//////// ═══════════════ *ALINCO* ═══

UHF DIGITAL TRANSCEIVER
(Type : NXDN Conventional)

DJ-NX40T
Instruction Manual

<NOTE>
The digital protocol of this product is NXDN but does NOT support Type-C/D Trunking.

Thank you for purchasing your new Alinco transceiver. Please read this manual carefully before using the product to ensure full performance, and keep this manual for future reference as it contains information on after-sales service.
In case addendum or errata sheets are included with this product, please read those materials and keep them together with this instruction manual for future reference.

═══ **ALINCO, INC.** ═══════ ////////

Notice

■ Introduction

Please be informed that this manual has been edited with consumer-use in mind. The product is delivered to consumers after being programmed by dealers. Some features are dealer-selectable and programmable using editor-software only and they are not mentioned in this manual.The product is blocked and not functional in ex-factory state due to regulations.

Please read this manual completely from the first page to the last, to learn basic functions the product offers. It is important to note that some of the operations may be explained in relation to information in other chapters. By reading just one part of the manual, you may risk not understanding the complete explanation of the function.

■ Lightning

Any person is not safe outdoor during thunderstorm and lightning. This condition is getting worse if somebody keeps a hand-held radio; chances of being hit by lightning are doubled since lightning may hit a radio antenna as well. At this time, there is no hand-held radio having any kind of protection against lightning current (which is higher than10 kA.). Note also that no car provides adequate protection of its passengers or drivers against lightning as well. Therefore, Alinco will not take responsibility for any danger associated with using its hand-held radios outdoor or inside the car during lightning.

■ Covering ranges (without using repeaters)

You may expect a range of approx.4km/2.5 miles or more at high-power when located on a flat, noise-free place like on a beach. However, it may vary depending on how to wear and carry the radios, surrounding locations/conditions and static noise levels, etc. In urban areas with many buildings or inside a building, such covering range may become drastically short.

■ Dealer programming

The utility software may be available to distributors/dealers only. An optional programming cable is required for programming. The manufacturer will not release the software to unauthorized party so please contact your dealer for details.This product is delivered to consumers after being preprogrammed with the operating parameters, then certain operation may be disabled for user-accesses. For this reason some features mentioned in this booklet may not be available, or features NOT mentioned in this manual may be available to your radio. The manufacturer and distributers are not aware of details of such dealer-programming.Therefore, please contact to your dealer in case any technical assistance may be necessary.

NXDN™
NXDN™ is a protocol name for a new digital communications system using 4-level FSK technology.
Please visit here for details at http://www.nxdn-forum.com/

■ Compliance Information Statement

FCC WARNING
This equipment generates or uses radio frequency energy.
Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer for technical assistance.

Attention:

Please also read the Radio Frequency Energy Safety Information separately included in the package of this product for your RF safety.

WARNING

To prevent any hazard during operation of Alinco's radio product, in this manual and on the product you may find symbols shown below. Please read and understand the meanings of these symbols before starting to use the product.

⚠ Danger	This symbol is intended to alert the user to an immediate danger that may cause loss of life and property if the user disregards the warning.
⚠ Alert	This symbol is intended to alert the user to a possible hazard that may cause loss of life and property if the user disregards the warning.
⚠ Caution	This symbol is intended to alert the user a possible hazard that may cause loss of property or injure the user if the warning is disregarded.

⚠	Alert symbol. An explanation is given.
❶	Warning symbol. An explanation is given.
🚫	Instruction symbol. An explanation is given.

⚠ Alert

■ Environment and condition of use

🚫 Use of this product may be prohibited or illegal outside of your country. Be informed in advance when you travel.

❶ It is recommended that you check local traffic regulations regarding the use of a radio equipment while driving. Some countries prohibit or apply restrictions for the operation of radios and mobile-phones while driving.

🚫 Do not use this product in close proximity to other electronic devices, especially medical ones. It may cause interference to those devices.

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Keep the radio out of the reach of children.

In case a liquid leaks from the product, do not touch it. It may damage your skin. Rinse with plenty of cold water if the liquid contacted your skin.

Never operate this product in facilities where radio products are prohibited for use such as aboard aircraft, in airports, in ports, within or near the operating area of business wireless stations or their relay stations.

The manufacturer declines any responsibilities against loss of life and/or a property due to a failure of this product when used to perform important tasks like life-guarding, surveillance, and rescue.

Do not use multiple radios in very close proximity. It may cause interference and/or damage to the product(s).

Risk of explosion if battery is replaced with an incorrect type. Dispose of, or recycle used batteries according to your local regulations.

The manufacturer declines any responsibilities against loss of life and property due to a failure of this product when used with or as a part of a device made by third parties.

Use of third party accessory may result in damage to this product. It will void our warranty for repair.

■ Handling this product

Be sure to reduce the audio output level to minimum before using an earphone or a headset. Excessive audio may damage hearing.

Do not open the unit without permission or instruction from the manufacturer. Unauthorized modification or repair may result in electric shock, fire and/or malfunction and voids warranty.

Do not operate this product in a wet place such as in a shower room. It may result in electric shock, fire and/or malfunction, This product is splash-proof but not a complete water-proof.

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Do not place the product in a container carrying conductive materials, such as water or metal in close proximity. A short-circuit to the product may result in electric shock, fire and/or malfunction.

■ About chargers

Do not use adapters other than having the specified voltage. It may result in electric shock, fire and/or malfunction,Never turn on the radio while charging.

Do not plug multiple devices using an adapter into a single wall outlet. It may result in overheating and/or fire.

Do not handle adapter with a wet hand. It may result in electric shock.

Securely plug the adapter into the wall outlet. Insecure installation may result in short-circuit, electronic shock and/or fire.

Do not use the adapter if the plug or socket contacts are dirty. Overheating and/or short-circuiting may result in fire, electric shock and/or damage to the product.

■ In case of emergency

In case of the following situation(s), please turn off the product, switch off the source of power, then remove or unplug the power-cord. Please contact your local dealer of this product for service and assistance. Do not use the product until the trouble is resolved. Do not try to troubleshoot the problem by yourself.

- ●**When a strange sound, smoke and/or strange odor comes out of the product.**
- ●**When the product is dropped or the case is broken or cracked.**
- ●**When a liquid penetrated inside.**
- ●**When a power cord (including DC cables, AC cables and adapters) is damaged**

For your safety, turn off then remove all related AC lines to the product and its accessories from the wall outlet if a thunderstorm is likely.

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■ Maintenance

Do not open the unit and its accessories. Please consult with your local dealer of this product for service and assistance.

⚠ Caution

■ Environment and condition of use

Do not use the product in proximity to a TV or a radio. It may cause interference or receive interference.

Do not install in a humid, dusty or insufficiently ventilated place. It may result in electric shock, fire and/or malfunction.

Do not install in an unstable or vibrating position. It may result in electric shock, fire and/or malfunction when/if the product falls to the ground.

Do not install the product in proximity to a source of heat and humidity such as a heater or a stove. Avoid placing the unit in direct sunlight.

Be cautious of a dew formation. Please completely dry the product before use when it happens.

■ About transceiver

Be cautious of the whip antenna when carried in your shirt-pocket etc. It may make contact with your eye and cause injury.

Do not connect devices other than specified ones to the jacks and ports on the product. It may result in damage to the devices.

Turn off and remove the power source (AC cable, DC cable, battery, cigar cable, charger adapter etc.) from the product when the product is not in use for extended period of time or in case of maintenance.

Never pull the cord alone when you unplug AC cable form the wall outlet.

Use a clean, dry cloth to wipe off dirt and condensation from the surface of the product. Never use thinner or benzene for cleaning.

Check with your local waste officials for details on recycling or proper disposal of the electronics product, battery-packs and accessories in your area.

RoHS

■Applicable Standards

●IP67 Dust and water proof

6: Dust proof / No dust entry into the device,wires 1.0mm diameter or greater cannot penetrate the connection.
7: No water penetration / Submerge the device for 30 minutes at a depth of 1 meter from the water's surface.

The IP67 designation provides for limited dust and water proofing of the device per specified above. This compatibility is factory guaranteed for a period of one year provided all specified conditions of use are respected, any accessories connected must be specified genuine Alinco accessories and the device has not been disassembled by the customer.
The device is designed to remain operational when used in rain, severe weather or in accidental cases of dropping it in water when used in extreme conditions and is in no way stating that you should attempt to use the device under water or submerge the radio for cleaning. Warranty will not cover devices that are damaged due to negligence or misuse of the product.
Never remove, or cover with another label, the small label attached on the rear chassis of this product. This is a very important part to adjust an air pressure inside to secure dust/water proofing.

● Tested to comply MIL-STD-810G
-Shock: Method 514.6/I,IV
-Vibration: Method 516.6/I

Contents

1 Accessories

1.1 Standard Accessories

- EBP-89 Li-ion battery pack (7.4V 2650mA)
- EDC-196 Li-ion battery charger
- EDC-283 AC Adaptor
- EA-235 Antenna
- EBC-27 Belt clip
- Hand strap
- Instruction manual

NOTE:

Accessories may differ depending on the version you have purchased. Please contact your local dealer for details of standard accessories and the warranty-policy.

1.2 Installations

1.2.1 Antenna

■ Attaching the Antenna

1. Hold the antenna by its base.
2. Align the grooves at the base of the antenna with the protrusions on the antenna connector.
3. Slide the antenna down and turn it clockwise until it stops.
4. Confirm that the antenna is securely connected. Check the connection from time to time.
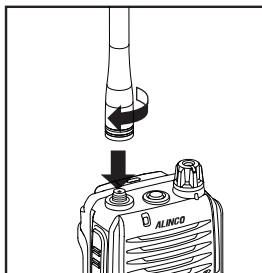
■ Removing the Antenna

Turn the antenna counter-clockwise to disconnect the antenna.

NOTE:
Do not use third-party antenna as it may radiate more RF that exceeds SAR limit guidances.

1.2.2 Belt Clip

■ Attaching the Belt Clip

1. Put the belt clip on the back of the unit, and turn the screw clockwise until it stops.
2. Confirm that the belt clip is securely attached.
* Tighten up the screw occasionally.

■ Removing the Belt Clip

Turn the screw counter-clockwise to remove the belt clip.
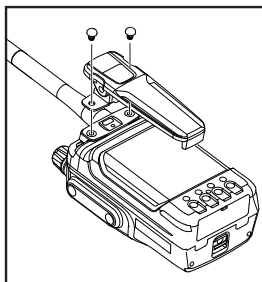
Caution: Use the screws of specified size only. Others may cause damage to the product. (screws size M 3mm x 4mm)

1.2.3 Battery Pack

■ Attaching the Battery Pack

Match the groove of the battery pack with the catch of the main body and fix it well until push the battery pack into the direction of the arrow, and hear a sound with "click". Check whether the latch is fixed.
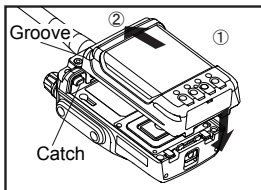
■ Removing the Battery Pack

Push the latch of the main body, and slide the battery pack and remove it.

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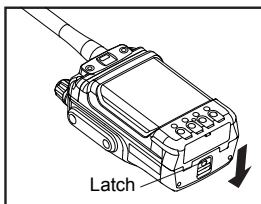
1.2.4 Prevent Short Circuiting the Battery Pack

Be extra cautious when carrying the rechargeable battery pack; short circuiting will produce surge current possibly resulting in fire.

DON'T carry with metals of any type, e.g. chains.

DON'T carry the battery pack inside bags made of conductive materials.

DON'T place in the proximity of metals or conductives, e.g. nails, chains.

Do enclose inside a non-conductive enclosure. (bags or handkerchief made only of non-conductive material)

Do protect by spreading a non-conductive sheet on a flat surface.
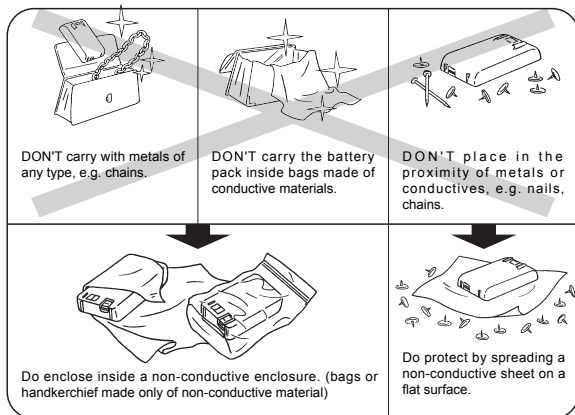
⚠ Caution

- The battery pack isn't fully charged when shipped. It must be charged before use.
- Charging should be conducted in a temperature range of 0ºC to +40ºC (+32ºF to +104ºF).
- Don't modify, dismantle, incinerate or immerse the battery pack in the water as this can be dangerous.
- Never short-circuit the battery pack terminals, as this can cause damage to the equipment or lead to heating of the battery which may cause burns.
- Unnecessary prolonged charging (overcharging) can deteriorate battery performance.
- The battery pack should be stored in a dry place where temperature is in -10ºC to +40ºC (14ºF to 104ºF) range. Temperatures outside this range can cause the battery liquid to leak. Exposure to prolonged high humidity can cause corrosion of metal components.
- Battery-packs are a consuming part. When its operating time becomes considerably short after a normal charge, please consider that the pack is exhausted and replace it with a new one.
- The battery pack is recyclable. Check with your local waste officials for details on recycling options or proper disposal in your area.

1.2.5 Using the Charger

1. Connect the AC adapter plug to the DC-IN jack on the back of the charger.
*The design of the AC adapter may vary depending on the models.
2. Connect the adapter to an outlet.

AC adapter (EDC-283)

EDC-196R

*The additional charger can be connected up to 6 in the same way. EDC-196R

Optional AC adapter (EDC-175)
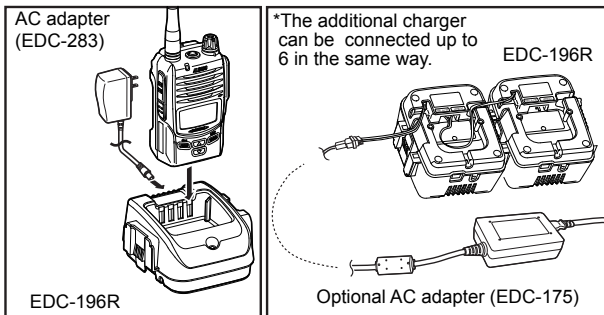
3. Turn off the unit. The battery pack can't be charged correctly when the unit is turned on. Insert the unit to the charger as shown above.

The red indicator on the desktop charger turns on while charging.
When charging is completed, the green indicator turns on.
It takes up to 4.5 hours to fully charge the battery.

NOTE:
You can't operate the unit with using a provided charger.
The charger is to charge the battery pack only.

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⚠ Caution

- Do not recharge the battery if it is already fully charged. This may shorten the life of the battery or damage the battery.
- Try charging the battery pack alone when having trouble charging with the radio.In case the radio may have troubles, the charge can't be conducted properly. If the battery pack can be charged alone, please take the radio to your local dealer for services.
- Use a clean, dry cloth to wipe off dirt and condensation from the surface of the battery pack occasionally. Even unvisible dirt and grease on contact terminals cause malfunction of charging.
- Use specified genuine chargers only to charge battery packs. Use of other chargers may cause damage to products, you and your property.
- Never charge while the radio is turned on. When turned on, the charger can't detect the charging voltage properly.
- It is known that Li-Ion battery packs heat up over 400ºC by itself when kept in a temperature of over 80ºC for extended period of time. Although the packs are protected against overheating with a protective circuit, never leave the battery packs in a car or similar locations in hot seasons.
- Li-ion packs may deteriorate by over 30% regardless of conditions after 3 years. This is a nature of Li-ion pack and not a defect of the product.

NOTE:
- The battery pack should be kept in the status of 50% charged when storing.
- It should be kept in cool, dry environment and remove it from the transceiver.
- Keep away from source of heat and direct sunlight.
- The battery pack discharges faster when it is attached to the radio. Please always remove it from the radio when not in use.

2 Names and Operations of Parts

■Front

Antenna

Emergency key

Power / Volume dial

TX/RX indicator
RX is Green,
TX is Red

Accessory port
To keep the radio dust and splash resistant, the cover must be closed properly with the original supplied cover when accessories are not in use.

PTT key

Speaker

MONI key

Microphone

Display (LCD)

Keypad
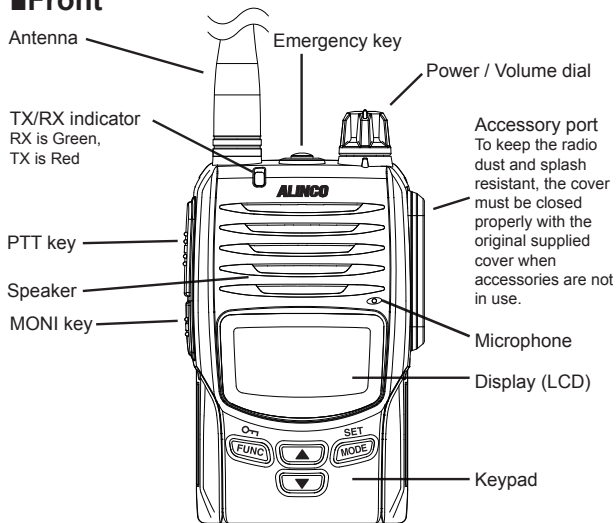
Name	Function
PTT key	Press the PTT key to transmit, release to receive.
MONI key	When the MONI key is pressed, the squelch unmutes regardless of the Radio Access Number(RAN)/ Subtone setting/Optional Signaling.
Emergency key	Press and hold the Emergency key to transmit emergency alarm.
FUNC key	Press to enter to FUNC mode. Key lock operation is possible by pushing and holding it for about two seconds.
MODE key	Press to operate selective calling. It may also be used for parameter-setting (Dealer pre-programming required).
▲/▼	Up/Down keys are used to change channels and other parameters.

∎Display
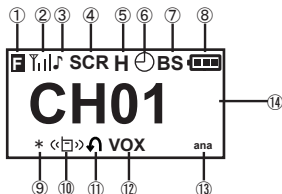
Description		
①	⏹ / 0━	Appears when the FUNC key is pressed. Displays when the keypad is locked.
②	▼ıll	Indicates the receiving signal (S-meter) and transmis-sion output levels (Power-meter). ▼ıll Hi ▼ı Low
③	♪	Appears when an incoming call matches your optional signaling. Appears when setting the BELL function.
④	**SCR**	Appears when setting the scrambler.
⑤	**H/L/✕**	Displays the transmission output setting.
⑥	⏰	Appears when setting the Auto-Power-Off function.
⑦	**BS**	Appears when setting the Battery Save function.
⑧	▰▰▰	Indicates the battery-level.
⑨	∗	Appears when setting the Voice Compander function. (analog mode)
⑩	⟨⟨▢⟩⟩	Appears when setting the Man-down function.
⑪	⋂	Appears when setting the callback function.
⑫	**VOX**	Appears when setting the VOX.
⑬	**ana**	Displayed when in the analog mode.
⑭	**CH01**	Displays the operating frequencies, Channel-name and parameters in the setting mode.

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3 Basic Operation

3.1 Turning On the Power

Turn Power / Volume dial clockwise to power on.
Turn it counter-clockwise to power off.

NOTE:
Password
When [----] appears on the display, a password has been set by your dealer. Enter a 4-digit code the dealer assigned for you.
Assigned number to keys are as follows:
FUNC =1, ▲ =2, MODE =3,▼ =4
• For example, to enter 1334, press keys in order of
FUNC,MODE,MODE,▼

3.2 Adjusting the Audio Output (Volume)

Press and hold MONI key to monitor white noise to refer to the current audio level.
Turn Power / Volume dial clockwise to increase the audio level,
counter-clockwise to decrease.
Never use earphone while adjusting audio level for your safety.

3.3 Selecting the Operating Channel

Press ▲ key or ▼ key to select the channel to communicate. Press and hold the keys to continuously change the channel numbers.

CH01

3.4 Monitor Function

When the MONI key is pressed, the squelch unmutes regardless of the Radio Access Number(RAN)/Subtone setting/Optional Signaling.

NOTE:
> Only a noise-alike signal is heard when the receiving signal is encrypted (scrambled).

3.5 Receiving

When a signal is received on the channel that you selected, S-meter is displayed on the LCD, then the received signal can be heard.
The green RX indicator also lights at this time.

3.6 Transmitting

1. Press the PTT key. The red TX indicator turns on while transmitting.
2. While holding down the PTT key, speak into the unit at normal voice from the distance of 5cm (2").
3. Release the PTT key to receive.

NOTE:
> • Speaking too loud, too close or too far from the unit may distort the audio.
> • Because the transceiver is manufactured to be water resistant, a special cloth material covers the built-in microphone. For this reason, the transmitting audio may be slightly different using the built-in microphone in comparison to using an optional external microphone.
> • Do not close the microphone hole on the front panel with your finger. Be cautious specially when wearing gloves.

3.7 Keylock

Press and hold FUNC key to set the Keylock function on, and repeat it to quit.
When the Keylock is on, the $O_{\neg\!\!\!\!}$ is displayed on the LCD,and Keypad operations are blocked.

3.8 Battery-Level Icon

During the operation, a black battery icon indicates that the battery-level is in usable range. When it turns to empty, please charge the pack or replace the cells with new ones.

The battery charge level is full.

The battery charge level is reduced a little.

The battery charge level is reduced.

The battery charge level is almost empty.
Exchange the battery pack or charge it.

3.9 Emergency Alarm

Press and hold the emergency key to transmit emergency alarm, repeat the same to cancel.

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4 Special Functions

4.1 Selective Calling

Press MODE key to select [ALL],[Group]or[Individual]calling mode.

Normal ⟶ [ALL] ⟶ [Group] ⟶ [Ind.]
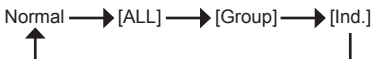
In [Group]and [Individual]calling, the number flashes when Emergency key is pressed. Use ▲ or ▼ key to select the calling party, and press PTT or Emergency key to set.Press PTT key to make a call.

4.2 Call Control Messages

Press FUNC key. While F icon is displayed, press Emergency key.
Press ▲ or ▼ keys to select a message to transmit. Press PTT key to transmit the message.

• Status: Sends status information.
• Paging : Call station(s) to contact.
• DCALL: Sends messages.

Press FUNC key to cancel the operation.

4.3 Available features

The combination of FUNC, MODE, and Emergency (red) key operations will set the access to the functions listed below. Such features may be disabled by dealer-programming so please contact your dealer in case further information may be necessary. Please note that dealer-programmed values can't be edited manually by users.

■ Basic Set Mode

1: Press FUNC key. While F icon is displayed, press MODE key. Use triangle keys to select menu.
2: Press Emergency key. The parameter blinks. Use triangle keys to select the value. Press Emergency key again to set.
3: Repeat above to continue, or press PTT to exit.

Mode	Menu #	Menu	Default	Available parameters/values	Remarks
D/A	1	Talk Around	OFF	ON/OFF	Talk around on/off
	2	TX power	Low	High/Low/OFF	Tx power setting
	3	SQL	3	0 ～ 9	Squelch level setting
	4	End beep	OFF	ON/OFF	Roger-beep on/off
	5	MIC gain	Low	High/Middle/Low	Microphone sensitivity setting
	6	BELL	OFF	ON/OFF	Pager function by beep and icon on/off
	7	Beep Sound Lv.	2	OFF/1 ～ 4	Beep sound audio level
	8	PTT beep	OFF	ON/OFF	Start talking after beep on/off
	9	motion sensor	OFF	OFF/1.man down	Man-down on/off
D	10	Delivery	Unconfirmed Type	Unconfirmed Type/ Confirmed Type	Requests a response from the destination (confirm) or not (Unconfirm) upon delivery.
	11	NXDN Status val	01(001)	01(001) ～ CF(207)	To select sending NXDN status message.
	12	Stun Response Status	None	None/ 01(001) ～ CF(207)	To Configure the Stun status message.
D/A	13	Scramble code	00000 (None)	00000(None)/ 00001 ～ 32767	scrambling codes
D	14	RAN Dec	00	00 ～ 63	RAN decoding
	15	RAN Enc	00	00 ～ 63	RAN encoding
A	16	Compander Rx	OFF	ON/OFF	Compander / receiving voice
	17	Compander Tx	OFF	ON/OFF	Compander / transmitting voice
	18	Subtone Dec.	None	None/CTCSS(50)/ DCS(204)	CTCSS/DCS decoding
	19	Subtone Enc.	None	None/CTCSS(50)/ DCS(204)	CTCSS/DCS encoding
D	20	Optional Sig. D	None	NXDN ID/None	Setting Digital optional signaling

D=digital, A=analog, D/A=common

Mode	Menu #	Menu	Default	Available parameters/values	Remarks
A	21	Optional Sig. A	None	None/DEMF/ 2-tone 1/2-tone 2/ 2-tone 3/2-tone 4	Setting optional signaling
	22	PTT ID (MDC1200)	None	None/BOT/EOT/ Both	PTT ID setting
D	23	Send Message	-	-	A message to send when DCALL being received.
	24	Received Message	-	-	Last message being received as DCALL.

D=digital, A=analog, D/A=common

■ Advanced Set Mode

1: Pressing and holding Emergency key while turing on to enter an Advanced set mode.Use triangle keys to select menu.
2: Press Emergency key. The parameter blinks. Use triangle keys to select the value.Press Emergency key again to set.
3: Repeat above to continue, or press PTT to exit.

Mode	Menu	Display	Init	Item	Remarks
D/A	1	Hold Red Button	None	None/Emergency	Emergency alarm activation
	2	call back	OFF	ON/OFF	To monitor own transmitting voice from an earphone (speaker microphone not usable)
	3	VOX	OFF	OFF/1～7	VOX off/sensitivity
	4	TX over notice	ON	ON/OFF	TOT warning in advance
	5	Batt Saver	OFF	ON/OFF	Battery save (NOT recommended in digital mode)
	6	APO	OFF	OFF/ 30min～6hours	Auto-Power-Off
	7	Time-out Timer	60s	15s～600s	Time-out Timer
	8	contrast	8	1～10	LCD contrast
	9	LAMP	5 sec.	5 sec./ON/OFF	LCD illumination operation

D=digital, A=analog, D/A=common

Mode	Menu	Display	Init	Item	Remarks
D	10	Unit ID (Own)	00001	00001 ~ 65519	Own Unit ID setting
	11	Unit ID range L	00001	00001 ~ 65519	To configure a range of Unit IDs lowest number to allow communicating.
	12	Unit ID renge H	65519	00001 ~ 65519	To configure a range of Unit IDs highest number to allow communicating.
	13	Over-the Air Alias	OFF	ON/OFF	Over-the-Air Alias configuration.
A	14	MDC1200 ID (Own)	00001	0001 ~ DEEE	To configure transmitting MDC1200 ID
	15	Single Tone Dur.	5.0s	3.0s ~ 10.0s	2-tone durations
	16	1st Tone Dur.	1.0s	0.5s ~ 1.4s	
	17	2nd Tone Dur.	3.0s	1.0s ~ 4.0s	
	18	1st Tone Delay	200ms	0ms ~ 1000ms	
	19	Gap Time	0ms	0ms ~ 500ms	
	20	Radio Check	OFF	ON/OFF	To configure Radio Check function of MDC1200.
	21	Stun Validation	OFF	ON/OFF	To configure Stun function of MDC1200.
D	22	Remote Stun/Kill	OFF	ON/OFF	Remote Stun/Kill validation in Digital mode.
	23	Base ID Type	Unit ID	Unit ID/ Group ID/ ALL	To configure a type of Base ID
	24	Base ID	00001	00001 ~ 65519	To select Base ID (invalidated when ALL)
	25	Emg ID Type	Unit ID	Unit ID/ Group ID/ ALL	To configure Emg ID Type
	26	Emg ID	00001	00001 ~ 65519	To select Emg ID (invalidated when ALL)

D=digital, A=analog, D/A=common

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5 Maintenance

5.1 Troubleshooting

Please check the list below before concluding that the unit needs to be serviced. If a problem persists, please reset the unit.

Symptom	Possible Cause	Action
Nothing appears on the display when turning on the power.	Poor battery pack connection.	Check that the battery pack terminals are clean, and pack is correctly attached.
	Battery is exhausted.	Recharge or replace the battery (page 15).
No Speaker audio. No reception.	Volume too low.	Adjust the audio level (page 19).
	Squelch level too high.	Adjust the squelch.
	Selective function is on.	Check the Selective function. (RAN/ Subtone/ Optional Signaling)
	You are pressing the PTT key and transmitting.	Release PTT key.
Channel don't change.	Keylock is on.	Turn off Keylock (page 21).
Key entry not possible.	Keylock is on.	Turn off Keylock (page 21).
Can't access to repeaters.	Incorrect setting of parameters.	Set the correct parameters to suit your local repeaters.
Can't transmit. Display flashes or goes out when you transmit.	Battery is exhausted.	Recharge or replace the battery (pages 15).
Can't talk to other stations.	Not pressing the PTT key firmly enough.	Press the PTT key and confirm that TX/RX lamp lights red.
	Incorrect frequency.	Check the Channel settings.
The display flashes or disappears during reception.	Battery is exhausted.	Recharge battery or replace the battery (pages 15).

• Please be advised that the water-proof shields including jack caps are subject to consume. The factory warranty for IP67-grade water-proof is 1 year. Please consult with your local dealer when further service-assistance may be necessary.
• Periodically clean the surface of the unit with a clean cloth.Cleaning kits for personal computers and electronics devices like digital cameras are ideal also to clean the radio products.

■ Digital mode

• Do not use transceivers of the same services within the range of about 10m (30ft). They may interfere each other even the channels may be different.
• A fading may occur to disturb communications while talking to fast-moving stations such as vehicles and ships, especially in case an external antenna of mobile station is shaking. This is due to a nature of propagation of the radio wave, and is not a defect of the product.
• Never carry magnetic cards of any kind close to transcievers. Its transmitting RF and/or a strong magnet used in an internal speaker may erase the magnetic data of cards. We decline any responsibility of the consequences.
• Electronics devices having inverter circuits and LED illuminations may generate high level of noise and may interfere with the communication.

5.2 Resetting

When you perform the reset, user-accessible and selectable values in the set mode will return to default.
1. Turn off the unit.
2. Turn on the unit with the FUNC key, PTT key and Emergency key pressed.
3. RESET appear on the display.
   Press Emergency key to reset, or any other key to cancel.

NOTE:

Reset may be prohibited totally or partially by dealer-programming. Principal settings such as channels, ID and signaling can't be reset manually by users. Please contact your dealer in case modification of programming is necessary.

6 **Options**

EBP-81	Li-ion Battery Pack (7.4V 2100mA)
EBP-82	Li-ion Battery Pack (7.4V 1500mA)
EBP-89	Li-ion Battery Pack (7.4V 2650mA)
EDC-196R	Li-ion Battery Charger
EDC-283	AC Adaptor A plug 100-240VAC
EDC-175	AC Adapter A plug 100-240VAC (For Coupling)
EDH-39	Dry Cell Case (5 AA cells, max. output 3W or less)
EMS-66	Speaker Microphone (IP54)
EMS-72	Speaker Microphone (IP67)
EME-41A	Earphone Microphone
EME-45A	Headset
EHC-51	Hard Case
EDS-16	Jack Adaptor
EBC-27	Belt Clip
EA-235	Antenna

IMPORTANT NOTE:
• EBP-81, EBP-82, EBP-89, EMS-72, Belt clip,Hard cases and antenna above listed are IP-67 dust/water proof when properly attached to the unit. However, EBP-81, EBP-82, EBP-89 and EMS-72 are not waterproof by itself. Never keep them in wet condition.
• Adapters, chargers, dry cell case and jack adapter are not dust/water proof. NEVER use them in wet and excessively dusty conditions.
• The microphone unit/PTT unit of EME-41A/45A are not waterproof.
• EDH-39 dry cell case is not practical for daily use, and it should be limited for use in case of emergency where AC outlet is not available to charge battery packs. The operation time may be reduced drastically compare to EBP-81 and EBP-89.
• Accessories may be replaced or updated. Not all items may become available in your area.
Please consult with your dealer for details when purchasing accessories.

6.1 Accessory port

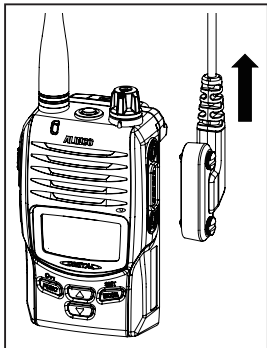### ■ Attaching the Accessory plug

1. Put the accessory plug on the side of the unit, and turn the screw clockwise until it stops.
2. Confirm that the accessory plug is securely attached.
   * Tighten up the screw occasionally.

■ Removing the Accessory plug

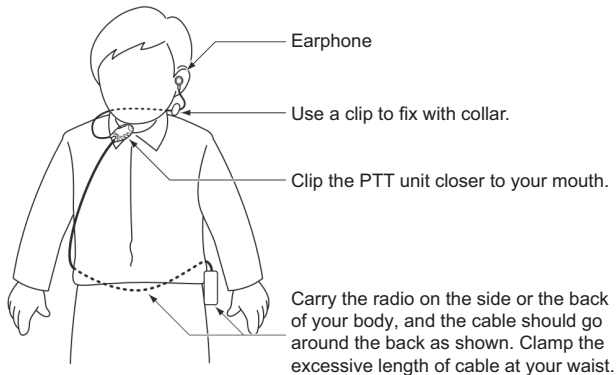Turn the screw counter-clockwise to remove the accessory plug.

NOTE:
 The cable must be placed upward as shown.

6.2 Earphone Microphone

Recommended installation of Earphone Microphone

Earphone

Use a clip to fix with collar.

Clip the PTT unit closer to your mouth.

Carry the radio on the side or the back of your body, and the cable should go around the back as shown. Clamp the excessive length of cable at your waist.
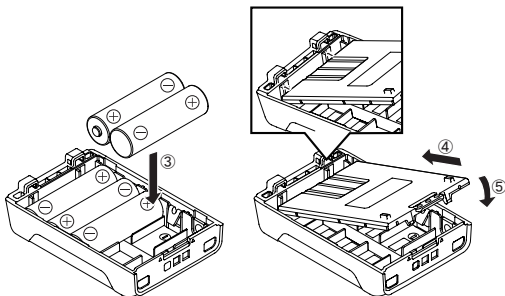
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6.3 Dry Cell Case

An EDH-34 is available for operation with using AA cells.
Lift up the catches ① on the top of the case to remove the cover.
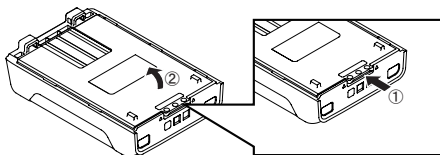
Place 5 AA cells, then close the cover in order of ④ then ⑤ .
Be sure that the cover is securely closed.

⚠ Caution About Handling Dry Cell Case:

• This dry cell case isn't water-proof.
• Be extra-cautious to the polarity of the cells (+)/(-). Misplacing cells may result in leak, fire or explosion.
• Use new batteries of the same type and brand when placing them.
• Use of rechargeable cells is prohibited and the manufacturer declines any responsibilities for damages/injuries that may cause to the users and their properties.
• It is recommended to clean the battery contacting terminals with a clean dry cloth from time to time.
• Risk of explosion if batteries are replaced by an incorrect type.
• Batteries are recyclable. Please check the local rules for proper recycle/disposal in your area.

7 Specifications

■GENERAL

Frequency Range		450-512MHz
Number of Channels		260ch
Channel Spacing	Analog	12.5kHz
	Digital	6.25kHz
Operating Voltage		7.5V DC nominal
Battery Life (Approx.)	EBP-89 (2650mAh)	12hours
Operating Temperature Range		-20℃ to +60℃ (-4 ℉ to +140 ℉)
Frequency Stability		±1.5ppm
Antenna Impedance		50Ω
Dimensions (W x H x D Approx.) with EBP-89 Li-ion pack /antenna length		56.9x98.5x48.0mm /155.0mm (2.24x3.88x1.89inches /6.10inches)
Weight (Approx.) with EBP-89 Li-ion pack		313g /11.04ounces

■TRANSMITTER

RF Power Output Hi/Lo	EBP-89 Li-ion pack	5W / 1W
	EDH-39 Dry Cell	3W / 1W
Sprious Emission		66dB
FM Hum & Noise	Analog	40dB
Modulation		4K00F1E /4K00F1D 4K00F7W /11K0F3E

■RECEIVER

Sensitivity	Analog (12dB SINAD)	0.2μV
	Digital (3% BER)	0.22μV
Intermodulation		60dB
Spurious Response		65dB
Audio Distortion		Less than 3%
Audio Output		700mW /8Ω

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