



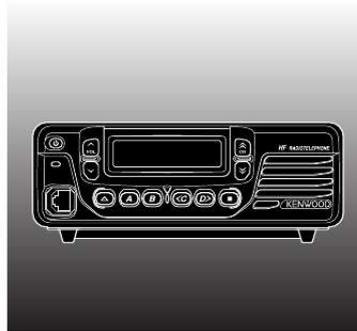
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You can read the recommendations in the user guide, the technical guide or the installation guide for KENWOOD TK-90. You'll find the answers to all your questions on the KENWOOD TK-90 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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KENWOOD

TK-90



HF TRANSCEIVER
INSTRUCTION MANUAL

TRANSCPTOR HF
MANUAL DE INSTRUCCIONES

短波对讲机
使用说明书

Kenwood Corporation
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Manual abstract:

@@@â Do not disassemble or modify the transceiver for any reason. â Do not expose the transceiver to long periods of direct sunlight, nor place it near heating appliances. â Do not place the transceiver in excessively dusty, humid, or wet areas, nor on unstable surfaces. â If an abnormal odor or smoke is detected coming from the transceiver, switch the transceiver power off immediately, and contact your KENWOOD dealer. @@ Do not use options not specified by KENWOOD. @@@@ Do not carry spare fuel containers in the trunk of your vehicle if your transceiver is mounted in the trunk area.

INJURY FROM RADIO FREQUENCY TRANSMISSIONS Do not operate your transceiver when somebody is either standing near to or touching the antenna, to avoid the possibility of radio frequency burns or related physical injury. **DYNAMITE BLASTING CAPS** Operating the transceiver within 150 m (500 feet) of dynamite blasting caps may cause them to explode. Turn OFF your transceiver 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 sure they are carried in a closed metal box with a padded interior.

Do not transmit while the caps are being placed into or removed from the container. Use only the supplied DC power cable or a KENWOOD optional DC power cable. Do not insert metal objects into the cooling fan. Do not cut and/or remove the fuse holder on the DC power cable. Improper connections and/or current surges may cause smoke or fire.

For passenger safety, install the transceiver securely using the supplied mounting bracket and screw set so the transceiver will not break loose in the event of a collision. Note: The following unpacking instructions are for use by your KENWOOD dealer, an authorized KENWOOD service facility, or the factory. 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. High SWR will cause the transmit output to drop, and may lead to radio frequency interference with consumer products such as stereo receivers and televisions.

You may even interfere with your own transceiver. Reports that your signal is garbled or distorted, especially at peak modulation, may indicate that your antenna system is not transmitting efficiently. A set of foot pads are provided so that you can protect the surface of your desk/table/shelf from scratching. Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting. A good DC ground is required to prevent such dangers as electric shock. A good RF ground is required for superior communications, against which the antenna system can operate. Both of these conditions can be met by providing a good earth ground for your station. Bury one or more ground rods or a large copper plate under the ground, and connect this to the transceiver GND terminal. Use heavy gauge wire or a copper strap, cut as short as possible, for the connection.

In order to use this transceiver as a base station, you will need a separate 13.6 V DC power supply with a current capacity of 20. Do not substitute the supplied DC power cable with a cable with smaller gauge wires. Before connecting the DC power supply to the transceiver, be sure to switch the DC power supply OFF. Do not plug the DC power supply into an AC outlet until you make all connections. Various electronic equipment in your vehicle may malfunction if they are not properly protected from the radio frequency energy which is present while transmitting. Electronic fuel injection, anti-skid braking, and cruise control systems are typical examples of equipment that may malfunction. If your vehicle contains such equipment, consult the dealer for the make of vehicle and enlist his/her aid in determining if they will perform normally while transmitting. Note: The following preparation instructions are for use by your KENWOOD dealer, an authorized KENWOOD service facility, or the factory. 1 Connect the supplied DC power cable to the regulated DC power supply and check that the polarities are correct (Red: positive, Black: negative).

Press the DC power cable connector firmly into the connector on the radiotelephone until the locking tab clicks. For passenger safety, install the transceiver securely using an optional mounting bracket so the transceiver will not break loose in the event of a collision. After the problem is resolved, only then replace the fuse. If newly installed fuses continue to blow, disconnect the power plug and contact your dealer for assistance. Following are the ratings for fuses used with this transceiver: Transceiver: 4 A (for KAT-1 antenna tuner) DC cable: 25 A Drill the holes, then attach the mounting bracket using self-tapping screws supplied with the bracket.

â Be sure to mount the transceiver in a location where the controls are within easy reach of the user and where there is sufficient space at the rear of the transceiver for cable connections. 4 Mount the microphone hanger in a location where it will be within easy reach of the user. â The microphone and microphone cable should be mounted in a place where they will not interfere with the safe operation of the vehicle. When replacing any fuse, be sure to replace it with a fuse of the same value. Never replace a fuse with a fuse that has a higher value.

Replace blown fuses only after investigating and correcting the cause of the failed fuse. Coupling the antenna to the transceiver via feed lines having an impedance other than 50 reduces the efficiency of the antenna system and can cause interference to nearby broadcast television receivers, radio receivers, and other electronic equipment. Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting. Note: We do not recommend using the cigarette lighter socket, as some cigarette lighter sockets introduce an unacceptable voltage drop. If you use the transceiver for a long period when the vehicle battery is not fully charged or when the engine is OFF, the battery may become discharged and will not have sufficient reserves to start the vehicle. Avoid using the transceiver under these conditions. Securely connect a low-resistance ground strap (or large gauge copper wire if unavailable) from the transceiver GND terminal to the vehicle chassis. Clean paint or dirt from the vehicle connection point to expose bare metal before connecting the ground. After the problem is resolved, only then replace the fuse.

If newly installed fuses continue to blow, disconnect the power plug and contact your dealer for assistance. Following are the ratings for fuses used with this transceiver: Transceiver: 4 A (for KAT-1 antenna tuner) DC cable: 25 A 1 Check for an existing hole, conveniently located in the firewall, where the power cable can be passed through.



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If no hole exists, use a circle cutter to drill the firewall, then install a rubber grommet. 2 Run the two power cable leads through the firewall and into the engine compartment, from the passenger compartment. 3 Connect the red lead to the positive (+) battery terminal and the black lead to the negative (-) battery terminal. - Use the full length of the cable without cutting off any excess; in particular, never remove the fuse holders. - To prevent the risk of short circuits, disconnect other wiring from the negative (-) battery terminal before connecting the transceiver. When replacing any fuse, be sure to replace it with a fuse of the same value. Never replace a fuse with a fuse that has a higher value. Replace blown fuses only after investigating and correcting the cause of the failed fuse.

Be sure to leave enough slack in the cables so the transceiver can be removed for servicing while keeping the power applied. If necessary, wrap heat-resistant tape around the fuse holder to protect it from moisture. - If using a noise filter, it should be installed with an insulator to prevent it from touching metal on the vehicle. Place the DC cable securely within the wall of the engine compartment. Ensure that the cable does not come into contact with excessive heat, vapor, and/or water.

Use a rubber or plastic grommet so that the cable does not directly touch the vehicle chassis. Press again to switch the power OFF. Key Press to activate its programmable function {page 7}. W Transmit/ Busy/ Call indicator Lights red while transmitting and green while receiving a signal. flashes orange during selcall.

E VOL / keys Press the key to increase the volume and the key to decrease the volume. r Display Refer to page 5. T CH / keys Press the key to increase the channel number and the key to decrease the channel number. Y Internal Speaker Audio is heard from this speaker if no external speaker is connected. O A key Press to activate its programmable function {page 7}. 0 B key Press to activate its programmable function {page 7}. 1 <C key Press to activate its programmable function {page 7}. 2 D> key Press to activate its programmable function {page 7}. 3 key Press to activate its programmable function {page 7}. W GND terminal Connect a heavy gauge wire or copper strap between this ground terminal and the nearest earth ground.

Connecting an external speaker automatically cuts off the audio from the internal speaker. 6 V DC power source to this connector. Use the supplied cable with a regulated DC power supply. T Antenna connector Connect the feed line from your 50 antenna to this connector. Your dealer can program channel names with up to 12 characters, in place of frequencies. Lights when a message is stored in the stack memory {page 15}. Lights when a good match is obtained with the antenna system {page 18}. appears when the Noise Blanker function is activated {page 19}. Appears when you are using Scan mode {page 12}. appears when the selected channel is programmed as Preferred {page 12}.

Appears when a recording has been stored in your transceiver memory. This icon is only used with the optional VGS-1 {page 21}. Appears when transmitting using medium power {page 9}. Appears when transmitting using medium-low power {page 9}. Appears when transmitting using low power {page 9}. This icon is not used on this transceiver. While receiving, displays the received signal strength. Q PTT (Push-to-Talk) switch Press and hold this switch, then speak into the microphone to make a call. W Keypad Press these keys to enter a frequency {page 8}. Press the key to cancel the frequency entry and the # key to complete the frequency entry.

Press the A, B, C, D, #, and keys to activate their programmable functions {page 7}. In Selcall Mode, press these keys to enter a Selcall/Status ID {page 13}. Press the key to unmute the speaker in Selcall mode and the # key to reset the entered Selcall ID. Use the A, B, C, and D keys to access memory codes. The , S, A, <B, C>, , and optional microphone A, B, C, and D keys can be programmed with the functions listed below. The microphone # and keys can be programmed only with the Channel Up/Down and Volume Up/Down functions. Please contact your dealer for further details on these functions. "Auto Recording" and "Playback 1 ~ 4" can be programmed only when the optional VGS-1 board has been installed. "Emergency" can be programmed only on the key. Switch to switch the transceiver 2 Enter your desired frequency using a microphone keypad (0 ~ 9).

- Direct entry only allows you to enter down to the 10's value; 0 is automatically selected for the 1's value. @@@@3 Press the key to store programmed your transceiver with a list of stations, you can manually select a station to send a selcall. @@@@ - While making the call, the icon flashes. When the call is complete, the icon remains on the display. @@@@5 After you have finished your call, release the PTT switch. @@@@ - While making the call, the icon flashes. @@@@ Codes can contain up to 12 alphanumeric character messages. @@@@ While making the call, the icon flashes. @@@@5 After you have finished your call, release the PTT switch. @@@@3 Press the D> key to view the Status list.

@@@@3 After you have finished your call, release the PTT switch. @@@@1 While in Selcall Mode, press and hold the PTT switch, then enter the 3-digit ID of the station you want to call. 2 While continuing to hold the PTT switch, press the key to enter Status entry mode. 3 While continuing to hold the PTT switch, enter the 2-digit ID number of the status you want to transmit. Releasing the PTT switch before entering the # key will cancel the call.

- @@@@ - Your dealer can program up to 4 special keys so that you can quickly and easily make a status call to a specific station. Press the key programmed as Direct Status Call 1 to Direct Status Call 4 to send the programmed status call to the stations programmed onto those keys. - @@@@ When the call is complete, the icon remains on the display. @@ - @@@@ A maximum of 5 received messages can be stored in the stack memory of your transceiver. These saved messages can be reviewed after reception.

When the stack memory is full, either the oldest message will be erased when a new message is received or the new message will not be stored in the stack memory. 1 The icon will flash and a calling ID will appear when a status call is received. 2 Press the D> key to view the status call. If both you and the target transceiver have optional VGS-1 units installed on your transceivers {page 20}, you can also use voice recordings as status messages. @@ Key to return to normal operation. 2 Press the CH and keys to select the ID of the station you want to call. 3 Press the D> key to view the Status list. 1 Press and hold the key programmed as Selcall for 1 second to enter Status Confirmation mode.



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• The name or ID of the person who sent the last received message is displayed with the message number. The icon will flash when there is a message stored in memory that has not yet been viewed.

• The icon will flash when there is a voice message stored in memory. While making the call, the icon flashes. • A timer appears on the display when the transceiver is ready to receive your recording. @@@@@Key to return to normal operation. @@@@@3 Press the D> key to view the Status list. @@@@@Short text messages can contain a maximum of 48 characters. @@Press the keys programmed as Direct CH 1 to Direct CH 4 to select the memory channels they have been programmed to access. VOX eliminates the need of manually switching to transmit mode each time you want to make a call. The transceiver automatically switches to transmit when the VOX feature senses that you have begun speaking into the microphone. You can switch the VOX feature ON and OFF by pressing the key programmed as VOX or by accessing Menu No.

If your dealer has installed an optional scrambler board, you can make private calls to others. Although the scrambler function does not offer complete privacy with your calls, it does prevent others from easily listening in on your calls. When activated, the transceiver distorts your voice so that anybody listening to your conversation will be unable to clearly hear what you are saying. In order for members of your own group to clearly hear your call while you are using the scrambler, all other members must have the same scrambler code set up on their transceivers. This distorts everybody's voice while transmitting and corrects the voice message on your own transceiver when you receive the call.

To properly use the VOX feature, you must properly set up the VOX Gain, Anti-VOX Gain, and VOX Delay Time for your environment {see below}. This setting allows the transceiver to recognize sound levels. If the VOX Gain is too low, the microphone will not pick up your voice when you begin speaking. Be sure to adjust the VOX Gain level to an appropriate sensitivity to allow smooth transmission. sensitivity levels range from 1 to 9.

You can set the VOX Gain by pressing the key programmed as VOX Gain or by accessing Menu No. VOX operation is sometimes difficult when using high speaker volumes. Adjust this control to reduce the tendency of the transceiver to switch into transmit mode due to the speaker output. Use the minimum Anti-Gain level to achieve reliable VOX operation. anti-Gain levels range from 0 to 9. You can set the Anti-VOX Gain by pressing the key programmed as Anti-VOX Gain or by accessing Menu No. 2 Press the <C or D> key to select a new code (from 1 to 16). 3 Press the key to store the new code and exit. Note: If the scrambler memory is not enabled by your dealer, changing the channel or turning the transceiver power OFF will reset your scrambler code to the default setting. Set this duration to change the amount of time that the transceiver remains in transmit mode after you stop speaking.

Set the duration long enough so that it does not cut off the end of your call. Delay times range from 200 milliseconds to 3000 milliseconds (3 seconds), in steps of 200 milliseconds. you can also set the VOX Delay Time to OFF. You can set the VOX Delay Time by pressing the key programmed as VOX Delay or by accessing Menu No. If your transceiver has been programmed with the Emergency function, you can make emergency calls. Your dealer can set up the transceiver Emergency function to be accessed via voice, CW, or selcall. Refer to the appropriate section below, depending on how your transceiver has been set up. Note: The Emergency feature can be set up onto a foot switch, attached to the AUX terminal, for vehicle use. Depending on the delay time programmed into your transceiver, the length of time you must hold the Emergency key will vary. • When the transceiver enters Emergency mode, the transceiver will change to the Emergency channel and begin transmitting based on how the transceiver is set up by your dealer.

Transmit periods are also set by your dealer. • Depending on your transceiver settings, the display may either remain unchanged when you enter Emergency mode, or a new display with a preprogrammed text message will appear. In order to use the Antenna Tuner function, you must first attach an optional external KAT-1 antenna tuner to your transceiver. 1 Press and hold the key programmed as Antenna Tuner for approximately 1 second to start tuning. To cancel the tuning, press the Antenna Tuner key at any time.

If the Emergency mode completes the preset number of cycles, Emergency mode will automatically end and the transceiver will return to the channel that was in use before Emergency mode was entered. Note: Your dealer can set a beginning of transmit and end of transmit tone for the transceiver. Your dealer can set the transceiver to emit tones and received signals as normal or mute the speaker during Emergency operation. A tone sounds, the transmit indicator turns off, and icon stops blinking and remains on the the display. • If tuning does not complete within 20 seconds, the tuning action will stop, an error tone will sound, and the antenna will not be tuned to the selected channel.

The Clarifier control changes the receive frequency, without affecting the transmit frequency, by up to ± 400 Hz. You can set the Clarifier by pressing the key programmed as Clarifier or by accessing Menu No. The Clarifier value can be set between ± 400 Hz and +400 Hz in steps of 10 Hz. • The icon appears on the display while the Clarifier is set to a value other than 0 Hz. If set up by your dealer, each time you press the PTT switch to transmit, the tuning process will begin if the antenna has not been tuned to the selected channel. • To cancel the tuning process, press the Antenna Tuner key at any time. You can turn the Noise Blanker ON or OFF by pressing the key programmed as Noise Blanker or by accessing Menu No. The pre-amplifier allows you to boost the power of the received signal, and the attenuator attempts to cut out any interfering signals you may be receiving. You can turn the pre-amplifier/ attenuator on or off using the key programmed as Pre-amplifier/ Attenuator. Depending on how each channel has been set up by your dealer, pressing the Pre-amplifier/ Attenuator key will cycle to the next setting, as displayed below.

You can set the brightness of the display backlight and the key illumination by pressing the key programmed as LCD Brightness or by accessing Menu No. The key illumination can be set only as on or off. (When the pre-amp/ ATT is OFF or when ATT is ON, the icon does not appear on the display. Your dealer may have programmed your transceiver to display a text message when the transceiver is turned on. This message will appear on the display momentarily before reverting to your regular channel/ frequency operation display.



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If a key has been programmed with the AUX function, you can press that key to turn the Auxiliary Port on and off. You can select whether you want to show a channel name or the frequency of that channel on your transceiver display. You can change the display settings by pressing the key programmed as Display Character or by accessing Menu No. If your dealer has not set up a name for a particular channel, the channel number will appear instead. When using the optional VGS-1 voice guide & storage unit, you gain access to the transceiver's voice recorder and voice announcement functions.

To delete a recorded voice memo: 1 Press the key programmed as Playback 1 to 4 to select and play back the specified voice memo. You can record up to 4 voice memos, each with a duration of up to 15 seconds. To record a voice memo for later playback: 1 Press and hold the key programmed as Playback 1 to 4 for approximately 1 second to begin recording. (Each Playback key corresponds to a memory location of 1 to 4. The voice memo can record only the received signal.

Note: Playback keys can be set up for either voice memos or voice messages by your dealer. @@@@ (Each Playback key corresponds to a memory location of 1 to 4). 2 Press the key to end the recording at any time and store it into the transceiver memory. â· "WRITING" appears on the display while the recording is being stored to memory.

Key to cancel and return to normal: 1 Press the key to end the recording at any time and store it into the transceiver memory. 2 Press the key to end the playback at any time. â· If the memory becomes full, recording will stop automatically and store the voice message to memory. â· "WRITING" appears on the display while the recording is being stored to memory. To play back a recorded voice message: 1 Press and hold the key programmed as Playback 1 to 4 for approximately 1 second. Key to cancel and return to normal: The auto recording function continuously records all transmitted and received signals. The recording storage area retains 30 seconds of recording, so all transmitted and received signals are simultaneously recorded and erased, leaving only the last 30 seconds of recording in memory. â· The icon appears on the display while the auto record function is active. To save the last recording in order for it to be played back, press and hold the key programmed as Auto Recording for approximately 1 second.

Key to end the playback at any time. To transmit a recorded voice message: 1 Select the channel on which you want to transmit your recording. 2 Press the key programmed as Playback 1 to 4 to play back and transmit the specified voice message. 3 Press the time. Key to end the transmission at any time: To play back a recording: 1 Press the key programmed as Auto Recording. Key to end the playback at any time. To delete a recorded voice message: 1 Press and hold the key programmed as Playback 1 to 4 for approximately 1 second to select the specified voice message. To delete a recording: 1 Press the key programmed as Auto Recording to play back the recording. 2 Press and hold the key for approximately 1 second to delete the recording. 3 Press the key again to confirm the selection and delete the recording from memory.

3 Press the key again to confirm the selection and delete the recording from memory. When changing the channel, an audio voice will announce the new channel after it has been selected. This is convenient while driving, as you cannot always check the display to see which channel you have selected. (Voice Annunciation can be activated or deactivated by your dealer. Adjust the volume Activate its PF Return to normal Activate its PF 2 operation No operation 3 No operation Select a parameter Select a parameter No operation Select a menu Activate its PF Activate its PF Return to Selcall Standby mode No operation No operation No operation Enter Status Selection mode Begin the call Select a station Return to Selcall Standby mode No operation No operation Enter Station Selection Mode No operation Begin the call Select a status Activate its PF 2, 4 Activate its PF No operation Activate its PF 2 Activate its PF 2 Activate its PF Normal Operation No operation Activate its PF Activate its PF Activate its PF Activate its PF During Call Connection 1 No operation Activate its PF 2 Activate its PF 2 Activate its PF 2 Activate its PF 2 Turn the Monitor function ON (unmute) Enter Memory Call Code Selection mode Begin the call (before entering (after entering a code) â· Press and hold to Release to return Release to return Press to transmit Press to transmit enter Keypad to Selcall to Selcall Press to transmit Entry mode Standby mode Standby mode When a call connects, the LED indicator will flash orange.

PF is a Programmable Function. During Menu Setup operation, when changing the Clarifier frequency, pressing the A key (on the transceiver or microphone) will clear the frequency During Selcall operation, when a call connects, pressing the key programmed as Monitor will return the transceiver to Selcall Standby mode. The KMC-36 does not have keys A ~ D. .



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