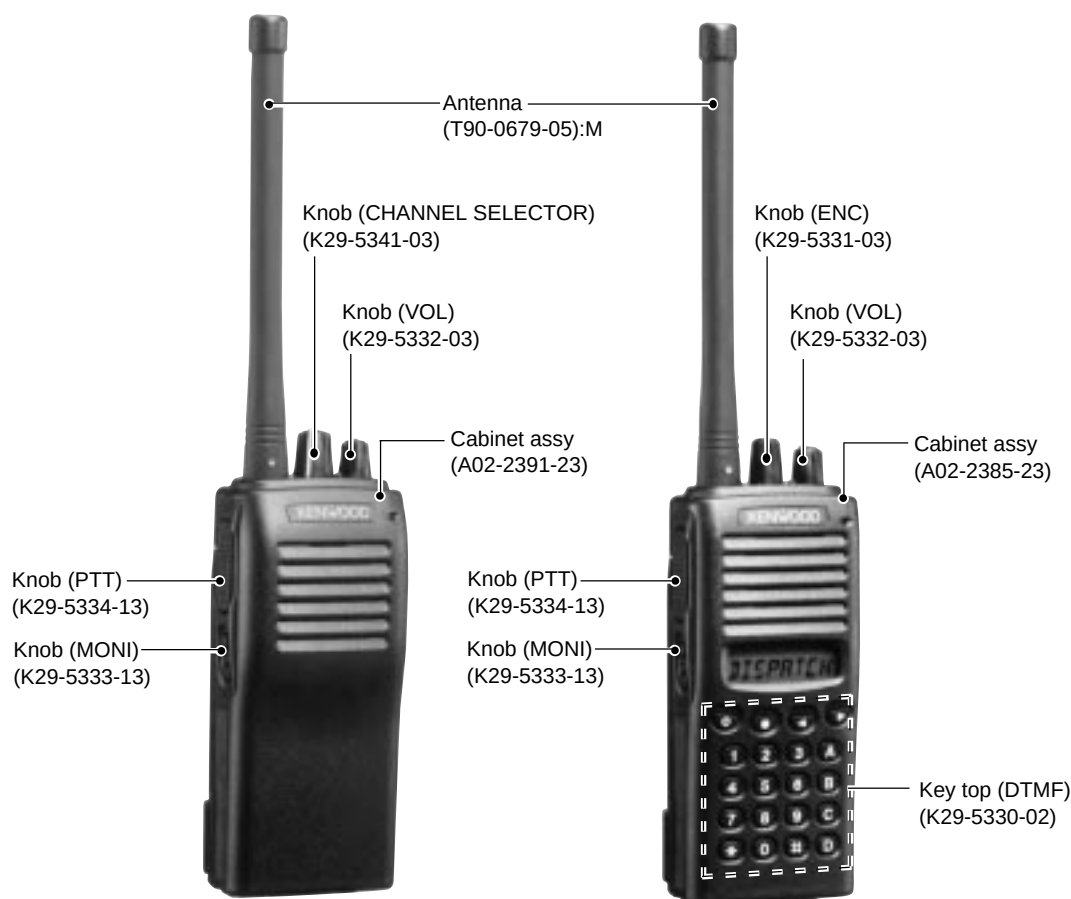


## TK-260G/270G

## SERVICE MANUAL

KENWOOD

© 1999-9 PRINTED IN JAPAN  
B51-8493-00(S) 1425

TK-260G

TK-270G

M market models are shown.

## CONTENTS

|                                 |    |
|---------------------------------|----|
| GENERAL .....                   | 2  |
| SYSTEM SET-UP .....             | 2  |
| OPERATING FEATURES .....        | 3  |
| REALIGNMENT .....               | 8  |
| DISASSEMBLY FOR REPAIR .....    | 16 |
| CIRCUIT DESCRIPTION .....       | 17 |
| SEMICONDUCTOR DATA .....        | 21 |
| DESCRIPTION OF COMPONENTS ..... | 23 |
| PARTS LIST .....                | 24 |
| EXPLODED VIEW .....             | 30 |

|                                      |            |
|--------------------------------------|------------|
| PACKING .....                        | 32         |
| ADJUSTMENT .....                     | 33         |
| PC BOARD VIEWS                       |            |
| DISPLAY UNIT (X54-3250-10) .....     | 41         |
| TX-RX UNIT (X57-587X-XX) .....       | 43         |
| SCHEMATIC DIAGRAM .....              | 49         |
| BLOCK DIAGRAM .....                  | 57         |
| LEVEL DIAGRAM .....                  | 59         |
| KNB-14/KNB-15A (Ni-Cd BATTERY) ..... | 60         |
| OPTIONS .....                        | 61         |
| SPECIFICATIONS .....                 | BACK COVER |

# TK-260G/270G

## GENERAL / SYSTEM SET-UP

### INTRODUCTION

#### SCOPE OF THIS MANUAL

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

#### ORDERING REPLACEMENT PARTS

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

### PERSONNEL SAFETY

The following precautions are recommended for personnel safety:

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.

- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

### SERVICE

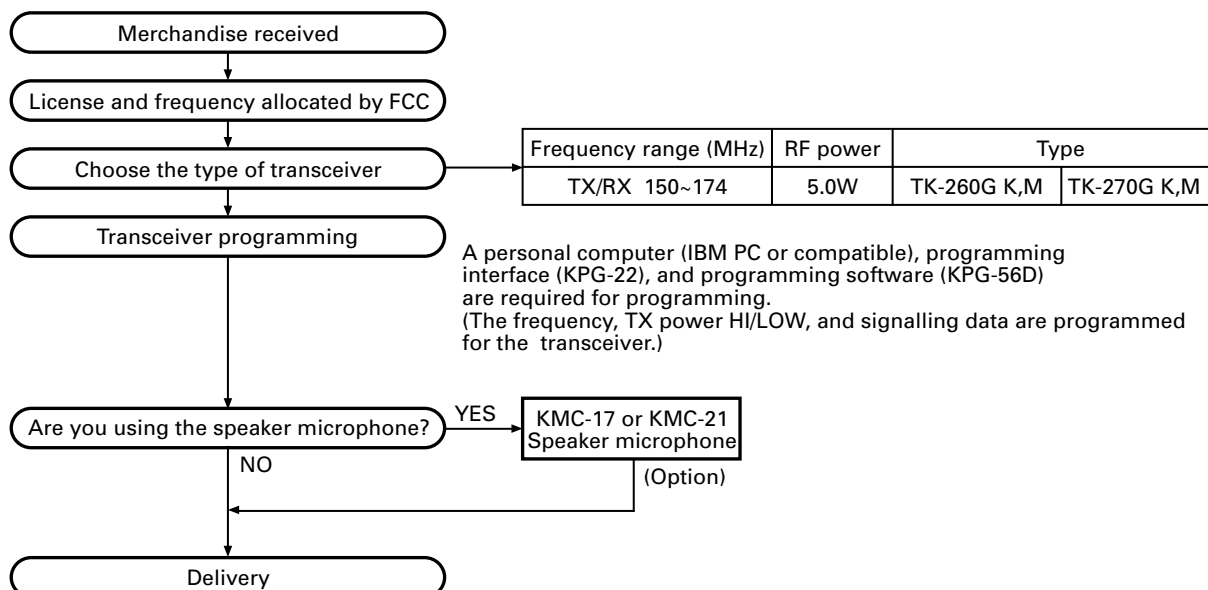
This radio is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

### NOTE

WE CANNOT guarantee oscillator stability when using channel element manufactured by other than KENWOOD or its authorized agents.

| Unit<br>Model &<br>destination |   | X57-587X-XX |      |      | X54-325X-XX | Frequency range | Remarks                         | Helical Antenna | Charger | Battery | 16 Key |
|--------------------------------|---|-------------|------|------|-------------|-----------------|---------------------------------|-----------------|---------|---------|--------|
|                                |   | 0-10        | 0-11 | 0-21 |             |                 |                                 |                 |         |         |        |
| TK-260G                        | K | ○           |      |      | —           | 150~174MHz      | IF1 : 49.95MHz<br>LOC : 50.4MHz | OP              | OP      | OP      | —      |
|                                | M | ○           |      |      | —           |                 |                                 | ○               |         |         | —      |
| TK-270G                        | K |             | ○    |      | ○           |                 |                                 | OP              |         |         | ○      |
|                                | M |             |      | ○    | ○           |                 |                                 | ○               |         |         | ○      |

### SYSTEM SET-UP



# TK-260G/270G

## OPERATING FEATURES

### 1. Operation Features

#### • TK-260G

**Channel selector**  
Rotate to select a channel (1 ~ 8).

**Antenna**  
**LED indicator**  
Lights red while transmitting. Lights green while receiving. Flashes orange while receiving a 2-Tone or DTMF signal that matches the one set up in your transceiver. Flashes red when the battery power is low while transmitting.

**Power switch/ Volume control**  
Turn clockwise to switch ON the transceiver. Rotate to adjust the volume. To switch OFF the transceiver, turn counterclockwise fully.

**Microphone**  
**Speaker**

**PTT (Push-to-Talk) switch**  
Press this switch, then speak into the microphone to call a station.

**Side 1 key**  
Press to activate its programmable function.

**Side 2 key**  
Press to activate its programmable function.

**SP/MIC jacks**  
Connect an optional speaker/ microphone here.

The transceiver is shown with the optional KNB-14 battery pack.

### Programmable Auxiliary Functions

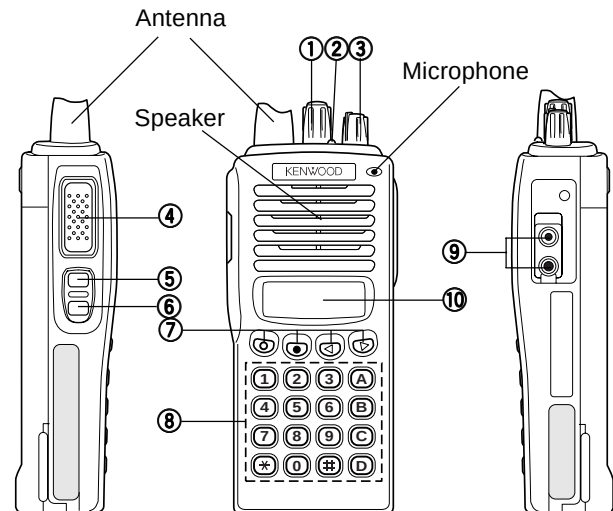
**Side 1 key** and **Side 2 key** can each be programmed with one of the following auxiliary functions:

- **Monitor A (Monitor Unmute–Momentary):** Press and hold the **Monitor** key to hear background noise. Release the key to return to normal operation.
- **Monitor B (Monitor Unmute–Toggle):** Momentarily press the **Monitor** key to hear background noise. Press the key again to return to normal operation.
- **Monitor C (Carrier Squelch–Momentary):** Press and hold the **Monitor** key to deactivate QT, DQT, 2-Tone, or DTMF signalling. Release the key to return to normal operation.
- **Monitor D (Carrier Squelch–Toggle):** Momentarily press the **Monitor** key to deactivate QT, DQT, 2-Tone, or DTMF signalling. Press the key again to return to normal operation.
- **None:** No function.
- **RF Power Lo:** Press the **RF Power Lo** key to toggle the output power of a channel between high and low. This can only be used for channels that have been programmed with high power. Pressing **RF Power Lo** while using a channel programmed with low power

causes an error tone to sound. (When changing a channel from high to low power, all channels programmed with high power are changed to low.)

- **2-Tone Encode Select:** To transmit using a 2-Tone code, press the **PTT** switch and the **2-Tone Encode Select** key, then speak into the microphone in your normal voice. Release the **PTT** switch and **2-Tone Encode Select** key to receive.

#### • TK-270G



The transceiver is shown with the optional KNB-14 battery pack.

#### ① Rotary encoder

Your dealer can program the encoder as either Group Up/Down or Channel Up/Down (default setting). Rotate to select a group or channel. Also rotate to adjust the squelch in Squelch Adjustment mode.

#### ② LED indicator

Lights red while transmitting. Lights green while receiving. Flashes orange while receiving a Code Squelch code or a Selective Call code, or a 2-Tone or DTMF signal that matches the one set up in your transceiver. Flashes red when the battery power is low while transmitting.

#### ③ Power switch/ Volume control

Turn clockwise to switch ON the transceiver. Rotate to adjust the volume. To switch OFF the transceiver, turn counterclockwise fully.

#### ④ PTT (Push-to-Talk) switch

Press this switch, then speak into the microphone to call a station.

#### ⑤ Side 1 key

This is a PF (Programmable Function) key. Press it to activate its auxiliary function (page 4).

#### ⑥ Side 2 key

This is a PF (Programmable Function) key. Press it to activate its auxiliary function (page 4).

## OPERATING FEATURES

### ⑦ ○, ●, ◀, ▶ keys

These are PF (Programmable Function) keys. Press each key to activate its auxiliary function.

### ⑧ DTMF keypad

Used for storing and transmitting DTMF numbers.

### ⑨ SP/MIC jacks

Connect an optional speaker/ microphone here.

### ⑩ Display

(See page 5.)

**Note:** The PF keys are programmed with default functions:

- **Side 1 key:** Lamp
- **Side 2 key:** Monitor A
- **○ key:** Scan
- **● key:** Scan Del/Add
- **◀ key:** Talk Around
- **▶ key:** RF Power Lo

### Programmable Auxiliary Functions

Side 1, Side 2, ○, ●, ◀, and ▶ can be programmed with the auxiliary functions listed below.

- Channel Down
- Channel Up
- Display Character
- Group Down
- Group Up
- Home Channel
- Key Lock
- Lamp
- Monitor A (Monitor Unmute–Momentary)
- Monitor B (Monitor Unmute–Toggle)
- Monitor C (Carrier Squelch–Momentary)
- Monitor D (Carrier Squelch–Toggle)
- None
- Operator Sel Tone <sup>1</sup>
- Redial
- RF Power Lo
- Scan
- Scan Del/Add
- Scrambler
- Selectable QT <sup>2</sup>
- Talk-Around
- 2-Tone Encode Select

<sup>1</sup> Available for K and M market models only.

<sup>2</sup> Available for M market models only.

## 2. Programmable keys

The functions the FPU programs to the function keys are described in the following sections.

### 1) Channel up/down (TK-270G only)

When the key is pressed each time, the channel number to be selected is incremented/decremented and repeats if held for one second or longer.

This key functions as the voice scrambler code selector in the voice scrambler code select mode.

### 2) Display character (TK-270G only)

This key switches the LCD display between the group/channel number and group/channel name.

### 3) Group up/down (TK-270G only)

When the key is pressed each time, the group number to be selected is incremented/decremented and repeats if held for one second or longer.

### 4) Home Channel (TK-270G only)

Press this key once, the channel switches to the pre-programmed home channel.

### 5) Key lock (TK-270G only)

When the KEY LOCK switch is held down for one second or more, keys other than [PTT], [LAMP], [MONI], [VOL], [POWER], and KEY LOCK are locked.

When 12/16 KEY LOCK is set with the FPU, the DTMF key is locked and when front-panel KEY LOCK is set, the DTMF key and the [PF] key are locked.

### 6) Lamp (TK-270G only)

This key illuminates the LCD and keys on the front panel. When the key is pressed, the LED lamp goes on.

When it is released, the lamp goes off after about five seconds. If any key is pressed while the LED lamp is on, the lamp is kept on for five seconds.

### 7) Monitor

Used to release signalling or squelch when operating in conventional mode. It is also used to reset option signalling.

### 8) Operator Selectable Tone (TK-270G K types only)

This key switches the pre-set decode QT/DQT and encode QT/DQT to OST (Operator Selectable Tone) tone pair.

Press this key, the transceiver enters OST mode. In this mode, the display shows "OFF" and the operator can select one of the OST tone pair using the tuning control. The display shows "TONE \*\*" and tone pair No. \*\* is selected.

Press OST key again, the transceiver exits from OST mode, and returns to the group/channel mode.

16 tone pairs for OST can be programmed by KPG-56D. OST is useful to access the repeater with same radio frequency and different tone (QT/DQT).

# TK-260G/270G

## OPERATING FEATURES

### 9) Reverse (REV) (Note: C type only)

When the REV switch is pressed, transmission can be performed with the receive frequency and receive signaling, and reception can be performed with the transmit frequency and transmit signaling.

When REV is on, HORN ALERT and PUBLIC ADDRESS do not work.

### 10) Selectable QT (SEL QT) (TK-270G M types only)

When the SEL QT switch is pressed, QT frequency can be temporarily changed with the CH switch.

### 11) 2-Tone Encode Select (TK-270G only)

- ① Press the key programmed as 2-tone Encode Select.
  - A pre-programmed 2-tone code name appears on the display.
- ② Press the key programmed as Channel Up and Channel Down to select you desired 2-tone code name.
- ③ Press PTT switch and 2-Tone Encode Select key to transmit and release them to receive.

#### Note:

The code for the TK-260G is not selectable.

You cannot change the tone in step ② by using the Channel Up and Channel Down keys.

### 12) Redial (TK-270G only)

Pressing this key when Group/Channel is shown, displays the previously transmitted DTMF code. Pressing [PTT] at this time, transmits the code that is currently displayed.

### 13) RF power low

Used to temporarily switch transmission output to low power. Turning the function on enables:

Hi→Low, Low→Low

Key states are backed up, except in the PC mode when they are reset.

### 14) Scan (TK-270G only)

Pressing this key starts scanning. Pressing this key again stops scanning.

### 15) Scan Del/Add (TK-270G only)

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

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

### 16) Talk Around (TK-270G only)

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

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

### 17) None

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

### 3. Display (TK-270G only)



| Icon        | Description                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | Not used in this transceiver.                                                                                                                                        |
|             | Appears when the selected channel is busy.                                                                                                                           |
|             | Appears when QT, DQT, DTFM, or 2-Tone decoding is deactivated (by pressing the <b>Monitor</b> key).                                                                  |
| <b>CALL</b> | Appears when you receive a Code Squelch, Selective Call, 2-Tone, or DTMF Signalling call. Also appears when you transmit using Code Squelch or Selective Call.       |
| <b>SCN</b>  | Appears while scanning.                                                                                                                                              |
| <b>LO</b>   | Appears when using low power on the selected channel.                                                                                                                |
| <b>A</b>    | Appears when the selected channel is included in the scanning sequence.                                                                                              |
|             | Displays the selected channel, the squelch level, DTMF digits (when entering digits, confirming digits, or making a call), and messages received via Selective Call. |

### 4. Scan Operating (TK-270G only)

#### 1) Scan types

##### • Single Group Scan

You can scan all valid (ADD) channels in the displayed group that can be selected with the group selector.

##### • Multiple Group Scan

You can scan all valid (ADD) channels in all valid (ADD) groups.

#### 2) Scan Start Condition

One or more non-priority channels must be added to all channels that can be scanned. The transceiver must be in normal receive mode (PTT off).

When you activate the key programmed to the scan function, scan starts. The scan icon ("SCN") lights and "SCAN" is indicated on display.

## OPERATING FEATURES

### 3) Scan Stop Condition

The scan stops temporarily if the following conditions are satisfied.

- ① The receiving signal matches the signalling code in your radio that is set by the programming software (KPG-56D).
- ② When the Monitor key is depressed.

### 4) Scan Channel Types

- ① Priority channel is the most important channel for scan, and always detects a signal during scan and when the scan stops temporarily.
- ② Non-priority channels detect a signal during scan. For the channels that can be selected with the group or channel selector when the scan does not occur, the "A" icon lights.

### 5) Priority Channel Setting

A priority channel can be set as follows with the programming software (KPG-56D).

- ① Specify a priority channel as a fixed priority channel.
- ② Make a selected channel a priority channel.  
Specify the initial channel before the operator changes it.

### 6) Scan Type According to the Priority Channel

- ① When no priority channel is set : Only the non-priority channels are scanned.  
If a non-priority channel stops temporarily, it stops until there is no signal on the channel.
- ② When priority channel is set : Either priority channel is scanned.  
If a non-priority channel stops temporarily, a priority channel signal is detected at certain intervals.  
If a priority channel stops temporarily, it stops until there is no signal on the priority channel.

### 7) Revert Channel

The revert channel is used to transmit during scanning and set by the programming software (KPG-56D).

- ① Priority  
The transceiver reverts to the priority channel.
- ② 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 the current channel to answer to the call however revert channel is set to priority channel.  
After resume time, scan re-starts and the transmission channel returns to the priority channel.
- ③ Selected channel  
The transceiver reverts to the channel before scanning or the channel that you changed during scan.
- ④ Last called channel  
The transceiver reverts to the last called channel during scan.
- ⑤ Last used channel  
The transceiver reverts to the last used (transmitted) channel during scan. "Last used" revert channel includes talkback function.

- ⑥ Selected with talkback

The transceiver reverts to the channel before scanning or the channel that you changed during scan.

### 8) Scan End

When you reactivate the key programmed to the scan function during scan mode, scan ends.

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

### 9) Temporarily Delete/Add

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

When you would like to add a deleted channel temporarily to the scan sequence, select the desired (deleted) channel during scan, and press the delete/add key before scan re-starts.

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

## 5. Details of Features

### 1) Time-out timer

The time-out timer can be programmed in 15 seconds increments from 15 seconds to 300. If the transmitter is keyed continuously for longer than the programmed time, the transmitter is disabled and a warning tone sounds while the PTT button is held down. The alert tone stops when the PTT button is released.

### 2) Selective Call Alert LED

You can select whether or not the LED on the transceiver flashes orange when selective call has occurred.

### 3) PTT ID

PTT ID provides a DTMF ANI to be sent with the PTT button every time it is used (Begin of TX ID at beginning of transmission, End of TX ID at end of transmission, or both).

You can program the PTT ID as one of the followings.

Off, BOT (Begin of TX ID), EOT (End of PTT ID), BOTH.

The contents of ID are programmed for each channel.

The transceiver is capable of having ID. The format is DTMF.

The timing that the transceiver sends the ID is programmable.

Begin of TX ID (BOT) : Begin of TX ID is sent at the beginning of transmission.

End of TX ID (EOT) : End of TX ID is sent at the end of transmission.

Both : Begin of TX ID is sent at the beginning of transmission and End of TX ID is sent at the end of transmission.

There is also a "PTT ID" setting for each channel.

# TK-260G/270G

## OPERATING FEATURES

### 4) Battery Warning

This transceiver has a battery warning feature. If low voltage is detected during transmission, the transceiver warns you by a flashing red "LED".

When the voltage is detected to be even lower during transmission, the transceiver stops transmission and warns you by a flashing red "LED" and a beep.

Please notice "indication" for the battery exchange, charging time by flashing red LED and beep.

### 5) "TOT" Pre-Alert

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

"TOT" will expire when the selected time passes from the TOT pre-alert tone.

### 6) "TOT" Re-Key Time

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

### 7) "TOT" Reset Time

The transceiver has a "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 the PTT is released, unless the "TOT" reset timer has expired.

### 8) OST (Operator Selectable Tone) (TK-270G K types only)

The transceiver is capable of having the "OST" function and 16 tone pairs (QT/DQT) with a max 10-digit name for each tone pair.

### 9) Clear to Transpond

The transceiver waits for an acknowledgment signal until the channel free.

This feature ensures the acknowledgment signal is received by another party.

### 10) Battery Save

This is the automatic battery saver during standby mode operation. The receiver circuit is turned on and off to conserve the battery life.

### 6. Option Signalling (DTMF/2 tone)

Built-in DTMF decoder is available for option signalling.  
Built-in 2-Tone decoder is available for option signalling.

It is possible to use individual call, group call, DBD (Dead Beat Disable). **Note** : DBD is only DTMF

Preset operation is triggered when there is a match with Option Signaling.

When Option Signaling matches on a Group Channel where it is set to Yes, the Option Signaling display flashes and Option Signaling is canceled. Settings after this will cause "Transpond" or "Alert" to sound.

Setting the Selective Call Alert LED will cause the LED to start flashing orange.

Mute or Unmute is triggered by the ID/QT/DQT/Carrier when option signaling matches (when Option Signal is deactivated by a transmission).

#### AND/OR

Option Signaling match conditions can be selected with AND/OR logic.

|     | Alert/Transpond                                    | AF Mute Open                                     |
|-----|----------------------------------------------------|--------------------------------------------------|
| AND | Triggers at match with QT/DQT/ID+DTMF(2tone);Opt   | Triggers at match with QT/DQT/ID+DTMF(2tone);Opt |
| OR  | Triggers at match with QT/DQT/ID+DTMF(2tone) ; Opt | Triggers only for match with QT/DQT/ID;Signaling |

Even if set as OR, there is no Alert/Transpond just with DTMF.

Even if set as OR, AF mute cannot be canceled just by a match with DTMF.

In conventional channels not set with QT/DQT, signaling is a match just by receiving the carrier.

#### Auto Reset

When Option Signaling matches on a Group channel where it is set to Yes, Option Signaling is canceled when it matches a group channel set to Yes.

After Option Signaling matches, Option Signaling can automatically Reset after a specified time.

#### Dead Beat Disable

When the D.B.D (Dead Beat Disable) code matches, a preset operation is performed.

When D.B.D matches on all group channels regardless of whether Option Signaling = Yes/No, then TX Inhibit or TX RX Inhibit is activated by the settings performed afterwards. D.B.D is canceled when the D.B.D. code + "#" is received.

Transpond is always activated when the D.B.D code matches. Alert is not output. An Option Signaling match is not displayed.

# TK-260G/270G

## OPERATING FEATURES / REALIGNMENT

### 7. Audible user feedback tones

The transceiver outputs various combinations of tones to notify the user of the transceiver operating state. The main tones are listed below

The high tone is 1477Hz, the mid tone is 941Hz, and the low tone is 770Hz.

- **Power on tone**

This tone is output when the transceiver is turned on. (The high tone is output for 500ms.)

- **Alert tone**

This tone is output when the transceiver is in TX inhibition for TOT, battery warning and PLL unlocked. It is output until the PTT button is released. (The 697Hz tone is output.)

- **Busy Tone**

This informs the user of a busy channel lock out

- **Group Call Tone**

The group call tone informs the user of a group call in DTMF/ 2 Tone Option Signaling. This tone repeats 7 times.

|       |      |       |
|-------|------|-------|
| 770Hz |      | 770Hz |
| 30ms  | 30ms | 30ms  |

- **Individual Tone**

Individual tone is issued on receiving selective call by DTMF/ 2 Tone Option Signaling.

|        |       |        |       |        |
|--------|-------|--------|-------|--------|
| 2000Hz |       | 2000Hz |       | 2000Hz |
| 100ms  | 100ms | 100ms  | 100ms | 100ms  |

- **Pre Alert tone**

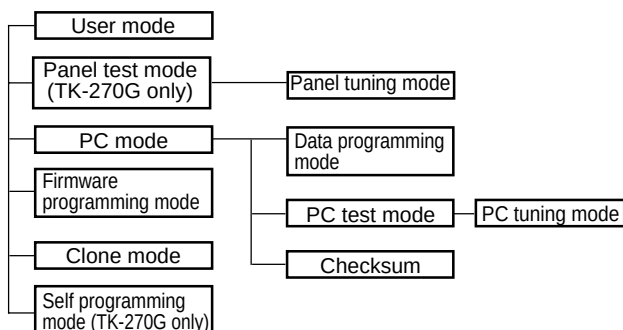
Informs the user when nearing transmit inhibit (transmit cutoff) time due to TOT.

The Pre Alert Tone is issued from the time set for TOT Pre Alert until the TOT triggers.

|        |      |        |      |        |
|--------|------|--------|------|--------|
| 1633Hz |      | 1633Hz |      | 1633Hz |
| 50ms   | 50ms | 50ms   | 50ms | 50ms   |

### REALIGNMENT

#### 1. Modes



| Mode                      | Function                                                                                     |
|---------------------------|----------------------------------------------------------------------------------------------|
| User mode                 | For normal use.                                                                              |
| Panel test mode           | Used by the dealer to check the fundamental characteristics.                                 |
| Panel tuning mode         | Used by the dealer to tune the radio.                                                        |
| PC mode                   | Used for communication between the radio and PC (IBM compatible).                            |
| Data programming mode     | Used to read and write frequency data and other features to and from the radio.              |
| PC test mode              | Used to check the radio using the PC. This feature is included in the FPU. See panel tuning. |
| Firmware programming mode | Used when changing the main program of the flash memory.                                     |
| Clone mode                | Used to transfer programming data from one radio to another.                                 |
| Self programming mode     | Frequency, signalling and features.                                                          |

#### 2. How to Enter Each Mode

| Mode                      | Operation                                        |
|---------------------------|--------------------------------------------------|
| User mode                 | Power ON                                         |
| Panel test mode           | [◀]+Power ON (Two seconds) (TK-270G only)        |
| PC mode                   | Received commands from PC                        |
| Panel tuning mode         | [Panel test mode]+[O]                            |
| Firmware programming mode | [LAMP]+[MONI]+Power ON (Two seconds)             |
| Clone mode                | [LAMP]+[▶]+Power ON (Two seconds)                |
| Self programming mode     | [LAMP]+[●]+Power ON (Two seconds) (TK-270G only) |

#### 3. For the panel Test Mode (TK-270G only)

For the setting method, refer to ADJUSTMENT.

##### 3-1. For the panel Tuning Mode

For the setting method, refer to ADJUSTMENT.



## REALIGNMENT

### 4. Checksum

Executing this function, "TUNING" appears on the display of TK-270G while calculating the checksum .

When the calculation is completed, the display returns to normal and PC displays the checksum of the radio.

### 5. PC Mode

#### 5-1. Preface

The TK-260G/270G transceiver is programmed using a personal computer, a programming interface (KPG-22) and programming software (KPG-56D).

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

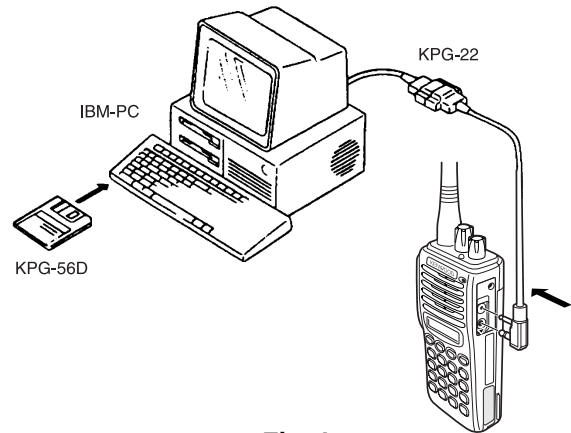


Fig. 1

#### 5-2. Connection procedure

1. Connect the TK-260G/270G to the personal computer with the interface cable.
2. When the POWER is switched on, user mode can be entered immediately. When the PC sends a command, the radio enters PC mode.  
When data is transmitted from transceiver, the red LED blinks.  
When data is received by the transceiver, the green LED blinks.

#### Notes:

- The data stored in the personal computer must match the model type when it is written into the flash memory.
- Change the TK-260G/270G to PC mode, then attach the interface cable.

#### 5-3. KPG-22 description

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

The KPG-22 is required to interface the TK-260G/270G to the computer. It has a circuit in its D-subconnector (25-pin) case that converts the RS-232C logic level to the TTL level.

The KPG-22 connects the SP/MIC connector of the TK-260G/270G to the computers RS-232C serial port.

#### 5-4. Programming software description

The KPG-56D programming disk is supplied in 3-1/2" disk format. The software on this disk allows a user to program the TK-260G/270G radios via a programming interface cable (KPG-22).

#### 5-5. Programming with IBM PC

If data is transferred to the transceiver from an IBM PC with the KPG-56D, the destination data (basic radio information) for each set can be modified. Normally, it is not necessary to modify the destination data because their values are determined automatically when the frequency range (frequency type) is set.

The values should be modified only if necessary. Data can be programmed into the flash memory in RS-232C format via the universal connector.

KPG-56D installation manual part No. : B62-1153-XX

### 6. Firmware Programming Mode

#### 6-1. Preface

Flash memory is mounted on the TK-260G/270G. This allows the TK-260G/270G to be upgraded when new features are released in the future. (For details on how to obtain the firmware, contact Customer Service.)

#### 6-2. Connection procedure

Connect the TK-260G/270G to the personal computer (IBM PC or compatible) with the interface cable (KPG-22). (Connection is the same as in the PC Mode.)

#### 6-3. Programming

1. Start up the programming software (KPG-56D), select "firmware program" in the "Program" item, and press the Return key on your personal computer. This starts up the firmware programmer.
2. The top screen is displayed. Press any key to advance to the next screen.
3. Set the communications speed (normally, 57600 bps) and communications port in the Setup item.
4. Set the firmware to be updated by File select (=F1).
5. Hold down the [LAMP] and [MON] switches on the TK-260G/270G, and press the power switch.  
When the [LAMP] and [MON] switches are held down for two seconds, "PROG576" appears on the display and the LED lights orange. When "PROG576" is displayed, release the switches (TK-270G only).
6. Check the connection between the TK-260G/270G and the personal computer, and make sure the TK-260G/270G is in Program mode.
7. Press F10 on the personal computer. A window opens on the display to indicate the writing progress. When the TK-260G/270G begins to receive data, the LED lights green.
8. When data is received successfully, a checksum appears on the display.

(Since the TK-260G does not have a display, check the checksum with the FPU (KPG-56D).)

# TK-260G/270G

## REALIGNMENT

- If you want to continue programming other TK-260G/270Gs, repeat steps 5 to 8.

### Notes:

- To start the Firmware Programmer from KPG-56D, the Fpro path must be set up by the KPG-56D Setup.
- This mode cannot be entered if the Firmware Programming mode is set to Disable in the Programming software (KPG-56D).
- When programming the firmware, it is recommend to copy the data from the floppy disk to your hard disk before you update the radio firmware.  
Directly copying from the floppy disk to the radio may not work because the access speed is too slow.

### 6-4. Function

- If you press the [MON] switch while "PROGXXX" is displayed, the checksum is displayed. If you press the [MON] switch again (while the checksum is displayed), "PROGXXX" is redisplayed.
- A transmission speed can be selected by pressing the [LAMP] switch while "PROGXXX" is displayed.
  - 12900 bps: The LED flashes green and red alternately.
  - 38400 bps: The LED flashes orange.
  - 57600 bps: The LED lights orange.

### Note:

Normally, write in the high-speed mode.

## 7. Clone Mode

Programming data can be transferred from one radio to another by connecting them via their SP/MIC connectors. The operation is as follows (the transmit radio is the master and the receive radio is the slave).

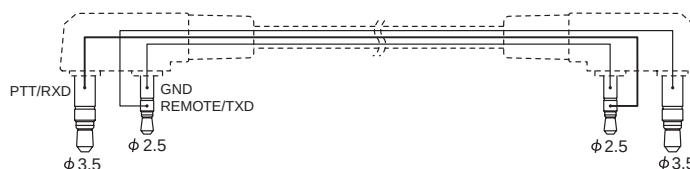
- Turn the master TK-270G power ON with the [LAMP]+[▶] keys held down. The TK-270G displays "▯▯CLONE▯".
- Power on the slave TK-260G/270G.
- Connect the cloning cable to the SP/MIC connectors on the master and slave.
- Press the [O] key on the master while the master displays "▯▯CLONE▯". The data of the master is sent to the slave. While the slave is receiving the data, "-PC-" is displayed. When cloning of data is completed, the master displays "END", and the slave automatically operates in the User mode. The slave can then be operated by the same program as the master.
- The other slave can be continuously cloned. When the [O] key on the master is pressed while the master displays "END", and the slave the master displays "▯▯CLONE▯". Carry out the operation in steps 2 to 4.

**Note:** You can clone the programmed data between the transceiver listed below.  
Frequency version must be same.

| Slave \ Master | TK-260G<br>K<br>TK-270G<br>K | TK-260G<br>M<br>TK-270G<br>M | TK-760G<br>K<br>TK-762G<br>K | TK-760G<br>M<br>TK-762G<br>M |
|----------------|------------------------------|------------------------------|------------------------------|------------------------------|
| TK-270G<br>K   | ○                            | ×                            | ○                            | ×                            |
| TK-270G<br>M   | ×                            | ○                            | ×                            | ○                            |

Cloning cable parts No.

E30-3410-05 (TK-270G→TK-260G/270G)



E30-3411-05 (TK-270G→TK-760G/762G)

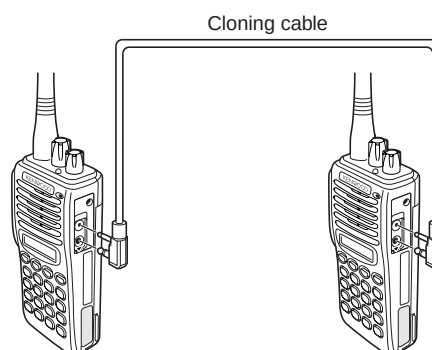
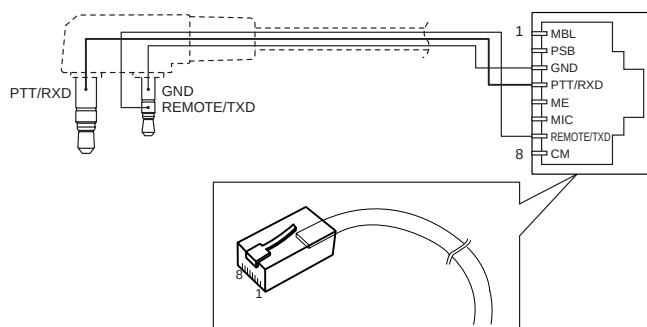


Fig. 2

# REALIGNMENT

## 8. Self Programming Mode (TK-270G only)

Write mode for frequency data and signalling etc. Mainly used by the person maintaining the user equipment.

### 8.1 Self programming mode setting

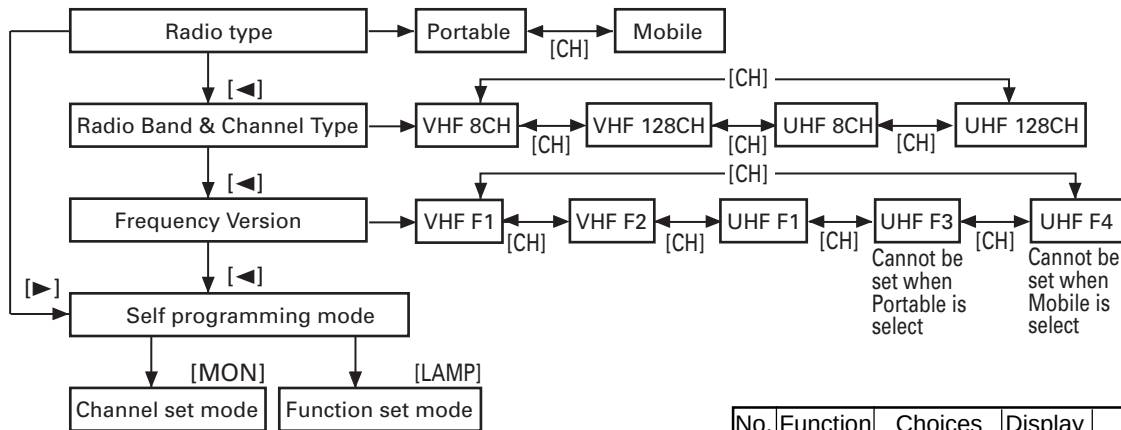
Remove D17 from the TX-RX unit (Figure 3) (K models only). Hold down the [LAMP]+[●] switches and turn the power switch on.

When the self programming mode is entered, [SELF] appears on the display. The mode changes automatically to Model Select Mode and "PORTABLE" is displayed in about one second.

#### Note :

This mode (self programming mode) cannot be set when it has been disabled with the FPU.

#### • Flow Chart



#### Note :

IF the radio type of TK-270G was temporarily set to "Mobile" for the cloning purposes, "UNPROG" is displayed (at User Mode) when the TK-270G is turned on.

In this case, please set the radio type back to "Portable" at Model Select Mode menu.

### 8-2. Channel Setting Mode

This is a mode for making channel settings with the panel keys without using the FPU.

Pressing [MON] when "SELF" is displayed, sets Channel Setting Mode.

Select an item set using [▶] then change the selection with the encoder.

The data displayed using [◀] is stored in the memory and then proceeds to the next item. Pressing [▶] proceeds to the next item without storing it in the memory.

Press [MON] to set the display to "SELF" and return to reset (default) status.

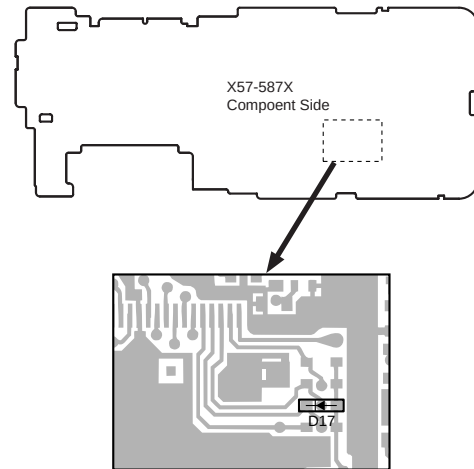


Fig. 3

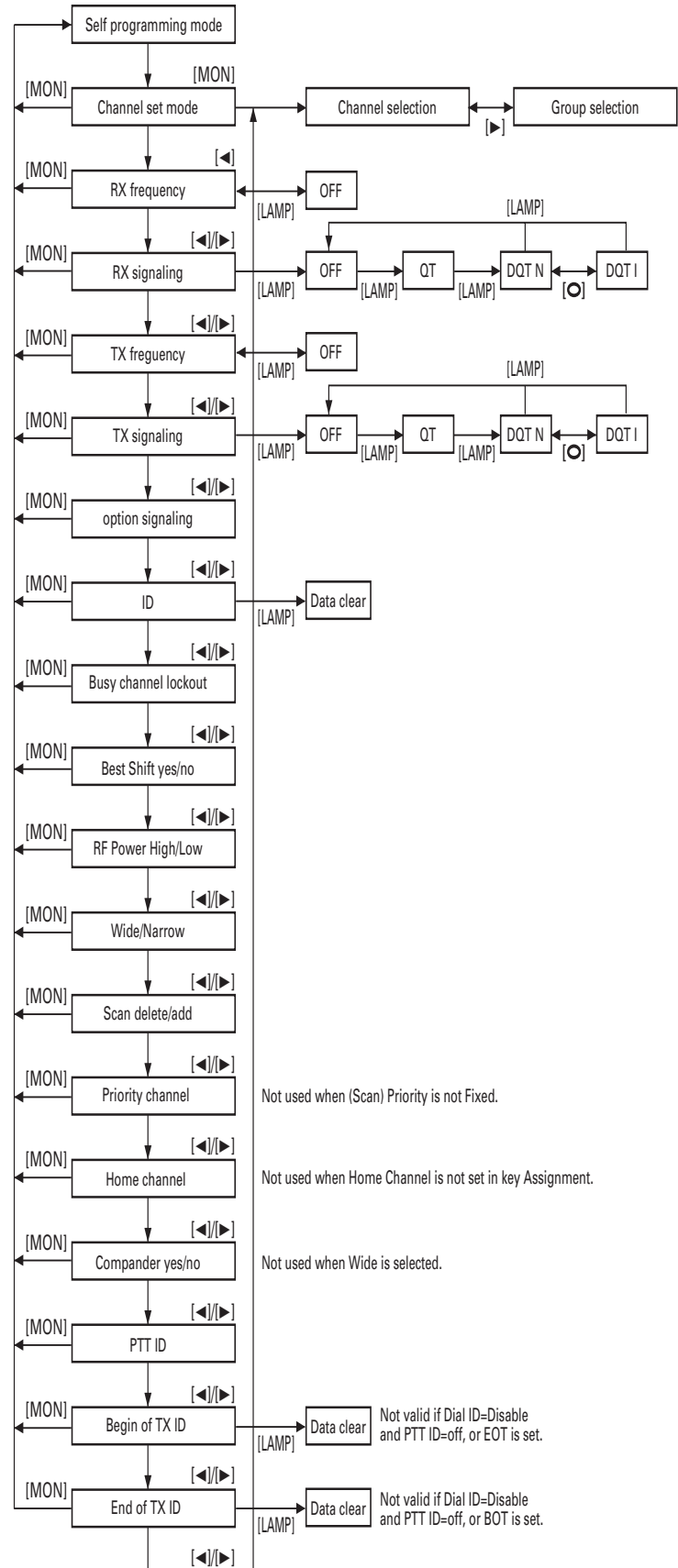
| No. | Function       | Choices                                     | Display               | Remarks                                                                                                                                       |
|-----|----------------|---------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Select Channel | 1-128                                       | 1-1_                  | [▶] : Group selection/ Channel selection change                                                                                               |
|     | Select Group   | 1-128                                       | 1-1_                  |                                                                                                                                               |
|     |                |                                             | 128-1_                |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
| 1   | RX frequency   | Step 2.5kHz-1MHz                            | STP_250<br>STP_1000   | Display when an item is selected or when a step is changed (about 0.5 seconds)<br>[●] Step change<br>VHF : 2.5, 5.0, 6.25, 7.5kHz, 1MHz, Step |
|     |                | Blank                                       | ---                   |                                                                                                                                               |
|     |                | 100.0000-550.0000MHz                        | R.100.0000            |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
| 2   | Rx Signaling   | OFF                                         | ---                   | [LAMP] : Off/QT/DQT switching<br>[●] : Mode switching<br>[○] : Normal/Inverse switching                                                       |
|     |                | QT 67.0-250.3Hz (EIA Mode)                  | QT_67.0<br>QT_250.3   |                                                                                                                                               |
|     |                | QT 67.0-250.3Hz (0.1Hz Step Mode)           | QT_67.0*<br>QT_250.3* |                                                                                                                                               |
|     |                | DQT 000-777 (Normal) (1 Step Mode)          | DQT000N*<br>DQT777N*  |                                                                                                                                               |
|     |                | DQT 023-754 (Normal) (Standard Table Mode)  | DQT023N<br>DQT754N    |                                                                                                                                               |
|     |                | DQT 000-777 (Inverse) (1 Step Mode)         | DQT000I*<br>DQT777I*  |                                                                                                                                               |
|     |                | DQT 023-754 (Inverse) (Standard Table Mode) | DQT023I<br>DQT754I    |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |
|     |                |                                             |                       |                                                                                                                                               |

## REALIGNMENT

| No. | Function             | Choices              | Display    | Remarks                                                                                                          |
|-----|----------------------|----------------------|------------|------------------------------------------------------------------------------------------------------------------|
| 3   | TX frequency         | Step 2.5kHz-1MHz     | STP_250    | Same as RX frequency.                                                                                            |
|     |                      |                      | STP_1000   |                                                                                                                  |
|     |                      | Blank                |            |                                                                                                                  |
|     |                      | 100.0000-550.0000MHz | T.100.0000 |                                                                                                                  |
| 4   | TX Signaling         |                      | Same as    | RX signaling.                                                                                                    |
| 5   | Option Signaling     | OFF                  | NONE       | ← Default                                                                                                        |
|     |                      | DTMF                 | DTMF       |                                                                                                                  |
|     |                      | 2-TONE               | 2TONE      |                                                                                                                  |
| 6   | ID                   | 000-9999999999       | __ID__     | Display when an item is selected (about 0.5 seconds)                                                             |
|     |                      |                      | 12345678   | Display of the current setting (If it is 8 or more digits, scroll it.)                                           |
|     |                      |                      | —987       | Display when a code is input (Input it with DTMF key.)                                                           |
|     |                      | Blank                | —          | [LAMP] : Data clear                                                                                              |
| 7   | Busy Channel Lockout | NO                   | BCL_NO     | ← Default                                                                                                        |
|     |                      | Type 1               | BCL_1      |                                                                                                                  |
|     |                      | Type 2               | BCL_2      |                                                                                                                  |
| 8   | Beat shift           | No                   | SHFT_NO    | ← Default                                                                                                        |
|     |                      | Yes                  | SHFT_YES   |                                                                                                                  |
| 9   | RF Power             | High Power           | PWR_H      | ← Default                                                                                                        |
|     |                      | Low Power            | PWR_L      |                                                                                                                  |
| 10  | Wide/Narrow          | Wide                 | WIDE       |                                                                                                                  |
|     |                      | Narrow               | NARROW     |                                                                                                                  |
| 11  | Scan Delete/ADD      | DELETE               | SCAN_DEL   | Not used for TK-260G                                                                                             |
|     |                      | ADD                  | SCAN_ADD   |                                                                                                                  |
| 12  | Priority Channel     | No                   | P.CH_NO    | Not used when (Scan) Priority is not Fixed.                                                                      |
|     |                      | Yes                  | P.CH_YES   |                                                                                                                  |
| 13  | Home Channel         | No                   | H.CH_NO    | Not used when Home Channel is not set in Key Assignment.                                                         |
|     |                      | Yes                  | H.CH_YES   |                                                                                                                  |
| 14  | Compander            | No                   | COMP_NO    | Not used when Wide is selected.                                                                                  |
|     |                      | Yes                  | COMP_YES   |                                                                                                                  |
| 15  | PTT ID               | OFF                  | P.ID_OFF   |                                                                                                                  |
|     |                      | Begin of TX          | P.ID_1     |                                                                                                                  |
|     |                      | End of TX            | P.ID_2     |                                                                                                                  |
|     |                      | Both                 | P.ID_3     |                                                                                                                  |
| 16  | Begin of TX ID       | 000-9999999999999999 | _BOT_ID_   | Not valid if Dial ID=Disable and PTT ID=OFF, or EOT is set. Display when an item is selected (about 0.5 seconds) |
|     |                      |                      | 12345678   |                                                                                                                  |
|     |                      |                      | —987       |                                                                                                                  |
|     |                      | Blank                | —          |                                                                                                                  |
| 17  | END of TX ID         | 000-9999999999999999 | _EOT_ID_   | Not valid if Dial ID=Disable and PTT ID=OFF, or EOT is set. Display when an item is selected (about 0.5 seconds) |
|     |                      |                      | 12345678   |                                                                                                                  |
|     |                      |                      | —987       |                                                                                                                  |
|     |                      | Blank                | —          |                                                                                                                  |

## • Flow Chart

Channel Setting Mode



## REALIGNMENT

## 8-3. Function Setting Mode

This is a mode for using the panel keys to make function settings without using the FPU, that operate on all channels.

Pressing the [LAMP] when "SELF" is displayed, sets the Function Setting Mode.

Select an item set using [▶] then change the selection with the encoder.

The data displayed using [◀] is stored in the memory and then proceeds to the next item. Pressing [▶] proceeds to the next item without storing it in the memory.

Press [LAMP] to display "SELF" and return to reset (default) status.

## Function Setting Mode

| No.          | Function | Choices           | Display  | Remarks                                             |
|--------------|----------|-------------------|----------|-----------------------------------------------------|
| Function Key |          |                   |          |                                                     |
| 1            | [LAMP]   | No Function       | LAMP_OFF |                                                     |
|              |          | Talk Around       | LAMP_3   | * TK-260G cannot be selected.                       |
|              |          | Display Character | LAMP_5   | * TK-260G cannot be selected.                       |
|              |          | Home Channel      | LAMP_7   | * TK-260G cannot be selected.                       |
|              |          | Channel Down      | LAMP_8   | * TK-260G cannot be selected.                       |
|              |          | Channel Up        | LAMP_9   | * TK-260G cannot be selected.                       |
|              |          | Keylock           | LAMP_10  | * TK-260G cannot be selected.                       |
|              |          | Lamp              | LAMP_11  | ← Default(TK-270G)<br>* TK-260G cannot be selected. |
|              |          | Selectable QT     | LAMP_15  | * TK-260G cannot be selected.<br>M destination only |
|              |          | Monitor A         | LAMP_17  |                                                     |
|              |          | Monitor B         | LAMP_18  |                                                     |
|              |          | Monitor C         | LAMP_19  |                                                     |
|              |          | Monitor D         | LAMP_20  |                                                     |
|              |          | RF Power Low      | LAMP_21  |                                                     |
|              |          | Scan              | LAMP_22  | * TK-260G cannot be selected.                       |
|              |          | Scan DEL/ADD      | LAMP_23  | * TK-260G cannot be selected.                       |
|              |          | Group Down        | LAMP_24  | * TK-260G cannot be selected.                       |
|              |          | Group Up          | LAMP_25  | * TK-260G cannot be selected.                       |
|              |          | Scramble          | LAMP_26  | Only when scrambler is set                          |
| 2            | [MONI]   | No Function       | MON_OFF  |                                                     |
|              |          | Talk Around       | MON_3    | * TK-260G cannot be selected.                       |
|              |          | Display Character | MON_5    | * TK-260G cannot be selected.                       |
|              |          | Home Channel      | MON_7    | * TK-260G cannot be selected.                       |
|              |          | Channel Down      | MON_8    | * TK-260G cannot be selected.                       |
|              |          | Channel Up        | MON_9    | * TK-260G cannot be selected.                       |
|              |          | Keylock           | MON_10   | * TK-260G cannot be selected.                       |
|              |          | Lamp              | MON_11   | * TK-260G cannot be selected.                       |
|              |          | Selectable QT     | MON_15   | * TK-260G cannot be selected.<br>M destination only |
|              |          | Monitor A         | MON_17   | ← Default                                           |

| No. | Function        | Choices           | Display  | Remarks                       |
|-----|-----------------|-------------------|----------|-------------------------------|
| 2   | [MONI]          | Monitor B         | MON_18   |                               |
|     |                 | Monitor C         | MON_19   |                               |
|     |                 | Monitor D         | MON_20   |                               |
|     |                 | RF Power Low      | MON_21   |                               |
|     |                 | Scan              | MON_22   | * TK-260G cannot be selected. |
|     |                 | Scan DEL/ADD      | MON_23   | * TK-260G cannot be selected. |
|     |                 | Group Down        | MON_24   | * TK-260G cannot be selected. |
|     |                 | Group Up          | MON_25   | * TK-260G cannot be selected. |
|     |                 | Scrambler         | MON_26   | Only when scrambler is set    |
| 3   | [O]TK-270G only | No Function       | KEY1_OFF |                               |
|     |                 | Talk Around       | KEY1_3   |                               |
|     |                 | Display Character | KEY1_5   |                               |
|     |                 | Home Channel      | KEY1_7   |                               |
|     |                 | Channel Down      | KEY1_8   |                               |
|     |                 | Channel Up        | KEY1_9   |                               |
|     |                 | Keylock           | KEY1_10  |                               |
|     |                 | Lamp              | KEY1_11  |                               |
|     |                 | Selectable QT     | KEY1_15  | M destination only            |
|     |                 | Monitor A         | KEY1_17  |                               |
|     |                 | Monitor B         | KEY1_18  |                               |
|     |                 | Monitor C         | KEY1_19  |                               |
|     |                 | Monitor D         | KEY1_20  |                               |
|     |                 | RF Power Low      | KEY1_21  |                               |
|     |                 | Scan              | KEY1_22  |                               |
|     |                 | Scan DEL/ADD      | KEY1_23  | ← Default                     |
|     |                 | Group Down        | KEY1_24  |                               |
|     |                 | Group Up          | KEY1_25  |                               |
|     |                 | Scrambler         | KEY1_26  | Only when scrambler is set    |
| 4   | [●]TK-270G only | No Function       | KEY2_OFF |                               |
|     |                 | Talk Around       | KEY2_3   |                               |
|     |                 | Display Character | KEY2_5   |                               |
|     |                 | Home Channel      | KEY2_7   |                               |
|     |                 | Channel Down      | KEY2_8   |                               |
|     |                 | Channel Up        | KEY2_9   |                               |
|     |                 | Keylock           | KEY2_10  |                               |
|     |                 | Lamp              | KEY2_11  |                               |
|     |                 | Selectable QT     | KEY2_15  | M destination only            |
|     |                 | Monitor A         | KEY2_17  |                               |
|     |                 | Monitor B         | KEY2_18  |                               |
|     |                 | Monitor C         | KEY2_19  |                               |
|     |                 | Monitor D         | KEY2_20  |                               |
|     |                 | RF Power Low      | KEY2_21  |                               |
|     |                 | Scan              | KEY2_22  |                               |
|     |                 | Scan DEL/ADD      | KEY2_23  |                               |
|     |                 | Group Down        | KEY2_24  |                               |

# TK-260G/270G

## REALIGNMENT

| No. | Function        | Choices           | Display  | Remarks                    |
|-----|-----------------|-------------------|----------|----------------------------|
| 4   | [●]TK-270G only | Group Up          | KEY2_25  |                            |
|     |                 | Scrambler         | KEY2_26  | Only when scrambler is set |
| 5   | [◀]TK-270G only | No Function       | KEY3_OFF |                            |
|     |                 | Talk Around       | KEY3_3   | ← Default                  |
|     |                 | Display Character | KEY3_5   |                            |
|     |                 | Home Channel      | KEY3_7   |                            |
|     |                 | Channel Down      | KEY3_8   |                            |
|     |                 | Channel Up        | KEY3_9   |                            |
|     |                 | Keylock           | KEY3_10  |                            |
|     |                 | Lamp              | KEY3_11  |                            |
|     |                 | Selectable QT     | KEY3_15  | M destination only         |
|     |                 | Monitor A         | KEY3_17  |                            |
|     |                 | Monitor B         | KEY3_18  |                            |
|     |                 | Monitor C         | KEY3_19  |                            |
|     |                 | Monitor D         | KEY3_20  |                            |
|     |                 | RF Power Low      | KEY3_21  | ← Default                  |
|     |                 | Scan              | KEY3_22  |                            |
|     |                 | Scan DEL/ADD      | KEY3_23  |                            |
|     |                 | Group Down        | KEY3_24  |                            |
|     |                 | Group Up          | KEY3_25  |                            |
|     |                 | Scrambler         | KEY3_26  | Only when scrambler is set |
| 6   | [▶]TK-270G only | No Function       | KEY4_OFF |                            |
|     |                 | Talk Around       | KEY4_3   |                            |
|     |                 | Display Character | KEY4_5   |                            |
|     |                 | Home Channel      | KEY4_7   |                            |
|     |                 | Channel Down      | KEY4_8   |                            |
|     |                 | Channel Up        | KEY4_9   |                            |
|     |                 | Keylock           | KEY4_10  |                            |
|     |                 | Lamp              | KEY4_11  |                            |
|     |                 | Selectable QT     | KEY4_15  | M destination only         |
|     |                 | Monitor A         | KEY4_17  |                            |
|     |                 | Monitor B         | KEY4_18  |                            |
|     |                 | Monitor C         | KEY4_19  |                            |
|     |                 | Monitor D         | KEY4_20  |                            |
|     |                 | RF Power Low      | KEY4_21  | ← Default                  |
|     |                 | Scan              | KEY4_22  |                            |
|     |                 | Scan DEL/ADD      | KEY4_23  |                            |
|     |                 | Group Down        | KEY4_24  |                            |
|     |                 | Group Up          | KEY4_25  |                            |
|     |                 | Scrambler         | KEY4_26  | Only when scrambler is set |
| 7   | [CH]            | Channel Up/Down   | CH_UP/DN | ← Default                  |
|     |                 | Group Up/Down     | GR_UP/DN |                            |
|     |                 | No Function       | KNOB_OFF |                            |

| No.              | Function                               | Choices                                                                                          | Display                                                             | Remarks                                             |
|------------------|----------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------|
| Optional Feature |                                        |                                                                                                  |                                                                     |                                                     |
| 8                | Power On Tone                          | YES/NO                                                                                           | PONT_YES                                                            | Default: YES                                        |
| 9                | Control Tone                           | YES/NO                                                                                           | CNTT_YES                                                            | Default: YES                                        |
| 10               | Warning Tone                           | YES/NO                                                                                           | WART_YES                                                            | Default: YES                                        |
| 11               | Time Out Timer                         | OFF, 15-300/15s Step                                                                             | TOT_60                                                              | Default: 60s                                        |
| 12               | TOT Pre-Alert Time                     | OFF, 1-10/1s Step                                                                                | TOTP_PFF                                                            | Cannot be set when TOT is OFF. Default: OFF         |
| 13               | TOT Rekey Time                         | OFF, 1-60/1s Step                                                                                | TOTK_OFF                                                            | Cannot be set when TOT is OFF. Default: OFF         |
| 14               | TOT Reset Time                         | OFF, 1-15/1s Step                                                                                | TOTS_OFF                                                            | Cannot be set when TOT is OFF. Default: OFF         |
| 15               | Clear to Transpond (BCL for Transpond) | YES<br>NO                                                                                        | CTT_YES<br>CTT_NO                                                   | ← Default                                           |
| 16               | Battery Save                           | ON<br>OFF                                                                                        | BATT_ON<br>BATT_OFF                                                 | ← Default                                           |
| 17               | Signaling                              | OR<br>AND                                                                                        | SIG_OR<br>SIG_AND                                                   | ← Default                                           |
| 18               | Squelch Level                          | 0-9/1 Step                                                                                       | SQL_5                                                               | Default: 5                                          |
| 19               | Priority                               | None<br>Fixed<br>Selected                                                                        | PRI_NONE<br>PRI_FIX_<br>PRI_SEL_                                    | ← Default                                           |
| 20               | Lock Back Time A                       | 0.5-5.0/0.05                                                                                     | LBA_500                                                             | Default: 500ms Cannot be set when Priority = none.  |
| 21               | Lock Back Time B                       | 0.5-5.0/0.05                                                                                     | LBB_2000                                                            | Default: 2000ms Cannot be set when Priority = none. |
| 22               | Revert Channel                         | Selected<br>Last Called<br>Last Used<br>Selected + Talk Back<br>Priority<br>Priority + Talk Back | REV_SEL<br>REV_L/C_<br>REV_L/U_<br>REV_S/T_<br>REV_PRI_<br>REV_P/T_ | ← Default                                           |
| 23               | Dropout Delay Time                     | 0-300/1s                                                                                         | DODT___3                                                            | Default: 3s                                         |
| 24               | Dwell Time                             | 0-300/1s                                                                                         | DWL___3                                                             | Default: 3s                                         |
| DTMF             |                                        |                                                                                                  |                                                                     |                                                     |
| 25               | Digit Time                             | 50-200/10ms                                                                                      | DIGT_50                                                             | Default: 50ms                                       |
| 26               | Inter Digit Time                       | 50-1000/50ms                                                                                     | IDT___50                                                            | Default: 50ms                                       |
| 27               | First Digit Time                       | 50-200/10ms                                                                                      | FDT___50                                                            | Default: 50ms                                       |
| 28               | First Digit Delay                      | 50-1000/50ms                                                                                     | RIST_100                                                            | Default: 100ms                                      |
| 29               | Rise Time with QT                      | 50-1000/50ms                                                                                     | RTWQ_100                                                            | Default: 100ms                                      |
| 30               | DIAL ID                                | Enable<br>Diabile                                                                                | DID_ENA<br>DID_DIS                                                  | ← Default                                           |
| 31               | No. of DTMF Key                        | 12Key<br>16Key                                                                                   | NODK_12<br>NODK_16                                                  | ← Default                                           |
| 32               | DTMF Hold Time                         | ON<br>OFF                                                                                        | DHT__ON<br>DHT__OFF                                                 | ← Default                                           |
| 33               | Store and Send                         | ON<br>OFF                                                                                        | SAS__ENA<br>SAS__CSQ                                                | ← Default                                           |



## REALIGNMENT

| No.    | Function                     | Choices                                                                                          | Display                                                  | Remarks                                                      |
|--------|------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------|
| 34     | D Key Assignment             | D Code<br>1-16/1s                                                                                | DKA_D_CD<br>DKA_16__                                     | ← Default                                                    |
| 35     | DTMF Signaling               | Code SQ<br>SEL CALL                                                                              | DTMF_OFF<br>DTMF_SEL                                     | ← Default                                                    |
| 36     | Inter Mediaate Code          | 0-9,A-D,*,#                                                                                      | IMC__#_                                                  | Default: # (Can be set only when DTMF signaling = SEL CALL.) |
| 37     | Group Code                   | 0-9,A-D,*,#                                                                                      | GPCD_FF_                                                 | Default;OFF                                                  |
| 38     | Auto Rest Time               | OFF<br>1-15/1s                                                                                   | ART_OFF_<br>ART__10                                      | Default;10s                                                  |
| 39     | Call Alert/Transpond         | OFF<br>Call Alert<br>Transpond (Call Alert)<br>Transpond (ID Code)<br>Transpond (transpond Code) | CA/T_OFF<br>CA/T_C/A<br>CA/T_T/A<br>CA/T_T/I<br>CA/T_T/T | ← Default                                                    |
| Others |                              |                                                                                                  |                                                          |                                                              |
| 40     | Panel Test/panel Tuning MODE | Enable<br>Disable                                                                                | PTM_ENA<br>PTM_DIS                                       | ← Default (Not used for TK-260G)                             |

## 8-4. Memory Reset Mode

This mode is used to clear data for functions that can be set in Self Programming Mode or to return to reset values (default).

Pressing [O] when "SELF" is shown, sets the display to "CANCEL".

Turning the encoder alternately switches the display between "CANCEL"↔"READY".

Pressing [O] when "READY" is shown, clears the data and sets the display to "CLEAR".

Pressing [O] again, returns the display to "SELF".

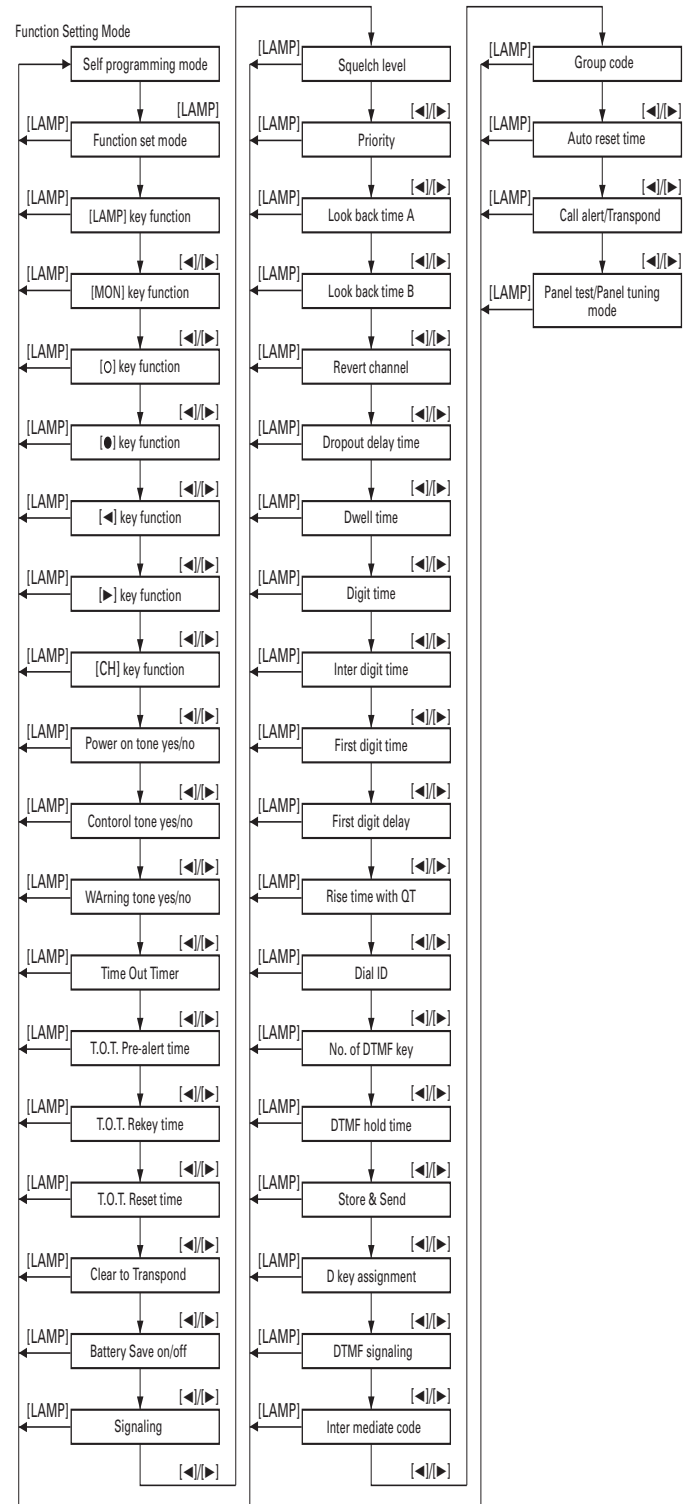
Pressing [O] when "CANCEL" is shown, returns the display to "SELF" without resetting the data.

When the [O] switch is pressed while "SELF" is displayed, the memory is reset.

When the memory is reset, mode data and model data are not reset.

The TK-260G cannot reset the memory.

- **Flow Chart**

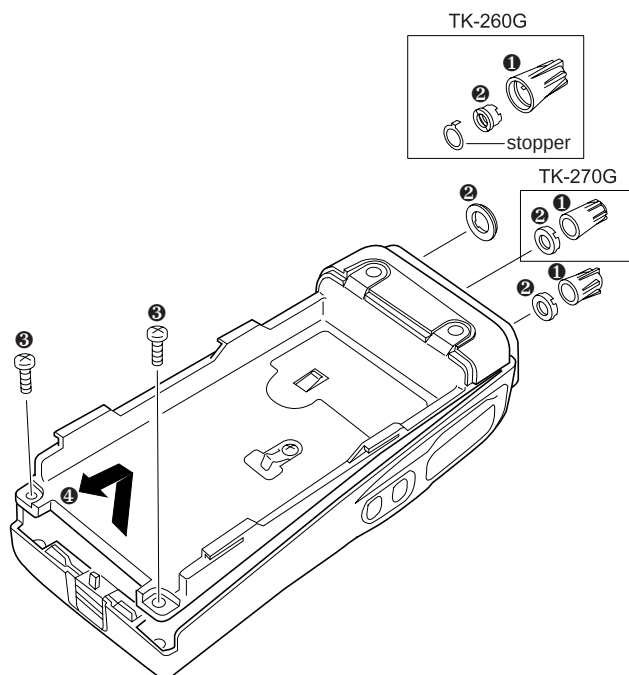


# TK-260G/270G

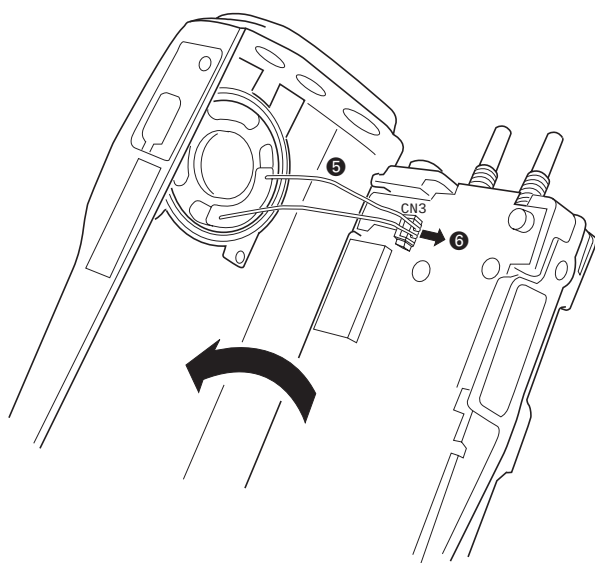
## DISASSEMBLY FOR REPAIR

### Separating the case assembly from the chassis.

1. Remove the two knobs ① and three round units ②.
2. Remove the two screws ③.
3. Expand the right and left sides of the bottom of the case assembly, lift the chassis, and remove it from the case assembly ④.



4. Taking care not to cut the speaker lead ⑤, open the chassis and case assembly, and pull the speaker lead with connector ⑥.



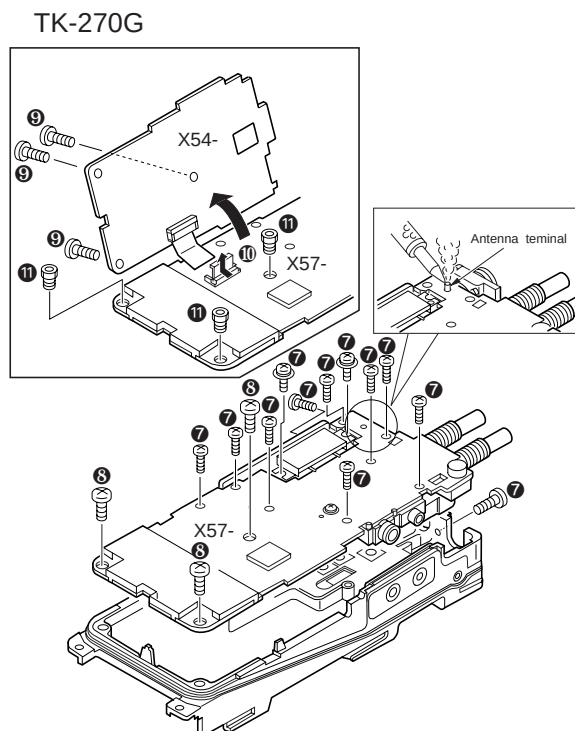
### Separating the chassis from the unit.

#### • TK-260G

1. Remove the twelve small screws ⑦, and the three large screws ⑧.
2. Remove the solder from the antenna terminal using a soldering iron, then lift the unit off (X57).

#### • TK-270G

1. Remove the three screws ⑨.  
Lift the unit (X54), and rise up the connector lever in the arrow with your finger ⑩.  
Remove the three hexagonal bosses ⑪, and remove the twelve screws ⑦.
2. Remove the solder from the antenna terminal using a soldering iron, then lift the unit off (X57).







## CIRCUIT DESCRIPTION

### 5) Audio amplifier circuit

The demodulated signal from IC4 is amplified by IC16 (2/2), high-pass filtered, low-pass filtered, high-pass filtered, band-eliminate filtered, and de-emphasized by IC14.

The signal then goes through an AF amplifier IC15 (2/2), an AF volume control (VR2), and is routed to an audio power amplifier (IC11) where it is amplified and output to the speaker.

### 6) Squelch

Part of the AF signal from the IC enters the FM IC (IC4) again, and the noise component is amplified and rectified by a filter and an amplifier to produce a DC voltage corresponding to the noise level.

The DC signal from the FM IC goes to the analog port of the microprocessor (IC13). IC13 determines whether to output sounds from the speaker by checking whether the input voltage is higher or lower than the preset value.

To output sounds from the speaker, IC6 sends a high signal to the SP MUTE line and turns IC11 on through Q32, Q33, Q34 and Q30. (See Fig. 4)

### 7) Receive signaling

#### (1) QT/DQT (Low-speed data)

300Hz and higher audio frequencies of the output signal from IF IC are cut by a low-pass filter (IC19). The resulting signal enters the microprocessor (IC13). IC13 determines whether the QT or DQT matches the preset value, and controls the SP MUTE and the speaker output sounds according to the squelch results.

#### (2) 2-TONE (High-speed data)

Part of the received AF signal output from the AF amplifier IC16(2/2), and then passes through an audio processor (IC14), goes to the other AF amplifier IC15(1/2), is compared, and then goes to IC13. IC13 checks whether 2-TONE data is necessary. If it matches, IC13 carries out a specified operation, such as turning the speaker on. (See Fig. 4)

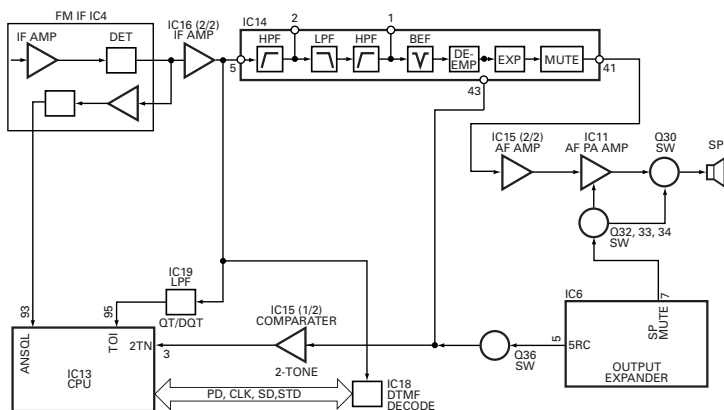


Fig. 4 AF Amplifier and Squelch

### (3) DTMF (High-speed data)

The DTMF input signal from the IF IC (IC4) is amplified by IC16(2/2) and goes to IC18, the DTMF decoder. The decoded information is then processed by the CPU. During transmission and standby, the DTMF IC is set to the power down mode when 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.

### 3. PLL frequency synthesizer

The PLL circuit generates the first local oscillator signal for reception and the RF signal for transmission.

#### 1) PLL

The frequency step of the PLL circuit is 5 or 6.25kHz.

A 16.8MHz reference oscillator signal is divided at IC2 by a fixed counter to produce an oscillator (VCO) output signal which is buffer amplified by Q3 then divided in IC2 by a dual-module programmable counter. The divided signal is compared in phase with the 5 or 6.25kHz reference signal from the phase comparator in IC2. The output signal from the phase comparator is filtered through a low-pass filter and passed to the VCO to control the oscillator frequency. (See Fig. 5)

#### 2) VCO

The operating frequency is generated by Q2 in transmit mode and Q10 in receive mode. The oscillator frequency is controlled by applying the VCO control voltage, obtained from the phase comparator, to the varactor diodes (D2 and D4 in transmit mode and D9 and D11 in receive mode). The T/R pin is set high in receive mode causing Q7 and Q8 to turn Q2 off and Q10 on.

The T/R pin is set low in transmit mode. The outputs from Q10 and Q2 are amplified by Q3 and sent to the buffer amplifiers.

The outputs from Q3 to Q4 is divided into 1/2 in passing through a Divider IC (IC301), and goes to the RF amplifiers.

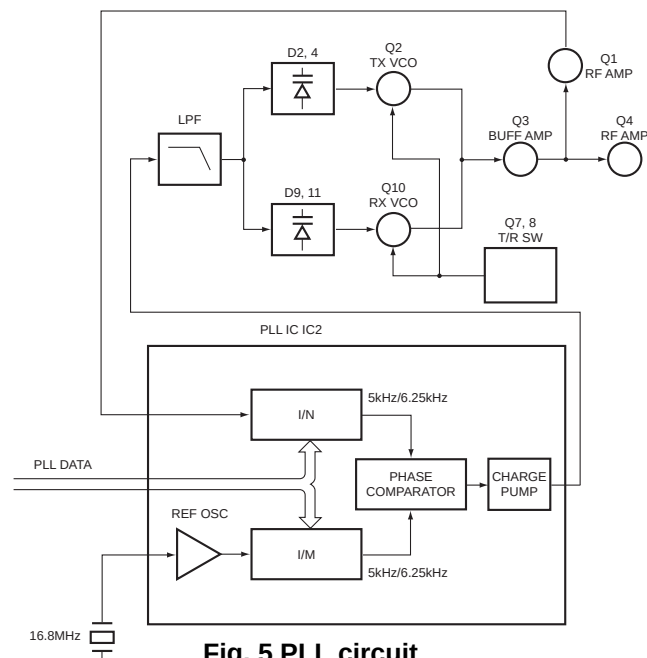


Fig. 5 PLL circuit

# TK-260G/270G

## CIRCUIT DESCRIPTION

### 3) UNLOCK DETECTOR

If a pulse signal appears at the LD pin of IC2, an unlock condition occurs, and the DC voltage obtained from D1, R1, and C6 causes the voltage applied to the microprocessor to go low. When the microprocessor detects this condition, the transmitter is disabled, ignoring the push-to-talk switch input signal. (See Fig. 6)

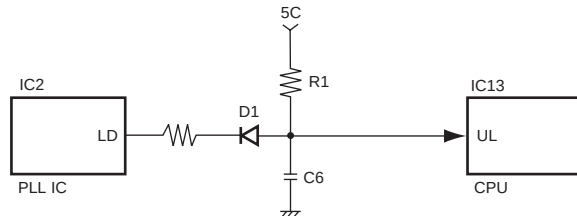


Fig. 6 Unlock detector circuit

## 4. Transmitter System

### 1) Microphone amplifier

The signal from the microphone passes through the limiter circuit in D23, and through the high-pass filter, the ALC circuit, the low-pass filter, the high-pass filter, and pre-emphasis/IDC circuit IC14. When encoding DTMF, the mute switch (Q35) is turned OFF for muting the microphone input signal.

The signal passes through the D/A converter (IC17) for the maximum deviation adjustment, and goes to the VCXO modulation input.

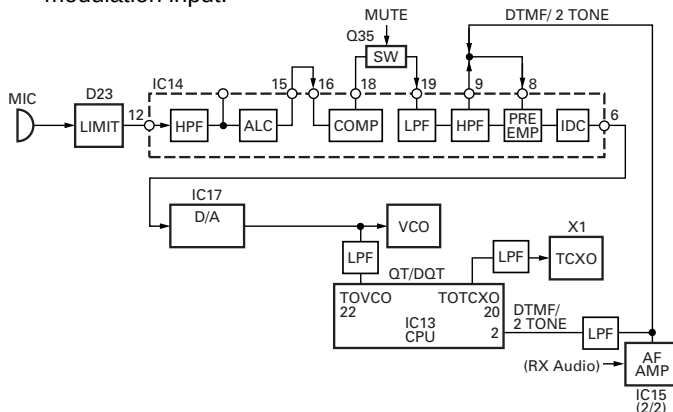


Fig. 7 Microphone amplifier

### 2) Drive and Final amplifier

The signal from the T/R switch (D5 is on) is amplified by the drive amplifier (Q6) to 50mW.

The output of the drive amplifier is amplified by the RF power amplifier (IC1) to 5.0W (1W when the power is low). The RF power amplifier consists of two MOS FET stages. The output of the RF power amplifier is then passed through the harmonic filter (LPF) and antenna switch (D3 is on) and applied to the antenna terminal.

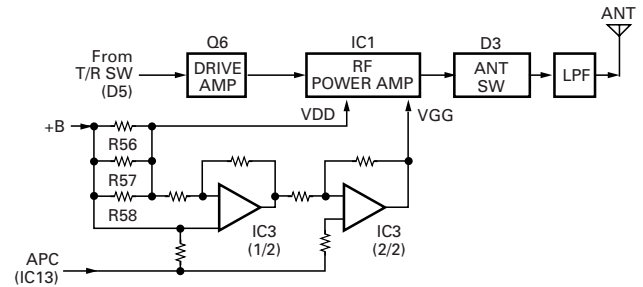


Fig. 8 Drive and final amplifier and APC circuit

### 3) APC circuit

The APC circuit always monitors the current flowing through the RF power amplifier (IC1) and keeps a constant current. The voltage drop at R56, R57 and R58 is caused by the current flowing through the RF power amplifier and this voltage is applied to the differential amplifier IC3(1/2). IC3(2/2) compares the output voltage of IC3(1/2) with the reference voltage from IC13, and the output of IC3(2/2) controls the VGG of the RF power amplifier to make both voltages the same.

The change of power high/low is carried out by the change of the reference voltage.

### 4) Encode signaling

#### (1) QT/DQT (Low-speed data)

QT,DQT data of the TOTCXO Line is output from pin 20 of the CPU. The signal passes through a low-pass CR filter and goes to the TCXO(X1).

The QT,DQT data of the TOVCO Line is output from pin 22 of the CPU. The signal passes through a low pass CR filter, mixes with the audio signal, and goes to the VCO modulation input. TX deviation is adjusted by the CPU. (See fig.7)

#### (2) DTMF/2 TONE (High-speed data)

High-speed data is output from pin 2 of the CPU. The signal passes through a low-pass CR filter, and provides a TX and SP out tone, and is then applied to the audio processor (IC14). The signal is mixed with the audio signal and goes to the VCO.

TX deviation is adjusted by the CPU. (See fig.7)

## 5. Power supply

There are five 5V power supplies for the microprocessor: 5V, 5M, 5C, 5R, and 5T. 5V is always output while the power is on. 5M is always output, but turns off when the power is turned off to prevent malfunction of the microprocessor. 5C is a common 5V and is output when SAVE is not set to OFF.

5R is 5V for reception and output during reception.

5T is 5V for transmission and output during transmission.

## CIRCUIT DESCRIPTION

### 6. Control Circuit

The control circuit consists of a microprocessor (IC13) and its peripheral circuits. It controls the TX-RX unit and transfers data to and from the display unit. IC13 mainly performs the following:

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

#### 1) Frequency shift circuit

The microprocessor (IC13) operates at a clock of 9.8304MHz. This oscillator has a circuit that shifts the frequency by BEAT SHIFT SW (Q31).

#### 2) Memory circuit

Memory circuit consists of the CPU (IC13) and a flash memory (IC12). A flash memory has 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 device. Data, such as DTMF memorise and the operating status, are programmed into the EEPROM (IC10).

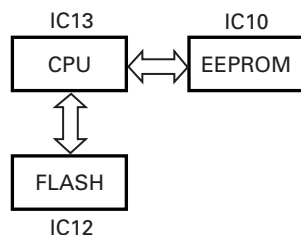
#### • Flash Memory

**Note :** The flash memory holds data such as written with the FPU (KPG-56D), and firmware program (User mode, Test mode, Tuning mode, etc.). This data must be rewritten when replacing the flash memory.

#### • EEPROM

**Note :** The EEPROM stores tuning data (Deviation, Squelch, etc.).

Realign the transceiver after replacing the EEPROM.



**Fig. 9 Memory circuit**

### 3) Low battery warning

The battery voltage is monitored by the microprocessor (IC13). When the battery voltage falls below the voltage set by the Low Battery Warning adjustment, the LED flashes red to notify the operator that it is time to replace the battery. If the battery voltage falls even more (approx. 5.8V), a beep sounds and transmission is stopped.

| Low battery warning                                                    | Battery condition                                                         |
|------------------------------------------------------------------------|---------------------------------------------------------------------------|
| The red LED flashes during transmission.                               | The battery voltage is low but the transceiver is still usable.           |
| The red LED flashes and a continuous beep sounds while PTT is pressed. | The battery voltage is low and the transceiver is not able to make calls. |

### 7. Optional Board Terminal

Terminals for mounting the option board are provided at the bottom edge of the TX-RX unit. The table below shows the correspondence between the board and terminals.

#### Optional Board Terminal Function (CN5)

| Pin | Name    | I/O | Function                          |
|-----|---------|-----|-----------------------------------|
| 1   | GND     | -   | GND                               |
| 2   | SB      | O   | Power output after power switch   |
| 3   | AUX3    | I/O | Board control                     |
| 4   | TXAFI   | I   | Modulation output from board      |
| 5   | AUX2    | I/O | Board control                     |
| 6   | AUX6    | O   | Board control                     |
| 7   | AUX1    | I   | Board control                     |
| 8   | AUX5    | O   | Board control                     |
| 9   | AUX4    | O   | Board control                     |
| 10  | TXAFO   | O   | Modulation input to board         |
| 11  | 5C      | O   | 5V                                |
| 12  | RXAFO   | O   | Received signal input to board    |
| 13  | NC      | -   | NC                                |
| 14  | RXAFI   | I   | Received signal output from board |
| 15  | NC      | -   | NC                                |
| 16  | ALTTONE | I   | ALART TONE output form board      |
| 17  | NC      | -   | NC                                |
| 18  | NC      | -   | NC                                |
| 19  | NC      | -   | NC                                |
| 20  | GND     | -   | GND                               |

## CIRCUIT DESCRIPTION/SEMICONDUCTOR DATA

## 8. CONTROL SYSTEM

Keys and channel selector circuit.

The signal from the keys and channel selector are directly input to the microprocessor, as shown in fig. 10.

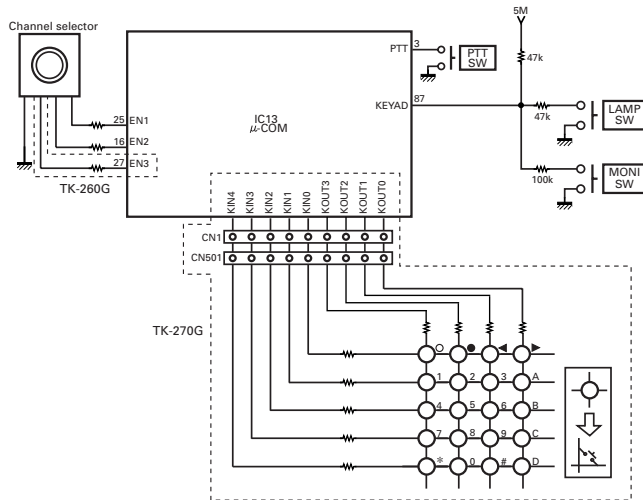
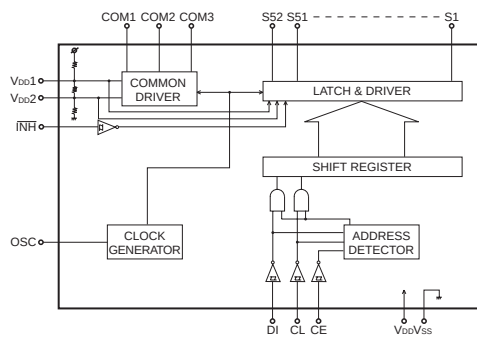


Fig. 10 Control system

## SEMICONDUCTOR DATA

LCD Driver : LC75823W (Display UNIT IC501)  
(TK-270G only)

## ■ Block diagram



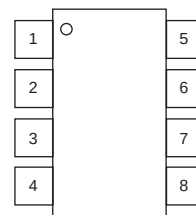
## ■ Pin function

| Pin No. | Name                    | I/O | Active | Function                                                                                                             |
|---------|-------------------------|-----|--------|----------------------------------------------------------------------------------------------------------------------|
| 1-52    | S1-S52                  | O   | -      | Segment output for displaying data transferred from serial data.                                                     |
| 53-55   | COM1-COM3               | O   | -      | Common drive output.<br>Frame frequency $f_o = (f_{osc}/384)\text{Hz}$                                               |
| 56      | VDD                     | -   | -      |                                                                                                                      |
| 57      | $\overline{\text{INH}}$ | I   | L      | The display to turn off<br>$\overline{\text{INT}}=\text{L}$ : Turn off<br>$\overline{\text{INT}}=\text{H}$ : Turn on |
| 58      | VDD1                    | I   | -      | Apply 2/3 the LCD drive bias voltage from outside. If 1/2 the bias is applied, connect to VDD2.                      |
| 59      | VDD2                    | I   | -      | Apply 1/3 the LCD drive bias voltage from outside. If 1/2 the bias is applied, connect to VDD1.                      |

| Pin No. | Name | I/O | Active     | Function                                                                             |
|---------|------|-----|------------|--------------------------------------------------------------------------------------|
| 60      | VSS  | -   | -          |                                                                                      |
| 61      | OSC  | I/O | -          | Oscillation terminal                                                                 |
| 62      | CE   | I   | H          | Chip enable. Serial data transfer terminal. Connected to the microprocessor.         |
| 63      | CL   | I   | $\uparrow$ | Synchronizing clock. Serial data transfer terminal. Connected to the microprocessor. |
| 64      | DI   | I   | -          | Transfer data. Serial data transfer terminal. Connected to the microprocessor.       |

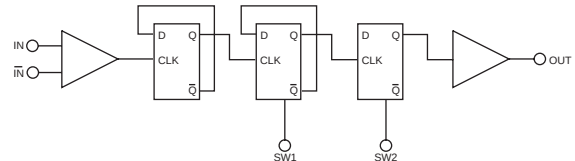
## UPB1509GV (IC301)

## ■ Pin connection diagram



| Pin No. | Pin Name               |
|---------|------------------------|
| 1       | V <sub>CC1</sub>       |
| 2       | IN                     |
| 3       | $\overline{\text{IN}}$ |
| 4       | GND                    |
| 5       | SW1                    |
| 6       | SW2                    |
| 7       | OUT                    |
| 8       | V <sub>CC2</sub>       |

## ■ Block diagram



## ■ Pin Function

| Pin No. | Pin name               | Applied voltage | Pin voltage | Functions and uses                                                                                                                                                                                                                                                                                                          |  |  |     |  |   |   |     |   |     |     |   |     |     |
|---------|------------------------|-----------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----|--|---|---|-----|---|-----|-----|---|-----|-----|
| 1       | V <sub>CC1</sub>       | 2.2-2.5         | -           | Power supply voltage pin for the input amplifier section and division circuit. Connect a bypass capacitor to this pin to reduce the high-frequency impedance with the ground (for example, 1000 pF).                                                                                                                        |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 2       | IN                     | -               | 1.7-4.95    | Signal input pin. Connect a coupling capacitor to this pin for DC cutting with an external circuit (for example, 1000 pF).                                                                                                                                                                                                  |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 3       | $\overline{\text{IN}}$ | -               | 1.7-4.95    | Input signal bypass pin. Connect a bypass capacitor to this pin to reduce the high-frequency impedance with the ground (for example, 1000 pF).                                                                                                                                                                              |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 4       | GND                    | 0               | -           | Ground pin. Connect it with the ground pattern. The ground pattern on the PC board should be wide enough to minimize impedance.                                                                                                                                                                                             |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 5       | SW1                    | H/L             | -           | Division ratio setting pin. The division ratio can be set by the following voltage: <div><table><tr><td colspan="2" rowspan="2"></td><td colspan="2">SW2</td></tr><tr><td>H</td><td>L</td></tr><tr><td rowspan="2">SW1</td><td>H</td><td>1/2</td><td>1/4</td></tr><tr><td>L</td><td>1/4</td><td>1/2</td></tr></table></div> |  |  | SW2 |  | H | L | SW1 | H | 1/2 | 1/4 | L | 1/4 | 1/2 |
|         |                        | SW2             |             |                                                                                                                                                                                                                                                                                                                             |  |  |     |  |   |   |     |   |     |     |   |     |     |
|         |                        | H               | L           |                                                                                                                                                                                                                                                                                                                             |  |  |     |  |   |   |     |   |     |     |   |     |     |
| SW1     | H                      | 1/2             | 1/4         |                                                                                                                                                                                                                                                                                                                             |  |  |     |  |   |   |     |   |     |     |   |     |     |
|         | L                      | 1/4             | 1/2         |                                                                                                                                                                                                                                                                                                                             |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 6       | SW2                    |                 |             | Connect a bypass capacitor to this pin to reduce the high-frequency impedance with the ground.                                                                                                                                                                                                                              |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 7       | OUT                    | -               | 1.0-4.7     | Division signal output pin. Emitter follower output. 0.1 V <sub>pf</sub> or more can be output under 200-ohmload. Connect a coupling capacitor to this pin for DC cutting with an external circuit (for example, 1000 pF).                                                                                                  |  |  |     |  |   |   |     |   |     |     |   |     |     |
| 8       | V <sub>CC2</sub>       | 2.2-5.5         | -           | Power supply voltage pin for the output buffer circuit. Connect a bypass capacitor to this pin to reduce the high-frequency impedance with the ground (for example, 1000 pF).                                                                                                                                               |  |  |     |  |   |   |     |   |     |     |   |     |     |

# TK-260G/270G

## SEMICONDUCTOR DATA

### Microprocessor : 30622M4102GP (TX-RX UNIT : IC13)

#### ■ Pin function

| Pin No. | Port Name | I/O | Function                                                                     |
|---------|-----------|-----|------------------------------------------------------------------------------|
| 1       | APC       | O   | TX:Automatic Power Control data output<br>RX:BPF tuning data                 |
| 2       | DTMF      | O   | DTMF/2TONE BEEP output                                                       |
| 3       | 2TN       | I   | 2TONE decode pulse input                                                     |
| 4       | DTMSTD    | I   | DTMF decode detect detect:H                                                  |
| 5       | SIM       | I   | Destnation selct                                                             |
| 6       | BYTE      | I   | +5V(5M)                                                                      |
| 7       | CNVSS     | I   | GND                                                                          |
| 8       | AFSTB     | O   | Base Band IC strobe/rest output                                              |
| 9       | AFFCLK    | O   | Base Band IC frame rest/system reset output                                  |
| 10      | RESET     | I   | Reset                                                                        |
| 11      | XOUT      | O   | Clock output                                                                 |
| 12      | VSS       | -   | GND                                                                          |
| 13      | XIN       | I   | Clock input                                                                  |
| 14      | VCC       | -   | +5V                                                                          |
| 15      | NC        | I   | NC                                                                           |
| 16      | EN2       | I   | Encoder pulse input 2                                                        |
| 17      | AUX3      | I/O | Option board port 3 *Smar Trunk:<br>Clock output *E Trunk: Step pulse input  |
| 18      | INT       | I   | Battery voltage monitor input Low battery:L                                  |
| 19      | OE        | I   | Not used                                                                     |
| 20      | TOTCXO    | I   | QT/DQT modulation output(TCXO)                                               |
| 21      | EEPDAT    | I/O | EEPROM data input/output                                                     |
| 22      | TOVCO     | O   | QT/DQT modulation output(VCO)                                                |
| 23      | AUX1      | I   | Option board port 1 *Smar Trunk:<br>Req/Ack input *E Trunk: TX Request input |
| 24      | SFTSTB    | O   | Shift register strobe output                                                 |
| 25      | EN1       | O   | Encoder pulse input 1                                                        |
| 26      | DACS      | I   | Chip select output(Max dev) Select:L                                         |
| 27      | EN3       | I   | CH selector input (TK-260G)                                                  |
| 28      | NC        | O   | NC                                                                           |
| 29      | AUX4      | O   | Option board port 4 *Smar Trunk:<br>Data output                              |
| 30      | AUX2      | I/O | Option board port 2 *Smar Trunk:<br>Data input *E Tunk: Synchronizing input  |
| 31      | KOUT3     | O   | Key scan output 3                                                            |
| 32      | KOUT2     | O   | Key scan output 2                                                            |
| 33      | TXD       | O   | Serial data                                                                  |
| 34      | PTT/RXD   | I   | PTT on: L/Serial data                                                        |
| 35      | KOUT1     | O   | Key scan output 1                                                            |
| 36      | KOUT0     | O   | Key scan output 0                                                            |
| 37      | RDY       | -   | Not used                                                                     |
| 38      | ALE       | O   | Not used                                                                     |
| 39      | HOLD      | I   | Not used                                                                     |
| 40      | HLDA      | O   | Not used                                                                     |
| 41      | BLCK      | O   | Not used                                                                     |
| 42      | RDY       | O   | READ signal                                                                  |
| 43      | BHE       | O   | Not used                                                                     |
| 44      | WR        | O   | WRITE signal                                                                 |
| 45      | LCDCS     | O   | LCD chip enable output                                                       |
| 46      | CNTDAT    | O   | Common data output<br>(EEPROM,LCD,SHIFT REG,1bit D/A MODEM)                  |
| 47      | CNTCLK    | O   | Common clock output<br>(EEPROM,LCD,SHIFT REG,1bit D/A MODEM)                 |

| Pin No. | Port Name | I/O | Function                                |
|---------|-----------|-----|-----------------------------------------|
| 48      | CSO       | -   | Chip select signal                      |
| 49      | A19       | -   | Not used                                |
| 50-59   | A18-A9    | -   | Flash memory address bus                |
| 60      | ACC       | -   | +5V                                     |
| 61      | A8        | -   | Flash memory address bus                |
| 62      | VSS       | -   | GND                                     |
| 63-70   | A7-A0     | -   | Flash memory address bus                |
| 71-75   | KIN0-KIN4 | I   | Key scan input                          |
| 76      | PLLUL     | O   | PLL unlock detect input ununlock: L     |
| 77      | PLLSTB    | O   | PLL strobe output Latch: L              |
| 78      | SAVE      | I   | Battery save output                     |
| 79-86   | D7-D0     | -   | Flash memory data bus                   |
| 87      | KEYAD     | I   | MONI LAMP key input                     |
| 88      | BATT      | I   | Battery voltage input                   |
| 89      | RFDAT     | O   | PLL data output                         |
| 90      | RFCLK     | O   | PLL clock output                        |
| 91      | NC        | -   | NC                                      |
| 92      | RSSQL     | I   | Receive signal strength indicator input |
| 93      | ANLSQL    | I   | Analog squelch level input              |
| 94      | AVSS      | -   | GND                                     |
| 95      | TOI       | I   | QT/DQT signal input                     |
| 96      | VREF      | -   | Reference voltage input                 |
| 97      | AVCC      | -   | GND                                     |
| 98      | DTMPD     | O   | DTME IC power control Power down: H     |
| 99      | DTMCLK    | O   | DTME IC decode clock output             |
| 100     | DTMDAT    | I   | DTME IC decode data input               |

### Shift register 1:BU4094BCFV(IC5)

#### ■ Pin function

| Pin No. | Port   | I/O | Function                             |
|---------|--------|-----|--------------------------------------|
| 4       | W/N    | O   | Wide/Narrow SW Narrow: L             |
| 5       | MUTE   | O   | RX audio/MIC mute Mute: L            |
| 6       | NC     | O   | NC                                   |
| 7       | LED0   | O   | RED LED LED lights: H                |
| 11      | BSHIFT | O   | Beat Shift Shift on: H               |
| 12      | REG2   | O   | Base Band IC inter register select 2 |
| 13      | REG1   | O   | Base Band IC inter register select 1 |
| 14      | LED1   | O   | GREEN LED LED lights: H              |

### Shift register 2:BU4094BCFV(IC6)

#### ■ Pin function

| Pin No. | Port   | I/O | Function                                |
|---------|--------|-----|-----------------------------------------|
| 4       | 5MC    | O   | 5MC control Power on: L                 |
| 5       | 5RC    | O   | 5R control Power on: L                  |
| 6       | 5TC    | O   | 5T control Power on: H                  |
| 7       | SPMUTE | O   | AF amp power supply control Power on: H |
| 11      | AUX6   | O   | Option board port 6                     |
| 12      | AUX5   | O   | Option board port 5                     |
| 13      | LCDBLK | O   | LCD back light Back light on: L         |
| 14      | RX     | O   | RX/TX VCO SW RX: L                      |

# TK-260G/270G

## DESCRIPTION OF COMPONENTS

### DISPLAY UNIT (X54-3250-10) (TK-270G Only)

| Ref. No. | Use/Function | Operation/Condition                     |
|----------|--------------|-----------------------------------------|
| IC501    | IC           | LCD driver                              |
| Q501     | Transistor   | Current driver / LCD back light LED AVR |
| Q502     | Transistor   | DC switch                               |
| D505     | Diode        | Speed up                                |
| D506     | LED          | LCD back light                          |
| D507     | Diode        | Voltage reference                       |
| D508~510 | LED          | LED /Key pad back light                 |
| D511     | LED          | LCD back light                          |
| D512~516 | LED          | LED /Key pad back light                 |

### TX-RX UNIT (X57-587X-XX)

| Ref. No.  | Use/Function | Operation/Condition                                  |
|-----------|--------------|------------------------------------------------------|
| IC1       | IC           | RF Power Module                                      |
| IC2       | IC           | PLL system                                           |
| IC3       | IC           | Comparator (APC)                                     |
| IC4       | IC           | FM IF system                                         |
| IC5,6     | IC           | Shift register / Output expander                     |
| IC7       | IC           | Voltage regulator / 5V                               |
| IC8       | IC           | Voltage detector / Reset                             |
| IC9       | IC           | Voltage detector / INT                               |
| IC10      | IC           | EEPROM                                               |
| IC11      | IC           | AF Power amplifier                                   |
| IC12      | IC           | Flash memory                                         |
| IC13      | IC           | Microprocessor                                       |
| IC14      | IC           | Audio processor                                      |
| IC15(1/2) | IC           | 2Tone amplifier                                      |
| IC15(2/2) | IC           | AF Pre amplifier                                     |
| IC16(1/2) | IC           | Bias buffer                                          |
| IC16(2/2) | IC           | AF Buffer amplifier                                  |
| IC17      | IC           | D/A converter (TX AF adjustment)                     |
| IC18      | IC           | DTMF decoder                                         |
| IC19      | IC           | Active filter / For LSD in                           |
| IC301     | IC           | VCO 1/2 divider                                      |
| Q1        | Transistor   | PLL IC fin amplifier                                 |
| Q2        | Transistor   | VCO oscillation (TX)                                 |
| Q3        | Transistor   | RF Buffer amplifier                                  |
| Q4        | Transistor   | RF amplifier                                         |
| Q6        | Transistor   | RF amplifier / TX driver                             |
| Q7        | FET          | DC switch                                            |
| Q8,Q9     | Transistor   | DC switch                                            |
| Q10       | FET          | VCO oscillation (RX)                                 |
| Q11       | Transistor   | Ripple filter                                        |
| Q12       | Transistor   | Tripler                                              |
| Q13       | Transistor   | DC switch                                            |
| Q14       | Transistor   | 2 <sup>nd</sup> IF W/N switch sets to on when Narrow |
| Q15       | Transistor   | DC switch                                            |
| Q16       | Transistor   | DC switch / 5R                                       |
| Q17       | Transistor   | 2 <sup>nd</sup> IF W/N switch sets to on when Wide   |
| Q18       | Transistor   | DC switch / 5T, Save                                 |
| Q19       | FET          | Mixer                                                |
| Q20,Q21   | Transistor   | DC switch / 5T, Save                                 |
| Q22       | Transistor   | IF amplifier                                         |

| Ref. No.     | Use/Function               | Operation/Condition                        |
|--------------|----------------------------|--------------------------------------------|
| Q23          | Transistor                 | DC switch / W/N audio amplitude adjust     |
| Q24          | Transistor                 | DC switch / LED (Red)                      |
| Q25          | Transistor                 | DC Switch / LED (Green)                    |
| Q26          | Transistor                 | DC switch / Squelch                        |
| Q27          | FET                        | DC switch / 5T, Save                       |
| Q28          | Transistor                 | DC switch / 5M                             |
| Q30          | FET                        | SP Mute switch                             |
| Q31          | Transistor                 | Clock frequency shift                      |
| Q32~34       | Transistor                 | DC switch / SP Mute                        |
| Q35(1/2)     | FET                        | Mute switch / MIC line mute                |
| Q35(2/2)     | FET                        | DC switch                                  |
| Q36          | FET                        | Mute switch                                |
| Q301         | FET                        | RF amplifier                               |
| D1           | Diode                      | Unlock detect                              |
| D2           | Variable capacitance diode | Frequency control                          |
| D3           | Diode                      | ANT switch                                 |
| D4           | Variable capacitance diode | Frequency control                          |
| D5           | Diode                      | TX/RX switch                               |
| D6           | Variable capacitance diode | TX modulation                              |
| D7           | Diode                      | ANT switch                                 |
| D8           | Zener Diode                | Overload protection                        |
| D9           | Variable capacitance diode | Frequency control                          |
| D10          | Diode                      | ANT switch                                 |
| D11          | Variable capacitance diode | Frequency control                          |
| D12          | Diode                      | Current steering                           |
| D13,14       | Diode                      | RF switch (2 <sup>nd</sup> IF wide/narrow) |
| D15          | Diode                      | Reverse protection                         |
| D17          | Diode                      | Model check                                |
| D18          | LED                        | LED/ Red, Green                            |
| D19          | Diode                      | Model check                                |
| D21          | Diode                      | Voltage drop                               |
| D22          | Diode                      | Reverse protection                         |
| D23          | Diode                      | Voltage clamp                              |
| D302,303,305 | Variable capacitance diode | Rf BPF turnig                              |



# TK-260G/270G

## PARTS LIST

\* New Parts.  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-260G/270G

| Ref. No.     | Address | New parts | Parts No.   | Description                   | Destination |
|--------------|---------|-----------|-------------|-------------------------------|-------------|
| TK-260G/270G |         |           |             |                               |             |
| 1            | 1C      | *         | A02-2385-23 | CABINET ASSY                  | 270G        |
| 2            | 1A      | *         | A02-2391-23 | CABINET ASSY                  | 260G        |
| 3            | 3B,3D   | *         | A82-0036-02 | REAR PANEL                    |             |
| 4            | 2E      |           | B09-0351-03 | CAP(SP/MIC)                   |             |
| 5            | 2D      |           | B11-1220-03 | ILLUMINATION GUIDE            |             |
| 6            | 2D      | *         | B38-0820-05 | LCD                           | 270G        |
| 7            | 2F      |           | B46-0470-00 | WARRANTY CARD                 | K           |
| 8            | 2F      | *         | B62-1113-00 | INSTRUCTION MANUAL            | 270G        |
| 9            | 2F      | *         | B62-1129-00 | INSTRUCTION MANUAL            | 260G        |
| 10           | 1B      | *         | D32-0423-05 | STOPPER                       | 260G        |
| 11           | 3B,3D   |           | E04-0413-05 | RF COAXIAL RECEPTACLE(SMA)    |             |
| 12           | 3A,3C   |           | E23-1006-04 | RELAY TERMINAL(BATT -)        |             |
| 13           | 2A,2D   | *         | E23-1125-14 | RELAY TERMINAL(BATT +)        |             |
| 14           | 2D      | *         | E29-1177-04 | INTER CONNECTOR(LCD)          | 270G        |
| 15           | 2C      | *         | E37-0805-05 | FLAT CABLE(TX/RX-DISP)        | 270G        |
| 16           | 2B,1D   | *         | E37-0829-05 | SPEAKER LEAD ASSY             |             |
| 17           | 3A,3C   | *         | E37-0830-05 | FLAT CABLE(PTT)               |             |
| 18           | 2A,2D   | *         | F10-2302-04 | SHIELDING COVER(POWER MODULE) |             |
| 19           | 2A,2C   | *         | F10-2304-03 | SHIELDING COVER(TX/RX UNIT)   |             |
| 20           | 2C      | *         | F20-3307-04 | INSULATING SHEET(TX/RX UNIT)  | 270G        |
| 21           | 2C      | *         | F20-3308-04 | INSULATING SHEET(TX/RX UNIT)  | 270G        |
| 22           | 1A,1C   |           | G01-0881-04 | COIL SPRING(BATT RELEASE)     |             |
| 23           | 1D      | *         | G10-1232-04 | FIBROUS SHEET(SPEAKER)        | 270G        |
| 24           | 1A      | *         | G10-1233-04 | FIBROUS SHEET(SPEAKER)        | 260G        |
| 25           | 3B,3D   | *         | G13-1744-14 | CUSHION(CHASSIS-BATT)         |             |
| 26           | 3A,3D   | *         | G53-0881-02 | PACKING(SIDE)                 |             |
| 27           | 1D      | *         | G53-0882-03 | PACKING(SPEAKER/ECM)          | 270G        |
| 28           | 2A,2D   | *         | G53-0883-04 | PACKING(BATT TERMINAL)        |             |
| 29           | 1B      | *         | G53-0884-04 | PACKING(ECM)                  | 260G        |
| 30           | 1A      | *         | G53-0885-04 | PACKING(SPEAKER)              | 260G        |
| 31           | 1A,1C   | *         | G53-0891-04 | PACKING(PTT KNOB)             |             |
| 32           | 1E,2F   |           | H12-1487-02 | PACKING FIXTURE               |             |
| 33           | 1F      |           | H25-0085-04 | PROTECTION BAG (100/200/0.07) |             |
| 34           | 2E      |           | H25-2012-04 | PROTECTION BAG (75/100/0.08)  |             |
| 35           | 3F      | *         | H52-1413-02 | ITEM CARTON CASE              | 270G        |
| 36           | 3F      | *         | H52-1417-02 | ITEM CARTON CASE              | 260G        |
| 37           | 1A,1C   |           | J19-1572-04 | HOLDER(BATT RELEASE)          |             |
| 38           | 2D      | *         | J19-5352-03 | HOLDER(VOL/ENC)               | 270G        |
| 39           | 2A,2D   | *         | J19-5353-14 | HOLDER(BATT TERMINAL)         |             |
| 40           | 2B      | *         | J19-5355-03 | HOLDER(VOL/CHANNEL SW)        | 260G        |
| 41           | 2E      |           | J21-4493-04 | SP/MIC HOLDER                 |             |
| 42           | 2D      | *         | J21-8377-03 | LCD HOLDER                    | 270G        |
| 43           | 1D      | *         | J21-8378-04 | SPEAKER FIXTURE               | 270G        |
| 44           | 2A      | *         | J21-8381-14 | SPEAKER FIXTURE               | 260G        |
| 45           | 2E      |           | J29-0624-03 | BELT HOOK                     |             |
| 46           | 2C      | *         | J32-0925-04 | HEXAGON BOSS                  | 270G        |
| 47           | 1C      | *         | K29-5330-02 | KEY TOP(DTMF)                 | 270G        |
| 48           | 1D      | *         | K29-5331-03 | KNOB(ENCODER)                 | 270G        |
| 49           | 1B,1D   | *         | K29-5332-03 | KNOB(VOLUME)                  |             |

| Ref. No.                                  | Address  | New parts | Parts No.     | Description              | Destination |
|-------------------------------------------|----------|-----------|---------------|--------------------------|-------------|
| 50                                        | 1A,1C    | *         | K29-5333-13   | BUTTON KNOB(MONI/LAMP)   |             |
| 51                                        | 1A,1C    | *         | K29-5334-13   | BUTTON KNOB(PTT)         |             |
| 52                                        | 1A,1C    |           | K29-5337-03   | LEVER KNOB(BATT RELEASE) |             |
| 53                                        | 1B       | *         | K29-5341-03   | KNOB(CHANNEL SELCTOR)    | 260G        |
| A                                         | 3B,3D    |           | N09-2319-05   | BINDING HEAD SCREW       |             |
| B                                         | 2A,2D    | *         | N09-2331-05   | SPECIAL SCREW            |             |
| C                                         | 1B,1D    |           | N14-0582-14   | CIRCULAR NUT             |             |
| D                                         | 1B,1D    |           | N14-0583-04   | CIRCULAR NUT             |             |
| E                                         | 1B       | *         | N14-0588-04   | CIRCULAR NUT             | 260G        |
| F                                         | 3A,3C    |           | N30-2606-46   | PAN HEAD MACHINE SCREW   |             |
| G                                         | 2A       |           | N30-3004-46   | PAN HEAD MACHINE SCREW   | 260G        |
| H                                         | 2C       |           | N39-2030-46   | PAN HEAD MACHINE SCREW   | 270G        |
| I                                         | 2A,2D    | *         | N67-2005-46   | PAN HEAD SEMS SCREW W    |             |
| J                                         | 3A,3C    | *         | N78-2045-46   | PAN HEAD TAPTITE SCREW   |             |
| K                                         | 3A,3C    | *         | N79-2030-46   | PAN HEAD TAPTITE SCREW   |             |
| L                                         | 2A,2C,2D |           | N83-2005-46   | PAN HEAD TAPTITE SCREW   |             |
| M                                         | 2E       | *         | N99-2012-05   | SCREW SET                |             |
| VR2                                       | -        | *         | R31-0628-15   | VARIABLE RESISTOR        |             |
| S1                                        | -        | *         | S60-0413-05   | ROTARY SWITCH            | 260G        |
| SP                                        | 1D       |           | T07-0326-05   | SPEAKER                  | 270G        |
| SP                                        | 2A       |           | T07-0327-05   | SPEAKER                  | 260G        |
| ANT                                       | -        |           | T90-0679-05   | HELICAL ANTENNA          | M           |
| S1                                        | -        | *         | W02-1969-05   | ENCODER                  | 270G        |
| DISPLAY UNIT (X54-3250-10) (TK-270G only) |          |           |               |                          |             |
| D506                                      |          |           | B30-2210-05   | LED(LCD BACK LIGHT)      |             |
| D508-510                                  |          |           | B30-2171-05   | LED(KEY BACK LIGHT)      |             |
| D511                                      |          |           | B30-2210-05   | LED(LCD BACK LIGHT)      |             |
| D512-516                                  |          |           | B30-2171-05   | LED(KEY BACK LIGHT)      |             |
| C501-509                                  |          |           | CC73GCH1H221J | CHIP C 220PF J           |             |
| C513                                      |          |           | CK73GB1H102K  | CHIP C 1000PF K          |             |
| C515,516                                  |          |           | CC73GCH1H101J | CHIP C 100PF J           |             |
| CN501                                     |          | *         | E40-6012-05   | FLAT CABLE CONNECTOR     |             |
| L501,502                                  |          |           | L92-0138-05   | FERRITE CHIP             |             |
| CP501                                     |          |           | R90-0748-05   | MULTI-COMP 47K X4        |             |
| CP502,503                                 |          |           | R90-0724-05   | MULTI-COMP 1K X4         |             |
| R501-510                                  |          |           | RK73GB1J102J  | CHIP R 1.0K J 1/16W      |             |
| R511                                      |          |           | R92-1252-05 0 | CHIP R 0 OHM             |             |
| R512                                      |          |           | RK73GB1J102J  | CHIP R 1.0K J 1/16W      |             |
| R513-515                                  |          |           | RK73GB1J103J  | CHIP R 10K J 1/16W       |             |
| R516                                      |          |           | RK73GB1J473J  | CHIP R 47K J 1/16W       |             |
| R517                                      |          |           | RK73GB1J103J  | CHIP R 10K J 1/16W       |             |
| R518                                      |          |           | RK73GB1J471J  | CHIP R 470 J 1/16W       |             |
| R519-522                                  |          |           | RK73GB1J102J  | CHIP R 1.0K J 1/16W      |             |
| R523                                      |          |           | RK73GB1J473J  | CHIP R 47K J 1/16W       |             |
| R524                                      |          |           | RK73GB1J471J  | CHIP R 470 J 1/16W       |             |
| D501-504                                  |          |           | MA2S111       | DIODE                    |             |
| D505                                      |          |           | 1SS373        | DIODE                    |             |

## PARTS LIST

TX-RX UNIT (X57-5870-10)

| Ref. No.                                                                        | Address | New parts | Parts No.     | Description          | Destination | Ref. No. | Address | New parts | Parts No.     | Description          | Destination |
|---------------------------------------------------------------------------------|---------|-----------|---------------|----------------------|-------------|----------|---------|-----------|---------------|----------------------|-------------|
| D507                                                                            |         |           | MA2S111       | DIODE                |             | C82      |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| IC501                                                                           |         |           | LC75823W      | IC(MOS-IC)           |             | C84 ,85  |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| Q501                                                                            |         |           | 2SB1132(Q,R)  | TRANSISTOR           |             | C86 ,87  |         |           | CC73GCH1H100D | CHIP C 10PF D        |             |
| Q502                                                                            |         |           | 2SC4617(S)    | TRANSISTOR           |             | C88      |         |           | CC73GCH1H1R5B | CHIP C 1.5PF B       |             |
|                                                                                 |         |           |               |                      |             | C89      |         |           | CC73GCH1H050B | CHIP C 5.0PF B       |             |
| <b>TX-RX UNIT (X57-5870-XX) -10:TK-260G K,M<br/>-11:TK-270G K -21:TK-270G M</b> |         |           |               |                      |             | C90      |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             |
| D18                                                                             |         |           | B30-2019-05   | LED(RED/GRN)         |             | C94      |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             |
| C1                                                                              |         |           | CK73GB1H471K  | CHIP C 470PF K       |             | C95 ,96  |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C3,4                                                                            |         |           | CC73GCH1H070B | CHIP C 7.0PF B       |             | C98      |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             |
| C5                                                                              |         |           | CC73GCH1H100C | CHIP C 10PF C        |             | C99      |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             |
| C6                                                                              |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C100     |         |           | C92-0507-05   | CHIP-TAN 4.7UF 6.3WV |             |
| C8                                                                              |         |           | CC73GCH1H030B | CHIP C 3.0PF B       |             | C101     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C9 ,10                                                                          |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C104     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C11 ,12                                                                         |         |           | CC73GCH1H180J | CHIP C 18PF J        |             | C107,108 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             |
| C13                                                                             |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C109     |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             |
| C14                                                                             |         |           | CC73GCH1H010B | CHIP C 1.0PF B       |             | C110     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C16                                                                             |         | *         | CC73GCH1H150G | CHIP C 15PF G        |             | C111     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C17                                                                             |         |           | CC73GCH1H060B | CHIP C 6.0PF B       |             | C112     |         |           | CC73GCH1H020B | CHIP C 2.0PF B       |             |
| C18                                                                             |         |           | CC73GCH1H330G | CHIP C 33PF G        |             | C113     |         |           | CK73GB1H471K  | CHIP C 470PF K       |             |
| C22                                                                             |         |           | CC73GCH1H101J | CHIP C 100PF J       |             | C114     |         |           | CC73GCH1H221J | CHIP C 220PF J       |             |
| C23                                                                             |         |           | CC73GCH1H220G | CHIP C 22PF G        |             | C115     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             |
| C24                                                                             |         |           | CC73GCH1H160G | CHIP C 16PF G        |             | C118     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C25                                                                             |         |           | CC73GCH1H130G | CHIP C 13PF G        |             | C119     |         |           | CK73FB1A105K  | CHIP C 1.0UF K       |             |
| C27                                                                             |         |           | CC73GCH1H0R5B | CHIP C 0.5PF B       |             | C120,121 |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C28                                                                             |         |           | CC73GCH1H040C | CHIP C 4.0PF C       |             | C122     |         |           | CK73FB1A105K  | CHIP C 1.0UF K       |             |
| C30                                                                             |         |           | CC73GCH1H100D | CHIP C 10PF D        |             | C123     |         |           | CC73GCH1H221J | CHIP C 220PF J       |             |
| C31                                                                             |         |           | C92-0507-05   | CHIP-TAN 4.7UF 6.3WV |             | C124     |         |           | CC73GCH1H100D | CHIP C 10PF D        |             |
| C32                                                                             |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C125,126 |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C33                                                                             |         |           | CC73GCH1H050B | CHIP C 5.0PF B       |             | C128     |         |           | CC73GCH1H040C | CHIP C 4.0PF C       |             |
| C35 -37                                                                         |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C129     |         |           | CC73GCH1H020C | CHIP C 2.0PF C       |             |
| C40 ,41                                                                         |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C130     |         |           | CK73GB1H471K  | CHIP C 470PF K       |             |
| C42 -44                                                                         |         |           | CC73GCH1H101J | CHIP C 100PF J       |             | C131     |         |           | CC73GCH1H100D | CHIP C 10PF D        |             |
| C45                                                                             |         |           | CK73GB1H471K  | CHIP C 470PF K       |             | C132     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C48 ,49                                                                         |         |           | C92-0001-05   | CHIP-C 0.1UF 35WV    |             | C133     |         |           | CC73GCH1H820J | CHIP C 82PF J        |             |
| C51                                                                             |         |           | C92-0514-05   | CHIP-TAN 2.2UF 10WV  |             | C135     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C52                                                                             |         |           | CC73GCH1H390J | CHIP C 39PF J        |             | C136     |         |           | CC73GCH1H100D | CHIP C 10PF D        |             |
| C53                                                                             |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C137     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C54                                                                             |         |           | CK73FB1C474K  | CHIP C 0.47UF K      |             | C138     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             |
| C55                                                                             |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C139     |         |           | CC73GCH1H181J | CHIP C 180PF J       |             |
| C57                                                                             |         |           | CK73FB1C474K  | CHIP C 0.47UF K      |             | C140     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C58                                                                             |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C141     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             |
| C60                                                                             |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C142     |         |           | CK73FB1A105K  | CHIP C 1.0UF K       |             |
| C62                                                                             |         |           | CC73GCH1H221J | CHIP C 220PF J       |             | C143,144 |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C63                                                                             |         |           | CC73GCH1H050B | CHIP C 5.0PF B       |             | C146,147 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             |
| C64                                                                             |         |           | CC73GCH1H010B | CHIP C 1.0PF B       |             | C148     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C68                                                                             |         |           | C92-0565-05   | CHIP-TAN 6.8UF 10WV  |             | C150-153 |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C70                                                                             |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C155     |         |           | C92-0662-05   | CHIP-TAN 15UF 6.3WV  |             |
| C71                                                                             |         |           | CC73GCH1H101J | CHIP C 100PF J       |             | C156,157 |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C72                                                                             |         |           | CC73GCH1H060B | CHIP C 6.0PF B       |             | C158     |         |           | CK73FB1A105K  | CHIP C 1.0UF K       |             |
| C73                                                                             |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C159     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C74                                                                             |         |           | CK73FB1E104K  | CHIP C 0.10UF K      |             | C161     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C75 ,76                                                                         |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C162     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
| C78                                                                             |         |           | CC73GCH1H470J | CHIP C 47PF J        |             | C163,164 |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
| C81                                                                             |         |           | CC73GCH1H010C | CHIP C 1.0PF C       |             | C165     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             |
|                                                                                 |         |           |               |                      |             | C166     |         |           | CK73FF1E104Z  | CHIP C 0.10UF Z      |             |
|                                                                                 |         |           |               |                      |             | C167     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             |
|                                                                                 |         |           |               |                      |             | C170,171 |         |           | CK73GB1H471K  | CHIP C 470PF K       |             |

260G : TK-260G (K),(M)

M : TK-260G(M),TK-270G(M)

270G : TK-270G (K),(M)

K : TK-260G(K),TK-270G(K)

# TK-260G/270G

## PARTS LIST

TX-RX UNIT (X57-5870-XX)

| Ref. No. | Address | New parts | Parts No.     | Description          | Destination | Ref. No. | Address | New parts | Parts No.     | Description                 | Destination |
|----------|---------|-----------|---------------|----------------------|-------------|----------|---------|-----------|---------------|-----------------------------|-------------|
| C173     |         |           | C92-0567-05   | CHIP-TAN 68UF 6.3WV  |             | C247     |         |           | CK73GB1E123K  | CHIP C 0.012UF K            |             |
| C174     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C248     |         |           | CK73GB1H103K  | CHIP C 0.010UF K            |             |
| C176     |         |           | CC73GCH1H101J | CHIP C 100PF J       |             | C249     |         |           | CK73GB1H222K  | CHIP C 2200PF K             |             |
| C177     |         |           | CK73GB1C473K  | CHIP C 0.047UF K     |             | C250     |         |           | CK73GB1C683K  | CHIP C 0.068UF K            |             |
| C178     |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             | C251     |         |           | CK73GB1C104K  | CHIP C 0.10UF K             |             |
| C179     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C252     |         |           | CK73GB1C473K  | CHIP C 0.047UF K            |             |
| C180     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C253,254 |         |           | CK73GB1H103K  | CHIP C 0.010UF K            |             |
| C181     |         |           | CK73GB1C393K  | CHIP C 0.039UF K     |             | C255     |         |           | CK73GB1H183K  | CHIP C 0.018UF K            |             |
| C182     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C257     |         |           | CK73GB1E153K  | CHIP C 0.015UF K            |             |
| C183,184 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C258     |         |           | CK73GB1C333K  | CHIP C 0.033UF K            |             |
| C185     |         |           | CC73GCH1H180J | CHIP C 18PF J        |             | C259     |         |           | CC73GCH1H121J | CHIP C 120PF J              |             |
| C189     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C260     |         |           | CK73GB1H183K  | CHIP C 0.018UF K            |             |
| C190,191 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C261     |         |           | CK73GB1E153K  | CHIP C 0.015UF K            |             |
| C192,193 |         |           | CC73GCH1H300J | CHIP C 30PF J        |             | C262     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C194     |         |           | C92-0507-05   | CHIP-TAN 4.7UF 6.3WV |             | C263     |         |           | CK73GB1C104K  | CHIP C 0.10UF K             |             |
| C196     |         |           | CC73GCH1H101J | CHIP C 100PF J       |             | C265,266 |         |           | CK73GB1C104K  | CHIP C 0.10UF K             |             |
| C198,199 |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C268     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C200     |         |           | CK73GB1A224K  | CHIP C 0.22UF K      |             | C269     |         |           | CK73GB1H152K  | CHIP C 1500PF K             |             |
| C201     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C270     |         |           | CK73GB1H222K  | CHIP C 2200PF K             |             |
| C202,203 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C271     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C204     |         |           | CK73FB1C474K  | CHIP C 0.47UF K      |             | C301     |         |           | CK73GB1C104K  | CHIP C 0.10UF K             |             |
| C205     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C303     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C206-208 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C305     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C209     |         |           | CK73GB1H332K  | CHIP C 3300PF K      |             | C307     |         |           | CC73GCH1H100D | CHIP C 10PF D               |             |
| C210     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | C308     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C211     |         |           | C92-0507-05   | CHIP-TAN 4.7UF 6.3WV |             | C310     |         |           | CC73GCH1H220G | CHIP C 22PF G               |             |
| C212     |         |           | CK73GB1H122K  | CHIP C 1200PF K      |             | C311     |         | *         | CC73GCH1H180G | CHIP C 18PF G               |             |
| C213     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C312     |         |           | CC73GCH1H220J | CHIP C 22PF J               |             |
| C215     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C316     |         |           | CC73GCH1H390J | CHIP C 39PF J               |             |
| C216     |         |           | CK73GB1H332K  | CHIP C 3300PF K      |             | C317,318 |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C217     |         |           | CK73GB1E153K  | CHIP C 0.015UF K     |             | C319     |         |           | CC73GCH1H390J | CHIP C 39PF J               |             |
| C218     |         |           | CK73FB1H563K  | CHIP C 0.056UF K     |             | C320     |         |           | CK73GB1C104K  | CHIP C 0.10UF K             |             |
| C219,220 |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | C323     |         |           | CK73GB1C104K  | CHIP C 0.10UF K             |             |
| C221     |         |           | CK73GB1H471K  | CHIP C 470PF K       |             | C324     |         |           | CC73GCH1H090D | CHIP C 9.0PF D              |             |
| C222     |         |           | CK73GB1H103K  | CHIP C 0.010UF K     |             | C326     |         |           | CK73GB1H102K  | CHIP C 1000PF K             |             |
| C223     |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             | TC1_2    |         |           | C05-0384-05   | CERAMIC TRIMMER CAP(10P)    |             |
| C224     |         |           | CK73GB1H122K  | CHIP C 1200PF K      |             | CN1      |         | *         | E40-6012-05   | FLAT CABLE CONNECTOR        | 270G        |
| C225     |         |           | CC73GCH1H101J | CHIP C 100PF J       |             | CN3      |         | *         | E40-5662-05   | PIN ASSY SOCKET             |             |
| C226,227 |         |           | CK73GB1H562K  | CHIP C 5600PF K      |             | CN5      |         | *         | E40-5932-05   | PIN ASSY SOCKET             |             |
| C229     |         |           | CK73FB1H102K  | CHIP C 1000PF K      |             | J1       |         |           | E11-0457-05   | PHONE JACK (2.5/3.5)        |             |
| C230     |         |           | CK73GB1H562K  | CHIP C 5600PF K      |             | F1       |         |           | F53-0130-05   | FUSE                        |             |
| C231     |         |           | C92-0521-05   | CHIP-TAN 0.47UF 20WV |             | CD1      |         |           | L79-1474-05   | TUNING COIL                 |             |
| C232     |         |           | CK73GB1H471K  | CHIP C 470PF K       |             | CF1      |         | *         | L72-0968-05   | CERAMIC FILTER              |             |
| C233     |         |           | CC73GCH1H151J | CHIP C 150PF J       |             | CF2      |         | *         | L72-0969-05   | CERAMIC FILTER              |             |
| C234,235 |         |           | CK73GB1H272K  | CHIP C 2700PF K      | 270G        | L2       |         |           | L92-0138-05   | FERRITE CHIP                |             |
| C236     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      | 260G        | L3       |         |           | L40-3391-86   | SMALL FIXED INDUCTOR(3.3U)  |             |
| C238     |         |           | CK73GB1H392K  | CHIP C 3900PF K      |             | L4       |         |           | L33-0745-05   | SMALL FIXED INDUCTOR        |             |
| C239     |         |           | CK73GB1C104K  | CHIP C 0.10UF K      |             | L5       |         |           | L34-4548-05   | AIR-CORE COIL               |             |
| C240     |         |           | CK73GB1H272K  | CHIP C 2700PF K      |             | L6       |         |           | L34-4549-05   | AIR-CORE COIL               |             |
| C241     |         |           | CK73GB1H102K  | CHIP C 1000PF K      |             | L7       |         | *         | L34-4548-05   | AIR-CORE COIL               |             |
| C242     |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             | L9       |         |           | L40-5675-92   | SMALL FIXED INDUCTOR(56NH)  |             |
| C243     |         |           | CK73FB1A105K  | CHIP C 1.0UF K       |             | L10      |         |           | L40-1095-34   | SMALL FIXED INDUCTOR(1UH)   |             |
| C244     |         |           | C92-0560-05   | CHIP-TAN 10UF 6.3WV  |             | L11      |         |           | L40-1092-81   | SMALL FIXED INDUCTOR        |             |
| C245     |         |           | CK73GB1H471K  | CHIP C 470PF K       |             | L12      |         |           | L40-3391-86   | SMALL FIXED INDUCTOR(3.3UH) |             |
| C246     |         |           | CK73FB1A105K  | CHIP C 1.0UF K       |             |          |         |           |               |                             |             |

## PARTS LIST

TX-RX UNIT (X57-5870-XX)

| Ref. No. | Address | New parts | Parts No.    | Description                  | Destination | Ref. No. | Address | New parts | Parts No.    | Description         | Destination |
|----------|---------|-----------|--------------|------------------------------|-------------|----------|---------|-----------|--------------|---------------------|-------------|
| L14      |         | *         | L40-1085-92  | SMALL FIXED INDUCTOR(100NH)  |             | R22      |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             |
| L15      |         | *         | L40-5675-92  | SMALL FIXED INDUCTOR(56NH)   |             | R23      |         |           | RK73GB1J122J | CHIP R 1.2K J 1/16W |             |
| L17      |         |           | L34-4550-05  | AIR-CORE COIL                |             | R26      |         |           | RK73GB1J561J | CHIP R 560 J 1/16W  |             |
| L18 -20  |         |           | L92-0138-05  | FERRITE CHIP                 |             | R27      |         |           | RK73GB1J270J | CHIP R 27 J 1/16W   |             |
| L21      |         |           | L40-1875-92  | SMALL FIXED INDUCTOR(18NH)   |             | R28 ,29  |         |           | RK73GB1J271J | CHIP R 270 J 1/16W  |             |
| L22      |         | *         | L40-1085-92  | SMALL FIXED INDUCTOR(100NH)  |             | R30      |         |           | RK73GB1J182J | CHIP R 1.8K J 1/16W |             |
| L23      |         |           | L92-0138-05  | FERRITE CHIP                 |             | R31      |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| L24      |         |           | L40-5681-86  | SMALL FIXED INDUCTOR(0.56UH) |             | R33      |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| L25      |         | *         | L40-1085-92  | SMALL FIXED INDUCTOR(100NH)  |             | R34      |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| L26      |         |           | L33-0745-05  | SMALL FIXED INDUCTOR         |             | R35      |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| L27      |         |           | L92-0149-05  | FERRITE CHIP                 |             | R36      |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| L30      |         | *         | L40-2702-86  | SMALL FIXED INDUCTOR(27UH)   |             | R37      |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             |
| L31      |         | *         | L40-1085-92  | SMALL FIXED INDUCTOR(100NH)  |             | R38      |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| L32      |         |           | L40-1005-85  | SMALL FIXED INDUCTOR(10UH)   |             | R39      |         |           | RK73GB1J562J | CHIP R 5.6K J 1/16W |             |
| L35      |         | *         | L40-1285-92  | SMALL FIXED INDUCTOR(120NH)  |             | R40      |         |           | RK73GB1J183J | CHIP R 18K J 1/16W  |             |
| L36      |         | *         | L40-1085-85  | SMALL FIXED INDUCTOR(0.10UH) |             | R41      |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| L37      |         |           | L40-5685-85  | SMALL FIXED INDUCTOR(0.56UH) |             | R42      |         |           | RK73GB1J220J | CHIP R 22 J 1/16W   |             |
| L38      |         |           | L92-0138-05  | FERRITE CHIP                 |             | R43      |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| L39      |         |           | L92-0149-05  | FERRITE CHIP                 |             | R44      |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| L40 ,41  |         |           | L92-0138-05  | FERRITE CHIP                 |             | R45      |         |           | RK73GB1J331J | CHIP R 330 J 1/16W  |             |
| L42      |         |           | L92-0131-05  | FERRITE CHIP                 |             | R46      |         |           | RN73GH1J154D | CHIP R 150K D 1/16W |             |
| L43 ,44  |         |           | L92-0138-05  | FERRITE CHIP                 |             | R47      |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| L302     |         |           | L33-0745-05  | SMALL FIXED INDUCTOR         |             | R48      |         |           | RK73GB1J334J | CHIP R 330K J 1/16W |             |
| L304     |         | *         | L40-8288-76  | SMALL FIXED INDUCTOR(0.82UH) |             | R49      |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| L305     |         | *         | L34-4621-05  | COIL                         |             | R50      |         |           | RN73GH1J154D | CHIP R 150K D 1/16W |             |
| L306     |         | *         | L34-4622-05  | COIL                         |             | R51      |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| L307     |         |           | L34-4446-05  | COIL                         |             | R52      |         |           | RK73GB1J151J | CHIP R 150 J 1/16W  |             |
| L308     |         | *         | L40-4785-85  | SMALL FIXED INDUCTOR(0.47UH) |             | R53      |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             |
| X1       |         | *         | L77-1794-05  | TCXO (16.8MHZ)               |             | R54      |         |           | RN73GH1J154D | CHIP R 150K D 1/16W |             |
| X2       |         | *         | L78-0479-05  | RESONATOR (3.58MHZ)          |             | R55      |         |           | RK73GB1J105J | CHIP R 1.0M J 1/16W |             |
| X3       |         | *         | L77-1810-05  | CRYSTAL RESONATOR(9.8304MHZ) |             | R56 -58  |         |           | RK73EB2ER39K | CHIP R 0.39 K 1/4W  |             |
| XF1      |         | *         | L71-0546-05  | CRYSTAL FILTER (49.95MHZ)    |             | R59      |         |           | RN73GH1J154D | CHIP R 150K D 1/16W |             |
| CP1      |         |           | R90-0724-05  | MULTI-COMP 1K X4             |             | R60      |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| CP2 -9   |         |           | R90-0741-05  | MULTIPLE RESISTOR            |             | R61      |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| CP10     |         |           | R90-0724-05  | MULTI-COMP 1K X4             |             | R62      |         |           | RN73GH1J154D | CHIP R 150K D 1/16W |             |
| CP11 -18 |         |           | R90-0741-05  | MULTIPLE RESISTOR            |             | R64 ,65  |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| CP19     |         |           | R90-0718-05  | MULTI-COMP 4.7K X4           |             | R68      |         |           | RN73GH1J154D | CHIP R 150K D 1/16W |             |
| CP20     |         | *         | RK75HA1J472J | CHIP R 4.7K J 1/16W          |             | R69      |         |           | RK73GB1J220J | CHIP R 22 J 1/16W   |             |
| R1       |         |           | RK73GB1J124J | CHIP R 120K J 1/16W          |             | R70      |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| R2       |         |           | RK73GB1J104J | CHIP R 100K J 1/16W          |             | R71      |         |           | RK73GB1J124J | CHIP R 120K J 1/16W |             |
| R3       |         |           | RK73GB1J682J | CHIP R 6.8K J 1/16W          |             | R72      |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R4       |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W          |             | R73      |         |           | RK73GB1J273J | CHIP R 27K J 1/16W  |             |
| R5       |         |           | RK73GB1J152J | CHIP R 1.5K J 1/16W          |             | R74 ,75  |         |           | RK73GB1J223J | CHIP R 22K J 1/16W  |             |
| R6       |         |           | R92-1252-05  | CHIP R 0 OHM                 |             | R76      |         |           | R92-0670-05  | CHIP R 0 OHM        |             |
| R7       |         |           | RK73GB1J100J | CHIP R 10 J 1/16W            |             | R77      |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R8       |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W          |             | R78 ,79  |         |           | RK73GB1J153J | CHIP R 15K J 1/16W  |             |
| R10      |         |           | RK73GB1J331J | CHIP R 330 J 1/16W           |             | R80 ,81  |         |           | RK73GB1J223J | CHIP R 22K J 1/16W  |             |
| R13      |         |           | RK73GB1J822J | CHIP R 8.2K J 1/16W          |             | R82      |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R14      |         |           | RK73GB1J561J | CHIP R 560 J 1/16W           |             | R83      |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R16      |         |           | RK73GB1J391J | CHIP R 390 J 1/16W           |             | R84      |         |           | RK73GB1J184J | CHIP R 180K J 1/16W |             |
| R17      |         |           | RK73GB1J103J | CHIP R 10K J 1/16W           |             | R85      |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R18      |         |           | RK73GB1J124J | CHIP R 120K J 1/16W          |             | R86      |         |           | RK73GB1J124J | CHIP R 120K J 1/16W |             |
| R19      |         |           | RK73GB1J332J | CHIP R 3.3K J 1/16W          |             | R87      |         |           | RK73GB1J221J | CHIP R 220 J 1/16W  |             |
| R20      |         |           | RK73GB1J122J | CHIP R 1.2K J 1/16W          |             | R88      |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R21      |         |           | RK73GB1J221J | CHIP R 220 J 1/16W           |             | R89      |         |           | RK73GB1J821J | CHIP R 820 J 1/16W  |             |
|          |         |           |              |                              |             | R90 ,91  |         |           | RK73GB1J332J | CHIP R 3.3K J 1/16W |             |

260G : TK-260G (K),(M)

M : TK-260G(M),TK-270G(M)

270G : TK-270G (K),(M)

K : TK-260G(K),TK-270G(K)

# TK-260G/270G

## PARTS LIST

TX-RX UNIT (X57-5870-XX)

| Ref. No. | Address | New parts | Parts No.    | Description         | Destination | Ref. No. | Address | New parts | Parts No.    | Description         | Destination |
|----------|---------|-----------|--------------|---------------------|-------------|----------|---------|-----------|--------------|---------------------|-------------|
| R92      |         |           | RK73GB1J100J | CHIP R 10 J 1/16W   |             | R157     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R93      |         |           | RK73GB1J332J | CHIP R 3.3K J 1/16W |             | R158     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R94      |         |           | RK73GB1J681J | CHIP R 680 J 1/16W  |             | R159     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R95      |         |           | RK73GB1J222J | CHIP R 2.2K J 1/16W |             | R160     |         |           | RK73GB1J222J | CHIP R 2.2K J 1/16W |             |
| R96      |         |           | RK73GB1J151J | CHIP R 150 J 1/16W  |             | R161     |         |           | RK73GB1J563J | CHIP R 56K J 1/16W  |             |
| R97      |         |           | RK73GB1J183J | CHIP R 18K J 1/16W  |             | R162     |         |           | RN73GH1J333D | CHIP R 33K D 1/16W  |             |
| R98      |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             | R163     |         |           | RN73GH1J274D | CHIP R 270K D 1/16W |             |
| R99      |         |           | RK73GB1J684J | CHIP R 680K J 1/16W |             | R164     |         |           | RK73GB1J184J | CHIP R 180K J 1/16W |             |
| R100     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             | R165     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| R101     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             | R166     |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R102,103 |         |           | RK73GB1J272J | CHIP R 2.7K J 1/16W |             | R167     |         |           | RK73GB1J564J | CHIP R 560K J 1/16W |             |
| R104     |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             | R168     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R105     |         |           | RK73GB1J222J | CHIP R 2.2K J 1/16W |             | R169     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| R106     |         |           | RK73GB1J272J | CHIP R 2.7K J 1/16W |             | R170     |         |           | RK73GB1J394J | CHIP R 390K J 1/16W |             |
| R107     |         |           | RK73GB1J470J | CHIP R 47 J 1/16W   |             | R171     |         |           | RK73GB1J474J | CHIP R 470K J 1/16W |             |
| R108     |         |           | RK73GB1J222J | CHIP R 2.2K J 1/16W |             | R172     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| R109     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R173     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| R110,111 |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             | R174     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R112     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R175     |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R113     |         |           | RK73GB1J391J | CHIP R 390 J 1/16W  |             | R176     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R114,115 |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             | R177     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             |
| R116,117 |         |           | RK73GB1J153J | CHIP R 15K J 1/16W  |             | R178,179 |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| R118     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             | R180     |         |           | RK73GB1J222J | CHIP R 2.2K J 1/16W |             |
| R119     |         |           | R92-1252-05  | CHIP R 0 OHM        |             | R181     |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             |
| R120,121 |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             | R182,183 |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R122     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R184     |         |           | RK73GB1J333J | CHIP R 33K J 1/16W  |             |
| R123     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             | R185     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             |
| R124     |         |           | RK73GB1J334J | CHIP R 330K J 1/16W |             | R186     |         |           | RK73GB1J155J | CHIP R 1.5M J 1/16W |             |
| R126     |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             | R198     |         |           | RK73GB1J154J | CHIP R 150K J 1/16W |             |
| R127     |         |           | RK73GB1J333J | CHIP R 33K J 1/16W  |             | R199     |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R128     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R200     |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| R129     |         |           | RK73GB1J224J | CHIP R 220K J 1/16W |             | R201     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R130     |         |           | R92-1252-05  | CHIP R 0 OHM        |             | R202     |         |           | RK73GB1J474J | CHIP R 470K J 1/16W |             |
| R131     |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             | R203     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R132     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             | R204     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |
| R133     |         |           | R92-1252-05  | CHIP R 0 OHM        |             | R205     |         |           | RK73GB1J182J | CHIP R 1.8K J 1/16W |             |
| R135     |         |           | RK73GB1J100J | CHIP R 10 J 1/16W   |             | R206     |         |           | RK73GB1J471J | CHIP R 470 J 1/16W  |             |
| R137     |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             | R207     |         |           | RK73GB1J101J | CHIP R 100 J 1/16W  |             |
| R138     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R208     |         |           | RN73GH1J682D | CHIP R 6.8K D 1/16W |             |
| R139     |         |           | RK73GB1J151J | CHIP R 150 J 1/16W  |             | R209     |         |           | RK73GB1J224J | CHIP R 220K J 1/16W |             |
| R140     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R210     |         |           | RK73GB1J474J | CHIP R 470K J 1/16W |             |
| R142     |         |           | R92-1252-05  | CHIP R 0 OHM        |             | R211     |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R143     |         |           | RK73GB1J184J | CHIP R 180K J 1/16W |             | R212     |         |           | RN73GH1J683D | CHIP R 68K D 1/16W  |             |
| R144     |         |           | R92-1252-05  | CHIP R 0 OHM        |             | R213     |         |           | RN73GH1J682D | CHIP R 6.8K D 1/16W |             |
| R145     |         |           | RK73GB1J474J | CHIP R 470K J 1/16W |             | R214     |         |           | RK73GB1J184J | CHIP R 180K J 1/16W |             |
| R146     |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W |             | R215     |         |           | RK73GB1J474J | CHIP R 470K J 1/16W |             |
| R147     |         |           | RK73GB1J470J | CHIP R 47 J 1/16W   |             | R218     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R148     |         |           | RK73GB1J220J | CHIP R 22 J 1/16W   |             | R219     |         |           | RK73GB1J273J | CHIP R 27K J 1/16W  |             |
| R149     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             | R220,221 |         |           | RK73GB1J184J | CHIP R 180K J 1/16W |             |
| R150     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W |             | R222     |         |           | RK73GB1J153J | CHIP R 15K J 1/16W  |             |
| R151     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             | R223     |         |           | RK73GB1J223J | CHIP R 22K J 1/16W  |             |
| R152     |         |           | RK73GB1J823J | CHIP R 82K J 1/16W  |             | R224     |         |           | RK73GB1J103J | CHIP R 10K J 1/16W  |             |
| R153     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             | R225     |         |           | RK73GB1J153J | CHIP R 15K J 1/16W  |             |
| R154     |         |           | RK73GB1J564J | CHIP R 560K J 1/16W |             | R226     |         |           | R92-1252-05  | CHIP R 0 OHM        |             |
| R155     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W  |             | R230     |         |           | RK73GB1J223J | CHIP R 22K J 1/16W  |             |
| R156     |         |           | RN73GH1J683D | CHIP R 68K D 1/16W  |             | R231     |         |           | RK73GB1J104J | CHIP R 100K J 1/16W |             |

## PARTS LIST

TX-RX UNIT (X57-5870-XX)

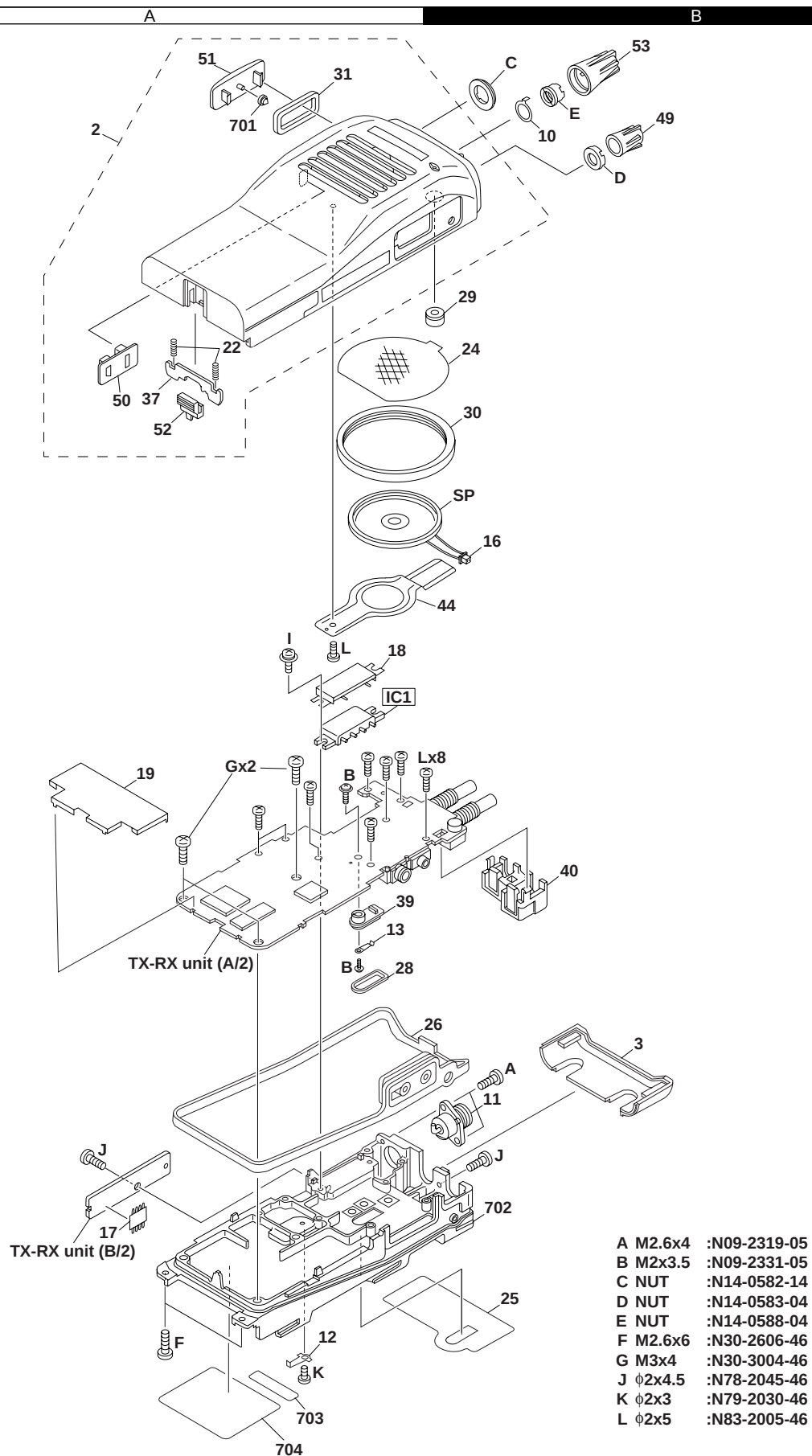
| Ref. No. | Address | New parts | Parts No.    | Description                | Destination | Ref. No. | Address | New parts | Parts No.      | Description                   | Destination |
|----------|---------|-----------|--------------|----------------------------|-------------|----------|---------|-----------|----------------|-------------------------------|-------------|
| R232     |         |           | RK73GB1J152J | CHIP R 1.5K J 1/16W        |             | IC1      |         |           | PF0314-03      | IC(RF POWER AMP)              |             |
| R233     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC2      |         |           | MB15A02        | IC                            |             |
| R234     |         |           | RK73GB1J124J | CHIP R 120K J 1/16W        |             | IC3      |         |           | NJM2904V       | IC(APC)                       |             |
| R235     |         |           | RK73GB1J334J | CHIP R 330K J 1/16W        |             | IC4      |         |           | TA31136FN      | IC(FM IF DETECTOR)            |             |
| R237     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC5 ,6   |         |           | BU4094BCFV     | IC(8bit SHIFT/STORE REGISTER) |             |
| R239     |         |           | RK73GB1J153J | CHIP R 15K J 1/16W         |             | IC7      |         |           | S-81350HG-KD   | IC(VOLTAGE REGULATOR)         |             |
| R240     |         |           | RK73GB1J223J | CHIP R 22K J 1/16W         |             | IC8      |         |           | PST9140NR      | IC(RESET SW)                  |             |
| R241     |         |           | RK73GB1J334J | CHIP R 330K J 1/16W        |             | IC9      |         |           | RN5VL45C       | IC(REGULATOR)                 |             |
| R242     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC10     |         |           | AT2408N10SI2.5 | IC(8kbit SERIAL EEPROM)       |             |
| R244     |         |           | RK73GB1J561J | CHIP R 560 J 1/16W         |             | IC11     |         |           | TA7368F        | IC(AF POWER AMP)              |             |
| R249     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC12     |         |           | AT29C020-90TI  | IC                            |             |
| R250     |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W        |             | IC13     | *       |           | 30622M4102GP   | MPU                           |             |
| R252,253 |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC14     |         |           | TC35453F       | IC(AUDIO PROCESSOR)           |             |
| R256-258 |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC15     |         |           | TA75W01FU      | IC(OP AMP X2)                 |             |
| R259     |         |           | RK73GB1J473J | CHIP R 47K J 1/16W         |             | IC16     |         |           | TC75W51FU      | IC(OP AMP X2)                 |             |
| R260,261 |         |           | RK73GB1J224J | CHIP R 220K J 1/16W        |             | IC17     |         |           | X9C103SI       | IC(TERMINAL VOLTAGE)          |             |
| R301     |         |           | R92-0679-05  | CHIP R 0 OHM               |             | IC18     |         |           | LC73872M       | IC(DTMF RECEIVER)             |             |
| R302     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | IC19     |         |           | TA75W01FU      | IC(OP AMP X2)                 |             |
| R303     |         |           | RK73GB1J101J | CHIP R 100 J 1/16W         |             | IC301    |         |           | UPB1509GV      | IC                            |             |
| R304     |         |           | RK73GB1J472J | CHIP R 4.7K J 1/16W        |             | Q1       |         |           | 2SC5108(Y)     | TRANSISTOR                    |             |
| R305     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | Q2       |         |           | 2SC4226(R24)   | TRANSISTOR                    |             |
| R306     |         |           | RK73GB1J222J | CHIP R 2.2K J 1/16W        |             | Q3 ,4    |         |           | 2SC5108(Y)     | TRANSISTOR                    |             |
| R308     |         |           | R92-0670-05  | CHIP R 0 OHM               |             | Q6       |         |           | 2SC4988        | TRANSISTOR                    |             |
| R311     |         |           | RK73GB1J221J | CHIP R 220 J 1/16W         |             | Q7       |         |           | 2SJ243         | FET                           |             |
| R312-314 |         |           | RK73GB1J104J | CHIP R 100K J 1/16W        |             | Q8       |         |           | UMC4           | TRANSISTOR                    |             |
| R316     |         |           | RK73GB1J470J | CHIP R 47 J 1/16W          |             | Q9       |         |           | DTC144EE       | DIGITAL TRANSISTOR            |             |
| R318     |         |           | R92-1252-05  | CHIP R 0 OHM               |             | Q10      |         |           | 2SK508NV(K52)  | FET                           |             |
| R319     |         |           | RK73GB1J102J | CHIP R 1.0K J 1/16W        |             | Q11      |         |           | 2SC4617(S)     | TRANSISTOR                    |             |
| VR1      |         |           | R12-7491-05  | TRIMMING POT.(68K/8)       |             | Q12      |         |           | 2SC4649(N,P)   | TRANSISTOR                    |             |
| S401     |         |           | S70-0457-05  | TACT SWITCH                |             | Q13 ,14  |         |           | DTA144EE       | DIGITAL TRANSISTOR            |             |
| S402,403 |         |           | S70-0424-05  | TACT SWITCH                |             | Q15      |         |           | DTC114EE       | DIGITAL TRANSISTOR            |             |
| MIC1     |         |           | T91-0579-05  | MIC ELEMENT                |             | Q16      |         |           | DTA114YE       | DIGITAL TRANSISTOR            |             |
| D1       |         |           | MA2S111      | DIODE                      |             | Q17      |         |           | DTC144EE       | DIGITAL TRANSISTOR            |             |
| D2       | *       |           | MA2SV05      | VARIABLE CAPACITANCE DIODE |             | Q18      |         |           | FP210          | TRANSISTOR                    |             |
| D3       |         |           | HVU131       | DIODE                      |             | Q19      | *       |           | 3SK166A        | FET                           |             |
| D4       | *       |           | MA2SV05      | VARIABLE CAPACITANCE DIODE |             | Q20 ,21  |         |           | UMG3N          | TRANSISTOR                    |             |
| D5       |         |           | HSC277       | DIODE                      |             | Q22      |         |           | 2SC4619        | TRANSISTOR                    |             |
| D6       |         |           | MA360        | VARIABLE CAPACITANCE DIODE |             | Q23      |         |           | UMC4           | TRANSISTOR                    |             |
| D7       |         |           | HSC277       | DIODE                      |             | Q24 ,25  |         |           | DTC114EE       | DIGITAL TRANSISTOR            |             |
| D8       |         |           | MA8062       | ZENER DIODE                |             | Q26      |         |           | DTA114EE       | DIGITAL TRANSISTOR            |             |
| D9       |         |           | MA2S304      | VARIABLE CAPACITANCE DIODE |             | Q27      |         |           | UPA572T        | FET                           |             |
| D10      |         |           | HSC277       | DIODE                      |             | Q28      |         |           | DTA114YE       | DIGITAL TRANSISTOR            |             |
| D11      |         |           | MA2S304      | VARIABLE CAPACITANCE DIODE |             | Q30      |         |           | 2SK1588        | FET                           |             |
| D12      |         |           | MA2S111      | DIODE                      |             | Q31      |         |           | 2SC4619        | TRANSISTOR                    |             |
| D13 ,14  |         |           | DAN235E      | DIODE                      |             | Q32      |         |           | 2SA1362(GR)    | TRANSISTOR                    |             |
| D15      |         |           | HSC277       | DIODE                      |             | Q33 ,34  |         |           | DTC144EE       | DIGITAL TRANSISTOR            |             |
| D17      |         |           | MA2S111      | DIODE                      | K           | Q35      |         |           | UPA672T        | FET                           |             |
| D19      |         |           | MA2S111      | DIODE                      |             | Q36      |         |           | 2SK1824        | FET                           |             |
| D21      |         |           | 1SS373       | DIODE                      | 260G        | Q301     |         |           | 2SK1215(E)     | FET                           |             |
| D22      |         |           | 1SR154-400   | DIODE                      |             |          |         |           |                |                               |             |
| D23      |         |           | RB706F-40    | DIODE                      |             |          |         |           |                |                               |             |
| D302,303 |         |           | HVC350B      | VARIABLE CAPACITANCE DIODE |             |          |         |           |                |                               |             |
| D305     |         |           | HVC350B      | VARIABLE CAPACITANCE DIODE |             |          |         |           |                |                               |             |

260G : TK-260G (K),(M) M : TK-260G(M),TK-270G(M)

270G : TK-270G (K),(M) K : TK-260G(K),TK-270G(K)

# TK-260G/270G

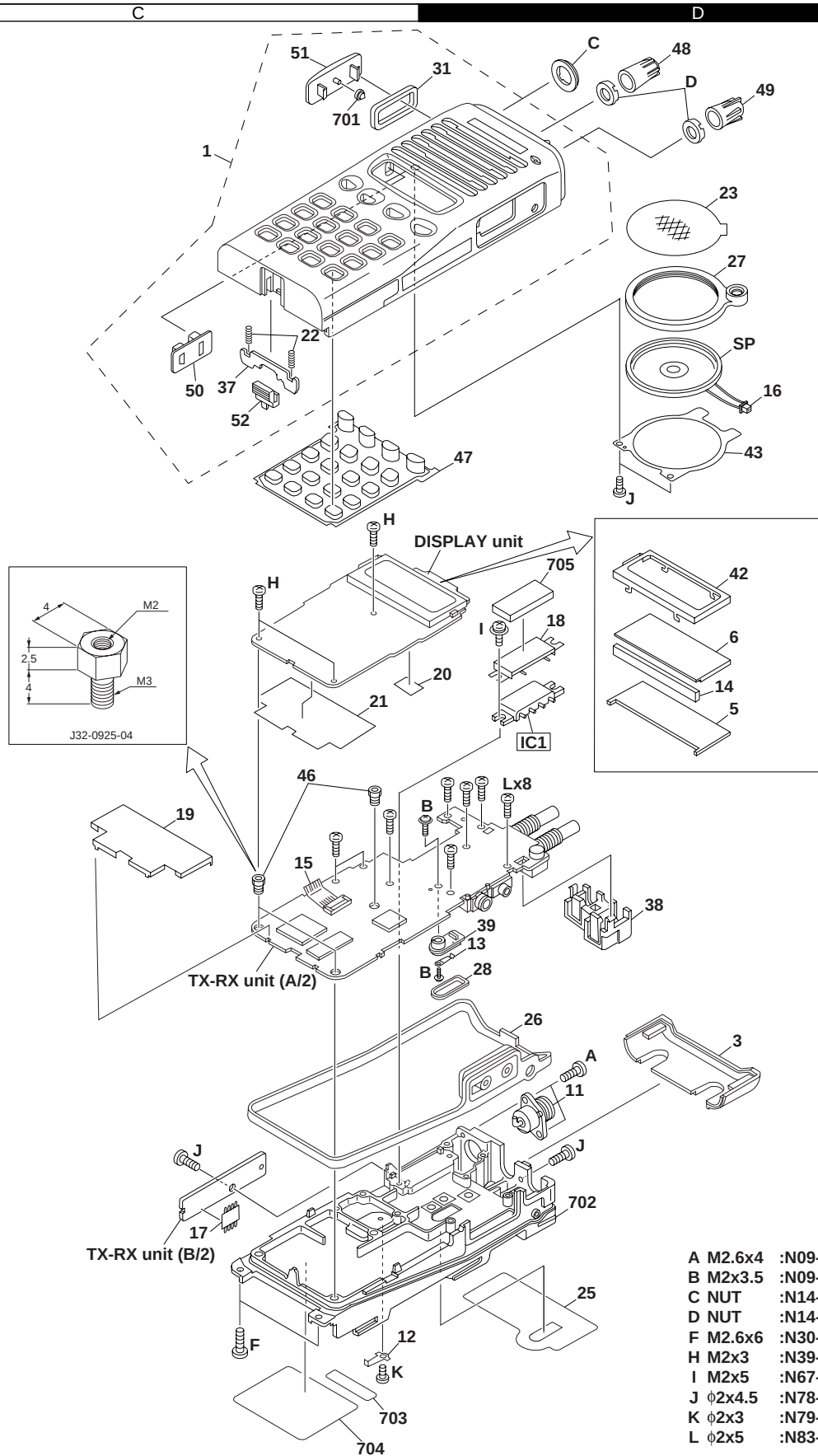
## EXPLODED VIEW (TK-260G)





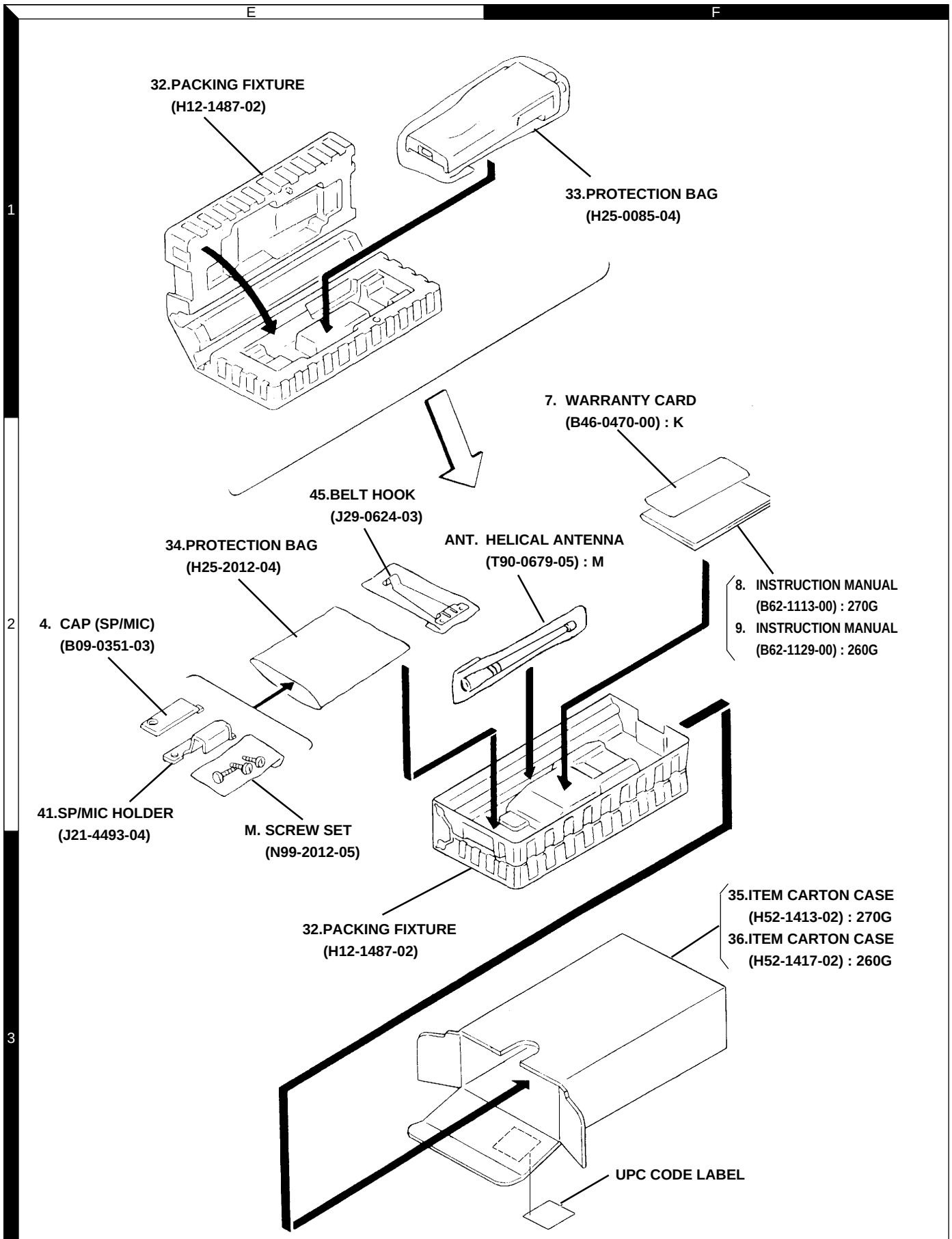
# TK-260G/270G

## EXPLODED VIEW (TK-270G)



|   |        |              |
|---|--------|--------------|
| A | M2.6x4 | :N09-2319-05 |
| B | M2x3.5 | :N09-2331-05 |
| C | NUT    | :N14-0582-14 |
| D | NUT    | :N14-0583-04 |
| F | M2.6x6 | :N30-2606-46 |
| H | M2x3   | :N39-2030-46 |
| I | M2x5   | :N67-2005-46 |
| J | φ2x4.5 | :N78-2045-46 |
| K | φ2x3   | :N79-2030-46 |
| L | φ2x5   | :N83-2005-46 |

## PACKING



# ADJUSTMENT

## Test Equipment Required for Alignment

| Test Equipment                        | Major Specifications                                        |                                                                                                            |
|---------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 1. Standard Signal Generator (SSG)    | Frequency Range<br>Modulation<br>Output                     | 150 to 175MHz<br>Frequency modulation and external modulation.<br>-127dBm/0.1μV to greater than -47dBm/1mV |
| 2. Power Meter                        | Input Impedance<br>Operation Frequency<br>Measurement Range | 50Ω.<br>150 to 175MHz or more.<br>Vicinity of 10W                                                          |
| 3. Deviation Meter                    | Frequency Range                                             | 150 to 175MHz.                                                                                             |
| 4. Digital Volt Meter (DVM)           | Measuring Range<br>Input Impedance                          | 10mV to 10V DC<br>High input impedance for minimum circuit loading.                                        |
| 5. Oscilloscope                       |                                                             | DC through 30MHz.                                                                                          |
| 6. High Sensitivity Frequency Counter | Frequency Range<br>Frequency Stability                      | 10Hz to 1000MHz.<br>0.2ppm or less.                                                                        |
| 7. Ammeter                            |                                                             | 5A.                                                                                                        |
| 8. AF Volt Meter (AF VTVM)            | Frequency Range<br>Voltage Range                            | 50Hz to 10kHz.<br>1mV to 10V.                                                                              |
| 9. Audio Generator (AG)               | Frequency Range<br>Output                                   | 50Hz to 5kHz or more.<br>0 to 1V.                                                                          |
| 10. Distortion Meter                  | Capability<br>Input Level                                   | 3% or less at 1kHz.<br>50mV to 10Vrms.                                                                     |
| 11. Spectrum Analyzer                 | Measuring Range                                             | DC to 1GHz or more                                                                                         |
| 12. Tracking Generator                | Center frequency<br>Output Voltage                          | 50kHz to 600MHz<br>100mV or more                                                                           |
| 13. 8Ω Dummy Load                     |                                                             | Approx. 8Ω, 3W.                                                                                            |
| 14. Regulated Power Supply            |                                                             | 5V to 10V, approx. 3A<br>Useful if ammeter equipped.                                                       |

### ■ The following parts are required for adjustment

#### 1. Antenna connector adapter

The antenna connector of this radio uses an SMA terminal. Use an antenna connector adapter [SMA(f) – BNC(f) or SMA(f) – N(f)] for adjustment. (The adapter is not provided as an option, so buy a commercially-available one.)

#### Note

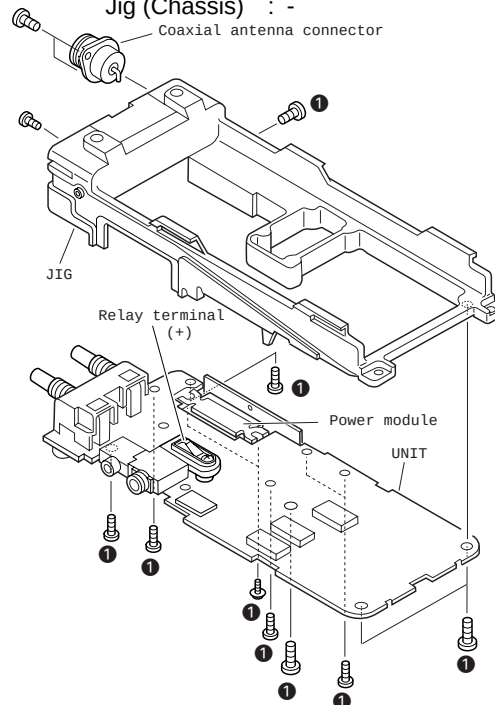
When the antenna connector adapter touches the knob, draw out the knob to mount the connector.

### Repair Jig (Chassis)

1. Jig (chassis : Part No. A10-4009-03) for adjustment.
2. Use the jig as follows.
  - ① Place the TX-RX unit on the jig and fix it with thirteen screws ∅.
  - ② Solder the antenna terminal of the TX-RX unit.
3. Supply power from an external power supply.

Relay terminal : + (7.5)

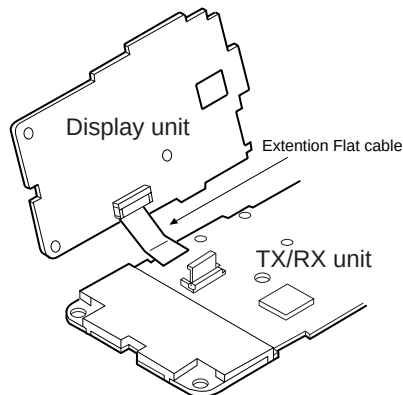
Jig (Chassis) : -



## ADJUSTMENT

### Repair Jig (Extension Flat cable : part No. E37-0851-05)

This cable is used for connecting the TK-270G display unit and TX/RX unit when you test or repair the transceiver.



**Caution :** You must connect TK-270G display unit when you test or repair the transceiver.

### Test Mode (TK-270G only)

#### ■ Test mode operating features

This transceiver has a test mode. **To enter test mode, press the [◀] key and turn the power on. Hold the [◀] key until the test channel No. and test signalling No. appear on LCD.** Test mode can be inhibited by programming. To exit test mode, switch the power on again. The following functions are available in test mode.

#### • Controls

|                                              |                                                                                                                               |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| [PTT]                                        | Used when making a transmission.                                                                                              |
| [MON]                                        | Monitor ON and OFF.                                                                                                           |
| [LAMP]                                       | Changes wide and narrow.                                                                                                      |
| [O]                                          | Sets to the Tuning mode.                                                                                                      |
| [●]                                          | Unused                                                                                                                        |
| [◀]                                          | RF power HIGH and LOW.                                                                                                        |
| [▶]                                          | Changes signalling.                                                                                                           |
| [O] to [9],<br>and [#],[*]<br>and [A] to [D] | Used as the DTMF keypad. If a key is pressed during transmission, the DTMF corresponding to the key that was pressed is sent. |
| [ENCODER]                                    | Changes channel.                                                                                                              |

#### • LCD indicator

“LO” Lights at RF Power Low.  
“ ” Lights at monitor ON.

#### • LED indicator

Red LED Lights during transmission. Blinks during low battery voltage warning.  
Green LED Lights when there is a carrier.

### ■ Frequency and signalling

The set has been adjusted for the frequencies shown in the following table. When required, re-adjust them following the adjustment procedure to obtain the frequencies you want in actual operation.

#### Frequency (MHz)

| Channel No. | K, M         |              |
|-------------|--------------|--------------|
|             | RX Frequency | TX Frequency |
| 1           | 162. 05000   | 162. 00000   |
| 2           | 150. 05000   | 150. 00000   |
| 3           | 173. 95000   | 174. 00000   |
| 4           | 162. 00000   | 162. 00000   |
| 5           | 162. 20000   | 162. 20000   |
| 6           | 162. 40000   | 162. 40000   |
| 7~16        | —            | —            |

#### Signalling

| Signalling No. | RX                   | TX                 |
|----------------|----------------------|--------------------|
| 1              | None                 | None               |
| 2              | None                 | 100Hz square wave  |
| 3              | QT 67.0Hz            | QT 67.0Hz          |
| 4              | QT 151.4Hz           | QT 151.4Hz         |
| 5              | QT 210.7Hz           | QT 210.7Hz         |
| 6              | QT 250.3Hz           | QT 250.3Hz         |
| 7              | DQT D023N            | DQT D023N          |
| 8              | DQT D754I            | DQT D754I          |
| 9              | DTMF DEC, (159D)     | DTMF ENC, (159D)   |
| 10             | None                 | DTMF tone 9        |
| 11             | 2 tone 321.7/928.1Hz | None               |
| 12             | Single tone 1200Hz   | Single tone 1200Hz |

#### • Preparations for tuning the transceiver

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

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

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

#### • Transceiver tuning

(To place the transceiver in tuning mode)

Channel appears on the LCD. Set the channel according to the tuning requirements.

#### LCD display (Test mode)

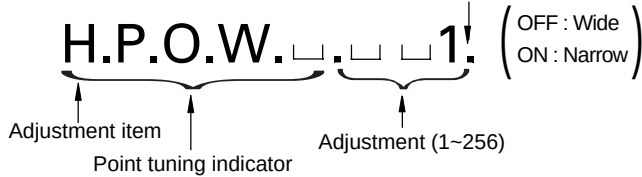
1 — 1  
↑                      ↑  
channel No.          Signalling No.

# ADJUSTMENT

Press [O], to enter tuning mode. Use the [◀] key to write tuning data through the tuning modes, and the channel selector knob to adjust the tuning requirements (1 to 256 appears on LCD).

Use the [▶] key to select the adjustment item through the tuning modes. Use the [●] key to adjust 3 or 5 point tuning, and use the [LAMP] key to switch between Wide/Narrow.

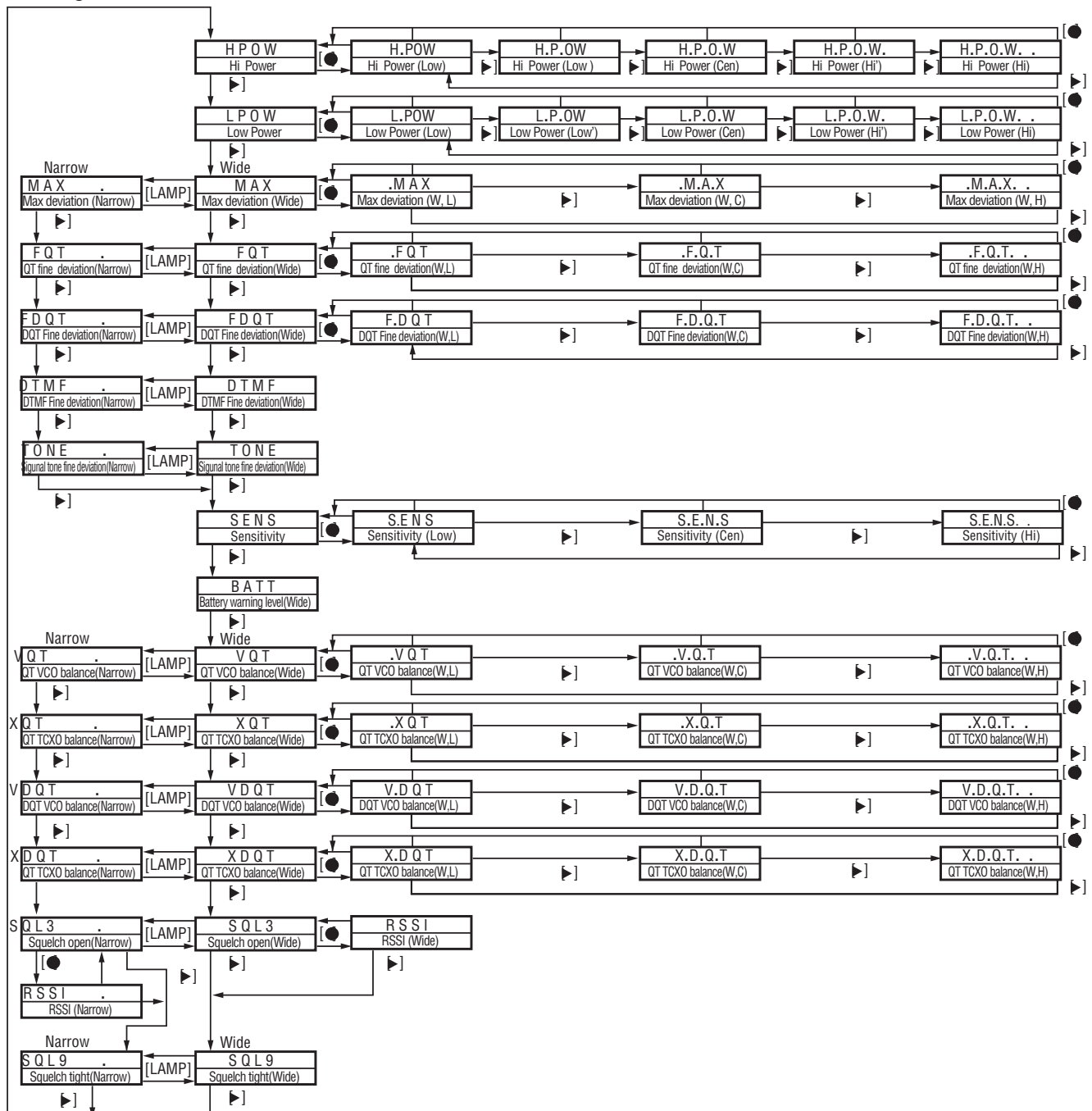
**LCD display (Tuning mode)** Wide/Narrow indicator



## Panel Tuning Mode

| K,M     | 150-174(MHz)       |                    |
|---------|--------------------|--------------------|
| TEST Ch | RX frequency (MHz) | TX frequency (MHz) |
| L       | 150.05000          | 150.00000          |
| L'      | 156.05000          | 156.00000          |
| M       | 162.05000          | 162.00000          |
| H'      | 168.05000          | 168.00000          |
| H       | 173.95000          | 174.00000          |

## Tuning mode



# TK-260G/270G

## ADJUSTMENT

Since the TK-260G cannot be tuned from the panel, the FPU (KPG-56D) should be used for adjustment.  
Adjust the receive BPF waveform according to the appropriate adjustment item.

### Common Section

| Item                | Condition                                                                                                                 | Measurement        |               | Adjustment |        | Specifications/<br>Remark |
|---------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|------------|--------|---------------------------|
|                     |                                                                                                                           | Test equipment     | Terminal      | Parts      | Method |                           |
| 1. Setting          | 1) BATT terminal voltage:7.5V<br>2) SSG Standard modulation<br>[Wide] MOD:1kHz, DEV:3kHz<br>[Narrow] MOD:1kHz, DEV:1.5kHz |                    |               |            |        |                           |
| 2. VCO lock voltage | <b>[Panel Test Mode]</b><br>1) CH-Sig:2-1                                                                                 | Power meter<br>DVM | ANT<br>CV(LV) |            | Check  | 0.8V or more              |
| RX                  | 2) CH-Sig:3-1                                                                                                             |                    |               |            |        | 4.0V ± 0.1V               |
| TX                  | 3) CH-Sig:2-1<br>PTT:ON                                                                                                   |                    |               |            |        | 0.8V or more              |
|                     | 4) CH-Sig:3-1<br>PTT:ON                                                                                                   |                    |               |            |        | 3.5V ± 0.1V               |

### Transmitter Section

| Item                  | Condition                                                                                                                                    | Measurement                              |          | Adjustment   |                                        | Specifications/<br>Remark |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------|--------------|----------------------------------------|---------------------------|
|                       |                                                                                                                                              | Test equipment                           | Terminal | Parts        | Method                                 |                           |
| 1. Frequency Adjust   | 1) PTT:ON                                                                                                                                    | Freq. Counter<br>Power meter<br>Am meter | ANT      | VR1          | Center frequency<br>(162.0 MHz) ± 50Hz |                           |
| 2. Max Power Check    | 1) Adj item [HPOW]<br>Adjust [256]<br>2) Adj item<br>[H.P O W] → [H.P.O W] → [H.P.O.W] → [H.P.O.W] → [H.P.O.W. .]<br>Adjust [256]<br>PTT:ON  |                                          |          |              | Check                                  | 5.2W or more              |
| 3. Hight Power Adjust | 1) Adj item [HPOW]<br>Adjust [***]<br>2) Adj item<br>[H.P O W] → [H.P.O W] → [H.P.O.W] → [H.P.O.W] → [H.P.O.W. .]<br>Adjust [***]<br>PTT:ON  |                                          |          | Encoder knob | 5.0W                                   | ±0.1W<br>2.2A or less     |
| 4. Hight Power Check  | <b>[Panel Test Mode]</b><br>1) CH-Sig:1-1<br>PTT:ON<br>2) CH-Sig:2-1<br>PTT:ON<br>3) CH-Sig:3-1<br>PTT:ON                                    |                                          |          |              | Check                                  | 4.0~6.0W<br>2.3A or less  |
| 5. Low Power Adjust   | 1) Adj item [LPOW]<br>Adjust [***]<br>2) Adj item<br>[L.P O W] → [L.P.O W] → [L.P.O.W] → [L.P.O.W.] → [L.P.O.W. .]<br>Adjust [***]<br>PTT:ON |                                          |          | Encoder knob | 1.0W                                   | ±0.1W<br>1.0A or less     |
| 6. Low Power Check    | <b>[Panel Test Mode]</b><br>1) CH-Sig:1-1<br>Set low power (Push [◀])<br>PTT:ON<br>2) CH-Sig:2-1<br>PTT:ON<br>3) CH-Sig:3-1<br>PTT:ON        |                                          |          |              | Check                                  | 0.5~1.5W<br>1.2A or less  |

## ADJUSTMENT

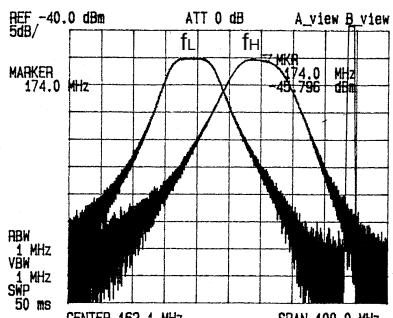
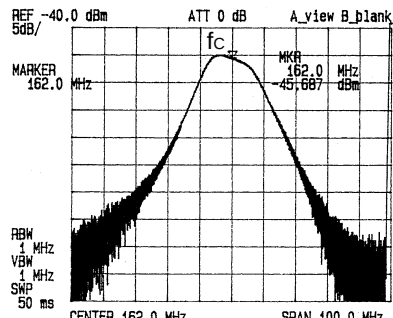
| Item                                      | Condition                                                                                        | Measurement                                               |                         | Adjustment      |                                                         | Specifications/<br>Remark                                                           |
|-------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------|-----------------|---------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                           |                                                                                                  | Test equipment                                            | Terminal                | Parts           | Method                                                  |                                                                                     |
| 7. Max DEV<br>Adjust<br>[Wide]            | 1) Adj item [MAX]<br>Adjust [***]<br>AG:1kHz / 150mV<br>Dev meter filter<br>LPF:15kHz<br>HPF:OFF | Power meter<br>Dev meter<br>Oscilloscope<br>AG<br>AF VTVM | ANT<br>SP/MIC connector | Encoder<br>knob | 4.2kHz<br>(According to<br>the larger +,-)              | ±50Hz                                                                               |
|                                           | 2) Adj item<br>[.M A X] → [.M.A.X] → [.M.A.X. .]<br>Adjust [***]<br>PTT:ON                       |                                                           |                         |                 |                                                         |                                                                                     |
| [Narrow]                                  | 1) Adj item [MAX .]<br>Adjust [***]<br>PTT:ON                                                    |                                                           |                         |                 | 2.1kHz<br>(According to<br>the larger+,-)               |                                                                                     |
| 8. MIC<br>Sensitivity<br>Check            | <b>[Panel Test Mode]</b><br>1) CH-Sig:1-1<br>AG:1kHz / 15mV<br>LPF:15kHz<br>PTT:ON               |                                                           |                         |                 | Check                                                   | 2.2~3.0kHz                                                                          |
| 9. DQT VCO<br>Balance<br>Adjust<br>[Wide] | 1) Adj item [VDQT]<br>Adjust [***]<br>LPF:3kHz<br>HPF:OFF                                        | Power meter<br>Dev meter<br>Oscilloscope<br>AG<br>AF VTVM | ANT<br>SP/MIC connector | Encoder<br>knob | Make the<br>demodulation<br>waves into<br>square waves. |  |
|                                           | 2) Adj item<br>[V.D Q T] → [V.D.Q.T] → [V.D.Q.T. .]<br>Adjust [***]<br>PTT:ON                    |                                                           |                         |                 |                                                         |                                                                                     |
| [Narrow]                                  | 3) Adj item [VDQT .]<br>Adjust [***]<br>PTT:ON                                                   |                                                           |                         |                 |                                                         |                                                                                     |
| 10.QT TCXO<br>Balance                     | Adj item [X Q T]<br>Adjust [200]<br>Wide, Narrow                                                 |                                                           |                         |                 |                                                         |                                                                                     |
| 11.DQT TCXO<br>Balance                    | Adj item [X D Q T] 5<br>Adjust [150]<br>Wide, Narrow                                             |                                                           |                         |                 |                                                         |                                                                                     |
| 12.QT VCO<br>Balance                      | Adj item [V Q T]<br>Adjust [***]<br>$[VDQT] \times \frac{200}{150} = [VQT]$                      |                                                           |                         |                 |                                                         |                                                                                     |
| 13. QT Deviation<br>Adjust                | 1) Adj item [FQT]<br>Adjust [***]<br>LPF:3kHz<br>HPF:OFF                                         |                                                           |                         |                 | Wide:0.90kHz<br>Narrow:0.42kHz                          | ±40Hz<br>±40Hz                                                                      |
|                                           | 2) Adj item<br>[.F Q T] → [.F.Q. T] → [.F.Q.T. .]<br>Adjust [***]<br>PTT:ON                      |                                                           |                         |                 |                                                         |                                                                                     |
| [Wide]                                    |                                                                                                  |                                                           |                         |                 |                                                         |                                                                                     |
| [Narrow]                                  | 3) Adj item [FQT.]<br>Adjust [***]<br>PTT:ON                                                     |                                                           |                         |                 |                                                         |                                                                                     |

## ADJUSTMENT

| Item                                                        | Condition                                                            | Measurement                              |                         | Adjustment      |                                                                                                                                                                                                 | Specifications/<br>Remark     |
|-------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------|-------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                                                             |                                                                      | Test equipment                           | Terminal                | Parts           | Method                                                                                                                                                                                          |                               |
| 14.DQT<br>Deviation<br>Adjust<br><br>[Wide]<br><br>[Narrow] | 1) Adj item [FDQT]<br>Adjust [***]<br>LPF:3kHz<br>HPF:OFF            | Power meter<br>Dev meter<br>Oscilloscope | ANT<br>SP/MIC connector | Encoder<br>knob | Wide:0.75kHz MAX<br>Narrow:0.4kHz MAX                                                                                                                                                           |                               |
|                                                             | 2) Adj item<br>[F.D Q T] → [F.D.Q.T] → [F.D.Q.T. .]                  |                                          |                         |                 |                                                                                                                                                                                                 |                               |
|                                                             | Adjust [***]<br>PTT:ON                                               |                                          |                         |                 |                                                                                                                                                                                                 |                               |
|                                                             | 3) Adj item [FDQT.]<br>Adjust [***]<br>PTT:ON                        |                                          |                         |                 |                                                                                                                                                                                                 |                               |
| 15.DTMF<br>Deviation<br>Adjust<br>[Wide]<br><br>[Narrow]    | 1) Adj item [DTMF]<br>Adjust [***]<br>LPF:15kHz<br>HPF:OFF<br>PTT:ON |                                          |                         |                 | Wide:2.5kHz<br>Narrow:1.25kHz                                                                                                                                                                   | ±0.1kHz                       |
|                                                             | 2) Adj item [DTMF .]<br>Adjust [***]<br>PTT:ON                       |                                          |                         |                 |                                                                                                                                                                                                 |                               |
|                                                             |                                                                      |                                          |                         |                 |                                                                                                                                                                                                 |                               |
| 16.TONE<br>Deviation<br>Adjust<br>[Wide]<br><br>[Narrow]    | 1) Adj item [TONE]<br>Adjust [***]<br>LPF:15kHz<br>HPF:OFF<br>PTT:ON |                                          |                         |                 | Wide:3.0kHz<br>Narrow:1.5kHz                                                                                                                                                                    | ±0.1kHz                       |
|                                                             | 2) Adj item [TONE .]<br>Adjust [***]<br>PTT:ON                       |                                          |                         |                 |                                                                                                                                                                                                 |                               |
|                                                             |                                                                      |                                          |                         |                 |                                                                                                                                                                                                 |                               |
| 17.BATT<br>Detection<br>Writing                             | 1) Adj item [BATT]<br>Adjust [***]<br>PTT:ON                         | Power meter<br>DVM                       | ANT<br>BATT<br>terminal | Encoder<br>knob | After pressing the<br>PTT switch, confirm<br>that one predeter-<br>mined numeric in the<br>range of 1 to 256<br>appears, then press<br>the [◀] key. That<br>number will be<br>stored in memory. | BATT terminal<br>voltage:5.9V |
| 18.BATT<br>Detection<br>Check                               | <b>[Panel Test Mode]</b>                                             |                                          |                         |                 | Check                                                                                                                                                                                           | No blinking of LED            |
|                                                             | 1) CH-Sig:1-1<br>BATT terminal voltage:6.5V<br>PTT:ON                |                                          |                         |                 |                                                                                                                                                                                                 |                               |
|                                                             | 2) BATT terminal voltage:5.7V<br>PTT:ON                              |                                          |                         |                 |                                                                                                                                                                                                 | Blinking of LED               |

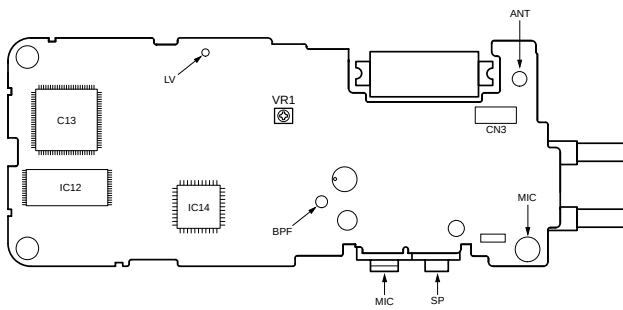


## ADJUSTMENT

| Item                               | Condition                                                                                                                                                                                                                                                                                                                                                                                                                                     | Measurement                             |                | Adjustment       |                                                                                         | Specifications/<br>Remark                                    |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------|------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                               | Test equipment                          | Terminal       | Parts            | Method                                                                                  |                                                              |
| 1. Sensitivity Adjustment          | Adj item [SENS]<br>Adjust [***]<br>$f_L$ $f_c$ $f_H$<br>[S.E.N.S] → [S.E.N.S.] → [S.E.N.S. .]<br>PTT : ON                                                                                                                                                                                                                                                                                                                                     | DVM                                     |                | Encoder knob     | $f_L$ : ([S.E.N.S]) : [88]<br>$f_c$ : (S.E.N.S) : [134]<br>$f_H$ : (S.E.N.S. .) : [180] |                                                              |
| 2. BPF                             | (PANEL TEST MODE)<br>CH-Sig 2-1<br>Tra-G setting -40dBm                                                                                                                                                                                                                                                                                                                                                                                       | Tracking generator<br>spectrum analyzer | ANT<br><br>BPF | L305, L306, L307 | Adjust wave form<br>to figure 1.( $f_L$ )                                               |                                                              |
|                                    | CH-Sig 1-1                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |                |                  | Check wave form to figure 2.( $f_c$ )                                                   |                                                              |
|                                    | CH-Sig 3-1                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |                |                  | Check wave form to figure 1.( $f_H$ )                                                   |                                                              |
|                                    | <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p><b>Fig. 1</b></p> </div> <div style="text-align: center;">  <p><b>Fig. 2</b></p> </div> </div> <p style="text-align: center;"><b>BPF-WAVE</b></p> |                                         |                |                  |                                                                                         |                                                              |
| 3. Sensitivity Check               | <b>[Panel Test Mode]</b><br>1) CH-Sig:1-1<br>SSG OUT<br>Wide:-117dBm (0.3μV)<br>(MOD:1kHz / ±3kHz)<br>Narrow:-117dBm (0.3μV)<br>(MOD:1kHz / ±1.5kHz)                                                                                                                                                                                                                                                                                          | SSG<br>AF VTVM<br>Oscilloscope          | ANT            |                  | Check                                                                                   | 12dB SINAD or more                                           |
| 4. Squelch (open)<br>Adjust (Wide) | 1) Adj item [SQL3]<br>Adjust [***]<br>SSG OUT:<br>-124dBm (0.14μV)                                                                                                                                                                                                                                                                                                                                                                            |                                         |                |                  | Encoder knob<br>squelch.                                                                | Adjust to the<br>squelch<br>threshold point                  |
| (Narrow)                           | 2) Adj item [SQL3.]<br>Adjust [***]<br>-124dBm (0.14μV)                                                                                                                                                                                                                                                                                                                                                                                       |                                         |                |                  |                                                                                         |                                                              |
| 5. Squelch(Tight)<br>Adjust [Wide] | 1) Adj item [SQL9]<br>Adjust [***]<br>SSG OUT:-117dBm (0.3μV)                                                                                                                                                                                                                                                                                                                                                                                 |                                         |                |                  |                                                                                         | Adjust to the<br>squelch<br>threshold point                  |
| [Narrow]                           | 1) Adj item [SQL9.]<br>SSG OUT:-117dBm (0.3μV)                                                                                                                                                                                                                                                                                                                                                                                                |                                         |                |                  |                                                                                         |                                                              |
| 6. Squelch Check                   | <b>[Panel Test Mode]</b><br>1) CH-Sig:1-1<br>SQ Level:[SQL5]<br>SSG OUT:<br>-118dBm (0.28μV)<br>2) SSG OUT:OFF                                                                                                                                                                                                                                                                                                                                |                                         |                |                  | Check                                                                                   | Squelch must<br>be opened.<br><br>Squelch must<br>be closed. |

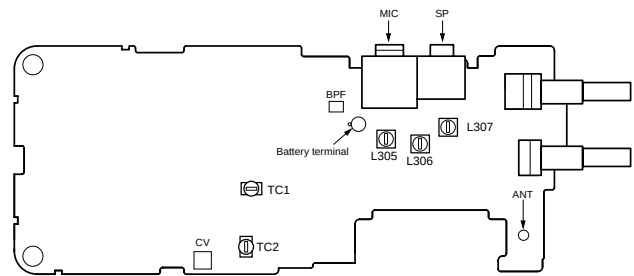
## ADJUSTMENT

### Adjustment points TX-RX unit (X57-587) Component side view



VR1 : Frequency adjustment

### Foil Side View



TC1 : Transmit lock voltage adjustment

TC2 : Receive lock voltage adjustment

L305:

L306:

L307:

} Band-pass filter waveform adjustment

BPF : Band-pass filter test point

CV(LV) : Lock voltage adjustment terminal.

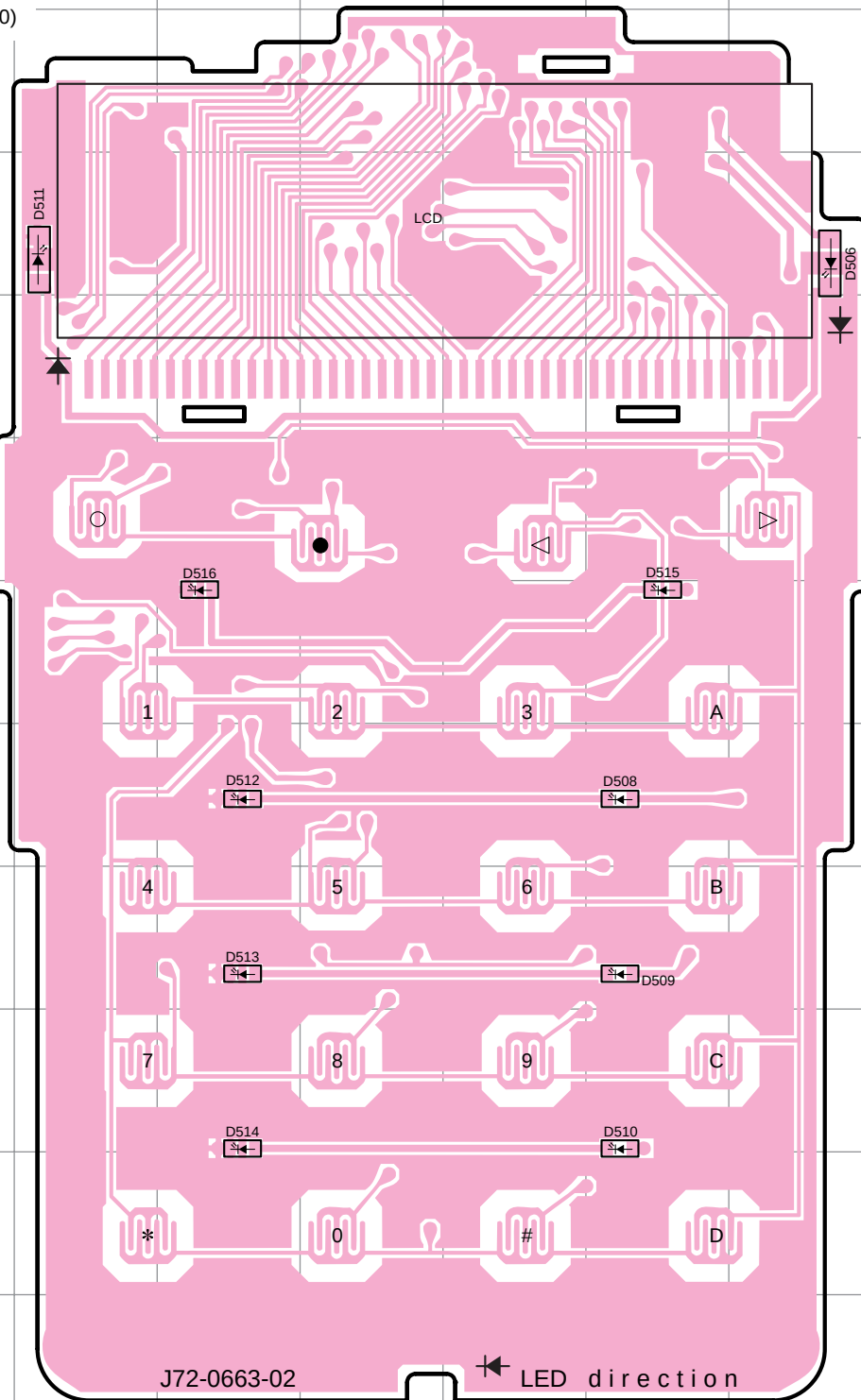
**Fig. 2 Adjustment points**

### DISPLAY UNIT (X54-3250-10) Component Side View

### DISPLAY UNIT (X54-3250-10) Foil Side View

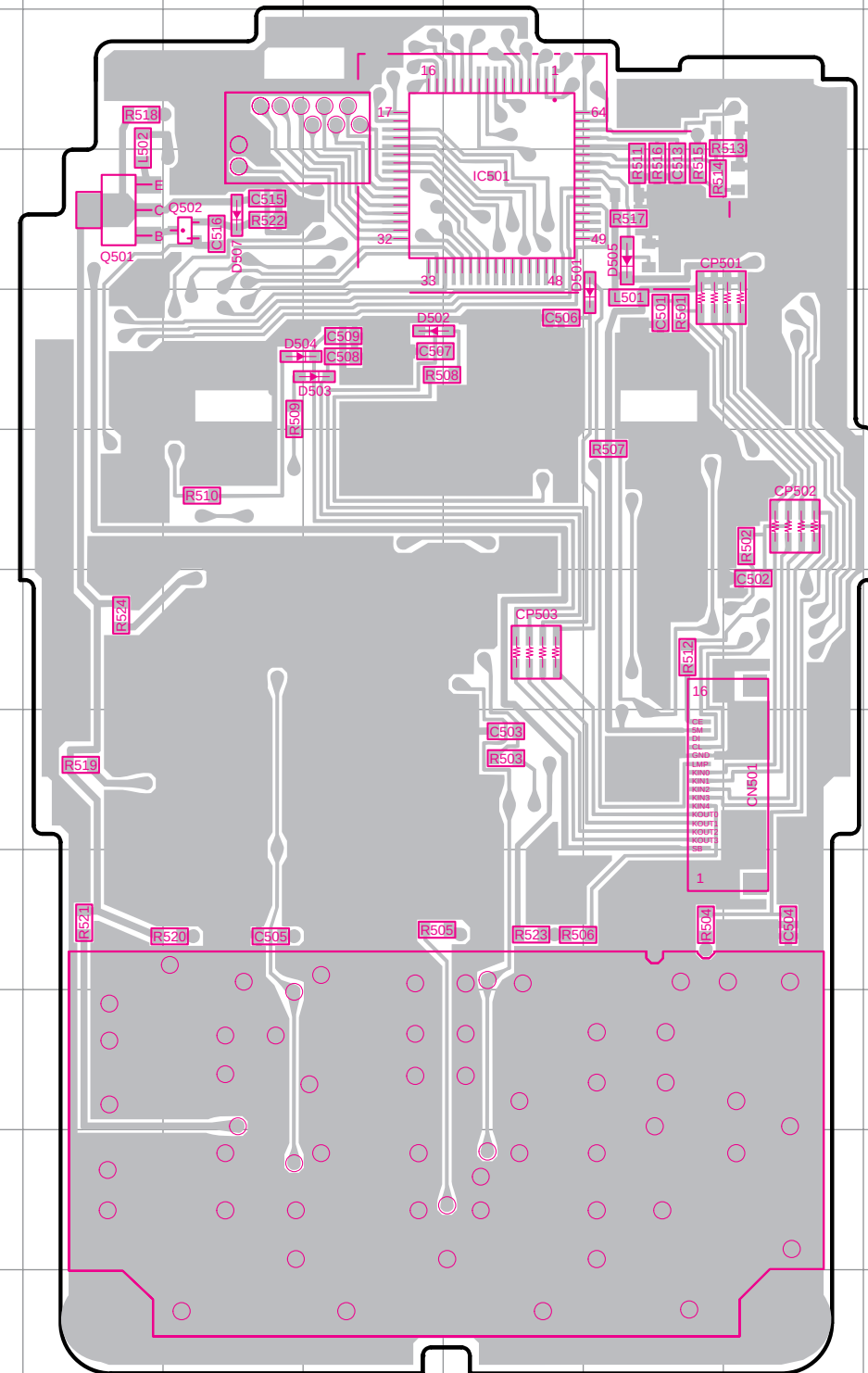
DISPLAY UNIT (X54-3250-10)  
Component Side View

| Ref. NO. | Address |
|----------|---------|
| IC501    | 4E      |
| Q501     | 4H      |
| Q502     | 4G      |
| D501     | 4D      |
| D502     | 5F      |
| D503     | 5F      |
| D504     | 5F      |
| D505     | 4D      |
| D506     | 4H      |
| D507     | 4G      |
| D508     | 8G      |
| D509     | 9G      |
| D510     | 10G     |
| D511     | 4C      |
| D512     | 8D      |
| D513     | 9D      |
| D514     | 10D     |
| D515     | 7G      |
| D516     | 7D      |

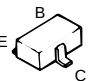


DISPLAY UNIT (X54-3250-10)  
Foil Side View

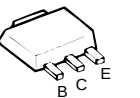
| Ref. NO. | Address |
|----------|---------|
| IC501    | 4N      |
| Q501     | 4K      |
| Q502     | 4L      |
| D501     | 4O      |
| D502     | 5M      |
| D503     | 5M      |
| D504     | 5M      |
| D505     | 4O      |
| D506     | 4K      |
| D507     | 4L      |
| D508     | 8L      |
| D509     | 9L      |
| D510     | 10L     |
| D511     | 4P      |
| D512     | 8O      |
| D513     | 9O      |
| D514     | 10O     |
| D515     | 7L      |
| D516     | 7O      |



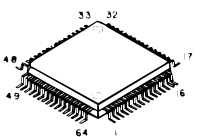
2SC4617(S)



2SB1132(Q,R)



LC75823W



Component Side 

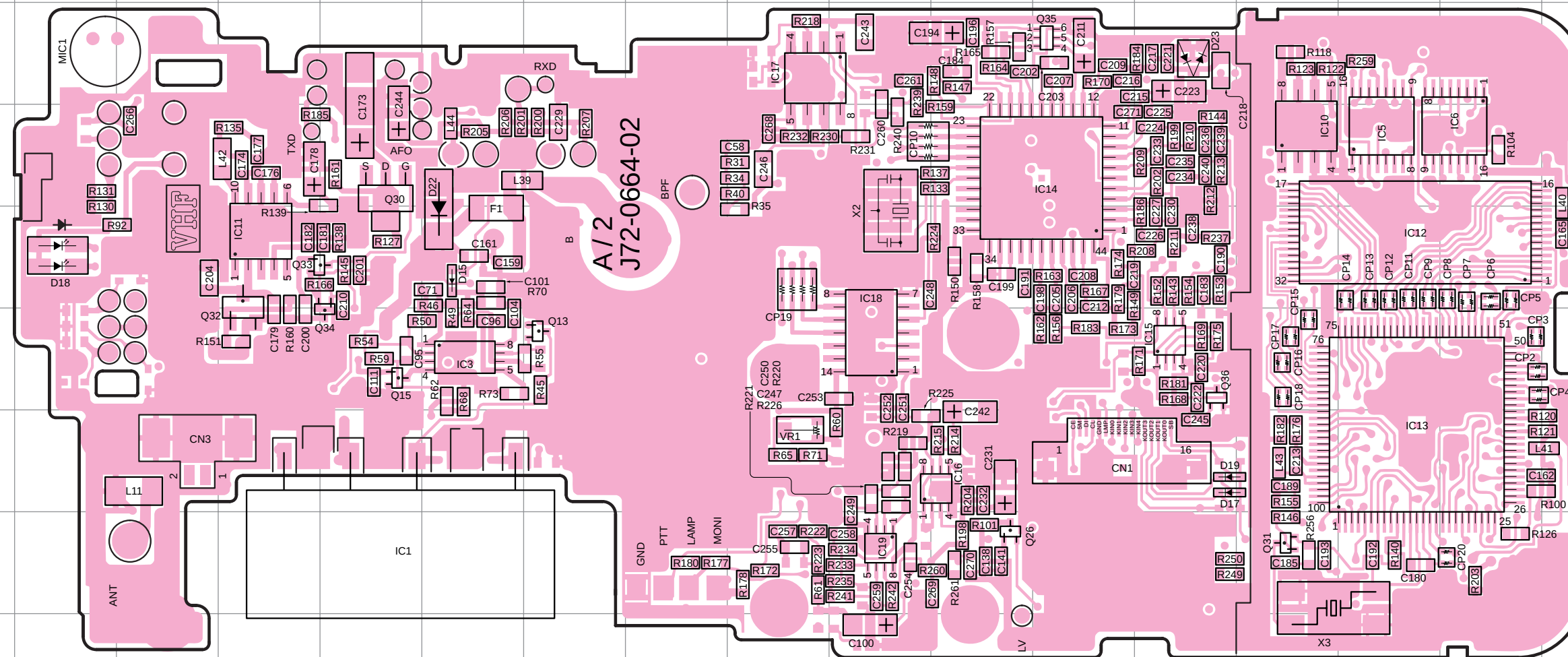
Foil Side 

Component Side 

Foil Side 

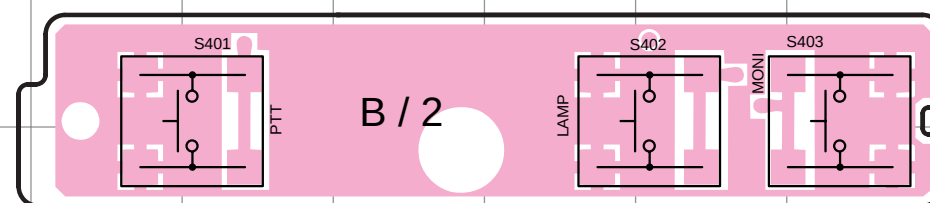
## TK-260G/270G PC BOARD VIEW

**TX RX UNIT (X57-5870-XX) Component Side View**  
**0-10:TK260G K,M, 0-11:TK-270G K, 0-21:TK-270G M**



TX-RX UNIT (X57-5870-XX)  
Component Side View

| Ref. NO. | Address |
|----------|---------|
| IC1      | 8E      |
| IC3      | 6F      |
| IC5      | 4O      |
| IC6      | 4P      |
| IC10     | 4N      |
| IC11     | 5D      |
| IC12     | 5O      |
| IC13     | 7O      |
| IC14     | 4L      |
| IC15     | 6M      |
| IC16     | 7K      |
| IC17     | 3I      |
| IC18     | 6J      |
| IC19     | 8J      |
| Q13      | 6G      |
| Q15      | 6E      |
| Q26      | 8K      |
| Q30      | 4E      |
| Q31      | 8N      |
| Q32      | 5D      |
| Q33      | 5D      |
| Q34      | 5E      |
| Q35      | 3L      |
| Q36      | 6M      |
| D15      | 5F      |
| D17      | 7M      |
| D19      | 7M      |
| D22      | 4F      |
| D23      | 3M      |

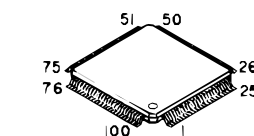


Component side

- Pattern 1
- Pattern 2
- Pattern 3
- Pattern 4

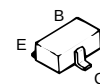
Foil side

30622M4102GP

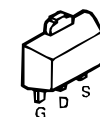


DTA114EE  
DTA144EE  
DTC114EE

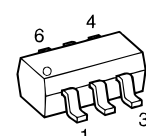
2SA1362(GR)  
2SC4619



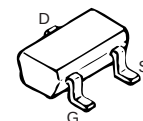
2SK1588



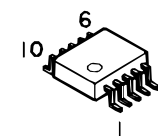
UPA672T



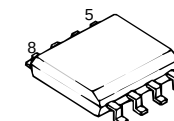
2SK1824



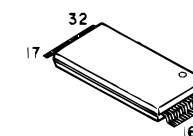
TA7368F



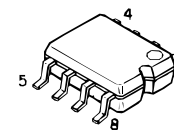
X9C103SI



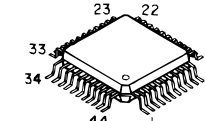
AT29C020-90TI



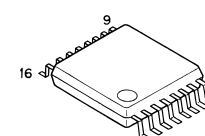
AT2408SN10SI2.5



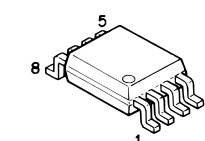
TC35453F



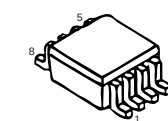
BU4094BCFV



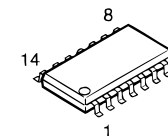
NJM2904V



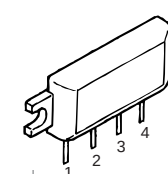
TA73W01FU  
TC75W51FU



LC73872M



M68732H

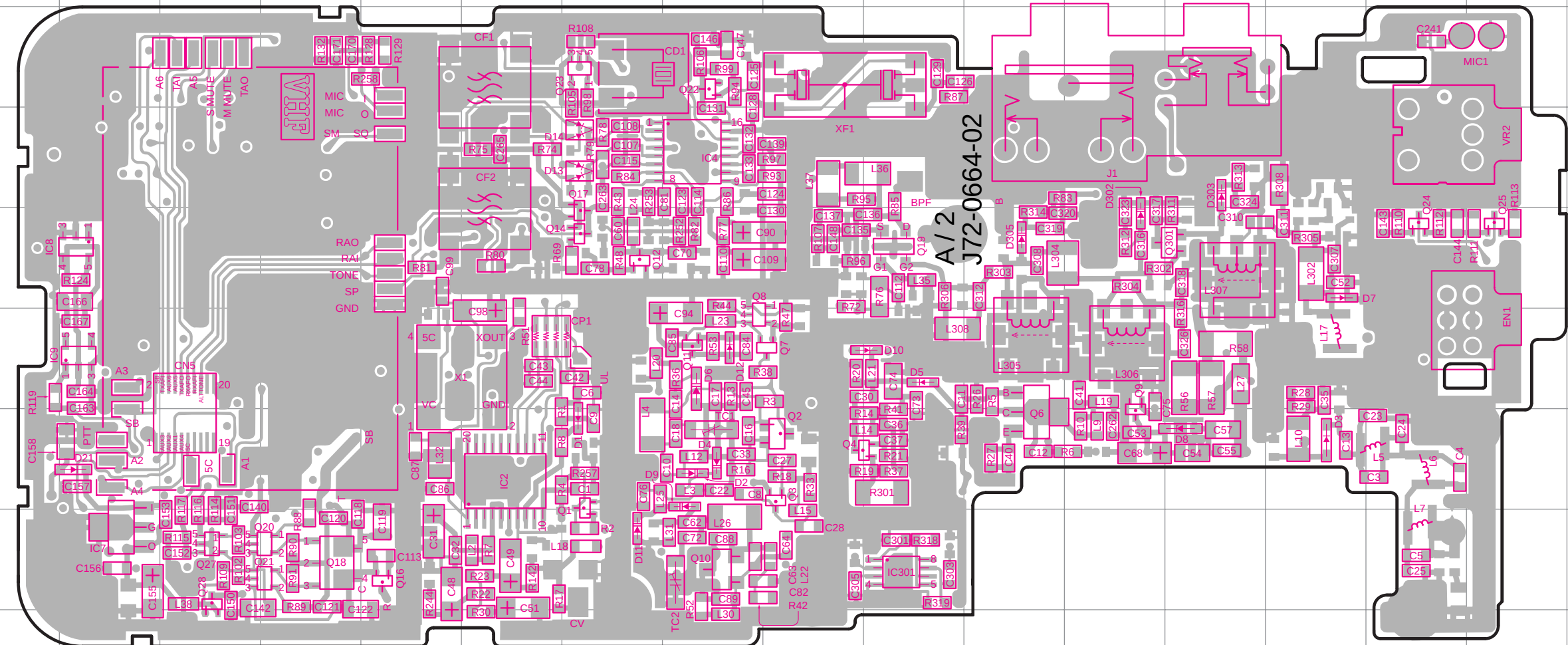


## PC BOARD VIEW TK-260G/270G

**TX RX UNIT (X57-5870-XX) Foil Side View**  
**0-10:TK260G K,M, 0-11:TK-270G K, 0-21:TK-270G M**

TX-RX UNIT (X57-5870-XX)  
Foil Side View

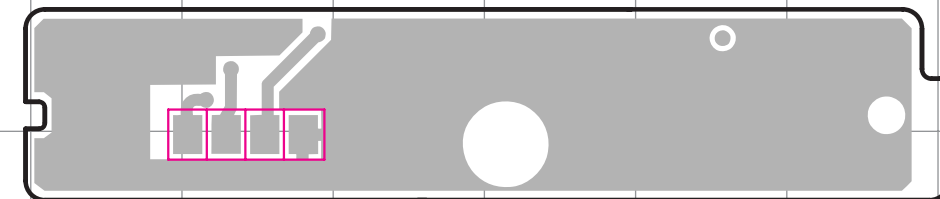
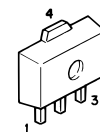
| Ref. NO. | Address |
|----------|---------|
| IC2      | 7H      |
| IC4      | 4J      |
| IC7      | 8D      |
| IC8      | 5D      |
| IC9      | 6D      |
| IC301    | 8L      |
| Q1       | 8I      |
| Q2       | 7K      |
| Q3       | 7K      |
| Q4       | 7L      |
| Q6       | 7M      |
| Q7       | 6K      |
| Q8       | 6J      |
| Q9       | 6N      |
| Q10      | 8J      |
| Q11      | 6J      |
| Q12      | 5I      |
| Q14      | 5I      |
| Q16      | 8G      |
| Q17      | 5I      |
| Q18      | 5F      |
| Q19      | 8F      |
| Q20      | 8F      |
| Q21      | 8F      |
| Q22      | 3J      |
| Q23      | 3I      |
| Q24      | 5Q      |
| Q25      | 5R      |
| Q27      | 8E      |
| Q28      | 8E      |
| Q301     | 5O      |
| D1       | 7I      |
| D2       | 7J      |
| D3       | 7P      |
| D4       | 7J      |
| D5       | 6L      |
| D6       | 6J      |
| D7       | 5P      |
| D8       | 7O      |
| D9       | 7J      |
| D10      | 6L      |
| D11      | 8I      |
| D12      | 6J      |
| D13      | 4I      |
| D14      | 4I      |
| D21      | 7D      |
| D302     | 5N      |
| D303     | 4O      |
| D305     | 5M      |



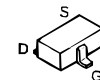
DTA114EE  
DTA114YE  
DTA144EE  
DTC114EE  
DTC144EE  
2SC4226(R24)  
2SC4617(S)  
2SC5108(Y)  
2SC4649(N,P)

2SC4988

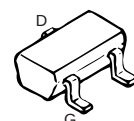
UPA572T



2SK508NV(K52)



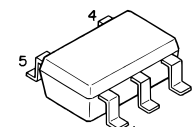
2SJ243



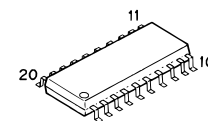
S-81350HG-KD



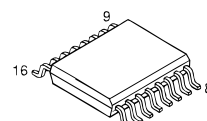
PST9140NR  
RN5VL45C



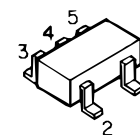
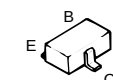
MB15A02



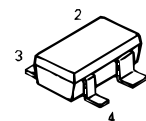
TA31136FN



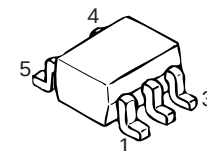
UMC4



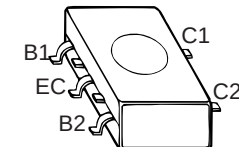
3SK228



UMG3N

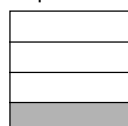


FP210



Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4

Component side

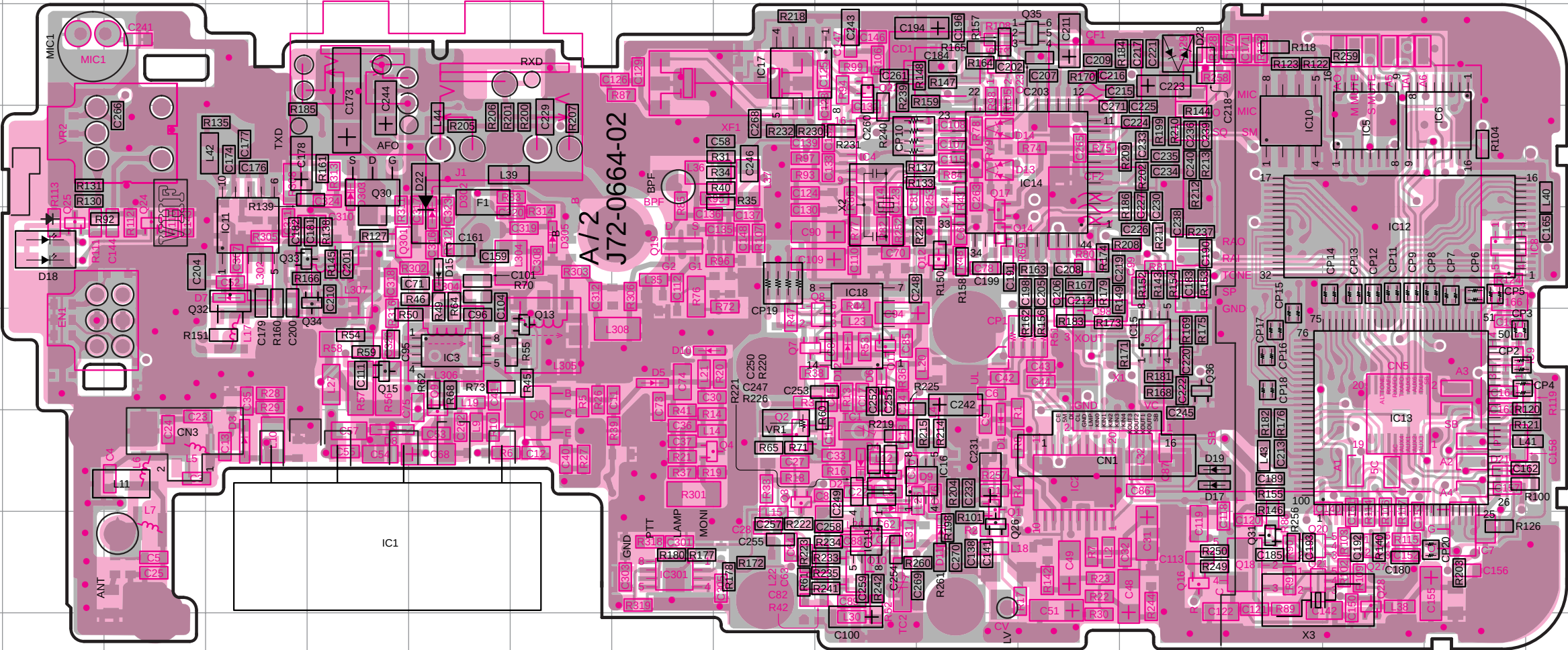


Foil side



# TK-260G/270G PC BOARD VIEW

TX RX UNIT (X57-5870-XX) Component Side + Foil Side View  
0-10:TK260G K,M, 0-11:TK-270G K, 0-21:TK-270G M

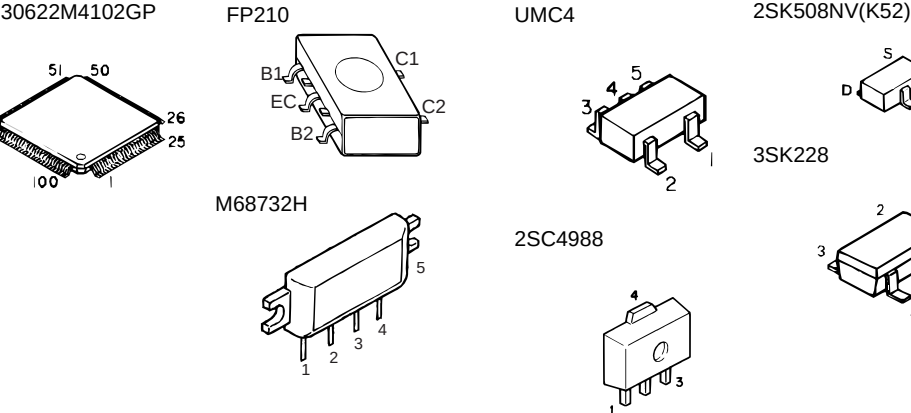
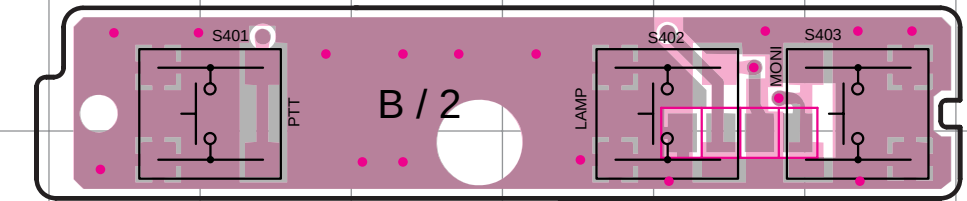


● Component side

Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4

Foil side

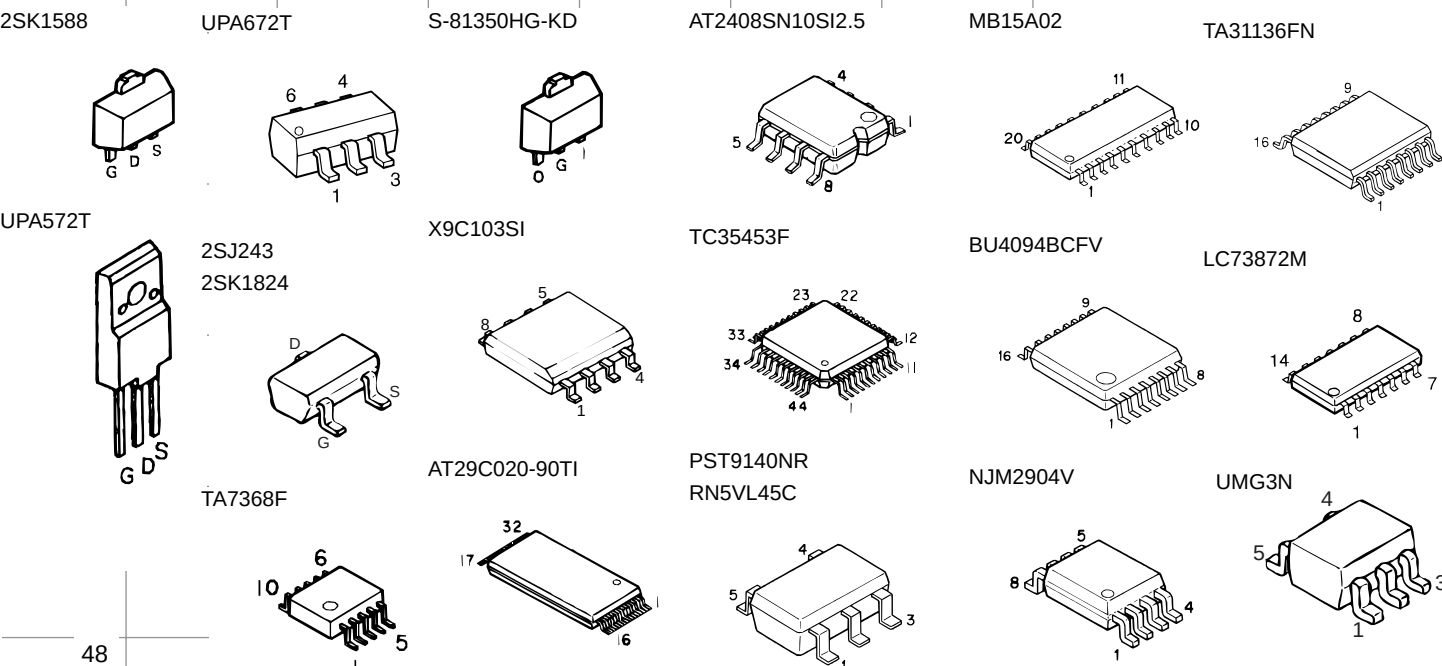
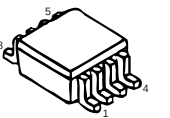
- DTA114EE
- DTA114YE
- DTA144EE
- DTC114EE
- DTC144EE
- 2SA1362(GR)
- 2SC4226(R24)
- 2SC4617(S)
- 2SC4619
- 2SC5108(Y)
- 2SC4649(N,P)



TX-RX UNIT (X57-5870-XX)  
Component Side + Foil Side View

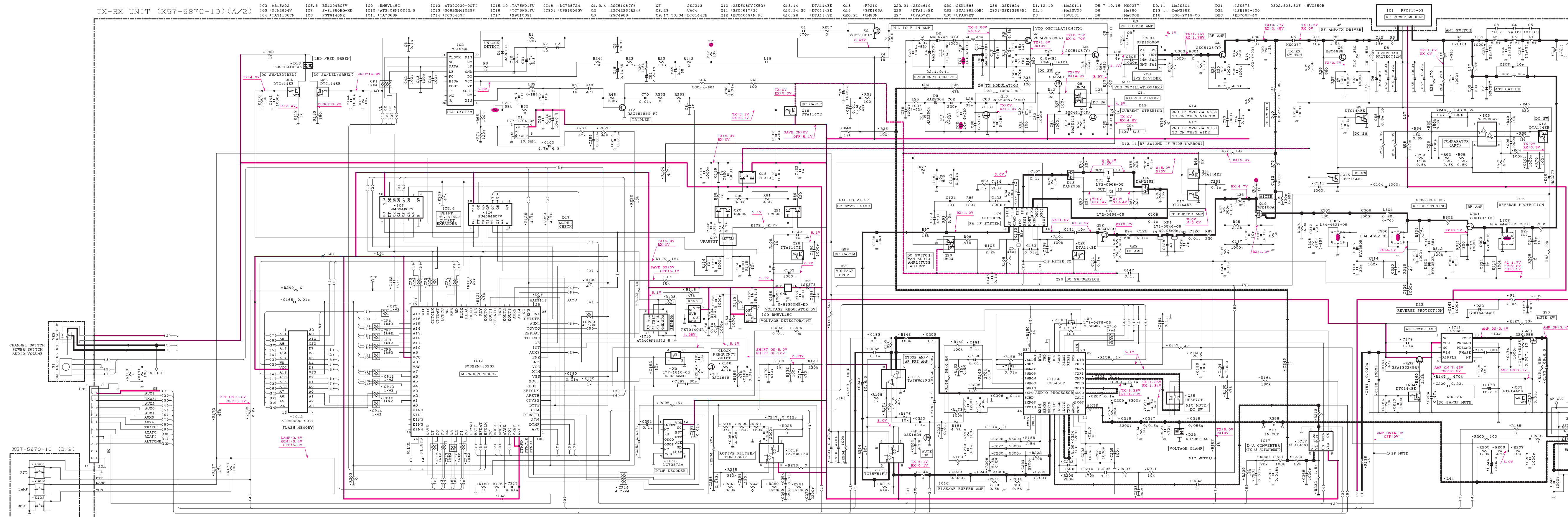
| Ref. NO. | Address | Ref. NO. | Address |
|----------|---------|----------|---------|
| IC1      | 8E      | Q24      | 5C      |
| IC2      | 7L      | Q25      | 5B      |
| IC3      | 6F      | Q26      | 8K      |
| IC4      | 4J      | Q27      | 8O      |
| IC5      | 4O      | Q28      | 8O      |
| IC6      | 4P      | Q30      | 4E      |
| IC7      | 8P      | Q31      | 8N      |
| IC8      | 5P      | Q32      | 5D      |
| IC9      | 6P      | Q33      | 5D      |
| IC10     | 4N      | Q34      | 5E      |
| IC11     | 5D      | Q35      | 3L      |
| IC12     | 5O      | Q36      | 6M      |
| IC13     | 7O      | Q301     | 5O      |
| IC14     | 4L      | D1       | 7K      |
| IC15     | 6M      | D2       | 7J      |
| IC16     | 7K      | D3       | 7O      |
| IC17     | 3I      | D4       | 7J      |
| IC18     | 6J      | D5       | 6H      |
| IC19     | 8J      | D6       | 6J      |
| IC301    | 8H      | D7       | 5D      |
| Q1       | 8K      | D8       | 7E      |
| Q2       | 7I      | D9       | 7J      |
| Q3       | 7I      | D10      | 6H      |
| Q4       | 7H      | D11      | 8K      |
| Q6       | 7G      | D12      | 6J      |
| Q7       | 6I      | D13      | 4K      |
| Q8       | 6J      | D14      | 4K      |
| Q9       | 6F      | D15      | 5F      |
| Q10      | 8J      | D17      | 7M      |
| Q11      | 6J      | D19      | 7M      |
| Q12      | 5K      | D22      | 4F      |
| Q13      | 6G      | D23      | 3M      |
| Q14      | 5K      | D302     | 5F      |
| Q15      | 6E      | D303     | 4E      |
| Q16      | 8M      | D305     | 5G      |
| Q17      | 5K      |          |         |
| Q18      | 8N      |          |         |
| Q19      | 5H      |          |         |
| Q20      | 8N      |          |         |
| Q21      | 8N      |          |         |
| Q22      | 3J      |          |         |
| Q23      | 3K      |          |         |

TA73W01FU  
TC75W51FU





# TK-260G

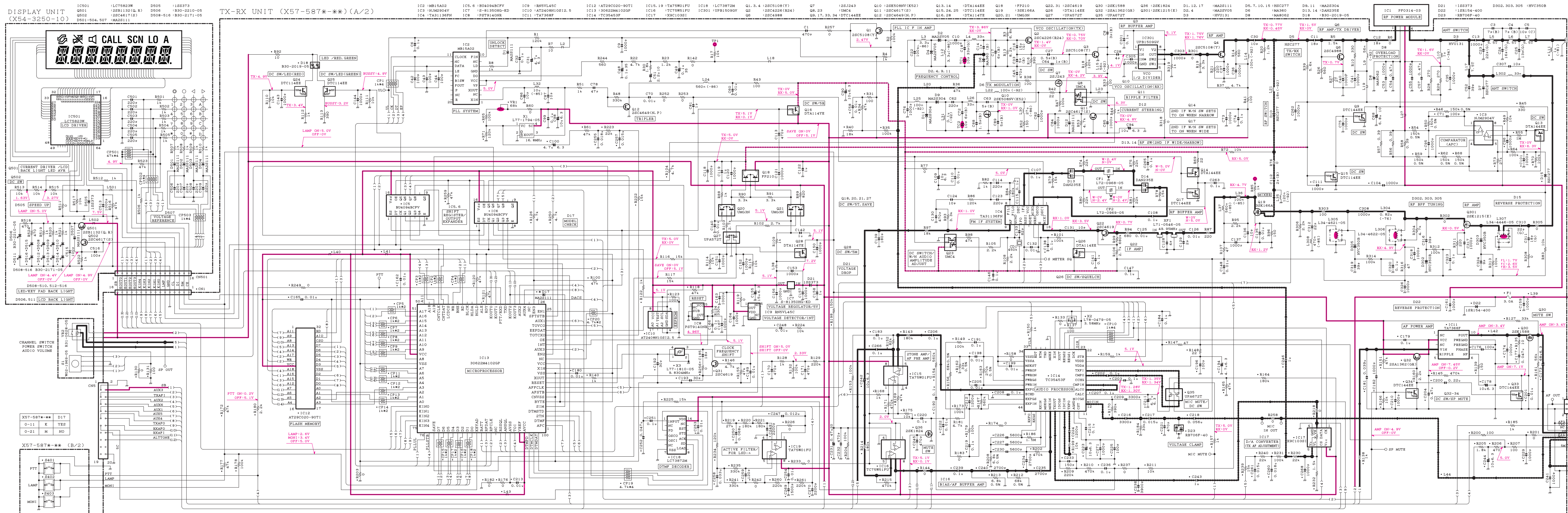


TK-260G

Note) Component marked with a dot (●) are Parts of pattern 1.



## TK-270G SCHEMATIC DIAGRAM

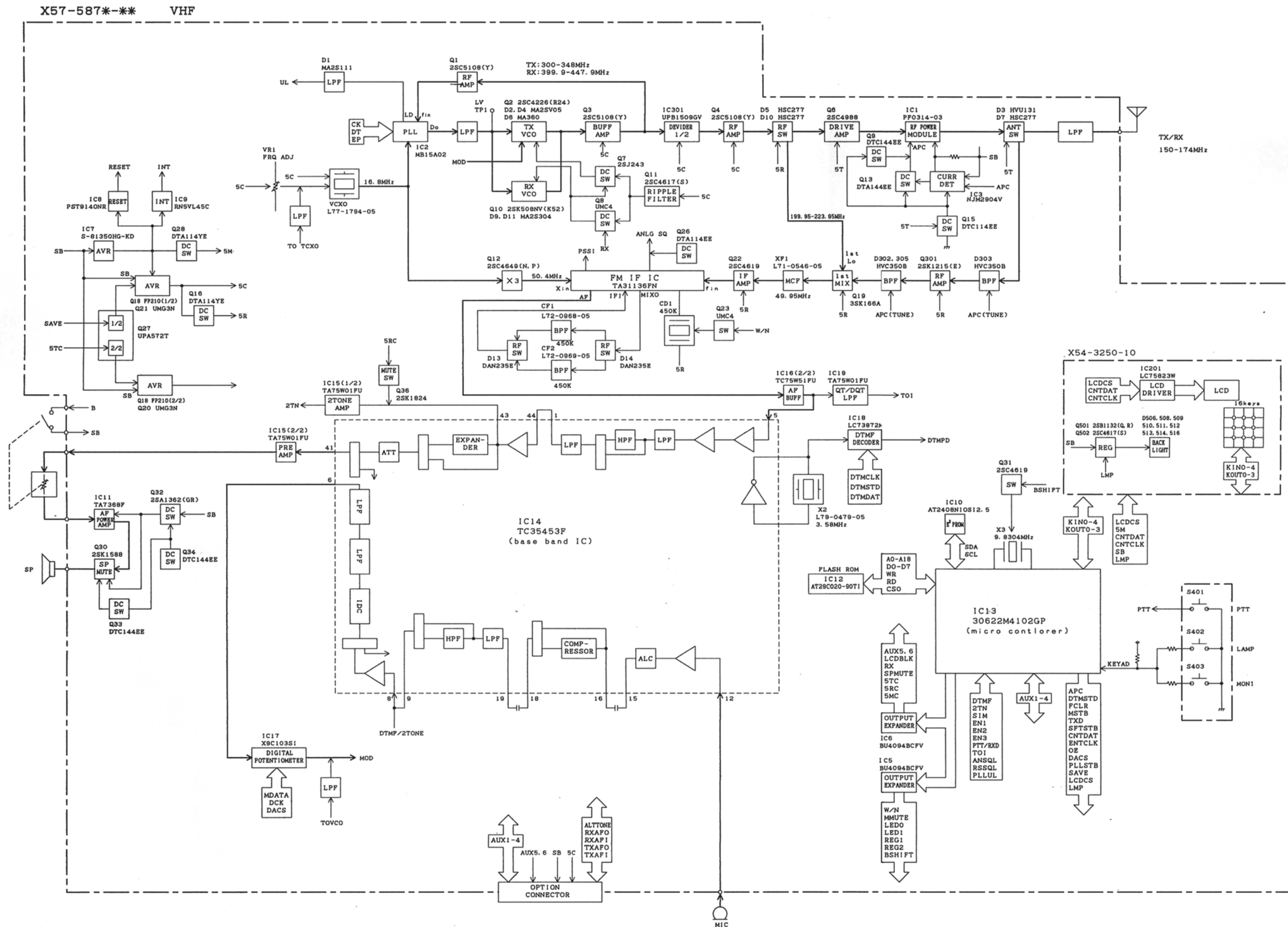


Note) Component marked with a dot (●) are Parts of pattern 1



# TK-260G/270G TK-260G/270G

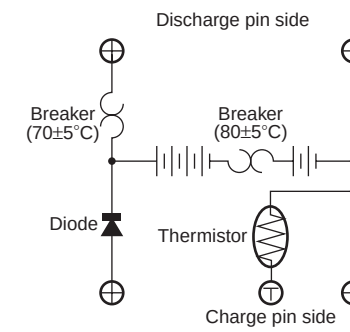
## BLOCK DIAGRAM



## KNB-14/KNB-15A (Ni-Cd BATTERY)



### CIRCUIT DIAGRAM



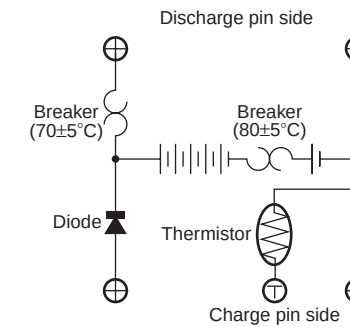
## SPECIFICATIONS

Voltage : 7.2V (1.2V x 6)  
Charging current : 600mAh  
Dimensions : 60.8W x 110.8H x 17.3D (mm)  
(projections included)  
Charger and charging time:  
KSC-15 (normal charger), approximately 8 hours  
KSC-16 (rapid charger), approximately 1 hour  
Weight : 165g

**KNB-15A**



### CIRCUIT DIAGRAM



## SPECIFICATIONS

Voltage : 7.2V (1.2V x 6)  
Charging current : 1100mAh  
Dimensions : 60.8W x 110.8H x 20.3D (mm)  
(projections included)  
Charger and charging time:  
KSC-15 (normal charger), approximately 8 hours  
KSC-16 (rapid charger), approximately 2 hours  
Weight : 210g

## OPTIONS

### KMC-17 (Speaker microphone)



### KMC-17 Parts List

| Ref. No. | New parts | Parts No.   | Description          | Re-<br>marks |
|----------|-----------|-------------|----------------------|--------------|
|          |           | A02-0907-08 | Case (Front)         |              |
|          |           | A02-0908-08 | Case (Rear)          |              |
|          |           | B09-0316-08 | Cap                  |              |
|          |           | D10-0606-08 | Lever (PTT)          |              |
|          |           | E11-0421-05 | Phone jack           |              |
|          |           | E30-3138-08 | Curl cord            |              |
|          |           | F07-0889-08 | Silicon rubber (PTT) |              |
|          |           | G53-0569-08 | Packing (MIC case)   |              |
|          |           | J29-0440-08 | Clip assy            |              |
|          |           | J39-0601-08 | Packing (MIC)        |              |
|          |           | N46-2605-60 | Screw (Clip assy)    |              |
|          |           | N46-3016-60 | Screw (Case)         |              |
|          |           | N80-2005-41 | Screw (MIC unit)     |              |
|          |           | S50-1415-05 | Tact switch (PTT)    |              |
|          |           | T07-0290-05 | Loudspeaker (1W, 8Ω) |              |
|          |           | T91-0534-08 | Condenser MIC        |              |

### KMC-21 (Speaker microphone)



### KMC-21 Parts List

| Ref. No. | New parts | Parts No.   | Description       | Re-<br>marks |
|----------|-----------|-------------|-------------------|--------------|
|          |           | A02-1979-08 | Case (Front)      |              |
|          |           | A02-0980-08 | Case (Rear)       |              |
|          |           | E11-0453-08 | Phone jack        |              |
|          |           | E30-3239-08 | Curl cord         |              |
|          |           | F07-1414-08 | Cover             |              |
|          |           | K29-5077-08 | Lever (PTT)       |              |
|          |           | S70-0444-08 | Tact switch (PTT) |              |
|          |           | T07-0335-05 | Loudspeaker       |              |
|          |           | T91-0564-08 | Condenser MIC     |              |

# TK-260G/270G

## SPECIFICATION

### General

|                                           |                                                                       |
|-------------------------------------------|-----------------------------------------------------------------------|
| Frequency Range .....                     | 150~174MHz                                                            |
| Number of channels .....                  | Max. 8 (TK-260G) Max. 128 (TK-270G)                                   |
| Number of groups .....                    | Max. 128 (TK-270G)                                                    |
| Channel Spacing .....                     | 25kHz, 30kHz (Wide) 12.5kHz, 15kHz (Narrow)                           |
| PLL Step .....                            | 2.5kHz, 5kHz, 6.25kHz, 7.5kHz                                         |
| Operating Voltage .....                   | 7.5 VDC                                                               |
| Battery Life .....                        | More than 8 hours at 5 watts (5-5-90 duty cycle with KNB-15A battery) |
| Operating Temperature range .....         | -30°C to +60°C (-22 °F to +140 °F)                                    |
| Dimensions and Weight                     |                                                                       |
| With KNB-14 (7.2V 600mAh battery) .....   | 58 (2-5/16) W x 135 (5-5/16) H x 32 (1-1/4) D mm (in)                 |
|                                           | 400g (0.88lbs)                                                        |
| With KNB-15A (7.2V 1100mAh battery) ..... | 58 (2-5/16) W x 135 (5-5/16) H x 35 (1-3/8) D mm (in)                 |
|                                           | 440g (0.97lbs)                                                        |

### Receiver (Measurements made per EIA standard EIA-RS316B)

|                                |                               |
|--------------------------------|-------------------------------|
| Sensitivity                    |                               |
| EIA 12dB SINAD .....           | 0.25µV (Wide)/0.28µV (Narrow) |
| Selectivity .....              | 70dB (Wide)/65dB (Narrow)     |
| Intermodulation .....          | 65dB (Wide)/60dB (Narrow)     |
| Spurious response .....        | 65dB                          |
| Audio Power Output .....       | 500mW                         |
| Frequency Stability .....      | ±3ppm                         |
| Channel Frequency Spread ..... | 24MHz                         |

### Transmitter (Measurements made per EIA standard EIA-RS 316B)

|                                |                                 |
|--------------------------------|---------------------------------|
| RF Power output .....          | 5W/1W                           |
| Spurious and Harmonics .....   | 70dB                            |
| Modulation .....               | 16KφF3E (Wide)/11KφF3E (Narrow) |
| FM Noise .....                 | -45dB (Wide)/-43dB (Narrow)     |
| Audio Distortion .....         | Less than 5%                    |
| Frequency Stability .....      | ±3ppm                           |
| Channel Frequency Spread ..... | 24MHz                           |

## KENWOOD CORPORATION

14-6, Dogenzaka 1-chome, Shibuya-ku, Tokyo 150-8501, Japan

### KENWOOD SERVICE CORPORATION

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

### KENWOOD ELECTRONICS LATIN AMERICA S.A.

P.O. BOX 55-2791 Piso 6 Plaza Chase Cl, 47 y Aquilino de la Guardia Panama, Republic of Panama

### KENWOOD ELECTRONICS CANADA INC.

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

### KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

### KENWOOD ELECTRONICS BELGIUM N.V.

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

### KENWOOD ELECTRONICS FRANCE S.A.

13, Boulevard Ney, 75018 Paris, France

### KENWOOD ELECTRONICS U.K. LIMITED

KENWOOD House, Dwight Road, Watford, Herst., WD1 8EB United Kingdom

### KENWOOD ELECTRONICS EUROPE B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

### KENWOOD ELECTRONICS ITALIA S.p.A.

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

### KENWOOD IBERICA S.A.

Bolivia, 239-08020 Barcelona, Spain

### KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

(A.C.N. 001 499 074)

P.O. Box 504, 8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140, Australia

### KENWOOD ELECTRONICS (HONG KONG) LTD.

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

### KENWOOD ELECTRONICS TECHNOLOGIES(S) PTE LTD.

Sales Marketing Division  
1 Ang Mo Kio Street 63, Singapore 569110