

KENWOOD

INSTRUCTION MANUAL



VHF FM TRANSCEIVER

TK-2400

UHF FM TRANSCEIVER

TK-3400

JVCKENWOOD Corporation

© B62-2478-00 (K)
09 08 07 06 05 04 03 02 01 00

THANK YOU

We are grateful for your purchase of this **KENWOOD** product and welcome you to the Business Radio Service (BRS).

Your **KENWOOD** 2-way Business Radio is called a “transceiver”, meaning “transmitter & receiver”. We believe this easy-to-use transceiver will provide you with dependable and reliable communications. This **KENWOOD** transceiver is a precision device. Treat it with care, and you will enjoy years of reliable operation.

FEATURES

- 4 (K type) or 16 (K2 type) channels with 27 VHF (TK-2400) or 90 UHF (TK-3400) operating frequencies and each channel can be set up with a QT tone or DQT code allowing you to ignore unwanted calls.
- Built in voice scrambler gives you complete privacy for your conversations.
- Hands free operation when using an optional headset.
- Voice announcement lets you know which channel you have selected and which settings you have made when reassigning key functions and channel settings.

OPERATING CONDITIONS

Condition	TK-2400	TK-3400
Open locations (no obstructions)	Up to 6 miles (9.6 km)	
In steel/ concrete reinforced buildings	Up to 220,000 square feet (20,440 m ²)	Up to 250,000 square feet (23,220 m ²)
In high rises	Up to 13 floors	Up to 20 floors

Note: The listed ranges are based on field testing and may vary with your operating conditions and individual transceiver.

FCC LICENSE INFORMATION

Your **KENWOOD** transceiver operates on communications frequencies which are subject to FCC (Federal Communications Commission) Rules & Regulations. FCC Rules require that all operators using Private Land Mobile radio frequencies obtain a radio license before operating their equipment. Application for license must be made on FCC form 601, schedules D and H, and Remittance form 159.

FAX: Forms can be obtained by fax from the FCC Fax-On-Demand system. Call 1-202-418-0177 from your fax machine and request document number 000601 for the form, schedules, and instructions.

MAIL: Forms can be ordered by telephone, and will be sent to you by first class mail. Call the FCC Forms Hotline at 1-800-418-FORM (1-800-418-3676).

INTERNET: Form 601 and instructions can be downloaded from the FCC Forms website at
<http://www.fcc.gov/formpage.html>

Before filling out your Form 601 application Technical Data section, you must decide on which frequencies you will operate. See the frequency charts on pages 14 and 15.

QUESTIONS? Call the FCC for license application questions at 1-888-CALL-FCC (1-888-225-5322).

One or more of the following statements may be applicable:

FCC WARNING

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.



ATTENTION:

The RBRC Recycle seal found on **KENWOOD** lithium-ion (Li-ion) battery packs indicates **KENWOOD's** voluntary participation in an industry program to collect and recycle Li-ion batteries after their operating life has expired. The RBRC program is an alternative to disposing Li-ion batteries with your regular refuse or in municipal waste streams, which is illegal in some areas.

For information on Li-ion battery recycling in your area, call (toll free) 1-800-8-BATTERY (1-800-822-8837).

KENWOOD's involvement in this program is part of our commitment to preserve our environment and conserve our natural resources.

Terminal Descriptions

Speaker/ Microphone Jacks

It is possible to use a resin-based cover for the Speaker/ Microphone jacks.

NO.	Name	Description	Impedance	I/O
1	PTT / RXD	External PTT Input / Serial Data Input	CMOS	I
2	MIC	External MIC Input	1.8 k Ω	I
3	MICIN	Internal MIC Output	1.8 k Ω	O
4	OPTDET	External Option Detect	High Impedance	I
5	5M	5V Output	100 Ω	O
6	AE	GND	GND	-
7	TXD	Serial Data Output	CMOS	O
8	NC	No Connection	-	-
9	SPO	Audio Input	8 Ω	I
10	SPI	Received Audio Output	8 Ω	O

Antenna Terminal

50 Ω impedance

Battery Terminal

The battery terminal uses a spring plate.

The negative terminal connects to the chassis ground.

The battery is mounted on the rear side of the transceiver using a latch mounting method.

Firmware Copyrights

The title to and ownership of copyrights for firmware embedded in KENWOOD product memories are reserved for JVC KENWOOD Corporation.

NOTICES TO THE USER

- ◆ Government law prohibits the operation of unlicensed radio transmitters within the territories under government control.
- ◆ Illegal operation is punishable by fine and/or imprisonment.
- ◆ Refer service to qualified technicians only.

Safety: It is important that the operator is aware of, and understands, hazards common to the operation of any transceiver.

PRECAUTIONS

- Do not charge the transceiver and battery pack when they are wet.
- Ensure that there are no metallic items located between the transceiver and the battery pack.
- Do not use options not specified by **KENWOOD**.
- If the die-cast chassis or other transceiver part is damaged, do not touch the damaged parts.
- If a headset or headphone is connected to the transceiver, reduce the transceiver volume. Pay attention to the volume level when turning the squelch off.
- Do not place the microphone cable around your neck while near machinery that may catch the cable.
- Do not place the transceiver on unstable surfaces.
- Ensure that the end of the antenna does not touch your eyes.
- When the transceiver is used for transmission for many hours, the radiator and chassis will become hot. Do not touch these locations when replacing the battery pack.
- Do not immerse the transceiver in water.
- Always switch the transceiver power off before installing optional accessories.
- The charger is the device that disconnects the unit from the AC mains line. The AC plug should be readily accessible.

**WARNING**

Turn the transceiver power off in the following locations:

- In explosive atmospheres (inflammable gas, dust particles, metallic powders, grain powders, etc.).
- While taking on fuel or while parked at gasoline service stations.
- Near explosives or blasting sites.
- In aircrafts. (Any use of the transceiver must follow the instructions and regulations provided by the airline crew.)
- Where restrictions or warnings are posted regarding the use of radio devices, including but not limited to medical facilities.
- Near persons using pacemakers.

**CAUTION**

- Do not disassemble or modify the transceiver for any reason.
- Do not place the transceiver on or near airbag equipment while the vehicle is running. When the airbag inflates, the transceiver may be ejected and strike the driver or passengers.
- Do not transmit while touching the antenna terminal or if any metallic parts are exposed from the antenna covering. Transmitting at such a time may result in a high-frequency burn.
- If an abnormal odor or smoke is detected coming from the transceiver, switch the transceiver power off immediately, remove the battery pack from the transceiver, and contact your **KENWOOD** dealer.
- Use of the transceiver while you are driving may be against traffic laws. Please check and observe the vehicle regulations in your area.
- Do not expose the transceiver to extremely hot or cold conditions.
- Do not carry the battery pack (or battery case) with metal objects, as they may short the battery terminals.
- Danger of explosion if the battery is incorrectly replaced; replace only with the same type.
- When operating the transceiver in areas where the air is dry, it is easy to build up an electric charge (static electricity). When using an earphone accessory in such conditions, it is possible for the transceiver to send an electric shock through the earphone and to your ear. We recommend you use only a speaker/microphone in these conditions, to avoid electric shocks.

Information concerning the battery pack:

The battery pack includes flammable objects such as organic solvent. Mishandling may cause the battery to rupture producing flames or extreme heat, deteriorate, or cause other forms of damage to the battery. Please observe the following prohibitive matters.



DANGER

- **Do not disassemble or reconstruct battery!**

The battery pack has a safety function and protection circuit to avoid danger. If they suffer serious damage, the battery may generate heat or smoke, rupture, or burst into flame.

- **Do not short-circuit the battery!**

Do not join the + and – terminals using any form of metal (such as a paper clip or wire). Do not carry or store the battery pack in containers holding metal objects (such as wires, chain-necklace or hairpins). If the battery pack is short-circuited, excessive current will flow and the battery may generate heat or smoke, rupture, or burst into flame. It will also cause metal objects to heat up.

- **Do not incinerate or apply heat to the battery!**

If the insulator is melted, the gas release vent or safety function is damaged, or the electrolyte is ignited, the battery may generate heat or smoke, rupture, or burst into flame.

- **Do not leave the battery near fire, stoves, or other heat generators (areas reaching over 80°C/ 176°F)!**

If the polymer separator is melted due to high temperature, an internal short-circuit may occur in the individual cells and the battery may generate heat or smoke, rupture, or burst into flame.

- **Do not immerse the battery in water or get it wet by other means!**

If the battery's protection circuit is damaged, the battery may charge at extreme current (or voltage) and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not charge the battery near fire or under direct sunlight!**

If the battery's protection circuit is damaged, the battery may charge at extreme current (or voltage) and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

**DANGER**

- **Use only the specified charger and observe charging requirements!**

If the battery is charged in unspecified conditions (under high temperature over the regulated value, excessive high voltage or current over regulated value, or with a remodeled charger), it may overcharge or an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not pierce the battery with any object, strike it with an instrument, or step on it!**

This may break or deform the battery, causing a short-circuit. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not jar or throw the battery!**

An impact may cause the battery to leak, generate heat or smoke, rupture, and/or burst into flame. If the battery's protection circuit is damaged, the battery may charge at an abnormal current (or voltage), and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not use the battery pack if it is damaged in any way!**

The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not solder directly onto the battery!**

If the insulator is melted or the gas release vent or safety function is damaged, the battery may generate heat or smoke, rupture, or burst into flame.

- **Do not reverse the battery polarity (and terminals)!**

When charging a reversed battery, an abnormal chemical reaction may occur. In some cases, an unexpected large amount of current may flow upon discharging. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not reverse-charge or reverse-connect the battery!**

The battery pack has positive and negative poles. If the battery pack does not smoothly connect with a charger or operating equipment, do not force it; check the polarity of the battery. If the battery pack is reverse-connected to the charger, it will be reverse-charged and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

**DANGER**

- **Do not touch a ruptured and leaking battery!**

If the electrolyte liquid from the battery gets into your eyes, wash your eyes with fresh water as soon as possible, without rubbing your eyes. Go to the hospital immediately. If left untreated, it may cause eye-problems.

**WARNING**

- **Do not charge the battery for longer than the specified time!**

If the battery pack has not finished charging even after the regulated time has passed, stop it. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not place the battery pack into a microwave or high pressure container!**

The battery may generate heat or smoke, rupture, or burst into flame.

- **Keep ruptured and leaking battery packs away from fire!**

If the battery pack is leaking (or the battery emits a bad odor), immediately remove it from flammable areas. Electrolyte leaking from battery can easily catch on fire and may cause the battery to generate smoke or burst into flame.

- **Do not use an abnormal battery!**

If the battery pack emits a bad odor, appears to have different coloring, is deformed, or seems abnormal for any other reason, remove it from the charger or operating equipment and do not use it. The battery may generate heat or smoke, rupture, or burst into flame.

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UNPACKING AND CHECKING EQUIPMENT

Carefully unpack the transceiver. If any of the items listed below are missing or damaged, file a claim with the carrier immediately.

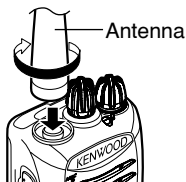
SUPPLIED ACCESSORIES

- Antenna
- Battery charger/ AC adapter (KSC-35S)
- Li-ion Battery pack (KNB-45L).....
- Speaker/ microphone jack cover
- Speaker/ microphone locking bracket
- Belt clip (KBH-10).....
- Screw (M3 x 8 mm)
- Warranty card.....
- Instruction manual

Note: Refer to "PREPARATION" for accessory installation instructions.

PREPARATION

INSTALLING THE ANTENNA



Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

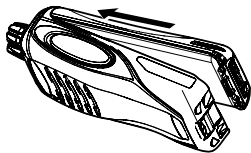
Note: The antenna is neither a handle, a key ring retainer, nor a speaker/ microphone attachment point. Using the antenna in these ways may damage the antenna and degrade your transceiver's performance

INSTALLING/ REMOVING THE BATTERY PACK

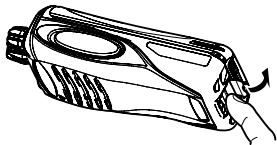


CAUTION

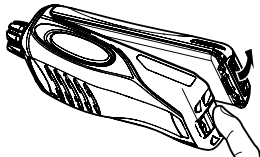
- ◆ Do not short the battery terminals or dispose of the battery by fire.
- ◆ Never attempt to remove the casing from the battery pack.



1 Align the battery pack with the back of the transceiver, then press the battery pack and transceiver firmly together until the release latch on the base of the transceiver locks.



2 To remove the battery pack, lift the safety catch on the base of the transceiver, then press the release latch underneath the safety catch.



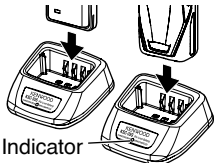
3 While pressing the release latch, pull the battery pack away from the transceiver.

CHARGING THE BATTERY PACK

The battery pack is not charged at the factory; charge it before use. Average battery pack life (calculated using 5% transmit time, 5% receive time, and 90% standby time) is 17 hours.

ATTENTION: Always switch OFF a transceiver equipped with a battery pack before inserting the transceiver into the charger.

- 1 Plug the AC adapter cable into the jack located on the rear of the charger.
- 2 Plug the AC adapter into an AC outlet.
- 3 Slide a battery pack or a transceiver equipped with a battery pack into the charging slot of the charger.



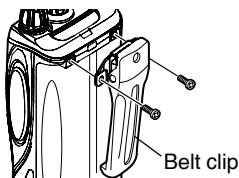
- Make sure the metal contacts of the battery pack mate securely with the charger terminals.
- The indicator lights red and charging begins.

- 4 When charging is completed, the indicator lights green. Remove the battery pack or the transceiver from the charging slot of the charger.
 - It takes approximately 3 hours to charge the battery pack.
 - When the charger will not be used for a long time, unplug the AC adapter from the AC outlet.

Note:

- ◆ When the indicator blinks red, the battery pack is either defective or the battery pack contacts are not properly mated with those of the charger.
 - ◆ When the indicator flashes green and orange, the battery pack has not satisfied the charging start temperature. Remove the battery pack from the charger and wait until it reaches a normal temperature before charging it again.
 - ◆ The ambient temperature should be between 41°F and 104°F (5°C and 40°C) while charging is in progress. Charging outside this range may not fully charge the battery.
 - ◆ The battery pack life is over when its operating time decreases even though it is fully and correctly charged. Replace the battery pack.
-

INSTALLING THE BELT CLIP



If necessary, attach the belt clip using the two supplied M3 x 8 mm screws.

Note: If the belt clip is not installed, its mounting location may get hot during continuous transmission or when left sitting in a hot environment.



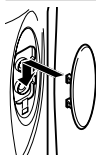
CAUTION

Do not use glue which is designed to prevent screw loosening when installing the belt clip, as it may cause damage to the transceiver. Acrylic ester, which is contained in these glues, may crack the transceiver's back panel.

INSTALLING THE CAP OVER THE SPEAKER/ MICROPHONE JACKS

Install the cap over the speaker/ microphone jacks when not using an optional speaker/ microphone.

Note: To keep the transceiver water resistant, you must cover the speaker/ microphone jacks with the supplied cap.



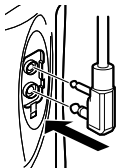
- 1 Place the cap over the jacks so that the locking tabs insert into the transceiver grooves.
- 2 While holding the cap in place, push it towards the bottom of the transceiver until the tabs on the cap click into place.

- To remove the cap, hold the top of the cap in place with your finger while inserting a 2 mm or smaller flat blade screwdriver under the bottom of the cap. Slowly slide the screwdriver in until its tip touches the tab inside the cap, then gently pry the cap up (handle of screwdriver moving away from the transceiver) to remove the cap.

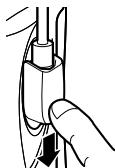
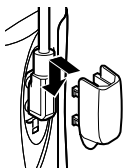


INSTALLING THE OPTIONAL SPEAKER/ MICROPHONE (OR HEADSET)

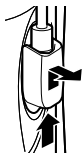
Note: The transceiver is not fully water resistant when using a speaker/ microphone or headset.



- 1 Insert the speaker/ microphone (or headset) plugs into the speaker/ microphone jacks of the transceiver.

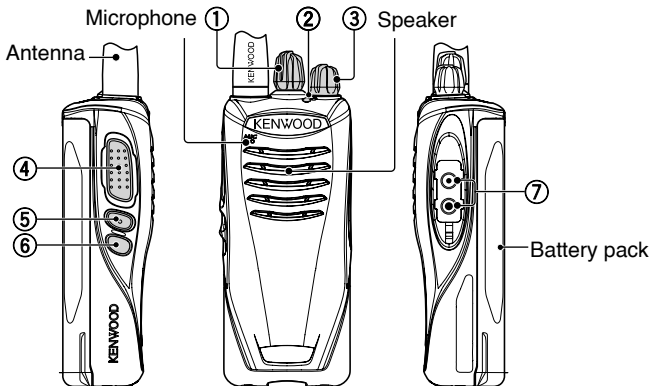


- 2 Place the locking bracket over the speaker/ microphone (or headset) plugs so that the locking tabs insert into the transceiver grooves.
 - Push down on the locking bracket to slide it into place.



- 3 While holding the locking bracket in place, push it towards the bottom of the transceiver until the tabs on the bracket click into place.
 - To remove the locking bracket, push the bracket up from the base.

ORIENTATION



① Channel selector

Rotate to change the operating channel.

- To change the operating frequency or QT/DQT settings of a channel, refer to “CHANNEL SETUP MODE” on page 11.

② LED indicator

For the LED indicator status, refer to page 8.

③ Power switch/ Volume control

Turn clockwise to switch the transceiver ON. To switch the transceiver OFF, turn counterclockwise until a click sounds. Rotate to adjust the volume level.

④ PTT (Push to Talk) switch

Press and hold, then speak around the microphone area to transmit.

⑤ **Side 1 key**

Press to activate its programmable function.

The default setting is [**Super Lock**].

- For function descriptions and details on how to change the function of the **Side 1** key, refer to “KEY ASSIGNMENT MODE” on page 20.

⑥ **Side 2 key**

Press to activate its programmable function.

The default setting is [**Scan + Temporary Delete**].

- For function descriptions and details on how to change the function of the **Side 2** key, refer to “KEY ASSIGNMENT MODE” on page 20.

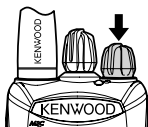
⑦ **Speaker/ microphone jacks**

Insert the Speaker/ microphone or Headset plug into this jack.

BASIC OPERATIONS

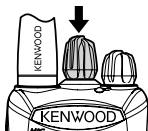
- 1 Turn the **Power** switch/ **Volume** control clockwise to switch the transceiver power ON.

- The LED indicator lights blue for 1 second when turning the Power ON.



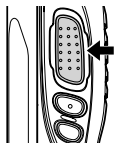
- 2 Rotate the **Channel** selector to select your desired channel.

- When you receive an appropriate signal, you will hear audio from the speaker. Adjust the volume as necessary.



- 3 To make a call, press and hold the **PTT** switch, then speak around the microphone area using your normal speaking voice.

- Hold the microphone approximately 1.5 inches (3 to 4 cm) from your lips.



- 4 Release the **PTT** switch to receive.

Note: When the battery pack voltage becomes too low, the Low Battery Warning sounds an alert tone every 30 seconds and the LED indicator blinks red.

LED Indicator Status

Indicator Color	Meaning
Lights red	Transmitting
Lights green	Receiving a call
Blinks red	Battery power is low while transmitting
Blinks green	Scanning
Blinks red/orange	The selected channel has not been programmed and cannot be used.

VOICE OPERATED TRANSMISSION (VOX)

VOX operation allows you to transmit hands-free. VOX can only be used if you are using a supported headset. This function can be turned off for specific channels.

To activate VOX and set the VOX Gain level, perform the following steps:

- 1 Connect the headset to the transceiver .
 - The VOX function does not activate when a headset is not connected to the accessory terminal of the transceiver.
- 2 With the transceiver power OFF, press and hold the **Side 1** key while turning the transceiver power ON.
- 3 Continue to hold the **Side 1** key until a beep sounds.
 - The LED indicator lights turn orange.
 - When the **Side 1** key is released, the transceiver will announce the VOX Gain level (the default level is OFF, so, a double beep sounds).
- 4 Press the **Side 1** key to select the VOX Gain level of the radio (from 1~10 or Off).
 - Press the **Side 2** key to enable or disable the VOX function for the current channel (you can change this setting for each channel by selecting a channel with the **Channel** selector). When turned ON, a beep sounds. When turned OFF, a double beep sounds.
- 5 Press the **PTT** switch to save the setting.
 - A beep will sound.
 - The transceiver announces the new VOX Gain level.
- 6 Turn the transceiver power OFF and then ON again to activate VOX.

Note:

- ◆ The transceiver will automatically return to normal operation if no action is performed for 20 seconds.
 - ◆ VOX Gain level 1 is the least sensitive and VOX Gain level 10 is the most sensitive.
 - ◆ If a headset is connected to the transceiver while the VOX function is switched ON and the VOX Gain level is configured to a higher, more sensitive level, louder received signals may cause the transceiver to start transmission.
-

BACKGROUND OPERATIONS

TIME-OUT TIMER (TOT)

The Time-out Timer prevent callers from using a channel for an extended duration (60 seconds). If you continuously transmit for the duration, transmission will stop and an alert tone will sound. To stop the tone, release the **PTT** switch.

LOW BATTERY WARNING

While operating the transceiver, the Low Battery Warning sounds an alert tone every 30 seconds and the LED indicator blinks red when the battery needs recharged or replaced.

CHANNEL SETUP MODE

This transceiver allows you to reprogram each of the channels with different frequencies and QT (Quiet Talk)/ DQT (Digital Quiet Talk) settings. The table below lists the default channel settings.

Channel Number	Table Number	Frequency (MHz)	QT/DQT Setting
TK-2400 (K) 4 channel model			
1	20	154.4900	67.0 Hz
2	21	154.5150	67.0 Hz
3	1	151.6250	67.0 Hz
4	2	151.9550	67.0 Hz
TK-2400 (K2) 16 channel model			
1	20	154.4900	67.0 Hz
2	21	154.5150	67.0 Hz
3	1	151.6250	67.0 Hz
4	2	151.9550	67.0 Hz
5	10	151.5125	67.0 Hz
6	12	151.6850	67.0 Hz
7	15	151.7750	67.0 Hz
8	26	158.4000	67.0 Hz
9	1	151.6250	77.0 Hz
10	1	151.6250	88.5 Hz
11	1	151.6250	179.9 Hz
12	2	151.9550	82.5 Hz
13	2	151.9550	94.8 Hz
14	2	151.9550	179.9 Hz
15	5	151.7000	67.0 Hz
16	6	151.7600	67.0 Hz

Channel Number	Table Number	Frequency (MHz)	QT/DQT Setting
TK-3400 (K) 4 channel model			
1	2	464.5500	67.0 Hz
2	8	467.9250	67.0 Hz
3	9	461.0375	67.0 Hz
4	10	461.0625	67.0 Hz
TK-3400 (K2) 16 channel model			
1	2	464.5500	67.0 Hz
2	8	467.9250	67.0 Hz
3	9	461.0375	67.0 Hz
4	10	461.0625	67.0 Hz
5	11	461.0875	67.0 Hz
6	12	461.1125	67.0 Hz
7	13	461.1375	67.0 Hz
8	14	461.1625	67.0 Hz
9	1	464.5000	67.0 Hz
10	3	467.7625	67.0 Hz
11	4	467.8125	67.0 Hz
12	5	467.8500	67.0 Hz
13	6	467.8750	67.0 Hz
14	7	467.9000	67.0 Hz
15	15	461.1875	67.0 Hz
16	16	461.2125	67.0 Hz

Note: Due to FCC regulations, the default values of TK-2400/ TK-2300 (VHF) are different from TK-2200 (VHF) series. Make sure to choose a compatible frequency to interoperate with each other.

CHANNEL OPERATING FREQUENCIES

To change the operating frequency of a channel:

- 1 With the transceiver power OFF, press and hold the **PTT** switch and **Side 1** key while turning the transceiver power ON.
 - Continue to hold the **PTT** switch and **Side 1** key until the LED lights orange and the transceiver announces “Self”.
- 2 Release the **PTT** switch and **Side 1** key.
 - The transceiver announces “Channel”.
 - Pressing the **Side 1** key or **Side 2** key will toggle between QT, DQT, and Channel setup.
- 3 Press and release the **PTT** switch, then rotate the **Channel** selector to your desired channel.
 - Upon pressing and releasing the **PTT** switch, a beep will sound and the transceiver announces “Table zero”.
- 4 Press the **Side 1** or **Side 2** key to increment/ decrement the Table number, to select the new channel frequency.
 - Press and hold the **Side 1** or **Side 2** key to increment/ decrement the number by 5 at a time.
 - Table numbers and their corresponding operating frequencies are provided in the table on page 14.
 - A voice announcement will inform you of the currently selected Table number.
- 5 Press the **PTT** switch to save the setting.
 - A beep will sound.
 - Repeat steps 3 to 5 to set up another channel.
- 6 Turn the transceiver power OFF and then ON again to activate the new settings.

Note: The transceiver will automatically return to normal operation if no action is performed for 20 seconds.

TK-2400 Table Number	Operating Frequency (MHz)	TK-2400 Table Number	Operating Frequency (MHz)
0	OFF	14	151.7450
1	151.6250	15	151.7750
2	151.9550	16	151.8650
3	152.8850	17	151.8950
4	152.9150	18	151.9250
5	151.7000	19	152.9000
6	151.7600	20	154.4900
7	152.9450	21	154.5150
8	151.8350	22	154.5275
9	151.8050	23	154.5400
10	151.5125	24	153.0050
11	151.6550	25	154.5475
12	151.6850	26	158.4000
13	151.7150	27	158.4075

TK-3400 Table Number	Operating Frequency (MHz)	TK-3400 Table Number	Operating Frequency (MHz)
0	OFF	15	461.1875
1	464.5000	16	461.2125
2	464.5500	17	461.2375
3	467.7625	18	461.2625
4	467.8125	19	461.2875
5	467.8500	20	461.3125
6	467.8750	21	461.3375
7	467.9000	22	461.3625
8	467.9250	23	462.7625
9	461.0375	24	462.7875
10	461.0625	25	462.8125
11	461.0875	26	462.8375
12	461.1125	27	462.8625
13	461.1375	28	462.8875
14	461.1625	29	462.9125

TK-3400 Table Number	Operating Frequency (MHz)	TK-3400 Table Number	Operating Frequency (MHz)
30	464.4875	61	467.1875
31	464.5125	62	467.4625
32	464.5375	63	467.4875
33	464.5625	64	467.5125
34	466.0375	65	451.1875
35	466.0625	66	451.2375
36	466.0875	67	451.2875
37	466.1125	68	451.3375
38	466.1375	69	451.4375
39	466.1625	70	451.5375
40	466.1875	71	451.6375
41	466.2125	72	452.3125
42	466.2375	73	452.5375
43	466.2625	74	452.4125
44	466.2875	75	452.5125
45	466.3125	76	452.7625
46	466.3375	77	452.8625
47	466.3625	78	456.1875
48	467.7875	79	456.2375
49	467.8375	80	456.2875
50	467.8625	81	468.2125
51	467.8875	82	468.2625
52	467.9125	83	468.3125
53	469.4875	84	468.3625
54	469.5125	85	468.4125
55	469.5375	86	468.4625
56	469.5625	87	468.5125
57	462.1875	88	468.5625
58	462.4625	89	468.6125
59	462.4875	90	468.6625
60	462.5125		

QT/ DQT SETTINGS

Quiet Talk (QT) and Digital Quiet Talk (DQT) are functions that reject undesired signals on your channel. You will hear a call only when you receive a signal that contains a matching QT tone or DQT code. If a call containing a different tone or code is received, squelch will not open and you will not hear the call. Likewise, when transmitting using QT or DQT, the receiving station must have a matching tone or code to hear your call.

Be aware that other parties can still hear your calls if they set up their transceiver with the same tone or code.

To change the QT/DQT settings of a channel:

- 1 With the transceiver power OFF, press and hold the **PTT** switch and **Side 1** key while turning the transceiver power ON.
 - Continue to hold the **PTT** switch and **Side 1** key until the LED lights orange and the transceiver announces “Self”.
- 2 Release the **PTT** switch and **Side 1** key.
 - The transceiver announces “Channel”.
 - Pressing the **Side 1** key or **Side 2** key will toggle between QT, DQT, and Channel setup.
- 3 Press the **Side 1** or **Side 2** key to select QT or DQT setup.
 - The transceiver announces “QT” or “DQT”, depending on your selection.
- 4 Press and release the **PTT** switch, then rotate the **Channel** selector to your desired channel.
 - Upon releasing the **PTT** switch, the transceiver announces “QT One” or “DQT One”, depending on your selection.
- 5 Press the **Side 1** or **Side 2** key to increment/ decrement the Tone number, to select the new tone or code.
 - Tone numbers and their corresponding tones/ codes are provided in the table on pages 17 and 18.
 - Press and hold the **Side 1** or **Side 2** key to increment/ decrement the QT or DQT number by 5 at a time.
 - A voice announcement will inform you of the currently selected QT or DQT number.

- 6 Press the **PTT** switch to save the setting.
 - A beep will sound.
 - Repeat steps 3 to 6 to set up another channel.
- 7 Turn the transceiver power OFF and then ON again to activate the new settings.

Note: The transceiver will automatically return to normal operation if no action is performed for 20 seconds.

QT Channel Settings:

QT Number	QT Frequency	QT Number	QT Frequency	QT Number	QT Frequency
1	67.0 Hz	17	118.8 Hz	33	210.7 Hz
2	71.9 Hz	18	123.0 Hz	34	218.1 Hz
3	74.4 Hz	19	127.3 Hz	35	225.7 Hz
4	77.0 Hz	20	131.8 Hz	36	233.6 Hz
5	79.7 Hz	21	136.5 Hz	37	241.8 Hz
6	82.5 Hz	22	141.3 Hz	38	250.3 Hz
7	85.4 Hz	23	146.2 Hz	39	69.3 Hz
8	88.5 Hz	24	151.4 Hz	40	67.0 Hz
9	91.5 Hz	25	156.7 Hz	41	67.0 Hz
10	94.8 Hz	26	162.2 Hz	42	67.0 Hz
11	97.4 Hz	27	167.9 Hz	43	67.0 Hz
12	100.0 Hz	28	173.8 Hz	44	67.0 Hz
13	103.5 Hz	29	179.9 Hz	45	67.0 Hz
14	107.2 Hz	30	186.2 Hz	off	OFF
15	110.9 Hz	31	192.8 Hz		
16	114.8 Hz	32	203.5 Hz		

DQT Channel Settings:

DQT Number	DQT Code	DQT Number	DQT Code	DQT Number	DQT Code	DQT Number	DQT Code
1	D023N	31	D223N	61	D503N	91	D047I
2	D025N	32	D226N	62	D506N	92	D051I
3	D026N	33	D243N	63	D516N	93	D054I
4	D031N	34	D244N	64	D532N	94	D065I
5	D032N	35	D245N	65	D546N	95	D071I
6	D043N	36	D251N	66	D565N	96	D072I
7	D047N	37	D261N	67	D606N	97	D073I
8	D051N	38	D263N	68	D612N	98	D074I
9	D054N	39	D265N	69	D624N	99	D114I
10	D065N	40	D271N	70	D627N	100	D115I
11	D071N	41	D306N	71	D631N	101	D116I
12	D072N	42	D311N	72	D632N	102	D125I
13	D073N	43	D315N	73	D654N	103	D131I
14	D074N	44	D331N	74	D662N	104	D132I
15	D114N	45	D343N	75	D664N	105	D134I
16	D115N	46	D346N	76	D703N	106	D143I
17	D116N	47	D351N	77	D712N	107	D152I
18	D125N	48	D364N	78	D723N	108	D155I
19	D131N	49	D365N	79	D731N	109	D156I
20	D132N	50	D371N	80	D732N	110	D162I
21	D134N	51	D411N	81	D734N	111	D165I
22	D143N	52	D412N	82	D743N	112	D172I
23	D152N	53	D413N	83	D754N	113	D174I
24	D155N	54	D423N	84	D645N	114	D205I
25	D156N	55	D431N	85	D023I	115	D223I
26	D162N	56	D432N	86	D025I	116	D226I
27	D165N	57	D445N	87	D026I	117	D243I
28	D172N	58	D464N	88	D031I	118	D244I
29	D174N	59	D465N	89	D032I	119	D245I
30	D205N	60	D466N	90	D043I	120	D251I

DQT Number	DQT Code	DQT Number	DQT Code	DQT Number	DQT Code	DQT Number	DQT Code
121	D261I	135	D411I	149	D546I	163	D731I
122	D263I	136	D412I	150	D565I	164	D732I
123	D265I	137	D413I	151	D606I	165	D734I
124	D271I	138	D423I	152	D612I	166	D743I
125	D306I	139	D431I	153	D624I	167	D754I
126	D311I	140	D432I	154	D627I	168	D645I
127	D315I	141	D445I	155	D631I	169	D023N
128	D331I	142	D464I	156	D632I	170	D023N
129	D343I	143	D465I	157	D654I	171	D023N
130	D346I	144	D466I	158	D662I	172	D023N
131	D351I	145	D503I	159	D664I	173	D023N
132	D364I	146	D506I	160	D703I	174	D023N
133	D365I	147	D516I	161	D712I	off	OFF
134	D371I	148	D532I	162	D723I		

CHANNEL CONFIRMATION MODE

To confirm your channel settings:

- 1 With the transceiver power OFF, press and hold the **PTT** switch while turning the transceiver power ON.
 - Continue to hold the **PTT** switch until the LED lights orange and the transceiver announces "Confirm".
- 2 Release the **PTT** switch.
 - Transceiver announces the channel table number, tone number, scrambler and VOX settings of the selected channel.
- 3 Rotate the **Channel** selector to your desired channel within 20 seconds, otherwise the operation will cancel.
 - Transceiver announces the channel table number, tone number, scrambler and VOX settings of the selected channel.

Note: The transceiver will automatically return to normal operation if no action is performed for 20 seconds.

KEY ASSIGNMENT MODE

This transceiver allows you to reprogram the **Side 1** and **Side 2** keys with any of the functions listed in the table below. Explanations on the use of each function are provided under “PROGRAMMABLE FUNCTIONS”, on page 22.

Table Number	Function Name
0	None (no function)
1	Calling Alert
2	Key Lock
3	Key Lock with Status Memory
4	Monitor
5	Monitor Momentary
6	Scan
7	Scan + Temporary Delete (Side 2 key default)
8	Scrambler
9	Squelch Off
10	Squelch Off Momentary
11	Super Lock (Side 1 key default)
12	Low Transmit Power
13	RX/TX Frequency Scan *

* To use this function, the Repeater Mode must be activated by Programming Software.

To change the functions of the **Side 1** and **Side 2** keys:

- 1 With the transceiver power OFF, press and hold the **Side 1** and **Side 2** keys while turning the transceiver power ON.
 - Continue to hold the **Side 1** and **Side 2** keys until the LED lights orange and the transceiver announces “Setup”.
- 2 Continue to press and hold the key to be reprogrammed (either the **Side 1** or **Side 2** key), while releasing the remaining key.
 - The transceiver will announce “Table zero”.
 - If you continue to hold both keys, or if you release both keys, the operation will cancel in 20 seconds.
- 3 Release the key.
- 4 Press the **Side 1** or **Side 2** key to increment/ decrement the number, to select the new key function.
 - Table numbers and their corresponding functions are provided in the table on page 20.
 - A voice announcement will inform you of the currently selected Table number.
- 5 Press the **PTT** switch to save the setting.
 - A beep will sound and the transceiver will announce the new Table number.
- 6 Turn the transceiver power OFF and then ON again to activate the new settings.

Note: The transceiver will automatically return to normal operation if no action is performed for 20 seconds.

PROGRAMMABLE FUNCTIONS

■ Calling Alert

Calling alert tone helps alerting party members that you are calling. To make a call, press the key programmed as Calling Alert.

- Release the key to end the tone, and press and hold the **PTT** switch to transmit and speak into the microphone.

■ Key Lock

Press and hold this key for 1 second to lock/ unlock the transceiver keys.

The following keys/ functions can still be used when Key Lock is active:

Calling Alert, Key Lock, Monitor, Monitor Momentary, PTT, Squelch Off, Squelch Off Momentary, Channel selector, Super Lock, Key Lock with Status Memory, and Volume Control.

- When the transceiver power is turned OFF and then ON again, the Key Lock function will be cancelled.

■ Key Lock with Status Memory

This operates the same as Key Lock except that when the transceiver power is turned OFF and then ON again, the keys remain locked.

■ Monitor

Momentarily press this key to deactivate QT or DQT signaling. Press the key again to return to normal operation.

■ Monitor Momentary

Press and hold this key to deactivate QT or DQT signaling. Release the key to return to normal operation.

■ Scan

Scan is useful for monitoring signals on the transceiver channels. When scanning, the transceiver checks for a signal on each channel and only stops if a signal is present. If the QT/DQT matches, the transceiver stops at the channel and opens the squelch so you can listen to the call. If the QT/DQT does not match, the call is ignored and scanning continues.

■ Scan + Temporary Delete (Side 2 key default)

Press this key to start scanning the transceiver channels. When Scan pauses at an undesired channel, you can remove that channel from the scanning sequence by pressing and holding this key for 3 seconds.

■ Scrambler

Press this key to activate (a single beep sounds) and deactivate (a double beep sounds) the scrambler function of the selected channel.

The Scrambler function allows you to hold a conversation in complete privacy. When the Scrambler function is activated, any other party that is listening to your channel will be unable to understand your conversation.

■ Squelch Off

Press this key to hear background noise. Press the key again to return to normal operation.

■ Squelch Off Momentary

Press and hold this key to hear background noise. Release the key to return to normal operation.

■ Super Lock (Side 1 key default)

Super Lock locks the same keys as Key Lock. Press and hold this key for 4 seconds to lock the transceiver keys. To deactivate Super Lock, with the transceiver power OFF, press and hold the **Side 2** key for 2 seconds while turning the transceiver power ON.

- When the LED lights orange, release the **Side 2** key. A confirmation tone will sound.

■ Low Transmit Power

Press this key to change the transmit power to low power. Each time you press this key, the transmit power toggles between high and low.

TROUBLESHOOTING GUIDE

Problem	Solution
Cannot turn the transceiver power ON.	<ul style="list-style-type: none">• The battery pack may be dead. Recharge or replace the battery pack.• The battery pack may not be installed correctly. Remove the battery pack and install again.
Battery power dies shortly after charging.	<ul style="list-style-type: none">• The battery pack life is finished. Replace the battery pack with a new one.
Cannot talk to or hear other members in your group.	<ul style="list-style-type: none">• Make sure you are using the same frequency and QT/DQT settings as the other members in your group.• Other group members may be using the Scrambler function. Turn on your transceiver's Scrambler.• Other group members may be too far away. Make sure you are within range of the other transceivers.
Other voices (besides group members") are present on the channel.	<ul style="list-style-type: none">• Change the QT/DQT settings. Make sure all group members change the settings on their transceivers to match the new QT/DQT setting.

ALL RESET MODE

At some point in time, you may desire to reset the transceiver settings to their default values. This function will reset all channels to their default frequencies and QT/DQT, the VOX function to its default status, and all keys to their default functions.

To reset the transceiver:

- 1 With the transceiver power OFF, press and hold the **PTT** switch, the **Side 1** key, and the **Side 2** key while turning the transceiver power ON.
 - Continue to hold the keys for 2 seconds, until the LED lights orange.
- 2 Release the keys.
 - The transceiver announces “Confirm” and returns to normal operation.
 - If the keys are released before the LED lights orange, All Reset Mode will cancel.