KENWOOD

NEXEDGE
NX-220/ NX-320

VHF DIGITAL TRANSCEIVER/ UHF DIGITAL TRANSCEIVER
INSTRUCTION MANUAL

ÉMETTEUR-RÉCEPTEUR NUMÉRIQUE VHF/ ÉMETTEUR-RÉCEPTEUR NUMÉRIQUE UHF
MODE D'EMPLOI

TRANSCEPTOR DIGITAL VHF/ TRANSCEPTOR DIGITAL UHF
MANUAL DE INSTRUCCIONES

RICETRASMETTITORE DIGITALE VHF/ RICETRASMETTITORE DIGITALE UHF
MANUALE DI ISTRUZIONI

VHF DIGITAL FUNKGERÄT/ UHF DIGITAL FUNKGERÄT
BEDIENUNGSANLEITUNG

VHF DIGITALE ZENDONTVANGER/ UHF DIGITALE ZENDONTVANGER
GEBRUIKSAANWIJZING

VHF SAYISAL EL TELSİZİ/ UHF SAYISAL EL TELSİZİ
KULLANIM KILAVUZU

ΨΗΦΙΑΚΟΣ ΠΟΜΠΟΔΕΚΤΗΣ VHF/ ΨΗΦΙΑΚΟΣ ΠΟΜΠΟΔΕΚΤΗΣ UHF
ΟΔΗΓΙΕΣ ΧΡΗΣΗΣ

Kenwood Corporation

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09 08 07 06 05 04 03 02 01 00

VHF DIGITAL TRANSCEIVER/
UHF DIGITAL TRANSCEIVER

NX-220/ NX-320

INSTRUCTION MANUAL

Kenwood Corporation

NOTIFICATION

This equipment complies with the essential requirements of
Directive 1999/5/EC.
The use of the warning symbol ① means the equipment is
subject to restrictions of use in certain countries.
This equipment requires a licence and is intended for use in
the countries as below.

AT	BE	DK	FI	FR	DE	GR	IS
IE	IT	LI	LU	NL	NO	PT	ES
SE	CH	GB	CY	CZ	EE	HU	LV
LT	MT	PL	SK	SI	BG	RO	

ISO3166

Information on Disposal of Old Electrical and Electronic Equipment and Batteries (applicable for EU countries that have adopted separate waste collection systems)

Products and batteries with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.

Old electrical and electronic equipment and batteries should be recycled at a facility capable of handling these items and their waste byproducts.

Contact your local authority for details in locating a recycle facility nearest to you.

Proper recycling and waste disposal will help conserve resources whilst preventing detrimental effects on our health and the environment.

Notice: The sign "Pb" below the symbol for batteries indicates that this battery contains lead.

Pb

Firmware Copyrights
The title to and ownership of copyrights for firmware embedded in Kenwood product memories are reserved for Kenwood Corporation.

THANK YOU

We are grateful you have chosen **Kenwood** for your land mobile radio applications.

This instruction manual covers only the basic operations of your NEXEDGE portable radio. Ask your dealer for information on any customized features they may have added to your radio.

NXDN™

NXDN™ is a protocol name for a new digital communications system using 4-level FSK technology which has been co-developed by **Kenwood** and Icom.

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.

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to extract, remove, decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form. U.S. Patent Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

PRECAUTIONS

- Do not charge the transceiver and battery pack when they are wet.
- Ensure that there are no metallic items located between the transceiver and the battery pack.
- Do not use options not specified by **Kenwood**.
- If the die-cast chassis or other transceiver part is damaged, do not touch the damaged parts.
- If a headset or headphone is connected to the transceiver, reduce the transceiver volume. Pay attention to the volume level when turning the squelch off.
- Do not place the microphone cable around your neck while near machinery that may catch the cable.
- Do not place the transceiver on unstable surfaces.
- Ensure that the end of the antenna does not touch your eyes.
- When the transceiver is used for transmission for many hours, the radiator and chassis will become hot. Do not touch these locations when replacing the battery pack.
- Do not immerse the transceiver in water.
- Always switch the transceiver power off before installing optional accessories.
- The charger is the device that disconnects the unit from the AC mains line. The AC plug should be readily accessible.

⚠ WARNING

Turn the transceiver power off in the following locations:

- In explosive atmospheres (inflammable gas, dust particles, metallic powders, grain powders, etc.).
- While taking on fuel or while parked at gasoline service stations.
- Near explosives or blasting sites.
- In aircrafts. (Any use of the transceiver must follow the instructions and regulations provided by the airline crew.)
- Where restrictions or warnings are posted regarding the use of radio devices, including but not limited to medical facilities.
- Near persons using pacemakers.

⚠ CAUTION

- Do not disassemble or modify the transceiver for any reason.
- Do not place the transceiver on or near airbag equipment while the vehicle is running. When the airbag inflates, the transceiver may be ejected and strike the driver or passengers.
- Do not transmit while touching the antenna terminal or if any metallic parts are exposed from the antenna covering. Transmitting at such a time may result in a high-frequency burn.
- If an abnormal odor or smoke is detected coming from the transceiver, switch the transceiver power off immediately, remove the battery pack from the transceiver, and contact your **Kenwood** dealer.
- Use of the transceiver while you are driving may be against traffic laws. Please check and observe the vehicle regulations in your area.
- Do not expose the transceiver to extremely hot or cold conditions.
- Do not carry the battery pack with metal objects, as they may short the battery terminals.
- Danger of explosion if the battery is incorrectly replaced; replace only with the same type.
- When operating the transceiver in areas where the air is dry, it is easy to build up an electric charge (static electricity). When using an earphone accessory in such conditions, it is possible for the transceiver to send an electric shock through the earphone and to your ear. We recommend you use only a speaker/microphone in these conditions, to avoid electric shocks.

Information concerning the 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 paper clip or wire). Do not carry or store the battery pack in containers holding metal objects (such as wires, chain-necklace 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 leave the battery near fire, 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.
- **Avoid immersing the battery in water or getting it wet by other means!**
  If the battery becomes wet, wipe it off with a dry towel before use. 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.

⚠ DANGER

- **Do not charge the battery near fire 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 remodeled 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-circuit. 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.

⚠ DANGER

- **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 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.

CONTENTS

UNPACKING AND CHECKING EQUIPMENT

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

Carefully unpack the transceiver. If any items are missing or damaged, file a claim with the carrier immediately.

SUPPLIED ACCESSORIES

Belt clip 1

Speaker/ microphone jacks cap 1

Speaker/ microphone locking bracket 1

Stopper (types I and II only) 1

Instruction manual 1

Note: Inquire at your dealer for a stopper.

PREPARATION

INSTALLING/ REMOVING THE (OPTIONAL) BATTERY PACK

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

2 Lock the safety catch to prevent accidentally releasing the battery pack.

3 To remove the battery pack, lift the safety catch, press the release latch, then pull the battery pack away from the transceiver.
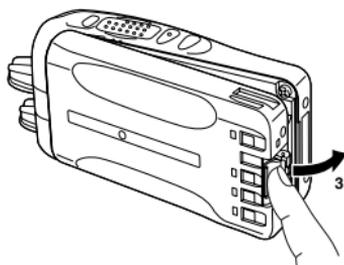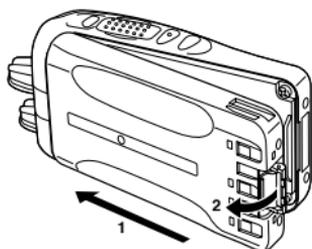
Note:
◆ For battery pack charging procedures and useage, refer to the battery charger Instruction Manual.
◆ The battery pack is not charged at the factory; charge it before use.
◆ Before charging a battery pack that is attached to the transceiver, ensure that the safety catch is firmly closed.

## INSTALLING/ REMOVING ALKALINE BATTERIES (OPTIONAL BATTERY CASE)

⚠ WARNING

◆ Do not install batteries in a hazardous environment where sparks could cause an explosion.
◆ Never discard batteries in fire; extremely high temperatures can cause batteries to explode.
◆ Do not short circuit the battery case terminals.
◆ Do not use 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.
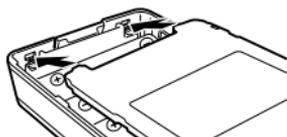
1 To open the battery case, press on the two tabs on the upper rear of the case, then pull the two halls apart.
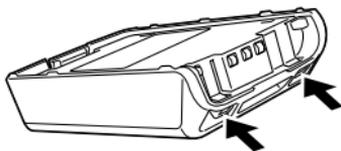
2 Insert 6 AA (LR6) Alkaline batteries into the battery case.
- • Be sure to match the polarities with those marked in the bottom of the battery case.
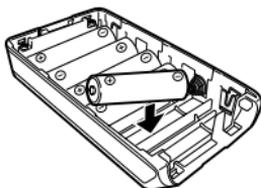
3 Align the tabs of the cover with the base, then push down on the cover until it locks in place.

## 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 2 screws from the rear of the transceiver, then remove the small, plastic black covering that was held in place.

Plastic covering

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.
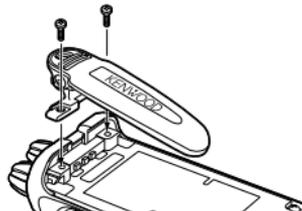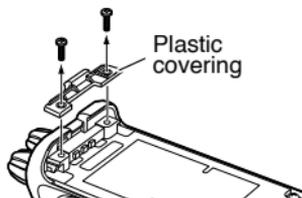
⚠ CAUTION

- When the belt clip is not installed, leave the plastic covering in place.
- Do not use glue which is designed to prevent screw loosening when installing the belt clip, as it may cause damage to the transceiver. Acrylic ester, which is contained in these glues, may crack the transceiver's back panel.

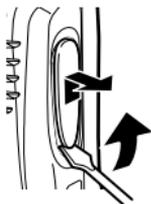## INSTALLING THE CAP OVER THE SPEAKER/ MICROPHONE JACKS

Install the cap over the speaker/ microphone jacks when not using an optional speaker/ microphone.

Note: To keep the transceiver water resistant, you must cover the speaker/ microphone jacks with the supplied cap.

**1** Place the cap over the jacks so that the locking tabs insert into the transceiver grooves.
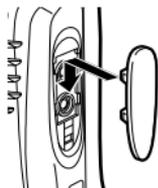
2 While holding the cap in place, push it towards the bottom of the transceiver until the tabs on the cap click into place.

- To remove the cap, hold the top of the cap in place with your finger while inserting a 3 mm or smaller flat blade screwdriver under the bottom of the cap. Slowly slide the screwdriver in until its tip touches the tab inside the cap, then gently pry the cap up (handle of screwdriver moving away from the transceiver) to remove the cap.

INSTALLING THE (OPTIONAL) SPEAKER/ MICROPHONE

Note: The transceiver is not fully water resistant when using a speaker/ microphone or headset.

1 Insert the speaker/ microphone plugs into the speaker/ microphone jacks of the transceiver.

2 Place the locking bracket over the speaker/ microphone plugs so that the locking tabs insert into the transceiver grooves.

3 While holding the locking bracket in place, push it towards the bottom of the transceiver until the tabs on the bracket click into place.

- To remove the locking bracket, push the bracket up from the base.
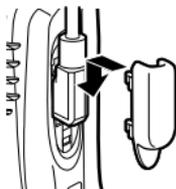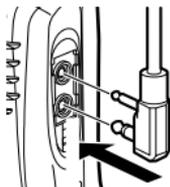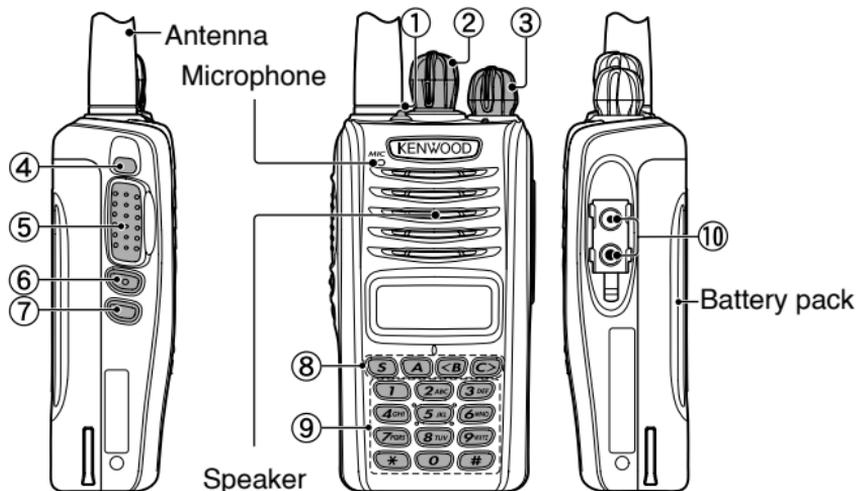
ORIENTATION

There are 3 types of transceivers available:

Type I: Equipped with a display and full keypad.
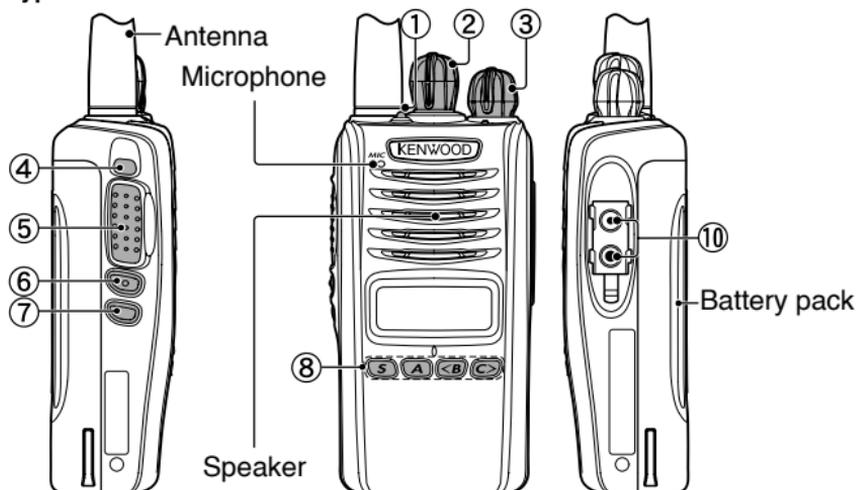
Type II: Equipped with a display and 4-key keypad (**S**, **A**, **<B**, and **C>**).

Type III: Basic model.

Type I

Antenna
Microphone
Speaker
Battery pack

Type II

Antenna
Microphone
Speaker
Battery pack

Type III

Antenna

Microphone

Speaker

Battery pack

① **Transmit/ Receive/ Battery low indicator**
If enabled by your dealer, lights red while transmitting, green while receiving a call (Conventional channels only), and orange when receiving an optional signaling call. Blinks red when the battery power is low while transmitting.

② **Selector knob**
Rotate to select a zone or channel/group ID (default).

③ **Power switch/ Volume control**
Rotate to turn the transceiver ON/OFF and to adjust the volume.

④ **Auxiliary (orange) key**
Press to activate its programmable function {page 10}.

⑤ **PTT (Push-To-Talk) switch**
Press and hold this switch, then speak into the microphone to call a station.

⑥ **Side 1 key**
Press to activate its programmable function {page 10}.
The default is **[Squelch Off Momentary]**.

⑦ **Side 2 key**
Press to activate its programmable function {page 10}.
Types I and II: The default setting is **[Backlight]**.
Type III: The default setting is **[None]** (no function).

⑧ **S, A, <B, C> keys (Types I and II only)**

Press to activate its programmable functions {page 10}.

S key: The default setting is **[None]** (no function).
A key: The default setting is **[None]** (no function).
<B key: The default setting is **[Zone Down]**.
C> key: The default setting is **[Zone Up]**.

⑨ **Keypad (Type I only)**
Press these keys to send DTMF tones. These keys can also be programmed with secondary functions {page 10} if a programmable function key is programmed as **[Function]**.

⑩ **Speaker/ Microphone jacks**
Insert the Speaker/ Microphone or Headset plug into this jack {page 5}.

DISPLAY (TYPES I AND II ONLY)

Indicator	Description
$\mathbb{Y}_{\mathbb{I}}$	Signal strength indicator {page 29}.
◁	Monitor or Squelch Off is activated.
♪	Blinks when an incoming call matches your Optional Signaling.
▯	Talk Around is activated.
⟲	Scan is in progress. Blinks while scan is paused.
☑	A message is stored in memory. Blinks when a new message has arrived.
P	The current channel is a Priority channel.
L	The channel is using low transmit power.
◊	Scrambler/ Encryption is activated.
🔋	Battery power indicator {page 28}.
▼ ▼	The current zone (left icon) or CH/GID (right icon) is added to scan.
▬	VOX is activated.
▬	Not used.

PROGRAMMABLE AUXILIARY FUNCTIONS

The **Selector, Auxiliary (orange)**, **Side 1**, **Side 2**, **S**, **A**, **<B**, and **C>** keys, as well as the **Keypad**, can be programmed with the functions listed below. Please contact your dealer for further details on these functions.

- None
- Activity Detection
- Activity Reset
- Autodial [1]
- Autodial Programming [1]
- Backlight [1]
- Battery Indicator [2]
- Broadcast [3]
- Call 1 ~ 6
- CH/GID Down
- CH/GID Recall
- CH/GID Select [4]
- CH/GID Up
- Channel Entry [1]
- CW Message [5]
- Digit 1 × Down [1, 6]
- Digit 10 × Down [1, 6]
- Digit 1 × Up [1, 6]
- Digit 10 × Up [1, 6]
- Direct CH/GID 1 ~ 5
- Direct CH/GID Select 1 ~ 5
- Display Format [1]
- Emergency [7]
- Fixed Volume
- Forced Search [3]
- Function
- GPS Position Display [1]
- Group [1, 5]
- Group + Short Message [1, 8]
- Group + Status [1, 8]
- Home CH/GID
- Home CH/GID Select
- Individual [1, 8]
- Individual + Short Message [1, 8]
- Individual + Status [1, 8]
- Key Lock
- Lone Worker
- Low Transmit Power
- Maintenance [1]
- Monitor [9]
- Monitor Momentary [9]
- Operator Selectable Tone (OST) [1, 6]
- Priority-channel Select [1, 10]
- Receive Entry [1, 6]
- Scan
- Scan Delete/Add
- Scrambler/ Encryption
- Selcall [1, 6]
- Selcall + Short Message [1, 6]
- Selcall + Status [1, 6]
- Send the GPS data
- Short Message [1]
- Site Down [3]
- Site Lock [3]
- Site Select [3, 4]
- Site Up [3]
- Squelch Level [1, 6]
- Squelch Off [6]
- Squelch Off Momentary [6]

- Stack [1]
- Status [1]
- Talk Around [9]
- Transceiver Password [1]
- VOX [10]

- Zone Delete/Add
- Zone Down
- Zone Select [4]
- Zone Up

[1] Available only for Types I and II.
[2] Available only for Type III.
[3] Available only for NXDN Trunking operation.
[4] Can be programmed only on the Selector.
[5] Available only for NXDN Conventional operation.
[6] Available only for Analog Conventional operation.
[7] Can be programmed only on the Auxiliary (orange) key.
[8] Available only for NXDN Conventional operation, and NXDN Trunking operation.
[9] Available only for Analog Conventional, Analog Trunking, and NXDN Conventional operation.
[10] Available only for Analog Conventional and NXDN Conventional operation.

BASIC OPERATIONS

SWITCHING POWER ON/OFF

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

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

■ Transceiver Password (Types I and II Only)

If your transceiver is password protected, you must first enter the password before you can use the transceiver.

1 Rotate the **Selector** to select the first digit of the password.

2 Press the **S** or ✳ key to accept the entry and move to the next digit.

- Press the **A** or **#** key to delete an incorrect digit.

3 Repeat steps 1 and 2 to enter the entire password.

- The password can contain a maximum of 6 digits.

4 Press the **S** or ✳ key to confirm the entered password.

- If you enter an incorrect password, an error tone sounds and the transceiver remains locked.

ADJUSTING THE VOLUME

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

SELECTING A ZONE AND CHANNEL/GROUP ID

Select the desired zone using the key programmed as **[Zone Select]** or **[Zone Up/Down]**. Each zone contains a group of channels.

Select the desired channel/group ID using the **Selector** knob (default). Each channel/group ID is programmed with settings for transmitting and receiving.

TRANSMITTING

1 Select the desired zone and channel/group ID.

2 Press the key programmed as **[Monitor]** or **[Squelch Off]** 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, hold the transceiver approximately 1.5 inches (3 ~ 4 cm) from your mouth.

■ Making Group Calls (Digital) (Types I and II Only)

If a key has been programmed with **[Group]**, you can select a group ID from the list to make a call to those parties on a Conventional channel.

To select a group ID:

1 Press the key programmed as **[Group]**.

2 Press the **<B** or **C>** key to select a group ID/name from the list.

3 Press and hold the **PTT** switch to make the call.

  • Speak into the transceiver as you would during a normal transmission.

■ Making Individual Calls (Digital) (Types I and II Only)

If a key has been programmed with **[Individual]**, you can make calls to specific persons.

1 Press the key programmed as **[Individual]**.

2 Press the **<B** or **C>** key to select a unit ID from the list.

  • On Type I models, you can enter a unit ID directly.

3 Press and hold the **PTT** switch to make the call.

  • Speak into the transceiver as you would during a normal transmission.

RECEIVING

Select the desired zone and channel. If signaling has been programmed on the selected channel, you will hear a call only if the received signal matches your transceiver settings.

> **Note:** Signaling allows your transceiver to code your calls. This will prevent you from listening to unwanted calls. Refer to "SIGNALING" on page 25 for details.

■ Receiving Group Calls (Digital)

When you receive a group call on a Conventional channel and the received group ID matches the ID set up on your transceiver, you can hear the caller's voice.

When you receive a group call on a Trunking channel, the transceiver automatically switches to the communications channel to receive the call.

■ Receiving Individual Calls (Digital)

When you receive an individual call, a ringing tone will sound and the caller's ID will appear on the display (types I and II only). To respond to the call, press and hold the **PTT** switch and speak into the transceiver as you would during a normal transmission.

SCAN

Scan monitors for signals on the transceiver channels. While scanning, the transceiver checks for a signal on each channel and only stops if a signal is present.

To begin scanning, press the key programmed as **[Scan]**.

- The ↻ indicator appears (types I and II only).
- The LED blinks green (type III only).
- When a signal is detected on a channel, Scan pauses at that channel. The transceiver will remain on the busy channel until the signal is no longer present, at which time Scan resumes.

To stop scanning, press the **[Scan]** key again.

Note: To use Scan, there must be at least 2 channels in the scan sequence.

TEMPORARY CHANNEL LOCKOUT

During scan, you can temporarily remove specific channels from the scanning sequence by selecting them and pressing the key programmed as **[Scan Delete/Add]**.

- The channel is no longer scanned. However, when scanning is ended and restarted, the channels are reset and deleted channels will again be in the scanning sequence.

PRIORITY SCAN

If a Priority channel has been programmed, the transceiver will automatically change to the Priority channel when a call is received on that channel, even if a call is being received on a normal channel.

- The **P** indicator appears when the selected channel is the Priority channel (depending on dealer setting) (types I and II only).

SCAN REVERT

The Scan Revert channel is the channel selected when you press the **PTT** switch to transmit during scan. Your dealer can program one of the following types of Scan Revert channels:

- **Selected:** The last channel selected before scan.
- **Selected + Talkback:** Same as "Selected", plus you can respond to calls on the channel at which scan is paused.
- **Priority:** The Priority channel.
- **Priority + Talkback:** Same as "Priority", plus you can respond to calls on the channel at which scan is paused.
- **Last Called + Selected:** The last channel on which you receive a call.

SCAN DELETE/ADD

You can add and remove zones and/or channels/group IDs to and from your scan list.

1 Select your desired zone and/or channel/group ID.

2 Press the key programmed as **[Zone Delete/Add]** (to add/remove zones) or **[Scan Delete/Add]** (to add/remove channels/group IDs) (types I and II only).

- You can also press and hold the key programmed as **[Scan Delete/Add]** to add/remove zones.

FleetSync: ALPHANUMERIC 2-WAY PAGING FUNCTION

FleetSync is an Alphanumeric 2-way Paging Function, and is a protocol owned by **Kenwood** Corporation.

Note: This function is available only in analog operation.

SELCALL (SELECTIVE CALLING)

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

■ Transmitting (Types I and II Only)

1. Select your desired zone and channel.
2. Press the key programmed as **[Selcall]** to enter Selcall mode.
3. Press the **<B** or **C>** key to select the station you want to call.
   - If Manual Dialing is enabled, you can directly enter the station ID (type I only).
4. Press the **PTT** switch and begin your conversation.

■ Receiving

An alert tone will sound and the transceiver will enter Selcall mode. The calling station's ID will appear when a Selcall is received (types I and II only). You can respond to the call by pressing the **PTT** switch and speaking into the microphone.

■ Identification Codes

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

- 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 to make a call to all units in the selected fleet (Fleet call).

STATUS MESSAGE (TYPES I AND II ONLY)

You can send and receive 2-digit Status messages which may be decided in your talk group. Messages can contain up to 16 alphanumeric characters. Status messages range from 10 to 99 (80 ~ 99 are reserved for special messages).

A maximum of 15 received messages (combined status messages and short messages) can be stored in the stack memory of your transceiver.

■ Transmitting

1. Select your desired zone and channel.
2. Press the key programmed as **[Status]** to enter Status mode (proceed to step 5) or **[Selcall + Status]** to enter Selcall mode (proceed to step 3).
3. Press the **<B** or **C>** key to select the station you want to call.
   - If Manual Dialing is enabled, you can enter a station ID by using the DTMF keypad, or by using the **Selector**. When using the **Selector**, cycle through the digits to select a digit, then press the **S** key to set the digit and move the cursor to the right. Repeat this process until the entire ID is entered.
4. Press the **S** or ✳ key to enter Status mode.
5. Press the **<B** or **C>** key to select the status you want to transmit.
   - If Manual Dialing is enabled, you can enter a status ID by using the DTMF keypad, or by using the **Selector** (refer to step 3, above).
6. Press the **PTT** switch or **Side 2** key to initiate the call.
   - "COMPLETE" appears on the display when the status has been successfully transmitted.

■ Receiving

A calling ID or text message will appear when a Status call is received. Press any key to return to normal operation.

■ **Reviewing Messages in the Stack Memory**

1 Press the key programmed as **[Stack]**, or press and hold the key programmed as **[Selcall]**, **[Status]**, or **[Selcall + Status]** to enter Stack mode.

• The last received message is displayed.

2 Press the **<B** or **C>** key to select the desired message.

• Message types are identified as follows:
  ID: Caller ID, ST: Status Message, ME: Short Message

• Press and hold the **S** key for 1 second to cycle the display information as follows:
  ID Name > Status/Short Message > CH/GID

3 Press the **Side 1** key to return to normal operation.

• To delete the selected message, press the **A** key. To confirm the deletion, Press the **S** key.

• To delete all messages, press and hold the **A** or **#** key for 1 second. To confirm the deletion, Press the **S** or ✱ key.

SHORT MESSAGES

This transceiver can receive short data messages which contain a maximum of 48 characters.

• Received short messages are displayed the same as Status messages. A maximum of 15 received messages (combined status messages and short messages) can be stored in the stack memory of your transceiver.

GPS REPORT

To send your location data, you must first connect a GPS unit to the transceiver. GPS data can be manually transmitted by pressing the key programmed as **[Send the GPS data]**. If set up by your dealer, GPS data may be automatically transmitted at a preset time interval.

5-TONE SIGNALING

5-tone Signaling is enabled or disabled by your dealer. This function opens the squelch only when the transceiver receives the 5 tones programmed in your transceiver. Transceivers that do not transmit the correct tones will not be heard.

SELCALL (SELECTIVE CALLING) (Types I and II Only)

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

■ Transmitting

1 Select your desired zone and channel.

2 Press the key programmed as **[Selcall]** to enter Selcall mode.

3 Press the **<B** or **C>** key to select the station you want to call.

   • On type I models, you can directly enter the station ID.

4 Press the key programmed as **[Call 1]** to **[Call 6]** and begin your conversation.

Note: Additionally, you can also use the keys programmed as **[Digit 1x Down]**, **[Digit 1x Up]**, **[Digit 10x Down]**, and **[Digit 10x Up]** to adjust the Selcall number. **[Digit 1x Up/Down]** increases/decreases the Selcall number by 1 each time the key is pressed. **[Digit 10x Up/Down]** increases/decreases the Selcall number by 10 each time the key is pressed.

■ Receiving

When you receive a call containing the correct tones, the transceiver will enter Selcall mode. An alert tone will sound and the calling station's ID appeard on the display. Press any key to return to normal operation.

STATUS MESSAGE (TYPES I AND II ONLY)

You can send and receive Status messages which may be decided in your talk group. Messages can contain up to 16 alphanumeric characters.

A maximum of 15 received messages can be stored in the stack memory of your transceiver.

■ Transmitting

1 Select your desired zone and channel.

2 Press the key programmed as **[Status]** to enter Status mode (proceed to step 5) or **[Selcall + Status]** to enter Selcall mode (proceed to step 3).

3 Press the **<B** or **C>** key to select the station you want to call.

  • In Selcall List Mode, press and hold the **S** or ✳ key for 1 second to enter Manual Input mode. Press the **<B** or **C>** key to select the digit you want to change, then rotate the Selector to change the Code Up or Down. Or, you can enter the Code directly by using the keypad.

4 Press the **S** or ✳ key to enter Status mode.

5 Press the **<B** or **C>** key to select the status you want to transmit.

  • In Status List Mode, press and hold the **S** or ✳ key for 1 second to enter Manual Input mode. Press the **<B** or **C>** key to select the digit you want to change, then rotate the Selector to change the Code Up or Down. Or, you can enter the Code directly by using the keypad.

6 Press the key programmed as **[Call 1]** to **[Call 6]** to initiate the call.

■ Receiving

A calling ID or text message will appear when a Status call is received. Press any key to return to normal operation.

■ **Reviewing Messages in the Stack Memory**

1 Press the key programmed as **[Stack]** to enter Stack mode.

  • The last received message is displayed.

2 Press the **<B** or **C>** key to select the desired message.

  • Press and hold the **S** or ✶ key for 1 second to cycle the display information as follows:
    Selcall Name > Status Name > CH/GID

3 Press the **Side 1** key to return to normal operation.

  • To delete the selected message, press the **A** or **#** key. To confirm the deletion, Press the **S** or ✶ key.

  • To delete all messages, press and hold the **A** or **#** key for 1 second. To confirm the deletion, Press the **S** or ✶ key.

ADVANCED OPERATIONS

DTMF (DUAL TONE MULTI FREQUENCY) CALLS

■ Making a DTMF Call (Types I and II Only)

Manual Dialing (Type I Only)

1. Press and hold the **PTT** switch.
2. Enter the desired digits using the DTMF keypad.
   - If you release the **PTT** switch, transmit mode will end even if the complete number has not been sent.
   - If the Keypad Auto PTT function has been enabled by your dealer, you do not need to press the **PTT** switch to transmit; you can make the call simply by pressing the DTMF keys.

Store & Send

1. Press the key programmed as **[Autodial]**.
2. Enter up to 30 digits using the DTMF keypad.
   - Alternatively, you can enter digits by using the **Selector**.
3. Press the **PTT** switch to make the call.

■ Autodial (Types I and II Only)

Autodial allows you to quickly call DTMF numbers that have been programmed onto your transceiver.

1. Press the key programmed as **[Autodial]**.
   - The first entry in the Autodial list appears on the display.
2. Press the **<B** or **C>** key to select your desired Autodial list number, or enter the list number directly (01 ~ 32).
   - The stored entry appears on the display.
3. Press the **PTT** switch to make the call.

■ **Stun Code**

This function is used when a transceiver is stolen or lost. When the transceiver receives a call containing a stun code, the transceiver becomes disabled. The stun code is cancelled when the transceiver receives a call with a revive code.

EMERGENCY CALLS

If your transceiver has been programmed with the Emergency function, you can make emergency calls.

1 Press and hold the key programmed as **[Emergency]**.

- Ask your dealer for the length of time necessary to hold this key before the transceiver enters Emergency mode.
- When the transceiver enters Emergency mode, it will change to the Emergency channel and begin transmitting based on how it is set up by your dealer.

2 To exit Emergency mode, press the **[Emergency]** key again.

- If the Emergency mode completes a preset number of cycles, Emergency mode will automatically end and the transceiver will return to the zone and channel that was in use before Emergency mode was entered.

Note:
- ◆ Your dealer can set the transceiver to emit a tone when transmitting in Emergency mode.
- ◆ Your dealer can set the transceiver to emit tones and received signals as normal, or mute the speaker during Emergency operation.

■ **Activity Detection**

Press the key programmed as **[Activity Detection]**, toggle Activity Detection ON and OFF. If an event occurs while Activity Detection is enabled, the transceiver enters Emergency mode.

Note:
- ◆ When Activity Detection has been turned off, and the transceiver power is then turned off and back on, Activity Detection is automatically enabled.
- ◆ When using this function, verify that it operates before taking the transceiver.

■ **Activity Reset**

While Activity Detection is active, press the key programmed as **[Activity Reset]** to reset the Activity Detection countdown timer. This will allow you to remain in a tilted or stationary position, etc., without the Emergency mode activating unnecessarily.

SCRAMBLER

Press the key programmed as **[Scrambler/ Encryption]**, to switch the transceiver to secure (encrypted) transmission.

- Pressing the **PTT** switch after the Scrambler function has been turned ON encrypts the transmitted signal.

Note: This function cannot be used in certain countries. Contact your **Kenwood** dealer for further information.

SIGNALING

■ **Quiet Talk (QT)/ Digital Quiet Talk (DQT)**

Your dealer may have programmed QT or DQT signaling on your transceiver channels. A QT tone/ DQT code is a sub-audible tone/code which allows you to ignore (not hear) calls from other parties who are using the same channel.

Operator Selectable Tone (OST) (Types I and II Only)

If a key has been programmed with **[OST]**, you can reprogram the QT/DQT settings on each of your channels.

1. Select your desired channel.
2. Press and hold the key programmed as **[OST]** for 1 second.
3. Press the **<B** or **C>** key to select your desired tone or code.
   - Your dealer can set up to 40 tones/codes.

4 Press the **S** or ✳ key to save your new setting.

5 When you have finished operating using OST, press the **[OST]** key again to turn the OST function OFF.

■ **Radio Access Number (RAN)**

RAN is a new signaling system designed for digital radio communications.

When a channel is set up with a RAN, squelch will only open when a call containing a matching RAN is received. If a call containing a different RAN is made on the same channel you are using, you will not hear the call. This allows you to ignore (not hear) calls from other parties who are using the same channel.

■ **Optional Signaling**

Your dealer may also program several types of optional signaling for your transceiver channels.

5-tone Signaling : Refer to "SELCALL (SELECTIVE CALLING)" on page 20.

DTMF Signaling : DTMF Signaling opens the squelch only when the transceiver receives a call containing a matching DTMF code.

FleetSync Signaling : Refer to "SELCALL (SELECTIVE CALLING)" on page 17.

NXDN ID Signaling: NXDN ID is an optional signaling system available only for digital communications.

VOICE OPERATED TRANSMISSION (VOX)

VOX can be activated or deactivated by your dealer. VOX operation allows you to transmit hands-free.

Note: To operate VOX, you must use an optional headset.

■ VOX Gain Level (Types I and II Only)

1 Connect the headset to the transceiver.

2 Press the key programmed as **[VOX]**.

   • The current VOX Gain level appears on the display.

3 Press the **<B** or **C>** key to increase or decrease the VOX Gain level.

   • The VOX Gain can be adjusted from levels 1 to 10.

4 While adjusting the level, speak into the headset microphone to test the sensitivity level. (Your voice is not transmitted during this test procedure.)

   • When sound is recognized, the LED lights orange.

5 Press the **S** or ✶ key to save the setting.

■ VOX Operation

1 Connect the headset to the transceiver.

2 Press and hold the key programmed as **[VOX]** for 2 seconds.

3 To transmit, simply speak into the microphone.

   • The transceiver recognizes sound levels depending on the VOX Gain level. If it is too sensitive, it will transmit when there is noise in the background. If it is not sensitive enough, it will not pick up your voice when you begin speaking.

4 When you finish speaking, transmission ends.

5 To turn the VOX function OFF, press and hold the **[VOX]** key again, for 2 seconds.

Note: If a speaker/ microphone is connected to the transceiver while VOX is ON, and the VOX Gain Level is set to a sensitive level, louder received signals may cause the transceiver to transmit.

BACKGROUND OPERATIONS

Your dealer can activate a variety of transceiver functions to perform without any additional operation on your part.

TIME-OUT TIMER (TOT)

The Time-out Timer prevents you from using a channel for an extended duration. If you continuously transmit for a preset time, the transceiver will stop transmitting and an alert tone will sound. Release the **PTT** switch.

BATTERY SAVER

The Battery Saver can be activated only on Conventional channels. This function decreases the amount of power used when a signal is not being received and no operations are being performed.

KEY LOCK

Press the key programmed as **[Key Lock]** to lock and unlock the transceiver keys.

- The following keys still function when Key Lock is activated: Emergency, Backlight, Monitor, Monitor Momentary, Squelch Off, Squelch Off Momentary, Function, Key Lock, and PTT.

LOW BATTERY WARNING

■ Battery Power Icon (Types I and II Only)

Your dealer can set an alert tone to sound and the LED indicator to blink red when the battery power is low. The battery power icon displays the battery power remaining, as described in the table below. When the battery power is very low, recharge or replace the battery pack.

🔋	🔋	🔋	🔋
High	Sufficient	Low	Very low

■ Battery Indicator (Types III Only)

Press the key programmed as **[Battery Indicator]**. The LED lights for 2 seconds, displaying the battery power remaining, as described in the table below. When the battery power is very low, recharge or replace the battery pack.

Lights Green	Lights Orange	Lights Red	Blinks Red
High	Sufficient	Low	Very low

SIGNAL STRENGTH INDICATOR (TYPES I AND II ONLY)

The signal strength indicator displays the strength of received calls. No icon appears when no signal is available.

Yᴵᴵ	Yᴵ	Y	Y
Strong	Sufficient	Weak	Very weak

Y flashes when out of range (NXDN Trunking only).

COMPANDER

If programmed by your dealer for a channel, the compander will remove excessive noise from transmitted signals, to provide higher clarity of signals.

Note: The compander is used only in analog operation.

BUSY CHANNEL LOCKOUT (BCL)

On Conventional channels, if BCL is set up by your dealer, you will be unable to transmit if the channel is already in use. Use a different channel or wait until the channel becomes free.

If BCL Override has been programmed, you can transmit over the current signal:

1 Press and hold the **PTT** switch.

- If the channel is already in use, a warning tone will sound.

2 Quickly release and then press the **PTT** switch again.

3 Speak into the transceiver as you would during a normal call.

CONTROL CHANNEL HUNT

On digital Trunking channels, the transceiver automatically searches for a control channel.

- While searching for a control channel, the antenna icon will flash (types I and II only) and no signals can be received.

PTT ID

PTT ID is the transceiver unique ID code which is sent each time the **PTT** switch is pressed and/or released.

Note: PTT ID can be made only in analog operation.

VOICE ANNUNCIATION

When changing the zone, channel, and/or group, an audio voice will announce the new zone, channel and group number.

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