KENWOOD
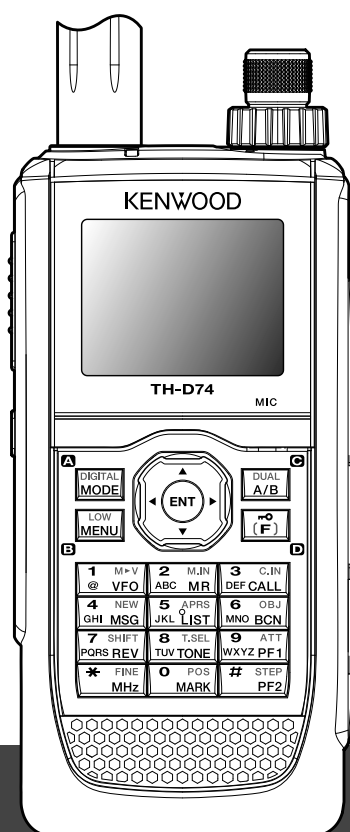
TH-D74A
TH-D74E

USER GUIDE

GUIDE DE L'UTILISATEUR

GUÍA DEL USUARIO

JVCKENWOOD Corporation

INFORMATION ON SOFTWARE LICENSE

144/220/430MHz TRIBANDER
TH-D74A

144/430MHz DUAL BANDER
TH-D74E

USER GUIDE

This User Guide covers only the basic operations of your radio. For using details instruction manual (User Manual), refer to the following URL.

http://manual.kenwood.com/en_contents/search/keyword

NOTIFICATION
This equipment complies with the essential requirements of Directive 2014/53/EU.
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	HR	TR						

ISO3166

CONTENTS

Note:
◆ Display examples in this manual may not match the actual operations.

INDEMNITIES

- JVC KENWOOD Corporation takes all appropriate measures to ensure all descriptions in this manual are accurate; however, this manual may still contain typographical errors ("typos") and expressions that are misleading. JVC KENWOOD Corporation is entirely free from any responsibilities arising from any losses or damages caused by such typos or expressions.

- JVC KENWOOD Corporation has the right to change or improve the product specifications, etc., described in this manual without prior notice. JVC KENWOOD Corporation is entirely free from any responsibilities for any losses or damages caused by such changes and improvements.

- JVC KENWOOD Corporation is entirely free from any responsibilities for any failures, damages or losses arising from, or in connection with, use of the transceiver with or connected to any external equipment.

- JVC KENWOOD Corporation does not warrant that the quality and functions described in this manual comply with your purpose of use and, unless specifically described in this manual, JVC KENWOOD Corporation shall be free from any responsibilities for any defects and indemnities for any damages or losses. Selection and installation of any external equipment shall be done at your own risk. You are fully responsible for the use and effects of external equipment.

- JVC KENWOOD Corporation shall be free from any responsibilities for any incidental losses or damages, such as missing communications or call opportunities caused by a failure or performance error of the transceiver.

BEFORE STARTING

Thank You

We are grateful you decided to purchase this **KENWOOD** Digital transceiver.

The models listed below are covered by this manual.

TH-D74A: 144/220/430MHz Tribander (The Americas)

TH-D74E: 144/430MHz Dual Bander (Europe)

Features

This transceiver has the following main features:

- Includes a program for dealing with data formats supported by Automatic Packet Reporting System (APRS®).
- Compliant with voice/digital mode D-STAR digital amateur radio networks
- Built-in GPS receiver unit.
- Transflective color TFT Display
- Weatherproof toughness meeting IP54/55 standards
- Wide-band and multi-mode reception
- Equipped with IF filter for comfortable reception (SSB/CW)
- High-performance DSP-based voice processing
- Compliant with Bluetooth, microSD & Micro-USB

Writing Conventions Followed in this Manual

The writing conventions described below have been followed to simplify instructions and avoid unnecessary repetition.

Instruction	Action
Press [KEY].	Momentarily press KEY.
Press [KEY] (1s).	Press and hold KEY for 1 second or longer.
Press [KEY1], [KEY2].	Press KEY1 momentarily, release KEY1, then press KEY2.
Press [F], [KEY].	Press the F key to enter Function mode, then press KEY to access its secondary function.
Press [KEY] + Power ON.	With the transceiver power OFF, press and hold KEY while turning the transceiver power ON.

Information on Disposal of Old Electrical and Electronic Equipment and Batteries (applicable for 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.

Firmware Copyrights

The title to and ownership of copyrights for firmware embedded in KENWOOD product memories are reserved for JVC KENWOOD Corporation.

NOTICES TO THE USER

One or more of the following statements may be applicable for 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 by the party responsible/ JVC KENWOOD. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

◆ Reorient or relocate the receiving antenna.
◆ Increase the separation between the equipment and receiver.
◆ Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
◆ Consult the dealer for technical assistance.

This equipment complies with FCC/IC radiation exposure limits and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules.

This equipment has very low levels of RF energy that are deemed to comply without testing of specific absorption rate (SAR).

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions : (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This product is designed for connection to an IT power distribution system.

ATTENTION: (USA and CANADA only)
The RBRC Recycle seal found on **KENWOOD** Lithium-ion (Li-ion) battery packs indicates **KENWOOD**'s voluntary participation in an industry program to collect and recycle Li-ion batteries after their operating life has expired.
The RBRC program is an alternative to disposing Li-ion batteries with your regular refuse or in municipal waste streams, which is illegal in some areas.
For information on Li-ion battery recycling in your area, call (toll free) 1-800-8-BATTERY (1-800-822-8837).
KENWOOD's involvement in this program is part of our commitment to preserve our environment and conserve our natural resources.

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material – special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate

PRECAUTION

- 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 long transmissions, the chassis will become hot. Do not touch these hot locations when replacing the battery pack.
- Do not immerse the transceiver in water.
- Always switch the transceiver power OFF before installing or removing optional accessories. Make these changes out of the Hazardous Location.
- For safety reasons, we recommend that the battery charger be connected to an easily accessible AC socket.
- To dispose of batteries, be sure to comply with the laws and regulations in your country or region.

⚠ 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 projected 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 an (Radio Frequency energy) 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 (or battery case) with metal objects, as they may short the battery terminals.
- Danger of explosion if the battery is incorrectly replaced; replace only with the same **KENWOOD** brand & model battery pack.
- Power OFF the transceiver before changing the battery pack.
- When operating the transceiver in areas where the air is dry, it is easy to build up an electric charge (static electricity). When using a 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.
- When attaching a commercial strap to the transceiver, ensure that the strap is durable. In addition, do not swing the transceiver around by the strap; you may inadvertently strike and injure another person with the transceiver.
- If a commercially available neck strap is used, take care not to let the strap get caught on nearby machine.

- The transceiver meets IPx4/IPx5 requirements for waterproof protection only when the supplied antenna, battery pack, SP/MIC Cap, microSD memory card slot cap, Micro-USB connector cap, and DC-IN jack cap are attached. The transceiver meets IPx4 when attaching the optional battery case (KBP-9).

Information concerning the battery pack:

The battery pack includes flammable content such as organic solvents. 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 safety precautions.

⚠ **DANGER**

- **Do not disassemble or rebuild the battery!**
  The battery pack has a safety and protection circuits 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 circuit 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 a cell internal 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!**
  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 excess current (or voltage) and an abnormal chemical reaction may occur. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not charge the battery near heat sources, fires or in direct sunlight!**
  If the battery's protection circuit is damaged, the battery may charge at excess 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(s) and observe charging requirements!**
  If the battery is charged in out of specifications conditions (at high temperature over the specified value, excessive high voltage or current over the specified value, or with a modified 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 object, 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 circuit is damaged, the battery may generate heat or smoke, rupture, or burst into flame.

- **Do not reverse the battery polarity (or terminals)!**
  When charging a reverse connected battery, an abnormal chemical reaction may occur. In some cases, an unexpected large amount of current may flow upon discharging. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not reverse-charge or reverse-connect the battery!**
  The battery pack has positive and negative terminals. 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, flush 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 specified time has passed, stop it. The battery may generate heat or smoke, rupture, or burst into flame.

- **Do not place the battery pack in a microwave oven or a 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 hot, flammable or combustible 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.

PREPARATION

SUPPLIED ACCESSORIES

After carefully unpacking the transceiver, identify the items listed in the table below. We recommend you keep the box and packaging for shipping.

Item	Comments	Quantity TH-D74	
		A	E
Antenna		1	1
Li-ion battery pack	KNB-75L: 1800 mAh	1	1
Charger (AC Voltages: 100 - 240 V, 50/60 Hz)	Part Number: W0H-0033-XX	1	–
	Part Number: W0H-0034-XX	–	1
AC power cable	for the charger W0H-0034-XX	–	2
Belt clip		1	1
Warranty card		1	1
Instruction manual	English/ French/ Spanish	1	1
	Italian/ German/ Dutch	–	1

INSTALLING THE ANTENNA

Hold the supplied antenna by its base, then screw it into the connector on the top panel of the transceiver until secure.
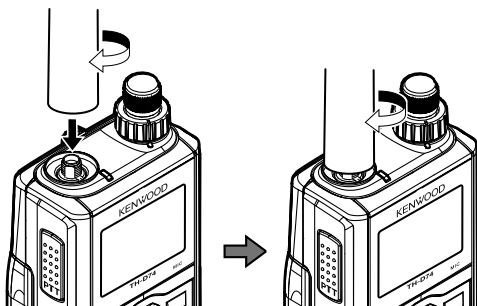
INSTALLING THE BATTERY PACK

Note:
◆ Because the battery pack is provided uncharged, you must charge the battery pack before using it with the transceiver.

Match the guides of the battery pack with the corresponding grooves on the upper rear of the transceiver, then firmly press the battery case to lock it in place.
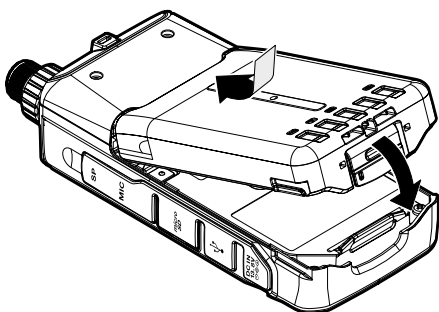
To remove the battery pack, lift the release lever to unlock the battery pack. Lift the battery pack away from the transceiver.
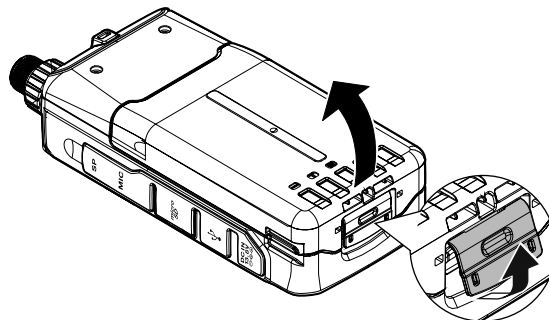
CHARGING THE BATTERY PACK

The battery pack can be charged after it has been installed onto the transceiver. (The battery pack is provided uncharged for safety purposes.)

1 Confirm that the transceiver power is OFF.
   • While charging the battery pack, leave the transceiver power OFF.
2 Insert the charger plug into the DC-IN jack of the transceiver.

DC IN jack

TH-D74A

TH-D74E
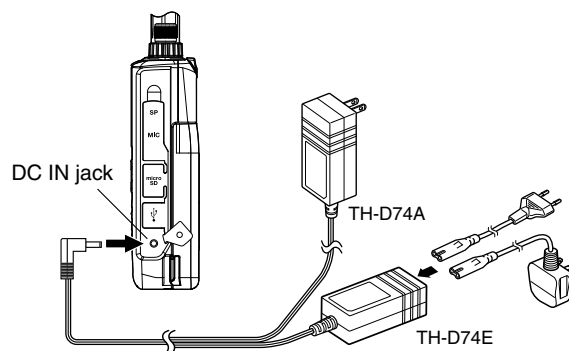
3 Plug the charger into an AC wall outlet.
   • Charging starts and "Charging" appears on the display.
   • "Charging" disappears when charging is completed.
   • The backlight is ON when pressing any key while charging.
   • "Charging" does not appear when charging with the optional KSC-25LS.
4 It takes approximately 3.5 hours to charge an empty KNB-75L Li-ion battery pack. After 3.5 hours, remove the charger plug from the transceiver DC-IN jack.
5 Unplug the charger from the AC wall outlet.

Note:
◆ Never leave the battery pack in direct sunlight.
◆ The transceiver becomes warm while charging the battery pack.
◆ While the battery pack is charged, the ambient temperature must be within 0°C ~ 40°C (32°F ~ 104°F). Otherwise, charging does not start. If the transceiver senses that the temperature is more than 60°C (140° F) during charging, the transceiver stops charging.
◆ Before recharging the battery pack, use the battery pack until the transceiver stops receiving.
◆ Do not plug the charger into the DC-IN jack for more than 24 hours.
◆ Do not expose the charger to dripping or splashing conditions. No objects filled with liquids, such as vases, shall be placed on the AC adapter or charger.
◆ Do not place the charger into the liquids.
◆ Unplug the charger as soon as possible after the charging period is over.
◆ The charger plug for an AC wall outlet should be used to disconnect an AC adapter from an AC outlet, and the charger plug must remain readily operable.

◆ After the battery pack is charged, do not unplug and plug the charger into the AC outlet again. Unplugging the charger will reset the charging timer and the battery pack will be charged again. This could result in over-charging.

◆ When the battery is installed on the transceiver and you are using an optional rapid battery charger, do not charge the battery from the DC-IN jack. Charging the battery from the DC-IN jack may result in overcharging the battery which can result in the shortening of the battery life cycle.

◆ If the battery pack is not used for a long time, the battery pack capacity temporarily decreases. In this case, charge the battery and use the battery pack until the transceiver stops receiving. Repeat this procedure several times. The battery pack should recover its capacity.

◆ If the charger is plugged into the DC-IN jack before the battery pack is attached, turn the transceiver power ON and then OFF again to initiate charging.

◆ Exceeding the specified charge period shortens the useful life of the KNB-75L battery pack.

◆ The provided charger is designed to charge only the KNB-75L battery pack. Charging other models of battery packs may damage the charger and battery pack.

◆ Do not transmit while charging.

◆ When not in use, store the battery pack in a cool and dry place.

◆ Before charging the battery pack, ensure that the release lever is firmly closed.

◆ Attention should be drawn to the environmental aspects of battery disposal.

◆ It takes approximately 3 hours to charge the KNB-75L with the optional KSC-25LS.

Charger Error

• While charging, if a problem is detected in the battery, "Charge Error !!" appears on the display.

• The following conditions create charging errors:

  • A short in the battery is detected.

  • Overvoltage in the battery is detected.

• When a charge error occurs, no key other than **[⏻]** will function.

BATTERY LIFE

Before you operate the transceiver outside using a battery pack, it is important to know how long the battery pack will last. The operating times listed in the table below are measured under the following cyclic conditions:

TX: 6 seconds, RX: 6 seconds, Stand-by: 48 seconds

We recommend you carry extra battery packs with you, in case the battery pack becomes depleted.

Battery Type	Output Power	Operating Time/ Hours (Approx.)
KNB-75L Li-ion battery pack	H	6
	M	8
	L	12
	EL	15

INSTALLING THE BELT CLIP

If desired, you can install the supplied belt clip to the transceiver.

Attach the belt clip firmly using the two supplied M3 x 6 mm binding screws.
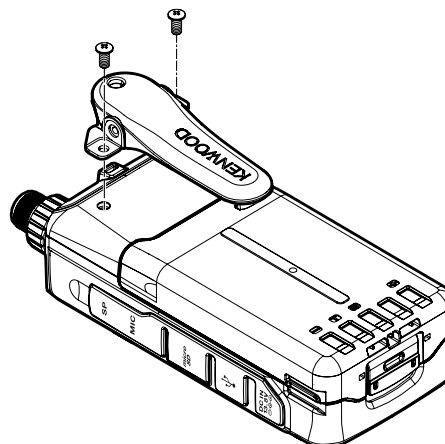
Note:

◆ Be careful not to pinch your fingers into the belt clip.

⚠ **CAUTION**

• 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 HAND STRAP

If desired, you can install the commercially available strap with sufficient strength using the holes of the transceiver.
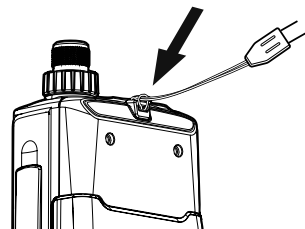
Note:

◆ If the strap is thick and does not pass through the holes, install the strap using the holes of the supplied belt clip.

GETTING ACQUAINTED

KEY AND CONTROL KNOB OPERATIONS

LCD Display

SP/MIC Jacks

Microphone

microSD memory card slot

Micro-USB Connector (USB2.0, Type B)

DC IN (External power supply) Jack

Speaker

① **[ ]**
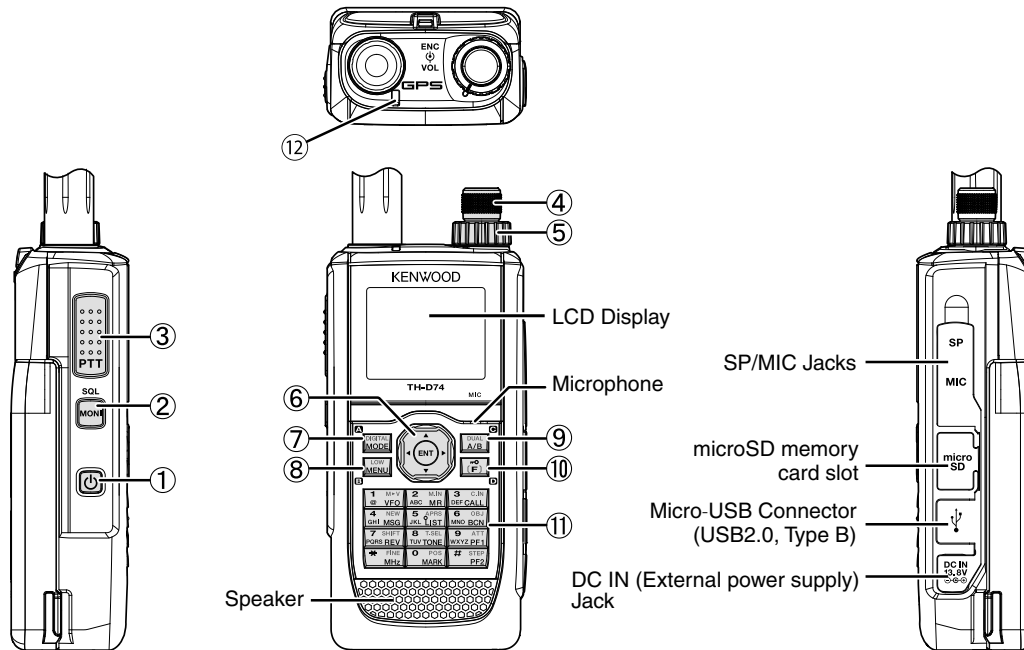
Press **[ ] (1s)** to turn the transceiver power ON and OFF.

Press **[ ]** to turn the backlight ON and OFF when the transceiver power is ON.

The backlight turns OFF when the backlight timer elapses.

When the voice guidance function is not set to OFF, the voice announces the operating states of the transceiver.

When pressing **[ ]** while announcing, the voice stops.

② **[MONI]**

Press and hold **[MONI]** to unmute the speaker in order to monitor signals.

Release **[MONI]** to return to normal operation.

Press **[F]**, **[MONI]** to enter the Squelch level adjustment mode.

③ **[PTT]**

Press and hold **[PTT],** then speak into the microphone to transmit.

④ **[ENC] Control**

Rotate the **[ENC]** control to select an operating frequency, Memory channel, Menu item, setting value and change the scan direction, etc.

⑤ **[VOL] Control**

Rotate the **[VOL]** control to adjust the speaker volume.

⑥ **Multi-Scroll Key**

[▲], [▼]

Press **[▲]** or **[▼]** to select an operating frequency, Memory channel, Menu item, setting value or to change the scan direction, etc.

Press and hold **[▲]** or **[▼]** to change an operating frequency, Memory channel, Menu item, setting value, etc. continuously.

[▶]

Press and hold **[▶]** to select a frequency band in VFO mode.

Press **[▶]** to move to the next step in various setting modes.

[◀]

Press and hold **[◀]** to select a frequency band in VFO mode.

Press **[◀]** to move back to the previous step in various setting modes.

[ENT]

Press **[ENT]** to enter frequency direct entry mode in VFO mode.

Press **[ENT]** to complete the setting value and move to the next step in Menu mode or various setting modes.

⑦ **[MODE]**

Press **[MODE]** to select the mode.

Press **[F]**, **[MODE]** in DV mode or DR mode to enter Digital Function Menu mode.

This key operates the function displayed in the lower left side. (Refer to page 15.)

⑧ **[MENU]**

Press **[MENU]** to enter Menu mode.

Press **[F]**, **[MENU]** to cycle the transmit output power.

⑨ **[A/B]**

Press **[A/B]** to select operation band A or B.

Press **[F]**, **[A/B]** to switch the Single band mode and Dual band mode.

This key operates the function displayed in the lower right side. (Refer to page 15.)

⑩ **[F]**

Press **[F]** to enter Function select mode.

Press **[F] (1s)** to turn the transceiver Key lock function ON and OFF.

⑪ **12 Keypad**

[VFO/1]

Press **[VFO]** to enter VFO mode. In Memory channel or CALL channel, press **[F]**, **[VFO]** to copy the current Memory channel or Call channel to the VFO (memory shift).

[MR/2]

Press **[MR]** to enter Memory Channel mode.

Press **[F]**, **[MR]** to move to the Memory channel store screen.

[CALL/3]

Press **[CALL]** to select the Call channel.

Press **[F]**, **[CALL]** to store the current operating frequency to the Call channel.

[MSG] (4)

Press **[MSG]** to display the APRS Message list.

Press **[F]**, **[MSG]** to enter the New Message input mode.

[LIST] (5)

Press **[LIST]** to display the APRS Station list.

- Each time you press **[F]**, **[LIST],** the mode cycles through the following: APRS mode ON ➡ KISS mode ON ➡ OFF.

[BCN] (6)

Press **[BCN]** to transmit the beacon when APRS mode is ON.

Press **[F]**, **[BCN]** to transmit the Object.

[REV] (7)

Press **[REV]** to turn the Reverse function ON or OFF.

Press **[F]**, **[REV]** to select the Sift direction.

[TONE] (8)

Press **[TONE]** to turn the Tone function ON.

- Each time you press **[TONE]**, the function cycles through the following: Tone ON ➡ CTCSS ON ➡ DCS ON ➡ Cross Tone ON ➡ OFF.

Press **[F]**, **[TONE]** to enter the Tone frequency, CTCSS frequency, DCS code, or Cross Tone setup mode.

Press **[F]**, **[TONE] (1s)** to start the Tone frequency, CTCSS frequency, or DCS code scan.

[PF1] (9)

Press **[PF1]** to activate its programmed function.

Press **[F]**, **[PF1]** to turn the Attenuator function ON or OFF.

[MARK] (0)

Press **[MARK]** to display the Position memory list.

Press **[MARK] (1s)** to enter the Mark Way point registration mode.

Press **[F]**, **[MARK]** display your "My position".

[MHz] (✳)

Press **[MHz]** to enter the MHz mode.

Press **[MHz] (1s)** to start the MHz scan.

Press **[F]**, **[MHz]** to enter Fine tuning function mode.

[PF2] (#)

Press **[PF2]** to activate its programmed function.

Press **[F]**, **[PF2]** to enter Frequency step setup mode or Fine step frequency setup mode.

⑫ **ON AIR/ Busy Indicator**

The indicator lights red in transmitting, and lights green in receiving.

DISPLAY

Frequency Display

Common icon Display Area

A Band Display Area

B Band Display Area

09:56 SD

PTT H FM

144.000

H FM

440.000
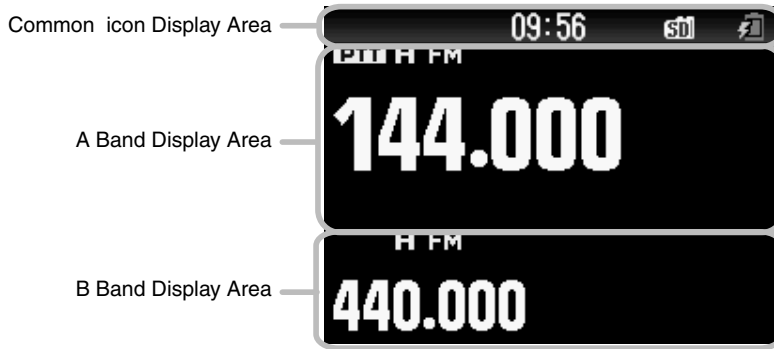
Various function indicator

Indicator	Description
5 7 9	Performs as the S meter when receiving a signal.
	Displays the selected power level while transmitting.
PTT	Indicates the transmission band.
EL	Appears while using Economic low output power.
L	Appears while using Low output power.
M	Appears while using Medium output power.
H	Appears while using High output power.
FM	Appears while in FM mode.
NFM	Appears while in Narrow FM mode.
WFM	Appears while in Wide FM mode.
AM	Appears while in AM mode.
LSB	Appears while in LSB mode.
USB	Appears while in USB mode.
CW	Appears while in CW mode.
DR	Appears while in Digital Repeater mode.
DV	Appears while in Digital Voice mode.
VA	Appears when Voice Alert is set to "VA".
VAR	Appears when Voice Alert is set to "VAR".
T	Appears when the Tone function is ON.
CT	Appears when the CTCSS function is ON.
DCS	Appears when the DCS function is ON.
T/C	Appears when the Cross tone function is "TONE/CTCSS".

Indicator	Description
D/C	Appears when the Cross tone function is "DCS/CTCSS".
T/D	Appears when the Cross tone function is "TONE/DCS."
D/O	Appears when the Cross tone function is "DCS/OFF".
+	Appears when the Shift function is set to plus.
−	Appears when the Shift function is set to minus.
⊟	Appears when the Shift function is set to -7.6 MHz. (TH-D74E only)
R	Appears when the Reverse function is ON.
ATT	Appears when the Attenuator function is ON.
APRS 12	Appears when the packet communication speed in APRS mode is set to 1200 bps.
APRS 96	Appears when the packet communication speed in APRS mode is set to 9600 bps.
KISS 12	Appears when the packet communication speed in KISS mode is set to 1200 bps.
KISS 96	Appears when the packet communication speed in KISS mode is set to 9600 bps.
STA	Appears while in Stand-by (Packet mode).
BCON	Appears when the Beacon function is ON.
OBJ	Appears when the Object function is ON.
	Appears when the built-in GPS function is ON. Blinks when the built-in GPS function is positioning.
	Appears when the built-in GPS function is in Save mode.
	Appears when the GPS Track Log function is ON. Blinks when the built-in GPS function is positioning.
	Appears when the GPS Track Log function is ON and the built-in GPS function is in Save mode.

Menu Mode Display

KEY GUIDE Display Area

D-STAR (DV/DR mode) Display

Indicator	Description
📄	Appears when a message is received.
⬤	Appears when recording communication.
⏸	Appears when playback of a voice message is paused.
P	Appears when the Priority Scan function is ON.
📻	Appears when FM radio mode is ON.
🅱	The Bluetooth® function is ON.
🅱	Connected to a Bluetooth® device.
SD	Appears when a microSD memory card is recognized. Blinks when a microSD memory card is mounting or unmounting.
W	Appears when Weather Alert is ON. Blinks when Weather Alert is detected. (TH-D74A only.)
🔒	Appears when the key lock is ON.
🔋	Indicates the battery level.
⚡	Appears during charging of the battery.
Grp 29	Indicates the memory group number.
WX	Indicates the Weather Channel. (TH-D74A only.)
★	Appears when the Memory Channel Lockout function is ON.
R	Appears when the Repeater Lockout function is ON.
CCS	Appears when Callsign squelch is ON.

Indicator	Description
DCS	Appears when Code squelch is ON.
BK	TX: Appears in interrupt communication. RX: Blinks while receiving interrupt communication.
⮌A	Appears when the auto reply function is ON.
📡→	Appears in GPS transmission.
DATA	Appears while in data communication mode. Blinks while receiving fast data.
✕📶	Appears when a packet loss happens.
📡	Indicates a repeater for local area call.
📡📡	Indicates a repeater for call within zone.
📡📡	Indicates a repeater for gateway call.

BASIC OPERATIONS

SWITCHING THE POWER ON/ OFF

Switching the Power ON

Press **[⏻] (1s)**.

The power on message momentarily appears, and frequency screen appears.

Switching the Power OFF

Press **[⏻] (1s)**.

ADJUSTING THE INTERNAL CLOCK

When the built-in GPS function is turned ON, the year, month, day, and time are automatically set from the GPS satellite information. The default setting of the built-in GPS function is [On]. If the GPS information cannot be received, you can manually enter the date and time.

1 Access Menu No. 950.

Date & Time screen appears by pressing **[MENU]**, **[PF1]**, **[LIST]**, **[MARK]**.
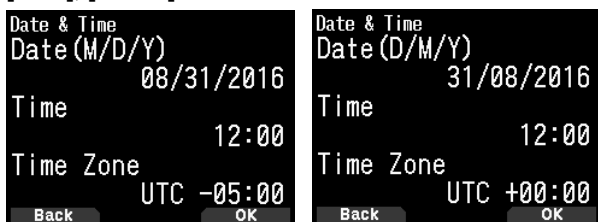
2 Set the date, time, and time zone with **[▲]/[▼]** or **[ENC]** control.

3 Press **[A/B]**.

The date, time, and time zone are set.

4 Press **[MENU]** to return to the frequency screen.

ADJUSTING THE VOLUME

Rotate the **[VOL]** control to increase the volume and counterclockwise to decrease the volume.

When no sound is heard (the squelch is closed), you can adjust the noise level by rotating the **[VOL]** control while pressing the **[MONI]**.

VOLUME BALANCE (BAND A/B)

This function adjusts the volume balance when using the transceiver with dual bands.

1 Access Menu No. 910.

Volume balance screen appears by pressing **[MENU]**, **[PF1]**, **[VFO]**, **[MARK]**.
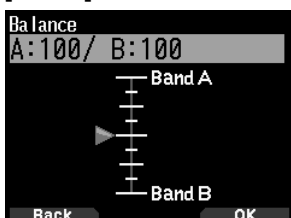
2 Change the balance with **[▲]/[▼]** or **[ENC]** control.

• Band A and B are set to the same volume level (MAX) as a default setting. Pressing **[MODE]** returns to the previous screen without changing the setting.

When you select [Operation Band Only], the sound of the operation band is outputted with priority.
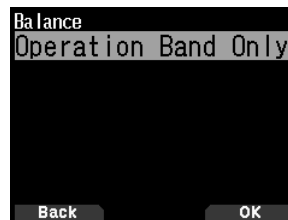
Setting examples

When used in combination with APRS:

When using band A for voice calls, use the transceiver with the sound of band B set to a low volume level or muted.

When simultaneously scanning two waves:

If [Operation Band Only] is set, a voice is output only for the operation band when the operation and non-operation band become busy at the same time.

3 Press **[ENT]** to set the volume balance.

4 Press **[MENU]** to return to the frequency screen.

SELECTING DUAL BAND MODE/ SINGLE BAND MODE

You can switch the transceiver between dual band operation and single band operation.

1 Press **[F], [A/B]**.

• Each time you press **[F], [A/B]**, the transceiver switches between Single band and Dual band mode.

Dual Band mode   **Single Band mode**

SELECTING AN OPERATION BAND

You can select a band A or B as an operation band for changing the frequency or setting various operations, etc.

1 Press **[A/B]** to select operating band A or B.

Dual Band A   **Dual Band B**

Single Band A   **Single Band B**

12
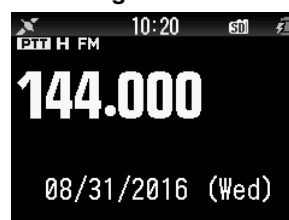
SELECTING A FREQUENCY BAND

You can change the frequency bands for bands A and B.

1 Press **[◄]/[►] (1s)**.

- Each time you press **[◄]/[►] (1s)**, you cycle to the next frequency band.
  Band A: 144 ➡ 220 ➡ 430 ➡ 144 (MHz).
  Band B: 430 ➡ LF/MF(AMBC) ➡ HF ➡ 50 ➡ FMBC
  ➡ 118 ➡ 144 ➡ VHF(174-216) ➡ 200/300
  ➡ 430 ➡ VHF(470-524) (MHz).

Note:
◆ 220 MHz band in Band A is used by the TH-D74A only.

Frequency ranges:

- 118 MHz: Band B 108 ~ 136 MHz
- 144 MHz: 136 ~ 174 MHz
- 220 MHz: 216 ~ 260 MHz (TH-D74A only)
- 200/300 MHz: Band B 216 ~ 410 MHz
- 430 MHz: 410 ~ 470 MHz
- LF/MF(AMBC): 0.1 ~ 1.71 MHz
- HF: 1.71 ~ 29.7 MHz
- 50: 29.7 ~ 76 MHz
- FMBC: 76 ~ 108 MHz

SELECTING THE DEMODULATION MODE

You can select the demodulation mode.

Selecting the Demodulation Mode

1 Press **[A/B]** to select an operation band.

2 Press **[MODE]** to select a demodulation mode.

- Each press changes the demodulation mode as follows.
  Band A: FM/NFM ➡ DR (DV) ➡ (Returns to FM/NFM)
  Band B: FM/NFM ➡ DR (DV) ➡ AM ➡ LSB ➡ USB ➡ CW
  ➡ (Returns to FM/NFM)

Note:
◆ Switching between the DV and DR modes is not possible with the **[MODE]** button. (Refer to "Digital Function Menu".)
◆ The DV and DR mode cannot be selected for both band A and B at the same time.
◆ Switching between the FM and NFM modes is not possible with the **[MODE]** button. (Refer to page 16.)

SELECTING A FREQUENCY

There are 3 operating modes available to choose from: VFO mode, Memory Channel mode, and Call Channel mode.

VFO Mode

VFO mode allows you to manually change the operating frequency.

1 Press **[VFO]** to enter VFO mode.

2 Rotate the **[ENC]** control to select your desired operating frequency.

- You can also select a frequency by using the **[▲]/[▼]** keys.
- The default step frequency for the **[ENC]** control varies according to the model and operating frequency band:

Model	144 MHz	220 MHz	430 MHz
TH-D74A	5 kHz	20 kHz	25 kHz
TH-D74E	12.5 kHz	-	25 kHz

Note:
◆ 220 MHz band is used by the TH-D74A only.

MHz Step

To adjust the frequency by a larger amount, press **[MHz]** to enter MHz mode, then rotate the **[ENC]** control or use the **[▲]/[▼]** keys to adjust the frequency in steps of 1 MHz. Press **[MHz]** again to exit MHz mode and adjust the frequency using the normal step frequency.

Frequency Direct Entry

If the desired operating frequency is far from the current frequency, using the keypad is the quickest way to change the frequency.

1 Press **[ENT]**.

The Direct Frequency Entry display appears.

2 Press the numeric keys (**[0]** ~ **[9]**) to enter your desired frequency.

3 To set the entered frequency, press 6 digit.

- Pressing **[ENT]** before entering all of the digits will set the remaining digits to 0.

Memory Channel Mode

Memory Channel mode allows you to quickly select a frequently used frequency and related data which you have stored in the memory channel.

1 Press **[MR]** to enter Memory Channel mode.

The Memory channel number appears on the display.

2 Rotate the **[ENC]** control to select your desired Memory channel.

Call Channel Mode

Call Channel mode allows you to quickly select a preset channel to allow immediate calls on that frequency. The Call channel can be conveniently used as an emergency channel within your group.

1 Press **[CALL]** to enter Call Channel mode.

"C" appears on the display.

2 Press **[CALL]** again, and the transceiver will return to the previous frequency.

- The default settings are as follows.

TH-D74A

Band (Mode)	Call Channel	Memory Name
VHF (except DV/DR mode)	146.520 MHz (FM)	Call VHF (FM)
VHF(DV/DR mode)	144.000 MHz (DV)	Call VHF (DV)
220 MHz(except DV/DR mode)	223.500 MHz (FM)	Call 220M (FM)
220 MHz(DV/DR mode)	223.000 MHz (DV)	Call 220M (DV)
UHF(except DV/DR mode)	446.000 MHz (FM)	Call UHF (FM)
UHF(DV/DR mode)	440.000 MHz (DV)	Call UHF (DV)

TH-D74E

Band	Call Channel	Memory Name
VHF (except DV/DR mode)	145.500 MHz (FM)	Call VHF (FM)
VHF(DV/DR mode)	144.8125MHz (DV)	Call VHF (DV)
UHF(except DV/DR mode)	433.500 MHz (FM)	Call UHF (FM)
UHF(DV/DR mode)	433.6125MHz (DV)	Call UHF (DV)

ADJUSTING THE SQUELCH

Squelch is used to mute the speaker when no signals are present. With the squelch level set correctly, you will hear sound only while actually receiving a signal. The higher the squelch level selected, the stronger the signals must be in order to hear them. You can set the squelch level separately for Bands A and B.

1 Press **[F], [MONI]**.

The squelch level appears on the display.

```
          10:57    🔲
PTT H FM
144.000
SQL:
            Level:    2
```

2 Press **[▲]/[▼]** or rotate the **[ENC]** control of your selected band, when no signals are present, and select the squelch level at which the background noise is just eliminated.

3 Press **[ENT]**.

The squelch level is set.

TRANSMITTING

1 Select your desired band and frequency/channel.

2 Press and hold **[PTT]**, and speak into the microphone to transmit.

3 When you finish speaking, release the **[PTT]** switch.

Selecting an Output Power

Selecting a lower transmit power is the best way to reduce battery consumption, if communication is still reliable.

Press **[F]**, **[MENU]** to select high (H), medium (M), low (L), or economic low (EL) power.

	H	Approx. 5 W
Battery Pack KNB-75L	M	Approx. 2 W
	L	Approx. 0.5 W
	EL	Approx. 0.05 W

Note:
◆ You can program different power settings for bands A and B.
◆ You can not change the output power in transmitting.
◆ You can not set the output power in each frequency band.
◆ Refer to the details instruction manual (User Manual) when using with an external power supply or Alkaline batteries.

MONITOR

When you are receiving while the squelch function is ON, weak signals may become intermittent.

1 Press and hold **[MONI]**.

• The speaker is unmuted and you can monitor the signals.

FUNCTION SELECT MODE

Press **[F]** to enter Function Select mode. Press **[F]** again to return to the previous screen.

```
🔲My Position
1️⃣M>V
2️⃣Memory In
3️⃣CALL In
```
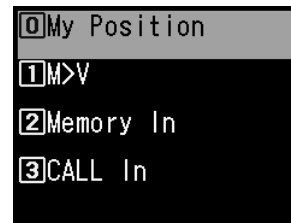
Pressing each key in the Function Select Mode performs the operation of the second function assigned to each key.

The function of each key may differ depending on the mode when **[F]** is pressed (refer to the following table).

Key	Second function	Remarks
[MARK] (0)	My position	Built-in GPS is On.
[VFO] (1)	Memory shift	Only in Memory mode or Call mode
[MR] (2)	Memory channel registration	
[CALL] (3)	Call channel registration	
[MSG] (4)	APRS message creation	
[LIST] (5)	APRS/ KISS mode switching	
[BCN] (6)	Object packet	Only in APRS mode
[REV] (7)	Shift	
[TONE] (8)	Tone frequency	
[PF1] (9)	Attenuator	
[MHz] (*)	Fine mode	
[PF2] (#)	Frequency Step	
[MODE]	Digital function menu	Only in DV/DR mode
[MENU]	Transmission power	
[A/B]	Dual or Single band switching	
[F]	Function select mode end	
[MONI]	Squelch setting	

Note:
◆ The tone frequency changes to the following setting items depending on the conditions of this transceiver.
Tone OFF: Invalid
Tone ON: Tone frequency
CTCSS ON: CTCSS frequency
DCS ON: DCS frequency
Cross Tone ON: Cross tone combination

MENU MODE

Many functions on this transceiver are selected or configured through the Menu instead of physical controls.

MENU ACCESS

Example: Setting the time for [Battery Saver] of Menu No. 920.

1 Press **[MENU]**.

The transceiver enters the enu mode. The icon currently selected by the cursor is highlighted, and the item name is displayed at the bottom of the screen. (Example: TX/RX)
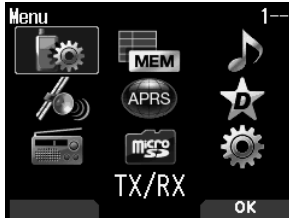
Directly Entering a Menu Number (Direct Access)

You can also directly enter a Menu number using the number keys from this screen.

Press **[PF1], [MR], [MARK]** for Menu No.920. In this case, you can move to step 4.

2 Select [Configuration] with **[▲]/[▼]** or **[ENC]** control and press **[A/B]**.

3 Select [Battery] with **[▲]/[▼]** or **[ENC]** control and press **[A/B]**.
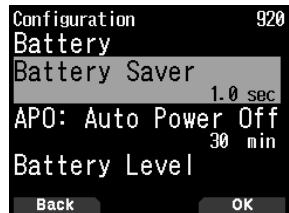
4 Select [Battery Saver] with **[▲]/[▼]** or **[ENC]** control and press **[A/B]**.
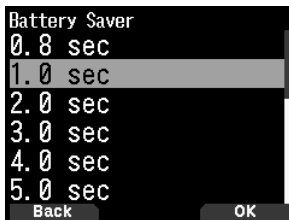
5 Select a setting value with **[▲]/[▼]** or **[ENC]** control and press **[A/B]** to set the value.

6 Press **[MENU]**.

The Menu mode ends and the frequency screen appears. For subsequent Menu operations, steps 1 to 4 will be referred to as "Access Menu No. XXX".

Note:
◆ Pressing **[PTT]** during each operation ends Menu mode without confirming the setting.
◆ Pressing **[MODE]** during each operation returns to the previous screen. Also, pressing **[MODE]** during step 4 discards the new setting value and returns to the previous operation.
◆ Pressing **[MENU]** in scanning cancels scan.

SOFTWARE KEY OPERATION

Software keys (**[Back]**, **[OK]**, etc.) are displayed in the key guide area of various setting screens and other screens.
To select or operate the displayed functions, press the corresponding keys.
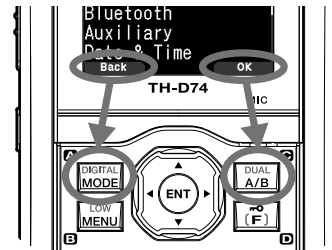
Example:

[Back] ➡ Press [MODE]: Returns to the previous screen without confirming the displayed setting.

[OK] ➡ Press [A/B]: Changes to the next screen.

CHARACTER ENTRY

In the screens that require you to enter text such as the screen for entering a memory name or power-on message, there are two methods to enter text. One is to enter text using the number keys in the same ways as a mobile phone and the other is to enter text by selecting characters one by one with the Multi-Scroll Key or **[ENC]** control.

Keypad Character Entry

1 Enter text with **[0]** to **[9]** and **[ENT]**.
- The each press of a key changes the character that can be entered.
- To enter another character assigned to the same key, move the cursor to the next position with **[▶]** (**[◀]** moves the cursor to the previous position) and enter the next character.
- Pressing **[A/B]** deletes a character. The character at the cursor position is deleted. The backspace operation is performed when there is a blank space.
- Pressing **[◀]/[▶]** moves the cursor.

Example: Entering the power-on message (Menu No.903)

- Pressing **[MODE]** changes the character input mode.
- Pressing **[A/B]** clears the text.

2 Press **[▶]**.

The cursor moves to the right. If 16 characters are entered, this operation confirms the characters and ends text input.

3 Press **[ENT]**.

The text is confirmed and text input ends.

Entering Text with the Multi Scroll Key or [ENC]

1 Display the character with **[▲]/[▼]** or **[ENC]** control.

2 Press **[▶]**.

The character or symbol is entered and the cursor moves to the right.

Pressing **[A/B]** deletes the character selected by the cursor. If it is pressed when there is no character selected by the cursor, the cursor moves to the left.

Auto Cursor Shift

This function provides assistance for entering text using the number keys. It is convenient to use this function when consecutively entering characters with the same key because it automatically moves the cursor to the right after a set time has passed.

You can set this time until the cursor is moved to the desired time.

1 Access Menu No. 945.

Select [Off], [1.0], [1.5], or [2.0] (sec.).

2 Press **[ENT]**.

MENU CONFIGURATION

No.	Display	Description	Setting Values
TX/RX - RX			
100	**Programmable VFO**	Programmable VFO setting	Varies with the selected frequency band
101	**Beat Shift**	Beat shift	**Type 1** - Type 8
102	**Detect Out Select**	Detect output select	**Off (AF)**/ IF(Single Band)/ Detect(Single Band)
103	**FM Narrow**	FM narrow	**Off**/ On
104	**MW/ SW Antenna**	MW/ SW Antenna	ATT connector / **Bar Antenna**
105	**WX Alert**	Weather alert	**Off**/ On (TH-D74A only)
TX/RX - TX			
110	**TX Inhibit**	TX inhibit	**Off**/ On
111	**Time-out Timer**	Time-out timer	0.5/ 1.0/ 1.5/ 2.0/ 2.5/ 3.0/ 3.5/ 4.0/ 4.5/ 5.0/ **10.0** [min]
112	**Mic. Sensitivity**	Microphone sensitivity	Low/ **Medium**/ High
TX/RX - RX Filter			
120	**SSB High Cut**	SSB high cut frequency	2.2/ **2.4**/ 2.6/ 2.8/ 3.0 [kHz]
121	**CW Width**	CW bandwidth	0.3/ 0.5/ **1.0**/ 1.5/ 2.0 [kHz]
122	**AM High Cut**	AM high cut frequency	3.0/ 4.5/ **6.0**/ 7.5 [kHz]
TX/RX - Scan			
130	**Resume**	Resume method	**Time**/ Carrier/ Seek
131	**Resume (Digital)**	Resume method (Digital)	Time/ Carrier/ **Seek**
132	**Time Restart**	Time operate restart time	1 - **5** - 10 [sec]
133	**Carrier Restart**	Carrier operate restart time	1 - **2** - 10 [sec]
134	**Priority Scan**	Priority scan	**Off**/ On
135	**Scan Auto Backlight**	Scan auto backlight	**Off**/ On
136	**Auto Weather Scan**	Auto Weather Channel Scan	**Off**/ On (TH-D74A only)
TX/RX - Repeater			
140	**Offset Frequency**	Offset frequency	Varies with the selected frequency band
141	**Auto Offset**	Auto repeater offset	Off/ **On**
142	**CALL Key**	CALL key function	**CALL** (TH-D74A)/ **1750Hz** (TH-D74E)
143	**1750Hz TX Hold**	1750 Hz TX hold	**Off**/ On
TX/RX - VOX			
150	**VOX**	VOX on/ off	**Off**/ On
151	**Gain**	VOX gain level	0 - **4** - 9
152	**Delay**	VOX delay time	250/ **500**/ 750/ 1000/ 1500/ 2000/ 3000 [ms]
153	**TX on Busy**	VOX on busy	**Off**/ On
TX/RX - DTMF			
160	**Encode Speed**	Encode speed	50/ **100**/ 150 [ms]
161	**Pause Time**	Pause time	100/ 250/ **500**/ 750/ 1000/ 1500/ 2000 [ms]
162	**TX Hold**	TX hold	**Off**/ On
163	**DTMF Memory**	DTMF memory	Up to 10 channels for DTMF memory channel Up to 16 characters for DTMF memory name Up to 16 digits for DTMF memory code
164	**EchoLink Memory**	EchoLink memory	Up to 10 channels for EchoLink memory channel Up to 8 characters for EchoLink memory name Up to 8 digits for one channel code
TX/RX - CW			
170	**Pitch Frequency**	Pitch frequency	400 - **800** - 1000 [Hz]
171	**Reverse**	Reverse	**Normal**/ Reverse

No.	Display	Description	Setting Values
TX/RX - Others			
180	**QSO Log**	QSO log	**Off**/ On
181	**LED Control**	LED control	**RX**: Check FM Radio: Uncheck
Memory - Memory Channel			
200	**View List**	Memory channel list	-
201	**Group Name**	Memory group name input	Up to 16 characters
202	**Recall Method**	Memory channel recall method	**All Bands**/ Current Band
203	**Group Link**	Memory group link registration	register up to 30 memory group links
204	**CALL Ch List**	CALL channel list	-
Memory - Repeater List			
210	**View List**	Repeater list	-
Memory - Callsign List			
220	**View List**	Callsign list	-
Audio File - Recording File			
300	**View List**	Recording file list	-
301	**Recording**	Recording	**Off**/ On
302	**Recording Band**	Recording band	**Band A**/ Band B
Audio File - Voice Message			
310	**View List**	Voice message list	-
311	**TX Monitor**	TX monitor	Off / **On**
312	**Digital Auto Reply**	Digital auto reply	**Off**/ Voice Message 1 - Voice Message 4
GPS - Basic Settings			
400	**Built-in GPS**	Built-in GPS	Off/ **On**
401	**My Position**	My position	My Position 1 - 5/ **GPS**
402	**Position Ambiguity**	Position ambiguity mode	**Off**/ 1-Digit - 4-Digit
403	**Operating Mode**	built-in GPS operating mode	**Normal**/ GPS Receiver
404	**Battery Saver**	Battery saver time	Off/ 1min/ 2min/ 4min/ 8min/ **Auto**
405	**PC Output**	GPS data output to PC	**Off**/ On
406	**Sentence**	Sentence	**$GPGGA**/ $GPGLL/ $GPGSA / $GPGSV/ **$GPRMC**/ $GPVTG
GPS - Track Log			
410	**Track Log**	Track log recording	**Off**/ On
411	**Clear Track Log**	Clear track log	-
412	**Record Method**	Record method	**Time**/ Distance/ Beacon
413	**Interval**	Interval time	2 - **10** - 1800 [sec]
414	**Distance**	Distance	**0.01** - 9.99 [km]
APRS - Basic Settings			
500	**My Callsign**	Callsign entry	Up to 9 characters
501	**Icon**	Icon	**Person**/ Bicycle/ Motorcycle, etc. (total 68 icons)
502	**Position Comment**	Position comment	Off Duty/ Enroute/ **In Service**/ Returning/ Committed/ Special/ PRIORITY/ CUSTOM0 ~ CUSTOM6/ EMERGENCY!
503	**Status Text**	Status text	Status text: **1** - 5 TX Rate: Off/ 1/1 - **1/4** - 1/8 Up to 42 characters
504	**Packet Path**	Packet path type	Type: **New-N PARADIGM**/ Relay/ Region/ Others1-Others3, WIDE1-1: Off/On, RELAY: Off/On, ABBR: Up to 5 characters, Total Hops: 0 - **1** - 7, Path: Up to 79 characters
505	**Data Speed**	Data communications speed	**1200bps**/ 9600bps
506	**Data Band**	Internal data band type	**A Band**/ B Band
507	**DCD Sense**	DCD sense type	**Busy**/ Detect Data/ Off (Ignore)
508	**TX Delay**	TX delay time	100/ 150/ **200**/ 300/ 400/ 500/ 750/ 1000 [ms]
509	**APRS Lock**	APRS lock	Frequency/ PTT/ APRS Key: All unchecked
APRS - Beacon TX Control			
510	**Method**	Method	Manual/ PTT/ **Auto**/ SmartBeaconing
511	**Initial Interval**	Initial Interval timer	0.2/ 0.5/ **1**/ 2/ 3/ 5/ 10/ 20/ 30/ 60 [min]
512	**Decay Algorithm**	Decay Algorithm	Off/ **On**
513	**Prop. Pathing**	Prop. Pathing	Off/ **On**
514	**Speed**	Speed	Off/ **On**
515	**Altitude**	Altitude	**Off**/ On

MENU MODE

No.	Display	Description	Setting Values
516	**Object**	Object/ Item settings	Name: up to 9 characters, Type: **Live Object**/ Killed Object/ Live Item/ Killed Item, Method: Off/ **Temp.**/ Auto(15 min)/ Auto(30 min)/ Auto(60 min), N(S): Latitude, E(W): Longtitude, Icon (Total 68 kinds): **Eyeball**/ Portable (Tent)/ HAM store, etc., Comment: up to 42 characters
APRS - QSY Information			
520	**QSY Info. in Status**	QSY information in status	**Off**/ On
521	**Tone/Narrow**	Tone/ Narrow	**Off**/ On
522	**Shift/Offset**	Shift/ Offset	**Off**/ On
523	**QSY Limit Distance**	QSY limit distance	**Off**/ 10/ 20 … 2490/ 2500
APRS - SmartBeaconing			
530	**Low/High Speed**	Low speed/ High speed setting	Low Speed: 2 - **5** - 30 [km/h] High Speed: 2 - **70** - 90 [km/h]
531	**Slow Rate**	Low speed transmission interval time	1- **30** - 100 [min]
532	**Fast Rate**	High speed transmission interval time	10 - **120** - 180 [sec]
533	**Turn Angle**	Driving direction change, minimum value setting	5 deg - **28 deg** - 90 deg
534	**Turn Slope**	Driving direction change, additional value setting	1 10deg/speed - **26 10deg/speed** - 255 10deg/speed
535	**Turn Time**	Minimum time delay between each beacon transmission	5 - **60** - 180 [sec]
APRS - Waypoint			
540	**Format**	Way point format	**NMEA**/ MAGELLAN/ KENWOOD
541	**Length**	Way point name length	**6-Char**/ 7-Char/ 8-Char/ 9-Char
542	**Output**	Way point output type	**All**/ Local/ Filtered
APRS - Packet Filter			
550	Position Limit	Position limit	**Off**/ 10/ 20 … 2490/ 2500
551	**Filter Type**	Filter type	**Weather**/ **Digipeater**/ **Mobile**/ **Object**/ **NAVITRA**/ **1-WAY**/ **Others**
APRS - Message			
560	**User Phrases**	User phrases	Up to 32 characters x 8 phrases
561	**Auto Reply**	Auto message reply	**Off**/ On
562	**Reply To**	Reply to	Up to 9 characters
563	**Reply Delay Time**	Reply delay time	0/ **10**/ 20/ 30/ 60 [sec]
564	**Reply Message Text**	Reply message text input	Up to 50 characters
APRS - Notification			
570	**RX Beep**	RX beep	Off/ Message Only/ Mine/ All New/ **All**
571	**TX Beep**	TX beep	Off/ **On**
572	**Special Call**	Special call	Up to 9 characters
573	**Display Area**	Display area	**Entire Always**/ Entire Display/ One Line
574	**Interrupt Time**	Interrupt time	3/ 5/ **10**/ 20/ 30/ 60/ infinite [sec]
575	**APRS Voice**	APRS voice	Off/ **On**
APRS - Others			
580	**PC Output**	PC output type	**Off**/ Raw Packets/ Waypoints
581	**Network**	Network type	**APRS[APK004]**/ Altnet
582	**Voice Alert**	Voice alert type	**Off**/ VA/ VAR
583	**VA Frequency**	VA frequency type	67.0 - **100.0** - 254.1 Hz
584	**Message Group Code**	Message group code	Up to 9 characters x 6 codes (ALL,QST,CQ,KWD)
585	**Bulletin Group Code**	Bulletin group code	Up to 5 characters x 6 codes
Digital - RX History			
600	**View History**	View History	-
Digital - TX/RX			
610	**My Callsign**	Callsign entry	Up to 8 characters + up to 4 characters
611	**TX Message**	TX message	**Off**/ 1/ 2/ 3/ 4/ 5
612	**Direct Reply**	Direct reply	Off/ **On**
613	**Auto Reply Timing**	Auto reply timing	**Immediate**/ 5/ 10/ 20/ 30/ 60 [sec]
614	**Data TX End Timing**	Data TX end timing	**Off**/ 0.5/ 1/ 1.5/ 2 [sec]
615	**EMR Volume Level**	EMR Volume level	1 - **25** - 50
616	**RX AFC**	RX AFC	Off/ **On**
617	**FM Auto Det. on DV**	FM auto detector on DV	**Off**/ On
618	**Data Frame Output**	Data Frame Output	**All**/ Related to DSQL/ DATA Mode
619	**Break Call**	Break Call	**Off**/ On

No.	Display	Description	Setting Values
Digital - Digital Squelch			
620	**Select Type**	Select Type	**Off**/Code Squelch/ Callsign Squelch
621	**Digital Code**	Digital Code	**00** - 99
Digital - GPS Data TX			
630	**GPS Info. in Frame**	GPS Information in frame	**Off**/ On
631	**Sentence**	Sentence	**$GPGGA**/ $GPGLL/ $GPGSA/ $GPGSV/ **$GPRMC**/ $GPVTG
632	**Auto TX**	Auto TX	**Off**/ 0.2/ 0.5/ 1/ 2/ 3/ 5/ 10/ 20/ 30/ 60 [min]
Digital - RX Notification			
640	**Display Method**	Display method	Off/ **All**/ Related to DQSL/ My Station Only
641	**Single Display Size**	Single display size	Half Display/ **Entire Display**
642	**Dual Display Size**	Dual display size	Half Display/ **Entire Display**
643	**Display Hold Time**	Display hold time	0 / 3/ 5/ **10**/ 20/ 30 / 60/ Infinite [sec]
644	**Callsign Announce**	Callsign announce	Off/ Kerchunk/ **Except Kerchunk**/ My Station Only/ All
645	**Standby Beep**	Standby beep	**Off**/ On
FM Broadcasting - Basic Settings			
700	**FM Radio Mode**	FM radio mode	**Off**/ On
701	**Auto Mute RET. Time**	Auto mute return time	1 - **3** - 10 [sec]
FM Broadcasting - Memory			
710	**FM Radio List**	FM radio list	-
SD Card - Export			
800	**Config Data**	Config data	-
801	**Config Data + V.Msg**	Config data + V.msg	-
802	**Repeater List**	Repeater list	-
803	**Callsign List**	Callsign list	-
SD Card - Import			
810	**Config Data**	Config data	-
811	**Config Data + V.Msg**	Config data + V.msg	-
812	**Repeater List**	Repeater list	-
813	**Callsign List**	Callsign list	-
SD Card - Unmount			
820	**Execute**	Unmount execute	-
SD Card - Format			
830	**Execute**	Format execute	-
SD Card - Memory Size			
840	**View**	Free capacity	-
Configuration - Display			
900	**Backlight Control**	Backlight control	Auto/ **Auto (DC-IN)**/ Manual/ On
901	**Backlight Timer**	Backlight timer	3 - **10** - 60 [sec]
902	**LCD Brightness**	LCD brightness	**High**/ Medium/ Low
903	**Power-on Message**	Power-on message input	Up to 16 characters
904	**Single Band Display**	Single band display type	Off/ GPS(Altitude) / GPS(GS)/ **Date**
905	**Meter Type**	Meter type	**Type 1**/ Type 2/ Type 3
906	**Background Color**	Background color select	**Black**/ White
Configuration - Audio			
910	**Balance**	Audio balance	A:100/ B:0, A:100/ B:25, A:100/ B:50, A:100/ B:75, **A:100/ B:100**, A:75/ B:100, A:50/ B:100, A:25/ B:100, A:0/B:100, Operation Band Only
911	**TX/RX EQ**	TX/RX EQ	RX EQ/ TX EQ(FM, NFM)/ TX EQ(DV)
912	**TX EQ Level**	TX EQ Level	-9 - **0** - +3 [dB]
913	**RX EQ Level**	RX EQ Level	-9 - **0** - +9 [dB]
914	**Beep**	Beep	Off/ **On**
915	**Beep Volume**	Beep Volume	Level 1 - **Level 5** - Level 7
916	**Voice Guidance**	Voice Guidance	**Off**, Manual, Auto1, Auto2
917	**Voice Guidance Vol.**	Voice Guidance Vol.	Level 1 - **Level 5** - Level 7
918	**USB Audio Out. Lvl.**	USB Audio Output level	Level 1 - Level 5 - **Level 7**
Configuration - Battery			
920	**Battery Saver**	Battery Saver	Off/ 0.2/ 0.4/ 0.6/ 0.8/ **1.0**/ 2.0/ 3.0/ 4.0/ 5.0 [sec]
921	**APO: Auto Power Off**	APO: Auto Power Off	Off/ 15/ **30**/ 60 [min]
922	**Battery Level**	Battery Level	-

MENU MODE

No.	Display	Description	Setting Values
Configuration - Bluetooth			
930	**Bluetooth**	Bluetooth	**Off** / On
931	**Connect**	Connect	-
932	**Device Search**	Device Search	-
933	**Disconnect**	Disconnect	-
934	**Pairing Mode**	Pairing Mode	-
935	**Device Information**	Device Information	Up to 19 characters
936	**Auto Connect**	Auto Connect	Off / **On**
Configuration - Auxiliary			
940	**PF1 Key**	PF1 Key	Recording - Voice Message 1-4 - Voice Guidance - Battery Level - VOX - Group Name - **Balance (PF1)** - **GPS (PF2)** - Track LOG - SQL - SHIFT - STEP - LOW - Key Lock - Lockout - M>V - T. SEL - NEW - Voice Alert - LCD Brightness - DTMF CH0 - EchoLink CH0 - 1750Hz Tone - M. IN
941	**PF2 Key**	PF2 Key	
942	**PF1 (Mic)**	PF1 (Mic)	Recording - Voice Message 1-4 - Voice Guidance - Battery Level - VOX - Group Name - Balance - GPS - Track LOG - SQL - SHIFT - STEP - LOW - Key Lock - Lockout - M>V - T. SEL - NEW - Voice Alert - LCD Brightness - DTMF CH0 - EchoLink CH0 - 1750Hz Tone - Screen Capture - MODE - MENU - **A/B (PF1 Mic)** - **VFO (PF2 Mic)** - **MR (PF3 Mic)** - CALL- MSG - LIST - BCON - REV - TONE - MHz - MARK - DUAL - APRS - OBJ - ATT - FINE - POS - BAND - MONI - UP - DOWN
943	**PF2 (Mic)**	PF2 (Mic)	
944	**PF3 (Mic)**	PF3 (Mic)	
945	**Cursor Shift**	Cursor shift	**Off**/ 1.0/ 1.5/ 2.0 [sec]
946	**Secret Access Code**	Secret access code input	000 - 999 (TH-D74A only)
Configuration - Date & Time			
950	**Setting**	Date and time setting	-
Configuration - Lock			
960	**Keys Lock Type**	Keys lock type	Key Lock/ **Frequency Lock**
961	**DTMF Keys Lock**	DTMF keys lock	**Off**/ On
962	**Mic Keys Lock**	Microphone keys lock	**Off**/ On
963	**Volume Lock**	Volume lock	**Off**/ On
Configuration - Units			
970	**Speed, Distance**	Speed/ Distance	**mi/h, mile** (TH-D74A)/ **km/h, km** (TH-D74E)/ knots, nm
971	**Altitude, Rain**	Altitude/ Rain	**feet, inch** (TH-D74A)/ **m, mm** (TH-D74E)
972	**Temperature**	Temperature	°**F** (TH-D74A)/ °**C** (TH-D74E)
973	**Latitude, Longitude**	Latitude/ Longitude	**dd°mm.mm'**/ dd°mm'ss.s"
974	**Grid Square Format**	Grid square format	**Maindenhead Grid**/ SAR Grid (CONV)/ SAR Grid (CELL)
Configuration - Interface			
980	**USB Function**	USB Function	**COM+AF/IF Output**/ Mass Storage
981	**PC Output(GPS)**	PC Output(GPS)	**USB**/ Bluetooth
982	**PC Output(APRS)**	PC Output(APRS)	**USB**/ Bluetooth
983	**KISS**	PC Intput/ Output(KISS)	**USB**/ Bluetooth
984	**DV/DR**	PC Intput/ Output(DV/DR)	**USB**/ Bluetooth
Configuration - System			
990	**Language**	Language	**English**/ Japanese
991	**Version**	Firmware version	-
999	**Reset**	Reset	**VFO Reset**/ Partial Reset/ Full Reset

Note:

◆ Menu descriptions and setting values are subject to change without prior notice.

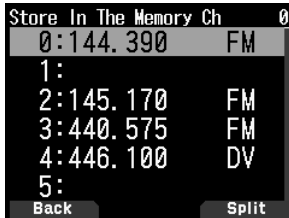◆ Bold character in setting values indicates a default setting.

MEMORY CHANNELS

MEMORY CHANNEL LIST

The memory channel configurations can be displayed on the Memory Channel List screen. In the Memory Channel List screen, you can select a channel to store or to recall. You can assign a name to a Memory Channel.

1 Press **[MR]** to switch to the memory mode.

2 Press **[ENT]**.

Memory channel list appears. You can also access to the memory channel list by Menu No. 200.
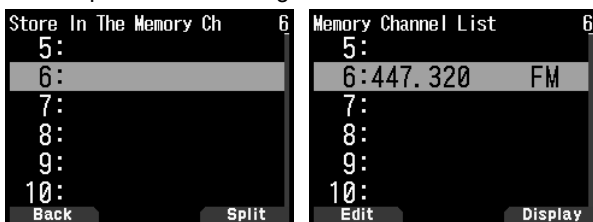
```
Store In The Memory Ch      0
  0:144.390      FM
  1:
  2:145.170      FM
  3:440.575      FM
  4:446.100      DV
  5:
    Back            Split
```

Display	Type
[0] to **[999]**	Memory channels
[L 0], **[U 0]** to **[L49]**, **[U49]**	Program scan memory
[Pri]	Priority scan memory
[A 1] to **[A10]**	Weather channels (TH-D74A only)
[C]	CALL channels

3 Select the channel.

You can select the channel by inputting the channel number from 0 to 999 by 12 keypad. When you select 1 or 2 digits channel, you can also select by inputting the channel number and pressing **[ENT].**

4 Press **[ENT]**.

The selected channel is set and return to the frequency display.

Storing Simplex And Standard Repeater Frequencies

1 Select the frequency, mode, etc.

2 Press **[F]**, **[MR]**.

The screen for selecting the channel to store appears.

3 Select the memory channel number.

4 Press **[ENT]**.

The simplex channel is registered.

```
Store In The Memory Ch      6        Memory Channel List      6
  5:                                    5:
  6:                                    6:447.320      FM
  7:                                    7:
  8:                                    8:
  9:                                    9:
 10:                                   10:
    Back            Split                 Edit           Display
```

Storing Odd-Split Repeater Frequencies

When you change the RX and TX frequencies, register the RX frequency first and then register the TX frequency. Only the TX frequency cannot be registered.

1 Register the RX frequency.

A split channel can be registered only to an already registered memory channel.

2 Display the TX frequency.

3 Press **[F]**, **[MR]**.

The screen for selecting the channel to store appears.

4 Select the memory channel number using **[▲]/[▼]** or **[ENC]** control.

```
Store In The Memory Ch      0
  0:144.390      FM
  1:
  2:145.170      FM
  3:440.575      FM
  4:446.100      DV
  5:
    Back            Split
```
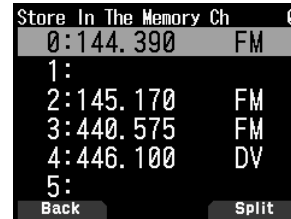
5 Press **[A/B]**.

The split channel is registered.

Note:
◆ You cannot set the TX and RX frequencies on different frequency bands.
◆ You cannot set the different frequency step size for the TX and RX frequencies.

Clearing A Memory Channel

You can clear the specified channel of the registered memory channels.

1 Press **[MR]** to enter the memory mode.

2 Press **[ENT]**.

The memory channel list appears. You can also access to the memory channel list by Menu No. 200.

3 Select the specified channel and press **[MENU]**.

The memory channel list menu appears.

4 Select [Clear Memory] and press **[A/B]**.

Clear memory channel screen appears. Press **[MODE]** to return to the memory channel list menu.

```
Memory Channel List Menu              Clear Memory Channel
  5:144.035      FM                     5:144.035      FM
Set Property
Memory Shift(M>V)
Clear Memory                               ⚠Clear?
Clear Group
    Back            OK                    Back            OK
```
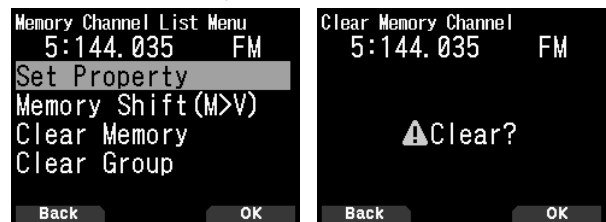
4 Press **[A/B]**.

The specified memory channel is cleared.

To clear another memory channel, repeat the procedure from step 3.

Memory Recall Method

This menu provides you with the option to recall memory channels with stored frequencies in your current frequency band, or all memory channels:

1 Access Menu No. 202.

[All Bands]:

This allows you to recall all programmed memory channels.

[Current Band]:

This allows you to recall only those memory channels that have stored frequencies within the current frequency band.

```
Recall Method
All Bands
Current Band




    Back            OK
```
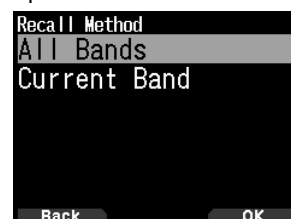
SCAN

Scan is a useful feature for hands-off monitoring of your favorite frequencies. Becoming comfortable with all types of Scan will increase your operating efficiency.

SELECTING A SCAN RESUME METHOD

The transceiver stops scanning at a frequency or Memory channel on which a signal is detected. It then continues scanning according to which resume mode you have selected. You can choose one of the following modes.

Time-Operated mode

The transceiver remains on a busy frequency or Memory channel for approximately 5 seconds, and then continues to scan even if the signal is still present.

Carrier-Operated mode

The transceiver remains on a busy frequency or Memory channel until the signal drops out. There is a 2 second delay between signal drop-out and scan resumption.

Seek mode

The transceiver remains on a busy frequency or Memory channel even after the signal drops out and does not automatically resume scanning.

1. Access Menu 130.
   - In digital (DV/DR mode), access Menu No. 131.
2. Set the Scan Resume mode to "Time" (Time-Operated), "Carrier" (Carrier-Operated) or "Seek" (Seek).

Time-Operate Resume Time

Set the hold time for the Time-Operate scan method.

When a signal is received, scan will pause at that frequency for the duration of the hold time you set. When the set time elapses, scan will resume (even if the signal is still being received).

1. Access Menu No. 132.
2. Set the resume time to 1 ~ 10 sec.

Carrier-Operated Resume Time

Set the hold time for the Carrier-Operate scan method.

When a signal is received, scan will pause at that frequency. When the signal stops, scan will resume after the duration of the hold time you set.

1. Access Menu No. 133.
2. Set the resume time to 1 ~ 10 sec.

BAND SCAN

Band scan monitors all frequency range that is stored in Menu No. 100 (Programmable VFO), using the current frequency step size.

1. Select your desired operation band and frequency.
2. Press **[VFO] (1s)**.

   Band scan appears and scan starts at the current frequency.

   - The 1 MHz decimal point blinks while scanning is in progress.
3. To quit band scan, press **[VFO]**.

MEMORY SCAN

Use memory scan to monitor all Memory channels programmed with frequency data.

1. Press **[MR] (1s)**.

   Scan starts at the current memory channel.

2. To quit memory scan, press **[MR]**.

Note:
◆ At least 2 Memory channels must contain data and must not be locked out of scan.

OTHER OPERATIONS

TX INHIBIT

You can inhibit the transmission to prevent unauthorized individuals from transmitting, or to eliminate accidental transmissions while carrying the transceiver.

1 Access Menu 110.

2 Set the TX inhibit to [On] or [Off].
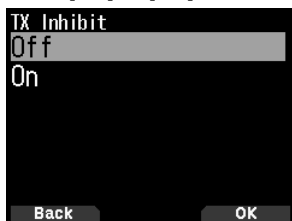
LED CONTROL

This function turns off the BUSY LED to reduce the consumption of battery power. With the default setting, the BUSY LED is always on when receiving FM radio broadcasts.

1 Access Menu No. 181.

2 Press **[ENT]**.

Each press adds or removes a check mark.

RX

☑ (Check): The LED is on when receiving in bands A and B (including when receiving an FM radio broadcast).

☐ (Uncheck): The LED is not on when receiving in normal operation mode (including when receiving an FM radio broadcast).

FM Radio

☐ (Check): The LED is on when receiving an FM radio broadcast in FM radio mode.

☐ (Uncheck): The LED is not on when receiving an FM radio broadcast in FM radio mode.

3 Press **[A/B]**.

The change of a check mark is confirmed.

METER TYPE

This function changes the design of the S/RF meter.

1 Access Menu No. 905.

Set [Type 1], [Type 2], or [Type 3].
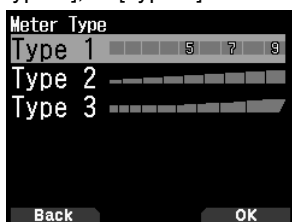
KEY BEEP

You can turn the transceiver beep function [On] or [Off].

1 Access Menu No.914.

2 Set the beep function to [On] or [Off].

Note:

◆ Even with the beep function turned off, the transceiver will beep 1 minute before the power turns off when Auto Power off is activated.

◆ After transmitting for the maximum time duration according to the Time-out Timer, the transceiver will beep.

BEEP VOLUME

You can set the beep volume.

1 Access Menu No. 915.

2 Set the value from [Level 1] to [Level 7].

BATTERY SAVER

The Battery Saver extends the operating time of the transceiver. It automatically activates when the squelch is closed and no key is pressed for more than 5 seconds. To reduce battery consumption, this function shuts the receiver circuit OFF for the programmed time, then momentarily turn it back ON to detect a signal.

To program the receiver shut-off period for the battery saver:

1 Access Menu No. 920.
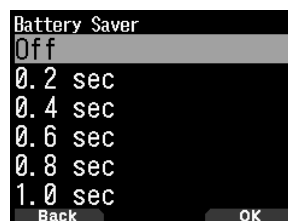
2 Set the receiver shut-off period time to [0.2], [0.4], [0.6], [0.8], [1.0], [2.0], [3.0], [4.0], [5.0] seconds, or [Off].

TRANSCEIVER RESET

There are 3 types of transceiver reset available:

VFO Reset

Use to initialize the VFO and accompanying settings.

Partial Reset

Use to initialize all settings other than the Memory channels, and the DTMF memory channels.

Full Reset

Use to initialize all transceiver settings that you have customized. (Date and time are not reset.)

There are 2 ways to perform a reset on the transceiver: by key operation and by accessing Menu mode.

Key Operation

1 Turn the transceiver power OFF.

2 Press **[F] + Power ON** until reset screen appears.

3 Select your desired reset type: [VFO Reset], [Partial Reset], or [Full Reset].

4 Press **[A/B]** to set the reset type.

A confirmation message appears on the display.

5 Press **[A/B]** again to perform the reset.

Menu Mode

1 Access Menu No. 999.

2 Select your desired reset type: [VFO Reset], [Partial Reset], or [Full Reset].

Note:

◆ Press **[PF2] + Power ON** to set the voice guidance to Auto1 after Full Reset.

GPS

BUILT-IN GPS FUNCTION ON/OFF

1 Access Menu No. 400 and start the setting.

```
Built-in GPS
Off
On

            Back              OK
```
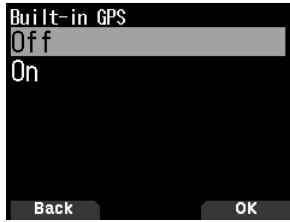
2 Select [On] or [Off].

[On]: Turns on the built-in GPS function.

[Off]: Turns off the built-in GPS function.

- When the built-in GPS receiver is On, the < ◣ > indicator appears on the display and flashes during positioning.
- You must set the time zone beforehand, through Menu No. 950.
- When determining your position for the first time after the power supply is turned On, the clock data is automatically set and is updated once per day thereafter.

Displaying Position Information

When the built-in GPS receiver is On, pressing **[F]**, **[MARK]** will display "Latitude/longitude, time, altitude, heading, speed", then press **[▶]** to cycle the display between "Latitude/longitude, time, altitude, heading, speed" ➡ "Target point distance, Travel direction" ➡ "GPS satellite information".

- Press **[◀]** returns to the previous display.

Latitude/longitude, Time, Altitude, Heading, Speed

```
My Position       PTT:440.000
①─N   33°50.43'
②─W  118°13.72'
③─GS          DM03VU
                        45°
④─alt        39'      N
                     W ◆ E ─⑥
                        S
⑤─08/31/2016 00:00  002mph ─⑦
    Copy      1/3     Time
```

① Latitude ② Longitude ③ Grid square locator ④ Altitude
⑤ Time ⑥ Heading ⑦ Speed

Target point distance, Target direction

```
My Position       PTT:440.000
Target Point:
              Airport  ✈
①─Direction:
                315°   N
                      W ◆ E
②─Distance:          S
              7.7mi
        ◀      2/3     ▶
```

① Target direction ② Target point distance

- When pressing **[F]** while the target point distance/ target direction is displayed, the North Up display (displays North as the top) changes to the Heading Up display (displays the current travel direction as the top) or vice-versa. In the Heading Up display, a "+" or "-" is used to help indicate the traveling direction.

GPS satellite information

```
            ③
My Position  PTT:440.000
      N       3D  23 01 06 08
   19    22
①─W06 17 03 11 E  03 28 09 19 ─②
      28
         08
   S  09  23   17 11 22 --
        ◀    3/3
```
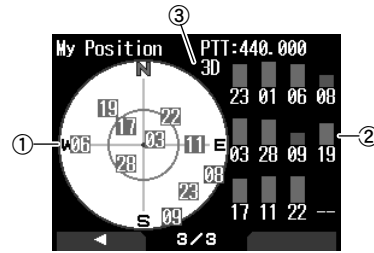
① Sky view ② Satellite signal-strength bars
③ 2D: Latitude/Longitude positioning

3D: Latitude/Longitude and Altitude positioning

- The sky view shows the satellites you are receiving. The satellite signal-strength bars indicate the strength of each satellite you are receiving. A solid bar indicates that the GPS satellite is ready for use.
- When only the frame of the signal-strength bar is displayed, no contact with the satellite has yet been made

Note:
◆ When GPS cannot be received, turn the power ON in a clear environment (Open Sky).

BUILT-IN GPS SETUP

You can select whether to use the transceiver function together with the built-in GPS receiver function or to use the built-in GPS receiver function only.

Built-in GPS Operation Mode

1 Access Menu No. 403.

```
Operating Mode
Normal
GPS Receiver

            Back              OK
```
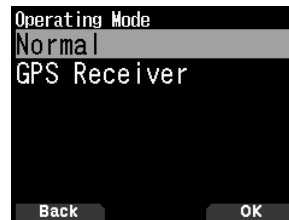
2 Select [Normal] or [GPS Receiver].

Restart information appears.

3 Press **[A/B]** to restart the transceiver with the selected mode.

[Normal]: The display continues to show your frequency. You can use it as a normal transceiver.

[GPS Receiver]: The display shows only GPS information. The transceiver transmit and receive capabilities are turned OFF, and only GPS operation is available.

GPS Receiver mode display

```
✈       00:00    sto  ▯
N   33°50.43'
W  118°13.72'
GS     DM03VU
                    45°
alt      39'     N
                W ◆ E
                    S
08/31/2016 00:00  002mph
   Copy    1/3     Time
```

Key Operation in GPS Receiver Mode

When set to "GPS Receiver", you can operate only the following key functions.

Key operations in [Latitude/longtitude, Time, Altitude, Heading, Speed]

Key Name	Operation
[◄]	Switches to FM radio frequency screen when FM radio mode is On.
[►]	Switches to **[Target point distance and Heading]** screen.
[MODE]	Switches to **[Latitude and Longitude]** copy selection screen.
[MENU]	Switches to the menu screen.
[A/B]	Switches to **[Time]** copy confirmation screen.
[F]	Switches between the North up and the Heading up.
[MARK]	Press **[MARK]**: Switches Mark waypoint list. Press **[MARK] (1s)**: Switches to the registration mode of mark position.

Key operations in [Target point distance, Target direction]

Key Name	Operation
[◄]	Switches to **[Time, Altitude, Heading, and Speed]** screen.
[►]	Switches to **[GPS satellite information]** screen.
[MODE]	Switches to **[Time, Altitude, Heading, and Speed]** screen.
[MENU]	Switches to the menu screen.
[A/B]	Switches to **[GPS satellite information]** screen.
[F]	Switches between the North up and the Heading up.
[MARK]	Press **[MARK] (1s)**: Switches to the registration mode of mark position.

Key operations in [GPS satellite information]

Key Name	Operation
[◄]	Switches to **[Target point distance and Target direction]** screen.
[►]	Switches to FM radio frequency screen when FM radio mode is On.
[MODE]	Switches to **[Target point distance and Target direction]** screen.
[MENU]	Switches to the menu screen.
[A/B]	Switches to FM radio frequency screen when FM radio mode is On.
[MARK]	Switches to the registration mode of mark position.

Battery Saver (GPS Save)

This function will turn the GPS power source Off after the programmed timer expires if position data is not determined during the maximum catching time (approximately 5 minutes). To prevent unnecessary battery consumption, when there are many reception satellites, the GPS is stabilized and position data can be determined, the GPS power source repeatedly turns On and Off.

1 Access Menu No. 404.
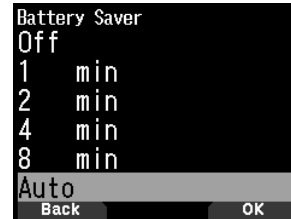
2 Set GPS Off time to [Off], [1], [2], [4], [8], or [Auto].

   [OFF]: The built-in GPS receiver function is always On.

   [1min] to [8min]: When set to 1, 2, 4, or 8 minutes, the GPS off time starts at the selected duration if position data is not determined during the maximum catching time (approximately 5 minutes).

   [Auto]: When set to Auto, the GPS Off time starts at 1 minute for the first time, then progresses to 2 minutes, 4 minutes and 8 minutes each additional time. The GPS Off time remains at 8 minutes thereafter. However, after having determined your position for the duration, if the GPS cannot pinpoint your location, the GPS Off time will restart at 1 minute.

Note:
◆ Position precision may be improved by setting the Batter Saver (GPS Save) function to "Off".
◆ When GPS cannot be received, turn the power ON in a clear environment (Open Sky).

GPS Data PC Output

Turn this function on when you want to send the built-in GPS receiver data (NMEA) from the Micro-USB connector or Bluetooth.

1 Access Menu No. 405.
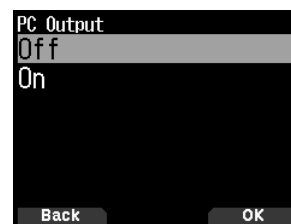
2 Set PC Output to [Off] or [On].

   [Off]: The built-in GPS receiver data (NMEA) is not output from the Micro-USB connector or Bluetooth.

   [On] The built-in GPS receiver data (NMEA) is output from the Micro-USB connector or Bluetooth.

Note:
◆ When the built-in GPS receiver data (NMEA) is output, the communication speed (baud rate) is fixed to 9,600 bps.
◆ You can select USB or Bluetooth by Menu No. 981.

MARK FUNCTION

You can register up to 100 points with the location's latitude, longitude, altitude, time, name, and icon in the Position Memory List.

1 Press **[MARK] (1s)**.

The position memory store screen appears.

```
Position Memory Store
 0:KENWOOD    19:41
 1:HOME       19:43
 2:HAM Store  19:44
 3:Airport    12:54
 4:
 5:
   Back          OK
```

2 Select a position memory number.

3 Press **[ENT]**.

The location information is registered.

When Overwriting

When selecting the already registered position memory number, the overwrite confirmation screen appears.

```
Position Memory Store
 3:Airport    12:54


     Overwrite?


   Back          OK
```

4 Press **[A/B]**.

The location information is overwritten.

POSITION MEMORY LIST

You can register the following location information up to 100 points in the Position Memory List.

You can edit all information except Registration time manually.

• Position name
• Icon (APRS)
• Registration time
• Longitude
• Latitude
• Altitude

Checking Registered Position Memory

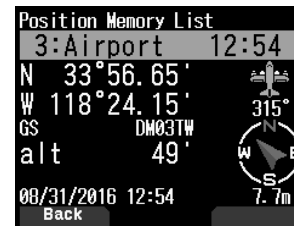**1** Press **[MARK]**.

The position memory list screen appears.

```
Position Memory List
 3:Airport    12:54
N  33°56.65'
W 118°24.15'      315°
GS        DM03TW
alt        49'
08/31/2016 12:54   7.7mi
   Back
```

2 Select a list.

3 Press **[ENT]**.

The position memory list details screen appears. Details of the position memory can be checked.

```
Position Memory List
 3:Airport    12:54
N  33°56.65'
W 118°24.15'      315°
GS        DM03TW
alt        49'
08/31/2016 12:54   7.7mi
   Back
```

• When pressing **[F]**, the North Up display (displays North as the top) changes to the Heading Up display (displays the current travel direction as the top) or vice-versa.

4 Press **[MODE]**.

The position memory list screen reappears.

Editing Position Memory

1 Press **[MARK].**

The position memory list screen appears.

2 Select a list.

3 Press **[MENU]**.

The position memory list menu screen appears.

```
Position Memory List Menu    Position Memory List Menu
 3:Airport    12:54           4:
Edit                         New
Sort                         Sort
Clear                        Clear
Clear All                    Clear All
   Back          OK             Back          OK
```

4 Select [Edit] or [New] and press **[A/B]**.

The mode changes to position memory edit mode. The edit menu items are as follows.

• Name (position name)
• Position (latitude and longitude)
• Icon
• Altitude

```
Position Memory List Edit
 3:Airport    12:54
Name
Position
Icon
Altitude
   Back          OK
```

Editing the Name (Position Name)

1 Select [Name] and press **[A/B]**.

The character input screen appears.

2 Select the characters.

For the detailed character input procedure, refer to page 15.

```
Name
Airport




  Space    7/9    Clear
```
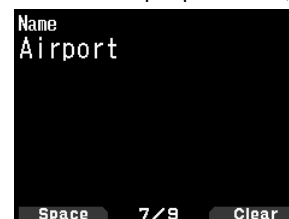
Editing the Position (Latitude and Longitude)

1 Select [Position] and press **[A/B]**.

The mode changes to the latitude and longitude edit mode.
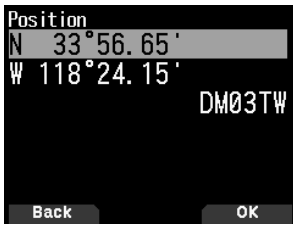
2 Select [N] or [W], and press **[ENT]**.

[N]: Edits the latitude.

[W]: Edits the longitude.
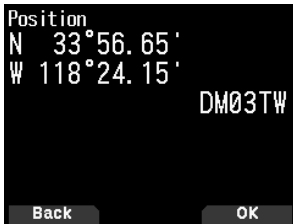
Key Name	Operation
[▲]/[▼] or **[ENC]**	Changes the item.
[◄]/[►]	Moves the cursor.
[ENT]	Confirms the editing.
[MODE]	Cancels editing and returns to the previous screen.

Editing the Icon

1 Select [Icon] and press **[A/B]**.

The mode changes to the icon setting mode.

Key Name	Operation
[▲]/[▼]	Switches the station icon.
[ENT]	Cursor moves to **[Symbol]**.
[A/B]	Confirms the station icon.

2 Select [Symbol] or [Table] and press **[ENT]**.

[Symbol]: Edits the symbol.

[Table]: Edits the table code.

Key Name	Operation
[▲]/[▼]	Switches to **[Symbol]** or **[Table]**.
[ENT] or **[A/B]**	Changes to the selected setting mode.
[MODE]	Returns to the station icon selection.

Editing the Altitude

1 Select [Altitude] and press **[A/B]**.

The mode changes to the altitude setting mode.
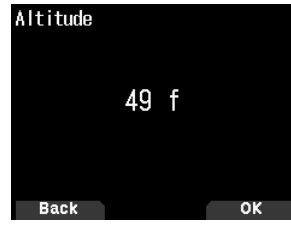
Key Name	Operation
[▲]/[▼] or **[ENC]**	Changes the item.
[ENT]	Confirms the editing.
[MODE]	Cancels editing and returns to the previous screen.

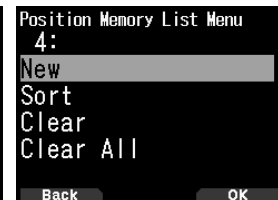## Sorting Position Memory List

1 Press **[MARK]**.

The position memory list screen appears.

2 Select a list.

3 Press **[MENU]**.

The position memory list menu screen appears.

4 Select [Sort] and press [A/B].
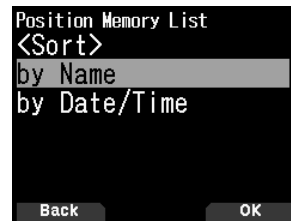
5 Select [by Name] or [by Date/Time] and press **[A/B]**.

[by Name]: Sorts in name order.

[by Date/Time]: Sorts in date and time order.

Clearing Position Memory

1 Press **[MARK]**.

The position memory list screen appears.

2 Select a list.

3 Press **[MENU].**

The position memory list menu mode screen appears.

4 Select [Clear] or [Clear All] and press **[A/B]**.

The clear confirmation screen appears.

[Clear]: Clears the selected position memory.

[Clear All]: Clears all position memories.

Position Memory List
3:Airport   12:54

Clear?

Back   OK

Position Memory List

Clear All?

Back   OK

6 Press **[A/B]** to clear the position memory.

TARGET POINT

You can register positional information for a target point.

1 Press **[MARK]**.

The position memory list screen appears.

Position Memory List
0:KENWOOD   19:41
1:HOME   19:43
2:HAM Store 19:44
3:Airport   12:54
4:
5:
Back   TP.

2 Select a position memory number.

3 Press **[A/B]**.

The "in use" target point mark **[⬛]** appears to the right of the time. The target point mark disappears when pressing **[A/B]** again.

ポジションメモリーリスト
0:KENWOOD   19:41
1:HOME   19:43
2:HAM Store 19:44
3:HND/RJTT   12:29▶
4:
5:
Back   TP.

Target point distance and Target direction

1 Press **[F]**, **[MARK]**

2 Press **[▶]**.

[Target point distance and Target direction screen] appears. When pressing **[F]** while the target point distance and target direction are displayed, the North Up display (displays North as the top) changes to the Heading Up display (displays the current travel direction as the top) or vice-versa.

My Position   PTT:440.000
Target Point:
           Airport ✈
Direction:
           315° N
           W E
Distance: S
           7.7mi
   ◀   2/3   ▶

APRS®

APRS DATA COMMUNICATION

- This function uses the APRS format for data communications including your station position, messages, etc.
- When data is received from another station directly, via digipeaters and/or IGate stations, the direction of the received station (from your station's perspective), their distance, and their grid square locator is displayed. Any comments sent by the other stations are also displayed.
- APRS (Automatic Packet Reporting System) is a worldwide system introduced by Bob Bruninga, WB4APR.

  < APRS® is a software program and registered trademark of Bob Bruninga, WB4APR.>

  Official APRS Website: http://www.aprs.org

APRS Network

Digipeater

- Digipeater (Digital Repeater) relays digital packet data. When a Digipeater receives a packet, it saves it to memory. When the reception ends, the packet data is re-transmitted on the same frequency. Using Digipeaters, it is possible to exchange APRS packets long distances.

IGate

- IGate (Internet Gateway) is a very useful and important feature for APRS as well as Digipeater. IGate stations bridge APRS packets between RF and the Internet. By going through the IGate stations, you can enjoy the communication with the further distant stations which are not covered only by Digipeaters.

Digipeater stations and IGate stations are operated by the volunteer people in each region.

BASIC SETTINGS

This part covers only the minimum necessary settings for basic operation as an APRS handheld portable station. Refer to the User Manual (detailed instruction manual) on the Website for more advanced settings.

My Callsign

Program your Callsign using a maximum of 9 alphanumeric characters including SSID (Secondary Station IDentifiers) such as -7, -9, or -14. Unless you program a Callsign, you cannot transmit APRS packets.

1 Access Menu No. 500.

The display for entering a Callsign appears.

You can enter 0 to 9, A to Z, and –.

2 Press **[ENT]** to set the Callsign.

Note:
◆ For SSID characters, refer to the guideline on the Website (http://aprs.org/aprs11/SSIDs.txt) by Bob Bruninga, WB4APR.
◆ When all settings are blank, "NOCALL" is automatically set. In this case, the Position packet (Beacon), Object Packet, or Message packet cannot be transmitted.

Selecting your Station Icon

1 Access Menu No. 501.

2 Select an icon which will be displayed on the monitors of other stations as your ID. You may select an icon depending on your current location. It is important that the icon conveys the operational status of the station as well as the SSID.

Icon Examples

ICON	Meaning
	Person
	Bicycle
	Motorcycle
	Car
	Bus
	Railroad Engine
	Home

Bicycle icon selected

3 Press **[A/B]** to set your station icon.

Press **[MENU]** to return to the previous screen.

Note:
◆ Set an icon that represents your operational status. (For example, setting an Aircraft icon or Balloon icon to a fixed station will cause confusion when a station receives a beacon.)

Setting the Data Band Frequency

Set the data band frequency to the APRS network frequency. The default setting of the data band is band A.

You can change the data band to band B by Menu No. 506.

Note:
◆ The APRS network frequency will depend on what region of the world you are operating as follows:
North America: 144.390 MHz, Europe: 144.800 MHz
Australia: 145.175 MHz, New Zealand: 144.575 MHz
Argentina: 144.930 MHz, Brazil: 145.570 MHz
Japan: 144.640 MHz (9600 bps)/ 144.660 MHz (1200 bps)

Setting APRS Data Communication ON

Press **[F]**, **[LIST]** to enter APRS mode.

Each time a new APRS packet is received, the frequency display is interrupted to show information as below.

To return to the frequency screen, press any key except **[▶]** or **[A/B]**, or just wait for approximately 10 seconds.

Transmitting APRS Beacon

Press **[BCN]** to transmit your APRS beacon (position packet). < **BCON** > icon is displayed and APRS beacon is automatically transmitted.

• When you receive an APRS beacon that you transmitted, the frequency screen is interrupted and "My Position" will appear on the display. This could happen when one or more digipeaters are used.

ACCESSING RECEIVED APRS DATA

This transceiver is capable of receiving and storing APRS data received from up to 100 stations in memory. You can easily recall the information of the desired station.
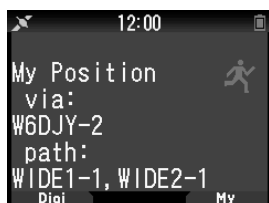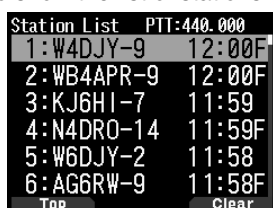
Station List

1 Press **[LIST]** to show the list of stations.

2 Press **[LIST] (1s)** to change the list type to **[Callsign + model name]**, **[Callsign + Time + QSY]**.

Key functions for station list are as follows.

Key Name	Operation
[ENC]	To select a station data.
[▲]	To move the cursor to the small list number (New receiving station).
[▼]	To move the cursor to the big list number (Old receiving station).
[ENT]	To enter the details of the selected station.
[MODE]	To move the cursor to the top list number.
[MENU]	To enter the station list Menu.
[A/B]	To delete the selected station data.
[◀]	To return to the frequency display.

Key Name	Operation
[PTT]	To switch to the frequency display and transmit.
[LIST]	To return to the frequency display.
	Press **[LIST] (1s)**: To change the list type.

3 Press **[ENT]** to select the desired station.

The details of station data are displayed.
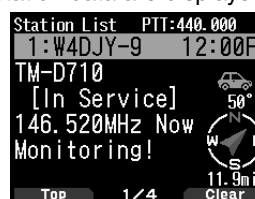
Key functions for station data are as follows.

Key Name	Operation
[ENC]	To select a station data.
[MODE]	To move the cursor to the top list number.
[◀]	To return to the station list.
[▶]	To display the next page.
[A/B]	To delete the selected station. When "Clear ?" appears, press **[ENT]** to clear.
	Press **[A/B] (1s)**: To delete all stations. When "Clear All ?" appears, press **[ENT]**. And when "Sure ?" appears, press **[ENT]** again to clear all.
[MENU]	To enter the station list Menu.
[PTT]	To switch to the frequency display and transmit.
[LIST]	To return to the frequency display.

Note:
◆ When data from the 101st station is received, the oldest data in memory is replaced by that data.
◆ Each time a new APRS packet is received from the same station, the old data from that station (in memory) is replaced by new data.

Display Examples (Mobile station)

Page 1:

① Callsign ② Situation ③ Position comment ④ Status text
⑤ Time ⑥ Station icon ⑦ Direction of the station
⑧ Distance from the station

Page 2:

① Moving direction ② Moving speed ③ Altitude

Page 3:

① Moving direction of the other station ② Moving direction ③ Speed and moving direction of the other station ④ Station icon of the other station ⑤ Distance from the other station ⑥ My Callsign ⑦ Speed and moving direction of my station ⑧ My station icon
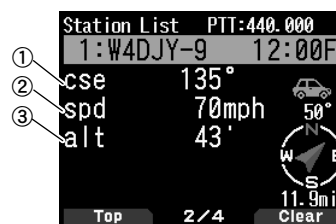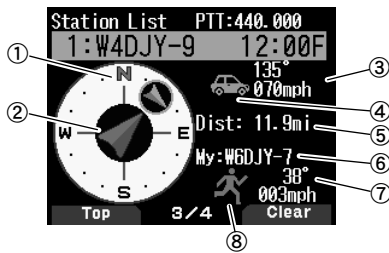
Page 4:
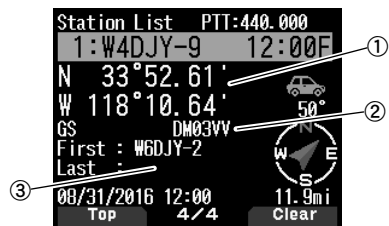
① Latitude, Longtitude ② Grid square locator ③ Packet path (Digipeated route)

APRS MESSAGE FUNCTIONS

Receiving a Message

Each time a proper message is received, the frequency display is interrupted to show information as below:

① Meaning indicator ② Callsign (Sender) ③ Message

Key Name	Operation
[◀]/ [MODE]	To return to the frequency screen.
[▶]	To move to the detail screen.
[A/B]	To move to the message screen.

Meaning	
⃞	Message addressed to you
B	Bulletin message
!	Report by the National Weather Service
✳	A message for which a reception acknowledgment was returned
G	Group message

- When a duplicate message from the same station is received, the reception interrupt display does not appear and an error tone sounds. When the frequency at that time appears on the display, "dM" (duplicate Message) and the calling station's Callsign appears on the display.

Entering a Message

1   Press **[MSG]**.

The message list appears on the display.

Key Name	Operation
[ENC]	To select a list number.
[◀]	To return to the frequency screen.
[▶]	To move to the detail screen.
[A/B]	To delete the message on the cursor.

2   Select a list number by **[ENC]** control and press **[▶]**.

The message list Menu appears on the display.

First page: **Last page:**
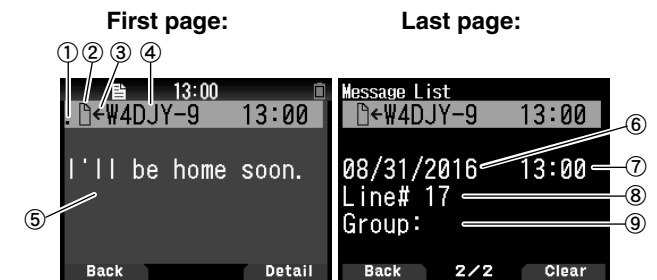
① Status ② Meaning indicator ③ Receiving message/ sending message ④ Callsign ⑤ Message ⑥ Receive date ⑦ Receive time ⑧ Line number ⑨ Message group

- The display shows up to 67 characters of the message.
- The following indicators appear depending on the types of received messages.

① **Status**	
n	"n" indicates the remaining number of times for transmitting the message
✳	A message for which a reception acknowledgment was returned
.	A message transmitted 5 times (For a message, a reception acknowledgment was not returned.)
② **Meaning**	
⃞	Message addressed to you
B	Bulletin message
!	Report by the National Weather Service
③ **RX or TX**	
←	Received message
→	A message for transmitting

Transmitting a Message

1 Press **[MSG]**.

The message list appears on the display.

```
Message List
1←W4DJY-9    13:00
2→WB4APR-9   12:33
3←WB4APR-9   12:32
4→N4DRO-14   12:11
5←N4DRO-14   12:10
6→KJ6HI-7    11:48
   Back           Clear
```

2 Press **[MENU]**.

The message list Menu appears on the display.

```
Message List Menu

Send
Reply
Edit
New
Re-TX
   Back           OK
```

3 Select [Reply], [Edit], or [New].
- When selecting [Edit], the original message is quoted and you can edit it.
- Enter the Callsign when selecting [New].

```
Message Input
To:W4DJY-9
Message text:



   Back           Send
```

4 Enter the message

```
Message Input                Message Input(Message Text)
To:W4DJY-9                   OK! I'm waiting
Message text:


   Back           Send         Space   19/67   Clear
```

Key Name	Operation
[ENC]/ [▲]/[▼]	To select a character.
[◄]	To move the cursor backward.
[►]	To move the cursor forward.
[A/B]	To delete the message on the cursor.

Note:
◆ When using the already registered user phrases, refer to the following step 5.

5 Enter the user phrase.

Press **[F]** to enter the message compilation mode.

You can select the user phrase among the already registered user phrases by Menu No.560.

```
Edit User Phrase
1:Good morning.
2:Good afternoon.
3:Good evening.
4:Thank you for yo
5:
6:
   Back           Edit
```
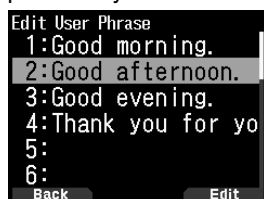
6 Select [Send] and press **[A/B]** to send the message.

You can select the following items other than [Send], [Reply], [Edit], and [New] in message list Menu.

[Re-TX]: Send the message again.

[Position]: Search position information from a position list.

[POS Request]: The position data of the transmitting station is displayed (if the station data is available).

[Unread]: Change the existing reading message to unread message.

Storing User Phrases

This function (clipboard image) allows you to paste phrases into the APRS message compilation mode. You can create up to 20 phrases each of which can consist of up to 32 characters.

1 Access Menu No. 560.

You can select from user phrase 1 to user phrase 20.

```
APRS              560    Edit User Phrase
Message                  1:Good morning.
User Phrase              2:Good afternoon.
                         3:Good evening.
Auto Reply               4:Thank you for yo
              Off        5:
Reply To                 6:
   Back        OK           Back        Edit
```
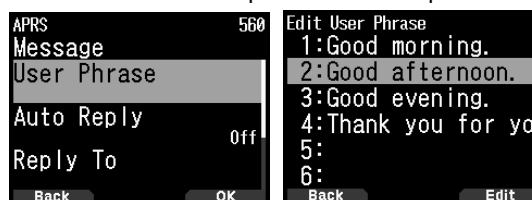
2 Press **[ENT]**.

3 Store user phrase.

4 press **[ENT]**.

Note:
◆ The user phrase function can only be used in the message compilation mode.
◆ Before a message is copied, the number of letters cannot be guaranteed. Only the number of letters available will be copied, and the remainder will be truncated.

SETTING NOTIFICATION SOUND

RX Beep Type

This transceiver beeps each time it receives any type of APRS packets.

1 Access Menu No. 570.

```
RX Beep
Off
Message Only
Mine
All New
All
   Back           OK
```

[On]: The APRS beep tone does not sound.

[Message Only]: Beep sounds only when a message is received at your station address.

[Mine]: Beep sounds when a message is received at your station address and your transmitted data is received by a digipeater.

[All New]: Beep sounds when a message is received at your station address and new packet data is received.

[All]: Beep sounds when a message is received at your station address and duplicate data or invalid data is received.

TX Beep

When your beacon is transmitted in a manner other than manually, you can select whether or not it emits a beep sound.

1 Access Menu No. 571.

[Off]: A beep does not sound.

[On]: A beep sounds when a beacon is transmitted using the PTT switch or when it is automatically transmitted. When auto-reply message sends a response, a beep will sound.

Special Call

This function emits a special call sound when receiving an APRS message from a specific station.

1 Access Menu No. 572.

2 Set the Callsign (including SSID) of the station from which you want to receive a special call notification.

D-STAR

D-STAR INTRODUCTION

- In the original D-STAR (Digital Smart Technologies for Amateur Radio) plan, JARL envisioned a system of repeaters grouped together into Zones.
- The D-STAR repeater enables you to call a D-STAR station in another area through the internet.
- The transceiver can be operated in the digital voice mode, including low-speed data operation, for both transmit and receive.

Note:
◆ Before starting D-STAR, the following steps are needed.
 STEP 1: Enter your Callsign in the transceiver.
 STEP 2: Register your Callsign to a gateway repeater.

DV Mode/DR (D-STAR Repeater) Mode

DV (Digital Voice) mode is a mode you can use for direct call without using a repeater.

DR (D-STAR Repeater) mode is a mode you can use for D-STAR repeater operation. In this mode, you can select the preprogrammed repeater or frequency in "FROM" (access repeater), and UR Callsign in "TO" (destination), as shown below.

TO: Destination
(CQ/Other area repeater/Specific station)

FROM: Access repeater

DR mode (Main band)

Communication in DR mode

In the DR mode, the transceiver has 3 communication ways.

Local area call
- To call through your local area (access) repeater.

Gateway call
- To call through your local area (access) repeater, repeater gateway and the internet to your destination repeater or individual station's last used repeater, using Callsign routing.

Call by Callsign designation
- To call by designating the Callsign of the specific station. This call is relayed automatically to the last accessed repeater.

Basic operations in DR mode
- **Press [▲] (1s) to set "TO" (destination).**

 You can set "TO" in Local area call, Gateway call, and Call by Callsign designation, etc.
- **Press [ENT] (1s) to set "TO" (destination) by Call History.**

 You can recall in Gateway call, etc.
- **Press [▼] (1s) to set "FROM" (access repeater).**

 You can select "FROM" (access repeater) in Local area call and Gateway call.

Note:
◆ The basic operations in DR mode are not supported in DV mode.
◆ The transceiver has a Time-Out Timer function for digital repeater operation. The timer limits a continuous transmission to approximately 10 minutes.

REGISTER YOUR CALLSIGN AT A GATEWAY REPEATER

To use the Internet, you must register your Callsign with a repeater that has a gateway, usually one near your home location.

Registration Process

This section describes the Callsign registration process at a repeater that is connected to the US Trust server.

There are other systems as well, and they have their own registration process. For information on how to register on one of them, contact the administrator of a repeater that uses the alternate system.

If necessary, ask the gateway repeater administrator for Callsign registration instructions.

1 Access the following URL to find the gateway repeater closest to you.

 http://www.dstarusers.org/repeaters.php

2 Click the Callsign of the repeater that you want to register to.

3 Click the "Gateway Registration URL:" link address.
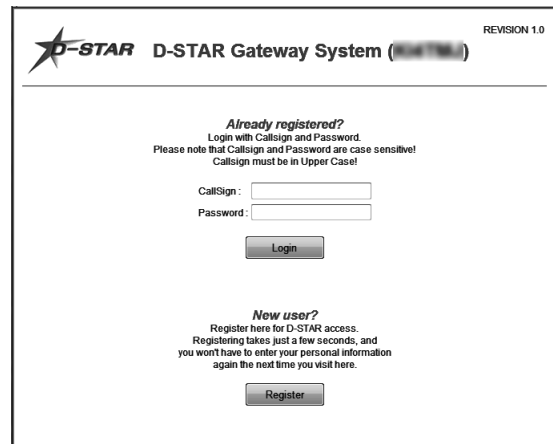
4 The "D-STAR Gateway System" screen appears.

 Click **[Register]** to start the New User registration.

5 Follow the registration instructions on the registration screen.

6 When you receive a notification from the administrator, your Callsign registration has been approved, but the whole process is not yet complete.

Note:
◆ It may take a few days for the administrator to approve you.

7 After your registration is approved, log in your personal account with your registered Callsign and password.
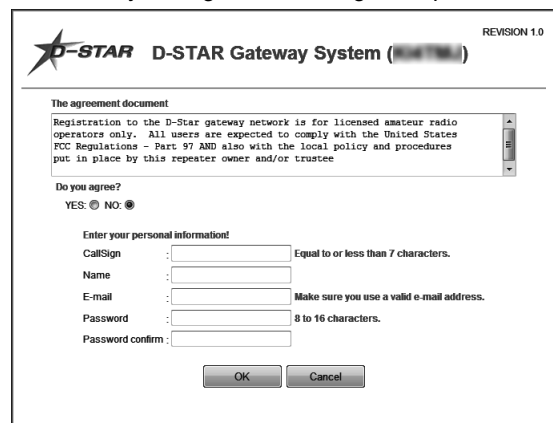
8 Register your D-STAR equipment information. Ask the gateway repeater administrator for details.

9 When your registration is complete, log out of your personal account, and start using the D-STAR network.

Note:
◆ You must register your D-STAR equipment before you can make calls through the gateway.

MY CALLSIGN

Set your Callsign to the transceiver in DV/DR mode. Transmission in DV/DR mode will not be possible if you do not set your Callsign.

Up to 6 Callsigns can be registered. For your Callsign, you can register a Callsign that is within 8 characters and any memo (name or rig name, mobile operation destination, etc.) that is within 4 characters after a slash (/).

1 Access Menu No. 610.

2 Select a number for registration and press **[A/B]**.

3 Input your Callsign.
• For the character input procedure, refer to page 15.

4 Press **[ENT]**.

Your Callsign is set.

Note:
◆ The Callsign that can be registered is the one shown on your certificate. A nickname or the like cannot be registered.
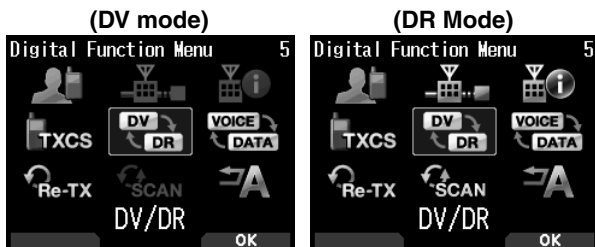
DIGITAL FUNCTION MENU

This menu switches the functions to use for operation in digital mode.

How to Use the Digital Function Menu

1 Press **[MODE]** to enter DR mode.

2 Press **[F]**, **[MODE]**.

The Digital Function Menu appears.

(DV mode)   **(DR Mode)**

3 Select an item in the Digital Function Menu and press **[A/B]**.

The setting menu for the selected item appears. For the detailed setting procedures, refer to the pages for each function.

Note:
◆ If you select DV/DR or Data Mode, the setting is changed and return to the previous screen.

The following table shows the items in the Digital Function Menu in DV mode and DR mode.

The items are different in DV mode and DR mode.

DR mode	DV mode
1 Destination Select	1 Destination Select
2 Route Select	
3 Repeater Detail	
4 CS Setting	4 CS Setting
5 DV/DR	5 DV/DR
6 Data Mode	6 Data Mode
7 TX History	7 TX History
8 DR Scan	
9 Auto Reply	9 Auto Reply

SIMPLEX CALL

Simplex call can be used for direct communication between a pair of transceivers without using a repeater. Simplex call can be operated only in DV mode.

Example: Outputting CQ at 446.100 MHz

1 Set the frequency to 446.100 MHz with **[▲]/[▼]** or **[ENC]** control.

2 Press **[MODE]** to enter DR mode.

When the mode is already DV mode, move to step 4.

3 Switch to DV mode in the Digital Function Menu.

4 Select [Destination Select] in the Digital Function Menu.

The destination selection screen appears.

5 Select [Local CQ] and press [ENT].

[CQCQCQ] is set to [TO].

6 Press **[PTT]** to transmit.

Note:
◆ Receive at the frequency at which you will attempt to transmit and check that there will be no interference with other stations.
◆ When you set DV mode for the first time, [CQCQCQ] is set to [TO].
◆ Simplex call in digital mode can be operated only in DV mode.

LOCAL AREA CALL

A local area call (local CQ) is the output of a CQ through only one repeater. A call can be made by setting a local CQ to "TO" and pressing **[PTT]**.

Setting the Access Repeater (FROM)

1 Press **[MODE]** to enter DR mode.
2 Press **[▼] (1s)**.
   The FROM selection screen appears.
3 Select [Repeater List] and press **[ENT]**.
   The world region, country, and group select screen appears.
4 Select your area group and press **[ENT]**.
   The repeater list selection screen appears.
5 Select a nearby repeater from the repeater names or state/prefecture names and press **[ENT]**.
   The access repeater is set to [FROM].

Setting the Local CQ (TO)

1 Press **[▲] (1s)**.
   The destination selection screen appears. This screen also appears when selecting [Destination Select] in the Digital Function Menu.
2 Select [Local CQ] and press [ENT].
   CQCQCQ is set to [TO].

Checking Whether Signals Reach the Repeater

1 Press **[PTT] (1s)** and transmit.
2 Check the response.
   If < �röo > appears within 3 seconds, this indicates that signals are reaching the repeater you are using and signals are being output normally from the destination repeater. However, < ☖o > does not appear if there is an access from another station within 3 seconds. (Refer to the chart on page 39 in detail.)

Transmitting

Press **[PTT]** to transmit.

GATEWAY CALL

A gateway call can be made by setting the area repeater to output the CQ to [TO] and pressing **[PTT]**.

A gateway CQ is the output of a CQ to an area that is different from that of your station through a repeater connected to the Internet. A call can also be made to an area signals cannot directly reach because of the connection to the Internet.

Setting the Access Repeater (FROM)

Set a near repeater to [TO].

Setting the Destination Repeater (TO)

1 Press **[▲] (1s)**.
   The destination selection screen appears. This screen also appears when selecting [Destination Select] in the Digital Function Menu.
2 Select [Gateway CQ] and press **[ENT]**.
   The repeater list appears.
3 Select the destination repeater and press **[ENT]**.
   The repeater is set to [TO].

Checking Whether Signals Reach the Repeater (TO)

1 Press **[PTT] (1s)** and transmit.
2 Check the response.
   If < ☖o > appears within 3 seconds, this indicates that signals are reaching the destination repeater through the internet and signals are being output normally from the destination repeater. However, < ☖o > does not appear if there is an access from another station within 3 seconds.

Transmitting

Press **[PTT]** to transmit.

CALLSIGN DESIGNATION

A call by Callsign designation can be made by setting the Callsign of the other party to [TO] and pressing PTT. A call to the specific station is relayed automatically to the last accessed repeater, so a call can be made without knowing the area in which the other station is currently located.

Setting the Access Repeater (FROM)

Set a near repeater to [TO].

Setting the Destination (TO)

1 Press **[▲] (1s)**.
   The destination selection screen appears. This screen also appears when selecting [Destination Select] in the Digital Function Menu.
2 Select [Individual] and press **[ENT]**.
   The Callsign list appears.
3 Select the Callsign and press **[ENT]**.
   The individual Callsign and name are set to [TO]**.**
4 Press **[PTT]** to transmit.

CALLSIGN LIST

Up to 300 Callsigns of the other stations can be registered. Names and any memo can also be registered instead of Callsigns. The registered names are displayed in the TX History and RX History.

Editing the Callsign
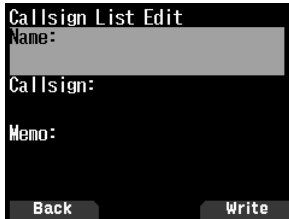
You can edit the information of the Callsign.

1 Access Menu No. 220.

The Callsign list selection screen appears.

```
Callsign List Select
KENWOOD GA ARC
KENWOOD CA ARC
KENWOOD JP ARC



        Move            Add
```

2 Press **[A/B]**.

The Callsign list editing screen appears.

```
Callsign List Edit
Name:


Callsign:

Memo:


        Back           Write
```

3 Select the item and press **[ENT]**.

The editing screen for the selected item appears.

You can register or edit the name, Callsign, and memo, etc.

4 Press **[ENT]** after editing.

Editing are completed and the Callsign list editing screen appears.

5 Press **[A/B]**.

The Callsign list selection screen appears.

Sorting the Callsign

You can sort the Callsign list.

1 Press **[MODE]** in the Callsign list selection screen.

The move position selection screen appears.

2 Select a move position and press **[A/B]**.

When you move an item to the end of the list, select [Move to End] and press **[A/B]**.

DIRECT REPLY

This function allows you to reply to a received call by simply pressing **[PTT]** while displaying the interrupt screen in DV and DR mode. The default setting is [On]. When a repeater signal is received in a DR mode and you immediately reply to a CQ or a call to your Callsign, the transmission setting is temporarily changed automatically and you can reply by simply pressing **[PTT]**.

The < 📶 > icon appears in the interrupt screen when a direct reply is possible in receiving a call. If **[PTT]** is pressed when this icon appears, the setting is automatically changed to the reply setting and transmission becomes possible.

Entire interrupt screen

```
              17:47        📶
 🔺 Nishitokyo
      439.310    JP1YIW A
 🔹 JVCKENWOOD ARC
      JA1ZGD
 UR: CQCQCQ
 YOKOHAMA
                          📱
        Back            OK
```

Half interrupt screen

```
              17:47        📶    📖
 JVCKENWOOD ARC           🔋
 JA1ZGD
 YOKOHAMA
 PTT L DR   -              📶
 🔹📱 CQCQCQ

 🔺 Nishitokyo
      439.310    JP1YIW A
```

Note:

◆ The change of the transmission setting are temporary. After display hold time elapses, it returns to the previous transmission setting.

◆ When receiving the repeater frequency in DV mode, you can not reply to a received call by pressing **[PTT]**.

Setting Direct Reply to Off

1 Access Menu No. 612.

```
Direct Reply
Off
On




        Back            OK
```

2 Select [Off].

Note:

◆ You can change the display hold time by Menu No. 643.

◆ Direct reply is not possible when display method (Menu No. 640) is set to [Off].

◆ When the direct reply is set to [On], the interrupt screen of DV and DR mode is displayed in priority than APRS mode.

CALL HISTORY

You can call easily by setting the received party to the destination from a Call History even if you do not use a direct reply function.

Up to 20 TX History and 100 RX History can be stored as a Call History in DV and DR mode. The Call History is not cleared when the power is switched [Off].

1 Press **[MODE]** to enter DR mode.

2 Press **[ENT] (1s)**.

The Call History screen appears.

```
Direct Reply
Off
On




        Back            OK
```

3 Select a list and press **[ENT]**.

The transmission setting is changed and returns to the frequency screen.

Note:

◆ Pressing **[ENT] (1s)** does not work in DV mode. Press **[F]**, **[MODE]**, select [Destination Select] in the Digital Function Menu, and select Call History.

Chart for checking whether signals reach the repeater

Phenomenon	Cause	Treatment
No message is returned from the access repeater after transmission. (S-meter indicator also does not move.)	In case that the selection for the repeater you are using (access repeater) is incorrect.	Set the correct access repeater to [FROM].
	In case that the repeater frequency is incorrect (or the duplex setting is incorrect).	Set the repeater frequency (or the duplex setting) correctly.
	In case that it is out of the repeater area (or the signal does not reach the repeater).	Move to a location where the signal reaches the repeater or access another repeater that the signal will reach.
The access repeater Callsign and < ✉✕ > appear after transmission.	In case that your Callsign is not registered to the D-STAR management server or the registered information is different.	Register your Callsign to the D-STAR management server or check the registered information.
	In case that the other station's Callsign is not registered to the D-STAR management server or the registered information is different.	Check the registration status of the other station's Callsign on the D-STAR management server (only when the other station is open in public.)
The destination repeater Callsign and < ✉✕ > appear after transmission.	In case that a destination repeater can not be reached or the destination repeater is in use.	Wait a while and call again.

Bluetooth®

TURNING ON/OFF THE Bluetooth FUNCTION

You can turn On/ Off the Bluetooth function.

1 Access Menu No. 930.

When the Bluetooth function is turned on, < 🔵 > appears on the display.

[On]: Turns on the Bluetooth function.

[Off]: Turns off the Bluetooth function.

Connecting with a Headset (Pairing)

When connecting the transceiver with a Bluetooth compatible device, you need to first pair the devices. Pairing is a function for registering devices for a Bluetooth connection as a connection pair.

The following explains how to connect via Bluetooth using the example of a commercially available headset.

Note:
◆ For the device to be connected with the transceiver via Bluetooth, be sure to purchase a headset or other device that is compatible with Bluetooth. Also refer to the instruction manual of the device.
◆ A connection may not be possible depending on the specifications or settings of the device. There is no guarantee that the transceiver will be able to communicate wirelessly with all Bluetooth devices.

1 Access Menu No. 930 to turn on the Bluetooth function.

2 Place the headset (device to be connected) near the transceiver.
   • Place it within approximately 1 meter each other.

3 Set the headset (device to be connected) to the pairing mode (Bluetooth connection standby state).
   • For how to enable the pairing mode, refer to the instruction manual of the headset (device to be connected).

4 Access Menu No. 932. A device search begins and the recognized device is added to the Bluetooth device search list.

5 Select the device to be connected.

When connecting the device that is already selected, move to step 6.
   • If you select the device and press **[▶]**, the Bluetooth device information screen appears. You can confirm the device name, device address, and device class.
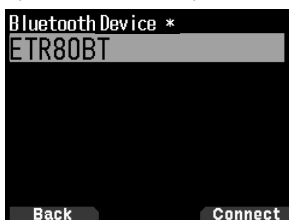
6 Press **[A/B]**. When the device is connected, < 🔵 > appears on the display.

Entering the PIN Code

When searching for the device, you may be requested to enter the PIN code depending on the device to be connected.

When Requested to Enter the PIN Code

The PIN code input screen appears. Refer to the instruction manual of the device to be connected and enter the PIN code using the number keys and press **[A/B]**.

If you press **[▶]** when the PIN code input screen is displayed, the Bluetooth device information screen appears. You can confirm the device name, device address, and device class.

Note:
◆ The PIN code differs depending on the device to be connected. Refer to the instruction manual of the Bluetooth device and enter the correct PIN code.

Disconnecting from a Bluetooth device

You can disconnect a connected Bluetooth device to stop communication.

1 Access Menu No. 933.

2 Select the device.
   • When disconnecting the device that is already selected, move to step 3. If you press **[▶]**, the Bluetooth device information screen appears. If you select the device to be disconnected and press **[▶]**, the Bluetooth device information screen appears. You can confirm the device name, device address, and device class. Pressing **[MODE]** returns to the previous screen.
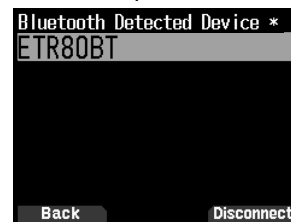
3 Press **[A/B]**.

The disconnection process begins.
   • If 30 seconds or more passes during the disconnection process, the Bluetooth device disconnection failure screen appears. Pressing **[A/B]** returns to the frequency screen. Perform the procedure again from step 1.

microSD MEMORY CARD

microSD MEMORY CARD

Note:
◆ A microSD memory card or microSDHC memory card is not supplied with this transceiver. Purchase a commercially available product.
◆ A microSDXC memory card can not be used with this transceiver.

Supported microSD Memory Card

The following table shows the microSD memory card and microSDHC memory card for which JVC KENWOOD has verified operation.

In this manual, microSD memory cards and microSDHC memory cards are referred to as microSD memory cards.

Memory Card	Size
microSD	2 GB
microSDHC	4 GB
	8 GB
	16 GB
	32 GB

- Regardless of the above table, JVC KENWOOD does not guarantee the operation of all microSD memory cards.
- The operation of a microSD memory card formatted with other than the transceiver is not guaranteed.
- The larger the capacity of the microSD memory card used, the longer it takes to recognize the microSD memory card.
- Please note that the data in the microSD memory card may be damaged or erased in cases such as the following.
  - If the microSD memory card is removed without performing the [Safely Remove] operation (unmount).
  - If the battery pack or battery case is removed during operation.
  - If the battery pack or alkaline batteries run out of power during operation.
  - If the power from an external power supply suddenly stops without installing the battery pack.

INSERTING/REMOVING A microSD MEMORY CARD
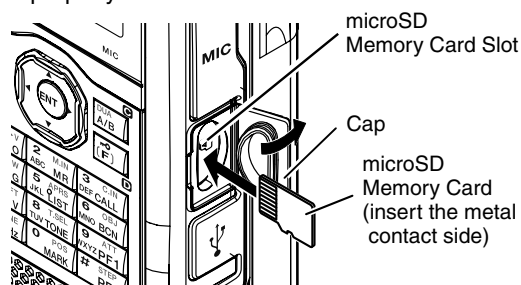
Inserting (Mounting) a microSD Memory Card

1 Switch OFF the power of the transceiver.
2 Open the cap of the microSD memory card slot on the side.
3 Insert the microSD memory card.
   - With the contacts of the microSD memory card atthe front, insert the microSD memory card into the [microSD memory card slot] until you hear it lock into place with a click. The transceiver automatically recognizes the microSD memory card and < $\boxed{SD}$ > flashes on the display. It changes to always displayed if the card enters the readable/writable state correctly.

Note:
◆ When inserting a microSD memory card, do not touch its contacts.
◆ Do not remove a microSD memory card while data is being written or read. Doing so may cause the data on the microSD memory card to be damaged or erased.

4 Close the cap.
   Close the cap of the microSD memory card slot on the side properly.

microSD Memory Card Slot

Cap

microSD Memory Card (insert the metal contact side)

Note:
◆ Do not insert a microSD memory card the opposite way around or use force to insert it. Doing so may damage the microSD memory card or slot.

Removing (Unmounting) a microSD Memory Card

When removing a microSD memory card, be sure to perform the operation to safely remove (unmount) it.

Note:
◆ Removing a microSD memory card without unmounting it correctly may damage it.

1 Access Menu No. 820.
   The microSD memory card is unmounted. When unmounting is completed, the completed confirmation screen appears.
2 Press **[A/B]**.
   Unmounting completes and the frequency screen reappears.
3 Remove the microSD memory card.
   - When removing a microSD memory card, push until you hear it unlock with a click and remove it.

FORMATTING A microSD MEMORY CARD

When using a new microSD memory card, format the microSD memory card as described below. All the data in the microSD memory card will be erased when the microSD memory card is formatted.

1 Insert the microSD memory card into the transceiver.
2 Switch ON the power of the transceiver.
3 Access Menu No. 830.
   The format confirmation screen appears.

4 Press **[A/B]**.
   Formatting begins. When formatting is completed, the completed confirmation screen appears.
5 Press **[A/B]** again.
   Formatting completes and the frequency screen reappears.

RECORDING

RECORDING FUNCTION

You can record communications to a microSD memory card.

- Recording is performed when transmitting and when the squelch is open. When transmission stops or the squelch closes, recording is paused.
- Up to approximately 18 hours (2 GB) can be recorded to one file. When the file being recorded exceeds 2 GB, recording continues with a new file.
- Recording files are named as follows.

  Example: 12202016_132051.wav (TH-D74A)

  20122016_132051.wav (TH-D74E)

  (File for which recording started at 13:20:51 on December 20, 2016.)

- The recording audio file format is WAV.

  Number of bits: 16 bits

  Sampling frequency: 16 kHz

  Number of channels: 1 (monaural)

- If the auto power off (APO) time elapses during recording, recording stops and turns the power OFF.

Note:
- ◆ For how to insert a microSD memory card, refer to page 41.
- ◆ The transceiver only supports recording to a microSD memory card.
- ◆ A microSD memory card or microSDHC memory card is not supplied with this transceiver. Purchase a commercially available product.
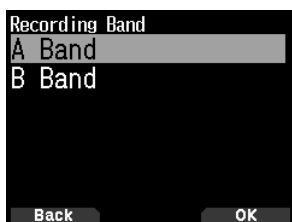
RECORDING AUDIO FILES

Selecting the Recording Band

Select the recording band A or B.

1 Access Menu No. 302.

[A Band]: Records the sound of the band A.

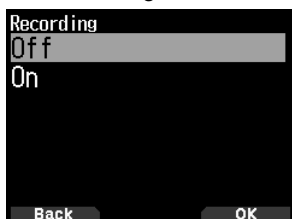**[B Band]:** Records the sound of the band B.

Recording Communication Audio

Set the recording function on to start recording. Even if the recording function is on, recording will not start while the squelch is closed.

1 Access Menu No. 301.

[Off]: Turns off the recording function.

[On]: Turns on the recording function.

Recording paused   **Recording**

Note:
- ◆ If there is no free space on the microSD memory card when recording starts or after recording has been started, a warning tone sounds and the insufficient microSD memory card space screen appears. Replace the microSD memory card with another one.

PLAYING AUDIO FILES

1 Access Menu No. 300.

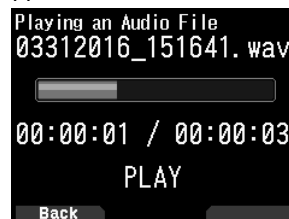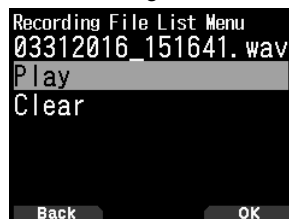The recording file list appears. Recorded audio files can be played and cleared.

Note:
- ◆ When the recording function is on, the recording file list does not appear.

2 Select the file.

3 Press **[MENU]**.

The recording file list menu appears.

4 Select **[Play]** and press **[A/B]**.

Playback begins. When playback finishes, the recording file list reappears.

Key Operations in playing audio files

Key	Action
[ENT]	Pauses playback. Pressing it again resumes playback.
[MENU]	Stops playback. Pressing it again returns to the frequency screen.
[◀]	Holding down performs fast reverse playback. Releasing it resumes playback.
[▶]	Holding down performs fast forward playback. Releasing it resumes playback.
[▲]	Plays the file immediately above the file selected in the recording file list.
[▼]	Plays the file immediately below the file selected in the recording file list.

CLEARING AUDIO FILES

1 Access Menu No. 300.

The recording file list appears.

2 Select the file.

3 Press **[MENU]**.

The recording file list menu appears.

4 Select [Clear] and press **[A/B]**.

The recording file clear confirmation screen appears.

5 Press **[A/B]**.

The file is cleared and the recording file list reappears.

FM RADIO

The transceiver can receive FM radio broadcasts. You can listen to FM radio while simultaneously monitoring two signals as well as while waiting for a CQ or a call from an acquaintance, or waiting for an APRS call. When the band A or B receives a signal (call from another party) and squelch is open, the radio sound is muted so that you can hear the other party's voice.

Note:
◆ You can not turn on the FM radio mode when selecting the following frequency bands in band B. (LF/MF(AMBC), HF, 50, FMBC)
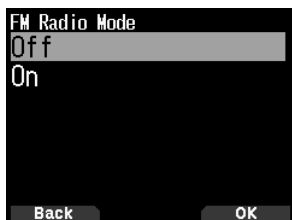◆ You can not turn on the FM radio mode when priority scan (Menu No. 134) or WX alert is On (Menu No. 106).

TURNING ON FM RADIO MODE

1 Access Menu No. 700.

[On]: Turns on the FM radio function.

[Off]: Turns off the FM radio function.

When this is set to [On], the mode becomes FM radio mode, the frequency screen appears, and the FM radio icon <📻> appears.

2 Select a frequency with **[▲]/[▼]** or **[ENC]** control.

Note:
◆ When receiving the signals for bands A and B while displaying FM radio mode screen, the frequency screen for bands A and B or interrupt screen appear. After the signal reception is finished, FM radio mode screen appears again in a few seconds.

Frequency Direct Entry (Direct Station Selection)

1 Press **[ENT]**.

The mode becomes frequency direct input mode.

2 Enter a frequency using the number keys.

Radio Scan

1 Press **[A/B]**.

The MHz dot flashes and scanning begins. Change the scan direction with **[▲ / ▼]** or **[ENC]** control. When a broadcast station with a signal is found, scanning stops at that frequency, <<Tuned>> is displayed and scanning ends.

2 Press **[A/B]**, and Radio scan stops.

EDITING THE FM RADIO MEMORY CHANNEL LIST

FM broadcast stations for up to ten channels can be registered to the FM radio memory channel list. You can assign names and edit the registered broadcast stations.

Registering FM Radio Stations

Register the FM radio stations you listen to frequently to FM radio memory channels.

1 Switch to FM radio mode and select a broadcast station you wish to register.

2 Press **[F]**, **[MR]**.

The store in the FM radio memory channel screen appears.

3 Select the channel and press **[ENT]**.

The FM radio station is registered and the FM radio memory channel list appears.

4 Press **[◀]**.
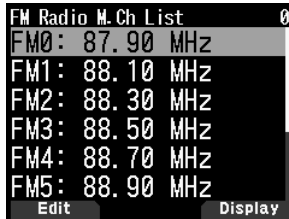
The frequency screen reappears.

Selecting a FM Radio Station

Select a registered FM radio station from the FM radio memory channel list.

1 Access Menu No. 710.

The FM radio memory channel list appears.

2 Select the channel and Press **[ENT]**.

Select from FM0 to FM9.

Clearing FM Radio Stations

Clear the FM radio stations you do not listen to any more from the FM radio memory channels.

1 Access Menu No. 710.

The FM radio memory channel list appears.

2 Select the channel you wish to clear.

Select from FM0 to FM9.

3 Press **[MENU].**

The FM radio memory channel list menu appears.

4 Select [Clear Memory] and press **[A/B].**

The FM radio memory clear confirmation screen appears.

5 Press **[A/B]**.

The FM radio station is cleared, and the FM radio memory channel list menu reappears.

Switching Between FM Radio Mode and FM Radio Memory Mode

FM radio mode

This mode allows you to receive an FM radio broadcast by setting a frequency.

FM radio memory mode

This mode allows you to call up memory channels for which frequencies have been registered in advance. A channel indication from FM0 to FM9 is displayed in FM radio memory mode.

1 Press **[MODE]**.

Each press switches between FM radio mode and FM radio memory mode.

FM radio mode   FM radio memory mode

Note:

◆ When no broadcast stations are registered in FM radio memory channel list, you can not switch to the FM radio memory mode.

Key Operations in FM Radio and FM Radio Memory Mode

Key Name	Operation
[◀]	Pauses FM radio mode, and return to FM radio mode after a few seconds.
	Switches to [GPS satellite information] screen when the GPS operation mode is GPS Receiver mode.
[▶]	Pauses FM radio mode, and return to FM radio mode after a few seconds.
	Switches to [time, Altitude, Heading, and Speed] screen when the GPS operation mode is GPS Receiver mode.
[ENT]	Switches to frequency direct input mode. (in FM radio mode)
	Displays the FM radio memory channel list. (in FM radio memory mode)
[MODE]	Switches between FM radio mode and FM radio memory mode.
[A/B]	Performs a radio scan (Seek).
Keypad	Pauses FM radio mode, and return to FM radio mode after a few seconds.

SPECIFICATIONS

TH-D74A/ TH-D74E SPECIFICATIONS

GENERAL

Frequency Range				
Band-A	TX:	144 - 148 (TH-D74A), 144 - 146 (TH-D74E), 222 - 225 (TH-D74A), 430 - 450 (TH-D74A), 430 - 440 (TH-D74E) MHz		
	RX:	136 - 174, 216 - 260 (TH-D74A only), 410 - 470 MHz		
Band-B	RX:	0.1 - 76, 76 - 108 MHz (WFM) 108 - 524 MHz		
Mode	TX	F3E, F2D, F1D, F7W		
	RX	F3E, F2D, F1D, F7W, J3E, A3E, A1A		
Operating Temp. Range		-20°C ~ +60°C (-4°F ~ +140°F)		
with Incd. KNB-75L		-10°C ~ +50°C (+14°F ~ +122°F)		
Frequency Stability		+/- 2.0 ppm		
Antenna Impedance		50 Ω		
Operating Voltage				
DC-IN		DC 11.0 - 15.9 V (STD: DC 13.8 V)		
BATT		DC 6.0 - 9.6 V (STD: DC 7.4 V)		
Current Consumption	TX	EXT.PS 13.8 V / Battery:7.4 V		
(TYP.)		H	M	L	EL
DC-IN		1.4 A	0.9 A	0.6 A	0.4 A
BATT		2.0 A	1.3 A	0.8 A	0.5 A
Current Consumption	RX			
(TYP.)	SINGLE	260 mA (Rated Power) 135 mA (SQ Close) 48 mA (Avg. Save on)		
	DUAL	310 mA (Rated Power) 185 mA (SQ Close) 50 mA (Avg. Save on)		
GPS logger mode		115 mA		
Battery Life	Approx.	Single, Save on, Rate 6:6:48 sec, GPS off		
		H	M	L	EL
KNB-75L (1,800 mAh)		6 hours	8 hours	12 hours	15 hours
KNB-74L (1,100 mAh)		4 hours	5 hours	7 hours	9 hours
KBP-9 (Alkaline AAAx6)		------	------	3.5 hours	------
		Approx. 10 % shorter when GPS is ON		
Dimensions (W x H x D)		Projections not included		
with KNB-75L		56.0 x 119.8 x 33.9 mm (2.20 x 4.72 x 1.33 in)		
with KNB-74L		56.0 x 119.8 x 29.3 mm (2.20 x 4.72 x 1.15 in)		
with KBP-9		56.0 x 119.8 x 36.0 mm (2.20 x 4.72 x 1.42 in)		
Weight (net)	Body only	202 g (7.13 oz)		
with KNB-75L		345 g (12.2 oz) (w/ Antenna, Belt Clip)		
with KNB-74L		315 g (11.1 oz) (w/ Antenna, Belt Clip)		
with KBP-9		360 g (12.7 oz) (w/ Antenna, Belt Clip, AAAx6 Battery)		

TRANSMITTER

RF Power Output		EXT.PS 13.8 V / Battery:7.4 V		
		H	M	L	EL
		5 W	2 W	0.5 W	0.05 W
Modulation	FM	Reactance Modulation		
	DV	GMSK Reactance Modulation		
Modulation Deviation	FM	+/-5.0kHz		
	NFM	+/-2.5kHz		
Spurious Emissions				
HI / MID		-60 dBc or less		
L		-50 dBc or less		
EL		-40 dBc or less		
Microphone Impedance		2 kΩ		

SPECIFICATIONS

TH-D74A/ TH-D74E SPECIFICATIONS

RECEIVER			Band A	Band B
Circuitry				
F3E, F2D, F1D,F7W	Double Super Heterodyne			
J3E, A3E, A1A	Triple Super Heterodyne			
IF Frequency				
1st IF			57.15 MHz	58.05 MHz
2nd IF			450 kHz	450 kHz
3rd IF	J3E, A3E, A1A			10.8 kHz
Sensitivity (TYP.)				
Amateur Band				
FM	12dB SINAD			
	FM/ NFM	144 MHz	0.18/ 0.22 uV	0.19/ 0.24 uV
	FM/ NFM	220 MHz (TH-D74A only)	0.18/ 0.22 uV	0.20/ 0.25 uV
	FM/ NFM	430 MHz	0.18/ 0.22 uV	0.20/ 0.25 uV
DV	PN9/GMSK 4.8kbps, BER 1%			
		144 MHz (TH-D74A)	0.22 uV	0.22 uV
		144 MHz (TH-D74E)	0.20 uV	0.22 uV
		220 MHz (TH-D74A only)	0.22 uV	0.24 uV
		430 MHz	0.22 uV	0.22 uV
SSB	10 dB S/N			0.16 uV
AM	10 dB S/N			0.50 uV
Except above Amateur Band				
AM	10 dB S/N			
		0.3 - 0.52 MHz		4 uV
		0.52 - 1.8 MHz		1.59 uV
		1.8 - 54 MHz		0.63 uV
		54 - 76 MHz		1.12 uV
		118 - 174 MHz		0.50 uV
		200 - 250 MHz		0.63 uV
		382 - 412 MHz		1.12 uV
		415 - 524 MHz		1.12 uV
FM	12dB SINAD			
		28 - 54 MHz		0.32 uV
		54 - 76 MHz		0.56 uV
		118 - 144 MHz	0.36 uV	0.36 uV
		148 - 175 MHz		0.36 uV
		200 - 222 MHz		0.36 uV
		225 - 250 MHz		0.36 uV
		382 - 400 MHz		0.50 uV
		400 - 412 MHz	0.36 uV	0.36 uV
		415 - 430 MHz	0.36 uV	0.36 uV
		450 - 490 MHz	0.36 uV	0.36 uV
		490 - 524 MHz		0.63 uV
SSB	10 dB S/N			
		1.8 - 54 MHz		0.40 uV
		54 - 76 MHz		0.79 uV
		144 - 148 MHz		0.16 uV
		222 - 225 MHz		0.20 uV
		430 - 450 MHz		0.16 uV
FM BC Band				
WFM	30 dB S/N			
		76 - 95 MHz		1.59 uV
		95 - 108 MHz		2.00 uV
Squelch (TYP.)			0.18 uV	0.25 uV
Spurious Rejection	144MHz		50 dB or more	45 dB or more
	430MHz		50 dB or more	40 dB or more
IF Rejection			60 dB or more	55 dB or more
Channel Selectivity	-6 dB	12 kHz or more		
	-50 dB	30 kHz or less		
Audio Output	7.4 V, 10% Dist.	400 mW or more / 8 Ω		

TH-D74A/ TH-D74E SPECIFICATIONS

Bluetooth	
Version, Class	Version 3.0, Class 2
Output Power	-6 < Pav < 4 dBm
Modulation Characteristics	$140 \leqq \triangle f\, 1avg \leqq 175$ kHz
Initial Carrier Frequency	$-75 \leqq fo \leqq +75$ kHz
Carrier Frequency Drift	±25 kHz (One Slot packet)
	±40 kHz (Three Slot Packet)
	±40 kHz (Five Slot Packet)

GPS	
TTFF (Cold start)	Approx. 40 sec
TTFF (Hot start)	Approx. 5 sec.
Horizontal Accuracy	10 m or less
Receive sensitivity	Approx. -157 dBm (Tracking)
	Approx. -141 dBm (Acquisition)
Ta = 25°C, Open sky	

Note:

◆ Specifications are subject to change without notice, due to advancements in technology.

Concerning the received frequency display, an unmodulated signal may be received. This is according to the set intrinsic frequency form.

TH-D74A/ TH-D74E

                          \<Band A>   \<Band B>

V x U reception $(V_{RX} + 57.15$ MHz$) \times 4 - (U_{RX} - 58.05$ MHz$) \times 2 = \pm57.15$ MHz, ±58.05 MHz

                                $(V_{RX} + 57.15$ MHz$) \times 6 - (U_{RX} - 58.05$ MHz$) \times 3 = \pm57.15$ MHz, ±58.05 MHz

                                $(V_{RX} + 57.15$ MHz$) \times 8 - (U_{RX} - 58.05$ MHz$) \times 4 = \pm57.15$ MHz, ±58.05 MHz

                                $(V_{RX} + 57.15$ MHz$) \times 9 - (U_{RX} - 58.05$ MHz$) \times 5 = \pm57.15$ MHz, ±58.05 MHz

U x V reception $(U_{RX} - 57.15$ MHz$) \times 2 - (V_{RX} + 58.05$ MHz$) \times 4 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 3 - (V_{RX} + 58.05$ MHz$) \times 6 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 4 - (V_{RX} + 58.05$ MHz$) \times 8 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 5 - (V_{RX} + 58.05$ MHz$) \times 9 = \pm57.15$ MHz, ±58.05 MHz

U x U reception $(U_{RX} - 57.15$ MHz$) \times 5 - (U_{RX} - 58.05$ MHz$) \times 5 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 6 - (U_{RX} - 58.05$ MHz$) \times 6 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 7 - (U_{RX} - 58.05$ MHz$) \times 7 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 8 - (U_{RX} - 58.05$ MHz$) \times 8 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 9 - (U_{RX} - 58.05$ MHz$) \times 9 = \pm57.15$ MHz, ±58.05 MHz

                                $(U_{RX} - 57.15$ MHz$) \times 10 - (U_{RX} - 58.05$ MHz$) \times 10 = \pm57.15$ MHz, ±58.05 MHz

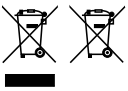19.2 MHz x n (N = mutiple)

TH-D74A only

                            \<Band A>   \<Band B>

V x 220M reception $(V_{RX} + 57.15$ MHz$) \times 8 - (220M_{RX} + 58.05$ MHz$) \times 6 = \pm57.15$MHz, ±58.05 MHz

                                    $(V_{RX} + 57.15$ MHz$) \times 10 - (220M_{RX} + 58.05$ MHz$) \times 7 = \pm57.15$MHz, ±58.05 MHz

220M x V reception $(220M_{RX} - 57.15$ MHz$) \times 4 - (V_{RX} + 58.05$ MHz$) \times 3 = \pm57.15$MHz, ±58.05 MHz

                                    $(220M_{RX} - 57.15$ MHz$) \times 7 - (V_{RX} + 58.05$ MHz$) \times 6 = \pm57.15$MHz, ±58.05 MHz

                                    $(220M_{RX} - 57.15$ MHz$) \times 9 - (V_{RX} + 58.05$ MHz$) \times 7 = \pm57.15$MHz, ±58.05 MHz

U x 220M reception $(U_{RX} - 57.15$ MHz$) \times 5 - (220M_{RX} + 58.05$ MHz$) \times 7 = \pm57.15$MHz, ±58.05 MHz

Around 224.25 MHz reception

Hereby, JVCKENWOOD Nederland B.V. declares that the radio equipment type TH-D74E is in compliance with Directive 2014/53/EU.
The full text of the EU declaration of conformity is available at the following internet address:
http://www.kenwood.com/cs/com/ecdoc/
(Note: The detail type designations are described in the EU declaration of conformity.)

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CE