

KENWOOD

INSTRUCTION MANUAL



VHF FM TRANSCEIVER

TK-2140

UHF FM TRANSCEIVER

TK-3140

KENWOOD CORPORATION

© B62-1476-30 (K)
09 08 07 06 05 04 03

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 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.

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	J29-0701-XX	1
Universal connector cap	B09-0625-XX	1
Dressed screw	N08-0548-XX	1
Warranty card	—	1
Instruction manual	B62-1476-XX	1



Belt clip



Universal
connector cap



Dressed
screw

PREPARATION

BATTERY PACK PRECAUTIONS



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 use the transceiver while charging the battery pack. We recommend you switch the transceiver power OFF while charging is taking place.
- ◆ Do not short the battery terminals or dispose of the battery by fire.
- ◆ Never attempt to remove the casing from the battery pack.

Information concerning the (optional) Li-ion 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 paperclip or wire). Do not carry or store the battery pack in containers holding metal objects (such as wires, chain-neckless 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 use or leave the battery near fires, 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 fires 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.

- **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 remodelled 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-circuited. 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.

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

If the electrolyte liquid from the battery gets into your eyes, wash your eyes out 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.

■ Using the Li-ion Battery Pack

- Charge the battery pack before using it.
- To keep the battery discharge at a minimum, remove the battery pack from the equipment when it is not in use. Store the battery pack in a cool and dry location.
- When storing the battery pack for a long period:
 - 1 Remove the battery pack from the equipment.
 - 2 Discharge the battery pack, if possible.
 - 3 Store the battery pack in a cool (below 25°C/ 77°F) and dry location.

■ Characteristics of the Li-ion Battery Pack

- As the battery pack is charged and discharged repeatedly, the battery capacity decreases.
- Even if the battery pack is unused, the battery pack degrades.
- It takes a longer time to charge the battery pack in cooler areas.
- The life of battery pack is shortened when it is charged and discharged in hotter areas. When the battery pack is stored in a hot location, the battery pack degrades quicker. Do not leave the battery pack in vehicles or near heating appliances.
- When the battery pack operating time becomes short, even if it is fully charged, replace the battery pack. Continuing to charge and discharge the battery pack may result in electrolyte leakage.

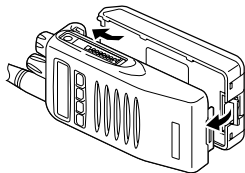
■ Charging the Li-ion Battery Pack

When charging a transceiver with a Li-ion battery pack, the safety catch of the battery pack may stick out past the battery. When inserting the transceiver with the battery pack into the charger, the safety catch will touch the metal contacts of the charger and the charger LED will momentarily light red. Be sure to push the transceiver fully into the battery pack slot so the safety catch no longer touches the charger terminals. Once in place, the battery pack will begin charging.

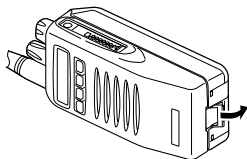
For charging procedures, refer to the charger Instruction Manual.

INSTALLING/ REMOVING THE (OPTIONAL) RECHARGEABLE BATTERY PACK OR ALKALINE BATTERY CASE

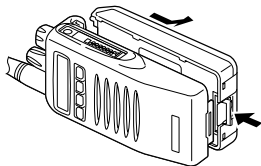
1 Match the guides of the battery pack with the corresponding grooves on the upper rear of the transceiver, then firmly press the battery pack to lock it in place.



2 Flip the safety catch into place to prevent accidentally pressing the release latch and removing the battery.



3 To remove the battery pack, lift the safety catch, press the release latch, then pull the battery pack away from the transceiver.



Note:

- ◆ To lift the battery pack safety catch, use a piece of hardened plastic or metal, such as a screwdriver, that is no more than 6 mm wide and 1 mm thick. It is imperative that you place the implement under only the lip of the safety catch so that you do not damage the release latch.
 - ◆ Before charging a battery pack that is attached to the transceiver, ensure that the safety catch is firmly closed.
 - ◆ While operating the transceiver using a Li-ion or Ni-MH battery pack in areas with an ambient temperature of $-10^{\circ}\text{C}/ +14^{\circ}\text{F}$ and lower, operating time may be shortened.
-

INSTALLING/ REMOVING ALKALINE BATTERIES



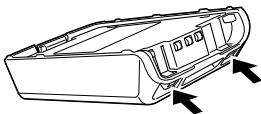
WARNING

- ◆ Do not install batteries in a hazardous environment where sparks could cause an explosion.
- ◆ Never discard old batteries in fire; extremely high temperatures can cause batteries to explode.
- ◆ Do not short circuit the battery case terminals.
- ◆ Do not use commercially available rechargeable batteries.

Note:

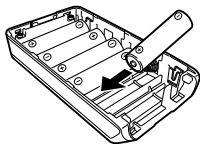
- ◆ If you do not plan to use the transceiver for a long period, remove the batteries from the battery case.
- ◆ This battery case has been designed for transmitting at a power of approximately 1 W (the low power setting on your transceiver). If you want to transmit a stronger signal (using the high power setting on your transceiver), use an optional rechargeable battery pack.

1 To open the battery case, press on the two tabs on the upper rear of the case then pull the two halves apart.

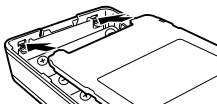


2 Insert 6 AA (LR 6) alkaline batteries into the battery case.

- Be sure to match the polarities with those marked in the bottom of the battery case.



3 Align the tabs of the cover with the base, then push down on the cover until it locks in place.



INSTALLING THE (OPTIONAL) ANTENNA

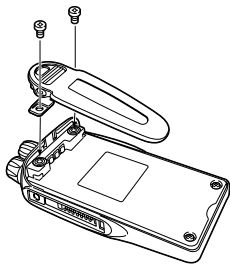
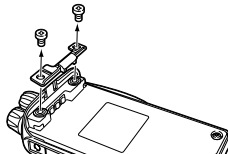
Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.



INSTALLING THE BELT CLIP

Note: When first installing the belt clip, you must remove the battery pack from the rear of the transceiver.

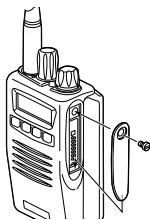
- 1 Remove the two screws from the rear of the transceiver, then remove the small, plastic black covering that was held in place.
- 2 Insert the belt clip mount into the space on the rear of the transceiver.
- 3 Using the 2 screws, affix the belt clip in place.



Note: Do not dispose of the plastic black covering! If you remove the belt clip, replace the covering into the space on the rear of the transceiver. Either this covering or the belt clip must be in place, otherwise the battery pack may not remain installed properly.

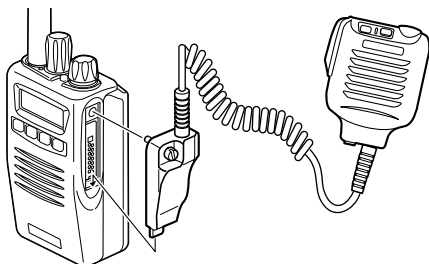
INSTALLING THE COVER OVER THE UNIVERSAL CONNECTOR

If you are not using the optional KMC-25 speaker/ microphone, install the cover over the universal connector using the supplied 4 x 6 mm dressed screw.



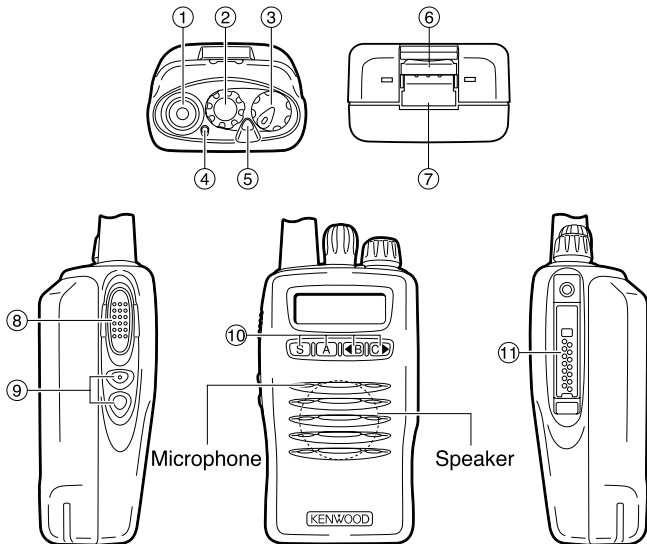
INSTALLING THE (OPTIONAL KMC-25) SPEAKER/ MICROPHONE

- 1 Insert the guide of the speaker/ microphone connector into the groove of the universal connector.



- 2 Secure the connector in place using the attached screw.

GETTING ACQUAINTED



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 LED indicator

This LED lights red during transmission and green while receiving a signal. During Sel Call Alert, the LED flashes orange. If programmed by your dealer, when the battery pack power is low, the LED flashes red during transmission. Replace or recharge the battery pack at this time.

Note: While operating the transceiver using a Li-ion battery pack, the battery low indication time may be much shorter than when using other battery packs. The transceiver power may suddenly switch OFF at any time after the LED has started to flash.

⑤ Auxiliary (orange) key

Press to activate its auxiliary function {page 14}.

⑥ Battery pack safety catch

Flip this catch to prevent accidentally pressing the battery pack release latch. See “INSTALLING/ REMOVING THE (OPTIONAL) RECHARGEABLE BATTERY PACK OR ALKALINE BATTERY CASE” on page 7.

⑦ Battery pack release latch

Press this latch to release the battery pack. See “INSTALLING/ REMOVING THE (OPTIONAL) RECHARGEABLE BATTERY PACK OR ALKALINE BATTERY CASE” on page 7.

⑧ PTT (Push-To-Talk) switch

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

⑨ Side 1 and Side 2 keys

Press to activate their auxiliary functions {page 14}.

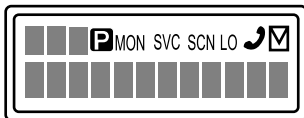
⑩ S, A, ◀B, and C▶ keys






Press to activate their auxiliary functions {page 14}.

⑪ Universal connector

Connect the (optional KMC-25) speaker/ microphone here. Otherwise, keep the supplied cover in place.

DISPLAY



Indicator	Description
	Displays the channel or group number in conventional format and the system or group number in trunking format.
	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 Low is pressed.
	Appears while using the telephone system.
	Appears when you have a message.
	<p>Displays the group name or the system/ group number with up to 10 digits. The remaining 2 digits are used for the following various indicators. The left most segment is used as a delete indicator (▼). The right most segment is used for Selective Call (:#:) or to display the approximate level of battery power remaining. The battery indicator ranges from full (■) to empty (□) in 4 steps.</p> <p>Note: When using alkaline batteries in place of a battery pack, the battery indicator may not properly indicate the battery power remaining.</p>

PROGRAMMABLE AUXILIARY FUNCTIONS

Keys ②, ⑤, ⑨ and ⑩ {pages 11 and 12} 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 Telephone	No	Yes
Channel Down	Yes	No
Channel Up	Yes	No
Channel Up/Down ¹	Yes	No
Display Character	Yes	Yes
DTMF ID (BOT)	Yes	Yes
DTMF ID (EOT)	Yes	Yes
Emergency ²	Yes	Yes
Group Down	Yes	Yes
Group Up	Yes	Yes
Group Up/Down ¹	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 ³	Yes	Yes

Function	Conventional Format	Trunking Format
Monitor Momentary	Yes	Yes
Monitor Toggle	Yes	Yes
None	Yes	Yes
Operator Selectable Tone	Yes	No
Redial	Yes	Yes
RF Power Low	Yes	Yes
Scan	Yes	Yes
Scan Del/Add	Yes	Yes
Scan Temporary Delete	No	Yes
SP Attenuation ⁴	Yes	Yes
Squelch Level	Yes	No
Squelch Off Momentary	Yes	Yes
Squelch Off Toggle	Yes	Yes
System Down	No	Yes
System Up	No	Yes
System Up/Down ¹	No	Yes
Talk Around	Yes	No
Telephone Disconnect	No	Yes

¹ These functions can be programmed only on key ②, the encoder.

² This function can be programmed only on key ⑤, the **Auxiliary** (orange) key, and on the programmable function key of the optional KMC-25 speaker/ microphone.

³ This function can be programmed only on key ⑩'s **A** key.

⁴ This function can be programmed only on the programmable function key of the optional KMC-25 speaker/ microphone.

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.

OPERATING BASICS

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.

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, then 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 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 23.

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 23.

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.

Six 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.
- **Selected + Talkback:** If the system/ group has been changed during Scan, the newly selected system/ group is assigned as the new revert system and group. The transceiver “talks back” on the current receive group.
- **Priority:** If your dealer has programmed a Priority channel, this channel is the revert system and group.
- **Priority + Talkback:** If your dealer has programmed a Priority channel, this channel is the revert system and group. The transceiver “talks back” on the current receive 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.

CONVENTIONAL OPERATION (Conventional Format)

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.

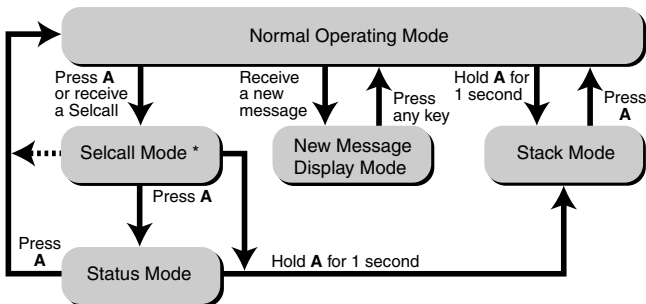
Note: This transceiver is only capable of decoding 2-Tone Signals. It cannot encode a 2-Tone Signal.

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.



* 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.

■ Transmitting

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

■ Receiving

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.

■ View the Caller IDs in the Stack Memory

If programmed by your dealer, the mail icon (✉) will flash when a Selcall call is received and stacked.

- 1 Press and hold the **A** key for more than 1 second to enter Stack Mode.
 - The last received Caller ID is displayed with the Caller ID number. "1" (ID) appears with the number.
- 2 Press the **◀B** key or **C▶** key to select the ID you want to view (if more than one ID is stored in the stack memory).
- 3 To erase the ID, press and hold the **S** key for more than 1 second.

■ 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: 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.

■ Transmitting

- 1 Select your desired system and group (or group and channel).
- 2 Press the **A** key to enter Selcall Mode.
- 3 Press the **◀B** key or **C▶** key to select the ID of the station you want to call.
- 4 Press the **A** key to enter Status Mode.
- 5 Press the **◀B** key or **C▶** key 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.

■ Receiving

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.

■ Reviewing 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 Press the **◀B** key or **C▶** key to select the message you want to view (if more than one message is stored in the stack memory).
- 3 Press the **S** key to toggle between the message and the caller’s ID.
- 4 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 29}, however only four (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
Delay	No	Yes
Deny	No	Yes
Duration of Locator	Yes	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
Queue	No	Yes
Ringing	No	Yes
Roll Over	Yes	Yes
System Search	No	Yes
System Search End	No	Yes

Terminal Descriptions

Universal connector

It is possible to use a resin-based cover for the Universal connector.

NO.	Name	Description	Impedance	I/O
1	SSW	Ext/Int Speaker Switch Input	High Impedance	I
2	SP+	BTL Output + for External Speaker	8 Ω	O
3	SP-	BTL Output - for External Speaker	16 Ω	O
4	MSW	Ext/Int MIC Switch Input	High Impedance	I
5	EMC	External MIC Input	1.8 k Ω	I
6	ME	External MIC GND	GND	-
7	PTT	External PTT Input	High Impedance	I
8	PF	Programable Function Key Input	High Impedance	I
9	NC	Not used	-	-
10	E	GND	GND	-
11	5M	5V power supply output	5V	-
12	TXD	Serial Data Output	CMOS	O
13	RXD	Serial Data Input	CMOS	I
14	NC	Not used	-	-

Antenna Terminal

50 Ω impedance

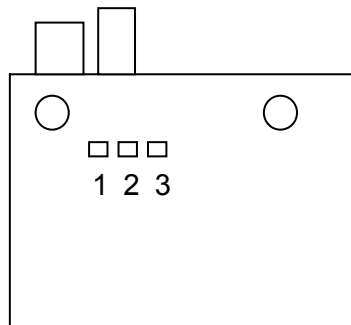
Battery Terminal

The battery terminal uses a spring plate.

The negative terminal connects to the chassis ground.

The battery is mounted on the rear and upper side of the transceiver using a sliding mounting method.

1	Select
2	-
3	+



Back side view

RADIO FREQUENCY ENERGY SAFETY INFORMATION

This **Kenwood** transceiver has been tested and complies with the standards listed below, in regards to **Radio Frequency (RF) energy** and **electromagnetic energy (EME)** generated by the transceiver.

- FCC RF exposure limits for *Occupational Use Only*. RF Exposure limits adopted by the FCC are generally based on recommendations from the National Council on Radiation Protection and Measurements, & the American National Standards Institute.
- FCC OET Bulletin 65 Edition 97-01 Supplement C
- American National Standards Institute (C95.1 – 1992)
- American National Standards Institute (C95.3 – 1992)



WARNING

This **Kenwood** transceiver generates RF EME while transmitting. RF EME (Radio Frequency Electric & Magnetic Energy) has the potential to cause slight thermal, or heating effects to any part of your body less than the recommended distance from this radio transmitter's antenna. RF energy exposure is determined primarily by the distance to and the power of the transmitting device. In general, RF exposure is minimized when the lowest possible power is used or transmission time is kept to the minimum required for consistent communications, and the greatest distance possible from the antenna to the body is maintained. The transceiver has been designed for and is classified for *Occupational Use Only*. Occupational/ controlled exposure limits are applicable to situations in which persons are exposed to RF energy as a consequence of their employment, and such persons have been made aware of the potential for exposure and can exercise control over their exposure. This means you can use the transceiver only if you are aware of the potential hazards of operating a transceiver and are familiar in ways to minimize these hazards. This transceiver is not intended for use by the general public in uncontrolled environments. Uncontrolled environment exposure limits are applicable to situations in which the general public may be exposed to RF energy, or in which the persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

The following list provides you with the information required to ensure that you are aware of RF exposure and of how to operate this transceiver so that the FCC RF exposure limitations are not exceeded.

- While transmitting (holding the **PTT** switch or speaking with **VOX** enabled), always keep the antenna and the radio at least 3 cm (1 3/16 inches) from your body or face, as well as from any bystanders. A LED on the top of the radio shows red when the transmitter is operating in both **PTT** and **VOX** modes.
- Do not transmit for more than 50% of the total transceiver use time; transmitting over 50% of the total use time may exceed the limits in accordance to the FCC RF exposure requirements. Nominal transceiver operation is 5% transmission time, 5% reception time, and 90% stand-by time.
- Use only the specified antenna for this transceiver; this may be either the antenna provided with the transceiver or another antenna authorized by **Kenwood**.

Use only **Kenwood** authorized accessories (antennas, battery packs, belt clips, Speaker/ Mics or headsets etc.): When worn on the body, always place the radio in a **Kenwood** recommended clip or carrying case meant for this product. The use of other than recommended or approved body-worn accessories may result in RF exposure levels which exceed the FCC's occupational/ controlled environment RF exposure limits.



CAUTION

To ensure that your exposure to RF EME is within the FCC limits for occupational use, you must observe and adhere to the above points.

Electromagnetic Interference Compatibility

Electronic devices are susceptible to electromagnetic interference (EMI) if they are not adequately shielded or designed for electromagnetic compatibility. Because this transceiver generates RF energy, it can cause interference to such equipment.

- Turn OFF your transceiver where signs are posted to do so. Hospitals and health care facilities use equipment that is sensitive to electromagnetic radiation.
- Turn OFF your transceiver while on board an aircraft when so instructed. Use of the transceiver must be in accordance with airline regulations and/or crew instructions.