

KENWOOD

INSTRUCTION MANUAL

VHF FM TRANSCEIVER

TK-2140

UHF FM TRANSCEIVER

TK-3140

KENWOOD CORPORATION

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

THANK YOU

We are grateful you chose **KENWOOD** for your land mobile radio applications. We believe this easy-to-use transceiver will provide dependable communications to keep personnel operating at peak efficiency.

KENWOOD transceivers incorporate the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product.

MODELS COVERED BY THIS MANUAL

- TK-2140: VHF FM Transceiver
- TK-3140: UHF FM Transceiver

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 OR IMPRISONMENT OR BOTH.*
- ◆ *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.

WARNING:

EXPLOSIVE ATMOSPHERES (GASES, DUST, FUMES, etc.)

Turn off your transceiver while taking on fuel, or while parked in gasoline service stations.

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 (U.S.A. Only):



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

For information on Ni-Cd 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.*

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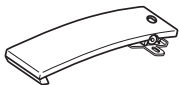
UNPACKING AND CHECKING EQUIPMENT

Note: The following unpacking instructions are for use by your **KENWOOD** dealer, an authorized **KENWOOD** service facility, or the factory.

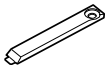
Carefully unpack the transceiver. We recommend that you identify the items listed in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, file a claim with the carrier immediately.

■ Supplied Accessories

Item	Part Number	Quantity
Belt clip		1
Universal connector cap		1
Screw set		1
Warranty card		1
Instruction manual		1



Belt clip



Universal
connector cap



Screw set

PREPARATION

■ Installing/ Removing the (Optional) Li-ion Battery Pack

CAUTION:

- ◆ *DO NOT RECHARGE THE BATTERY PACK IF IT IS ALREADY FULLY CHARGED. DOING SO MAY CAUSE THE LIFE OF THE BATTERY PACK TO SHORTEN OR THE BATTERY PACK MAY BE DAMAGED.*
- ◆ *AFTER RECHARGING THE BATTERY PACK, DISCONNECT IT FROM THE CHARGER. IF THE CHARGER POWER IS RESET (TURNED ON AFTER BEING TURNED OFF), RECHARGING WILL START AGAIN AND THE BATTERY PACK WILL BECOME OVERCHARGED.*
- ◆ *DO NOT SHORT THE BATTERY TERMINALS OR DISPOSE OF THE BATTERY BY FIRE.*
- ◆ *NEVER ATTEMPT TO REMOVE THE CASING FROM THE BATTERY PACK.*

Match the guides of the battery pack with the corresponding grooves on the upper rear of the transceiver, then firmly press the battery pack to lock it in place.

To remove the battery pack, press the release latch and pull the battery pack away from the transceiver.

■ Installing the (Optional) 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.

■ Installing the Belt Clip

If necessary, attach the belt clip using the two supplied 3 x 6 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.*

① **Antenna connector**

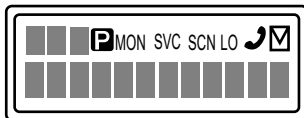
Connect an (optional) antenna here.






② **Rotary encoder**

Rotate this encoder to activate its programmable function. (System or Group Up/ Down in Trunking Format, and Group or Channel Up/ Down in Conventional Format.) For further details, contact your dealer.

- ③ **POWER switch/VOLUME control**
Turn clockwise to switch ON the transceiver. Rotate to adjust the volume. Turn counterclockwise fully to switch OFF the transceiver.
- ④ **Transmit/ Battery low indicator**
This red LED lights during transmission. If programmed by your dealer, when the battery pack power is low, the LED flashes during transmission. Replace or recharge the battery pack.
- ⑤ **Auxiliary (orange) key**
Press to activate its auxiliary function {page 8}.
- ⑥ **Battery pack release latch**
Press this latch to release the battery pack. See “Installing/ Removing the (Optional) Li-ion Battery Pack” on page 2.
- ⑦ **PTT (Push-To-Talk) switch**
Press this switch, then speak into the microphone to call a station.
- ⑧ **Side 1, Side 2 keys**
Press to activate their auxiliary functions {page 8}.
- ⑨ **S, A, ◀B, and C▶ keys**
Press to activate their auxiliary functions {page 8}.
- ⑩ **Universal connector**
Connect the (optional KMC-25) speaker/ microphone here. Otherwise, keep the supplied cover in place.

■ Display



Indicator	Description
	Displays the channel and group numbers.
	Appears when performing Priority Scan.
MON	Appears when the key programmed as Monitor is pressed.
SVC	This icon is not used on this transceiver.
SCN	Appears when performing Scan.
LO	Appears when the key programmed as RF Power LO is pressed.
	Appears while using the telephone system.
	Appears when you have a message.
	Displays the group name or the system/ group number with up to 10 digits. The remaining 2 digits are used for various indicators.

PROGRAMMABLE AUXILIARY FUNCTIONS

Keys ⑤, ⑧ and ⑨ {pages 5 and 6} can be programmed with the auxiliary functions listed in the following table. The keys can only be programmed with functions, depending on whether you are using Conventional Format or Trunking Format. Please contact your dealer for further details on these functions.

Function	Conventional Format	Trunking Format
Auto Tel	No	Yes
Channel Down	Yes	No
Channel Up	Yes	No
Channel Up/Down	Yes	No
DTMF ID (BOT)	Yes	Yes
DTMF ID (EOT)	Yes	Yes
Display Character	Yes	Yes
Emergency ¹	Yes	Yes
Group Down	Yes	Yes
Group Up	Yes	Yes
Group Up/Down	Yes	Yes
Home Channel	Yes	No
Home Group	No	Yes
Key Lock	Yes	Yes
Lamp	Yes	Yes
Memory (RCL/STO)	Yes	Yes
Memory (RCL)	Yes	Yes
Memory (STO)	Yes	Yes
Message Mode	Yes	Yes

Function	Conventional Format	Trunking Format
Monitor A (Monitor Unmute (Momentary))	Yes	Yes
Monitor B (Monitor Unmute (Toggle))	Yes	Yes
Monitor C (Carrier Squelch (Momentary))	Yes	Yes
Monitor D (Carrier Squelch (Toggle))	Yes	Yes
OST	Yes	No
Redial	Yes	Yes
RF Power LO	Yes	Yes
Scan	Yes	Yes
Scan Del/Add	Yes	Yes
Scan Temp/Del	No	Yes
SP Attenuation	Yes	Yes
SQ Level	Yes	No
System Down	No	Yes
System Up	No	Yes
System Up/Down	No	Yes
Talk Around	Yes	No
Tel Disconnect	No	Yes

¹ This function can be programmed only on key ⑤, the **Auxiliary** (orange) key.

OPERATION OVERVIEW

Your dealer can program your transceiver for either Trunking Format or Conventional Format.

■ Trunking Format

This format can handle up to 32 systems with up to 250 groups in each system. The transceiver can be used in both trunked mode and conventional mode. Systems, groups, and their functions are programmed by your dealer.

■ Conventional Format

This format can handle up to 250 groups with 250 channels in each group. The transceiver can be used only in conventional mode. Groups, channels, and their functions are programmed by your dealer.

■ Switching Power ON/ OFF

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

Turn the **Power** switch/ **Volume** control counterclockwise to switch the transceiver OFF.

If the Radio Password function is programmed, "PASSWORD" will appear on the display when the power is turned ON. To unlock the transceiver, enter the password, then press the **S** key. If you enter the wrong password, an error tone sounds and the transceiver remains locked. The password can contain a maximum of 6 digits.

■ Adjusting the Volume

Rotate the **Power** switch/ **Volume** control to adjust the volume. Clockwise increases the volume and counterclockwise decreases it.

■ Selecting a System/ Group/ Channel

Select the desired system and group (Trunking Format) using the encoder and the keys programmed with **System** or **Group Up/ Down**.

Select the desired group and channel (Conventional Format) using the encoder and the keys programmed with **Group** or **Channel Up/ Down**.

■ Time-out Timer (TOT)

The purpose of the Time-out Timer is to prevent any caller from using a channel for an extended period of time.

If you continuously transmit for a period of time that exceeds the programmed time, the transceiver will stop transmitting and an alert tone will sound. To stop the tone, release the **PTT** switch.

Your dealer can program the TOT time in the range of 15 seconds to 10 minutes.

TRUNKED OPERATION (Trunking Format)

■ Placing a Dispatch Call

- 1 Select the desired system and group using the encoder and the **System** or **Group** keys.
- 2 Press the **PTT** switch.
- 3 If a tone does not sound, communication is possible; start speaking into the microphone. Release the **PTT** switch to receive.
 - For best sound quality at the receiving station, hold the microphone approximately 1.5 inches (3 ~ 4 cm) from your mouth.

■ Receiving a Dispatch Call

- 1 Select the desired system and group using the encoder and the **System** or **Group** keys. (If the Scan function has been programmed, you can switch it ON or OFF as desired.)
- 2 When you hear the dispatcher's voice, readjust the volume as necessary.

CONVENTIONAL OPERATION (Trunking Format)

■ Transmitting

- 1 Select the desired system and group using the encoder and the **System** or **Group** keys.
- 2 Press the key programmed as **Monitor** to check whether or not the channel is free.
 - If the channel is busy, wait until it becomes free.
- 3 Press the **PTT** switch and speak into the microphone. Release the **PTT** switch to receive.
 - For best sound quality at the receiving station, hold the microphone approximately 1.5 inches (3 ~ 4 cm) from your mouth.

■ Receiving

- 1 Select the desired system and group using the encoder and the **System** or **Group** keys. (If the Scan function has been programmed, you can switch it ON or OFF as desired.)
- 2 When you hear the dispatcher's voice, readjust the volume as necessary.

SYSTEM SCAN (Trunking Format)

If the Scan function is programmed, systems can be scanned by pressing the key programmed as **Scan**. When the **Scan** key is pressed, the SCN indicator and “-SCAN-” or the revert system/ group number, appear on the display and scanning starts. The systems not locked out of the scanning sequence are scanned.

When a call is received, scanning stops and the system and group digits appear. Press the **PTT** switch and speak into the microphone to respond to the call. The transceiver will continue scanning after a predetermined time delay if the **PTT** switch is released and no further signal is received.

■ Scanning Trunked Systems

When scanning trunked systems, the revert groups and the groups not locked out of the scanning sequence are scanned. See “GROUP SCAN” on page 17.

■ Scanning Conventional Systems

When scanning conventional systems, the revert groups and the groups not locked out of the scanning sequence are scanned. See “GROUP SCAN” on page 17.

■ Scan Lockout

If a programmable auxiliary key is programmed with **Scan Del/Add**, each system can be locked out of the scan sequence manually. The delete indicator (►) will appear on the display when the selected system is locked out.

■ Scan Revert

You can select revert systems and groups using the encoder and the **System** or **Group** keys.

Three types of Scan Reverts which can be programmed by your dealer are available:

- **Last Called Revert:** The last system/ group received is assigned as the new revert system and group.
- **Last Used Revert:** The last system/ group responded to is assigned as the new revert system and group.
- **Selected:** The last system/ group selected is assigned as the new revert system and group.

GROUP SCAN (Trunking Format)

Group Scan is available for both trunked and conventional systems. This feature is useful when more than one group is programmed in a system. Group Scan is set by your dealer on request. It scans the revert groups as well as groups that are allowed to be scanned.

When a call is received, the group indicator shows the group number, and that group becomes the revert group. Simply press the **PTT** switch to respond to the call.

You can also perform Group Scan while using a priority channel. Please contact your dealer for information concerning Priority Scan.

■ Transmitting

- 1 Select the desired group and channel using the encoder and the **Group** or **Channel** keys.
- 2 Press the key programmed as **Monitor** to check whether or not the channel is free.
 - If the channel is busy, wait until it becomes free.
- 3 Press the **PTT** switch and speak into the microphone. Release the **PTT** switch to receive.
 - For best sound quality at the receiving station, hold the microphone approximately 1.5 inches (3 ~ 4 cm) from your mouth.

■ Receiving

- 1 Select the desired group and channel using the encoder and the **Group** or **Channel** keys. (If the Scan function has been programmed, you can switch it ON or OFF as desired.)
- 2 When you hear a caller's voice, readjust the volume as necessary.

SCAN (Conventional Format)

If the Scan function is programmed, groups or channels can be scanned by pressing the key programmed as **Scan**. Scan can be used as either Single Scan or Multi Scan. Single Scan monitors only the channels of a single group. Multi Scan monitors all channels of every group. When the **Scan** key is pressed, the SCN indicator and “-SCAN-” or the revert group/ channel number, appear on the display and scanning starts.

When a call is received, scanning stops and the group and channel digits appear. Press the **PTT** switch and speak into the microphone to respond to the call. The transceiver will continue scanning after an adjustable time delay, if the **PTT** switch is released, and no further signal is received.

When the displayed group is not locked out of the scanning sequence, the add indicator (▼) will appear on the display.

■ Priority Scan

The priority channel must be programmed in order for Priority Scan to function.

The transceiver will automatically change to the priority channel when a signal is received on it, even if a signal is being received on a normal channel.

The **P** indicator appears when the displayed channel is the priority channel.

2-TONE SIGNALLING (Conventional Format)

2-Tone Signalling is either activated or deactivated by your dealer.

2-Tone Signalling only opens the squelch when the transceiver receives two tones corresponding to those set up in the transceiver. When the squelch opens, you will be able to hear the caller without any further action.

After a correct 2-Tone signal is received and the squelch opens, pressing the key programmed as **Monitor** will cancel the connection.

If your dealer programmed Transpond for 2-Tone Signalling, your transceiver will automatically send an acknowledgment signal to the station that called you with the correct 2-Tone signal. Transpond does not function when you are called as a Group call.

If your dealer programmed Tone Alert for 2-Tone Signalling, your transceiver will emit a beep when the correct 2-Tone signal is received.

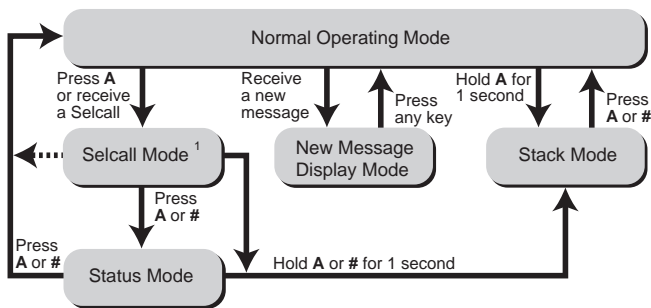
Note: *This transceiver is only capable of decoding 2-Tone Signals. It cannot encode a 2-Tone Signal.*

FleetSync™: ALPHANUMERIC 2-WAY PAGING FUNCTION

FleetSync™ is an Alphanumeric 2-way Paging Function, and is a protocol owned by **KENWOOD** Corporation. FleetSync™ enables a variety of paging functions on your transceiver, some of which depend on dealer programming.

■ Key Functions

Key	Function
A	Press to change the transceiver mode as shown in the diagram below.
S	Press while in Stack Mode to toggle between the received message and the caller's ID. Press and hold for more than 1 second to delete the displayed message.
◀B, C▶	Press to stop auto-scrolling received messages. Also press to scroll manually.
PTT	Press to initiate a call.



¹ Depending on how your dealer programmed the transceiver, Selcall Mode may be skipped or the transceiver may exit Selcall Mode automatically (as shown by the dash arrow).

■ Selcall (Selective Calling)

A Selcall is a voice call to a particular station or to a group of stations.

To Transmit:

- 1 Select your desired system and group (or group and channel).
- 2 Press the **A** key to enter Selcall Mode.
- 3 Use the encoder to select the ID of the station you want to call.
- 4 Press the **PTT** switch and begin your conversation.

To Receive:

An alert tone will sound, the transceiver will automatically enter Selcall Mode, and the calling station's ID will appear when a Selcall is received.

To respond to the call, press the **PTT** switch and speak into the microphone.

Identification Codes:

An ID code is a combination of a 3-digit Fleet number and a 4-digit ID number. Each transceiver must have its own Fleet and ID number.

- Enter a Fleet number (100 ~ 349) to make a group call.


- Enter an ID number (1000 ~ 4999) to make an individual call in your fleet.
- Enter a Fleet number followed by an ID number to make an individual call in your desired fleet (Inter-fleet call).
- Select “ALL” Fleet and “ALL” ID to make a call to all units (Broadcast call).
- Select “ALL” Fleet and enter an ID number to make a call to the selected ID in all fleets (Supervisor call).

Note:

- ◆ *Broadcast and Supervisor calls are programmed functions that cannot be made with a keypad.*
- ◆ *The ID range may be limited by programming.*

■ Status Message

You can send and receive 2-digit Status messages (10 ~ 79) which may be decided in your talk group. Messages can contain up to 16 alphanumeric characters.


A maximum of 9 received messages can be stored in the stack memory of your transceiver. These saved messages can be reviewed after reception. If the stack memory is full, the oldest message will be erased when a new message is received. The mail icon () lights when a message is stored in the stack memory.

Note: *All stored messages will be cleared when the transceiver power is turned OFF.*

To Transmit:

- 1 Select your desired system and group (or group and channel).
- 2 Press the **A** key to enter Selcall Mode.
- 3 Use the encoder to select the ID of the station you want to call.
- 4 Press the **A** key to enter Status Mode.
- 5 Use the encoder to select the status you want to transmit.
- 6 Press the **PTT** switch to initiate the Status call.
 - “COMPLETE” is displayed when the call has been successfully transmitted.

To Receive:

The mail icon () will flash and a calling ID or text message will appear when a Status call is received.

- The display alternates between the caller ID and the message.

Press any key to return to Normal Operation Mode.

To Review the Messages in the Stack Memory:

- 1 Press and hold the **A** key for more than 1 second to enter Stack Mode.
 - The last received message is displayed with the message number. “S” (Status) appears with the number.
- 2 Use the encoder to select the message you want to view (if more than one message is stored in the stack memory).
- 3 Press the ◀**B** key or **C**▶ key to stop the message from auto-scrolling if desired. Also use these keys to scroll through the message manually.
- 4 Press the **S** key to toggle between the message and the caller’s ID.
- 5 To erase the message, press and hold the **S** key for more than 1 second.

Automatic Status Response:

If you pre-select a status number and then leave the transceiver in Status Mode, the transceiver will automatically respond with that status number when a request from the base station is received. (The base station request function is optional.)

■ Optional Short Messages Feature

Received short messages (maximum of 48 characters) are displayed the same as Status messages {page 23}, however only 4 short messages can be stored in the stack memory. “M” (Message) and the message number appear with the message.

AUDIBLE USER FEEDBACK TONES

The transceiver emits various tones to indicate the transceiver's operating status. Contact your dealer for further information on these tones.

Tone	Conventional Format	Trunking Format
Alert	Yes	Yes
Busy	Yes	Yes
DBD On	Yes	Yes
DBD Off	Yes	Yes
Delay	No	Yes
Deny	No	Yes
Free System Ring Back Mode/ System Search Mode	No	Yes
Group Call	Yes	Yes
Individual Call	Yes	Yes
Intercept	No	Yes
Key Input Error	Yes	Yes
Key Press [A]	Yes	Yes
Key Press [B]	Yes	Yes
Key Press [C]	Yes	Yes
Password Agreement	Yes	Yes
Power ON	Yes	Yes
Pre Alert	Yes	No
Proceed	No	Yes
PTT Release	Yes	Yes
Queue	No	Yes

Tone	Conventional Format	Trunking Format
Ringing	No	Yes
Roll Over	Yes	Yes
System Search	No	Yes
System Search End	No	Yes
Transpond	Yes	Yes