ICOM

SATELLITE PTT

IC-SAT100

Icom Inc.

INTRODUCTION

Thank you for choosing this Icom product.
This product is designed and built with Icom's state of the art technology and craftsmanship.
With proper care, this product should provide you with years of trouble-free operation.

Important

READ ALL INSTRUCTIONS carefully before using the transceiver.

This **OPERATING MANUAL** contains advanced features and operating instructions for the IC-SAT100.

READ also the **BASIC MANUAL** that is supplied with the transceiver.

KEEP THE MANUALS, because it contains important operating information that may be useful in the future.

Table of contents

1 ACCESSORIES

Supplied accessories

Battery pack
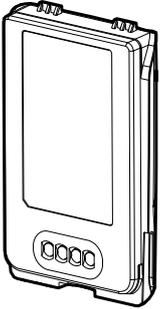
Belt clip

Power adapter*
(with adapter plugs)
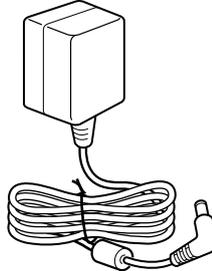
Antenna
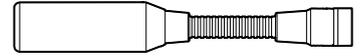
Battery charger*
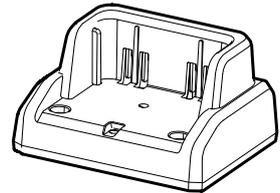
* May not be supplied, or the shape may be different, depending on the transceiver version.

Attaching accessories

◇ Antenna
Connect the supplied antenna to the antenna connector.

CAUTION:
• **DO NOT** carry the transceiver by holding only the antenna.
• **DO NOT** connect an antenna other than the supplied antenna, or those listed in this manual.
• **DO NOT** transmit without an antenna.
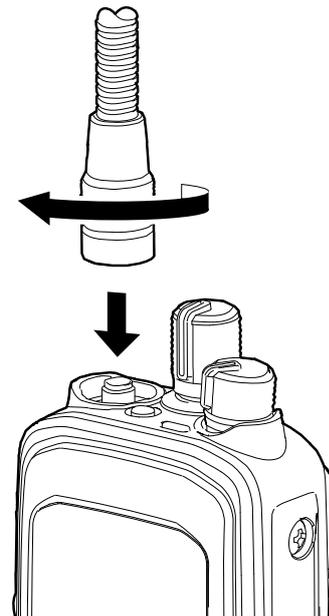
Attaching accessories

◇ **Battery pack/Battery case**

CAUTION: DO NOT attach or detach the battery pack or the battery case when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver, battery pack, or battery case and may damage them.

NOTE: Keep the battery pack terminals clean. It's a good idea to occasionally clean them.

To attach:
1. Slide the battery pack in the direction of the arrow. (❶)
2. Hook the latch until it makes a 'click' sound. (❷)
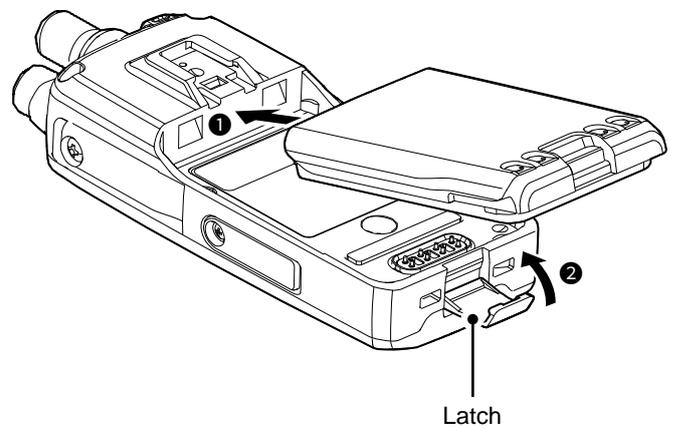
Latch

To detach:
● Unhook the latch (❶), and then lift up the battery pack. (❷)
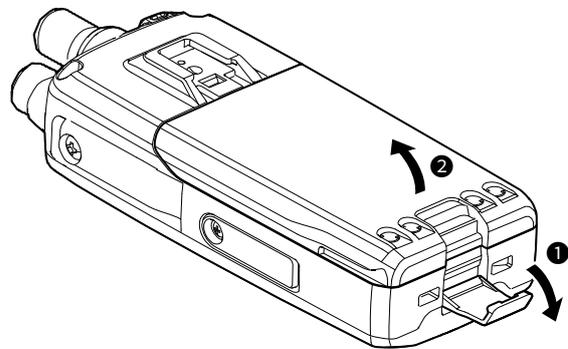
Attaching accessories

◇ **Belt clip**

To attach:
1. Detach the battery pack.
2. Slide the belt clip in the direction of the arrow until the belt clip is locked and makes a 'click' sound.
3. Attach the battery pack.
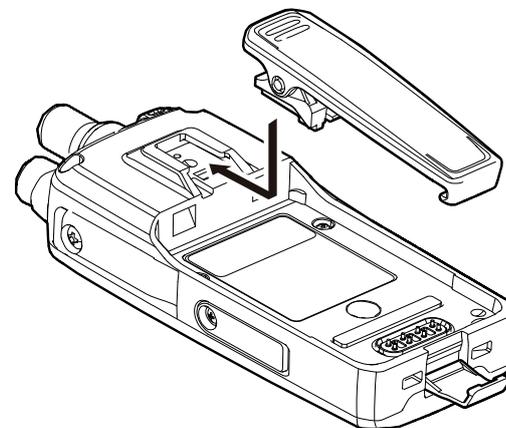
To detach:
1. Detach the battery pack.
2. Lift the tab up (❶), and slide the belt clip in the direction of the arrow (❷).
3. Attach the battery pack.
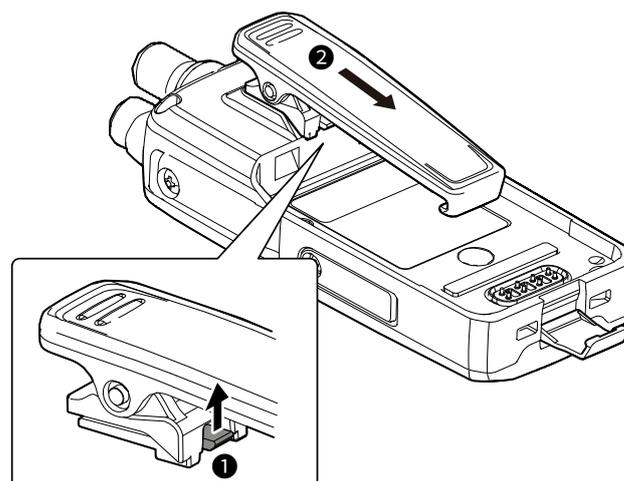
BE CAREFUL! Do not break your fingernail.

2 PANEL DESCRIPTION

Front, top, and side panels
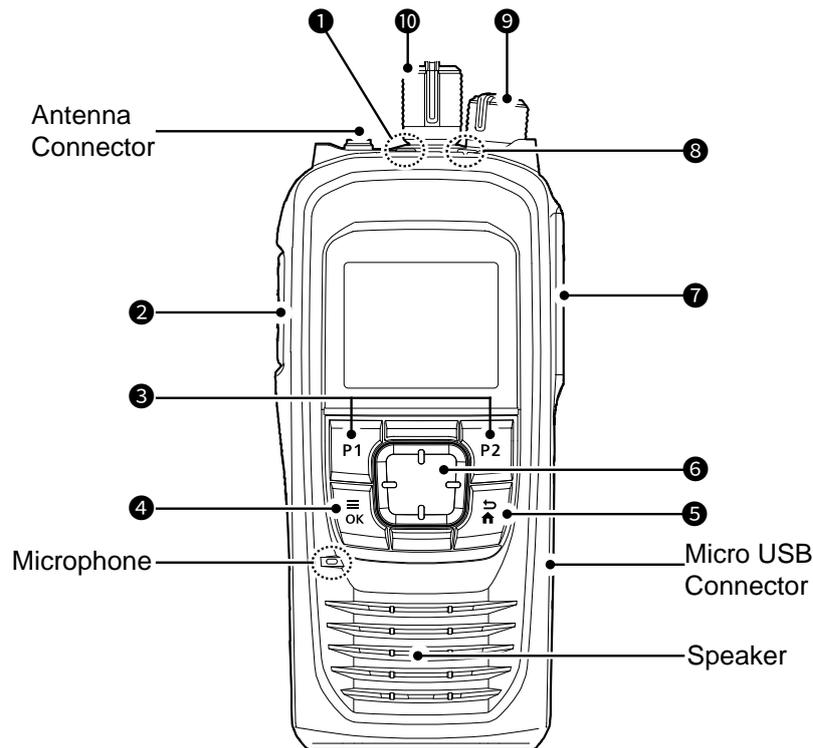
❶ EMERGENCY KEY [EMER]
Hold down to transmit an Emergency call. (p. 8)

❷ PTT SWITCH [PTT]
Hold down to transmit, release to receive. (p. 7)

❸ P1/P2 KEYS [P1]/[P2]

Push to use the function assigned in the "Key Setup" menu*. (p. 14)
*[OK] > Functions > **Key Setup**

❹ MENU/OK KEY [OK]
● Push to enter the Menu screen.
● Push to select an item in the Menu screen.

❺ BACK/HOME KEY [BACK]
● Push to return to the previous Menu screen.
● Hold down to exit the Menu screen.

❻ DIRECTIONAL KEY [UP]/[DOWN]/[LEFT]/[RIGHT]
● Push to select a menu item, setting, and so on.
● Push [UP]/[DOWN] to display the Talkgroup list in the Main screen.

❼ MULTI-CONNECTOR
Connects to an optional headset.

❽ STATUS INDICATOR
● Lights green while receiving.
● Blinks green while the "OPEN" status.
● Lights red while transmitting.
● Blinks orange while registering, or no satellites are found.

❾ VOLUME/POWER SWITCH [VOL]
● Rotate to turn the transceiver ON or OFF. (p. 7)
● Rotate to adjust the audio output level.

❿ TALKGROUP SELECTOR
● Rotate to select a Talkgroup. (p. 7)

Function display

······· Icon area

······ Text area

······· Key display area
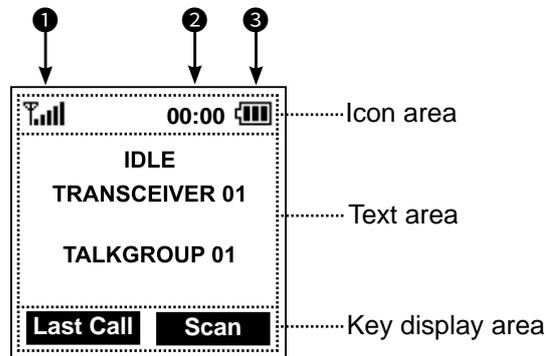
ⓘ The display is shown in English as an example. Select other languages on the Menu screen, if necessary.
([OK] > Display > **Language**)

◇ Icon Area

Indicators

❶ SIGNAL STRENGTH

Displays the relative receive signal strength level.

NOTE: The antenna indicator "ᵀ" disappears if the connection with a satellite is not established.
Keep the antenna vertical and wait until you are connected, or move your position to the place with a clear view of the sky.

❷ CLOCK

Displays the current time.

❸ BATTERY

Displayed or blinks to indicate the battery status.

▨	▨	▭	▭
Full	Mid	Charging required	Battery exhausted

Icons

The following icons are displayed in the Icon Area.

LOCK ◻
Displayed when the Lock function is ON. (p. 8)

SURVEILLANCE ⬚
Displayed when the Surveillance function is ON. (p. 10)

VIBRATION ⬚
Displayed when the Vibration function is ON. (p. 15)

Bluetooth®
(For only the transceiver with the Bluetooth function)
• "✳" is displayed when Bluetooth is activated. (p. 13)
• "⬚" is displayed when a Bluetooth device is connected. (p. 11)

MESSAGE ⬚
• Displayed when a message have been received. (p. 8)
• Displayed if unread messages are still in the Message memory.

RECORD ⬚
Displayed when the Record function is ON. (p. 12)
USB ⬚
Displayed when a USB device is connected.

◇ Text Area
Displays the status, preset transceiver name, and selected Talkgroup Name.

Status	Description
IDLE	The selected Talkgroup is not active.
OPEN	The selected Talkgroup is active but no one is talking.
REQUESTING	Requesting a transmission.
TALKING	Transmitting
LISTENING	Receiving
SCANNING	Scanning a call
BUSY	Cannot transmit because the audio is being received.

◇ Key Display Area
Displays the names of the function assigned to [P1] and [P2]. You can assign functions in the Menu screen. (p. 13)

3   BATTERY CHARGING

Battery charger

NOTE:
• Before attaching or detaching a battery pack, BE SURE to turn OFF the transceiver by rotating [VOL] fully counter clockwise until it makes a "click" sound. Otherwise, a transceiver malfunction could occur.
• BE SURE to remove the transceiver from the charger while operating the transceiver.

◇ Supplied battery charger
Charging time:
Approximately 3.1 hours for the BP-300

Turn OFF

Power adapter*

Battery pack

Battery charger
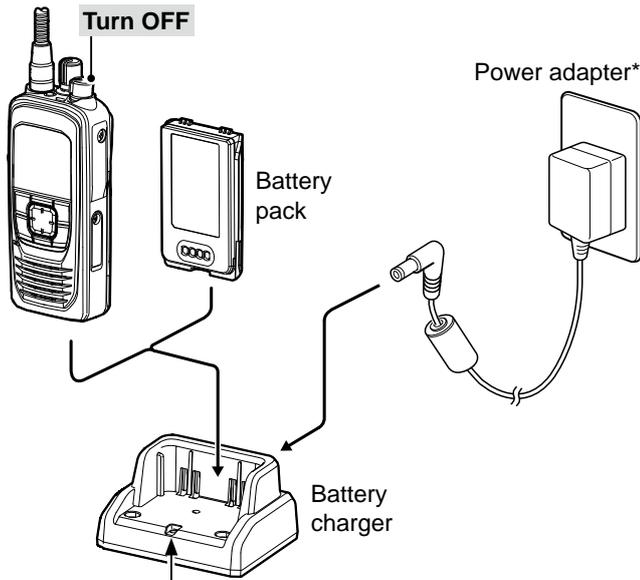
Charging indicator
Lights orange: Charging
Lights green: Charged
Blinks red: When a charging error has occurred.

* May not be supplied, or the shape may be different, depending on the transceiver version.

NOTE: If the charging indicator alternately blinks green and orange, remove the battery pack or the transceiver from the charger, then reinsert it. If the charging indicator still alternately blinks green and orange, ask your dealer for details.

◇ Extend Battery Life function
The charger has the Extend Battery Life function switch on the bottom panel.
• OFF: The battery is fully charged. The operating time of the transceiver is maximum.
• ON: The battery is not fully charged to not shorten the battery life cycle.
    ⓘ The battery life cycle is extended. But the operating time of the transceiver becomes shorter.

◇ Micro USB Connector
You can also use the Micro USB Connector to charge instead of the supplied battery charger.
ⓘ An USB cable that compatible with more than 2.0 A is required (User supplied).
ⓘ " 〔⚡〕 " is displayed while charging.
ⓘ Charging time may longer than using a battery charger.

Receiving and transmitting

◇ Turning ON the transceiver
● Rotate [VOL] to turn ON the transceiver.
  • The transceiver searches for a satellite.
  • When the transceiver is connected and registered to a satellite, the status "IDLE," transceiver name, and Talkgroup name are displayed.
  ⓘ Rotate Talkgroup selector to select a Talkgroup.
  ⓘ Push [Last Call] to playback the received call. (p. 10)
  ⓘ Push [UP] or [DOWN] to display the Talkgroup List.

◇ Receiving
When receiving, "LISTENING," and the source transceiver's name is displayed, and audio should be heard.
• When a source transceiver stops transmitting and receiving is finished, the transceiver sounds the beep "Pi" and displays "OPEN".
ⓘ Rotate [VOL] to adjust the audio output level.

```
┌─────────────────────────────┐
│ T.ull          00:00  ▓▓▓▓  │
│          LISTENING          │
│        TRANSCEIVER 02       │
│                             │
│          TALKGROUP01        │
│                             │
│  Last Call      Ignore      │
└─────────────────────────────┘
```

◇ Transmitting

CAUTION: DO NOT transmit without an antenna.

1. Hold down [PTT].
   • "REQUESTING" is displayed while the transceiver requests a transmission.
2. When "TALKING" is displayed, speak at your normal voice level.
   ⓘ You can continuously transmit up to the period of time allowed by the system.

```
┌─────────────────────────────┐
│ T.ull          00:00  ▓▓▓▓  │
│           TALKING           │
│        TRANSCEIVER 01       │
│                             │
│          TALKGROUP01        │
│                             │
│  Last Call      Ignore      │
└─────────────────────────────┘
```
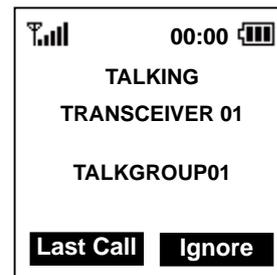
NOTE:
• If the connection becomes poor while transmitting, the transceiver sounds the beep "PuPu" in 1.5 seconds interval. Keep the antenna vertical, or move your position to the place with a clear view of the sky.
• You cannot transmit while listening to the received audio. Before transmitting, confirm the receiving is finished by the beep "Pi" and the display "OPEN."
  *If you push [PTT] while receiving, the transceiver sounds the beep "PiPiPiPiPi" and displays "BUSY."

◇ Scan and Ignore
[Scan]
Push to start scanning. (p. 9)
[Ignore]
Push to ignore a received call. (p. 9)
ⓘ The Ignore function will be canceled if there are no more calls for 90 seconds or longer.

NOTE:
• The transceiver receives and transmits using several satellites in the same orbit. Receiving and transmitting may fail, depending on the satellite position or any obstacles between the transceiver and the satellites.
• Your body can also be an obstacle. Do not hook the transceiver on your waist.
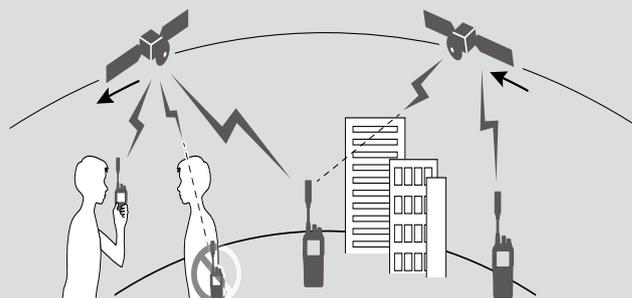
5   OTHER FUNCTIONS

Using the Message function

The transceiver can receive and send short messages.

◇ Receiving
When receiving, a received message's header and the Talkgroup name are displayed.
ⓛ Push [RX MSG] to display a received message.

```
 ▼▪▪▫ ✉          00:00 ▤

     ┌─────────────────┐
     │                 │
     │     HELLO!       │
     │   TALKGROUP 01   │
     │                 │
     └─────────────────┘

   [Last Call]  [RX MSG]
```

◇ Transmitting

CAUTION: DO NOT transmit without an antenna.

1. Open the "Message List" in the Menu screen.

   [OK] > PTT Options > **Message List**

   ⓛ You can also assign [P1] key as a shortcut to the "Message List." (p. 13)
2. Select a message to send.

   > **TIP:** Writing a new message
   > 1. Select a blank on the "Message List" screen, and then push [OK].
   >   • The "Message Display" screen is displayed.
   > 2. Push [OK] again to display the cursor.
   > 3. Enter a message of up to 100 characters.
   >
   > ```
   >    ┌─────────────────────┐
   >    ▐ Message Display ▐
   >    ├─────────────────────┤
   >    abcde■
   >
   >
   >
   >
   >    └─────────────────────┘
   > ```
   >
   > ⓛ To enter a character, push [Up] or [Down].
   >   Usable characters: a ~ z, A ~ Z, 0 ~ 9,
   >   / + - = \ . ! ? ' , * # "
   > ⓛ To move the cursor, push [Right] or [Left].
   > ⓛ To insert a space, push [P1].
   > ⓛ To delete, push [P2] or [BACK].
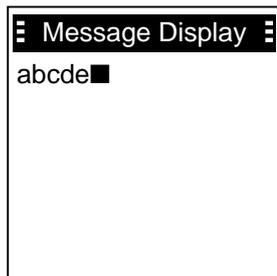
3. Push [PTT] to send the message.

◇ Received message list
You can read received messages on the "Received Message" screen.

   [OK] > PTT Options > **Received Message**

Using the Emergency mode

In the Emergency mode, the transceiver can transmit an Emergency call, as shown below.

NOTE: Using the Emergency mode requires the Priority Talkgroup settings for the transceiver on the command center. Ask your dealer for details.

ⓛ Confirm the transceiver is connected and registered to a satellite.
1. Hold down [EMER] for 2 seconds.
   • Beep sounds, and the transceiver enters the Emergency mode.
   ⓛ "REQUESTING" is displayed while the transceiver requests the transmission.
2. When "TALKING" is displayed, the transceiver transmits the audio for 5 seconds.

Using the Key Lock function

You can use the Key Lock function to prevent accidental or unnecessary function access.

1. Assign the function to the [P2] key in the Menu screen.

   [OK] > Functions > Key Setup > **P2 Key**

2. Push [P2] until "Lock ON" or "Lock OFF" is displayed to turn the function ON or OFF.
   • "🔒" is displayed while the function is ON.

◇ Auto Key Lock function
The transceiver locks the keypad* when no key is pushed for 30 seconds.
* Except for [EMER], [PTT], [VOL], and Talkgroup selector.
● Turn the function ON or OFF in the Menu screen.

   [OK] > Functions > **Auto Key Lock**

   • "🔒" is displayed while the function is ON.
   ⓛ Push [P2] until "Lock OFF" is displayed to turn OFF the function.

Using the Scan function

You can search the talkgroup that others are talking on.

ⓘ Confirm "Scan Start/Stop" is assigned to [P2] key on the Menu screen. (p. 14)

1. Push [Scan] to start scanning.
   • "SCANNING" is displayed while scanning.
   • "LISTENING" and the talkgroup name is displayed while receiving.
   ⓘ Push [Scan] again to stop scanning.
2. After "OPEN" is displayed, push [PTT] to join the talk.
3. Push [Ignore] to exit the talk and resume scanning.
   ⓘ The transceiver automatically resumes scanning when the talk is finished.
4. Push [Scan] to stop scanning.

Tᵢₗₗ	00:00
IDLE	
TRANSCEIVER 01	
TALKGROUP01	
Last Call	**Scan**

IDLE

Push [Scan] →

Tᵢₗₗ	00:00
SCANNING	
TRANSCEIVER 01	
Waiting Activity	
Last Call	**Scan**

Scanning

→

Tᵢₗₗ	00:00
LISTENING	
TALKGROUP03	
Last Call	**Ignore**

Receiving

Finished receiving (Sounds the beep "Pi")

Push [Ignore]

Tᵢₗₗ	00:00
SCANNING	
TRANSCEIVER 01	
Waiting Activity	
Last Call	**Scan**

Resume scanning

Push [Ignore] (Or the talk is finished)

Tᵢₗₗ	00:00
OPEN	
TALKGROUP03	
Last Call	**Ignore**

Joining the talk

Push [Scan]

Using the Surveillance function

When this function is turned ON, the beep is not heard and the backlight and the Status indicator do not light, even when a signal is received, or a key is pushed.

1. Assign the function to the [P1] key in the Menu screen.

    [OK] > Functions > Key Setup > **P1 Key**

2. Hold down [BACK] for 1 second to exit the Menu screen.
3. Push [Surveillan] to turn the function ON or OFF.
    ⓘ "🛰" is displayed while the function is ON.

Using the AquaQuake function

The AquaQuake water draining function removes water from the speaker grill by vibrating the internal speaker.

1. Assign the function to the [P1] key in the Menu screen.

    [OK] > Functions > Key Setup > **P1 Key**

2. Hold down [BACK] for 1 second to exit the Menu screen.
3. Hold down [AquaQu...] to use the function.
    ⓘ Water in the speaker grill may muffle the sound coming from the speaker.
    ⓘ After the specified period of time, the function automatically stops, even if you continue holding down the key.
    ⓘ The function works with only the internal speaker.

Using the Last Call Play function

The transceiver can playback the previously received call.
ⓘ You can playback up to 6 latest calls.
ⓘ Confirm the Call Recorder function is turned ON.
  ([OK] > PTT Options > **Call Recorder**)

1. Assign the function to the [P1] key in the Menu screen.

    [OK] > Functions > Key Setup > **P1 Key**

2. Hold down [BACK] for 1 second to exit the Menu screen.
3. Push [Last Call] to playback the received call.

Using a Bluetooth® headset (For only the transceiver with the Bluetooth function)

The transceiver can operate with Bluetooth headsets.
The communication range of Bluetooth is
approximately 10 meters (33 ft).

Bluetooth® Bluetooth headset
(Example: Optional VS-3)
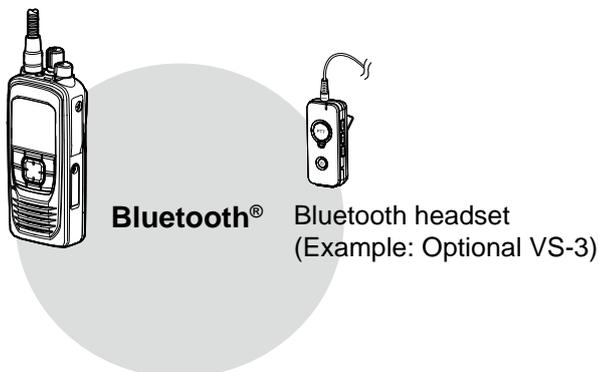
NOTE: The Bluetooth communication range may
vary, depending on the environment where you
operate the device.

◇ Electromagnetic Interference

When you use a Bluetooth device, pay attention to the
following:
Bluetooth devices operate in the 2.4 GHz band. The
2.4 GHz band is also used by other devices, such
as Wireless LAN products, microwave ovens, RFID
systems, amateur radio stations, and so on.
When using this device near such devices,
interference may occur, causing a decrease in
communication speed, and an unstable connection.
In such cases, use this device away from the other
devices, or stop using those devices.

◇ Pairing with a headset

You can pair a maximum of 4 Bluetooth headsets to
the transceiver.
ⓘ These instructions describe pairing with the VS-3
Bluetooth® headset, as an example.

1. Turning ON the transceiver's Bluetooth function

1. Select "Bluetooth ON/OFF," in the Menu screen,
   and then push [OK].

   [OK] > Bluetooth > **Bluetooth ON/OFF**

2. Select "ON," and then push [OK] to turn ON the
   Bluetooth function.
3. Hold down [BACK] for 1 second to exit the Menu
   screen.
   • " ✳ " is displayed.

2. Entering the VS-3 Pairing mode

1. Confirm the VS-3 is turned OFF.
2. Hold down [⏻] for 6 seconds.
   • The LED alternatively blinks red and blue, and then
     the headset enters the Pairing mode.

3. Pairing and connecting the Bluetooth headset

1. Select "Find Device," and then push [OK].

   [OK] > Bluetooth > BT Device List > **Find Device**

2. Select "Headset," and then push [OK].
   • The transceiver searches for a headset.
   ⓘ Push [BACK] to cancel searching.
3. Select the headset to pair and connect, and then
   push [OK].
   ⓘ A passkey or PIN code may be required to pair,
     depending on the headset. Refer to your headset or
     device's instructions for details.
4. Hold down [BACK] for 1 second to exit the Menu
   screen.
   • " 🅑 " is displayed if the headset or device is correctly
     connected.

◇ Disconnecting a paired device

You can disconnect a paired Bluetooth device if it is
not being used.
1. Select "BT Device List," and then push [OK].

   [OK] > Bluetooth > **BT Device List**

2. Select the device to disconnect, and then push
   [OK].
3. Select "Disconnect," and then push [OK].
4. Hold down [BACK] for 1 second to exit the Menu
   screen.
   • " ✳ " is displayed if the headset or device is correctly
     disconnected.

◇ Deleting a headset

Disconnect a connected headset before deleting it.

1. Select "BT Device List," and then push [OK].

   [OK] > Bluetooth > **BT Device List**

2. Select the headset to delete, and then push [OK].
3. Select "Delete," and then push [OK] to delete the
   headset.
4. Hold down [BACK] for 1 second to exit the Menu
   screen.

7   MENU SCREEN

Using the Menu screen

You can use the Menu screen to set infrequently changed values or function settings.

The Menu screen is constructed in a tree structure. You can go to the next tree level by pushing [RIGHT] or [OK], go back a level pushing [LEFT] or [BACK]. To select an item, push [UP] or [DOWN].

NOTE: The menu items contained in the transceiver may differ, depending on the its version or presettings.

```
┌─────────────────────────┐
│ ⋮       Menu         ⋮   │
├─────────────────────────┤
│ Talkgroup               │
│ ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ │
│ PTT Options             │
│ Bluetooth               │
│ Functions               │
│ Clock                   │
└─────────────────────────┘
```

Menu items

◇ Talkgroup

Refresh Talkgroup

Select the item, and then push [OK] to refresh the Talkgroup list.

Talkgroup List

Displays the Talkgroup list.
ⓘ "P" is displayed for the Priority Talkgroup.

◇ PTT Option

Talk Timer

The Talk Timer displays the time remaining for the current talk period.
• OFF: Turns OFF the function.
• ON: Displays the remaining time while transmitting.

Mic gain

Sets the microphone sensitivity to between -5 and 5.
ⓘ Higher values make the microphone more sensitive to the user's voice.

Call Recorder

Turn ON or OFF the Call Recorder function.
• OFF: Turns OFF the function.
• ON: Records the received call audio.

Received Message

Displays the Received message list.
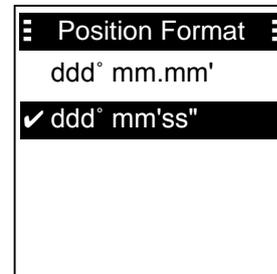
Message List

Displays the Created message list.

Location Sharing

Turn ON or OFF the Location Sharing function.
OFF: Turns OFF the function.
ON: Share your location with other Talkgroup participants.

Position Format

Select a format to display your position data.

```
┌─────────────────────────┐
│ ⋮  Position Format   ⋮   │
├─────────────────────────┤
│    ddd° mm.mm'          │
│ ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ │
│ ✔ ddd° mm'ss"           │
│                         │
│                         │
│                         │
└─────────────────────────┘
```

Distance Format

Select a format to display the distance.
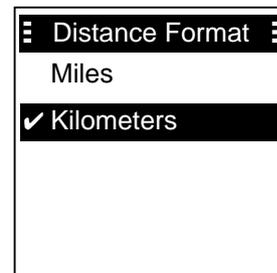
```
┌─────────────────────────┐
│ ⋮  Distance Format   ⋮   │
├─────────────────────────┤
│    Miles                │
│ ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ │
│ ✔ Kilometers            │
│                         │
│                         │
│                         │
└─────────────────────────┘
```

◇ Bluetooth

(For only the transceiver with the Bluetooth function)
You can pair 2 types of Bluetooth devices: a Headset and a Data device.

Number of maximum pairing devices:
• Up to 5 Bluetooth headsets and data devices such as Android smartphone can be paired.
  (Headset 1~4, Data device 1~4)
• Up to 2 iOS devices (Bluetooth LE) can be paired.

Bluetooth ON/OFF

Turn the Bluetooth function ON or OFF.

BT Device List

Displays the paired Bluetooth headsets and Bluetooth data devices.

❍ Find Device

Search for a Bluetooth headset or data device to pair and connect.
• Headset: Search for a Bluetooth headset.
• Data Device: Search for an Android device.
• LE Device: Search for an iOS device.

NOTE: To pair an iOS device, update the transceiver's main firmware to revision 1.4 or later. Ask your dealer for details.

Bluetooth Reset

Initialize the built-in Bluetooth unit.

BT Auto Connect

Select whether or not to automatically connect to the last bonded Bluetooth device.
• OFF: The user must manually connect to a bonded device.
• ON: Automatically connects to the last bonded device.

BT Audio Setting

Select the audio output device for when the Bluetooth headset is connected.
• BT Only: Sets the Bluetooth headset as the Audio Output device.
• BT & SP: Sets the Bluetooth headset and the transceiver's speaker as the audio output devices.

BT Device Info

Displays the Bluetooth device information such as the device name, address, support profile, version, and so on.

PTT&Mic Switch

Select which microphone to use while the Bluetooth headset is connected.
• Auto: Transmit the audio from the device whose [PTT] is pushed.
• Radio Mic: When pushing the Bluetooth headset's [PTT], transmits the audio from the optional microphone, if connected, or the transceiver's microphone if no optional microphone is connected.
  ⓘ No audio may be transmitted, depending on the type of connected microphone and the transceiver settings.
  ⓘ When pushing [PTT] on other than the Bluetooth headset, transmits the audio from the device whose [PTT] is pushed.
• Headset Mic: Transmits the audio from the Bluetooth headset's microphone, no matter which [PTT] is pushed.

Key Beep (VS-3)

Turn the optional VS-3 Bluetooth headset's key beep ON or OFF.

PWR Save (VS-3)

Select whether or not to operate using the Bluetooth headset's battery saving mode while the optional VS-3 Bluetooth headset is connected.
• OFF: The Power Save mode is OFF.
• ON: The Power Save mode is activated when there is no communication or operation for 120 seconds.

PTT Beep (VS-3)

Set the beep sound when pushing [PTT] on the optional VS-3 Bluetooth headset.
• OFF: No beep sounds when pushing [PTT].
• ON: A beep sounds when pushing [PTT].

One-touch PTT

Set the One-Touch PTT function while the optional VS-3 Bluetooth headset is connected.
The function enables you to communicate with a single push of the VS-3's [PTT].
• OFF: Push [PTT] to transmit and release to receive.
• ON: Push [PTT] to transmit and push again to receive.

Waiting Pairing

Waits for the pairing request from a Bluetooth headset or data device.
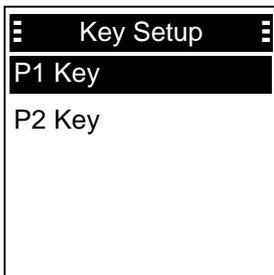
◇ Functions

Auto Key Lock

Turn the Auto Keypad Lock function ON or OFF.
- OFF: Turns OFF the function.
- ON: The transceiver locks the keypad* when no key is pushed for 30 seconds.
        * Except for [EMER], [PTT], [VOL], and Talkgroup selector.

Key Setup

Assign functions to the [P1] and [P2] keys.

```
┇        Key Setup        ┇
P1 Key
P2 Key


```

❍ Assignable functions

[P1]	[P2]
OFF (No function is assigned)	OFF (No function is assigned)
Talkgroup List (p. 12)	Scan Start/Stop (p. 9)
My Position (p. 15)	Lock (p. 8)
Surveillance (p. 10)	
AquaQuake (p. 10)	
Last Call Play (p. 10)	
Message List (p. 12)	

PC Command

Select a connecting method to connect the transceiver to a PC.
- OFF: Nothing is selected.
- Multi-Connector: Select when connect to a PC using a connection cable with Multi-Connector.
- USB: Select when connect to a PC using a USB cable (User supplied).
- Bluetooth*:   Select when connect to a PC using a Bluetooth device.
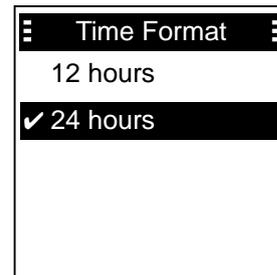   *For only the transceiver with the Bluetooth function.

◇ Clock

Clock Display

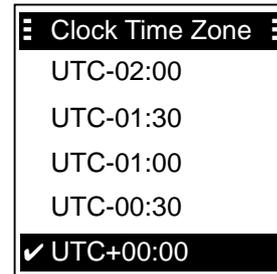Select whether or not to display the clock on the Main screen.

Time Format

Select time format for the clock.

```
┇       Time Format       ┇
  12 hours
✔ 24 hours



```

Clock Time Zone

Select your local time zone.

```
┇     Clock Time Zone     ┇
  UTC-02:00
  UTC-01:30
  UTC-01:00
  UTC-00:30
✔ UTC+00:00
```

DST

Selects whether or not to use Daylight Saving Time (DST) for the clock.

◇ Display

Backlight

Select a Backlight setting.
- OFF: The backlight is always OFF.
- ON: The backlight is always ON.
- Auto: When any switch except [PTT] is pushed, the backlight lights for 5 seconds.

Menu items

Contrast

Adjust the contrast level.

Language

Select a Language for the user interface.

◇ Beep/Vibration

Sets the transceiver's beep level and select an option for vibration.

> **TIP:** When you set the beep level to between "1 (Linked)" and "5 (Linked)," you can adjust the beep level within the range of 0 and selected level by rotating [VOL].

System Beep Lv

Sets the system beep output level.
The beep sounds when connecting to or blocked from the system.

Emer Beep Lv

Sets the beep output level when in the Emergency mode.

Key Beep Lv

Sets the key beep output level.

Ringer Lv

Sets the ringer output level.

Opening Beep Lv

Sets the opening beep output level.
The transceiver beeps when it is turned ON.

System Vibration

Turn the system vibration ON or OFF.
The transceiver vibrates when connecting to or blocked from the system.

Emer Vibration

Turn the Emergency vibration ON or OFF.
The transceiver vibrates when received an Emergency call.

Key Vibration

Turn the key vibration ON or OFF.
The transceiver vibrates when you pushed any key except [PTT].

Receive Vibration

Turn the receive vibration ON or OFF.
The transceiver vibrates when received any call or message.

Opening Vibration

Turn the opening vibration ON or OFF.
The transceiver vibrates when it is turned ON.

◇ Information

Battery Info

Displays the battery information such as voltage, battery percentage, cycle count, and so on.

RSSI

Displays the Received Signal Strength Indication (RSSI).

My Position

Displays your current position.

Firmware Info

Displays the transceiver's firmware information.

Satellite Info

Displays satellite information.

Certification

Displays the certifications acquired with the transceiver.

8   SPECIFICATIONS AND OPTIONS

Specifications (Measurements made without an antenna.)

ⓘ All stated specifications are subject to change without notice or obligation.

◇ General
- Frequency range: 1616 ~ 1626.5 MHz
- Number of channels: 240 Channels
- Type of emission: 41K7Q7W
- Duplexing method: TDD (Time Domain Duplex)
- Multiplexing method: TDMA/FDMA
- Antenna impedance: 50 Ω nominal
- Input impedance (MIC):   2.2 kΩ
- Output impedance (audio):   8 Ω
- Operating temperature range: –30˚C ~ +60˚C, –22˚F ~ +140˚F
- Power supply voltage: 7.5 V DC nominal
- Current drain: 2.5 A or less
- Dimensions (Projections not included):   57.8 (W) × 135 (H) × 32.8 (D) mm,
  2.3 (W) × 5.3 (H) × 1.3 (D) inches
- Weight (approximate):   360 g, 12.7 oz with BP-300 and FA-S102U

◇ Transmitter
- Output power: 7 W
- SAR 10g: 4.46 W/kg
- Modulation: DE-QPSK/DE-BPSK
- Channel spacing: 41.667 kHz
- Frequency stability: ±1.5 ppm
- Spurious emissions: 0.25 µW (1 GHz or less)
  1.0 µW (More than 1 GHz)
- Audio harmonic distortion: 0.8% typical (at AF 1 kHz)

◇ Receiver
- Sensitivity: –116 dBm typical
- Audio output power (At 5% distortion):   1.5 W (Typical) into an 8 Ω load (Internal speaker)
  1.0 W (Typical) into an 8 Ω load (External speaker)

Options

◇ BATTERY PACK

• **BP-300** BATTERY PACK

Voltage:	7.2 V
Capacity:	2200 mAh (minimum), 2350 mAh (typical)
Approximate battery life*:	14.5 hours

 * Operating periods are calculated under the following conditions.
   TX : RX : standby = 5 : 5 : 90

◇ CHARGERS

• **BC-241** DESKTOP CHARGER + **BC-242** AC ADAPTER
 To rapidly charge a single battery pack.

• **BC-214N** MULTI CHARGER + **AD-140** CHARGER ADAPTER + **BC-157S** AC ADAPTER
 To rapidly charge up to 6 battery packs.

• **BC-247** DOCKING STATION + **BC-242** AC ADAPTER
 The wall-mountable charger. You can also attach third party mounting base to mount the charger on the place of your choice.

◇ OTHERS

• **OPC-656** DC POWER CABLE
 Use with a 13.8 V power source instead of the power adapter. (Use with the BC-214N)

• **FA-S102U** ANTENNA

• **FA-S103U** ONE-TOUCH CONNECTOR
 The connector enables attaching/detaching the AH-40 antenna with inserting the transceiver to the BC-247.

• **AH-40** ANTENNA
 The antenna with a magnet base and cable (Approximately 1.5 m, 4.9 feet).

• **MBB-5** BELT CLIP

• **HM-222/HM-222H** SPEAKER MICROPHONE
 With an Emergency key.
 The HM-222 meets IP68 requirements for waterproof protection.
 The HM-222H is the higher power version of the HM-222.

• **VS-3** Bluetooth® HEADSET
 (For only the transceiver with the Bluetooth function)
 The Bluetooth® headset with a [PTT] switch.

 About the third party Bluetooth® headsets:
 Icom has checked the PTT operation with some 3M Peltor headsets such as the WS Headset XP, WS ProTac XP and WS Alert XP. (Compatibility not guaranteed.)

• **VS-5MC** PTT SWITCH CABLE + **HS-94, HS-95, HS-97** HEADSET
 VS-5MC: Used to connect a headset to a transceiver.
 HS-94: Ear-hook type
 HS-95: Neck-arm type
 HS-97: Throat microphone

• **HM-163MC** TIEPIN TYPE MICROPHONE
 + **EH-15B** EARPHONE, **SP-28** EAR HOOK TYPE EARPHONE, **SP-26** TUBE EARPHONE

• **SP-32** TUBE TYPE EARPHONE ADAPTER
 For use with EH-15B.

• **SP-27** TUBE EARPHONE, **SP-29** EAR HOOK TYPE EARPHONE, **SP-40** EARPHONE +
 AD-135 EARPHONE ADAPTER
 AD-135: Used to connect an earphone to the transceiver's multi-connector.

• **AD-118** ACC ADAPTER
 Used to connect a headset with a Hirose-6-pin connector to the transceiver's multi-connector.

• **RS-SAT100** APPLICATION SOFTWARE
 The RS-SAT100 is an application that enables you to text chat through a satellite communication network by connecting a satellite transceiver. See the RS-SAT100 INSTRUCTIONS for details.

 Some options may not be available in some countries. Ask your dealer for details.

◇ **Using an optional AH-40 ANTENNA**
The AH-40 ANTENNA has a cable with approximately 1.5 m (4.9 feet). You can place the antenna to the better location to receive and transmit while charging the transceiver using the BC-247 DOCKING STATION that is mounted on elsewhere.

Example of use:

External microphone

AH-40   BC-247
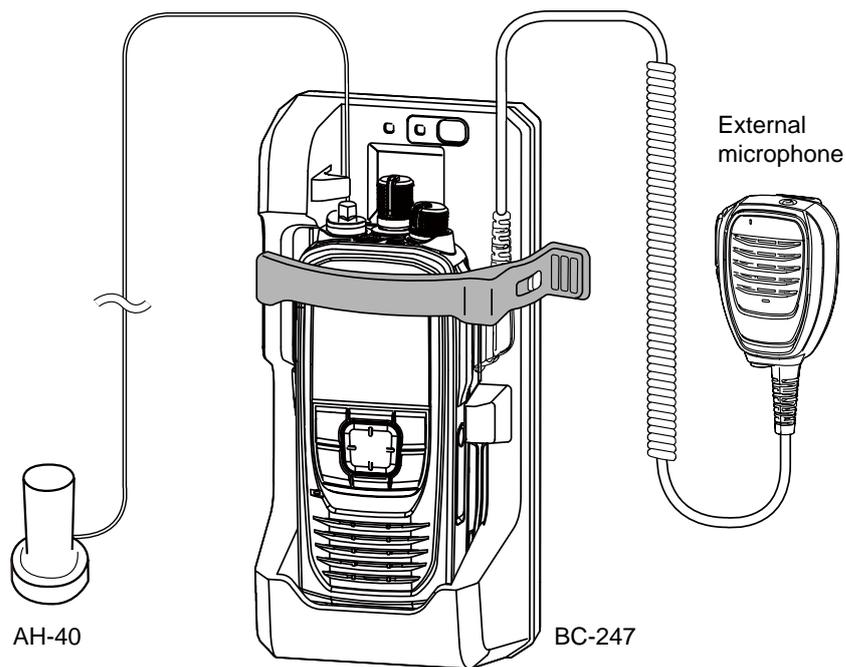
NOTE:
• Be sure the antenna is positioned to the place without any obstacle.
• Use an external microphone or headset to transmit when the transceiver is attached to the BC-247.
  See page 16 for usable microphone or headsets.

◇ **About an antenna's magnet base**
The AH-40 uses strong magnet base to attach the antenna to the place of your choice.

DANGER! NEVER place or attach the antenna on electronic medical equipment, such as an implanted cardiac pacemaker. It may affect the operation of the equipment. This could be life endangering.

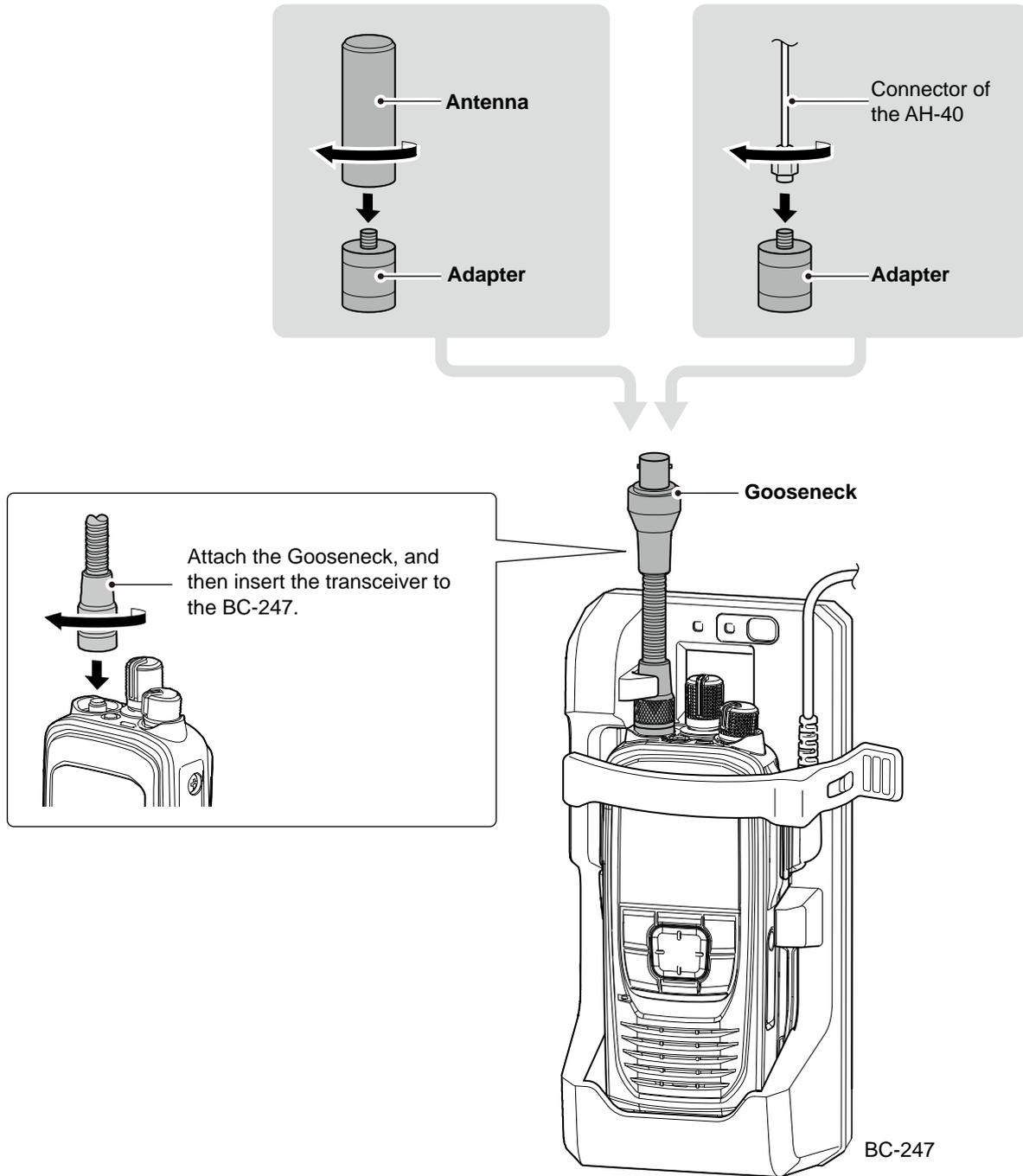**BE CAREFUL** not to pinch your finger when you attach the antenna.

DO NOT put the antenna near a clock, television set (CRT type), magnetic compass or any magnetic/IC cards, credit cards, and so on. The magnet base may cause the products to malfunction or may erase the contents of magnetic storage devices.

◇ **Using an optional FA-S103U** ONE-TOUCH CONNECTOR

The FA-S103U one-touch connector is the option consists of 4 parts. This connector enables attaching/detaching the AH-40 antenna with inserting the transceiver to the BC-247 docking station, as shown below.
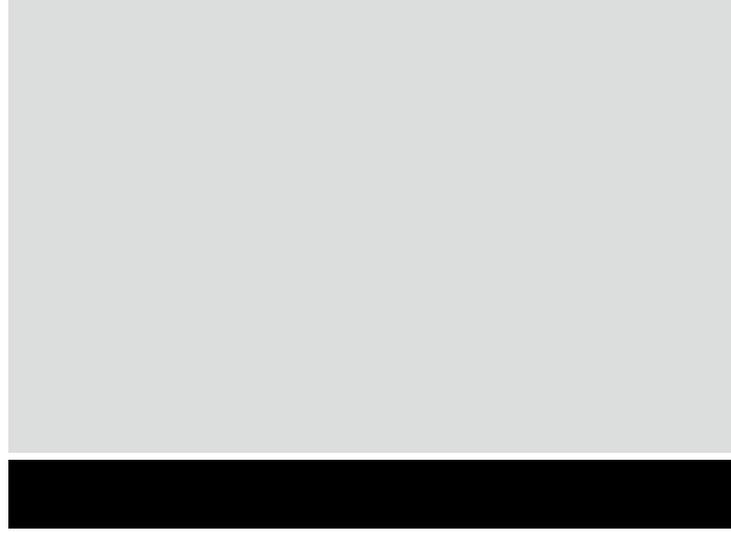
Example of use:

Antenna

Adapter

Connector of the AH-40

Adapter

Gooseneck

Attach the Gooseneck, and then insert the transceiver to the BC-247.

BC-247

9 TROUBLESHOOTING

Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
The transceiver does not turn ON.	• The battery is exhausted. • The battery pack is not correctly attached.	• Recharge the battery pack. • Correctly reattach the battery pack.	p. 6 p. 2
Little or no sound comes from the speaker.	• Volume level is set too low.	• Rotate [VOL] to adjust the volume level.	p. 7
You cannot transmit.	• The battery is exhausted. • An obstacle may exist between the satellite and transceiver.	• Recharge the battery pack. • Retry transmitting in a place without obstacles.	p. 6 p. 7
No reply is received.	• The talkgroup is not correct. • The operator is away from the transceiver, or the transceiver is turned OFF.	• Confirm the talkgroup. • Wait until the operator is back, or ask your system manager.	p. 7 –
The transceiver sounds a "PuPu" beep while transmitting.	• The connection becomes poor.	• Move your position to the place with a clear view of the sky.	p. 5
The transceiver sounds the beep "PiPiPiPiPi" and displays "BUSY" while transmitting.	• The transceiver is receiving a signal and not able to transmit.	• Before transmitting, confirm the status "OPEN" is displayed.	p. 7
" ᵠ " is not displayed.	• The connection with a satellite is not established.	• Move your position to the place with a clear view of the sky.	p. 5
You cannot use the keypad.	• The Key Lock function is ON.	• Push [P2] until "Lock OFF" is displayed to turn OFF the function.	p. 8
The battery charging does not correctly complete.	• The transceiver power is ON while charging.	• Turn OFF the power while charging.	p. 6
The charging indicator on the charger is not lit even the battery pack is inserted.	• The battery pack is not correctly inserted.	• Remove the battery pack or the transceiver from the charger, then reinsert it.	p. 6
No beep sounds.	• The Key beep is set to OFF. • The audio output level is low.	• Adjust the key beep level in the Menu screen. ([OK] > Beep/Vibration > **Key Beep Lv**) • Rotate [VOL] to adjust the audio output level.	p. 15 p. 7
Failed to pair your Bluetooth headset.	• The Bluetooth headset is not in the Pairing mode. • There are other active Bluetooth devices nearby. • There are other devices that are operating in the 2.4 GHz band. • Your transceiver version does not have a Bluetooth function.	• Confirm the Bluetooth headset is in the Pairing mode, and then try again. • Stop using other Bluetooth devices. • Use the transceiver away from other Bluetooth devices. • Use the transceiver away from the other devices, or stop using those devices. –	p. 11 –
Little or no sound comes from the earphone connected to the VS-3. (For only the transceiver with the Bluetooth function)	• Volume level is set too low. • The earphone is not correctly attached.	• Rotate [VOL] to adjust the volume level. • Push [VOL] (+) on the VS-3 to increase the volume level. • Correctly reattach the earphone.	p. 7 –

How the World Communicates