 12. DTMF deviation | 1) CH-SIG : 1-8 Select DTDV_XXX in tune mode PTT : ON Deviation meter filter HPF : OFF, LPF : 15kHz De-emphasis : OFF | | | | | | \pm 3.0kHz | \pm 0.1kHz |
| 13. MSK deviation | 1) CH-SIG : 1-9 Select MSDV_XXX in tune mode PTT : ON Deviation meter filter HPF : OFF, LPF : 15kHz De-emphasis : OFF | | | | | | \pm 3.0kHz | \pm 0.1kHz |

ADJUSTMENT

| Item | Condition | Measurement | | | Adjustment | | | Specifications/Remarks | | |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------|-------------------|----------------|----------------|-------------------------------------------------|------------------------|------------------------------------|-------------------------|
| | | Test-equipment | Unit | Terminal | Unit | Parts | Method | | | |
| 14. Sensitivity | 1) Sensitivity SENS_XXX Adjust the sensitivity. All values in Low, Center and High frequencies changes one time. | SSG AF VTVM Distortion meter Oscilloscope 4Ω dummy load | Rear panel | ANT | Front panel | B key C key | Low check Center check High check | SINAD 12dB or more | | |
| | 2) Select __L SENS_75 : K SENS_50 : K2 in tune mode SSG output : -116dBm/0.35μV AF output : 0.25μV/4Ω | | | EXT.SP | TX-RX (A/3) | L237 | | | | |
| | 3) Select __C SENS_130 in tune mode | | | | | | | | | |
| | 4) Select __H SENS_230 in tune mode | | | | | | | | | |
| 15. Squelch tight point | 1) Squelch tight point SQ_T_XXX Adjust the squelch tight point. All values in Low, Center and High frequencies changes one time. | | | | Front panel | B key C key | Adjust to point of opening squelch | | | |
| | 2) Select __L SQ_T_XXX in tune mode SSG output : Value when 7dB is added from the sensitivity value of 12dB SINAD. NB : ON | | | | | | | | | |
| | 3) Select __C SQ_T_XXX in tune mode | | | | | | | | | |
| | 4) Select __H SQ_T_XXX in tune mode | | | | | | | | | |
| 16. Squelch open point | 1) Squelch open point SQ_O_XXX Adjust the squelch open point. All values in Low, Center and High frequencies changes one time. | | | | | | Adjust to point of opening squelch | | | |
| | 2) Select __L SQ_O_XXX in tune mode SSG output : Value when 3dB is subtracted from the sensitivity value of 12dB SINAD. NB : ON | | | | | | | | | |
| | 3) SSG output : OFF | | | | | | | | Check | Squelch must be closed. |
| | 4) Select __C SQ_O_XXX in tune mode | | | | Front panel | B key C key | | | Adjust to point of opening squelch | |
| | 5) SSG output : OFF | | | | | | | | Check | Squelch must be closed. |
| | 6) Select __H SQ_O_XXX in tune mode | | | | Front panel | B key C key | | | Adjust to point of opening squelch | |
| | 7) SSG output : OFF | | | | | | | | Check | Squelch must be closed. |
| 17. NB | 1) CH-SIG : 1-1 SSG output : -109dBm/0.8μV Pulse generator Output : 0.5Vp-p/50Ω Cycle : 100μsec Pulse width : 10ns NB : ON | SSG Pulse generator Distortion meter Oscilloscope AF VTVM | Rear panel | ANT EXT.SP | | | Check | SINAD 12dB or more | | |



TERMINAL FUNCTION

TX-RX Unit (X57-6100-XX) (A/3) to Display Unit (X57-6100-XX) (B/3)

| CN1 | CN904 | Pin Name | Function |
|-----|-------|----------|----------------------------------------|
| 1 | 17 | NC | (SB) |
| 2 | 16 | PSW | Power SW control "L" : On/Off |
| 3 | 15 | GND | GND |
| 4 | 14 | K1 | Key scan 1 |
| 5 | 13 | K2 | Key scan 2 |
| 6 | 12 | KES | BU4094BCF STRB |
| 7 | 11 | DAT | Data |
| 8 | 10 | CLK | Clock |
| 9 | 9 | GND | GND |
| 10 | 8 | LCDCS | LC75824W CS |
| 11 | 7 | GND | GND |
| 12 | 6 | 5CM | 5CM |
| 13 | 5 | 8C | 8C |
| 14 | 4 | 8C | 8C |
| 15 | 3 | TXLED | TXLED "L" : On, "H" : Off |
| 16 | 2 | RXLED | RXLED "L" : On, "H" : Off |
| 17 | 1 | BLC | Back light control "L" : Off, "H" : On |

TX-RX Unit (X57-6100-XX) (A/3) to MIC & VOL Unit (X57-6100-XX) (C/3)

| CN3 | CN902 | Pin Name | Function |
|-----|-------|----------|------------------------------|
| 1 | 13 | BLC | Back light control "H" : On |
| 2 | 12 | SB | SB |
| 3 | 11 | GND | GND |
| 4 | 10 | PTT/TXD | PTT 1 / TXD |
| 5 | 9 | ME | ME |
| 6 | 8 | MIC | MIC1 |
| 7 | 7 | HK/RXD | Hook 1 / RXD 1 On hook : "L" |
| 8 | 6 | GND | GND |
| 9 | 5 | CM | DTMF Key Scan |
| 10 | 4 | GND | GND |
| 11 | 3 | GND | GND |
| 12 | 2 | VOL | Volume level det |
| 13 | 1 | 5CM | 5V |

TX-RX Unit (X57-6100-XX) (A/3) to ACC15 pin (1/2)

| CN4 | ACC15 | Pin Name | Function |
|-----|-------|----------|----------------------|
| 1 | 13 | SPG | Speaker ground |
| 2 | 9 | ISP | Internal speaker |
| 3 | 6 | ES1 | External speaker |
| 4 | 12 | ES2 | External speaker |
| 5 | 15 | GND | GND |
| 6 | 7 | SB | SB |
| 7 | 3 | IGN | Ignition sense input |

Note : Pin 9 and pin 12 of the 15-pin connector are connected with a jumper.

TX-RX Unit (X57-6100-XX) (A/3) to ACC15 pin (2/2)

| CN2 | ACC15 | Pin Name | Function |
|-----|-------|----------|-----------------------|
| 1 | 4 | DEO | Detect signal output |
| 2 | 1 | HK2 | Hook 2 |
| 3 | 10 | HR | Hone alert control |
| 4 | 5 | MI2 | Mic input 2 |
| 5 | 2 | FSW | Foot SW |
| 6 | 11 | AUX | Accessory port |
| 7 | 8 | PTT2 | PTT input 2 |
| 8 | 14 | SQ | Squelch signal output |

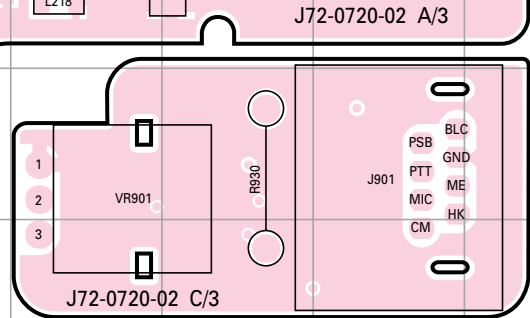
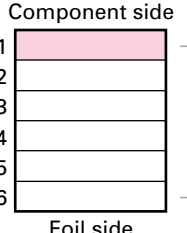
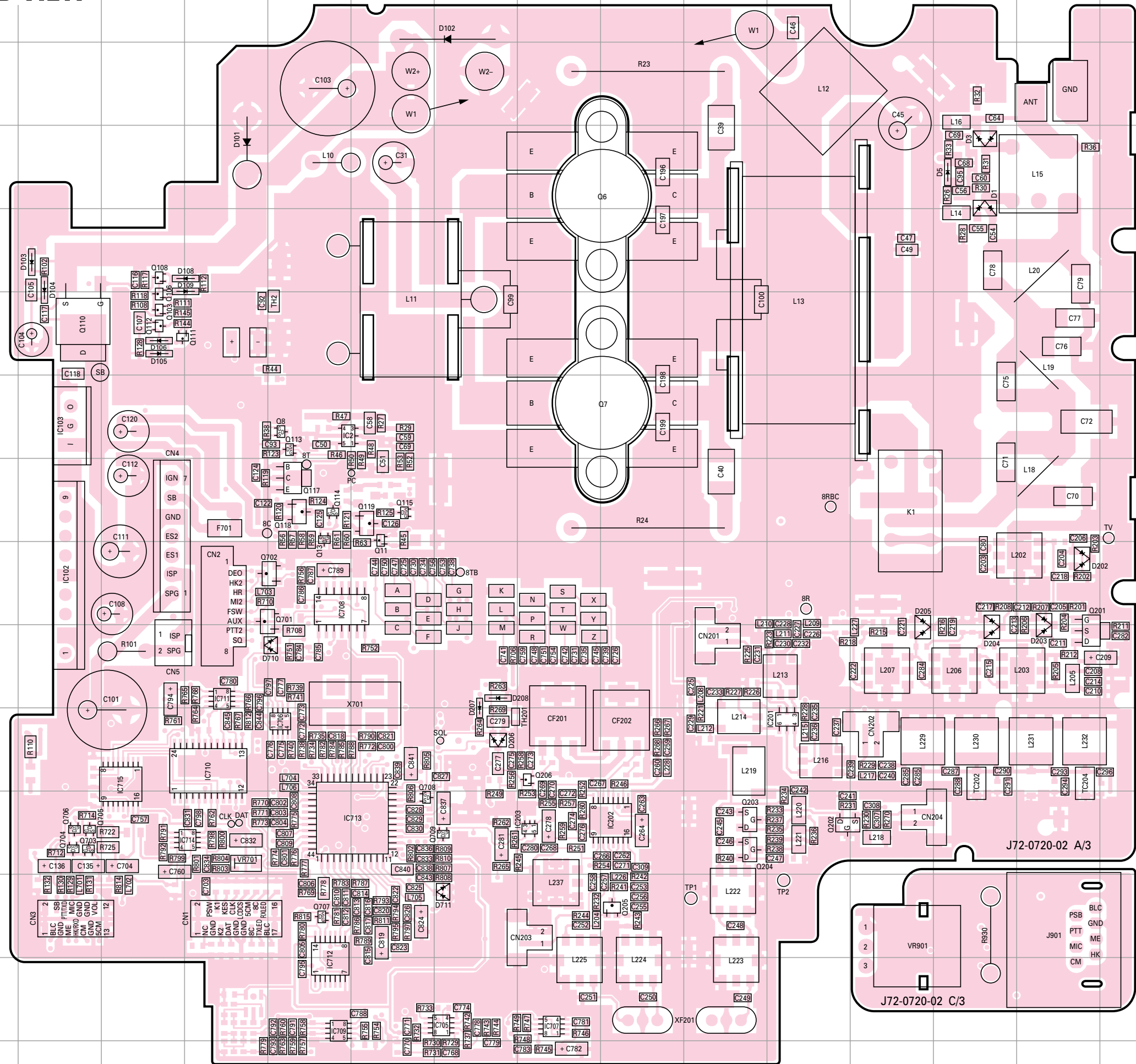
TX-RX Unit (X57-6100-XX) (A/3) to Internal SP

| CN5 | SP | Pin Name | Function |
|-----|----|----------|--------------------------|
| 1 | + | ISP | Internal speaker |
| 2 | - | SPGR | Speaker ground through R |

TK-6110 PC BOARD VIEW

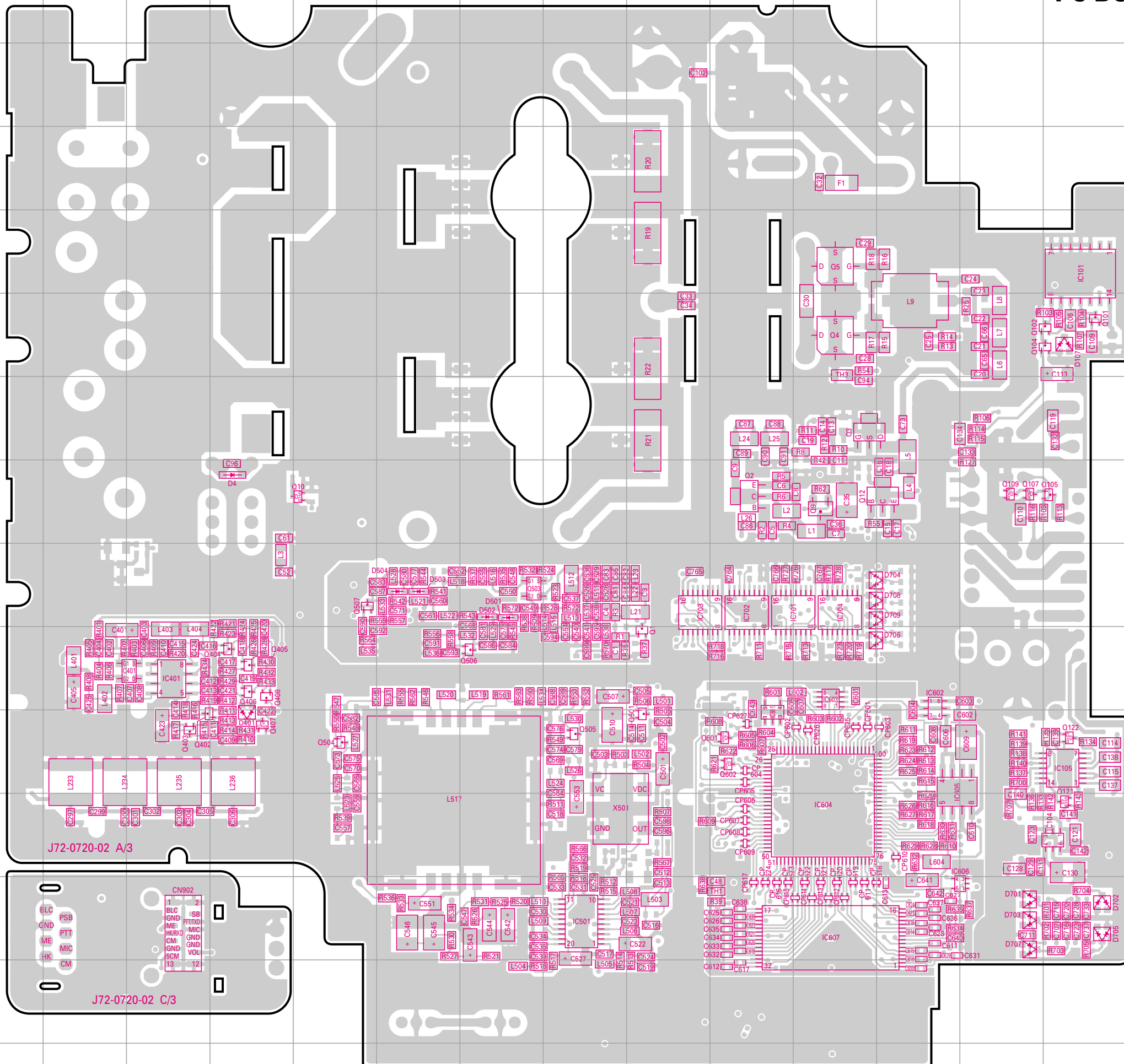
TX-RX UNIT (X57-6100-XX) (A/3, C/3) -10 : K -11 : K2 Component side view

| Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|
| IC2 | 6H | Q202 | 11N |
| IC102 | 8E | Q203 | 11M |
| IC103 | 6E | Q204 | 11M |
| IC201 | 10N | Q205 | 12L |
| IC202 | 11L | Q206 | 10K |
| IC203 | 11K | Q701 | 8H |
| IC705 | 13J | Q702 | 8H |
| IC706 | 10H | Q703 | 11E |
| IC707 | 13K | Q704 | 11E |
| IC708 | 8H | Q705 | 11E |
| IC709 | 13H | Q706 | 11E |
| IC710 | 10G | Q707 | 12H |
| IC711 | 9G | Q708 | 11I |
| IC712 | 13H | Q709 | 11J |
| IC713 | 11I | D1 | 3P |
| IC714 | 11G | D3 | 3P |
| IC715 | 10F | D5 | 3P |
| Q6 | 3L | D101 | 3G |
| Q7 | 6L | D102 | 1J |
| Q8 | 6H | D103 | 4E |
| Q11 | 7I | D104 | 4E |
| Q13 | 7H | D105 | 5F |
| Q103 | 5F | D106 | 5F |
| Q106 | 5F | D108 | 4G |
| Q108 | 4F | D109 | 4G |
| Q110 | 5E | D202 | 8Q |
| Q111 | 5F | D203 | 9Q |
| Q112 | 5F | D204 | 9P |
| Q113 | 6H | D205 | 9O |
| Q114 | 7H | D206 | 10J |
| Q115 | 7I | D207 | 10J |
| Q117 | 7H | D208 | 9J |
| Q118 | 7H | D710 | 9H |
| Q119 | 7I | D711 | 12J |
| Q201 | 9Q | | |

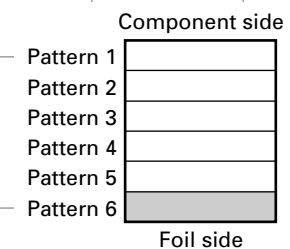


TX-RX UNIT (X57-6100-XX) (A/3, C/3) -10 : K -11 : K2 Foil side view

PC BOARD VIEW TK-6110



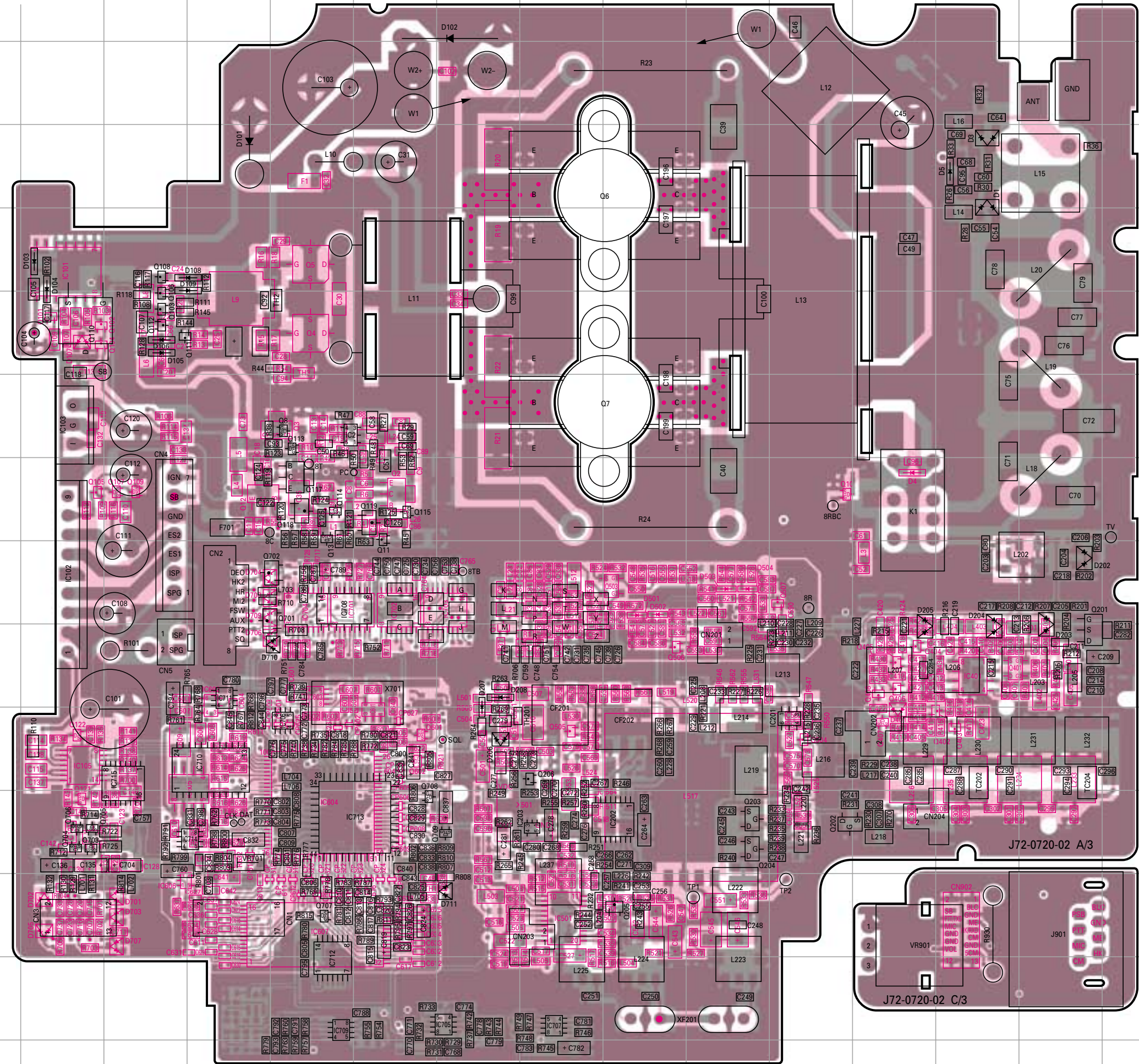
| Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|
| IC101 | 4O | Q401 | 9D |
| IC104 | 11O | Q402 | 10D |
| IC105 | 10O | Q403 | 10D |
| IC401 | 9D | Q404 | 9E |
| IC501 | 12I | Q405 | 9E |
| IC601 | 10K | Q406 | 9E |
| IC602 | 9M | Q407 | 10E |
| IC603 | 9L | Q408 | 9E |
| IC604 | 11L | Q501 | 10J |
| IC605 | 10M | Q503 | 8H |
| IC606 | 12N | Q504 | 10F |
| IC607 | 12L | Q505 | 10I |
| IC701 | 8L | Q506 | 9H |
| IC702 | 8K | Q507 | 8F |
| IC703 | 8J | Q601 | 10K |
| IC704 | 8L | Q602 | 10K |
| Q1 | 9J | D4 | 7E |
| Q2 | 7K | D107 | 5O |
| Q3 | 6L | D401 | 10E |
| Q4 | 5L | D501 | 8H |
| Q5 | 4L | D502 | 8H |
| Q9 | 7L | D503 | 8G |
| Q10 | 7F | D504 | 8G |
| Q12 | 7M | D701 | 12N |
| Q101 | 5O | D702 | 12O |
| Q102 | 5O | D703 | 12N |
| Q104 | 5O | D704 | 8M |
| Q105 | 7O | D705 | 12O |
| Q107 | 7N | D706 | 9M |
| Q109 | 7N | D707 | 12N |
| Q121 | 11O | D708 | 8M |
| Q122 | 10O | D709 | 8M |



TK-6110 PC BOARD VIEW

TX-RX UNIT (X57-6100-XX) (A/3, C/3) -10 : K -11 : K2 Component side view + Foil side

| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|
| IC2 | 6H | Q13 | 7H | Q703 | 11E |
| IC101 | 4E | Q101 | 5E | Q704 | 11E |
| IC102 | 8E | Q102 | 5E | Q705 | 11E |
| IC103 | 6E | Q103 | 5F | Q706 | 11E |
| IC104 | 11E | Q104 | 5E | Q707 | 12H |
| IC105 | 10E | Q105 | 7E | Q708 | 11I |
| IC201 | 10N | Q106 | 5F | Q709 | 11J |
| IC202 | 11L | Q107 | 7F | D1 | 3P |
| IC203 | 11K | Q108 | 4F | D3 | 3P |
| IC401 | 9P | Q109 | 7F | D4 | 7O |
| IC501 | 12K | Q110 | 5E | D5 | 3P |
| IC601 | 10I | Q111 | 5F | D101 | 3G |
| IC602 | 9G | Q112 | 5F | D102 | 1J |
| IC603 | 9H | Q113 | 6H | D103 | 4E |
| IC604 | 11H | Q114 | 7H | D104 | 4E |
| IC605 | 10G | Q115 | 7I | D105 | 5F |
| IC606 | 12F | Q117 | 7H | D106 | 5F |
| IC607 | 12H | Q118 | 7H | D107 | 5E |
| IC701 | 8H | Q119 | 7I | D108 | 4G |
| IC702 | 8I | Q121 | 11E | D109 | 4G |
| IC703 | 8J | Q122 | 10E | D202 | 8Q |
| IC704 | 8H | Q201 | 9Q | D203 | 9Q |
| IC705 | 13J | Q202 | 11N | D204 | 9P |
| IC706 | 10H | Q203 | 11M | D205 | 9O |
| IC707 | 13K | Q204 | 11M | D206 | 10J |
| IC708 | 8H | Q205 | 12L | D207 | 10J |
| IC709 | 13H | Q206 | 10K | D208 | 9J |
| IC710 | 10G | Q401 | 9P | D401 | 10O |
| IC711 | 9G | Q402 | 10P | D501 | 8L |
| IC712 | 13H | Q403 | 10P | D502 | 8L |
| IC713 | 11I | Q404 | 9O | D503 | 8M |
| IC714 | 11G | Q405 | 9O | D504 | 8M |
| IC715 | 10F | Q406 | 9O | D701 | 12F |
| Q1 | 9J | Q407 | 10O | D702 | 12E |
| Q2 | 7I | Q408 | 9O | D703 | 12F |
| Q3 | 6H | Q501 | 10J | D704 | 8G |
| Q4 | 5H | Q503 | 8L | D705 | 12E |
| Q5 | 4H | Q504 | 10N | D706 | 9G |
| Q6 | 3L | Q505 | 10K | D707 | 12F |
| Q7 | 6L | Q506 | 9L | D708 | 8G |
| Q8 | 6H | Q507 | 8N | D709 | 8G |
| Q9 | 7H | Q601 | 10I | D710 | 9H |
| Q10 | 7N | Q602 | 10I | D711 | 12J |
| Q11 | 7I | Q701 | 9H | | |
| Q12 | 7G | Q702 | 8H | | |



Component side

Pattern 1

Pattern 2

Pattern 3

Pattern 4

Pattern 5

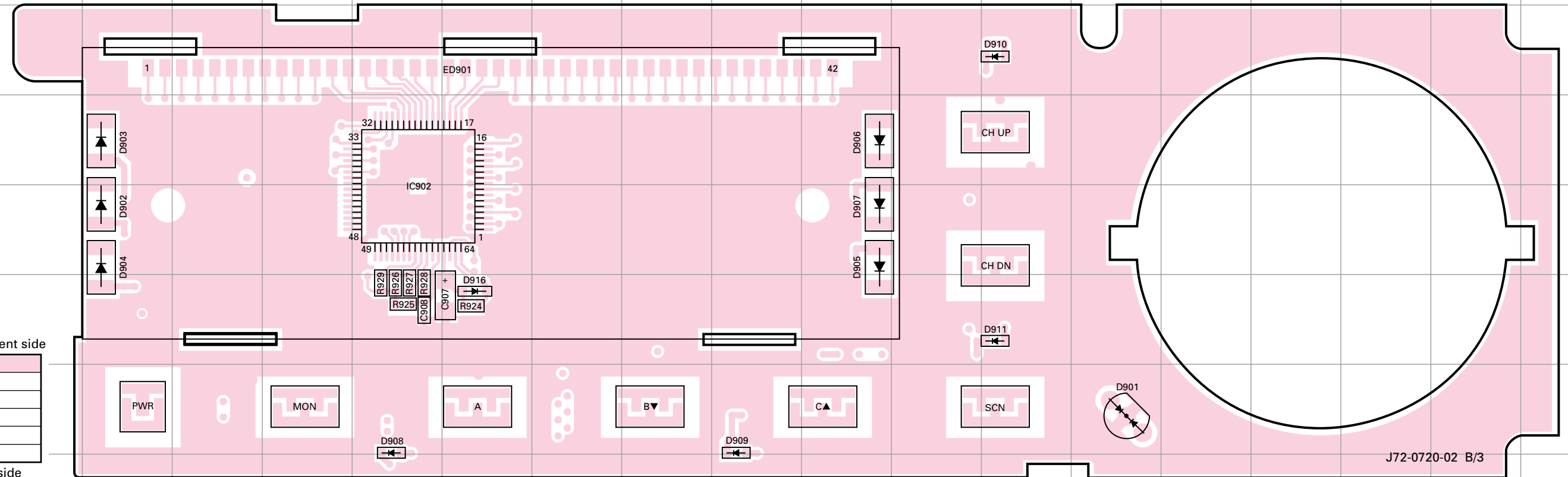
Pattern 6

Foil side

● Connect 1 and 6

TX-RX UNIT (X57-6100-XX) (B/3) -10 : K -11 : K2 Component side view

| Ref. No. | Address |
|----------|---------|
| IC902 | 4F |
| D901 | 6N |
| D902 | 4C |
| D903 | 3C |
| D904 | 4C |
| D905 | 4K |
| D906 | 3K |
| D907 | 4K |
| D908 | 6F |
| D909 | 6J |
| D910 | 2M |
| D911 | 5M |
| D916 | 5G |



Component side

| | |
|-----------|--|
| Pattern 1 | |
| Pattern 2 | |
| Pattern 3 | |
| Pattern 4 | |
| Pattern 5 | |
| Pattern 6 | |

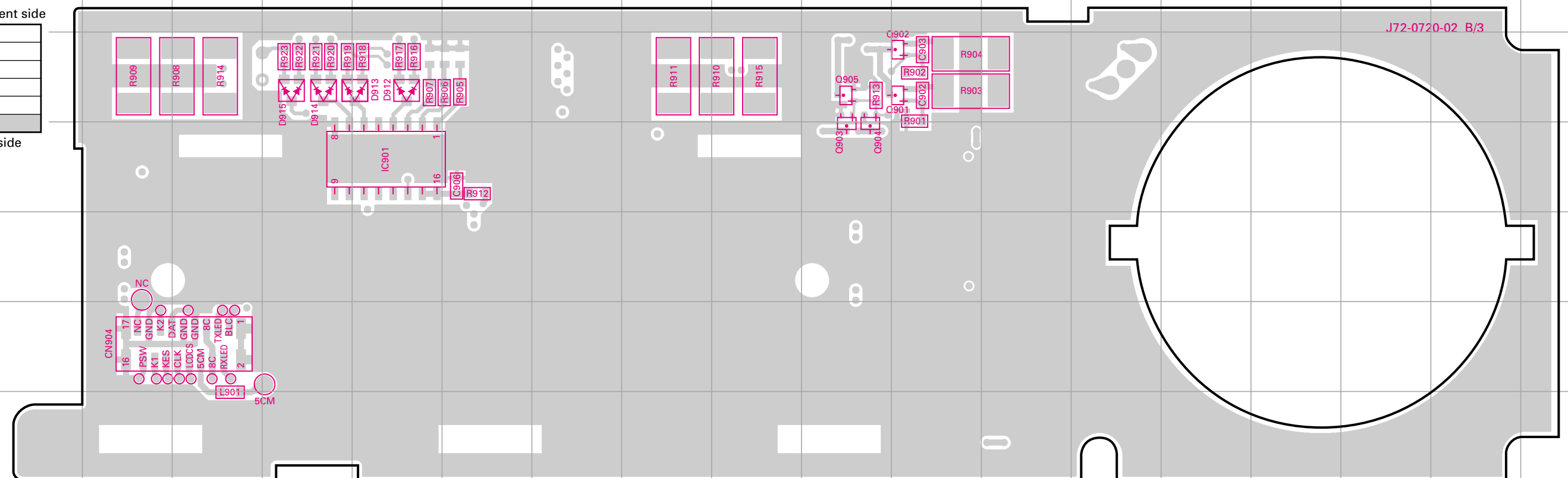
Foil side

TX-RX UNIT (X57-6100-XX) (B/3) -10 : K -11 : K2 Foil side view

Component side

| | |
|-----------|--|
| Pattern 1 | |
| Pattern 2 | |
| Pattern 3 | |
| Pattern 4 | |
| Pattern 5 | |
| Pattern 6 | |

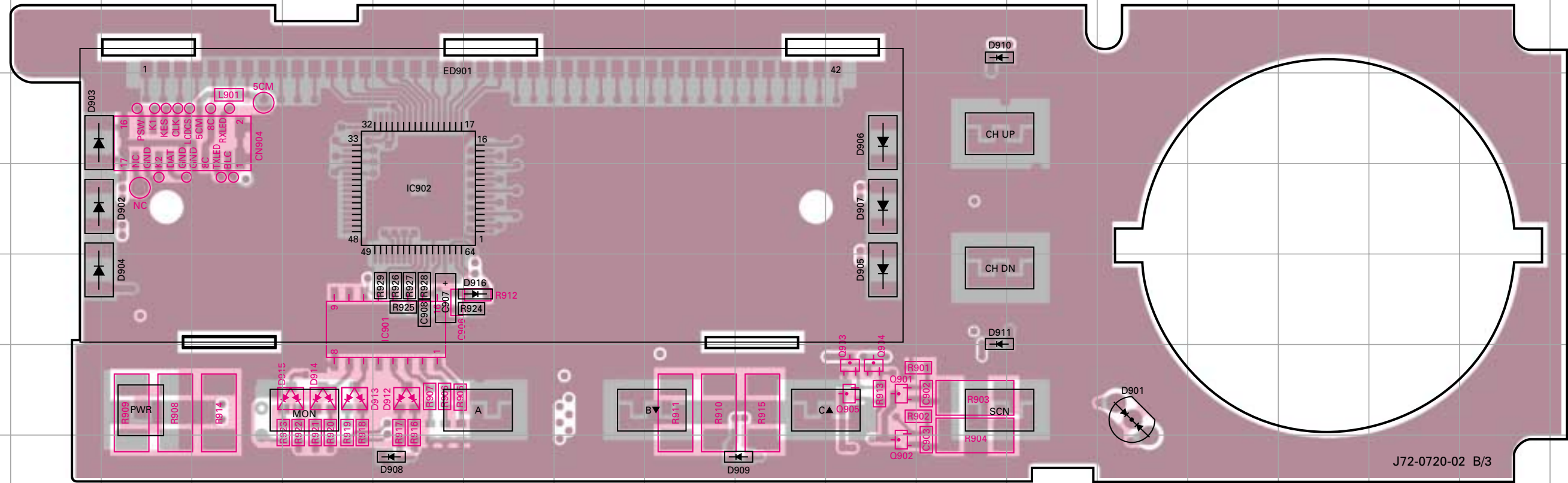
Foil side



| Ref. No. | Address |
|----------|---------|
| IC901 | 10F |
| Q901 | 9L |
| Q902 | 9L |
| Q903 | 10K |
| Q904 | 10K |
| Q905 | 9K |
| D912 | 9F |
| D913 | 9F |
| D914 | 9E |
| D915 | 9E |

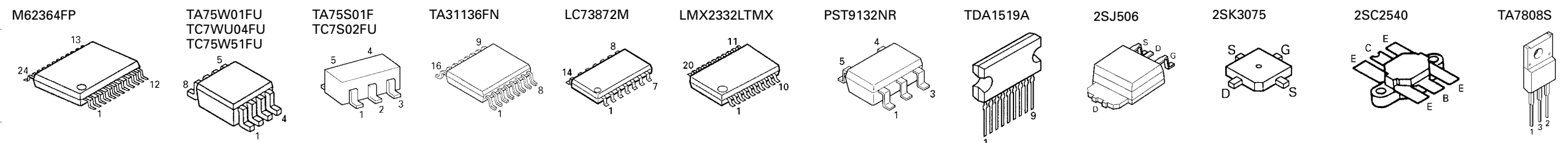
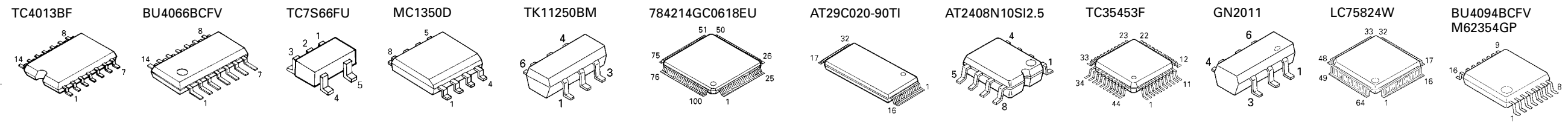
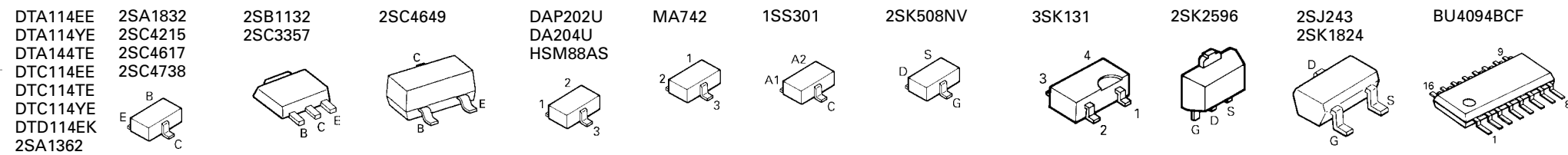
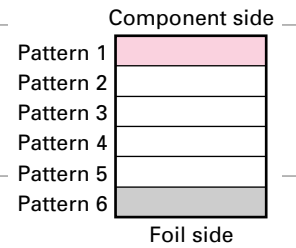
TK-6110 PC BOARD VIEW

TX-RX UNIT (X57-6100-XX) (B/3) -10 : K -11 : K2 Component side view + Foil side



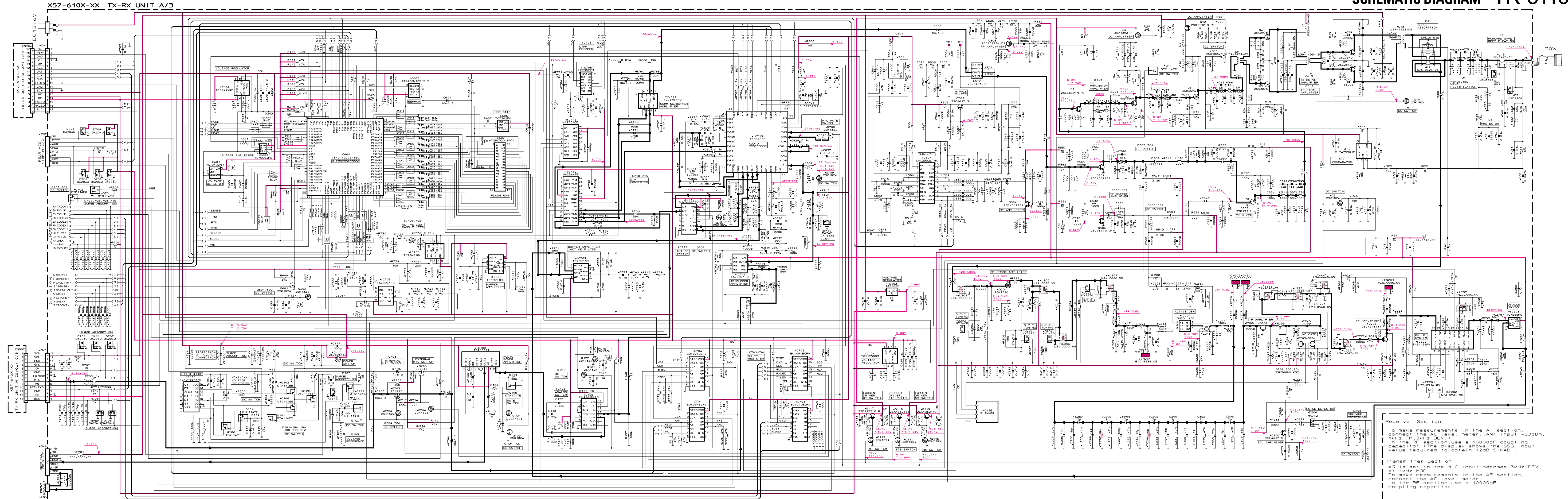
J72-0720-02 B/3

| Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address | Ref. No. | Address |
|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|
| IC901 | 5F | Q904 | 6K | D904 | 5B | D909 | 7J | D914 | 6E |
| IC902 | 4F | Q905 | 6K | D905 | 5K | D910 | 2L | D915 | 6E |
| Q901 | 6K | D901 | 6N | D906 | 3K | D911 | 5L | D916 | 5G |
| Q902 | 7K | D902 | 4B | D907 | 4K | D912 | 6F | | |
| Q903 | 6K | D903 | 3B | D908 | 7F | D913 | 6E | | |



Note : Components marked with a dot (·) are parts of pattern 1.

SCHEMATIC DIAGRAM TK-6110

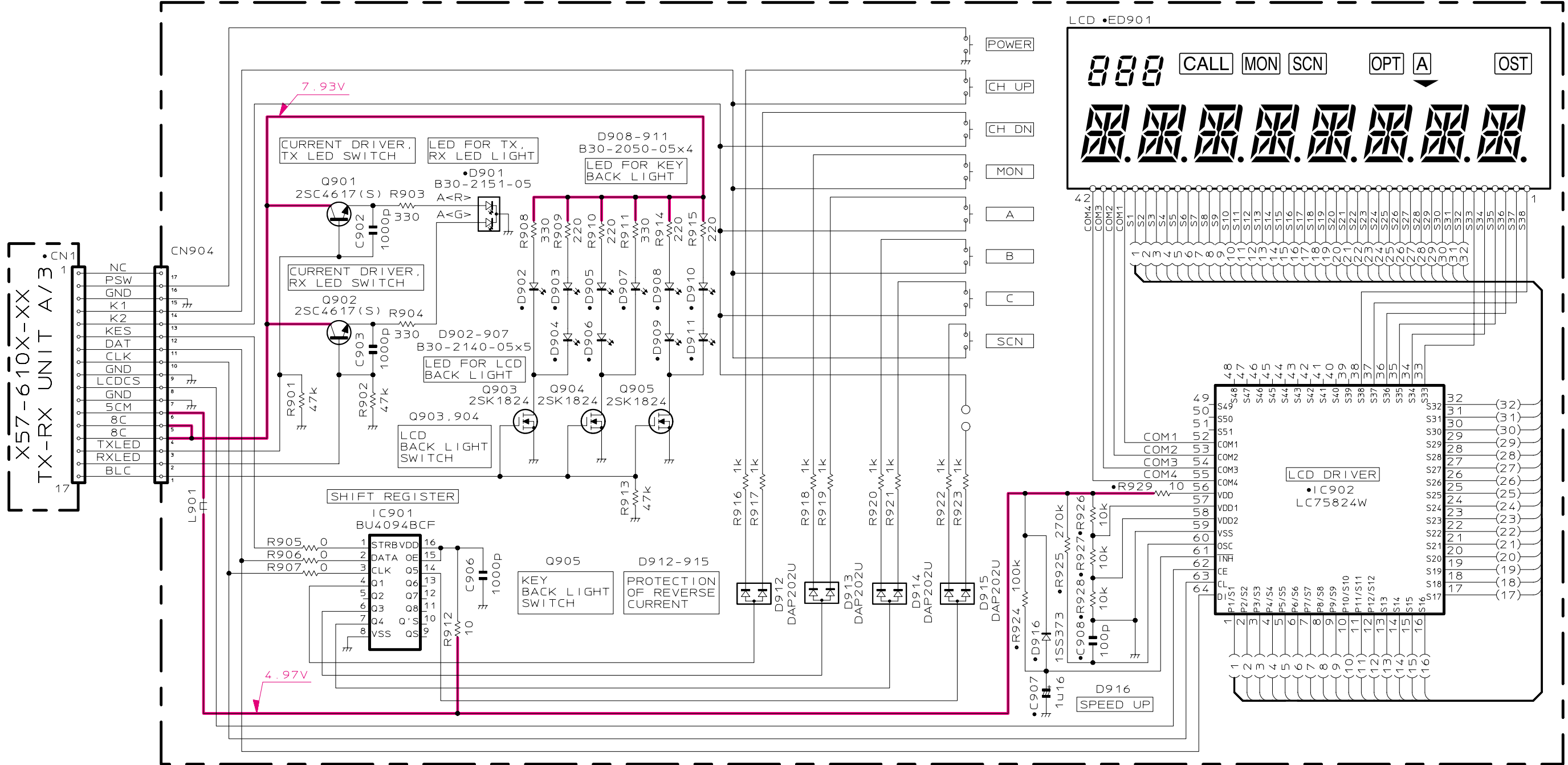


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---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| X57-610X-XX | C1 | C11 | C20 | C22 | C23 | C24 | C30 | C46 | C48 | C50 | C51 | C54 | C55 | C56 | C57 | C58 | C61 | C64 | C65 | C66 | C67 | C68 | C69 | C70 | C71 | C72 | C73 | C74 | C75 | C76 | C77 | C78 | C79 | C81 | C82 | C83 | C84 | C85 | C86 | C87 | C88 | C89 | C90 | C91 | C94 | C95 | C96 | C97 | C98 | C99 | C100 | C101 | C102 | C103 | C104 | C105 | C106 | C107 | C108 | C109 | C110 | C111 | C112 | C113 | C114 | C115 | C116 | C117 | C118 | C119 | C120 | C121 | C122 | C123 | C124 | C125 | C126 | C127 | C128 | C129 | C130 | C131 | C132 | C133 | C134 | C135 | C136 | C137 | C138 | C139 | C140 | C141 | C142 | C143 | C144 | C145 | C146 | C147 | C148 | C149 | C150 | C151 | C152 | C153 | C154 | C155 | C156 | C157 | C158 | C159 | C160 | C161 | C162 | C163 | C164 | C165 | C166 | C167 | C168 | C169 | C170 | C171 | C172 | C173 | C174 | C175 | C176 | C177 | C178 | C179 | C180 | C181 | C182 | C183 | C184 | C185 | C186 | C187 | C188 | C189 | C190 | C191 | C192 | C193 | C194 | C195 | C196 | C197 | 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C913 | C914 | C915 | C916 | C917 | C918 | C919 | C920 | C921 | C922 | C923 | C924 | C925 | C926 | C927 | C928 | C929 | C930 | C931 | C932 | C933 | C934 | C935 | C936 | C937 | C938 | C939 | C940 | C941 | C942 | C943 | C944 | C945 | C946 | C947 | C948 | C949 | C950 | C951 | C952 | C953 | C954 | C955 | C956 | C957 | C958 | C959 | C960 | C961 | C962 | C963 | C964 | C965 | C966 | C967 | C968 | C969 | C970 | C971 | C972 | C973 | C974 | C975 | C976 | C977 | C978 | C979 | C980 | C981 | C982 | C983 | C984 | C985 | C986 | C987 | C988 | C989 | C990 | C991 | C992 | C993 | C994 | C995 | C996 | C997 | C998 | C999 | C1000 | C1001 | C1002 | C1003 | C1004 | C1005 | C1006 | C1007 | C1008 | C1009 | C1010 | C1011 | C1012 | C1013 | C1014 | C1015 | C1016 | C1017 | C1018 | C1019 | C1020 | C1021 | C1022 | C1023 | C1024 | C1025 | C1026 | C1027 | C1028 | C1029 | C1030 | C1031 | C1032 | C1033 | C1034 | C1035 | C1036 | C1037 | C1038 | C1039 | C1040 | C1041 | C1042 | C1043 | C1044 | C1045 | C1046 | C1047 | C1048 | 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C1299 | C1300 | C1301 | C1302 | C1303 | C1304 | C1305 | C1306 | C1307 | C1308 | C1309 | C1310 | C1311 | C1312 | C1313 | C1314 | C1315 | C1316 | C1317 | C1318 | C1319 | C1320 | C1321 | C1322 | C1323 | C1324 | C1325 | C1326 | C1327 | C1328 | C1329 | C1330 | C1331 | C1332 | C1333 | C1334 | C1335 | C1336 | C1337 | C1338 | C1339 | C1340 | C1341 | C1342 | C1343 | C1344 | C1345 | C1346 | C1347 | C1348 | C1349 | C1350 | C1351 | C1352 |
|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---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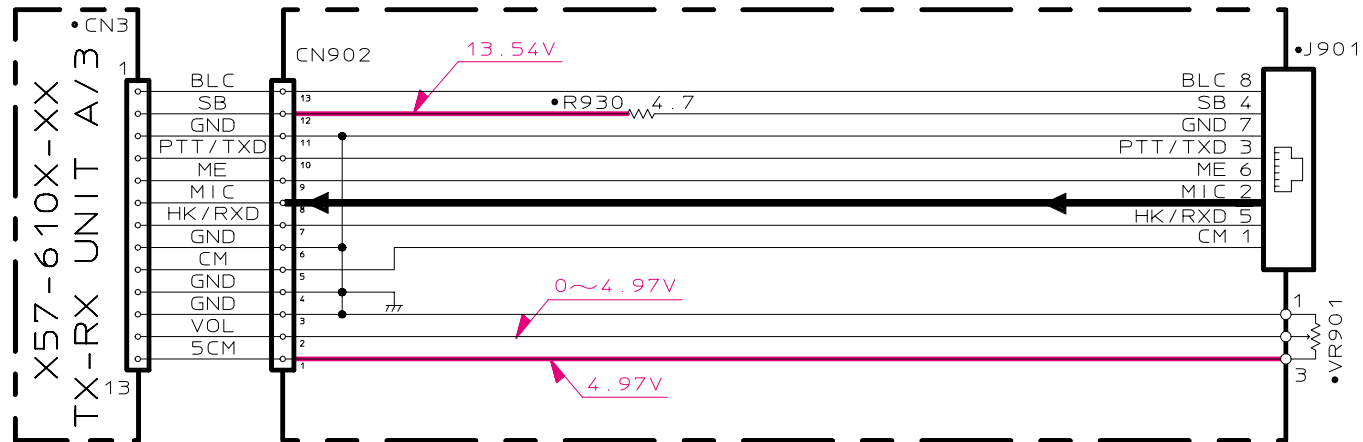
TK-6110 SCHEMATIC DIAGRAM

Note : Components marked with a dot (·) are parts of patterun 1.

X57-610X-XX TX-RX UNIT(DISPLAY) B/3



X57-610X-XX TX-RX UNIT(MIC&VOL) C/3



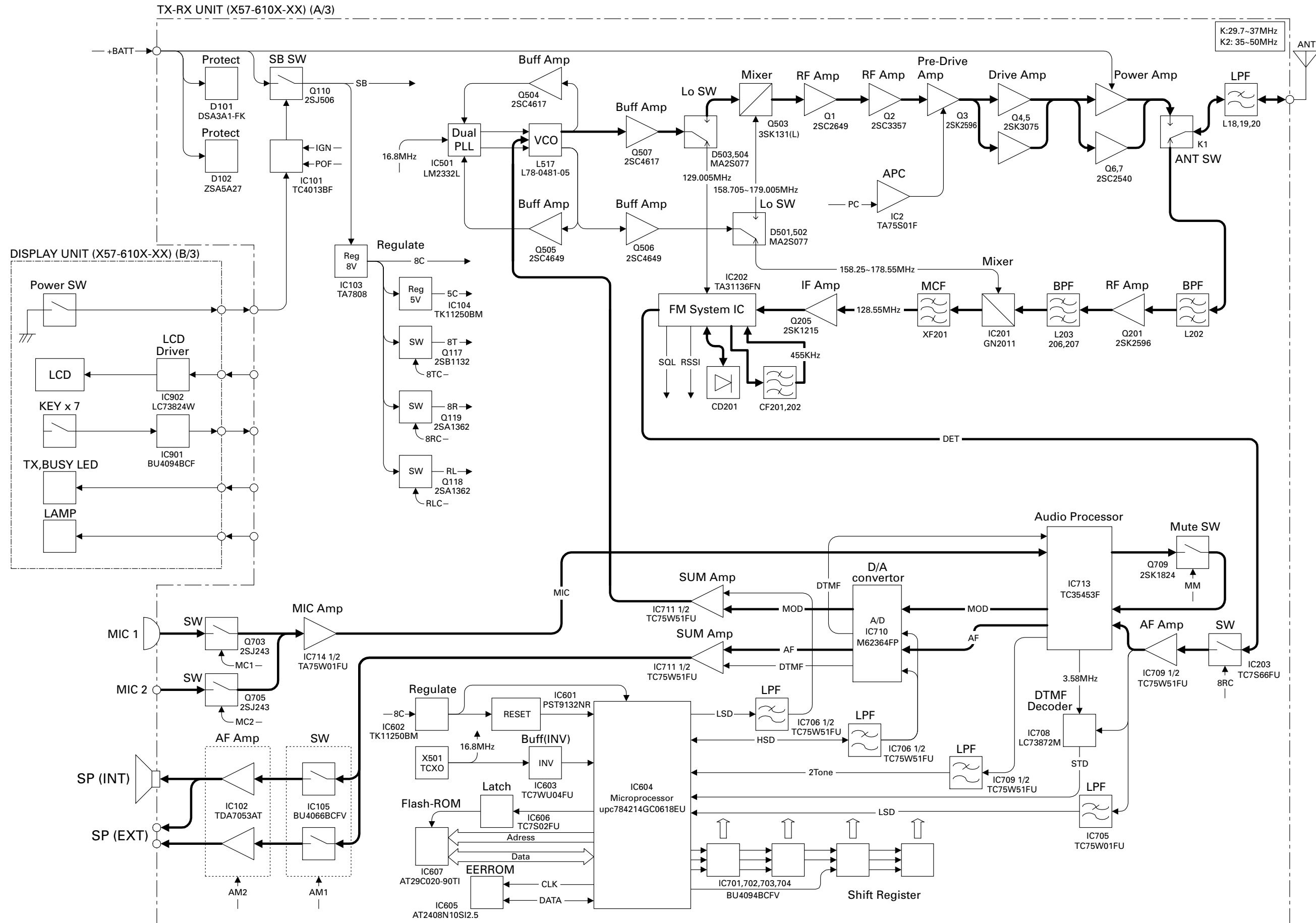
- D901 : B30-2151-05
- D902-907 : B30-2140-05
- D908-911 : B30-2050-05
- D912-915 : DAP202U
- D916 : 1SS373

- Q901, 902 : 2SC4617(S)
- Q903-905 : 2SK1824

- IC901 : BU4094BCF
- IC902 : LC75824W

TK-6110 TK-6110

BLOCK DIAGRAM



SPECIFICATIONS

GENERAL

| | | |
|----------------------------------------------|---------------------------------------------------------|----------------------|
| Frequency Range | 29.7 to 37.0MHz (K) | 35.0 to 50.0MHz (K2) |
| Number of Channels | Maximum 32 channels | |
| Channel Spacing | 20kHz / 25kHz | |
| PLL Channel Stepping | 5kHz | |
| Operating Voltage | 13.6V DC | |
| Current Drain | | |
| Standby | 0.6A | |
| Receive | 2.4A | |
| Transmit | 15.0A | |
| Frequency Stability (–22°F to +140°F) | ±0.0005% | |
| Operating Temperature Range | –30°C to +60°C (–22°F to +140°F) | |
| Antenna Impedance | 50Ω | |
| Dimensions (Not Including Protrusions) | 6-1/4 in (160mm) W x 2 in (50mm) H x 6-1/4 in (160mm) D | |
| Weight (Body only) | 3.5 lbs (1.6kg) | |

RECEIVER (Measurements made per TIA/EIA-603)

| | | |
|------------------------------------|-----------------------------------|------------|
| Sensitivity (EIA 12dB SINAD) | 0.25μV | |
| Selectivity | 75dB | |
| Intermodulation | 70dB | |
| Spurious Response | 70dB | |
| Audio Power Output | 10W at 4Ω less than 5% distortion | |
| Channel Frequency Spread | 7.3MHz (K) | 15MHz (K2) |

TRANSMITTER (Measurements made per TIA/EIA-603)

| | | |
|--------------------------------|--------------|------------|
| RF Power Output | 70W | |
| Harmonics | 62dB | |
| Modulation | 16K0F3E | |
| FM Noise | 50dB | |
| Microphone Impedance | 600Ω | |
| Audio Distortion | Less than 3% | |
| Channel Frequency Spread | 7.3MHz (K) | 15MHz (K2) |

KENWOOD follows a policy of continuous advancement in development.
For this reason specifications may be changed without notice.

TK-6110

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