KENWOOD

UHF FM TRANSCEIVER

TK-353

INSTRUCTION MANUAL

KENWOOD CORPORATION

Notices To The User:

> **WARNING:**
>
> *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 A QUALIFIED LICENSED OR CERTIFIED TECHNICIAN 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 and do not operate 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):**
>
> *Nickel-cadmium batteries must be recycled or disposed of properly. State laws vary regarding the handling and disposal of nickel-cadmium batteries.*
>
> *Please contact your authorized KENWOOD dealer for more information.*

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THANK YOU

We are grateful you chose **KENWOOD** for your land mobile 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 this product's quality and features.

UNPACKING AND CHECKING EQUIPMENT

*Note: The following 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 chart on the following page before discarding the packing material. If any damage has occurred during shipment, file a claim with the carrier immediately.

INSTALLING THE OPTIONAL BATTERY PACK

Align the grooves in the battery pack with the transceiver and slide the pack to the left until it locks in place. To remove the battery pack, push up on the release button and slide the pack to the right.

The battery pack is not charged at the factory. Charge the pack before use. If after purchase or extended storage (greater than 2 months), battery capacity is found to be low, the battery pack needs recharging. Repeating the charge/discharge cycles two or three times will restore the battery to its normal capacity.
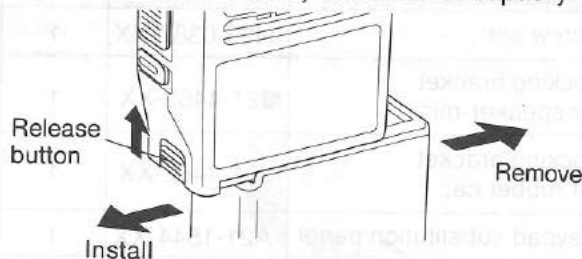
CAUTION:

♦ *Do not recharge the battery pack if it is already fully charged. If you do this, you will overcharge the battery pack which may shorten its life or damage it.*

♦ *After recharging the battery pack, disconnect it from the charger. If, having recharged the battery pack, the power to the charger is turned OFF and then back ON while the pack is still connected, recharging will start again and the battery pack will become overcharged.*

♦ *Do not short the battery pack terminals or dispose of the battery by fire. Never attempt to remove the case from the battery pack.*

♦ *The LED on the top panel flashes red while transmitting if the battery pack voltage is low. Recharge or replace the battery pack at this time.*

1

SUPPLIED EQUIPMENT

| Item	Part Number	Quantity
Transceiver	—	1
Antenna		
• K, K2, K3 version	T90-0380-XX	1
• K4 version	T90-0448-XX	1
Belt hook	J29-0616-XX	1
Screw set	N99-0387-XX	1
Locking bracket for speaker-mic	J21-4463-XX	1
Locking bracket for rubber cap	J21-4462-XX	1
Keypad substitution panel	A21-1544-XX	1
Rubber cap for speaker/mic jacks	B09-0344-XX	1
Plastic cover for speaker/mic jacks	B09-0359-XX	1
Warranty card (U.S.A. only)	B46-0409-XX	1
Instruction manual	B62-0522-XX	1
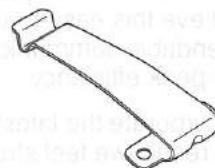
Belt hook

Screw set

Locking bracket for speaker-mic

Locking bracket for rubber cap
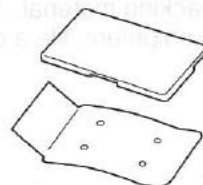
Keypad substitution panel

Rubber cap for speaker/mic jacks

Plastic cover for speaker/mic jacks

INSTALLING THE CAP OVER THE SPEAKER-MIC JACKS

Use the supplied screws to install the cap over the speaker-mic jacks if a speaker-microphone is not used.
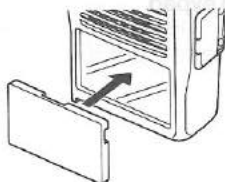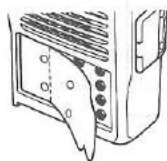
Rubber cap
(2 mm x 4 mm screws)

Plastic cover
(3 mm x 6 mm screw)

INSTALLING THE KEYPAD SUBSTITUTION PANEL

Peel off only the smallest piece of brown backing paper from the double-sided adhesive strip, and press the exposed adhesive portion into position as shown. Without removing the finger tab protective paper, remove the remaining brown backing paper, and press the rest of the adhesive strip into position. Peel off the finger tab protective paper and discard. Press the substitution panel firmly against the installed adhesive strip taking care to position the 2 alignment pins correctly.

INSTALLING THE OPTIONAL SPEAKER-MICROPHONE

1   Remove the cap from the **SP/MIC** jacks.
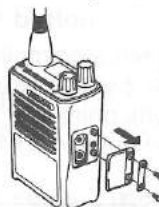
Rubber cap   Plastic cover

2   Insert the speaker-microphone plugs into the **SP/MIC** jacks. Attach the locking bracket using the 3 mm x 6 mm screw from the supplied screw set.
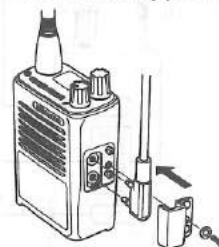
Note: *To use the speaker-microphone temporarily, flip open the cap covering the SP/MIC jacks and insert the speaker-microphone plugs.*

PHYSICAL LAYOUT

Antenna ——

Microphone

KENWOOD

Speaker

Release button
for battery pack

Shown with
optional
KDM-7 DTMF
Keypad

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
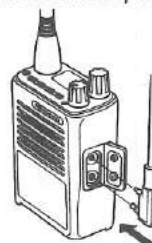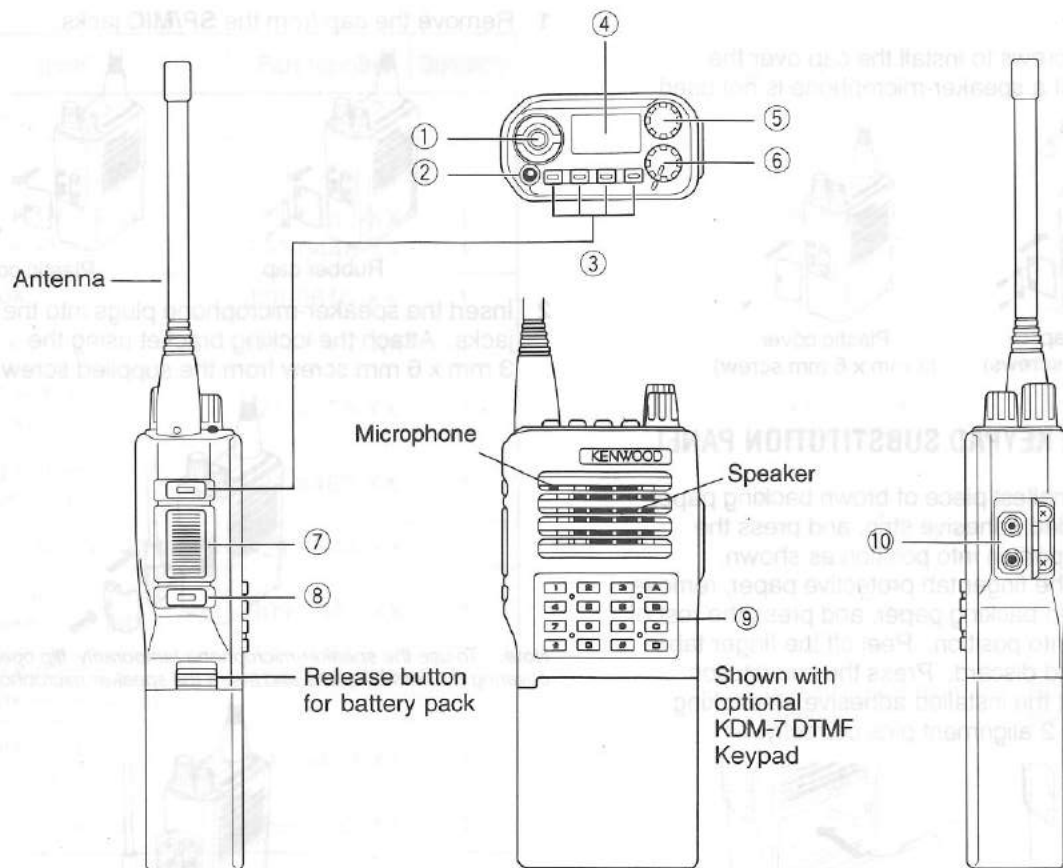
① ANTENNA connector

Connect the supplied antenna to this connector.

② Transmit/ Low Battery/ Call indicator (LED)

Lights red while transmitting. Flashes red while transmitting if the battery pack voltage is low. Recharge or replace the battery pack at this time.

If the Optional Signaling function is programmed, flashes red after receiving the appropriate signaling.

③ Function keys

These keys control the System Scan, Delete/Add, Talk Around, Transmit Low Power, Monitor, Fixed Call, Alphanumeric (System/Group), Auto Tel, System Down, System Up, Group Down, and Group Up functions. In some cases, one or more keys may have no function. Contact your dealer for further information.

④ Liquid Crystal Display (LCD) {page 6}

⑤ SYSTEM/GROUP selector

Turn clockwise or counterclockwise to select your desired System or Group. Your dealer determines whether this selector switches between Systems or Groups.

⑥ VOL/POWER control

Turn clockwise to switch ON the transceiver. Turn counterclockwise fully to switch OFF the transceiver. Also adjusts the volume level.

⑦ PTT (Push-to-Talk) switch

Press and speak into the microphone to call a station.

⑧ LAMP button

Press to illuminate the Display. The Display light goes OFF approximately 5 seconds after the LAMP button is released. Pressing any key on the top panel while the Display is illuminated restarts the 5 second timer.

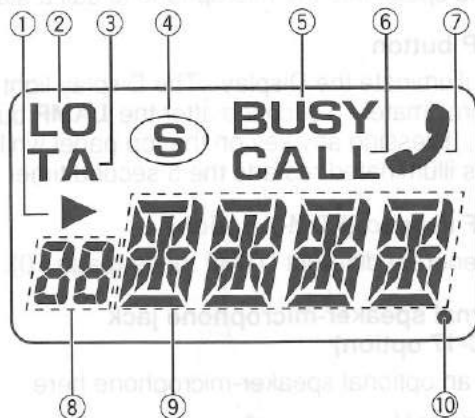## ⑨ DTMF keypad (KDM-7 option)

Use to generate different DTMF tones {page 10}.

⑩ External speaker-microphone jack (KMC-17 option)

Connect an optional speaker-microphone here {page 3}.

DISPLAY

① Delete indicator

When Systems are locked out from the System Scan list, the right arrow symbol appears. This symbol flashes while scanning when Systems are locked out.

② LO indicator

Appears when the Transmit Low Power function is selected. When this indicator is not visible, the power that was set for each Group (High, Medium, or Low) via the Field Programming Unit (FPU) is used.

③ TA (Talk Around) indicator

Appears when the transmit frequency is equal to the receive frequency.

④ Scan indicator

The "S" symbol appears in System Scan mode.

⑤ BUSY indicator

The BUSY indicator appears if the PTT switch is pressed while no repeaters are available.

⑥ CALL indicator

The CALL indicator appears when a call for a specified Group is received. This indicator disappears when the PTT switch is pressed to respond to the call, or when any button except LAMP is pressed.

⑦ Handset indicator

Appears when a Group is selected that is programmed with telephone IDs.

⑧ 88

Displays the selected System number from 1 to 16.

⑨ 田田田田

The 4-character alphanumeric display uses the middle 2 digits to show the Group number. The dealer can program 4-character Group names or System numbers to replace the Group numbers. One Group name can be substituted for each Group number or System number.

⑩ Optional Signaling indicator

Displays the status of Optional Signaling.

TRUNKED OPERATION

■ Receiving a Dispatch Call

1 Switch ON the transceiver by turning the **VOL/POWER** control clockwise.

  • A "click" is heard.

2 Using the **SYSTEM/GROUP** selector and the **SYSTEM/GROUP** buttons, select the desired System and Group.

  • If the Scan function has been programmed, switch this function ON or OFF as required.

3 When you hear the dispatcher's voice, adjust the volume as necessary.

■ Placing a Dispatch Call

1 Using the **SYSTEM/GROUP** selector and the **SYSTEM/GROUP** buttons, select the desired System and Group that you want to call.

2 Press the **PTT** switch.

3 If the busy tone or intercept tone does not sound, communication is possible; start speaking. The distance between the microphone and your mouth should be 1 to 1.5 inches for best sound quality at the receiving station.

■ Placing a Telephone Call

Note: Telephone calls can be made only if you have an optional KDM-7 keypad. Consult your dealer for details.

1 Using the **SYSTEM/GROUP** selector and the **SYSTEM/GROUP** buttons, select the desired System and Group that you want to call.

2 Hold down the **PTT** switch for a moment (1 second) to ensure a connection.

3 Release the **PTT** switch and confirm that you hear a dial tone from the repeater.

4 Hold down the **PTT** switch and dial by using the Front Panel keypad or by recalling a memory channel {page 11}. While a dial tone is audible, manual or memory dialing is also possible without holding down the **PTT** switch. After dialing, release the **PTT** switch and wait for a response from the called party.

5 When the called party responds, press the **PTT** switch and start speaking. Release the **PTT** switch to listen. Only one person can speak at a time.

6 To end the call, hold down the **PTT** switch then press the [#] key.

■ Receiving a Telephone Call

1 Using the **SYSTEM/GROUP** selector and the **SYSTEM/GROUP** buttons, select the desired System and Group.

   • If the Scan function has been programmed, switch this function ON or OFF as required.

2 When you receive an incoming telephone call, you will hear a ringing tone from the speaker.

3 Hold down the **PTT** switch to speak and release it to listen.

4 To end the call, hold down the **PTT** switch then press the [#] key.

CONVENTIONAL OPERATION

■ Receiving

1 Switch ON the transceiver by turning the **VOL/POWER** control clockwise.

   • A "click" is heard.

2 Using the **SYSTEM/GROUP** selector and the **SYSTEM/GROUP** buttons, select the desired System and Group.

   • If the Scan function has been programmed, switch this function ON or OFF as required.

3 When you hear a caller's voice, adjust the volume as necessary.

■ Transmitting

1 Using the **SYSTEM/GROUP** selector and the **SYSTEM/GROUP** buttons, select the desired System and Group that you want to call.

2 Before starting to transmit, press the **MONITOR** button to check whether the channel is free. If the channel is busy, wait until the channel becomes free.

3 Press the **PTT** switch and start speaking.

AUDIBLE USER FEEDBACK TONES

The transceiver outputs various tones to notify the user of the transceiver's operating status.

■ Busy Tone

The busy tone is similar to a telephone busy tone. The tone is output when all repeaters in the System are being used. The tone stops when transmission becomes possible or the **PTT** switch is released.

■ Intercept Tone

The intercept tone is similar to a "high-low" siren. The tone sounds when the transceiver is out of the System service area and a repeater cannot be reached. The intercept tone stops when the **PTT** switch is released.

■ Proceed Tone

This tone is a short beep. It is available when the Clear-to-Talk function has been set for the transceiver. "Clear-to-Talk" simply means the repeater system is ready after you have connected successfully with a repeater.

SYSTEM SCAN

■ General

If the Scan function is programmed for the transceiver, Systems can be scanned by using the programmed **S** button. When the **S** button is pressed, the "S" indicator appears on the Display, and scanning starts. Systems that are not locked out of the Scan sequence are scanned. "SCAN" appears on the Display while the transceiver is scanning.

When a call is received, scanning stops and the System and Group digits appear. You then respond to the call by pressing the **PTT** switch. After an adjustable time delay, the transceiver continues scanning if:

a)   The **PTT** switch is released, and

b)   No further signal is received.

■ Scanning Trunked Systems

When scanning Trunked Systems, Revert Groups in each System as well as Groups that are not locked out of the Scan sequence are scanned. Refer to GROUP SCAN on page 10.

■ Scanning Conventional Systems

When scanning Conventional Systems, only the Revert Groups (channels) in each System are scanned.

■ Scan Lockout

If a button is programmed with the Delete/Add function, each System can be locked out of the Scan sequence manually by the user.

■ Scan Revert

Scan Revert refers to the Revert Systems and Groups being scanned. You can select Revert Systems and Groups by using the **SYSTEM/GROUP** selector and the function keys that control the System Up/Down and Group Up/Down functions.

There are two types of Scan Revert that are programmable by your dealer. One is called Last Called Revert. The last System/Group received is assigned as the new Revert System and Group. The second type of Scan Revert is called Last Used Revert. The System and Group to which you last responded is assigned as the new Revert System and Group.

GROUP SCAN

The Group Scan function is available only for Trunked Systems. This function is useful if more than one Group is programmed in Systems. The Group Scan function is set by the dealer on request. It scans not only Groups that are allowed to be scanned, but also the Revert Groups.

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.

TIME-OUT TIMER

The Time-out Timer automatically stops continuous transmissions after a specified time elapses. The dealer sets the time in the range of 15 seconds to 10 minutes. If you hold down the **PTT** switch for longer than the programmed time, an alert tone sounds when the timer expires. The tone stops after the **PTT** switch is released.

DTMF KEYPAD (KDM-7 OPTION)

After establishing a connection to a repeater and hearing a dial tone {page 7}, the keypad may be used with or without pressing the **PTT** switch. If the **PTT** switch is held down while digits are manually dialed, redialed, or auto dialed, these digits will be transmitted immediately. If the **PTT** switch is not pressed, there will be a short delay before the first digit is transmitted. Single-tone beeps are generated by the transceiver during this setup period.

■ Manual Operation

Press the desired DTMF keys. The transceiver remains in the transmit state for 2 seconds after pressing each key.

■ Redialing

The entire DTMF number just sent can be re-transmitted by entering the following:

B **0**

The [B] key is the Memory Recall key. The Redial function does not send a "#" that was manually entered. The [#] key closes a repeater if you are using telephone mode.

■ Storing DTMF Numbers for the Auto Dialer

DTMF numbers with a maximum of 16 digits can be stored in any of the 9 memory channels.

Example: Store "0123456" in memory channel 7.

| C | 7 | D | 0 | 1 | 2 | 3 | 4 | 5 | 6 | D |

The [C] key is the Memory Write key and the [D] key is the Enter key. Using the Field Programming Unit, you can protect entered data so that it cannot be overwritten.

■ Transmitting DTMF Numbers using the Auto Dialer

To recall and transmit DTMF numbers stored in memory channels, enter "Bn" where n is the memory channel number.

Example: Transmit the number in memory channel 7.

| B | 7 |

The [B] key is the Memory Recall key.

The transmit duration of the first digit, the ∗, and the # can be extended by your dealer via the Field Programming Unit.

■ 4th Column DTMF Tones (A, B, C, D)

The DTMF tones associated with the [A], [B], [C], and [D] keys can still be sent even if your transceiver is programmed for a 12-key keypad. The A key acts as a Function key. Press the A key first to select the second function mode, then press the appropriate numerical key for the desired tone as shown in the chart.

If the transceiver is programmed for a 16-key keypad by the dealer, pressing the [A], [B], [C], or [D] key will generate its respective tone. However, the Auto Dialer cannot be used in this case.

12-key Keypad

DTMF Tone	Press
A	A 2
B	A 5
C	A 8
D	A 0

16-key Keypad

DTMF Tone	Press
A	A
B	B
C	C
D	D

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