

LOW BAND FM TRANSCEIVER

VHF FM TRANSCEIVER

UHF FM TRANSCEIVER

INSTRUCTION MANUAL

ENGLISH

Notice to the user:

One or more of the following statements may be applicable to this equipment.

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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.

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1. INTRODUCTION

Your two-way radio has been designed to provide dependable communications, and is simple and easy to operate.

All KENWOOD radios incorporate the latest in advanced technology, providing communications that can be counted on to keep vehicles and personnel operating at peak efficiency.

This instruction manual covers the following radios.

TK-630H	:	LOW BAND FM TRANSCEIVER
TK-730 TK-730H	:	VHF FM TRANSCEIVER
TK-830 TK-830H	:	UHF FM TRANSCEIVER

When there are differences in operation, separate instructions will be given for each model.

IMPORTANT

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.

2. SAFETY

It is important that the operator understands and is aware of hazards common to the operation of any two-way radio.

WARNING

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

Turn off and do not operate your radio while taking on fuel, or while parked in gasoline service stations. Do not carry spare fuel containers in the trunk of your vehicle if your radio is mounted in the trunk area.

2. INJURY FROM RADIO FREQUENCY TRANSMISSIONS

Do not operate your radio when anyone is touching the antenna, or when anyone is standing within two to three feet of your antenna, to avoid the possibility of radio frequency burns or related physical injury.

3. DYNAMITE BLASTING CAPS

Dynamite blasting caps may explode by the operation of two-way radio transmitters, if such operation occurs within 500 feet of the blasting caps. Turn off and do not operate your radio when in an area where blasting is in progress, or where "TURN OFF TWO-WAY RADIO" signs have been posted. If you are transporting blasting caps in your vehicle, make certain they are carried in a closed metal box having a padded interior. Do not transmit during the time that caps are being placed into or removed from this container.

3. UNPACKING AND CHECKING EQUIPMENT

NOTE

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

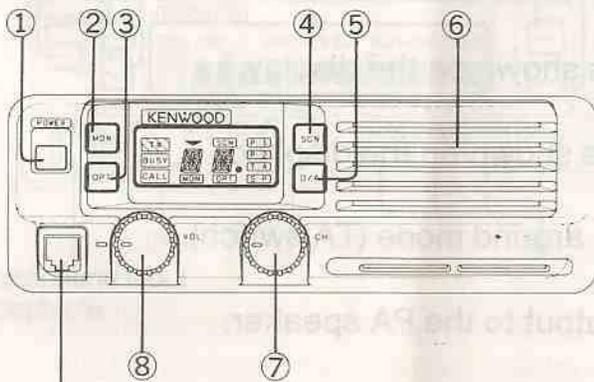
Carefully unpack the two-way radio. If any damage has occurred to the equipment during shipment, immediately file a claim with the carrier.

4. OPERATION

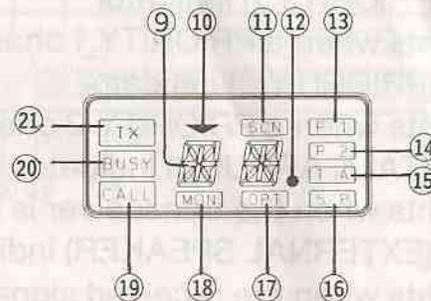
4-1. CONTROLS AND FUNCTIONS

● BASIC FRONT PANEL

KCH-3



Microphone input
receptacle



① POWER switch

Press to turn the power ON and OFF.

② MON (MONITOR) switch

If the MON switch is pressed once while the radio is waiting for reception, the coded squelch is canceled. If the switch is pressed for two seconds, the noise squelch is disabled and speaker audio unmutes.

③ OPT (OPTION) switch

Can be programmed for and operate any of the following: the PA (public address), HA (horn alert), TA (talk-around), AN (alphanumeric), IC (intercom), SP (external speaker), D/A (delete/add), OPT (option), or AUX (auxiliary) function programmed by the FPU (KPG-7D).

(FPU: P.C. Field Programming Unit)

④ SCN (SCAN) switch

Pressing this switch toggles the system scan function.

⑤ D/A (DELETE/ADD) switch

(See section 4-5 and 4-6 for additional operations.)

If you hold down the SCN key and press this key, the selected channel can be added to or deleted from the scan list (Non-priority channels).

⑥ INTERNAL SPEAKER

Front mounted for best sound quality.

⑦ CH (CHANNEL) selector

Rotary control knob for channel selection.

⑧ VOL (VOLUME) control

Audio level control knob: for receive, PA, IC volume.

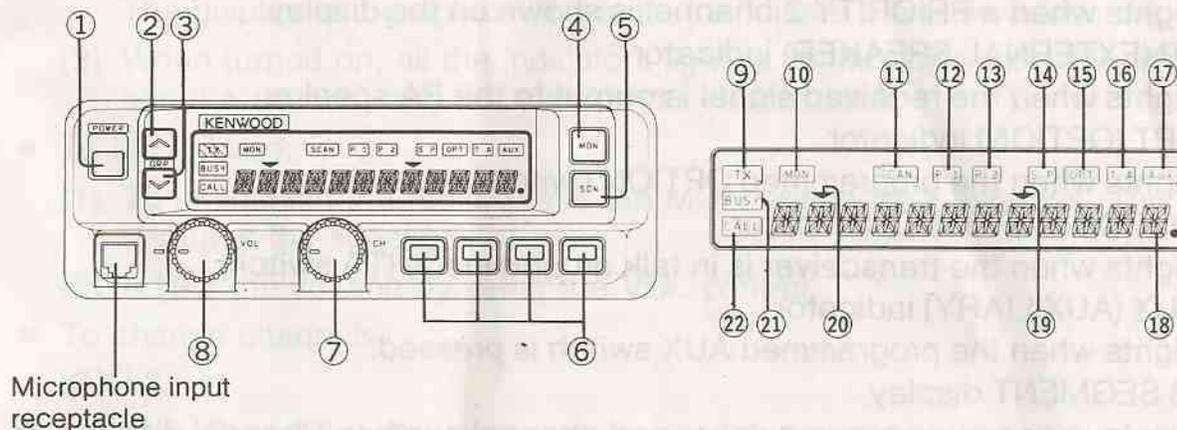
⑨ 13 SEGMENT display

Displays operating channel number.

Alphanumeric data for each channel is displayed, if applicable.

- ⑩ ▼ (CHANNEL ADD) indicator
If the selected channel is in the scan list, the indicator lights at that channel.
- ⑪ SCN (SCAN) indicator
Indicates when scan mode is enabled.
- ⑫ ● (DOT) indicator
Lights when the programmed AUX switch is pressed.
- ⑬ P1 (PRIORITY 1) indicator
Lights when a PRIORITY 1 channel is shown on the display.
- ⑭ P2 (PRIORITY 2) indicator
Lights when a PRIORITY 2 channel is shown on the display.
- ⑮ TA (TALK AROUND) indicator
Lights when the transceiver is in talk around mode (TA switch).
- ⑯ SP (EXTERNAL SPEAKER) indicator
Lights when the received signal is output to the PA speaker.
- ⑰ OPT (OPTION) indicator
Lights when the programmed OPT switch is pressed.
- ⑱ MON (MONITOR) indicator
Lights when the MON switch is pressed and the coded squelch is disabled.
- ⑲ CALL indicator (An optional SIGNALING unit is required: 2-tone or DTMF decoder)
Lights when called individually.
- ⑳ BUSY indicator
Indicates when channel is in use.
- ㉑ TX indicator
Indicates when the transmitter is keyed.

● FULL FEATURED FRONT PANEL
KCH-4



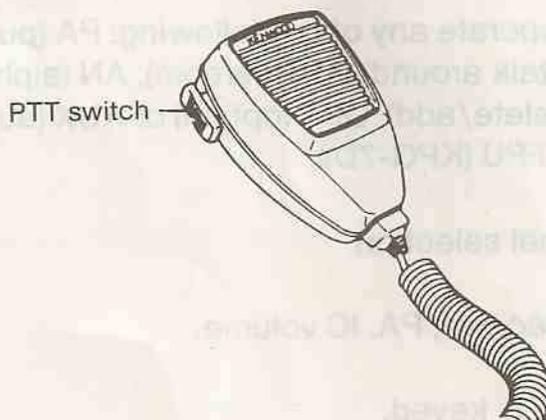
- ① POWER switch
Press to turn the power ON and OFF.
- ② GRP (GROUP) UP switch
GROUP UP switch for group selection. Holding the switch causes the function to repeat.
- ③ GRP (GROUP) DOWN switch
Group down switch for group selection. Holding the switch causes the function to repeat.
- ④ MON (MONITOR) switch
If the MON switch is pressed once while the radio is waiting for reception, the coded squelch is canceled. If the switch is pressed for two seconds, the noise squelch is disabled and speaker audio unmutes.
- ⑤ SCN (SCAN) switch
Pressing this switch toggles the system scan function.
- ⑥ KEY 1~4 switches
Can be programmed for and operate any of the following: PA (public address), HA (horn alert), TA (talk around), IC (intercom), AN (alphanumeric), SP (external speaker), D/A (delete/add), OPT (option) or AUX (auxiliary) function (programmed by the FPU (KPG-7D)).
- ⑦ CH (CHANNEL) selector
Rotary control knob for channel selection.
- ⑧ VOL (VOLUME) control
Audio level control knob: for receive, PA, IC volume.
- ⑨ TX indicator
Indicates when the transmitter is keyed.
- ⑩ MON (MONITOR) indicator
Lights when the MON switch is pressed and the coded squelch is disabled.
- ⑪ SCAN indicator
Indicates when scan mode is enabled.

- ⑫ P1 (PRIORITY 1) indicator
Lights when a PRIORITY 1 channel is shown on the display.
- ⑬ P2 (PRIORITY 2) indicator
Lights when a PRIORITY 2 channel is shown on the display.
- ⑭ SP (EXTERNAL SPEAKER) indicator
Lights when the received signal is output to the PA speaker.
- ⑮ OPT (OPTION) indicator
Lights when the programmed OPTION switch is pressed.
- ⑯ TA (TALK AROUND) indicator
Lights when the transceiver is in talk around mode (TA switch).
- ⑰ AUX (AUXILIARY) indicator
Lights when the programmed AUX switch is pressed.
- ⑱ 13 SEGMENT display
Displays operating group number and channel number (Channel display), or channel name (12-character Alphanumeric display) programmed by the FPU (KPG-7D).
- ⑲ ◀ (CHANNEL ADD) indicator
If the selected channel is in the scan list, the indicator lights at that channel.
- ⑳ ◀ (GROUP ADD) indicator
If the selected group is in the scan list, the indicator lights at that group.
- ㉑ BUSY indicator
Indicates when channel is in use.
- ㉒ CALL indicator (An optional SIGNALING unit is required: 2-tone, DTMF decode)
Lights when called individually.

MICROPHONE

PTT(Push-To-Talk) switch:

Press this switch to transmit, and speak into the microphone.



4-2. RECEIVE

- To turn on the radio.
 - (1) Press the power switch in the upper left corner of the control unit once. The display and graphics illuminate to indicate the radio is on.
 - (2) When turned on, all the indicators light, a confirmation tone sounds for about a second, and the transceiver checks itself.
- To set volume.
 - (1) To unsquelch the radio, press the MON switch for 2 seconds. This unmutes the speaker.
 - (2) Adjust the volume by using the VOL control.
- To change channels.

KCH-3
Turn the CH (channel) selector to your regular operating channel.

KCH-4
Turn the CH (channel) selector to your regular operating channel on the currently displayed group.
- To change groups. (only KCH-4)

Select the group by pressing either the GROUP UP or GROUP DOWN switch. When the group number is changed, the channel display indicates the revert channel number (channel displayed when the group was last selected).
- To enter carrier squelch mode.

If you wish to monitor (carrier squelch) a channel, press the MON switch. You may also enter the monitor mode by taking the microphone off hook. This function can be turned on or off by the F.P.U.

4-3. TRANSMIT

First, lift the microphone from its hook and listen for a few seconds to make certain the channel is not being used.

- Normal On Hook Scan mode:

If scanning, the scanning stops temporarily, and the off-hook revert channel is displayed.
- Off Hook Scan mode:

If scanning, pressing the PTT switch will stop the radio on the off-hook revert channel and begin transmission immediately. See section 4-4. SCAN OPERATION.

Now, hold the microphone about one and one-half inches from your lips, press the PTT (Push-To-Talk) switch, and speak in your normal speaking voice. The TX display will light during transmission. When you are through speaking, release the PTT switch, and you are automatically back in the receive mode. When the conversation is finished, place the microphone back on its hook.

4-4. SCAN OPERATION

4-4-1. General

There are two "mic hook" scan modes in which the radio can be programmed to operate.

- On Hook Scan:
Normal method of scanning that requires the microphone to be on hook (in the mic hanger) to initiate scan, and for channel scanning to occur.
- Off Hook Scan:
The microphone does not have to be on hook to initiate scan or to scan channels. Off hook scan should be used on radios implementing a microphone headset or handset that use a combined PTT/hook switch.
 - (1) The scan feature is enabled by pressing the front panel SCN switch.
 - (2) A single confirmation tone sounds, and scanning starts. If there is one or less added channels, an error tone sounds, and scanning does not start.
 - (3) The display shows SCAN (or SC) and the SCAN (SCN) indicator lights.
 - (4) If the transceiver receives a signal while scanning, the scanning stops temporarily, the audio is unmuted, and the channel is displayed.
 1. If the channel is not the priority channel and there is a priority channel, the radio receives the signal alternately between the channel and the priority channel.
 2. If the channel is the priority 2 channel and there is a priority 1 channel, the radio receives the signal alternately between the priority 2 and the priority 1.
 3. If there is no priority channel, the scanning stops at that channel and receives only that channel.
 - (5) If the SCN switch is pressed again, an operation confirmation tone sounds, and the scanning ends (scan mode is exited). (The channel selected immediately before the scanning began returns.)

4-4-2. To transmit while scanning.

On Hook Scan

- (1) Take the microphone off hook. The radio goes to the off-hook revert channel.
- (2) When the PTT switch is pressed, transmission takes place on the displayed revert channel.

Off Hook Scan

Upon pressing PTT, the radio ceases scanning and goes to the off-hook revert channel on which transmission begins immediately.

4-4-3. To delete nuisance channels while scan is on.

- (1) To temporarily delete undesirable channels, press the D/A switch 2 seconds while the channel is active (indicated by the display).
A confirmation tone sounds, the currently displayed channel is deleted, and the scanning resumes. The last channel in the scan sequence cannot be deleted. (The priority channel can only be deleted if the "priority temporarily delete" feature is enabled in the "scan information" programming.)
- (2) To restore the original scan list, either turn scan off and on or turn the radio off and on.

4-4-4. To enter carrier squelch scan while scan is on.

If you have pressed the MON switch momentarily, MON indicator is turned on and the radio operates carrier squelch scan.

4-5. ADDING CHANNELS AND GROUPS TO THE SCAN LIST

(1) Non-priority channel (A switch is programmed for D/A)

To add a channel to the scan list with the CHANNEL ADD indicator off, hold down the SCN switch, and press the D/A switch. The CHANNEL ADD indicator (▼) lights and the channel is added to the scan list.

(2) Second-priority (P2) channel (P2 = Fixed-operator selectable)

To add the currently displayed channel to the scan list as a priority 2 channel on a radio in which the second priority is operator selectable, hold down the SCN switch and press the MON switch twice.

The CHANNEL ADD (▼) indicator and P2 indicator light, and the channel is added to the scan list as P2.

(3) First-priority (P1) channel (P1 = Fixed-operator selectable)

To add the currently displayed channel to the scan list as priority 1 channel on a radio in which the first priority is operator selectable, hold down the SCN switch and press the MON switch three times.

The CHANNEL ADD indicator (▼) and P1 indicator light, and the channel is added to the scan list as P1.

(4) Groups (KCH-4: Full featured front panel / Group lock out = operator selectable / Group scan = multi)

To add the currently displayed group of channels to the scan list, hold down the SCN switch and press the GROUP UP switch. The GROUP ADD indicator (▼) lights, and the group is added to the scan list.

4-6. DELETING CHANNELS AND GROUPS FROM THE SCAN LIST

(1) Non-priority channel (A switch is programmed for D/A)

To delete a channel from the scan list with the CHANNEL ADD (▼) indicator on, hold down the SCN switch, and press the D/A switch. The CHANNEL ADD indicator (▼) goes off and the channel is deleted from the scan list.

(2) Second-priority (P2) channel (P2 = Fixed-operator selectable)

To delete the currently displayed channel from the scan list as a priority 2 channel on a radio in which the second priority is operator selectable, hold down the SCN switch and press the D/A switch twice.

The P2 indicator goes off. Then hold down the SCN switch, and press the D/A switch. The CHANNEL ADD indicator (▼) goes off and the channel becomes a non-priority channel.

(3) First-priority (P1) channel (P1 = Fixed-operator selectable)

To delete the currently displayed priority 1 channel from the scan list on a radio in which the first priority is operator selectable, hold down the SCN switch and press the D/A switch three times.

The P1 indicator goes off and the channel becomes a non-priority channel. Then hold down the SCN switch, and press the D/A switch. The CHANNEL ADD indicator (▼) goes off.

(4) Groups (KCH-4: Full featured front panel / Group lock out = operator selectable / Group scan = multi)

To delete the currently displayed group of channels from the scan list, hold down the SCN switch and press the GROUP DOWN switch. The GROUP ADD indicator (▼) goes off, and all the channels in that group are deleted from the scan list.

4-7. REPEATER TALK-AROUND (TA)

TALK-AROUND is useful when you are close to other mobiles with whom you wish to talk, or are outside the range of your repeater system.

If you are using the repeater, press the TA switch momentarily. A confirmation tone sounds, and the TA indicator lights. The transceiver can then transmit without using the repeater.

To use the repeater, press the TA switch momentarily again. A confirmation tone sounds, and the TA indicator goes off.

4-8. HORN ALERT FUNCTION (HA)

An option for calling is required to use this function.

If you are called from the base station while you are away from your transceiver, you are alerted by the vehicle horn or some other type of external alert. To turn the horn alert function on when you go away from your transceiver, press the HA switch momentarily. A confirmation tone sounds, and the display shows HORN ALERT (or HA).

If the HA switch is pressed again, horn alert function is turned off.

4-9. PUBLIC ADDRESS FUNCTION (PA)

Public Address amplifies the microphone audio and outputs it through a dedicated PA speaker. The 20 W (maximum rating) speaker is usually a normal cab-type speaker mounted inside a large vehicle such as a bus, or a weather-proof speaker mounted external to the vehicle.

PA mode is activated by pressing the front panel PA key (or other designated switch). A confirmation tone sounds, and the display shows PUBLIC ADRS (or PA). PA can be activated at anytime (scanning or non-scanning). The radio continues to scan (if enabled) & receive calls while in PA mode. Pressing PTT activates PA and will override an incoming call at anytime; however, no radio transmission takes place. If PA is pressed again, a confirmation tone sounds, the display returns to the normal channel or SCAN (SC) display, and the PA function is defeated.

4-10. EXTERNAL SPEAKER FUNCTION (SP)

SP amplifies the received audio from the radio and outputs it through a dedicated PA speaker. The 20 W (maximum rating) speaker is usually a normal cab-type speaker mounted inside a large vehicle such as a bus, or weather-proof speaker mounted external to the vehicle. The external speaker enables the vehicle operator to hear incoming calls while outside the vehicle, but still within hearing range of the speaker.

SP mode is activated by pressing the front panel SP key (or other designated switch). A confirmation tone sounds and the display shows an SP icon. SP can be activated at anytime (scanning or non-scanning). The radio transmits and operates normally while SP is activated, but all received calls will be output through the PA speaker. If SP is pressed again, a confirmation tone sounds, the SP icon goes off and the SP function is defeated.

4-11. ALPHANUMERIC FUNCTION (AN)

This function switches the 13-segment display between alphanumeric display and channel display.

If you want to change from alphanumeric display to channel display, press the AN switch momentarily. A confirmation tone sounds, and the alphanumeric display changes to the channel display.

If the AN switch is pressed momentarily again, a confirmation tone sounds, and the channel display changes back to the alphanumeric display. (Requires optional KCH-5 for alphanumerics on the Basic front (KCH-3).)

4-12. INTERCOM FUNCTION (IC) [Dual Control Head radios only]

Intercom(IC) allows one control head operator to talk to the other control head operator such as in an ambulance or on a firetruck. IC mode is activated by pressing the front panel IC key (or other designated switch). A confirmation tone sounds and the display shows INTERCOM (or IC). IC can be activated at anytime (scanning or non-scanning). The radio continues to scan & receive calls while in IC mode. Pressing PTT activates IC and will override an incoming call at anytime; however, no radio transmission takes place. If IC is pressed again, a confirmation tone sounds, the display returns to the normal channel or SCAN (SC) display, and the IC function is defeated.

4-13. HOME CHANNEL (HC)

This feature allows the radio operator to immediately select a pre-determined "home channel" by pressing the designated HOME CHANNEL key (as opposed to selecting it by the channel knob and/or group keys). This feature operates in both scanning and non-scan modes. If your dealer has assigned the HOME CHANNEL to a front panel key, it can be selected as follows:

Home Channel access:

- Press the HC key once.

Non-Scan Mode: The display will change to the home channel.

Scanning Mode: The transceiver will momentarily stop scan and display the home channel, then scanning will resume normally. This channel will also become the new off-hook revert channel.

To Select a "new" Home Channel (radio must be in non-scan mode):

- (1) Select the desired channel with the channel/group selectors.
- (2) Press and hold the SCN key while hitting HC.
- (3) A single confirmation tone sounds; the new home channel is now set.

4-14. OPERATOR SELECTABLE SQUELCH CONTROL (SQL)

This feature allows the mobile operator to manually adjust the internal squelch threshold in 16 steps via the front panel controls. For carrier squelched channels, an occasion may arise where the current setting is too sensitive for the current RF environment that the transceiver is located, thus causing the squelch to open and close intermittently. This feature can only be initiated in non-scan mode. If your dealer has assigned the OPERATOR SELECTABLE SQUELCH to a front panel key, it operates as follows:

- (1) Initiate the squelch setting mode.
 - KCH-4 fronts: Press the SQL key once.
 - KCH-3 fronts: Press the key that has been assigned the "SQL" function. This is either the SCN, MON, OPT or D/A key. The display will change to show the current squelch level setting. (Default = Code 9):

Examples:

KCH-4 Front Panel

KCH-3 Front Panel

CODE 9

'9

Selectable Range: Code 1 to code 16

- (2) Select a new squelch level.
 - Rotate the channel select knob. The LCD will increment to the next highest (clockwise) or lowest (counterclockwise) setting as the knob is rotated. It is recommended that the setting be increased by increments of one step level at a time, and then tested to see if this setting is acceptable. The transceiver will continue to receive calls on the last selected channel while in this mode.
- (3) Exit the squelch select mode.
 - Press the SQL key one. The LCD will return to the previous channel display. The new setting is memorized in eeprom and will remain until changed by the operator again.

Note: For dual band transceivers, the squelch setting can be done for both frequency bands by selecting a channel in each band, and performing procedures (1) through (3) above on each channel.