



# INSTRUCTION MANUAL

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MODEL **KT-200E/EE/ET**

VHF HANDY TRANSCEIVER



# ● THANK YOU FOR YOUR PURCHASE

Thank you for your having purchased our Model  
KT-200E 2 meter FM handy transceiver.  
The KT-200E has been designed for easy use,

however it is suggested that you read this instruction  
manual carefully for proper operation of its best  
performance.

## TABLE OF CONTENTS

INTRODUCTION . . . . .	2
CONTROL FUNCTIONS . . . . .	4
• HOW TO USE AN EXTERNAL MICROPHONE . . . . .	8
PRE-OPERATION . . . . .	9
• HOW TO CONNECT AN ANTENNA . . . . .	9
• BATTERY INSTALLATION . . . . .	9
OPERATION . . . . .	13
• HOW TO RECEIVE . . . . .	13
• HOW TO TRANSMIT . . . . .	15
• BLOCK DIAGRAM . . . . .	18
SPECIFICATIONS . . . . .	19
TROUBLE SHOOTING . . . . .	20

## INTRODUCTION



The KT-200E is a compact and light weight 2 meter FM handy transceiver designed with PLL system. The frequency range within which you can operate is from 144.00 to 147.995MHz with 5KHz steps; total 800 channels can be selected by the thumbwheel switches.

Transmitter output can be set at either high (1.5W) or low (150mW) power mode. In the low power mode, current drain is very low to prolong the battery life.

As the KT-200E contains a 5V regulated power supply circuit, it is stable against power voltage fluctuation, and assures operations in a wide voltage range between minimum 5.5V and maximum 12V.

The unit is compactly designed in size and shape to fit your palm, and coupled with a light touch feeling PTT switch to assure a comfortable outdoor use.

The front panel is designed in colors and illustrations so that an easy operation is possible. Many other optional accessories are available to expand the range of uses.



# ● ACCESSORIES and OPTIONS

## (1) ACCESSORIES

Unpacking the packing carton of the KT-200E, you will find the transceiver unit and its standard accessories as shown below.

### ◊ Flexible Antenna



### ◊ Earphone Plug and Microphone Plug



### ◊ Handstrap



### ◊ Belt Suspender and Screws (2 pcs.)



### ◊ Earphone



### ◊ Ni Cad Battery pack

### ◊ Battery Charger

### ◊ Instruction Manual

## (2) OPTIONS

Item	Factory No.
Flexible Antenna	KA-144BH
1/2 Whip Antenna	KA-144BII
1/4 Whip Antenna	KA-144B
Leatherette Case	KT-LC
Battery Pack with Charge Jack (for Nickel Cadmium Batteries)	KT-BP
Battery Pack	KT-BA
Speaker Microphone	KT-SM-1
Mobile Charging Cable	KT-BMC
Battery Charger	KT-BC
DC/DC Converter	KT-PA

## CONTROL FUNCTIONS



### • CONNECTORS ON TOP PANEL

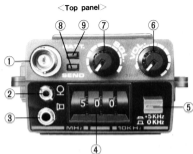
#### (1) ANTENNA CONNECTOR

Connect the flexible antenna provided with the KT-200E. Fit the connector tip of the antenna to the connector on the top panel then press and rotate it clockwise till it stops with a click sound.

An external antenna can be used in the same manner as the flexible antenna.

#### (2) EXTERNAL MICROPHONE JACK

When you wish to use an external microphone, connect it to this jack after wiring the supplied microphone plug with the microphone cable as shown in the schematic diagram on page 8.



#### (3) EXTERNAL SPEAKER JACK

When you attempt to use an external speaker or an earphone, connect it to this jack. The speaker is required to be wired with the supplied earphone plug.

When this jack is plugged, the built-in speaker will not work but the external speaker or the earphone will.

## • CONTROLS ON TOP PANEL

### (4) FREQUENCY DIAL

This is provided to enable you to set your operating frequency, and is laid out to indicate from left to right 1MHz, 100KHz, 10KHz digits. 100MHz and 10MHz digits are not shown.

For example, the dial indicating [5][2][4] means 145.24MHz.

The frequency range of this unit is from 144.00 to 147.995MHz, so that the effective dials in 1MHz range are four such as [4], [5], [6] and [7]. When the 1MHz digit dial is set at other figures, the unit will operate on the frequency band as shown below.

Digit	Actual Operating Frequency Band
0	144MHz
1	145
2	146
3	147
4	144
5	145
6	146
7	147
8	144
9	145

### (5) 5KHz SHIFT SWITCH

When you wish to operate on a frequency having a 5KHz digit, place this switch in the 5KHz position to add 5KHz to the frequency indicated on the thumb-wheel switches.

### (6) VOLUME CONTROL and POWER SWITCH

Clockwise rotation of this control will turn on the power. Further clockwise rotation will increase the audio output level in the receive mode.

### (7) SQUELCH CONTROL

FM communication generates comparatively a loud noise at no signal. This control squelches such noise in the receive mode. Counter-clockwise rotation at no signal will open the squelch and a noise will be heard. Clockwise rotation will close the squelch at a threshold level and shut off the noise.

### (8) TRANSMIT INDICATOR

When the PTT switch is depressed, the green color LED marked SEND will light indicating the unit being in transmit mode.

### (9) BATTERY INDICATOR

When the batteries are exhausted, the red color LED marked BATTERY will go on indicating the necessity of battery replacement.

## ● PROVISIONS ON FRONT and REAR PANEL

### (10) PTT (PUSH TO TALK) SWITCH

This will change the mode to either transmit or receive. Depress it to operate in the transmit mode, and release to return to the receive mode.

### (11) SPEAKER

In the receive mode, audio signal will be heard from this built-in speaker.

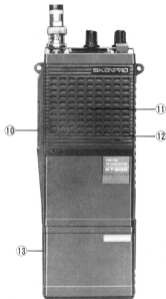
### (12) MICROPHONE

This built-in microphone is an electret condenser type. In the transmit mode, talk into this microphone at a normal level of voice.

### (13) BATTERY PACK

The pack contains 7 pieces of Ni-Cad battery. Instructions as to pack installation and replacement are given on page 10.

<Front Panel>



**(14) RF POWER SWITCH**

This selects the RF output power. In HIGH mode, the output power is 1.5W (rated output), and LOW 150mW.

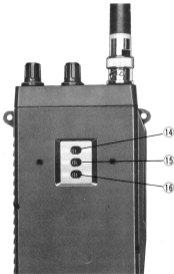
In LOW mode, power consumption is decreased to enable a long hours of operation. For a short distance communication, it is suggested to operate on low power.

**(15) DUPLEX/SIMPLEX SWITCH**

You can select the operating mode either DUPLEX for repeater use or SIMPLEX for operation on a single frequency for receive and transmit.

**(16) DUPLEX MODE SWITCH**

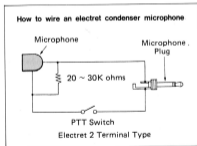
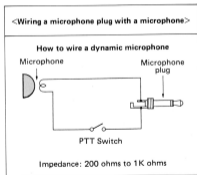
In DUPLEX mode, set the transmitting frequency at either 600KHz above or below the receiving frequency depending on the desired input frequency of the repeater.





## ● HOW TO USE AN EXTERNAL MICROPHONE

As an external microphone, such electret condenser type or dynamic type as shown in the figure as below can be used. A microphone plug is provided as an accessory.



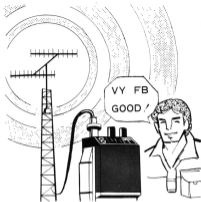
## PRE-OPERATION

### ● HOW TO CONNECT AN ANTENNA

The KT-200E is designed to be free from damage in the final power transistor even when transmitted without connecting an antenna. However, it is always suggested to connect an antenna as pre-operation.

The supplied flexible antenna or an external antenna can be connected.

Use a ground plane type having 50 ohm impedance or a Yagi type antenna and connect it to the KT-200E with a BNC type plug. When used with an external antenna, the communication distance greatly extends.



### ● BATTERY PACK INSTALLATION

As the battery pack of this model is adopted SLIDE IN/OUT method, it can easily install or detach from this model.

If necessary installation or detachment of the battery pack, be follow an ARROW mark on the rear of this model.

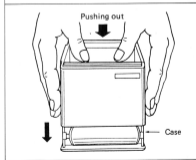
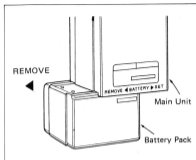
Be sure that the battery pack should completely fit up with this model.

## ● TO USE RECHARGABLE BATTERY PACK KT-BP

The KT-BP is rechargeable battery pack and attached to this model KT-200E as standard accessory. The KT-BP is provided charge jack, LED charge indication and reverse polarity protection circuit. In case of charging, please use KT-BC charger which is also attached to this model as standard accessory or equivalent charger to the KT-BC. If desired charging from car battery source, please be use of KT-BMC mobile charging cord which is provided as option accessory. Before operate, it is recommended to charge the KT-BP about 15 hours, as it may not be discharged. Battery exhaust be known by illumination of BATT L.E.D. of this model. On illuminating BATT L.E.D., be stopped operation immediately and recharge, as power voltage drops rapidly just before exhaust.

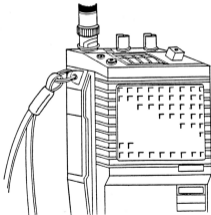
## ● TO USE ALKALINE BATTERY PACK KT-BA

This can easily install/detach by same way as the KT-BP rechargeable battery pack. Remove the battery case as below illustration as Right, and install 6 pieces of alkaline batteries in it with correct polarity. After completed KT-BA, install it to this model. On illuminating BATT L.E.D. of this model, it is recommended to replace all the batteries.



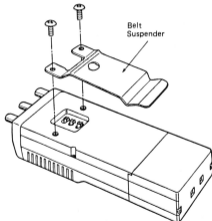
## • ATTACHMENT OF HANDSTRAP

A mounting hole is provided above the PTT switch on the left of the unit. If you wish to use the handstrap, apply the tip of the metal ring of the strap to this hole and attach by rotating it. See the illustration below.



## • ATTACHMENT OF BELT SUSPENDER

If you wish to use a belt suspender, attach it with the 2 screws provided on the rear panel as illustrated below.



<KT-200E after Pre-Operation>



## • WHEN NOT IN USE

It is required not to place for long the KT-200E after pre-operation in such a place where the temperature or humidity is high.

If it is left in an automobile especially during the summer daytime, the KT-200E will unusually get heated by the enormously rising temperature. Care must be taken.

On the contrary, in winter time a drop of the temperature will decrease the battery capacity, and it may not perform at its best condition when you happen to operate. It is suggested in such occasion that the transceiver is warmed up by your body temperature.

The batteries will be exhausted if the unit is left with the power switch turned ON. When not in use, be sure to turn it off.

## OPERATION

The controls and switches of the KT-200E are arranged to the minimum but necessary numbers, so that it assures an instant and proper use.

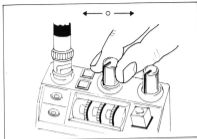
### • HOW TO RECEIVE

After pre-operation is over, try to start with receiving.

Before turning the power switch ON, set volume and squelch controls at the following positions.

**VOLume control:** Fully rotate counter clockwise to the minimum audio output level.

**SQL (squelch) control:** Fully rotate counter clockwise to open the squelch.



#### (1) How to Adjust Squelch Control

Only the point of adjustment that has to be kept in mind is the squelch control. No practice or skill is required in controlling the volume control and other switches.

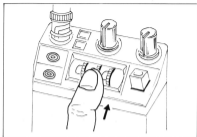
Now, turn on the POWER switch, and rotate the VOLume control knob clockwise. You will hear a harsh hissing noise or a signal under communication. If the communication signal is received, rotate the thumbwheel switch till you find a frequency that is not being used where the hissing noise is heard.

Then adjust the squelch control.

On rotating the SQL control knob clockwise, you will come to the point where the hissing noise suddenly stops. This is the threshold point of the squelch control.

Further rotating it, the squelch is kept closed.

The position of the SQL control knob is depend on at what level of the radio signal the squelch will open. The more the knob is rotated clockwise, the less a weak signal can open the squelch.



## ● HOW TO TRANSMIT

Before attempting transmission, set the following switches at the positions below.

### DUPLEX/SIMPLEX SWITCH:

Place ⑮ at SIMPLEX mode when using in the simplex mode

### DUPLEX MODE SWITCH:

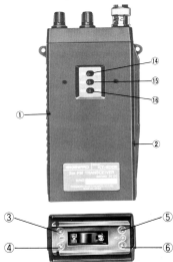
When using a repeater station, place ⑯ at DUPLEX and set the transmitting frequency at either 600KHz above or below the receiving frequency.

### RF POWER SWITCH:

If an output level is good enough with low power, place ⑭ at LOW.

Then depress the PTT switch, and make sure the LED marked SEND lights up. Talk into the microphone to transmit.

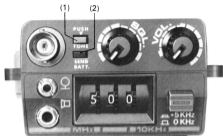
<How to open the case>



\* By removing the screws ① to ⑥, the front and rear panels can be separated.



●KT-200EE



**(1) Tone Call Switch**

If you need a tone-burst for initial access of the repeater, depress the ① Tone call Switch for the required period.

**(2) SEND/BATT. Indicator**

This L.E.D. illuminates when press PTT switch. But in condition of decline power voltage, the L.E.D. not illuminates though press PTT switch.

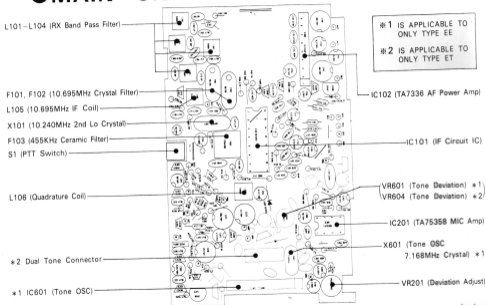
●KT-200ET



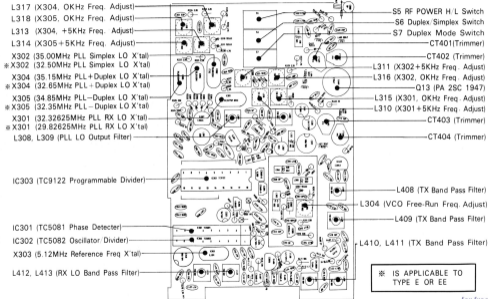
**\* TWO-TONE ENCODER PAD**

KT-200ET has a standard two-tone encoder pad on the front panel. The pad can be used for autopatch, accessing to closed repeater, and/or other controls.

# ● MAIN UNIT

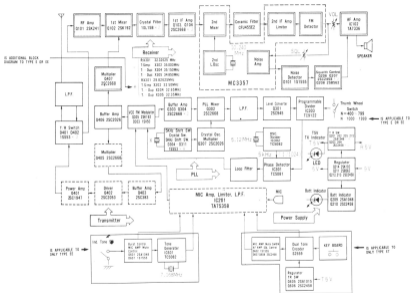


# ● PLL UNIT



※ IS APPLICABLE TO TYPE E OR EE

# BLOCK DIAGRAM



# SPECIFICATIONS

## • GENERAL

<b>Frequency Range:</b>	144.00 – 147.995 MHz
<b>Type of Emission:</b>	F3 (FM)
<b>Antenna Impedance:</b>	50 ohms (unbalanced)
<b>Power Supply:</b>	5.5 – 12V DC (rated voltage 8.4)
<b>Current Consumption:</b>	approx. 130mA at max. audio output at receive mode approx. 18mA at standby mode approx. 550mA at trans- mit mode in HIGH power approx. 220mA at trans- mit mode in LOW power
<b>Operating Temperature:</b>	-10 – +60°C
<b>Dimensions:</b>	60 x 40 x 170mm
<b>Weight:</b>	approx. 490 g. (including batteries and antenna)

## • RECEIVER SECTION

<b>Type of Reception:</b>	double super-heterodyne
<b>Intermediate Frequency:</b>	1st . . . . . 10.695 MHz 2nd . . . . . 455 KHz
<b>Sensitivity:</b>	less than -6dB at 20dB QS better than 26dB at S/N with 1µV input
<b>Selectivity:</b>	-60dB (±15kHz)
<b>Bandpass Width:</b>	±7.5 KHz (-6dB)
<b>Spurious Sensitivity:</b>	less than -60dB
<b>Audio Output Power:</b>	more than 300mW at 8 ohm Z, 10% distortion

## • TRANSMITTER SECTION

<b>RF Output Power:</b>	HIGH . . . . . 1.5W LOW . . . . . 150mW reactance modulation
<b>Type of Modulation:</b>	
<b>Max. Frequency Deviation:</b>	±5 KHz
<b>Spurious Emission:</b>	less than -60dB
<b>Microphone:</b>	electret condenser type

## TROUBLE SHOOTING

Trouble when the KT-200E does not work well is due to an equipment malfunction or your misoperation.

The chart below is to enable you to locate and correct the point(s) of problem in case of misoperation. These troubles can be avoided if you read through this instruction manual and mastered how to operate.

Problem	Possible Cause	Solution
No receive and no transmit when the switch is turned on.	(1) The batteries have been exhausted. (2) The battery pack is not properly set. (3) Wrong polarity of the batteries.	(1) Replace the batteries with new ones. (2) Push in the pack firmly till it stops at the end of sliding. (3) Find out the one(s) in reversed polarity and replace properly.
No sound output from the speaker	(1) Poor contact of the speaker jack. (2) Too deep setting of the squelch control.	(1) Insert the speaker plug into jack several times. (2) Rotate the SQL control counter clockwise.

Problem	Possible Cause	Solution
Low sensitivity	(1) Defective flexible antenna (2) Defective external antenna	(1) Replace the antenna with a new one. (2) Find out the point of defect and repair.
Frequency differs from the frequency shown on the dial.	Wrong setting of 1MHz digit on the frequency dial.	Make sure the 1MHz digit means [4] MHz when it is set at 0 or 8, [5] MHz at 1 or 9, [6] MHz at 2, and [7] MHz at 3. When it is set at [4], [5], [6], or [7], the 1MHz digit reads as shown.
No modulation with an external mike.	(1) Improper connection to the mike jack. (2) A resistor was not wired to the electret condenser type microphone when such was used.	(1) Properly connect to the mike jack. (2) Wire a resistor to the microphone.
The LED marked BATTERY gradually gets brighter.	The battery life is becoming short.	Replace or charge the batteries. Or switch the power mode to LOW when transmitting in HIGH power.

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