

# KENWOOD

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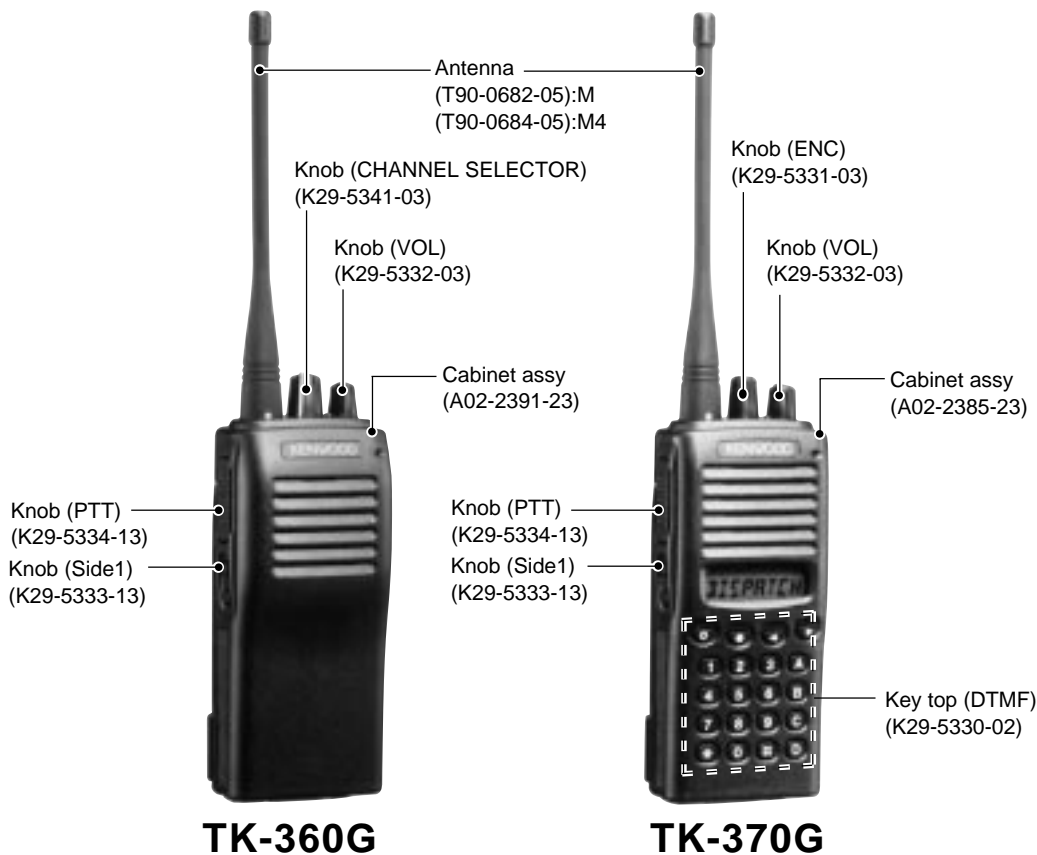
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# TK-360G/370G

## SERVICE MANUAL

REVISED

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**TK-360G**

**TK-370G**

**M market models are shown.**

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# TK-360G/370G

## 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:

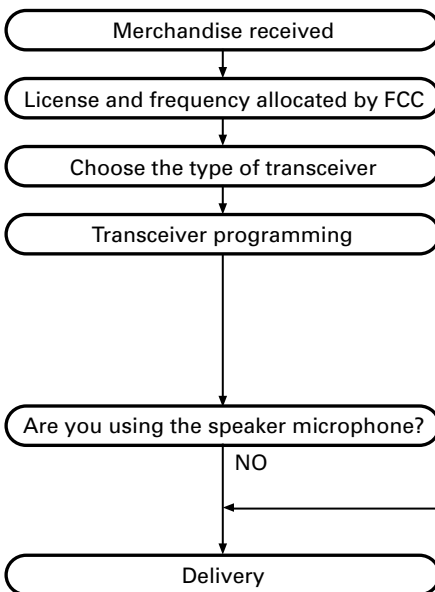
- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

### SERVICE

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

Unit Model & destination		TX-RX Unit	Display Unit	Frequency range	Remarks	Whip Antenna	Charger	Battery	16 Key
TK-360G	K	X57-5880-10	-	450~470MHz	IF1 : 44.95MHz LOC : 50.4MHz	OP	OP	OP	-
	M	X57-5880-10				O			
	K2	X57-5880-14		470~490MHz		OP			
	M2	X57-5880-14				O			
	K3	X57-5880-15		490~512MHz		OP			
	K4	X57-5880-12				OP			
	M4	X57-5880-12		403~430MHz		O			
TK-370G	K	X57-5880-11	X54-3250-10	450~470MHz		O			
	M	X57-5880-21				OP			
	K2	X57-5880-16		470~490MHz		O			
	M2	X57-5880-23				OP			
	K3	X57-5880-17		490~512MHz		O			
	M3	X57-5880-24				OP			
	K4	X57-5880-13		490~520MHz		O			
	M4	X57-5880-22			OP				
				403~430MHz	O (HELICAL)				

### SYSTEM SET-UP



Frequency range (MHz)	RF power	Type	
TX/RX 450~470	4.0W	TK-360G K,M	TK-370G K,M
TX/RX 403~430	4.0W	TK-360G K4,M4	TK-370G K4,M4
TX/RX 470~490	4.0W	TK-360G K2,M2	TK-370G K2,M2
TX/RX 490~512	4.0W	TK-360G K3	TK-370G K3
TX/RX 490~520	4.0W		TK-370G M3

A personal computer (IBM PC or compatible), programming interface (KPG-22), and programming software (KPG-56D) are required for programming. (The frequency, TX power HI/LOW, and signalling data are programmed for the transceiver.)

## OPERATING FEATURES

### 1. Operation Features

#### • TK-360G

**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

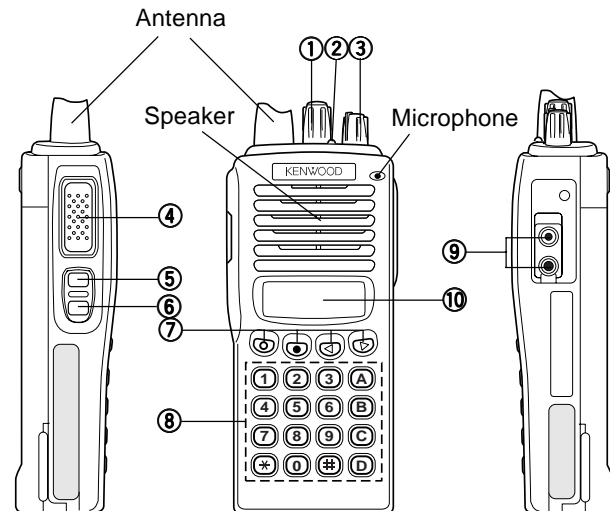
**Side 1 key** and **Side 2 key** can each be programmed with one of the following auxiliary functions:

- **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-370G



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 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
- Selectable QT <sup>2</sup>
- Talk-Around
- 2-Tone Encode Select
- Trunking Group Code Select <sup>3</sup>

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

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

<sup>3</sup> Available only when using Trunking function.

## 2. Programmable keys

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

### 1) Channel up/down (TK-370G 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.

### 2) Display character (TK-370G only)

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

### 3) Group up/down (TK-370G 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-370G only)

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

### 5) Key lock (TK-370G only)

When the KEY LOCK switch is held down for one second or more, keys other than [PTT], [Side1], [Side2], [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-370G 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-370G 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 tones pair for OST can be programmed by KPG-56D. OST is useful to access the repeater with same radio frequency and different tone (QT/DQT).

### 9) Selectable QT (SEL QT) (TK-370G M types only)

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

## OPERATING FEATURES

### 10) 2-Tone Encode Select (TK-370G 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 Rotary encoder 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.

### 11) Redial (TK-370G 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.

### 12) 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.

### 13) Scan (TK-370G only)

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

### 14) Scan Del/Add (TK-370G 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.

### 15) Talk Around (TK-370G only)

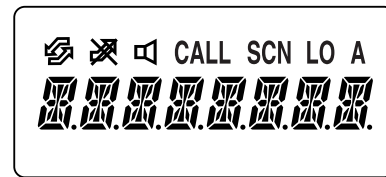
Press this key, the transceiver uses the receive frequency and tone for transmission.

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

### 16) 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-370G only)



Icon	Description
	Appears while using Smar Trunk.
	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-370G 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.

## 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-370G 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 become free.

This feature ensures the acknowledgment signal is receive 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 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 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 is a matches. Alert is not output. An Option Signaling match is not displayed.



# TK-360G/370G

## OPERATING FEATURES / REALIGNMENT

### 7. Audible user feedback tones (TK-370G only)

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**

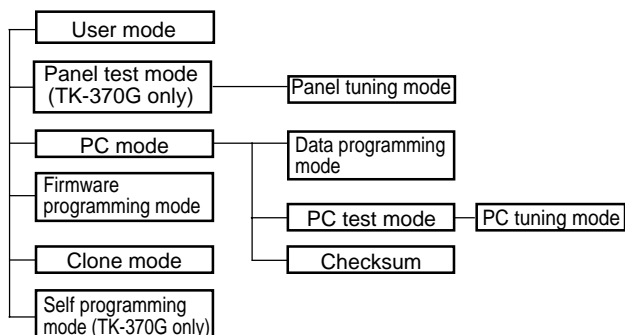
Informs the user when nearing transmit inhibit (transmit cutoff) time due to TOT.

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-370G only)
PC mode	Received commands from PC
Panel tuning mode	[Panel test mode]+[O]
Firmware programming mode	[Side1]+[Side2]+Power ON (Two seconds)
Clone mode	[Side1]+[▶]+Power ON (Two seconds)
Self programming mode	[Side1]+[●]+Power ON (Two seconds) (TK-370G only)

#### 3. For the panel Test Mode (TK-370G 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-370G 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-360G/370G 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.

#### 5-2. Connection procedure

1. Connect the TK-360G/370G 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 blink.  
When data is received by the transceiver, the green LED blinks.

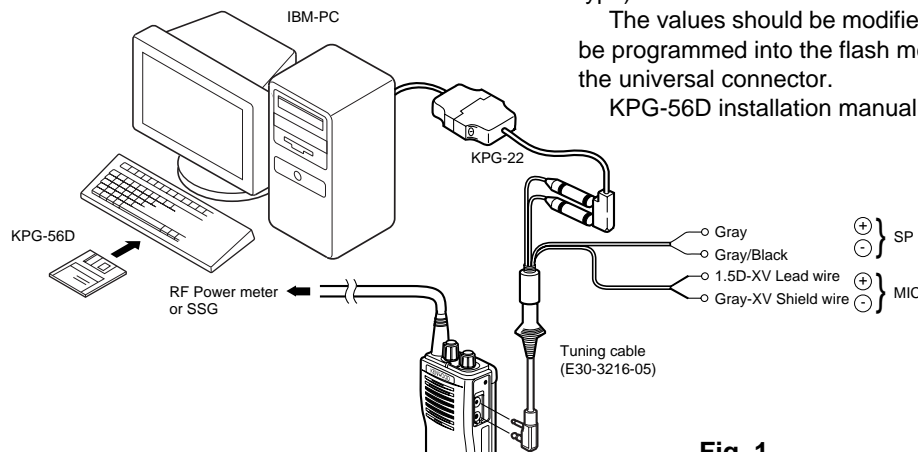


Fig. 1

### 6. Firmware Programming Mode

#### 6-1. Preface

Flash memory is mounted on the TK-360G/370G. This allows the TK-360G/370G 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-360G/370G 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.

#### Notes:

- The data stored in the personal computer must match model type when it is written into the flash memory.
- Change the TK-360G/370G 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-360G/370G 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-360G/370G 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-360G/370G 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

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 [Side1] and [Side2] switches on the TK-360G/370G, and press the power switch.  
When the [Side1] and [Side2] switches are held down for two seconds, "PROG 576" appears on the display and the LED lights orange. When "PROG 576" is displayed, release the switches. (TK-370G only)
6. Check the connection between the TK-360G/370G and the personal computer, and make sure that the TK-360G/370G is in Program mode.

# TK-360G/370G

## REALIGNMENT

- Press F10 on the personal computer. A window opens on the display to indicate the writing progress. When the TK-360G/370G begins to receive data, the LED lights green.
- When data is received successfully, a checksum appears on the display.  
(Since the TK-360G does not have a display, check the checksum with the FPU (KPG-56D).)
- If you want to continue programming other TK-360G/370Gs, 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 [Side2] switch while "PROG XXX" is displayed, the checksum is displayed. If you press the [Side2] switch again (while the checksum is displayed), "PROG XXX" is redisplayed.
- A transmission speed can be selected by pressing the [Side1] switch while "PROG XXX" is displayed.
  - 19200 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-370G power ON with the [Side1]+[▶] key held down. The TK-370G displays "▯▯CLONE▯".
- Power on the slave TK-360G/370G.
- Connect the cloning cable to the SP/MIC connectors on the master and slave.
- Press the [○] 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 [○] key on the master is pressed while the master displays "END", 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.

Use the new clonig cable for TK-360G/370G.

You cannot use the old cloning cable for TK-360/370.

Slave Master	TK-360G K TK-370G K	TK-360G K4 TK-370G K4	TK-360G M TK-370G M	TK-370G M4	TK-360G E TK-370G E	TK-360G (N)E TK-370G (N)E	TK-860G K TK-862G K	TK-860G M
TK-370G K	OK	N/A	N/A	N/A	N/A	N/A	OK	N/A
TK-370G K4	N/A	OK	N/A	N/A	N/A	N/A	N/A	N/A
TK-370G M	N/A	N/A	OK	N/A	N/A	N/A	N/A	OK
TK-370G M4	N/A	N/A	N/A	OK	N/A	N/A	N/A	N/A
TK-370G E	N/A	N/A	N/A	N/A	OK	N/A	N/A	N/A
TK-370G (N)E	N/A	N/A	N/A	N/A	N/A	OK	N/A	N/A

## REALIGNMENT

Cloning cable parts No.  
E30-3410-05 (TK-370G→TK-360G/370G)

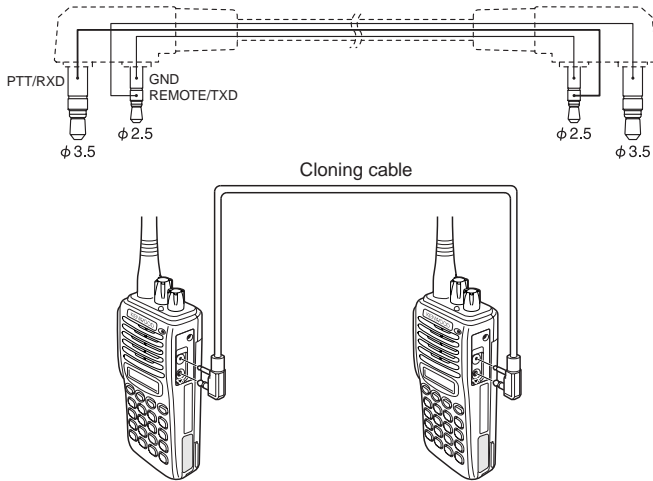
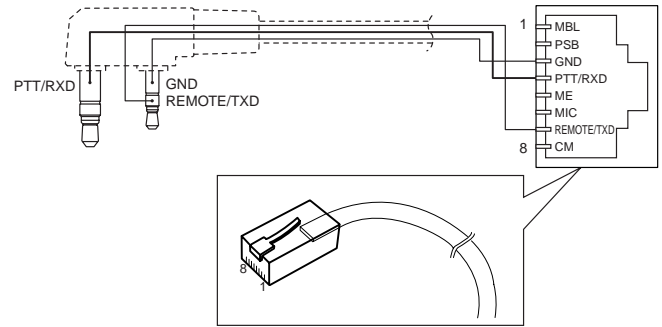


Fig. 2

E30-3411-05 (TK-370G→TK-860G/862G)



### 8. Self Programming Mode (TK-370G)

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, K4, E, (N)E models only). Hold down the [Side1]+[●] 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.

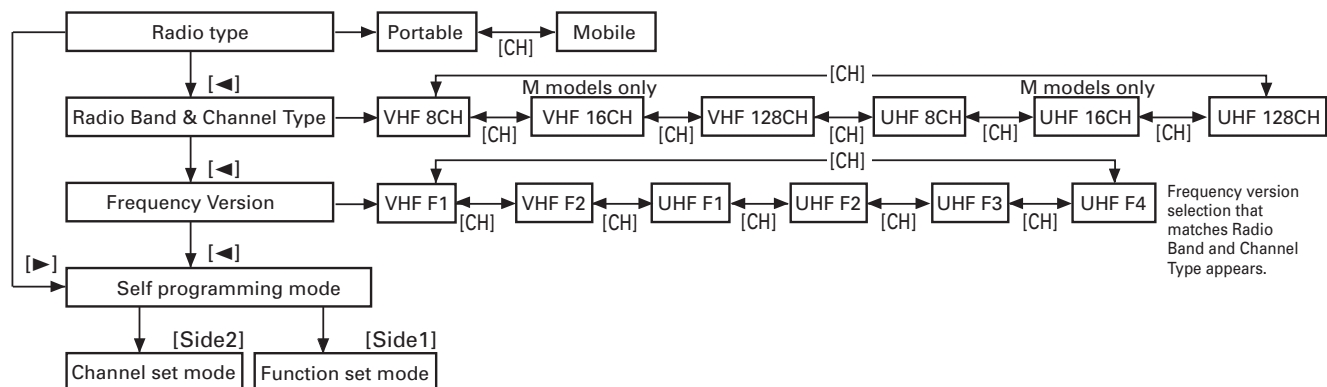
**Note :**

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

**Note :**

Self Programming is disabled if "a Trunking Board is installed in this Radio" is selected in FPU.

• **Flow Chart**



**Note :**

IF the radio type of TK-370G was temporarily set to "Mobile" for the cloning purposes, "UNPROG" is displayed (at User

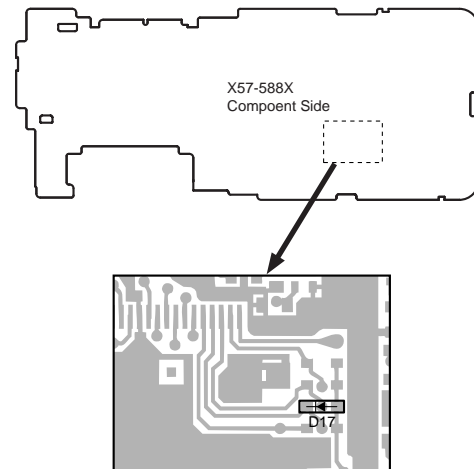


Fig. 3

Mode) when the TK-370G is turned on.

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

# TK-360G/370G

## REALIGNMENT

### 8-2. Channel Setting Mode

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

Pressing [Side2] 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 [Side2] to set the display to "SELF" and return to reset (default) status.

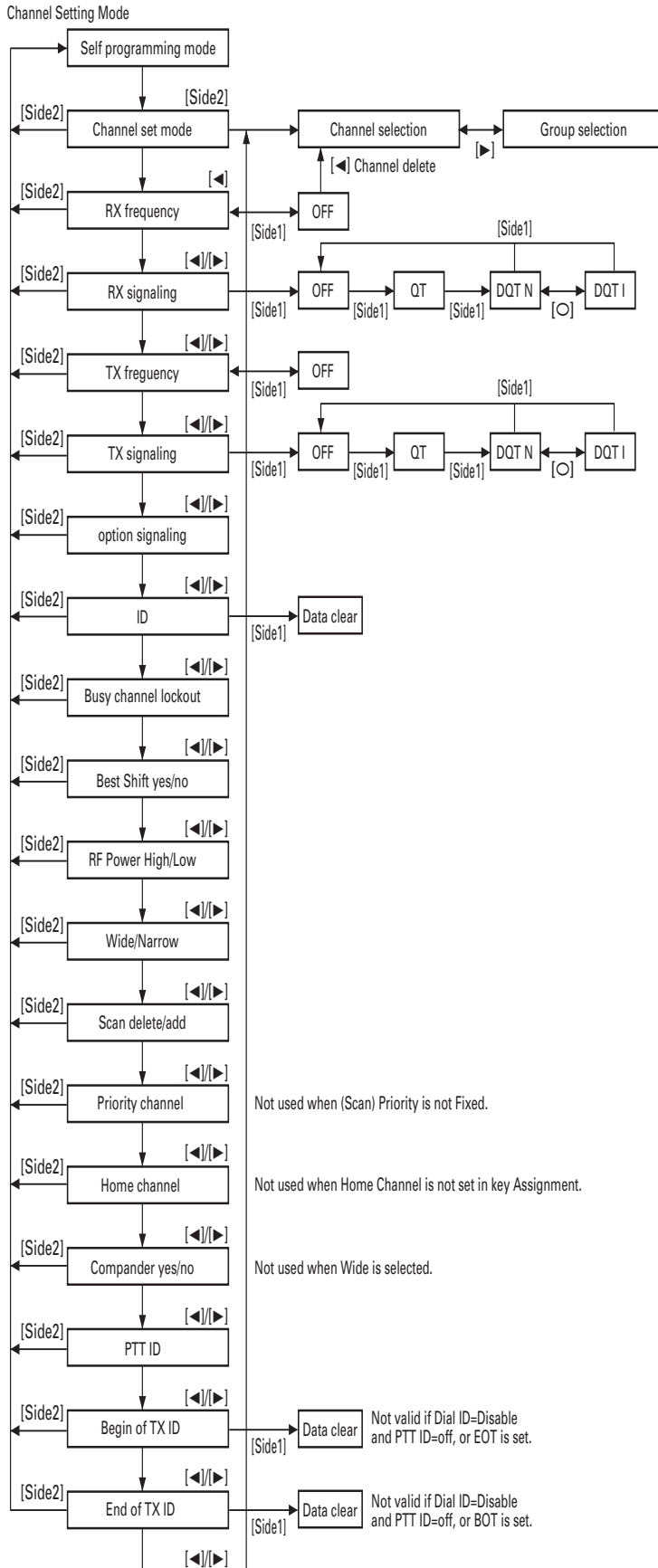
All channel data is cleared when pressing [◀] key with the blank RX frequency.

No.	Function	Choices	Display	Remarks			
	Select Channel	1-128	_1-._1_	[▶] : Group selection/ Channel selection change			
	Select Group	1-128	_1-._1_				
1	RX frequency	Step 2.5kHz-1MHz	STP_250 STP_1000	Display when an item is selected or when a step is changed (about 0.5 seconds) [●] Step change UHF : 5.0,6.25kHz,1MHz,Step [Side1] : Freq On/Blank switching			
		Blank	R. _____				
		100.0000- 550.0000MHz	R.100.0000				
2	Rx Signaling	OFF	_____	[Side1] : Off/QT/DQT switching			
		QT 67.0-250.3Hz (EIA Mode)	QT_67.0_ QT_250.3	[●] : Mode switching [○] : Normal/Inverse switching			
		QT 67.0-250.3Hz (0.1Hz Step Mode)	QT_67.0* QT_250.3*				
		DQT 000-777 (Normal) (1 Step Mode)	DQT000N* DQT777N*				
		DQT 023-754 (Normal) (Standard Table Mode)	DQT023N DQT754N				
		DQT 000-777 (Inverse) (1 Step Mode)	DQT000I* DQT777I*				
		DQT 023-754 (Inverse) (Standard Table Mode)	DQT023I DQT754I				
		3	TX frequency		Step 2.5kHz-1MHz	STP_250 STP_1000	Same as RX frequency.
					Blank	T. _____	
		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	_____	[Side1] : Data clear			

No.	Function	Choices	Display	Remarks
7	Busy Channel Lockout	NO	BCL_NO_	← Default
		Type 1	BCL_1_	BCL_YES for K, K4, E, (N)E type
		Type 2	BCL_2_	N/A for K, K4, E, (N)E type
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_	K, K4, M, M4, destination only
		Narrow	NARROW_	
		Wide	-W5K	E destination only
		Semiwide	-W4K	
11	Scan Delete/ADD	DELETE	SCAN_DEL	Not used for TK-360G
		ADD	SCAN_ADD	← Default
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	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	_____	[Side1] : Data clear
17	END of TX ID	000- 9999999999999999	_EOT_ID_	Not valid if Dial ID=Disble and PTT ID=OFF, or BOT is set. 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	_____	[Side1] : Data clear

## REALIGNMENT

### • Flow Chart



### 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 [Side1] 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 memory.

Press [Side1] to display "SELF" and return to reset (default) status.

### Function Setting Mode

No.	Function	Choices	Display	Remarks
Function Key				
1	[Side1]	No Function	LAMP_OFF	← Default (TK-360G)
		Talk Around	LAMP_3	* TK-360G cannot be selected. K, M and E destinations only
		Display Character	LAMP_5	* TK-360G cannot be selected.
		Home Channel	LAMP_7	* TK-360G cannot be selected.
		Channel Down	LAMP_8	* TK-360G cannot be selected.
		Channel Up	LAMP_9	* TK-360G cannot be selected.
		Keylock	LAMP_10	* TK-360G cannot be selected.
		Lamp	LAMP_11	← Default(TK-370G) * TK-360G cannot be selected.
		Selectable QT	LAMP_15	* TK-360G cannot be selected. M destination only
		2-Tone Encode Select	LAMP_16	
		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-360G cannot be selected.
		Scan DEL/ADD	LAMP_23	* TK-360G cannot be selected.
		Group Down	LAMP_24	* TK-360G cannot be selected.
		Group Up	LAMP_25	* TK-360G cannot be selected.
		Operator	LAMP_27	* TK-360G cannot be selected.
		Selectable Tone		K destination only
Redial	LAMP_28	* TK-360G cannot be selected.		
Trunking	LAMP_29	Only when Trunking is set		
Group Select				
2	[Side2]	No Function	MON_OFF	
		Talk Around	MON_3	* TK-360G cannot be selected.
		Display Character	MON_5	* TK-360G cannot be selected.
		Home Channel	MON_7	* TK-360G cannot be selected.
		Channel Down	MON_8	* TK-360G cannot be selected.
		Channel Up	MON_9	* TK-360G cannot be selected.
		Keylock	MON_10	* TK-360G cannot be selected.

# TK-360G/370G

## REALIGNMENT

No.	Function	Choices	Display	Remarks
2	[Side2]	Lamp	MON_11	* TK-360G cannot be selected.
		Selectable QT	MON_15	* TK-360G cannot be selected. M destination only
		2-Tone Encode Select	MON_16	
		MONitor A	MON_17	← Default
		MONitor B	MON_18	
		MONitor C	MON_19	
		MONitor D	MON_20	
		RF Power Low	MON_21	
		Scan	MON_22	* TK-360G cannot be selected.
		Scan DEL/ADD	MON_23	* TK-360G cannot be selected.
		Group Down	MON_24	* TK-360G cannot be selected.
		Group Up	MON_25	* TK-360G cannot be selected.
		Operator Selectable Tone	MON_27	* TK-360G cannot be selected. K destination only
		Redial	MON_28	* TK-360G cannot be selected.
		Trunking Group Select	MON_29	Only when Trunking is set
		3	[O]TK-370G only	No Function
Talk Around	KEY1_3			K and M destinations only
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
2-Tone Encode Select	KEY1_16			
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			
Operator Selectable Tone	KEY1_27			K destination only
Redial	KEY1_28			
Trunking Group Select	KEY1_29	Only when Trunking is set		
4	[●]TK-370G only	No Function	KEY2_OFF	
		Talk Around	KEY2_3	K and M destinations only
		Display Character	KEY2_5	
		Home Channel	KEY2_7	

No.	Function	Choices	Display	Remarks
4	[●]TK-370G only	Channel Down	KEY2_8	
		Channel Up	KEY2_9	
		Keylock	KEY2_10	
		Lamp	KEY2_11	
		Selectable QT	KEY2_15	M destination only
		2-Tone Encode Select	KEY2_16	
		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	
		Group Up	KEY2_25	
		Operator Selectable Tone	KEY2_27	K destination only
		Redial	KEY2_28	
		Trunking Group Select	KEY2_29	Only when Trunking is set
		5	[◀]TK-370G only	No Function
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
2-Tone Encode Select	KEY3_16			
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			
Operator Selectable Tone	KEY3_27	K destination only		
Redial	KEY3_28			
Trunking Group Select	KEY3_29	Only when Trunking is set		
6	[▶]TK-370G only	No Function	KEY4_OFF	
		Talk Around	KEY4_3	

## REALIGNMENT

No.	Function	Choices	Display	Remarks
6	▶JTK-370G only	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
		2-Tone Encode Select	KEY4_16	
		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	
		Operator Selectable Tone	KEY4_27	K destination only
		Redial	KEY4_28	
		Trunking Group Select	KEY4_29	Only when Trunking is set
7	[CH]	Channel Up/Down	CH_UP/DN	← Default
		Group Up/Down	GR_UP/DN	
		No Function	KNOB_OFF	
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	OFF1-60/1s Step	TOTK_OFF	Cannot be set when TOT is OFF. Default: OFF
14	TOT Reset Time	OFF1-15/1s Step	TOTS_OFF	Cannot be set when TOT is OFF. Default: OFF
15	Clear to Transpond (BCL for Transpond)	YES	CTT_YES	
		NO	CTT_NO	← Default
16	Battery Save	ON	BATT_ON	← Default
		OFF	BATT_OFF	
17	Signaling	OR	SIG_OR	← Default
		AND	SIG_AND	
18	Squelch Level	0-9/1 Step	SQL_5	Default;5
19	Priority	None	PRI_NONE	← Default
		Fixed	PRI_FIX_	
		Selected	PRI_SEL_	
20	Lock Back	0.5-5.0/0.05	LBA_500	Default:500ms Cannot be

No.	Function	Choices	Display	Remarks
	Time A			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	REV_SEL	
		Last Called	REV_L/C_	← Default
		Last Used	REV_L/U_	
		Selected + Talk Back	REV_S/T_	
		Priority	REV_PRI_	
	Priority + Talk Back	REV_P/T_		
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	50-200/10ms	IDT__50	Default;50ms
27	First Digit Time	50-200/10ms	FDT__50	Default;50ms
28	First Digit Delay	100-1000/50ms	RIST_100	Default;100ms
29	Rise Time with QT	100-1000/50ms	RTWQ_100	Default;100ms
30	DIAL ID	Enable	DID_ENA	
		Disable	DID_DIS	← Default
31	No.of DTMF Key	12Key	NODK_12	← Default
		16Key	NODK_16	
32	DTMF Hold Time	ON	DHT__ON	← Default
		OFF	DHT__OFF	
33	Store and Send	Enable	SAS_ENA	
		Disable	SAS_DIS	← Default
34	D Key Assignment	D Code	DKA_D_CD	← Default
		1-16/1s	DKA_16_	
35	DTMF Signaling	Code SQ	DTMS_CSQ	← Default
		SEL CALL	DTMS_SEL	TK-370G only
36	Inter Mediate Code	0-9,A-D,*,#	IMC__#	Default: # (Can be set only when DTMF signaling = SEL CALL.)
37	Group Code	A-D,*,#	GPCD_FF	Default;OFF
38	Auto Rest Time	OFF	ART_OFF_	
		1-15/1s	ART__10	Default;10s
39	Call Alert/ Transpond	OFF	CA/T_OFF	← Default
		Call Alert	CA/T_C/A	
		Transpond (Call Alert)	CA/T_T/A	
		Transpond (ID Code)	CA/T_T/I	
	Transpond (Transpond Code)	CA/T_T/T		
Others				
40	Panel Test/panel Tuning MODE	Enable	PTM_ENA	← Default (Not used for TK-360G.)
		Disable	PTM_DIS	



## REALIGNMENT

### 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".

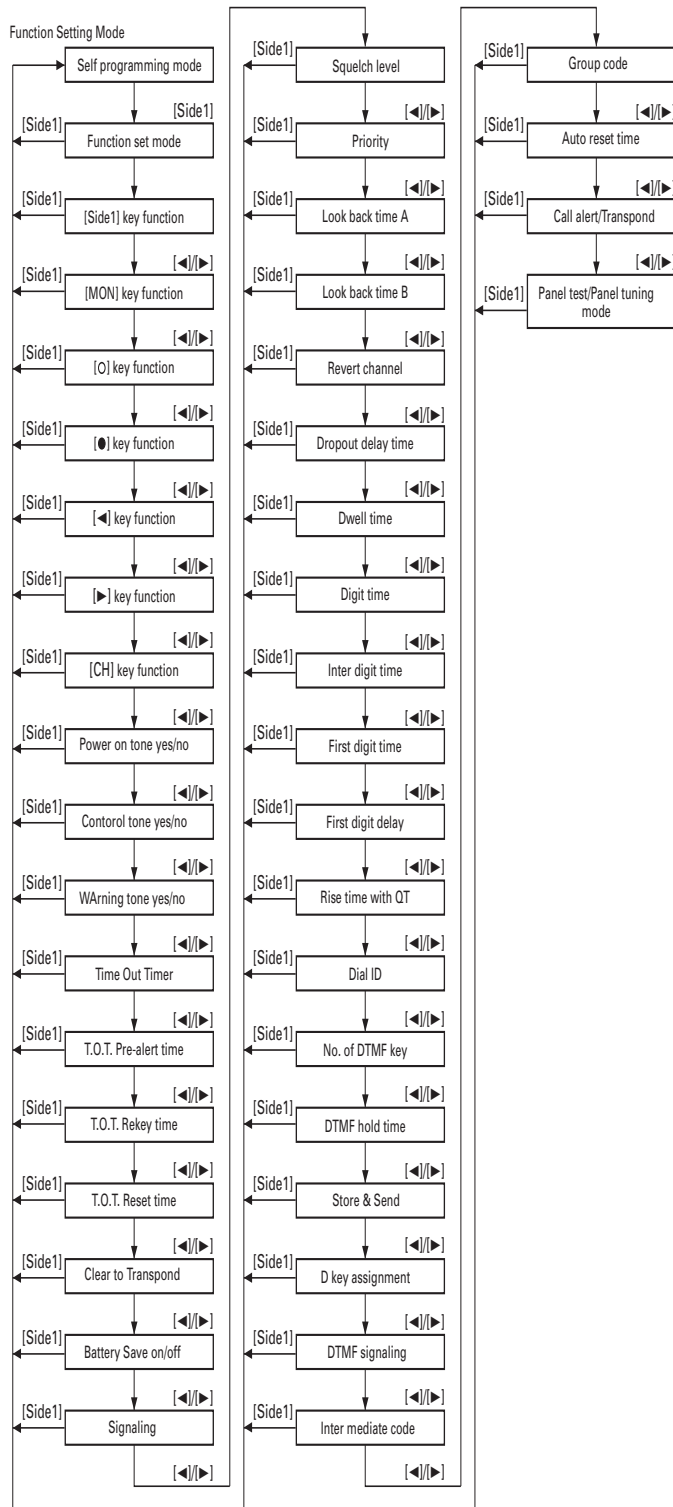
Pressing [O] again, returns the display to "SELF".

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

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

The TK-360G cannot reset the memory.

### • Flow Chart

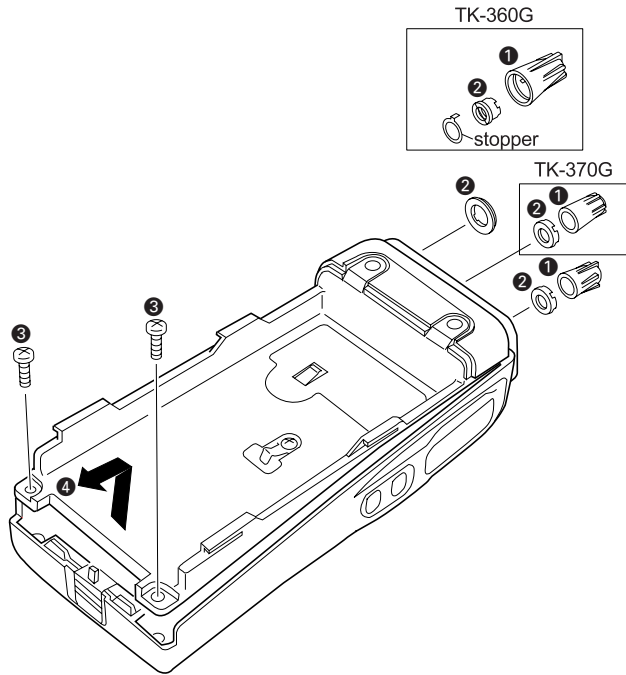


# TK-360G/370G

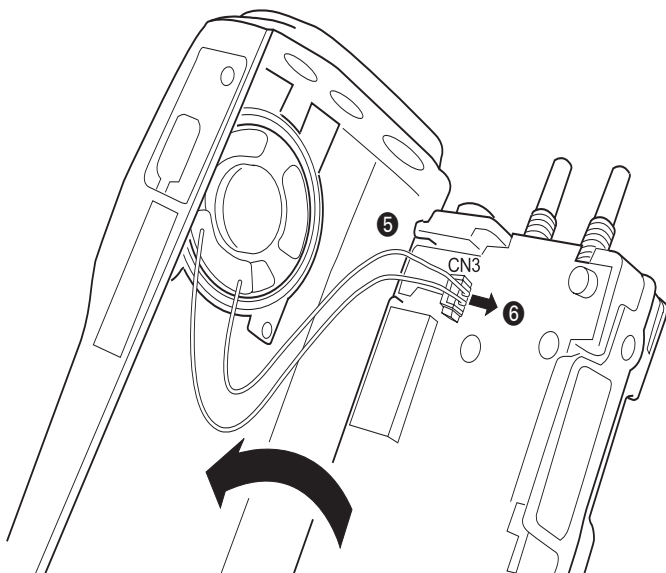
## DISASSEMBLY FOR REPAIR

### 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.

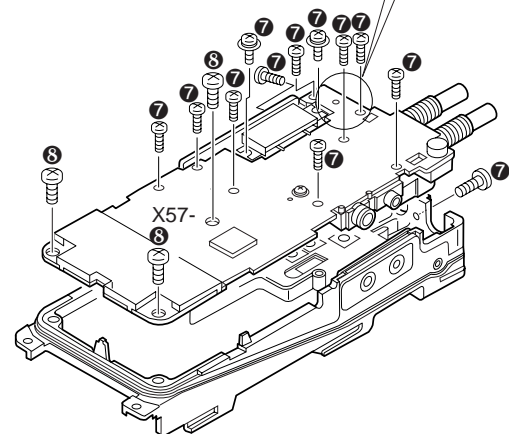
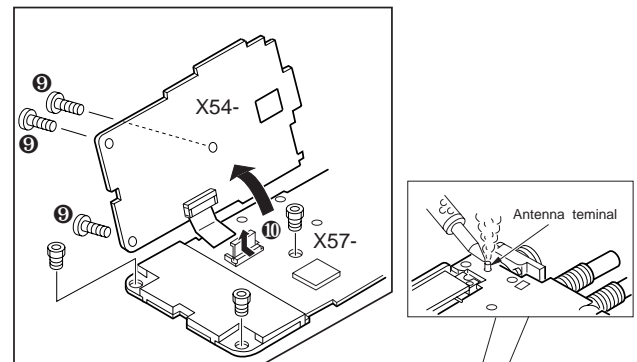
#### • TK-360G

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

#### • TK-370G

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 Ω, and remove the twelve screws ⑦.
2. Remove the solder from the antenna terminal using a soldering iron, then lift the unit off (X57).

#### TK-370G



# TK-360G/370G

## CIRCUIT DESCRIPTION

### 1. Frequency configuration

The receiver utilizes double conversion. The first IF is 49.95 MHz and the second IF is 450 kHz. The first local oscillator signal is supplied from the PLL circuit.

The PLL circuit in the transmitter generates the necessary frequencies. Fig. 1 shows the frequencies.

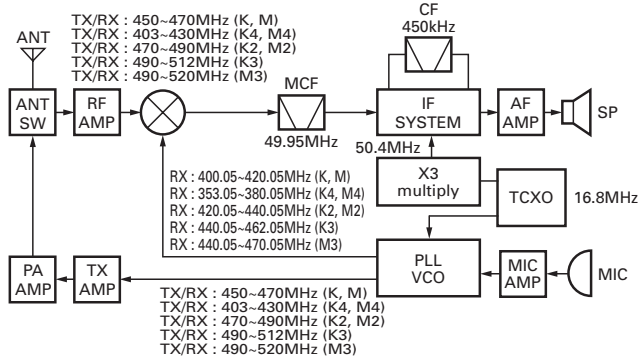


Fig. 1 Frequency configuration

### 2. Receiver

The frequency configuration of the receiver is shown in Fig. 2.

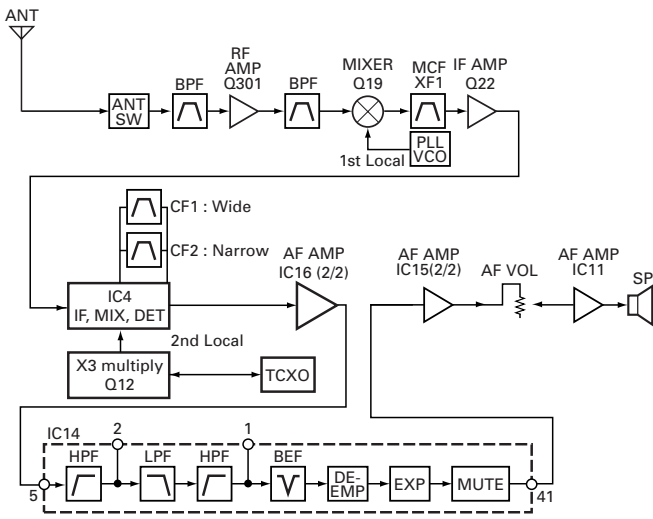


Fig. 2 Receiver section

#### 1) Front end (RF AMP)

The signal coming from the antenna passes through the transmit/receive switching diode circuit, (D3,D7) passes through a BPF, and is amplified by the RF amplifier (Q301). The resulting signal passes through a BPF and goes to the mixer.

#### 2) First mixer

The signal from the front end is mixed with the first local oscillator signal generated in the PLL circuit by Q19 to produce a first IF frequency of 49.95 MHz.

The resulting signal passes through the XF1 MCF to cut the adjacent spurious and provide the optimum characteristics, such as adjacent frequency selectivity.

#### 3) IF Amplifier circuit

The first IF signal is passed through a four-pole monolithic crystal filter (XF1) to remove the adjacent channel signal. The filtered first IF signal is amplified by the first IF amplifier (Q22) and then applied to the IF system IC (IC4). The IF system IC provides a second mixer, second local oscillator, limiting amplifier, quadrature detector and RSSI (Received Signal Strength Indicator). The second mixer mixes the first IF signal with the 50.4MHz of the second local oscillator output (TCXO X3) and produces the second IF signal of 450kHz.

The second IF signal is passed through the ceramic filter (CF1; Wide, CF2 ; Narrow) to remove the adjacent channel signal. The filtered second IF signal is amplified by the limiting amplifier and demodulated by the quadrature detector with the ceramic discriminator (CD1). The demodulated signal is routed to the audio circuit.

#### 4) Wide/Narrow changeover circuit

Narrow and Wide settings can be made for each channel by switching the ceramic filters CF1 (Wide) and CF2 (Narrow).

The WIDE (high level) and NARROW (low level) data is output from IC5 (OUTPUT EXPANDER), pin 4.

When a WIDE (high level) data is received, Q14 turn off and Q17 turn on. When a NARROW (low level) data is received, Q14 turn on and Q17 turn off. D14 and D13 are switched to ceramic filters when a high/low level data is received.

Q23 turns on/off with the Wide/Narrow data and the IC4 detector output level is changed to maintain a constant output level during wide or narrow signals.

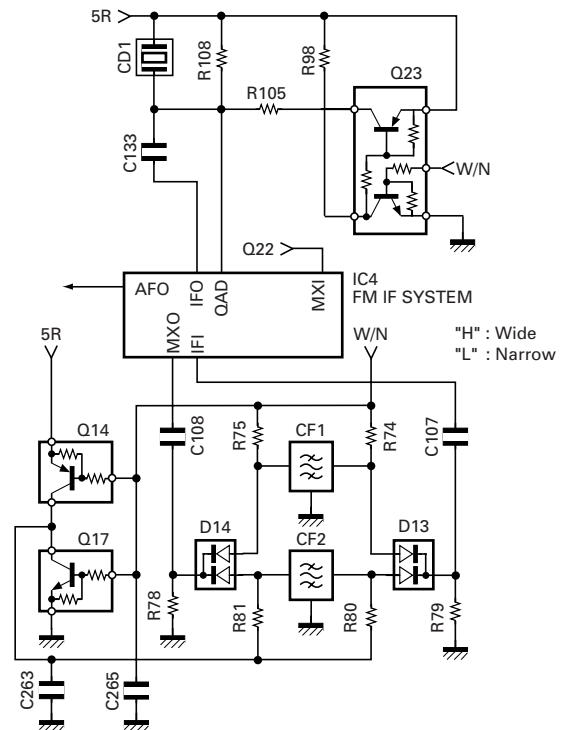


Fig. 3 Wide/Narrow changeover circuit

## 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

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

Part of the received AF signal output from the AF amplifier IC16(2/2), and then pass 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)

#### (3) DTMF

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 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 turn 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.

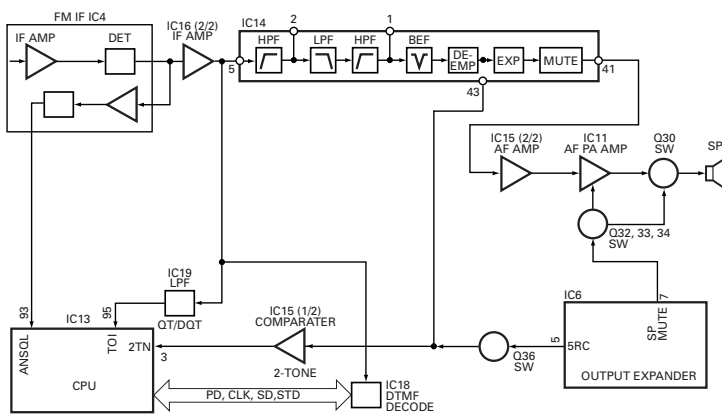


Fig. 4 AF Amplifier and Squelch

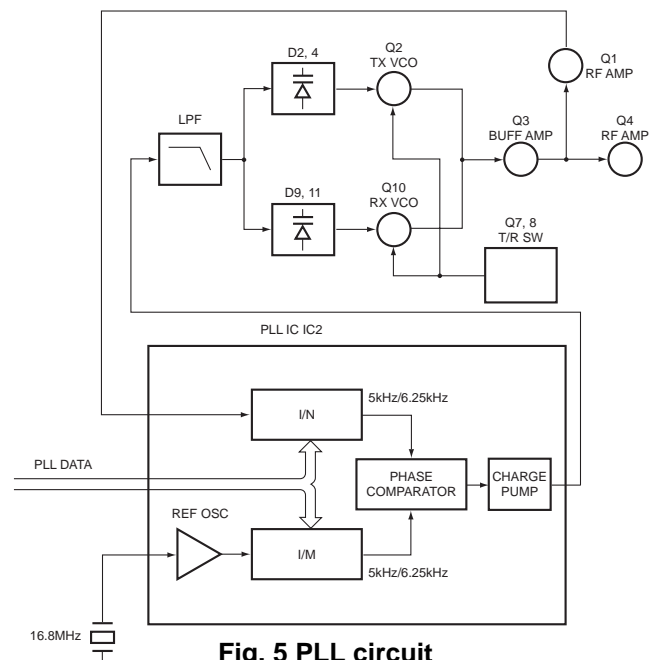


Fig. 5 PLL circuit

# TK-360G/370G

## 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)

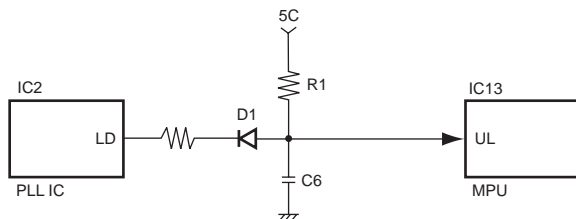


Fig. 6 Unlock detector circuit

## 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.

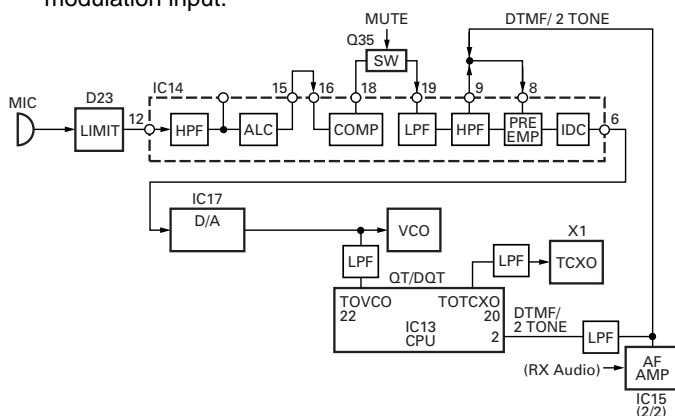


Fig. 7 Microphone amplifier

### 2) Drive and Final amplifier

The signal from the T/R switch (D5 is on) is amplified by the pre-drive (Q5) and drive amplifier (Q6) to 50mW. The output of the drive amplifier is amplified by the RF power amplifier (IC1) to 4.0W (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.

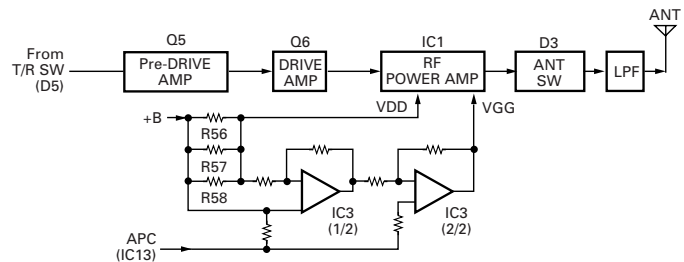


Fig. 8 Drive and final amplifier and APC circuit

### 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

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 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 for microprocessor 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 memories and the operating status, are programmed into the EEPROM (IC10).

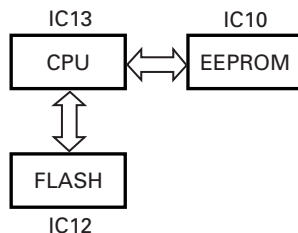
#### • Flash Memory

**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

# TK-360G/370G

## CIRCUIT DESCRIPTION/SEMICONDUCTOR DATA

### 8. CONTROL SYSTEM

Keys and channel selector circuit.

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

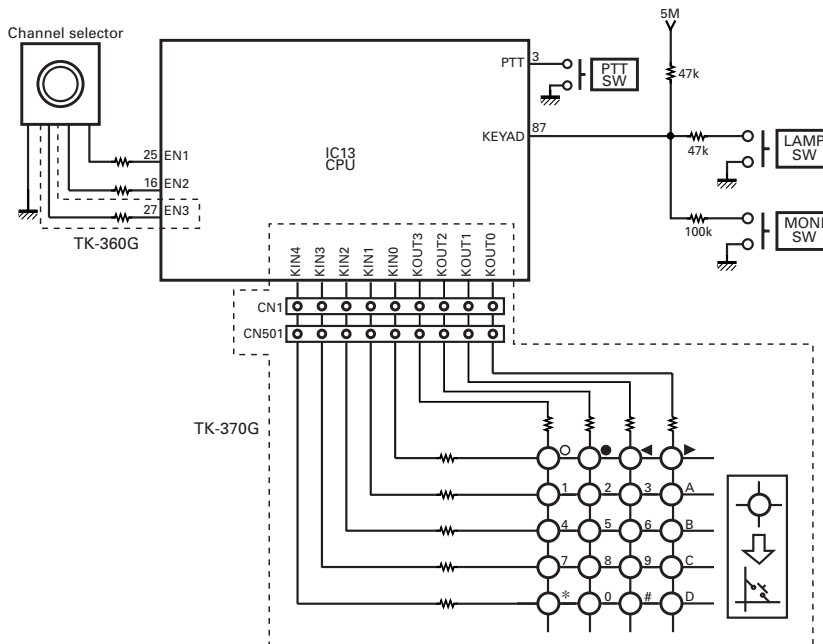
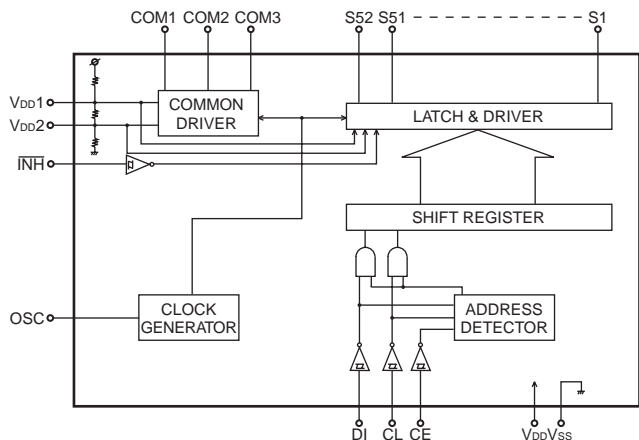


Fig. 10 Control system

### SEMICONDUCTOR DATA

LCD Driver : LC75823W (Display UNIT IC501)  
(TK-370G 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-COM4	O	-	Common drive output. Frame frequency $f_o = (f_{osc}/384)Hz$
56	VDD	-	-	
57	$\overline{INH}$	I	L	The display to turn off $\overline{INT=L}$ : Turn off $\overline{INT=H}$ : Turn on
58	VDD1	I	-	Apply 2/3 the LCD drive bias voltage form outside. If 1/2 the bias is applied, connect to VDD2.
59	VDD2	I	-	Apply 1/3 the LCD drive bias voltage form outside. If 1/2 the bias is applied, connect to VDD1.
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		Synchronizing clock. Serial data transfer terminal. Connected to the microprocessor.
64	DI	I	-	Transfer data. Serial data transfer terminal. Connected to the microprocessor.

## 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
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	Destination select
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: 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: 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-360G)
28	NC	O	NC
29	AUX4	O	Option board port 4 *Smar Trunk: Data output
30	AUX2	I/O	Option board port 2 *Smar Trunk: Data input *E Trunk: 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 (EEPROM,LCD,SHIFT REG,1bit D/A MODEM)
47	CNTCLK	O	Common clock output (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 unlock: 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-360G/370G

## DESCRIPTION OF COMPONENTS

### DISPLAY UNIT (X54-3250-10) (TK-370G 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 (X57-588X-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
Q1	Transistor	PLL IC fin amplifier
Q2	Transistor	VCO oscillation (TX)
Q3	Transistor	RF Buffer amplifier
Q4,5	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
Q23	Transistor	DC switch / W/N audio amplitude adjust

Ref. No.	Use/Function	Operation/Condition
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

## PARTS LIST

\* New Parts.  $\Delta$  indicates safety critical components.  
 Parts without **Parts No.** are not supplied.  
 Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.  
 Teile ohne **Parts No.** werden nicht geliefert.

L: Scandinavia      K: USA      P: Canada  
 Y: PX (Far East, Hawaii)      T: England      E: Europe  
 Y: AAFES (Europe)      X: Australia      M: Other Areas

TK-360G/370G

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
<b>TK-360G/370G</b>											
1	1C	*	A02-2385-23	CABINET ASSY	370G	48	1A,1C	*	K29-5333-13	BUTTON KNOB (MONI/LAMP)	
2	1A	*	A02-2391-23	CABINET ASSY	360G	49	1A,1C	*	K29-5334-13	BUTTON KNOB (PTT)	
3	3B,3D	*	A82-0036-02	REAR PANEL		50	1A,1C	*	K29-5337-03	LEVER KNOB (BATT RELEASE)	
4	2E		B09-0351-03	CAP (SP/MIC)		51	1B	*	K29-5341-03	KNOB (CHANNEL SELECTOR)	360G
5	2D		B11-1220-03	ILLUMINATION GUIDE	370G	52	1C	*	K29-5459-12	KEY TOP (DTMF)	370G
6	2D	*	B38-0820-05	LCD	370G	A	3B,3D		N09-2319-05	BINDING HEAD SCREW	
7	2F		B46-0470-00	WARRANTY CARD	K,K2,K3	B	2A,2D	*	N09-2331-05	SPECIAL SCREW	
7	2F		B46-0470-00	WARRANTY CARD	K4	C	1B,1D		N14-0582-14	CIRCULAR NUT	
8	2F	*	B62-1113-30	INSTRUCTION MANUAL	370G	D	1B,1D		N14-0583-04	CIRCULAR NUT	
8	2F	*	B62-1129-30	INSTRUCTION MANUAL	360G	E	1B		N14-0588-04	CIRCULAR NUT	360G
9	1B		D32-0423-04	STOPPER	360G	F	3A,3C		N30-2606-46	PAN HEAD MACHINE SCREW	
10	3B,3D		E04-0413-05	RF COAXIAL RECEPTACLE(SMA)		G	2A		N30-3004-46	PAN HEAD MACHINE SCREW	360G
11	3A,3C		E23-1006-04	RELAY TERMINAL (BATT-)		H	2C		N39-2030-46	PAN HEAD MACHINE SCREW	370G
12	2A,2D	*	E23-1125-14	RELAY TERMINAL (BATT+)		I	2A,2D	*	N67-2005-46	PAN HEAD SEMS SCREW W	
13	2D	*	E29-1177-04	INTER CONNECTOR(LCD)	370G	J	3A,3B,3C,3D	*	N78-2045-46	PAN HEAD TAPTITE SCREW	
14	3A,3C	*	E37-0805-05	FLAT CABLE (TX/RX-DISP)	370G	K	3A,3C	*	N79-2030-46	PAN HEAD TAPTITE SCREW	
15	2B,1D	*	E37-0829-05	SPEAKER LEAD ASSY		L	2A,2C,2D	*	N83-2005-46	PAN HEAD TAPTITE SCREW	
16	3A,3C	*	E37-0830-05	FLAT CABLE (PTT)		M	2E	*	N99-2012-05	SCREW SET	
17	2A,2D	*	F10-2302-04	SHIELDING COVER(POWER MODULE)		VR2	-	*	R31-0628-15	VARIABLE RESISTOR	
18	2A,2C	*	F10-2304-03	SHIELDING COVER(TX/RX UNIT)		S1	-	*	S60-0413-05	ROTARY SWITCH	360G
19	2C	*	F20-3307-04	INSULATING SHEET(TX/RX UNIT)	370G	SP	1D		T07-0326-05	SPEAKER	370G
20	2C	*	F20-3308-04	INSULATING SHEET(TX/RX UNIT)	370G	SP	2A		T07-0327-05	SPEAKER	360G
21	1A,1C		G01-0881-04	COIL SPRING (BATT RELEASE)		ANT	2F		T90-0682-05	WHIP ANTENNA	M
22	1D	*	G10-1232-04	FIBROUS SHEET (SPEAKER)	370G	ANT	2F		T90-0683-05	WHIP ANTENNA	M2,M3
23	1A	*	G10-1233-04	FIBROUS SHEET (SPEAKER)	360G	ANT	2F		T90-0684-05	WHIP ANTENNA	M4
24	3B,3D	*	G13-1744-14	CUSHION (CHASSIS-BATT)		S1	-	*	W02-1969-05	ENCODER	370G
25	3A,3D	*	G53-0881-02	PACKING (SIDE)		<b>DISPLAY UNIT (X54-3250-10) (TK-370G only)</b>					
26	1D	*	G53-0882-03	PACKING (SPEAKER-ECM)	370G	D506			B30-2210-05	LED(TLY)	
27	2A,2D	*	G53-0883-04	PACKING (BATT TERMINAL)		D508-510			B30-2171-05	LED(D)	
28	1B	*	G53-0884-04	PACKING (ECM)	360G	D511			B30-2210-05	LED(TLY)	
29	1A	*	G53-0885-04	PACKING (SPEAKER)	360G	D512-516			B30-2171-05	LED(D)	
30	1A,1C	*	G53-0891-04	PACKING (PTT KNOB)		C501-509			CC73GCH1H221J	CHIP C    220PF    J	
31	1E,2F		H12-1487-02	PACKING FIXTURE		C513			CK73GB1H102K	CHIP C    1000PF    K	
32	1F		H25-0085-04	PROTECTION BAG (100/200/0.07)		C515,516			CC73GCH1H101J	CHIP C    100PF    J	
33	2E		H25-2012-04	PROTECTION BAG (75/100/0.08)		CN501			E40-6012-05	FLAT CABLE CONNECTOR	
34	3F	*	H52-1554-02	ITEM CARTON CASE	360G	L501,502			L92-0138-05	FERRITE CHIP	
35	3F	*	H52-1555-02	ITEM CARTON CASE	370G	CP501			R90-0748-05	MULTI-COMP    47K    X4	
36	1A,1C		J19-1572-04	HOLDER (BATT TERMINAL)		CP502,503			R90-0724-05	MULTI-COMP    1K    X4	
37	2D	*	J19-5352-03	HOLDER (VOL/ENC)		R501-510			RK73GB1J102J	CHIP R    1.0K    J    1/16W	
38	2A,2D	*	J19-5353-14	HOLDER (BATT TERMINAL)		R511			R92-1252-05	CHIP R    0 OHM	
39	2B	*	J19-5355-03	HOLDER (VOL/CHANNEL SW)	360G	R512			RK73GB1J102J	CHIP R    1.0K    J    1/16W	
40	2E		J21-4493-04	SP/MIC HOLDER		R513-515			RK73GB1J103J	CHIP R    10K    J    1/16W	
41	2D	*	J21-8377-03	LCD HOLDER	370G	R516			RK73GB1J473J	CHIP R    47K    J    1/16W	
42	1D	*	J21-8378-04	SPEAKER FIXTURE	370G	R517			RK73GB1J103J	CHIP R    10K    J    1/16W	
43	2A	*	J21-8381-14	SPEAKER FIXTURE	360G	R518			RK73GB1J471J	CHIP R    470    J    1/16W	
44	2E		J29-0624-03	BELT HOOK		R519-522			RK73GB1J102J	CHIP R    1.0K    J    1/16W	
45	2C	*	J32-0925-04	HEXAGON BOSS	370G	R523			RK73GB1J473J	CHIP R    47K    J    1/16W	
46	1D	*	K29-5331-03	KNOB (ENCODER)	370G	R524			RK73GB1J471J	CHIP R    470    J    1/16W	
47	1B,1D	*	K29-5332-03	KNOB (VOLUME)							

360G : TK-360G K, M, K2, M2, K3, K4, M4

370G : TK-370G K, M, K2, M2, K3, M3, K4, M4

# TK-360G/370G

## PARTS LIST

DISPLAY UNIT (X54-3250-10)  
TX-RX UNIT (X57-5880-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination
D501-504			MA2S111	DIODE	
D505			1SS373	DIODE	
D507			MA2S111	DIODE	
IC501			LC75823W	IC	
Q501			2SB1132(Q,R)	TRANSISTOR	
Q502			2SC4617(S)	TRANSISTOR	
<b>TX-RX UNIT (X57-5880-XX)</b>					
<b>-10:TK-360G K,M</b>		<b>-11:TK-370G K</b>		<b>-12:TK-360G K4, M4</b>	
<b>-14:TK-360G K2,M2</b>		<b>-15:TK-360G K3</b>		<b>-16:TK-370G K2</b>	
<b>-21:TK-370G M</b>		<b>-22:TK-370G M4</b>		<b>-23:TK-370G M2</b>	
<b>-13:TK-370G K4</b>		<b>-17:TK-370G K3</b>		<b>-24:TK-370G M3</b>	
D18			B30-2019-05	LED(RED/GRE)	
C1			CK73GB1H471K	CHIP C 470PF K	
C2			CC73GCH1H020C	CHIP C 2.0PF C	
C3			CC73GCH1H010B	CHIP C 1.0PF B	B,D,F,H
C3			CC73GCH1H010B	CHIP C 1.0PF B	J,L
C3			CC73GCH1H1R5B	CHIP C 1.5PF B	C,G,K
C4			CC73GCH1H0R5B	CHIP C 0.5PF B	D,H,L
C4			CC73GCH1H010B	CHIP C 1.0PF B	A,B,C,E,F
C4			CC73GCH1H010B	CHIP C 1.0PF B	G,I,J,K
C5			CC73GCH1H0R5B	CHIP C 0.5PF B	C,G,K
C5			CC73GCH1H010B	CHIP C 1.0PF B	A,B,E,F
C5			CC73GCH1H010B	CHIP C 1.0PF B	I,J
C5			CC73GCH1H020B	CHIP C 2.0PF B	D,H,L
C6			CK73GB1C104K	CHIP C 0.10UF K	
C8			CC73GCH1H030B	CHIP C 3.0PF B	
C9			CK73GB1H471K	CHIP C 470PF K	
C10			CC73GCH1H080B	CHIP C 8.0PF B	A,B,E,F
C10			CC73GCH1H080B	CHIP C 8.0PF B	I,J
C10			CC73GCH1H180G	CHIP C 18PF G	C,G,K
C10			CC73GCH1H270G	CHIP C 27PF G	D,H,L
C11			CC73GCH1H080D	CHIP C 8.0PF D	A,B,C,E,F
C11			CC73GCH1H080D	CHIP C 8.0PF D	G,I,J,K
C11			CC73GCH1H120J	CHIP C 12PF J	D,H,L
C12			CC73GCH1H070D	CHIP C 7.0PF D	A,B,C,E,F
C12			CC73GCH1H070D	CHIP C 7.0PF D	G,I,J,K
C12			CC73GCH1H110J	CHIP C 11PF J	D,H,L
C13			CK73GB1H471K	CHIP C 470PF K	
C14			CC73GCH1H0R5B	CHIP C 0.5PF B	
C16			CC73GCH1H040B	CHIP C 4.0PF B	D,H,L
C16			CC73GCH1H060B	CHIP C 6.0PF B	A,C,E,G
C16			CC73GCH1H060B	CHIP C 6.0PF B	I,K
C16			CC73GCH1H080B	CHIP C 8.0PF B	B,F,J
C17			CC73GCH1H040B	CHIP C 4.0PF B	
C18			CC73GCH1H060B	CHIP C 6.0PF B	A,E,I
C18			CC73GCH1H100C	CHIP C 10PF C	B,C,D,F,G
C18			CC73GCH1H100C	CHIP C 10PF C	H,J,K,L
C20			CC73GCH1H020B	CHIP C 2.0PF B	B,C,F,G
C20			CC73GCH1H020B	CHIP C 2.0PF B	J,K
C20			CC73GCH1H030B	CHIP C 3.0PF B	A,E,I
C20			CC73GCH1H040B	CHIP C 4.0PF B	D,H,L
C21			CC73GCH1H0R5B	CHIP C 0.5PF B	D,H,L
C22			CC73GCH1H101J	CHIP C 100PF J	
C23			CC73GCH1H020B	CHIP C 2.0PF B	A,E,I
C23			CC73GCH1H050B	CHIP C 5.0PF B	B,C,D,F,G
C23			CC73GCH1H050B	CHIP C 5.0PF B	H,J,K,L
C24			CC73GCH1H030B	CHIP C 3.0PF B	A,E,I

Ref. No.	Address	New parts	Parts No.	Description	Destination
C24			CC73GCH1H060B	CHIP C 6.0PF B	C,G,K
C24			CC73GCH1H080B	CHIP C 8.0PF B	B,D,F,H
C24			CC73GCH1H080B	CHIP C 8.0PF B	J,L
C25			CC73GCH1H040B	CHIP C 4.0PF B	A,E,I
C25			CC73GCH1H070B	CHIP C 7.0PF B	C,G,K
C25			CC73GCH1H080B	CHIP C 8.0PF B	D,H,L
C25			CC73GCH1H090B	CHIP C 9.0PF B	B,F,J
C26			CC73GCH1H020B	CHIP C 2.0PF B	D,H,L
C26			CC73GCH1H1R5B	CHIP C 1.5PF B	A,B,C,E,F
C26			CC73GCH1H1R5B	CHIP C 1.5PF B	G,I,J,K
C27			CC73GCH1H0R5B	CHIP C 0.5PF B	
C28			CC73GCH1H060D	CHIP C 6.0PF D	A,B,C,E,F
C28			CC73GCH1H060D	CHIP C 6.0PF D	G,I,J,K
C28			CC73GCH1H070D	CHIP C 7.0PF D	D,H,L
C29			CC73GCH1H220J	CHIP C 22PF J	
C30			CC73GCH1H060D	CHIP C 6.0PF D	A,B,C,E,F
C30			CC73GCH1H060D	CHIP C 6.0PF D	G,I,J,K
C30			CC73GCH1H080D	CHIP C 8.0PF D	D,H,L
C31			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C32			CK73GB1C104K	CHIP C 0.10UF K	
C33			CC73GCH1H060B	CHIP C 6.0PF B	A,E,I
C33			CC73GCH1H080B	CHIP C 8.0PF B	C,D,G,H
C33			CC73GCH1H080B	CHIP C 8.0PF B	K,L
C33			CC73GCH1H100C	CHIP C 10PF C	B,F,J
C35-41			CK73GB1H471K	CHIP C 470PF K	
C42-44			CC73GCH1H101J	CHIP C 100PF J	
C45			CK73GB1H471K	CHIP C 470PF K	
C48,49			C92-0001-05	CHIP-C 0.1UF 35WV	
C51			C92-0004-05	CHIP-TAN 1.0UF 16WV	A,B,E,F
C51			C92-0004-05	CHIP-TAN 1.0UF 16WV	I,J
C51			C92-0585-05	CHIP-TAN 4.7UF 16WV	C,D,G,H
C51			C92-0585-05	CHIP-TAN 4.7UF 16WV	K,L
C52			CC73GCH1H020B	CHIP C 2.0PF B	C,G,K
C52			CC73GCH1H030B	CHIP C 3.0PF B	B,D,F,H
C52			CC73GCH1H030B	CHIP C 3.0PF B	J,L
C52			CC73GCH1H040B	CHIP C 4.0PF B	A,E,I
C53			CK73GB1H471K	CHIP C 470PF K	
C54			CK73FB1C474K	CHIP C 0.47UF K	
C55			CK73GB1H471K	CHIP C 470PF K	
C57			CK73FB1C474K	CHIP C 0.47UF K	
C58			CK73GB1H103K	CHIP C 0.010UF K	
C60			CK73GB1H103K	CHIP C 0.010UF K	
C62			CC73GCH1H560J	CHIP C 56PF J	
C63			CC73GCH1H070B	CHIP C 7.0PF B	
C64			CC73GCH1H010B	CHIP C 1.0PF B	
C68			C92-0565-05	CHIP-TAN 6.8UF 10WV	
C70			CK73GB1H103K	CHIP C 0.010UF K	
C71			CC73GCH1H101J	CHIP C 100PF J	
C72			CC73GCH1H180G	CHIP C 18PF G	B,C,D,F,G
C72			CC73GCH1H180G	CHIP C 18PF G	H,J,K,L
C72			CC73GCH1H330G	CHIP C 33PF G	A,E,I
C73			CK73GB1H471K	CHIP C 470PF K	
C74			CK73FB1E104K	CHIP C 0.10UF K	
C75			CK73GB1H471K	CHIP C 470PF K	
C76			CK73GB1H102K	CHIP C 1000PF K	
C77			CC73GCH1H010B	CHIP C 1.0PF B	C,D,G,H

## PARTS LIST

TX-RX UNIT (X57-5880-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C77			CC73GCH1H010B	CHIP C 1.0PF B	K,L	C146,147			CK73GB1C104K	CHIP C 0.10UF K	
C77			CC73GCH1H030B	CHIP C 3.0PF B	A,E,I	C148			CK73GB1H103K	CHIP C 0.010UF K	
C77			CC73GCH1H040B	CHIP C 4.0PF B	B,F,J	C150			CK73GB1H102K	CHIP C 1000PF K	
C78			CC73GCH1H470J	CHIP C 47PF J		C151-153			CK73GB1H471K	CHIP C 470PF K	
C81			CC73GCH1H010C	CHIP C 1.0PF C		C155			C92-0662-05	CHIP-TAN 15UF 6.3WV	
C82			CK73GB1H102K	CHIP C 1000PF K	A,E,I	C156,157			CK73GB1H471K	CHIP C 470PF K	
C84,85			CK73GB1H471K	CHIP C 470PF K		C158			CK73FB1A105K	CHIP C 1.0UF K	
C86,87			CC73GCH1H100D	CHIP C 10PF D		C159			CK73GB1H471K	CHIP C 470PF K	
C88			CC73GCH1H020B	CHIP C 2.0PF B	B,F,J	C161			CK73GB1H471K	CHIP C 470PF K	
C88			CC73GCH1H040B	CHIP C 4.0PF B	A,D,E,H	C162			CK73GB1H103K	CHIP C 0.010UF K	
C88			CC73GCH1H040B	CHIP C 4.0PF B	I,L	C163,164			CK73GB1H471K	CHIP C 470PF K	
C88			CC73GCH1H1R5B	CHIP C 1.5PF B	C,G,K	C165			CK73GB1H103K	CHIP C 0.010UF K	
C89			CC73GCH1H070B	CHIP C 7.0PF B		C166			CK73FF1E104Z	CHIP C 0.10UF Z	
C90			C92-0560-05	CHIP-TAN 10UF 6.3WV		C167			CK73GB1H471K	CHIP C 470PF K	
C94			C92-0560-05	CHIP-TAN 10UF 6.3WV		C170,171			CK73GB1H471K	CHIP C 470PF K	
C95,96			CK73GB1H471K	CHIP C 470PF K		C173			C92-0567-05	CHIP-TAN 68UF 6.3WV	
C98			C92-0560-05	CHIP-TAN 10UF 6.3WV		C174			CK73GB1H471K	CHIP C 470PF K	
C99			CK73GB1C104K	CHIP C 0.10UF K		C176			CC73GCH1H101J	CHIP C 100PF J	
C100			C92-0507-05	CHIP-TAN 4.7UF 6.3WV		C177			CK73GB1C473K	CHIP C 0.047UF K	
C101			CK73GB1H471K	CHIP C 470PF K		C178			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C104			CK73GB1H471K	CHIP C 470PF K		C179			CK73GB1C104K	CHIP C 0.10UF K	
C107,108			CK73GB1C104K	CHIP C 0.10UF K		C180			CK73GB1H103K	CHIP C 0.010UF K	
C109			C92-0560-05	CHIP-TAN 10UF 6.3WV		C181			CK73GB1C393K	CHIP C 0.039UF K	
C110			CK73GB1H103K	CHIP C 0.010UF K		C182			CK73GB1H102K	CHIP C 1000PF K	
C111			CK73GB1H471K	CHIP C 470PF K		C183,184			CK73GB1C104K	CHIP C 0.10UF K	
C112			CC73GCH1H050B	CHIP C 5.0PF B		C185			CC73GCH1H180J	CHIP C 18PF J	
C113			CK73GB1H471K	CHIP C 470PF K		C186,187			CK73GB1C104K	CHIP C 0.10UF K	E,F,G,H
C114			CC73GCH1H221J	CHIP C 220PF J		C186,187			CK73GB1C104K	CHIP C 0.10UF K	I,J,K,L
C115			CK73GB1C104K	CHIP C 0.10UF K		C189			CK73GB1H103K	CHIP C 0.010UF K	
C116			CK73GB1H471K	CHIP C 470PF K	C,D,G,H	C190,191			CK73GB1C104K	CHIP C 0.10UF K	
C116			CK73GB1H471K	CHIP C 470PF K	K,L	C192,193			CC73GCH1H300J	CHIP C 30PF J	
C118			CK73GB1H471K	CHIP C 470PF K		C194			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C119			CK73FB1A105K	CHIP C 1.0UF K		C196			CC73GCH1H101J	CHIP C 100PF J	
C120,121			CK73GB1H471K	CHIP C 470PF K		C198,199			CK73GB1H103K	CHIP C 0.010UF K	
C122			CK73FB1A105K	CHIP C 1.0UF K		C200			CK73GB1A224K	CHIP C 0.22UF K	
C123			CC73GCH1H221J	CHIP C 220PF J		C201			CK73GB1H103K	CHIP C 0.010UF K	
C124			CC73GCH1H100D	CHIP C 10PF D	A,C,D,E,G	C202,203			CK73GB1C104K	CHIP C 0.10UF K	
C124			CC73GCH1H100D	CHIP C 10PF D	H,I,K,L	C204			CK73FB1C474K	CHIP C 0.47UF K	
C124			CC73GCH1H150J	CHIP C 15PF J	B,F,J	C205			CK73GB1H103K	CHIP C 0.010UF K	
C125,126			CK73GB1H103K	CHIP C 0.010UF K		C206-208			CK73GB1C104K	CHIP C 0.10UF K	
C128			CC73GCH1H040C	CHIP C 4.0PF C		C209			CK73GB1H392K	CHIP C 3900PF K	
C130			CK73GB1H471K	CHIP C 470PF K		C210			CK73GB1H102K	CHIP C 1000PF K	
C131			CC73GCH1H100D	CHIP C 10PF D		C211			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C132			CK73GB1H103K	CHIP C 0.010UF K		C212			CK73GB1H122K	CHIP C 1200PF K	
C133			CC73GCH1H820J	CHIP C 82PF J		C213			CK73GB1H103K	CHIP C 0.010UF K	
C135			CK73GB1H103K	CHIP C 0.010UF K		C215			CK73GB1C104K	CHIP C 0.10UF K	
C136			CC73GCH1H060B	CHIP C 6.0PF B	D,H,L	C216			CK73GB1H392K	CHIP C 3900PF K	
C136			CC73GCH1H080D	CHIP C 8.0PF D	A,B,C,E,F	C217			CK73GB1E153K	CHIP C 0.015UF K	
C136			CC73GCH1H080D	CHIP C 8.0PF D	G,I,J,K	C218			CK73FB1H563K	CHIP C 0.056UF K	
C137			CK73GB1H471K	CHIP C 470PF K		C219,220			CK73GB1C104K	CHIP C 0.10UF K	
C138			CK73GB1C104K	CHIP C 0.10UF K		C221			CK73GB1H471K	CHIP C 470PF K	
C139			CC73GCH1H181J	CHIP C 180PF J		C222			CK73GB1H103K	CHIP C 0.010UF K	
C140			CK73GB1H103K	CHIP C 0.010UF K		C223			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C141			CK73GB1C104K	CHIP C 0.10UF K		C224			CK73GB1H122K	CHIP C 1200PF K	
C142			CK73FB1A105K	CHIP C 1.0UF K		C225			CC73GCH1H101J	CHIP C 100PF J	
C143,144			CK73GB1H471K	CHIP C 470PF K		C226,227			CK73GB1H562J	CHIP C 5600PF J	

360G : TK-360G K, M, K2, M2, K3, K4, M4

370G : TK-370G K, M, K2, M2, K3, M3, K4, M4

A : TK-360G K, M

B : TK-360G K2, M2

C : TK-360G K3

D : TK-360G K4, M4

E : TK-370G K

F : TK-370G K2

G : TK-370G K3

H : TK-370G K4

I : TK-370G M

J : TK-370G M2

K : TK-370G M3



## PARTS LIST

TX-RX UNIT (X57-5880-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
L2			L92-0138-05	FERRITE CHIP		L35			L40-1275-92	SMALL FIXED INDUCTOR(12NH)	I,K
L3			L40-3391-86	SMALL FIXED INDUCTOR(3.3U)		L35			L40-1575-92	SMALL FIXED INDUCTOR(15NH)	B,F,J
L4			L33-0744-05	SMALL FIXED INDUCTOR	A,D,E,H	L35			L40-2775-92	SMALL FIXED INDUCTOR(27NH)	D,H,L
L4			L33-0744-05	SMALL FIXED INDUCTOR	I,L	L36			L40-1085-85	SMALL FIXED INDUCTOR(0.10U)	
L4			L33-0750-05	SMALL FIXED INDUCTOR	B,F,J	L37			L40-6885-85	SMALL FIXED INDUCTOR(0.68U)	
L4			L33-1266-05	SMALL FIXED INDUCTOR	C,G,K	L38			L92-0138-05	FERRITE CHIP	
L5,6			L34-4546-05	AIR-CORE COIL	B,C,F,G	L39			L92-0149-05	FERRITE CHIP	
L5,6			L34-4546-05	AIR-CORE COIL	J,K	L40,41			L92-0138-05	FERRITE CHIP	
L5,6			L34-4547-05	AIR-CORE COIL	A,D,E,H	L42			L92-0131-05	FERRITE CHIP	
L5,6			L34-4547-05	AIR-CORE COIL	I,L	L43,44			L92-0138-05	FERRITE CHIP	
L7			L34-4546-05	AIR-CORE COIL	B,C,D,F,G	L301			L40-3975-92	SMALL FIXED INDUCTOR(39NH)	B,F,J
L7			L34-4546-05	AIR-CORE COIL	H,J,K,L	L301			L40-5675-92	SMALL FIXED INDUCTOR(56NH)	A,C,D,E,G
L7			L34-4547-05	AIR-CORE COIL	A,E,I	L301			L40-5675-92	SMALL FIXED INDUCTOR(56NH)	H,I,K,L
L8			L40-1575-92	SMALL FIXED INDUCTOR(15NH)		L302			L34-4546-05	AIR-CORE COIL	
L9			L40-1075-92	SMALL FIXED INDUCTOR(10NH)	A,B,C,E,F	L303			L40-2275-92	SMALL FIXED INDUCTOR(22NH)	D,H,L
L9			L40-1075-92	SMALL FIXED INDUCTOR(10NH)	G,I,J,K	L303			L40-3975-92	SMALL FIXED INDUCTOR(39NH)	B,F,J
L9			L40-1275-92	SMALL FIXED INDUCTOR(12NH)	D,H,L	L303			L40-5675-92	SMALL FIXED INDUCTOR(56NH)	A,C,E,G
L10			L40-1095-94	SMALL FIXED INDUCTOR(1UH)		L303			L40-5675-92	SMALL FIXED INDUCTOR(56NH)	I,K
L11			L40-1092-81	SMALL FIXED INDUCTOR		L304,305			L34-4546-05	AIR-CORE COIL	
L12			L40-2702-86	SMALL FIXED INDUCTOR(27U)	B,C,D,F,G	L306			L34-4546-05	AIR-CORE COIL	A,B,E,F
L12			L40-2702-86	SMALL FIXED INDUCTOR(27U)	H,J,K,L	L306			L34-4546-05	AIR-CORE COIL	I,J
L12			L40-3391-86	SMALL FIXED INDUCTOR(3.3U)	A,E,I	L307			L40-4785-85	SMALL FIXED INDUCTOR(0.47U)	
L14			L40-1875-92	SMALL FIXED INDUCTOR(18NH)		L308,309			L34-4546-05	AIR-CORE COIL	
L15			L40-1875-92	SMALL FIXED INDUCTOR(18NH)	B,C,F,G	L310			L34-4546-05	AIR-CORE COIL	A,B,E,F
L15			L40-1875-92	SMALL FIXED INDUCTOR(18NH)	J,K	L310			L34-4546-05	AIR-CORE COIL	I,J
L15			L40-2275-92	SMALL FIXED INDUCTOR(22NH)	A,E,I	L311			L33-1301-05	SMALL FIXED INDUCTOR	C,G,K
L15			L40-2275-92	SMALL FIXED INDUCTOR(27NH)	D,H,L	L311			L40-8268-53	SMALL FIXED INDUCTOR(8.2NH)	D,H,L
L17			L34-4546-05	AIR-CORE COIL	B,C,F,G	L312			L40-2775-92	SMALL FIXED INDUCTOR(27NH)	A,E,I
L17			L34-4546-05	AIR-CORE COIL	J,K	L312			L40-3375-92	SMALL FIXED INDUCTOR(33NH)	B,F,J
L17			L34-4547-05	AIR-CORE COIL	A,D,E,H	L313			L40-1275-92	SMALL FIXED INDUCTOR(12NH)	C,G,K
L17			L34-4547-05	AIR-CORE COIL	I,L	X1	*		L77-1833-05	TCXO (16.8MHZ)	
L18-20			L92-0138-05	FERRITE CHIP		X2			L78-0479-05	RESONATOR (3.58MHZ)	
L21			L40-1275-92	SMALL FIXED INDUCTOR(12NH)	C,G,K	X3			L77-1810-05	CRYSTAL RESONATOR (9.8304MHZ)	
L21			L40-1875-92	SMALL FIXED INDUCTOR(18NH)	A,B,D,E,F	X3			L77-1835-05	CRYSTAL RESONATOR (9.8304MHZ)	
L21			L40-1875-92	SMALL FIXED INDUCTOR(18NH)	H,I,J,L	XF1			L71-0546-05	CRYSTAL FILTER (49.95MHZ)	
L22			L40-1085-92	SMALL FIXED INDUCTOR(100NH)	A,E,I	CP1			R90-0724-05	MULTI-COMP 1K X4	
L22			L40-1585-92	SMALL FIXED INDUCTOR(150NH)	B,C,F,G	CP2-9			R90-0741-05	MULTIPLE RESISTOR	
L22			L40-1585-92	SMALL FIXED INDUCTOR(150NH)	J,K	CP10			R90-0724-05	MULTI-COMP 1K X4	
L22			L40-1885-92	SMALL FIXED INDUCTOR(180NH)	D,H,L	CP11-18			R90-0741-05	MULTIPLE RESISTOR	
L23			L92-0138-05	FERRITE CHIP		CP19			R90-0718-05	MULTI-COMP 4.7K X4	
L24			L40-5681-86	SMALL FIXED INDUCTOR(0.56U)		CP20			RK75HA1J472J	CHIP R 4.7K J 1/16W	
L25			L40-1085-92	SMALL FIXED INDUCTOR(100NH)	A,E,I	R1			RK73GB1J124J	CHIP R 120K J 1/16W	A,B,E,F
L25			L40-1585-92	SMALL FIXED INDUCTOR(150NH)	B,C,F,G	R1			RK73GB1J124J	CHIP R 120K J 1/16W	I,J
L25			L40-1585-92	SMALL FIXED INDUCTOR(150NH)	J,K	R1			RK73GB1J394J	CHIP R 390K J 1/16W	C,D,G,H
L25			L40-1885-92	SMALL FIXED INDUCTOR(180NH)	D,H,L	R1			RK73GB1J394J	CHIP R 390K J 1/16W	K,L
L26			L33-0744-05	SMALL FIXED INDUCTOR	A,B,C,E,F	R2			RK73GB1J104J	CHIP R 100K J 1/16W	
L26			L33-0744-05	SMALL FIXED INDUCTOR	G,I,J,K	R3			RK73GB1J392J	CHIP R 3.9K J 1/16W	A,E,I
L26			L33-0745-05	SMALL FIXED INDUCTOR	D,H,L	R3			RK73GB1J472J	CHIP R 4.7K J 1/16W	B,C,D,F,G
L27			L92-0149-05	FERRITE CHIP		R3			RK73GB1J472J	CHIP R 4.7K J 1/16W	H,J,K,L
L30			L40-2702-86	SMALL FIXED INDUCTOR(27U)		R4			RK73GB1J102J	CHIP R 1.0K J 1/16W	
L31			L40-1085-92	SMALL FIXED INDUCTOR(100NH)	A,E,I	R5			RK73GB1J152J	CHIP R 1.5K J 1/16W	
L31			L40-1585-92	SMALL FIXED INDUCTOR(150NH)	B,C,F,G	R6			R92-1252-05	CHIP R 0 OHM	
L31			L40-1585-92	SMALL FIXED INDUCTOR(150NH)	J,K	R7			RK73GB1J100J	CHIP R 10 J 1/16W	
L31			L40-1885-92	SMALL FIXED INDUCTOR(180NH)	D,H,L	R8			RK73GB1J102J	CHIP R 1.0K J 1/16W	
L32			L40-1005-85	SMALL FIXED INDUCTOR(10U)		R9			RK73GB1J332J	CHIP R 3.3K J 1/16W	
L35			L40-1275-92	SMALL FIXED INDUCTOR(12NH)	A,C,E,G	R10			RK73GB1J331J	CHIP R 330 J 1/16W	

360G : TK-360G K, M, K2, M2, K3, K4, M4

370G : TK-370G K, M, K2, M2, K3, M3, K4, M4

A : TK-360G K, M

B : TK-360G K2, M2

C : TK-360G K3

D : TK-360G K4, M4

E : TK-370G K

F : TK-370G K2

G : TK-370G K3

H : TK-370G K4

I : TK-370G M

J : TK-370G M2

K : TK-370G M3

# TK-360G/370G

## PARTS LIST

TX-RX UNIT (X57-5880-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R13			RK73GB1J472J	CHIP R 4.7K J 1/16W		R73			RK73GB1J273J	CHIP R 27K J 1/16W	
R14			RK73GB1J332J	CHIP R 3.3K J 1/16W		R74,75			RK73GB1J223J	CHIP R 22K J 1/16W	
R16			RK73GB1J391J	CHIP R 390 J 1/16W		R76			R92-0670-05	CHIP R 0 OHM	
R17			RK73GB1J103J	CHIP R 10K J 1/16W		R77			R92-1252-05	CHIP R 0 OHM	
R18			RK73GB1J124J	CHIP R 120K J 1/16W		R78,79			RK73GB1J153J	CHIP R 15K J 1/16W	
R19			RK73GB1J332J	CHIP R 3.3K J 1/16W		R80,81			RK73GB1J223J	CHIP R 22K J 1/16W	
R20			RK73GB1J122J	CHIP R 1.2K J 1/16W		R82			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R21			RK73GB1J331J	CHIP R 330 J 1/16W		R83			RK73GB1J104J	CHIP R 100K J 1/16W	C,D,G,H
R22			RK73GB1J561J	CHIP R 560 J 1/16W		R83			RK73GB1J104J	CHIP R 100K J 1/16W	K,L
R23			RK73GB1J222J	CHIP R 2.2K J 1/16W		R84			RK73GB1J184J	CHIP R 180K J 1/16W	
R24			RK73GB1J682J	CHIP R 6.8K J 1/16W		R85			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R25			RK73GB1J470J	CHIP R 47 J 1/16W		R86			RK73GB1J104J	CHIP R 100K J 1/16W	D,H,L
R26			RK73GB1J561J	CHIP R 560 J 1/16W		R86			RK73GB1J184J	CHIP R 180K J 1/16W	A,B,C,E,F
R27			RK73GB1J390J	CHIP R 39 J 1/16W		R86			RK73GB1J184J	CHIP R 180K J 1/16W	G,I,J,K
R28,29			RK73GB1J271J	CHIP R 270 J 1/16W		R87			R92-1252-05	CHIP R 0 OHM	
R30			RK73GB1J152J	CHIP R 1.5K J 1/16W	D,H,L	R88			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R30			RK73GB1J182J	CHIP R 1.8K J 1/16W	C,G,K	R89			RK73GB1J821J	CHIP R 820 J 1/16W	
R30			RK73GB1J472J	CHIP R 4.7K J 1/16W	A,B,E,F	R90,91			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R30			RK73GB1J472J	CHIP R 4.7K J 1/16W	I,J	R92			RK73GB1J100J	CHIP R 10 J 1/16W	
R31			RK73GB1J101J	CHIP R 100 J 1/16W		R93			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R33			RK73GB1J101J	CHIP R 100 J 1/16W		R94			RK73GB1J221J	CHIP R 220 J 1/16W	
R34			RK73GB1J473J	CHIP R 47K J 1/16W		R95			RK73GB1J102J	CHIP R 1.0K J 1/16W	B,F,J
R35			RK73GB1J104J	CHIP R 100K J 1/16W		R95			RK73GB1J822J	CHIP R 2.2K J 1/16W	A,C,E,G
R36			RK73GB1J473J	CHIP R 47K J 1/16W		R95			RK73GB1J222J	CHIP R 2.2K J 1/16W	I,K
R37			RK73GB1J392J	CHIP R 3.9K J 1/16W		R95			RK73GB1J561J	CHIP R 560 J 1/16W	D,H,L
R38			RK73GB1J101J	CHIP R 100 J 1/16W		R96			RK73GB1J181J	CHIP R 180 J 1/16W	A,C,D,E,G
R39			RK73GB1J220J	CHIP R 22 J 1/16W		R96			RK73GB1J181J	CHIP R 180 J 1/16W	H,I,K,L
R41			RK73GB1J100J	CHIP R 10 J 1/16W		R96			RK73GB1J820J	CHIP R 82 J 1/16W	B,F,J
R42			RK73GB1J220J	CHIP R 22 J 1/16W		R97			RK73GB1J183J	CHIP R 18K J 1/16W	
R43			RK73GB1J101J	CHIP R 100 J 1/16W		R98			RK73GB1J473J	CHIP R 47K J 1/16W	
R44			RK73GB1J102J	CHIP R 1.0K J 1/16W		R99			RK73GB1J684J	CHIP R 680K J 1/16W	
R45			RK73GB1J222J	CHIP R 2.2K J 1/16W	A,E,I	R100			RK73GB1J473J	CHIP R 47K J 1/16W	
R45			RK73GB1J562J	CHIP R 5.6K J 1/16W	B,C,D,F,G	R101			RK73GB1J104J	CHIP R 100K J 1/16W	
R45			RK73GB1J562J	CHIP R 5.6K J 1/16W	H,J,K,L	R102,103			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R46			RN73GH1J154D	CHIP R 150K D 1/16W		R104			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R47			RK73GB1J104J	CHIP R 100K J 1/16W		R105			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R48			RK73GB1J334J	CHIP R 330K J 1/16W		R106			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R49			RK73GB1J103J	CHIP R 10K J 1/16W		R107			RK73GB1J470J	CHIP R 47 J 1/16W	
R50			RN73GH1J154D	CHIP R 150K D 1/16W		R108			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R51			RK73GB1J102J	CHIP R 1.0K J 1/16W		R109			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R52			RK73GB1J181J	CHIP R 180 J 1/16W		R110,111			RK73GB1J103J	CHIP R 10K J 1/16W	
R53			RK73GB1J472J	CHIP R 4.7K J 1/16W		R112			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R54			RN73GH1J154D	CHIP R 150K D 1/16W		R113			RK73GB1J391J	CHIP R 390 J 1/16W	
R55			RK73GB1J105J	CHIP R 1.0M J 1/16W		R114,115			RK73GB1J103J	CHIP R 10K J 1/16W	
R56-58			RK73EB2ER39K	CHIP R 0.39 K 1/4W		R116,117			RK73GB1J153J	CHIP R 15K J 1/16W	
R59			RN73GH1J154D	CHIP R 150K D 1/16W		R118			RK73GB1J473J	CHIP R 47K J 1/16W	
R60			R92-1252-05	CHIP R 0 OHM		R119			R92-1252-05	CHIP R 0 OHM	
R61			RK73GB1J104J	CHIP R 100K J 1/16W		R120,121			RK73GB1J473J	CHIP R 47K J 1/16W	
R62			RN73GH1J154D	CHIP R 150K D 1/16W		R122			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R64,65			RK73GB1J104J	CHIP R 100K J 1/16W		R123			RK73GB1J104J	CHIP R 100K J 1/16W	
R67			RK73GB1J273J	CHIP R 27K J 1/16W		R124			RK73GB1J334J	CHIP R 330K J 1/16W	
R68			RN73GH1J154D	CHIP R 150K D 1/16W		R126			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R69			RK73GB1J220J	CHIP R 22 J 1/16W		R127			RK73GB1J333J	CHIP R 33K J 1/16W	
R70			RK73GB1J104J	CHIP R 100K J 1/16W	A,E,I	R128			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R71			RK73GB1J124J	CHIP R 120K J 1/16W		R129			RK73GB1J224J	CHIP R 220K J 1/16W	
R72			RK73GB1J103J	CHIP R 10K J 1/16W		R130			R92-1252-05	CHIP R 0 OHM	

360G : TK-360G K, M, K2, M2, K3, K4, M4

370G : TK-370G K, M, K2, M2, K3, M3, K4, M4

A : TK-360G K, M

B : TK-360G K2, M2

C : TK-360G K3

D : TK-360G K4, M4

E : TK-370G K

F : TK-370G K2

G : TK-370G K3

H : TK-370G K4

I : TK-370G M

J : TK-370G M2

K : TK-370G M3

## PARTS LIST

TX-RX UNIT (X57-5880-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
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	
R157			RK73GB1J102J	CHIP R 1.0K J 1/16W		R232			RK73GB1J182J	CHIP R 1.8K J 1/16W	A,E,I
R158			R92-1252-05	CHIP R 0 OHM		R232			R92-1252-05	CHIP R 0 OHM	B,C,D,F,G
R159			RK73GB1J102J	CHIP R 1.0K J 1/16W		R232			R92-1252-05	CHIP R 0 OHM	H,J,K,L
R160			RK73GB1J222J	CHIP R 2.2K J 1/16W		R233			R92-1252-05	CHIP R 0 OHM	
R161			RK73GB1J563J	CHIP R 56K J 1/16W		R234			RK73GB1J124J	CHIP R 120K J 1/16W	
R162			RN73GH1J333D	CHIP R 33K D 1/16W		R235			RK73GB1J334J	CHIP R 330K J 1/16W	
R163			RN73GH1J274D	CHIP R 270K D 1/16W		R237			R92-1252-05	CHIP R 0 OHM	
R164			RK73GB1J184J	CHIP R 180K J 1/16W		R239			RK73GB1J153J	CHIP R 15K J 1/16W	
R165			RK73GB1J473J	CHIP R 47K J 1/16W		R240			RK73GB1J223J	CHIP R 22K J 1/16W	
R166			RK73GB1J103J	CHIP R 10K J 1/16W		R241			RK73GB1J334J	CHIP R 330K J 1/16W	
R167			RK73GB1J564J	CHIP R 560K J 1/16W		R242			R92-1252-05	CHIP R 0 OHM	
R168			RK73GB1J102J	CHIP R 1.0K J 1/16W		R244			RK73GB1J391J	CHIP R 390 J 1/16W	D,H,L
R169			RK73GB1J473J	CHIP R 47K J 1/16W		R244			RK73GB1J561J	CHIP R 560 J 1/16W	A,B,C,E,F
R170			RK73GB1J394J	CHIP R 390K J 1/16W		R244			RK73GB1J561J	CHIP R 560 J 1/16W	G,I,J,K
R171			RK73GB1J474J	CHIP R 470K J 1/16W		R249			R92-1252-05	CHIP R 0 OHM	
R172			RK73GB1J473J	CHIP R 47K J 1/16W		R250			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R173			RK73GB1J104J	CHIP R 100K J 1/16W		R251			RK73GB1J474J	CHIP R 470K J 1/16W	
R174			R92-1252-05	CHIP R 0 OHM		R252,253			R92-1252-05	CHIP R 0 OHM	
R175			RK73GB1J103J	CHIP R 10K J 1/16W		R254			RK73GB1J184J	CHIP R 180K J 1/16W	
R176			R92-1252-05	CHIP R 0 OHM		R255			RK73GB1J474J	CHIP R 470K J 1/16W	
R177			RK73GB1J473J	CHIP R 47K J 1/16W		R256			R92-1252-05	CHIP R 0 OHM	
R178,179			RK73GB1J104J	CHIP R 100K J 1/16W		R258			R92-1252-05	CHIP R 0 OHM	
R180			RK73GB1J222J	CHIP R 2.2K J 1/16W		R259			RK73GB1J473J	CHIP R 47K J 1/16W	
R181			RK73GB1J472J	CHIP R 4.7K J 1/16W		R260,261			RK73GB1J224J	CHIP R 220K J 1/16W	
R182,183			R92-1252-05	CHIP R 0 OHM		R301			R92-0679-05	CHIP R 0 OHM	
R184			RK73GB1J333J	CHIP R 33K J 1/16W		R303			RK73GB1J100J	CHIP R 10 J 1/16W	B,F,J
R185			RK73GB1J102J	CHIP R 1.0K J 1/16W		R303			RK73GB1J470J	CHIP R 47 J 1/16W	A,D,E,H,I
R186			RK73GB1J155J	CHIP R 1.5M J 1/16W		R303			RK73GB1J470J	CHIP R 47 J 1/16W	J,L
R198			RK73GB1J154J	CHIP R 150K J 1/16W		R303			R92-1252-05	CHIP R 0 OHM	C,G,K
R199			RK73GB1J103J	CHIP R 10K J 1/16W		R304			R92-1252-05	CHIP R 0 OHM	A,B,D,E,F
R200			RK73GB1J101J	CHIP R 100 J 1/16W		R304			R92-1252-05	CHIP R 0 OHM	H,I,J,L
R201			R92-1252-05	CHIP R 0 OHM		R305			RK73GB1J102J	CHIP R 1.0K J 1/16W	A,E,I
R202			RK73GB1J474J	CHIP R 470K J 1/16W		R305			RK73GB1J222J	CHIP R 2.2K J 1/16W	B,C,D,F,G

360G : TK-360G K, M, K2, M2, K3, K4, M4

370G : TK-370G K, M, K2, M2, K3, M3, K4, M4

A : TK-360G K, M

B : TK-360G K2, M2

C : TK-360G K3

D : TK-360G K4, M4

E : TK-370G K

F : TK-370G K2

G : TK-370G K3 J : TK-370G M2

H : TK-370G K4 K : TK-370G M3

I : TK-370G M



# TK-360G/370G

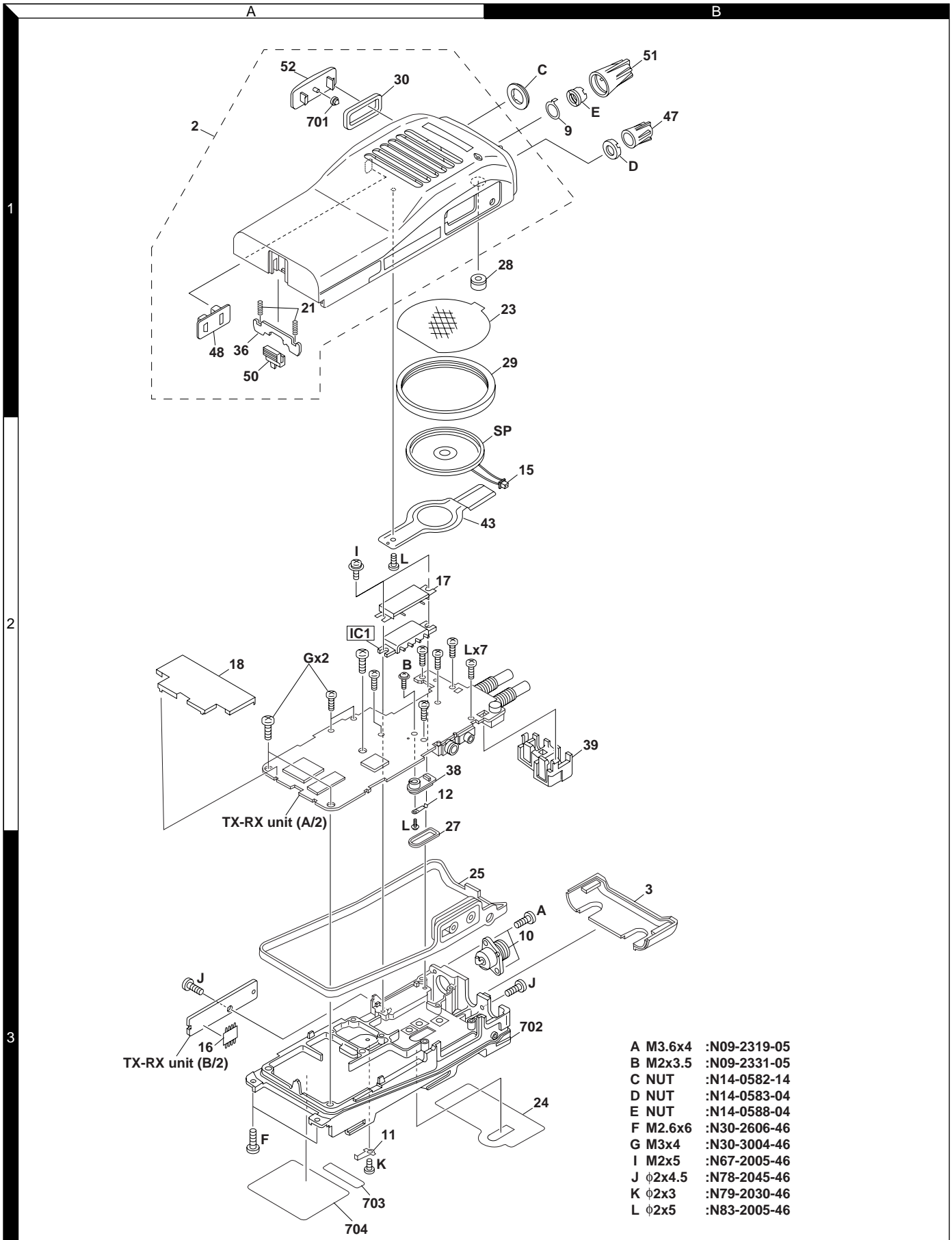
## PARTS LIST

TX-RX UNIT (X57-5880-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R305			RK73GB1J222J	CHIP R 2.2K J 1/16W	H,J,K,L	IC3			NJM2904V	IC (APC)	
R306			RK73GB1J332J	CHIP R 3.3K J 1/16W	A,B,C,E,F	IC4			TA31136FN	IC (FM IF DETECTOR)	
R306			RK73GB1J332J	CHIP R 3.3K J 1/16W	G,I,J,K	IC5,6			BU4094BCFV	IC (8bit SHIFT/STORE REGISTER)	
R306			RK73GB1J472J	CHIP R 4.7K J 1/16W	D,H,L	IC7			S-81350HG-KD	IC (VOLTAGE REGULATOR)	
R308			R92-1252-05	CHIP R 0 OHM	C,D,G,H	IC8			PST9140NR	IC (RESET SW)	
R308			R92-1252-05	CHIP R 0 OHM	K,L	IC9			RN5VL45C	IC (REGULATOR)	
R309			RK73GB1J101J	CHIP R 100 J 1/16W		IC10			AT2408N10SI2.5	IC (8kbit SERIAL EEPROM)	
R310			RK73GB1J151J	CHIP R 150 J 1/16W	C,G,K	IC11			TA7368F	IC (AF POWER AMP)	
R310			RK73GB1J221J	CHIP R 220 J 1/16W	D,H,L	IC12			AT29C020-90TI	IC	
R310			RK73GB1J331J	CHIP R 330 J 1/16W	A,B,E,F	IC13			30622M4102GP	MPU	
R310			RK73GB1J331J	CHIP R 330 J 1/16W	I,J	IC14			TC35453F	IC (AUDIO PROCESSOR)	
R311			RK73GB1J104J	CHIP R 100K J 1/16W	C,D,G,H	IC15			TA75W01FU	IC (OP AMP X2)	
R311			RK73GB1J104J	CHIP R 100K J 1/16W	K,L	IC16			TC75W51FU	IC (OP AMP X2)	
R312			RK73GB1J104J	CHIP R 100K J 1/16W	C,G,K	IC17			X9C103SI	IC (TERMINAL VOLTAGE)	
R314			RK73GB1J224J	CHIP R 220K J 1/16W		IC18			LC73872M	IC (DTMF RECEIVER)	
R315-317			RK73GB1J104J	CHIP R 100K J 1/16W	C,D,G,H	IC19			TA75W01FU	IC (OP AMP X2)	
R315-317			RK73GB1J104J	CHIP R 100K J 1/16W	K,L	Q1			2SC5108(Y)	TRANSISTOR	
R318			RK73GB1J104J	CHIP R 100K J 1/16W		Q2			2SC4226(R24)	TRANSISTOR	
R320			R92-1252-05	CHIP R 0 OHM		Q3-5			2SC5108(Y)	TRANSISTOR	
R600			R92-1252-05	CHIP R 0 OHM	C,D,G,H	Q6			2SC4988	TRANSISTOR	
R600			R92-1252-05	CHIP R 0 OHM	K,L	Q7			2SJ243	FET	
VR1			R12-7491-05	TRIMMING POT.(68K)		Q8			UMC4	TRANSISTOR	
S401			S70-0457-05	TACT SWITCH		Q9			DTC144EE	DIGITAL TRANSISTOR	
S402,403			S70-0424-05	TACT SWITCH		Q10			2SK508NV(K52)	FET	
						Q11			2SC4617(S)	TRANSISTOR	
MIC1			T91-0579-05	MIC ELEMENT		Q12			2SC4649(N,P)	TRANSISTOR	
D1			MA2S111	DIODE		Q13,14			DTA144EE	DIGITAL TRANSISTOR	
D2			MA2S376	VARIABLE CAPACITANCE DIODE		Q15			DTC114EE	DIGITAL TRANSISTOR	
D3			HVU131	DIODE		Q16			DTA114YE	DIGITAL TRANSISTOR	
D4			MA2S376	VARIABLE CAPACITANCE DIODE		Q17			DTC144EE	DIGITAL TRANSISTOR	
D5			HSC277	DIODE		Q18			FP210	TRANSISTOR	
D6			MA360	VARIABLE CAPACITANCE DIODE		Q19			3SK228	FET	
D7			HSC277	DIODE	A,E,I	Q20,21			UMG3N	TRANSISTOR	
D7			HVC131	DIODE	B,C,D,F,G	Q22			2SC4619	TRANSISTOR	
D7			HVC131	DIODE	H,J,K,L	Q23			UMC4	TRANSISTOR	
D8			HZU5ALL	DIODE		Q24,25			DTC114EE	DIGITAL TRANSISTOR	
D9			MA2S376	VARIABLE CAPACITANCE DIODE		Q26			DTA114EE	DIGITAL TRANSISTOR	
D10			HSC277	DIODE		Q27			UPA572T	FET	
D11			MA2S376	VARIABLE CAPACITANCE DIODE		Q28			DTA114YE	DIGITAL TRANSISTOR	
D12			MA2S111	DIODE		Q30			2SK1588	FET	
D13,14			DAN235E	DIODE		Q31			2SC4619	TRANSISTOR	
D15			HSC277	DIODE		Q32			2SA1362(GR)	TRANSISTOR	
D17			MA2S111	DIODE	E,F,G,H	Q33,34			DTC144EE	DIGITAL TRANSISTOR	
D19			MA2S111	DIODE	A,B,C,D	Q35			UPA672T	FET	
D21			1SS373	DIODE		Q36			2SK1824	FET	
D22			1SR154-400	DIODE		Q301			3SK228	FET	
D23			RB706F-40	DIODE							
D302			HVC350B	VARIABLE CAPACITANCE DIODE	D,H,L						
D302,303			1SV285	VARIABLE CAPACITANCE DIODE	C,G,K						
D305-307			HVC350B	VARIABLE CAPACITANCE DIODE	D,H,L						
D305-307			1SV285	VARIABLE CAPACITANCE DIODE	C,G,K						
IC1			M68732H	IC (POWER MODULE)	A,E,I						
IC1			M68732L	IC (POWER MODULE)	D,H,L						
IC1			M68732SH	IC (POWER MODULE)	C,G,K						
IC1			M68732UH	IC (POWER MODULE)	B,F,J						
IC2			MB15A02	IC							

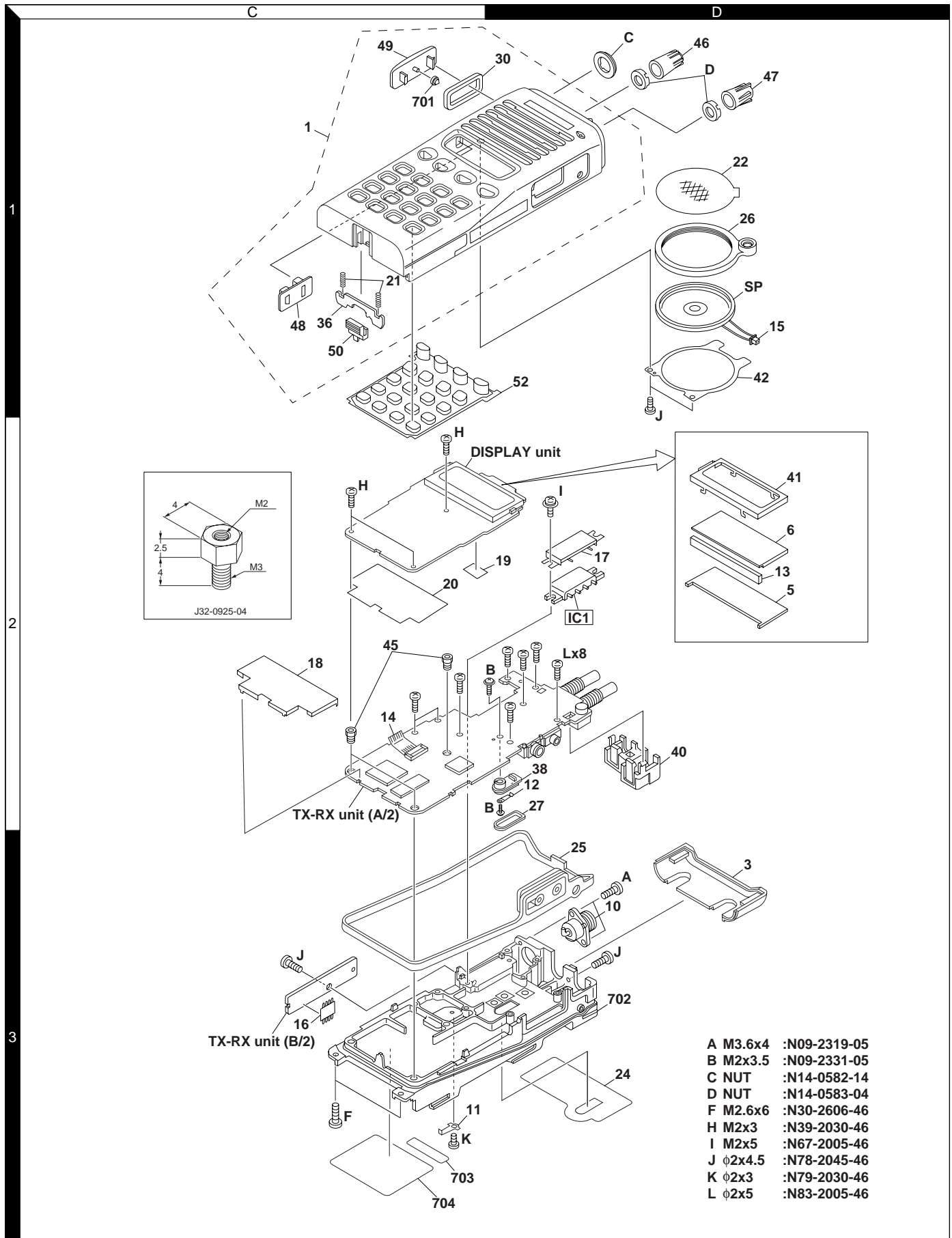
# TK-360G/370G

## EXPLODED VIEW (TK-360G)



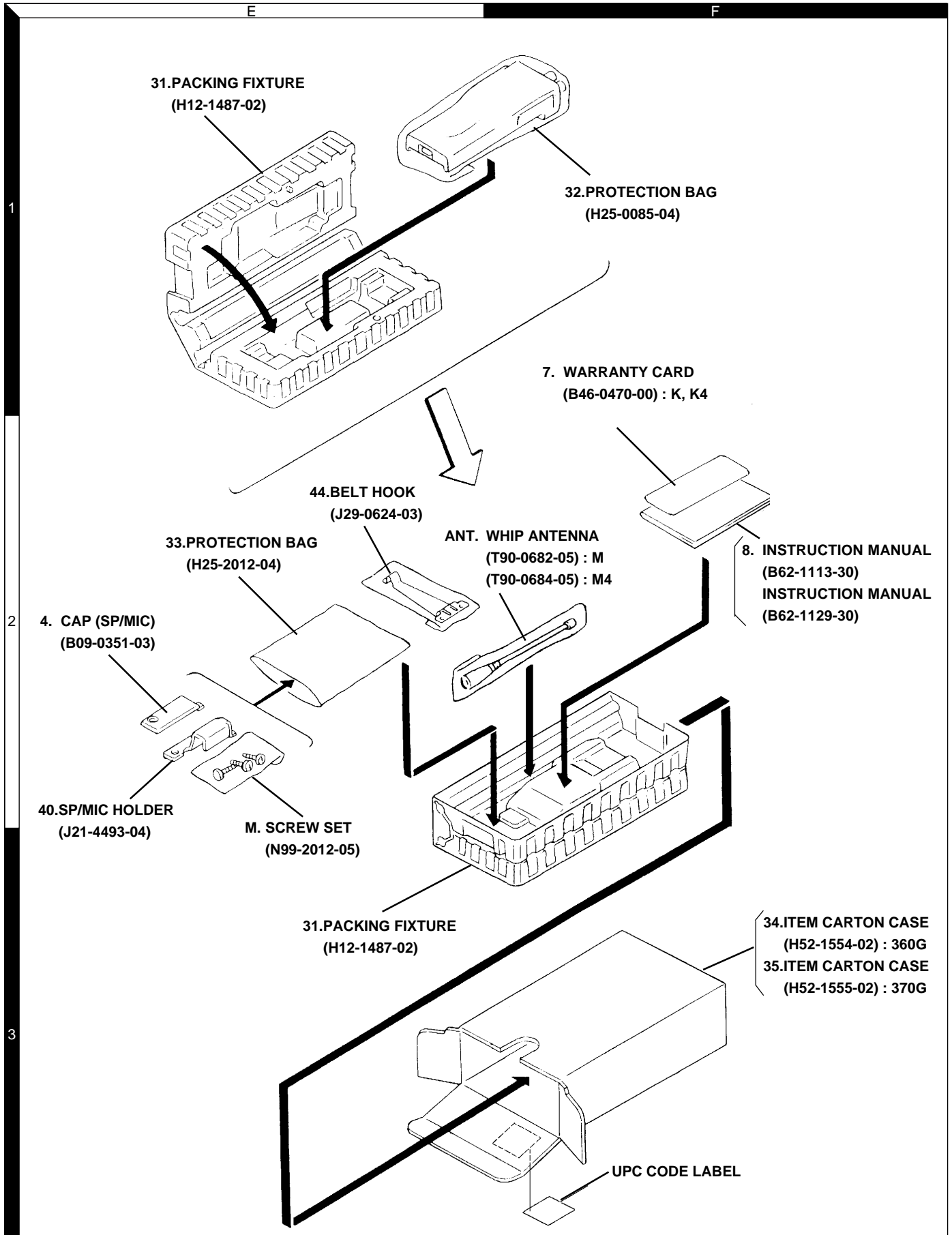
# TK-360G/370G

## EXPLODED VIEW (TK-370G)



A	M3.6x4	: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



# TK-360G/370G

## ADJUSTMENT

### Test Equipment Required for Alignment

Test Equipment	Major Specifications	
1. Standard Signal Generator (SSG)	Frequency Range	450 to 470MHz (K, M) 403 to 430MHz (K4, M4) 470 to 490MHz (K2, M2) 490 to 512MHz (K3) 490 to 520MHz (M3)
	Modulation	Frequency modulation and external modulation.
	Output	-127dBm/0.1μV to greater than -47dBm/1mV
2. Power Meter	Input Impedance	50Ω.
	Operation Frequency	450 to 470MHz (K, M) 403 to 430MHz (K4, M4) 470 to 490MHz (K2, M2) 490 to 512MHz (K3) 490 to 520MHz (M3) or more.
	Measurement Range	Vicinity of 5W
3. Deviation Meter	Frequency Range	450 to 470MHz (K, M) 403 to 430MHz (K4, M4) 470 to 490MHz (K2, M2) 490 to 512MHz (K3) 490 to 520MHz (M3)
4. Digital Volt Meter (DVM)	Measuring Range	10mV to 10V DC
	Input Impedance	High input impedance for minimum circuit loading.
5. Oscilloscope		DC through 30MHz.
6. High Sensitivity Frequency Counter	Frequency Range	10Hz to 1000MHz.
	Frequency Stability	0.2ppm or less.
7. Ammeter		5A.
8. AF Volt Meter (AF VTVM)	Frequency Range	50Hz to 10kHz.
	Voltage Range	1mV to 10V.
9. Audio Generator (AG)	Frequency Range	50Hz to 5kHz or more.
	Output	0 to 1V.
10. Distortion Meter	Capability	3% or less at 1kHz.
	Input Level	50mV to 10Vrms.
11. Spectrum Analyzer	Measuring Range	DC to 1GHz or more
12. Tracking Generator	Center frequency	50kHz to 600MHz
	Output Voltage	100mV or more
13. 8Ω Dummy Load		Approx. 8Ω, 3W.
14. Regulated Power Supply		5V to 10V, approx. 3A 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.)

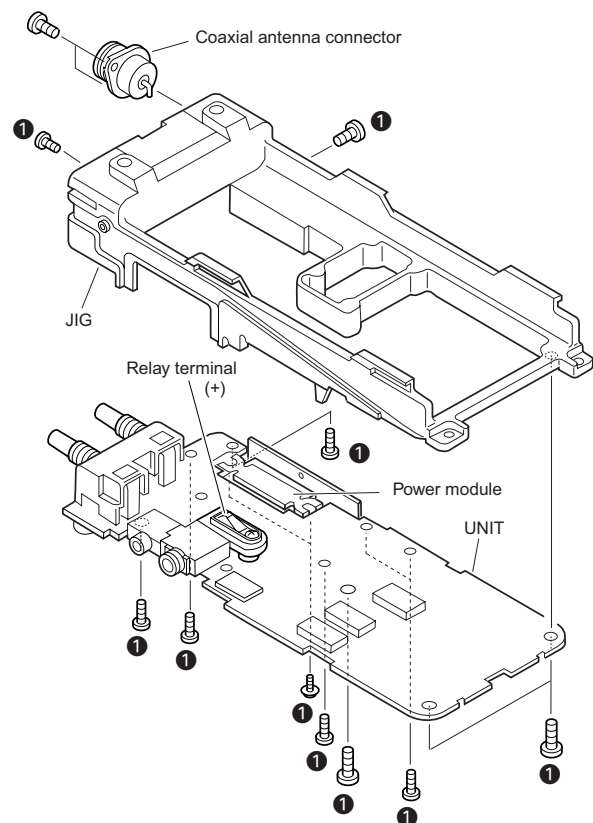
#### Note

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 ❶.
  - ② Solder the antenna terminal of the TX-RX unit.
3. Supply power from an external power supply.
 

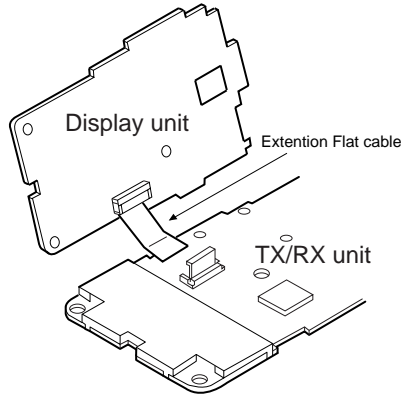
Relay terminal : + (7.5)  
Jig (Chassis) : -



## ADJUSTMENT

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

This cable is used for connecting the TK-370G display unit and TX/RX unit when you test or repair the transceiver.



**Caution :** You must connect TK-370G display unit when you test or repair the transceiver.

### Test Mode (TK-370G 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.
[Side2]	Monitor ON and OFF.
[Side1]	Changes wide and narrow.
[O]	Sets to the Tuning mode.
[●]	Unused
[◀]	RF power HIGH and LOW.
[▶]	Changes signalling.
[0] to [9], and [#],[*]	Used as the DTMF keypad. If a key is pressed during transmission, the DTMF corresponding and [A] to [D] 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) (K, M type)

Channel No.	RX Frequency	TX Frequency
1	460.05000	460.00000
2	450.05000	450.00000
3	469.95000	470.00000
4	460.00000	460.00000
5	460.20000	460.20000
6	460.40000	460.40000
7~16	—	—

#### Frequency (MHz) (K4, M4 type)

Channel No.	RX Frequency	TX Frequency
1	416.55000	416.50000
2	403.05000	403.00000
3	429.95000	430.00000
4	416.00000	416.00000
5	416.20000	416.20000
6	416.40000	416.40000
7~16	—	—

#### Frequency (MHz) (K2, M2 type)

Channel No.	RX Frequency	TX Frequency
1	480.05000	480.00000
2	470.05000	470.00000
3	489.95000	490.00000
4	480.00000	480.00000
5	480.20000	480.20000
6	480.40000	480.40000
7~16	—	—

#### Frequency (MHz) (K3 type)

Channel No.	RX Frequency	TX Frequency
1	501.05000	501.00000
2	490.05000	490.00000
3	511.95000	512.00000
4	501.00000	501.00000
5	501.20000	501.20000
6	501.40000	501.40000
7~16	—	—

#### Frequency (MHz) (M3 type)

Channel No.	RX Frequency	TX Frequency
1	505.05000	505.00000
2	490.05000	490.00000
3	519.95000	520.00000
4	505.00000	505.00000
5	505.20000	505.20000
6	505.40000	505.40000
7~16	—	—

# TK-360G/370G

## ADJUSTMENT

### 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	ENC
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).

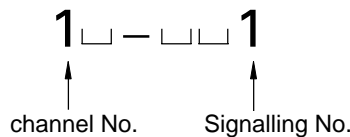
The speaker output connector must be terminated with a 8Ω dummy load and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement meter at all times during tuning.

- Transceiver tuning**

(To place the transceiver in tuning mode)

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

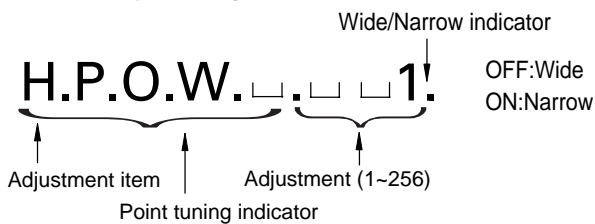
### LCD display (Test mode)



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 [Side1] key to switch between Wide/Narrow.

### LCD display (Tuning mode)



### Panel Tuning Mode (K, M type)

	450-470(MHz)	
TEST Ch	RX frequency (MHz)	TX frequency (MHz)
Low	450.05000	450.00000
Low'	455.05000	455.00000
Center	460.05000	460.00000
High'	465.05000	465.00000
High	469.95000	470.00000

### Panel Tuning Mode (K4, M4 type)

	403-430(MHz)	
TEST Ch	RX frequency (MHz)	TX frequency (MHz)
Low	403.05000	403.00000
Low'	409.80000	409.75000
Center	416.55000	416.50000
High'	423.30000	423.25000
High	429.95000	430.00000

### Panel Tuning Mode (K2, M2 type)

	470-490(MHz)	
TEST Ch	RX frequency (MHz)	TX frequency (MHz)
Low	470.05000	470.00000
Low'	475.05000	475.00000
Center	480.05000	480.00000
High'	485.05000	485.00000
High	489.95000	490.00000

### Panel Tuning Mode (K3 type)

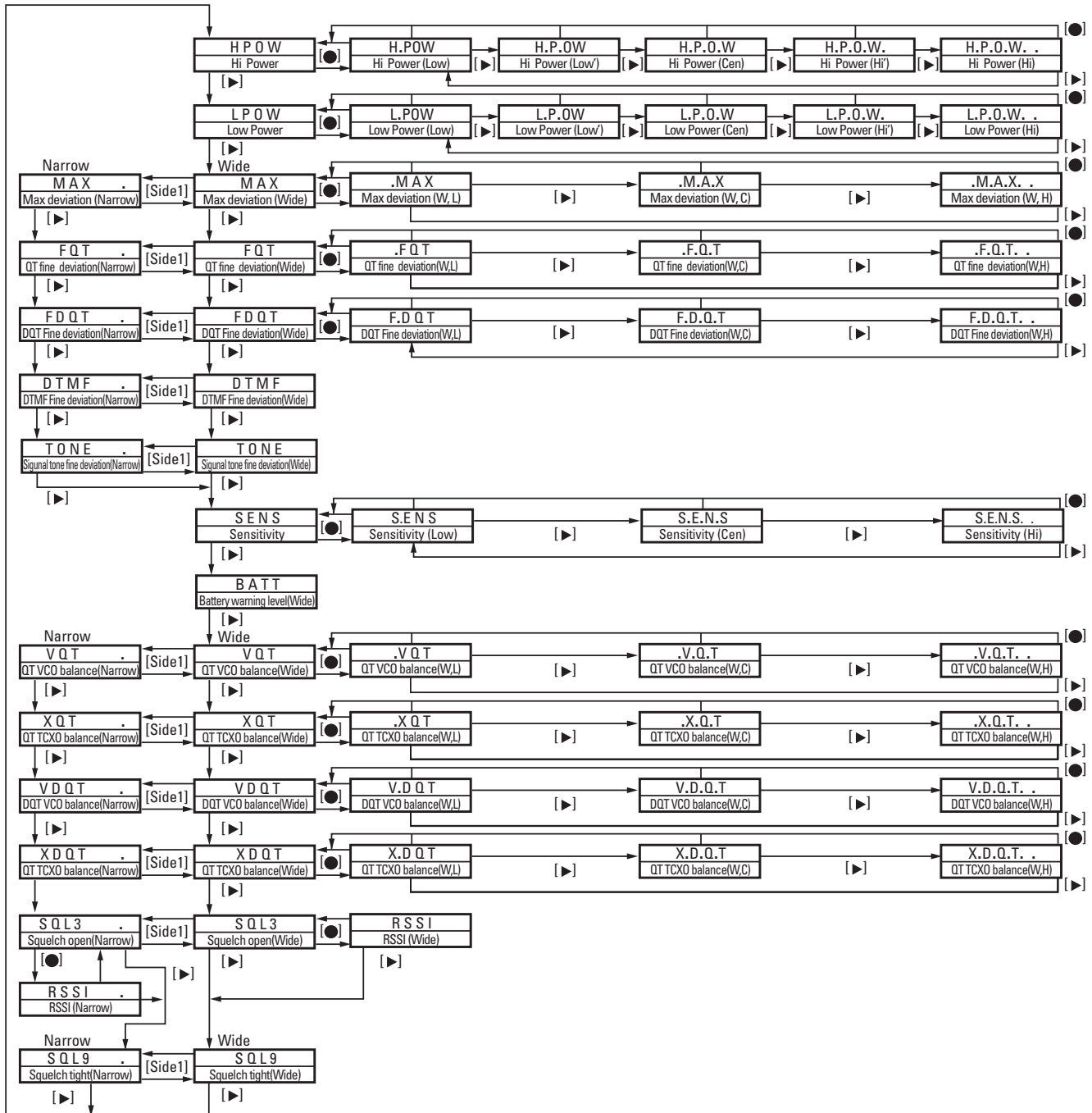
	490-512(MHz)	
TEST Ch	RX frequency (MHz)	TX frequency (MHz)
Low	490.05000	490.00000
Low'	495.55000	495.50000
Center	501.05000	501.00000
High'	506.55000	506.50000
High	511.95000	512.00000

### Panel Tuning Mode (M3 type)

	490-520(MHz)	
TEST Ch	RX frequency (MHz)	TX frequency (MHz)
Low	490.05000	490.00000
Low'	497.05000	497.50000
Center	505.05000	505.00000
High'	512.55000	512.50000
High	519.95000	520.00000

## ADJUSTMENT

### ■ Tuning mode





# TK-360G/370G

## ADJUSTMENT

Since the TK-360G cannot be tuned from the panel, the FPU (KPG-56D) should be used for adjustment.

### Note

Precision parts are used for the PTT, side1, and side2 switches.

In order to avoid damaging these switches, do not press them using your fingers. However, if it is necessary to press these switches, be sure to press them at 90° angles, pressing them at other angles can easily damage the parts.


### Common Section

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
1. Setting	1) BATT terminal voltage:7.5V 2) SSG Standard modulation [Wide] MOD:1kHz, DEV:3kHz [Narrow] MOD:1kHz, DEV:1.5kHz [Semi wide] MOD:1kHz, DEV:2.4kHz					
2. VCO lock voltage RX	<b>[Panel Test Mode]</b> 1) CH-Sig:2-1 2) CH-Sig:3-1	Power meter DVM	ANT CV(LV)		Check	0.8V or more
						4.0V ± 0.1V (K, M)
						4.0V ± 0.1V (K4, M4)
						4.1V ± 0.1V (K2, M2)
TX	3) CH-Sig:2-1 PTT:ON 4) CH-Sig:3-1 PTT:ON					0.8V or more
						4.0V ± 0.1V (K, M, K2, M2, K3, M3)
						3.5V ± 0.1V (K4, M4)

### Transmitter Section

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
1. Frequency Adjust	1) PTT:ON	Freq. Counter Power meter Am meter	ANT	VR1		Center frequency (460.0 MHz) ± 100Hz (K, M) (416.5 MHz) ± 100Hz (K4, M4) (480.0 MHz) ± 100Hz (K2, M2) (501.0 MHz) ± 100Hz (K3) (505.0 MHz) ± 100Hz (M3)
2. Max Power Check	1) Adj item [HPOW] Adjust [256] 2) Adj item [H.P O W] → [H.P.O W] → [H.P.O.W] → [H.P.O.W.] → [H.P.O.W. .] Adjust [256] PTT:ON				Check	4.2W or more
3. Hight Power Adjust	1) Adj item [HPOW] Adjust [***] 2) Adj item [H.P O W] → [H.P.O W] → [H.P.O.W] → [H.P.O.W.] → [H.P.O.W. .] Adjust [***] PTT:ON			Encoder knob	4.2W	±0.1W 2.2A or less
4. Hight Power Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 PTT:ON 2) CH-Sig:2-1 PTT:ON 3) CH-Sig:3-1 PTT:ON				Check	3.0~5.0W 2.3A or less
5. Low Power Adjust	1) Adj item [LPOW] Adjust [***] 2) Adj item [L.P O W] → [L.P.O W] → [L.P.O.W] → [L.P.O.W.] → [L.P.O.W. .] Adjust [***] PTT:ON			Encoder knob	1.0W	±0.1W 1.0A or less

## ADJUSTMENT

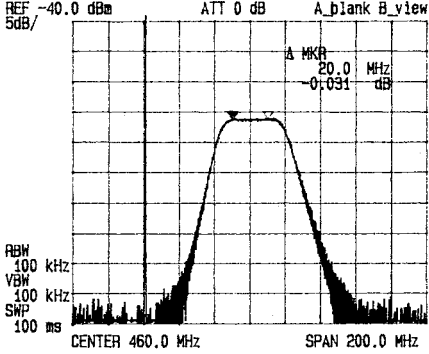
Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
6. Low Power Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 Set low power (Push [◀]) PTT:ON				Check	0.5~1.5W 1.2A or less
	2) CH-Sig:2-1 PTT:ON					
	3) CH-Sig:3-1 PTT:ON					
7. Max DEV Adjust [Wide]	1) Adj item [MAX] Adjust [***] AG:1kHz / 150mV Dev meter filter LPF:15kHz HPF:OFF	Power meter Dev meter Oscilloscope AG AF VTVM	ANT SP/MIC connector	Encoder knob	4.2kHz (According to the larger +,-)	±50Hz
	2) Adj item [.M A X] → [.M.A.X] → [.M.A.X. .] Adjust [***] PTT:ON					
[Narrow]	1) Adj item [MAX .] Adjust [***] PTT:ON				2.1kHz (According to the larger+,-)	
8. MIC Sensitivity Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 AG:1kHz / 15mV LPF:15kHz PTT:ON				Check	2.2~3.6kHz
9. QT TCXO Balance	Adj item [X Q T] Adjust [200] : K, M, K2, M2 Adjust [229] : K3, M3, K4, M4 Wide, Narrow, Semi wide	Power meter Dev meter Oscilloscope AG AF VTVM	ANT SP/MIC connector	Encoder knob		
10.DQT TCXO Balance	Adj item [X D Q T] Adjust [150] : K, M, K2, M2 Adjust [172] : K3, M3, K4, M4 Wide, Narrow, Semi wide					
11.DQT VCO Balance Adjust [Wide]	1) Adj item [VDQT] Adjust [***] LPF:3kHz HPF:OFF	Power meter Dev meter Oscilloscope			Make the demodulation waves into square waves.	
	2) Adj item [V.D Q T] → [V.D.Q.T] → [V.D.Q.T. .] Adjust [***] PTT:ON					
[Narrow]	3) Adj item [V D Q T .] Adjust [***] PTT:ON					
12.QT VCO Balance	Adj item [***] $[VDQT] \times \frac{200}{150} = [VQT]$ (K, M, K2, M2) $[VDQT] \times \frac{229}{172} = [VQT]$ (K3, M3, K4, M4)					

# TK-360G/370G

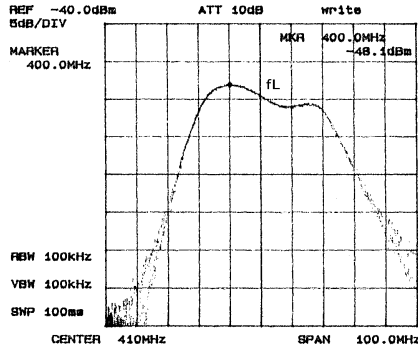
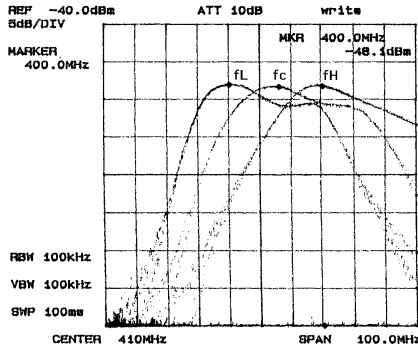
## ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
13. QT Deviation Adjust [Wide]	1) Adj item [FQT] Adjust [***] LPF:3kHz HPF:OFF	Power meter Dev meter Oscilloscope	ANT SP/MIC connector	Encoder knob	Wide:0.90kHz Narrow:0.42kHz	±40Hz ±40Hz
	2) Adj item [.F Q T] → [.F.Q.T] → [.F.Q.T. .] Adjust [***] PTT:ON					
[Narrow]	3) Adj item [FQT .] Adjust [***] PTT:ON					
14. DQT Devition Adjust [Wide]	1) Adj item [FDQT] Adjust [***] LPF:3kHz HPF:OFF				Wide:0.75kHz Narrow:0.35kHz	±50Hz
	2) Adj item [F.D Q T] → [F.D.Q.T] → [F.D.Q.T. .] Adjust [***] PTT:ON					
[Narrow]	3) Adj item [FDQT .] Adjust [***] PTT:ON				Wide:0.75kHz Narrow:0.35kHz	±50Hz
15.DTMF Deviation Adjust [Wide]	1) Adj item [DTMF] Adjust [***] LPF:15kHz HPF:OFF PTT:ON				Wide:2.5kHz Narrow:1.25kHz	±0.1kHz
	[Narrow]					
16.TONE Deviation Adjust [Wide]	1) Adj item [TONE] Adjust [***] LPF:15kHz HPF:OFF PTT:ON				Wide:3.0kHz Narrow:1.5kHz	±0.1kHz
	[Narrow]					
17.BATT Detection Writing	1) Adj item [BATT] Adjust [***] PTT:ON	Power meter DVM	ANT BATT terminal	Encoder knob	After pressing the PTT switch, confirm that one predeter- mined numeric in the range of 1 to 256 appears and then press the [◀] key. That number will be stored in memory.	BATT terminal voltage:5.9V
18.BATT Detection Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 BATT terminal voltage:6.5V PTT:ON				Check	No blinking of LED
	2) BATT terminal voltage:5.7V PTT:ON					Blinking of LED

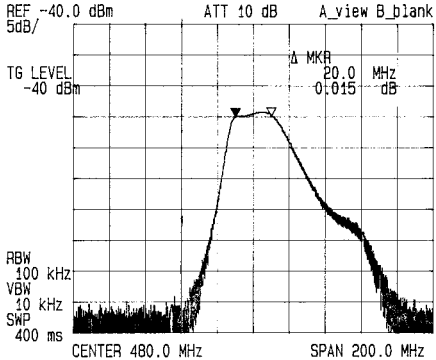
## ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
<b>K, M type</b>						
1. BPF Adjustment	(PANEL TEST MODE) CH-Sig 1-1 Tra-G setting -40dBm	Tracking generator Spectrum analyzer	ANT BPF	TC301, TC302, TC303	Adjust wave form to figure 1.	
		 <p style="text-align: center;">Fig. 1</p>				
2. Sensitivity Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SSG OUT Wide:-118dBm (0.28μV) (MOD:1kHz / ±3kHz) Narrow:-116dBm (0.35μV) (MOD:1kHz / ±1.5kHz)	SSG AF VTVM Oscilloscope	ANT		Check	12dB SINAD or more
3. Squelch (Open) Adjust [Wide]	1) Adj item [SQL3] Adjust [***] SSG OUT: -124dBm				Encoder knob squelch.	Adjust to the squelch threshold point
[Narrow]	2) Adj item [SQL3.] Adjust [***] SSG OUT: -123dBm					
4. Squelch(Tight) Adjust [Wide] [Narrow]	1) Adj item [SQL9] Adjust [***] SSG OUT:-117dBm (0.3μV) 2) Adj item [SQL9.] SSG OUT:-116dBm (0.35μV)					Adjust to the squelch threshold point
5. Squelch Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SQ Level : [SQL5] SSG OUT: -118dBm (0.28μV) 2) SSG OUT:OFF				Check	Squelch must be opened.  Squelch must be closed.

## ADJUSTMENT

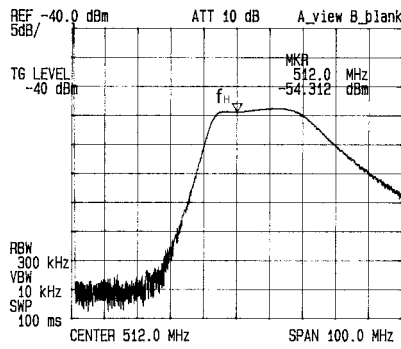
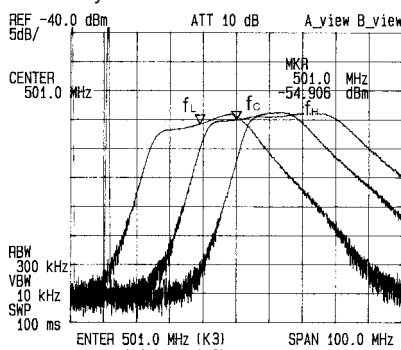
Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
<b>K4, M4 type</b>						
1. Sensitivity Adjustment	Adj item [SENS] DVM Adjust [***] f <sub>L</sub> f <sub>c</sub> f <sub>H</sub> [S.E.N.S] → [S.E.N.S.] → [S.E.N.S. .]			Encoder knob	f <sub>L</sub> : ([S.E.N.S]) : [55] f <sub>c</sub> : (S.E.N.S) : [125] f <sub>H</sub> : (S.E.N.S. .) : [190]	
2. BPF	(PANEL TEST MODE) CH-Sig 2-1 Tra-G setting -40dBm	Tracking generator	ANT	TC301, TC302, TC303	Adjust wave form to figure 1.(f <sub>L</sub> )	
	CH-Sig 1-1		BPF		Check wave form to figure 2.(f <sub>c</sub> )	
	CH-Sig 3-1				Check wave form to figure 2.(f <sub>H</sub> )	
	<div style="display: flex; justify-content: space-around;"> <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>					
3. Sensitivity Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SSG OUT Wide:-118dBm (0.28μV) (MOD:1kHz / ±3kHz) Narrow:-116dBm (0.35μV) (MOD:1kHz / ±1.5kHz)	SSG AF VTVM Oscilloscope	ANT		Check	12dB SINAD or more
4. Squelch (Open) Adjust	[Wide] 1) Adj item [SQL3] Adjust [***] SSG OUT Wide:-123dBm				Encoder knob squelch.	Adjust to the squelch threshold point
	[Narrow] 2) Adj item [SQL3.] Adjust [***] SSG OUT Narrow:-126dBm					
5. Squelch(Tight) Adjust	[Narrow] 1) Adj item [SQL9] Adjust [***] 2) Adj item [SQL9.] SSG OUT:-115dBm (0.4μV)					Adjust to the squelch threshold point
6. Squelch Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SQ Level : [SQL5] SSG OUT: -118dBm (0.28μV) 2) SSG OUT:OFF				Check	Squelch must be opened.
						Squelch must be closed.

## ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
<b>K2, M2 type</b>						
1. BPF Adjustment	(PANEL TEST MODE) CH-Sig 1-1 Tra-G setting -40dBm	Tracking generator Spectrum analyzer	ANT BPF	TC301, TC302, TC303	Adjust wave form to figure 1.	
		 <p style="text-align: center;"><b>Fig. 1</b></p>				
2. Sensitivity Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SSG OUT Wide:-118dBm (0.28μV) (MOD:1kHz / ±3kHz) Narrow:-116dBm (0.35μV) (MOD:1kHz / ±1.5kHz)	SSG AF VTVM Oscilloscope	ANT		Check	12dB SINAD or more
3. Squelch (Open) Adjust [Wide]	1) Adj item [SQL3] Adjust [***] SSG OUT: -124dBm				Encoder knob squelch.	Adjust to the squelch threshold point
[Narrow]	2) Adj item [SQL3.] Adjust [***] SSG OUT: -123dBm					
4. Squelch(Tight) Adjust [Wide] [Narrow]	1) Adj item [SQL9] Adjust [***] SSG OUT:-116dBm (0.35μV)					Adjust to the squelch threshold point
	2) Adj item [SQL9.] SSG OUT:-115dBm (0.4μV)					
5. Squelch Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SQ Level : [SQL5] SSG OUT: -118dBm (0.28μV) 2) SSG OUT:OFF				Check	Squelch must be opened.  Squelch must be closed.

# TK-360G/370G

## ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
<b>K3, M3 type</b>						
1. Sensitivity Adjustment	Adj item [SENS] DVM Adjust [***] f <sub>L</sub> f <sub>c</sub> [S.E N S] → [S.E.N.S] → [S.E.N.S. .]		f <sub>H</sub>	Encoder knob	f <sub>L</sub> : ([S.E N S]) : [53] f <sub>c</sub> : (S.E.N.S) : [130] f <sub>H</sub> : (S.E.N.S. .) : [208]	
2. BPF	(PANEL TEST MODE) CH-Sig 3-1 Tra-G setting -40dBm	Tracking generator spectrum analyzer	ANT  BPF	TC301, TC302, TC303	Adjust wave form to figure 1.(f <sub>H</sub> )	
 <p style="text-align: center;"><b>Fig. 1</b></p>						
3. Sensitivity Adjustment	Adj item [SENS] Adjust [***] f <sub>L</sub> [S.E N S] Tra-G setting -40dBm  Adj item [SENS] Adjust [***] f <sub>c</sub> [S.E N S] Tra-G setting -40dBm	Tracking generator spectrum analyzer	ANT BPF	Encoder knob	Adjust wave form to figure 2.(f <sub>L</sub> )	
 <p style="text-align: center;"><b>Fig. 2</b></p>						
4. Sensitivity Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SSG OUT Semi wide:-116dBm (0.35μV) (MOD:1kHz / ±2.4kHz)	SSG AF VTVM Oscilloscope	ANT		Check	12dB SINAD or more
5. Squelch (Open) Adjust [Wide]	1) Adj item [SQL3] Adjust [***] SSG OUT Narrow:-124dBm				Encoder knob squelch.	Adjust to the squelch threshold point
[Narrow]	Adjust [***] SSG OUT Semi wide:-123dBm					

## ADJUSTMENT

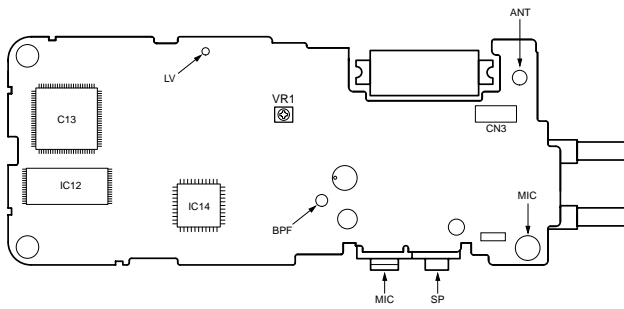
Item	Condition	Measurement		Adjustment		Specifications/ Remark
		Test equipment	Terminal	Parts	Method	
6. Squelch(Tight) Adjust [Wide]	1) Adj item [SQL9] Adjust [***] Wide:-117dBm (0.3 $\mu$ V) Narrow:-116dBm (0.35 $\mu$ V)					Adjust to the squelch
7. Squelch Check	<b>[Panel Test Mode]</b> 1) CH-Sig:1-1 SQ Level : [SQL5] SSG OUT: -118dBm (0.28 $\mu$ V) 2) SSG OUT:OFF				Check	Squelch must be opened.  Squelch must be closed.



# TK-360G/370G

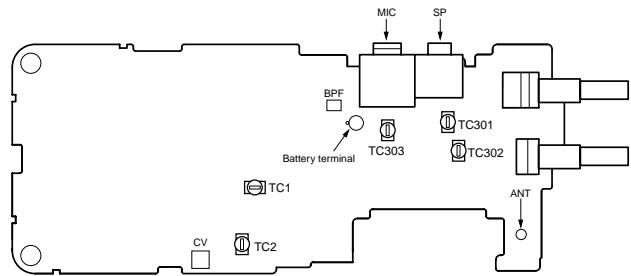
## ADJUSTMENT

### Adjustment points TX-RX unit (X57-588) Component side view



VR1 : Frequency adjustment

### Foil Side View



TC1 : Transmit lock voltage adjustment

TC2 : Receive lock voltage adjustment

TC301 :

TC302 : } Band-pass filter waveform adjustment

TC303 : }

BPF : Band-pass filter test point

CV(LV) : Lock voltage adjustment terminal.

Fig. 2 Adjustment points

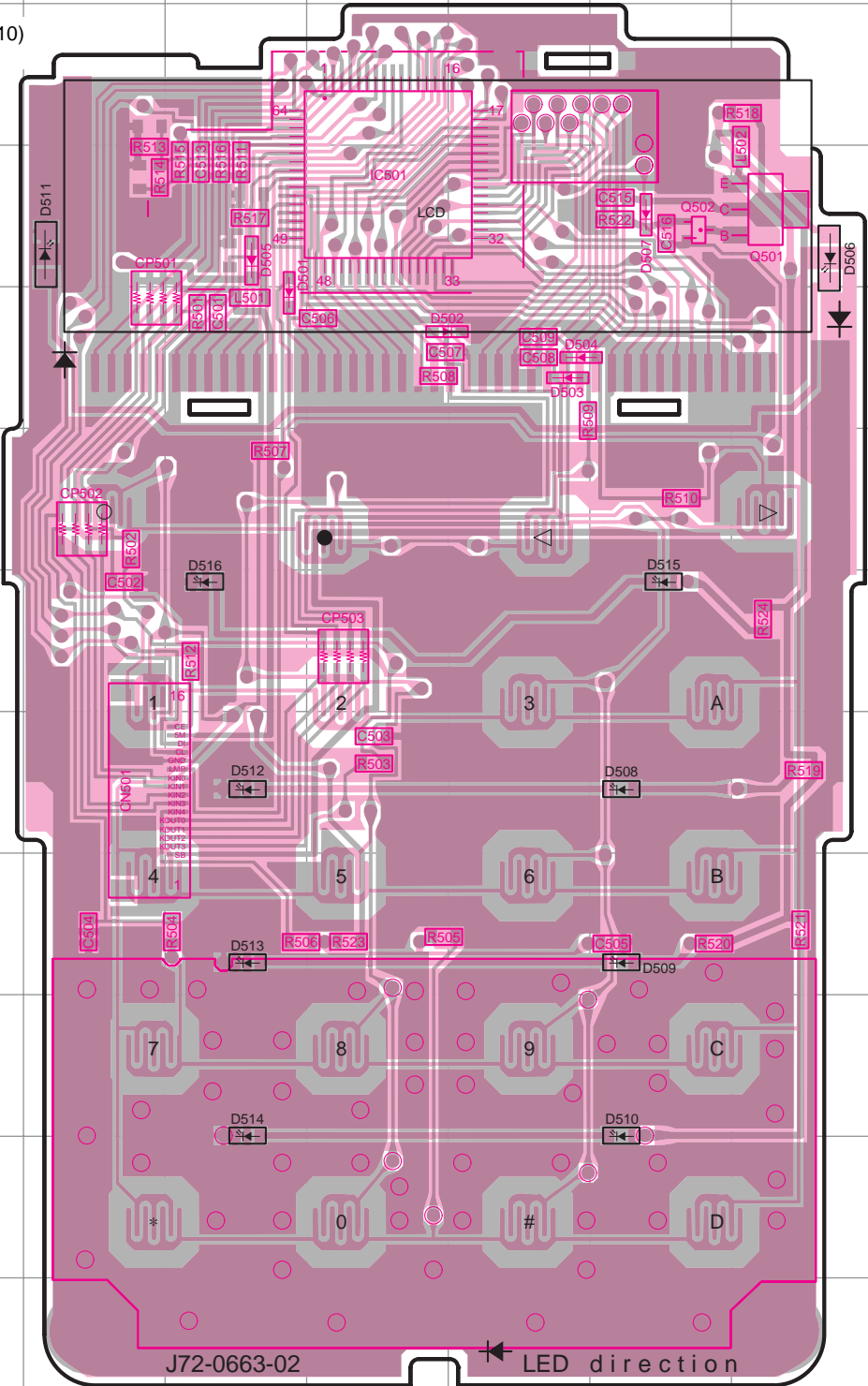
# PC BOARD VIEW TK-360G/370G

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

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

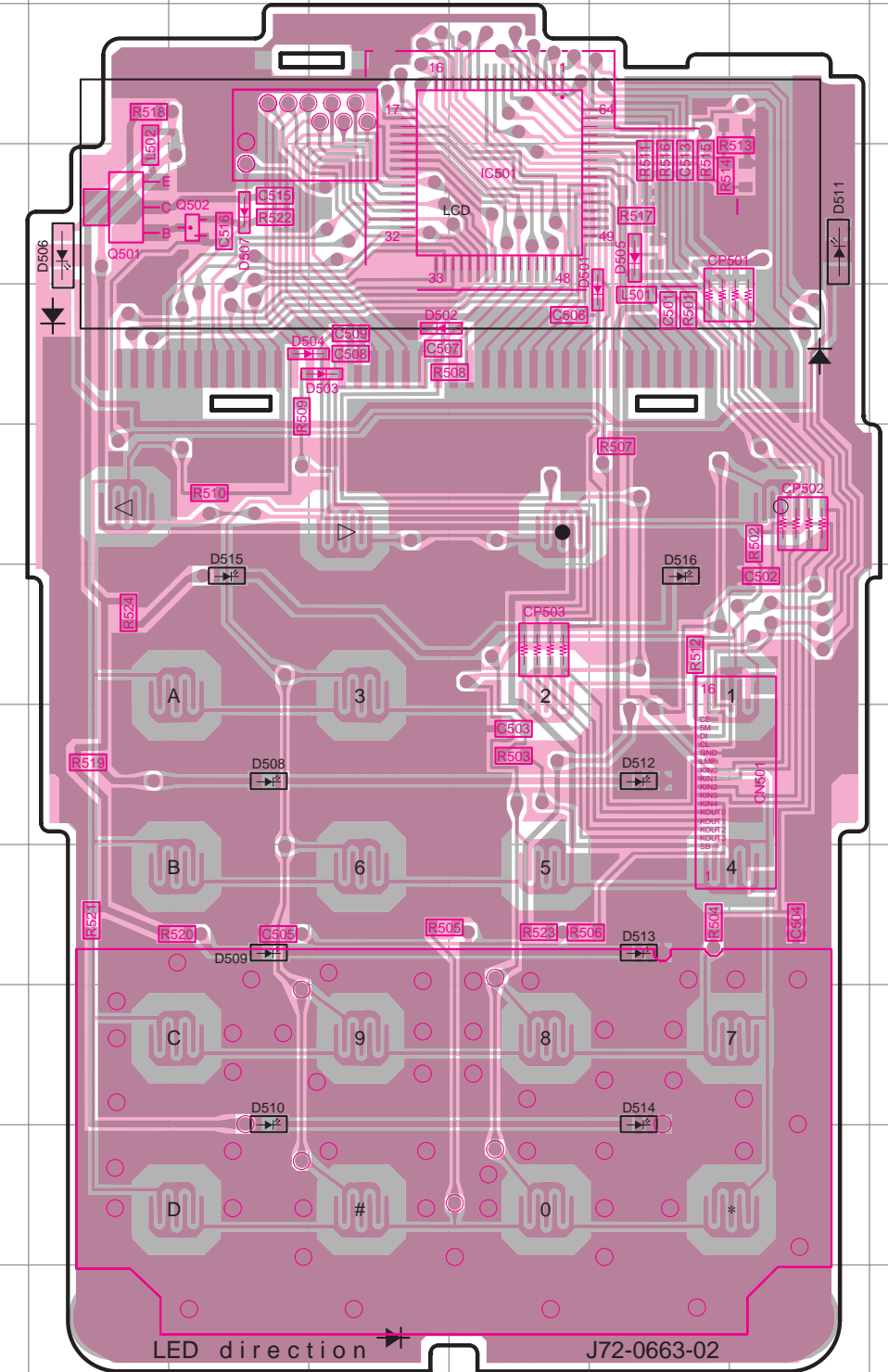
DISPLAY UNIT (X54-3250-10)  
Component Side View

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

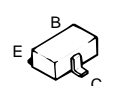


DISPLAY UNIT (X54-3250-10)  
Foil Side View

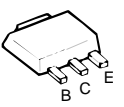
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D501	4O
D502	5M
D503	5M
D504	5M
D505	4O
D506	4K
D507	4L
D508	8L
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D512	8O
D513	9O
D514	10O
D515	7L
D516	7O



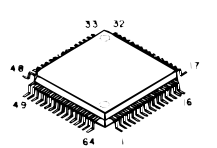
2SC4617(S)



2SB1132(Q,R)



LC75823W



Component Side   
Foil Side

Component Side   
Foil Side

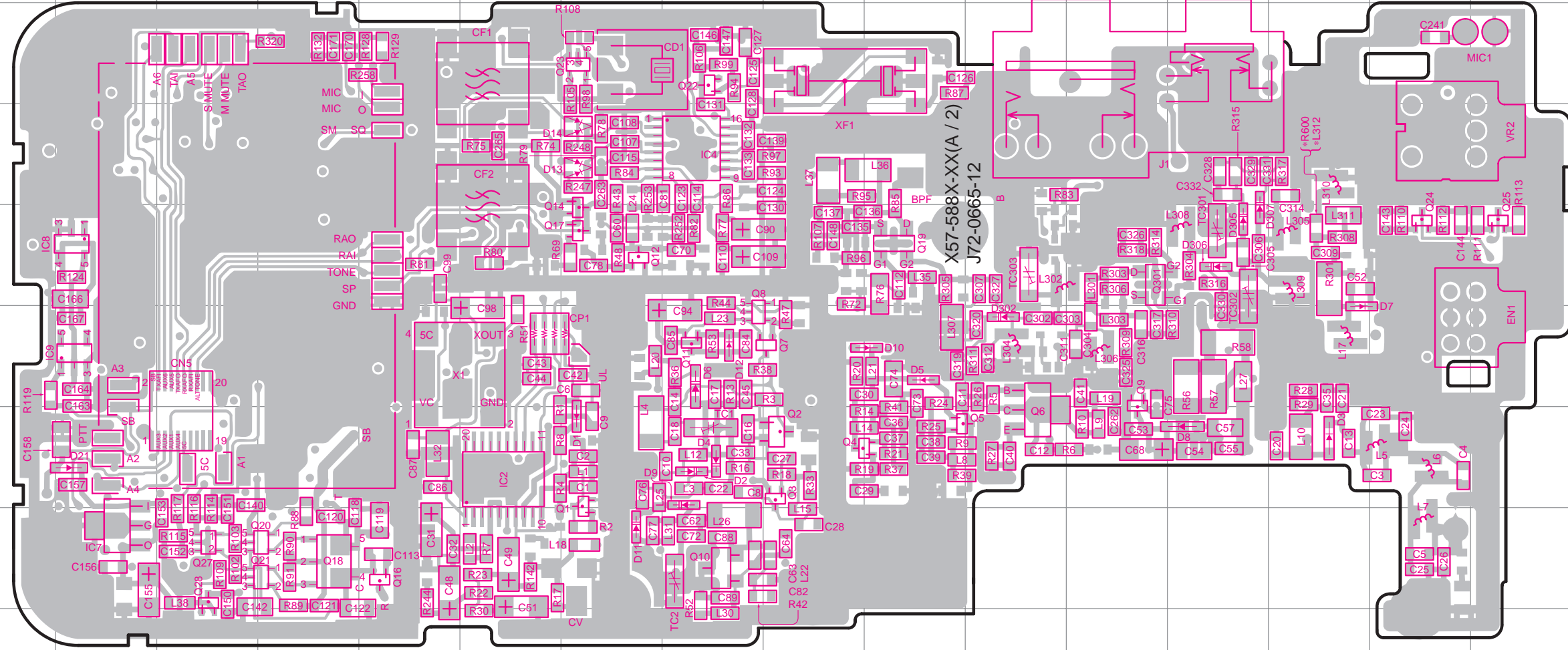


# PC BOARD VIEW TK-360G/370G

**TX RX UNIT (X57-588X-XX) Foil Side View**  
**0-10:TK-360G K, M, 0-11:TK-370G K, 0-21:TK-370G M, 0-14:TK-360G K2, M2,**  
**0-16:TK-370G K2, 0-23:TK-370G M2, 0-15:TK-360G K3, 0-17:TK-370G K3,**  
**0-24:TK-370G M3, 0-12:TK-360G K4, M4, 0-13:TK-370G K4, 0-22:TK-370G M4,**

TX-RX UNIT (X57-588X-XX)  
 Foil Side View

Ref. NO.	Address
IC2	7H
IC4	4J
IC7	8D
IC8	5D
IC9	6D
Q1	7I
Q2	7K
Q3	7K
Q4	7L
Q5	7L
Q6	7L
Q7	6K
Q8	6J
Q9	7N
Q10	8J
Q11	6J
Q12	5I
Q14	5I
Q16	8G
Q17	5I
Q18	8F
Q19	5L
Q20	8F
Q21	8F
Q22	3J
Q23	3I
Q24	5Q
Q25	5R
Q27	8E
Q28	8E
Q301	5N
D1	7I
D2	7J
D3	7P
D4	7J
D5	6L
D6	6J
D7	6P
D8	7O
D9	7J
D10	6L
D11	8I
D12	6J
D13	4I
D14	4I
D21	7D
D302	6N
D305	5O
D306	5O
D307	5O



DTA114YE  
 2SC4226(R24)  
 2SC4617(S)  
 2SC5108(Y)  
 2SC4649(N,P)

2SK1215(E)  
 2SK508NV(K52)

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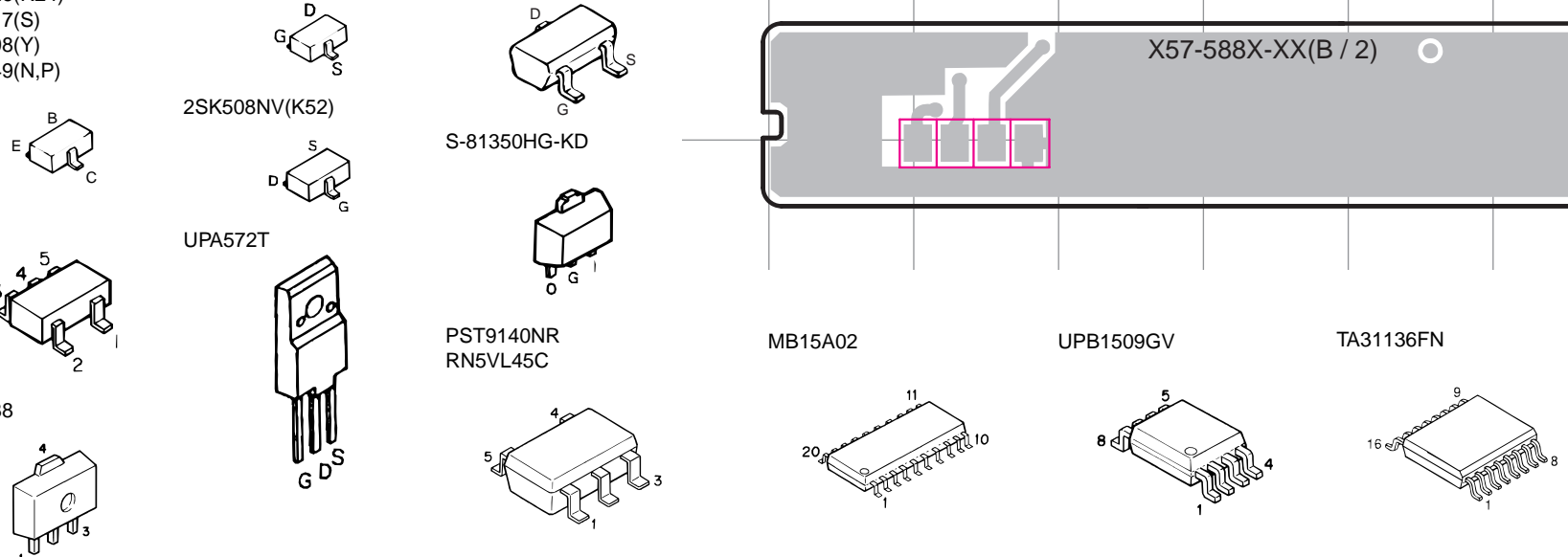
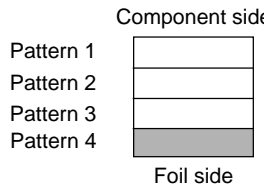
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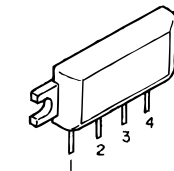
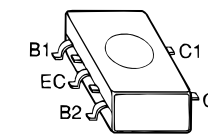


# TK-360G/370G PC BOARD VIEW

**TX RX UNIT (X57-588X-XX) Component Side View + Foil Side View**  
 0-10:TK-360G K, M, 0-11:TK-370G K, 0-21:TK-370G M, 0-14:TK-360G K2, M2,  
 0-16:TK-370G K2, 0-23:TK-370G M2, 0-15:TK-360G K3, 0-17:TK-370G K3,  
 0-24:TK-370G M3, 0-12:TK-360G K4, M4, 0-13:TK-370G K4, 0-22:TK-370G M4,

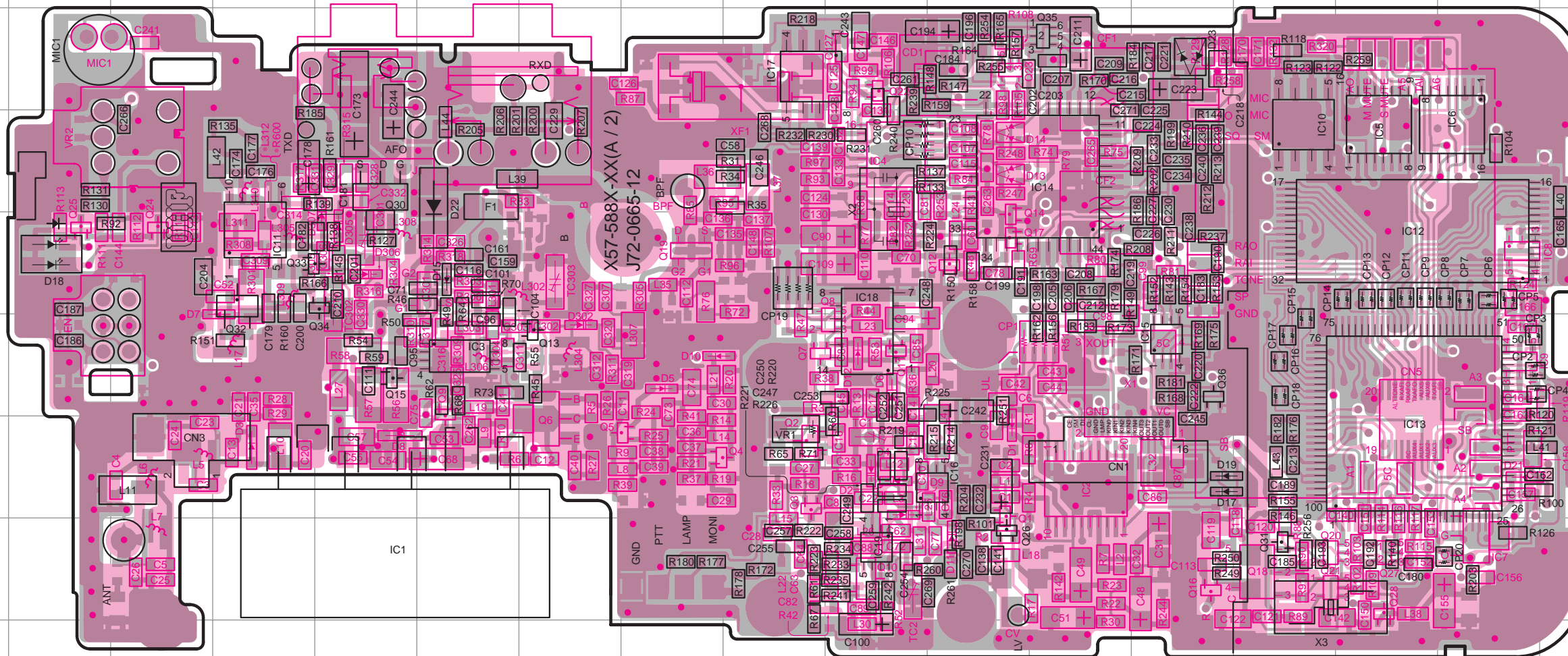
FP210

PF0314-03

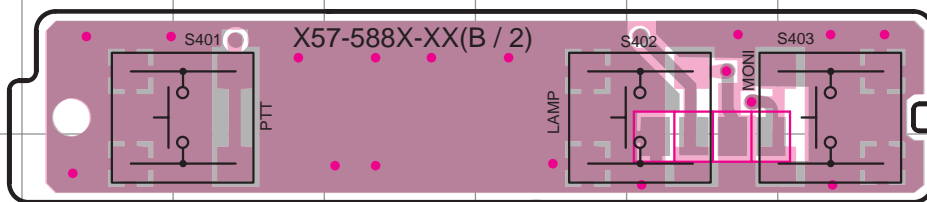
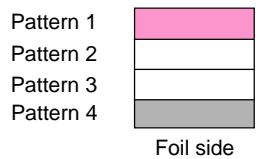


**TX-RX UNIT (X57-588X-XX)**  
 Component Side + Foil Side View

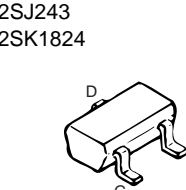
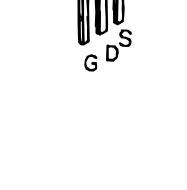
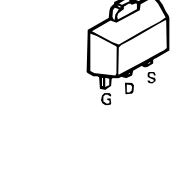
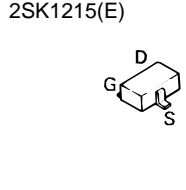
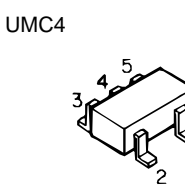
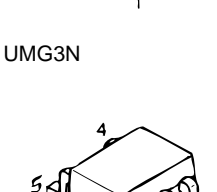
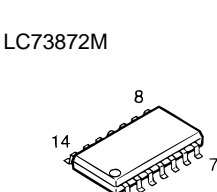
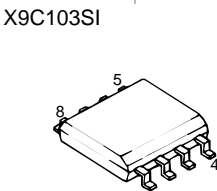
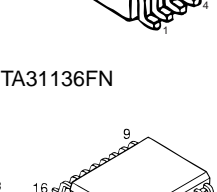
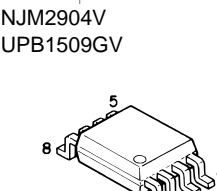
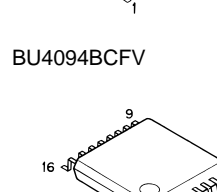
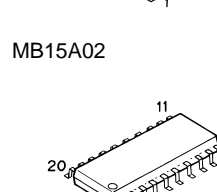
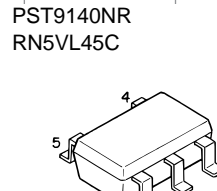
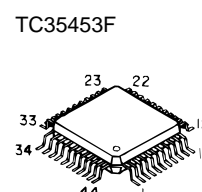
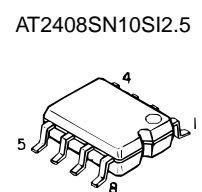
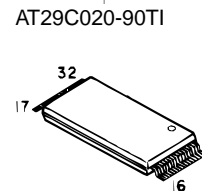
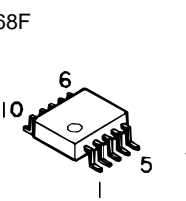
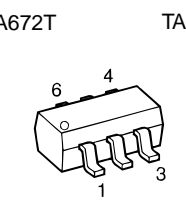
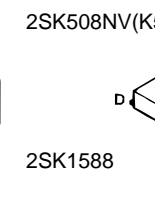
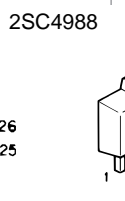
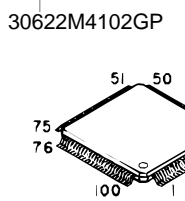
Ref. NO.	Address	Ref. NO.	Address
IC1	8E	Q21	8N
IC2	7H	Q22	3J
IC3	6F	Q23	3L
IC4	4J	Q24	5C
IC5	4O	Q25	5B
IC6	4P	Q26	8K
IC7	8P	Q27	8O
IC8	5P	Q28	8O
IC9	6D	Q30	4E
IC10	4N	Q31	8N
IC11	5D	Q32	5D
IC12	5O	Q33	5D
IC13	7O	Q34	5E
IC14	4L	Q35	3L
IC15	6M	Q36	6M
IC16	7K	Q301	5N
IC17	3I	D1	7K
IC18	6J	D2	7J
IC19	8J	D3	7D
Q1	8K	D4	7J
Q2	7I	D5	6H
Q3	7I	D6	6J
Q4	7H	D7	6J
Q5	7H	D8	7E
Q6	7H	D9	8J
Q7	6I	D10	6H
Q8	6J	D11	8K
Q9	6F	D12	6J
Q10	8J	D13	4K
Q11	6J	D14	4I
Q12	5K	D15	5F
Q13	6G	D17	7M
Q14	5K	D18	5B
Q15	6E	D19	7M
Q16	8M	D21	7P
Q17	5K	D22	4F
Q18	8N	D23	3M
Q19	5H	D302	6G
Q20	8N	D305	5E
		D306	5E
		D307	5O



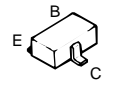
● Connect 1 and 4.  
 Component side



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



55

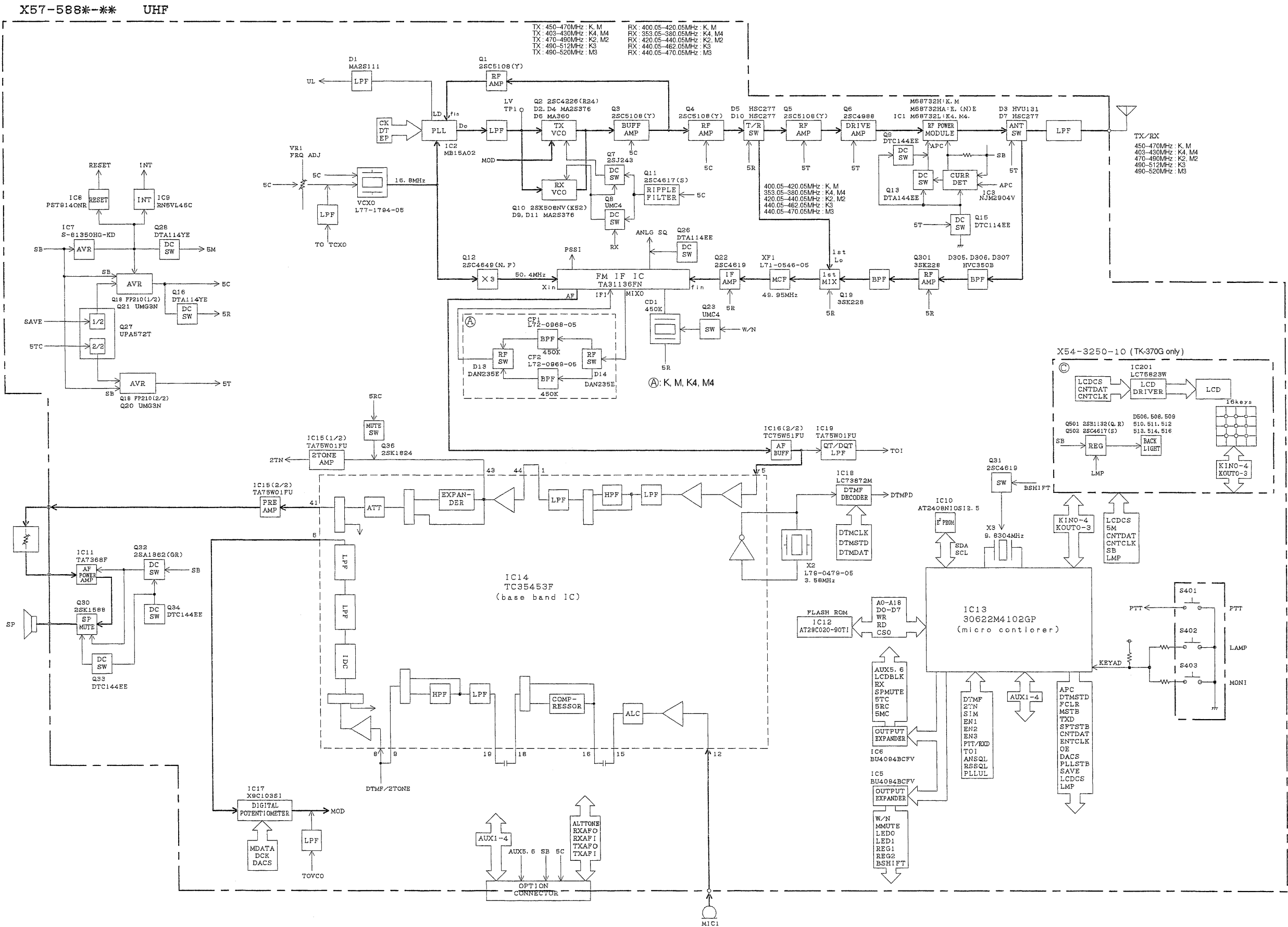






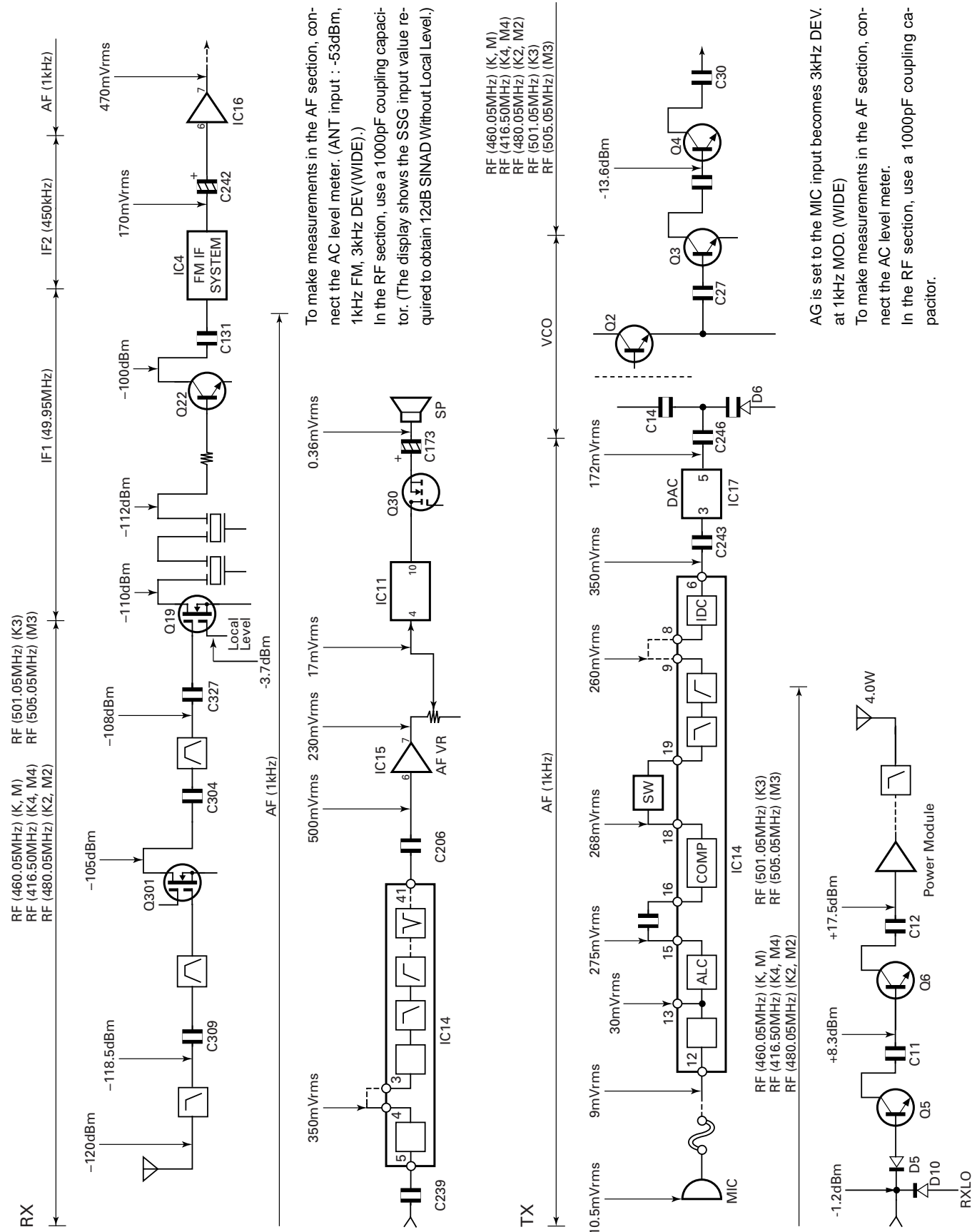
# TK-360G/370G TK-360G/370G

## BLOCK DIAGRAM





## LEVEL DIAGRAM

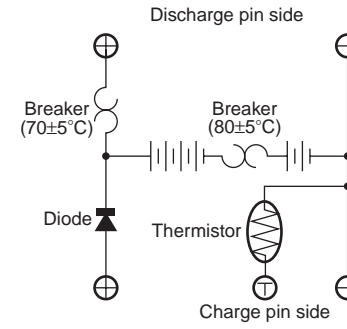


## KNB-14/KNB-15A (Ni-Cd BATTERY)

KNB-14



CIRCUIT DIAGRAM



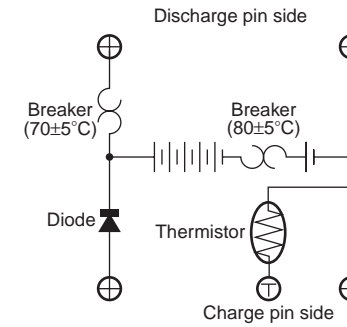
### SPECIFICATIONS

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- 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- 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-360G/370G

## SPECIFICATIONS

### General

Frequency Range.....	450~470MHz (K, M) 403~430MHz (K4, M4) 470~490MHz (K2, M2) 490~512MHz (K3) 490~520MHz (M3)
Number of channels .....	Max. 8 (TK-360G) Max. 128 (TK-370G)
Number of groups .....	Max. 128 (TK-370G)
Channel Spacing .....	25kHz (Wide) 12.5kHz (Narrow)
PLL Step .....	5kHz, 6.25kHz
Operating Voltage .....	7.5 VDC
Battery Life .....	More than 8 hours at 4 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 .....	60dB
Audio Power Output .....	500mW
Frequency Stability .....	±2.5ppm
Channel Frequency Spread .....	20MHz (K, M, K2, M2) 27MHz (K4, M4) 22MHz (K3, M3)

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

RF Power output .....	4W/1W
Spurious and Harmonics .....	70dB
Modulation .....	16K $\phi$ F3E (Wide)/11K $\phi$ F3E (Narrow)
FM Noise .....	45dB (Wide)/40dB (Narrow)
Audio Distortion .....	Less than 5%
Frequency Stability .....	±2.5ppm
Channel Frequency Spread .....	20MHz (K, M, K2, M2) 27MHz (K4, M4) 22MHz (K3, M3)

## 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 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, Herts., 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)

16 Giffnock Avenue, North Ryde, N.S.W. 2113, Australia

### KENWOOD ELECTRONICS (HONG KONG) LTD.

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

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

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