



ADVANCED MANUAL

COMMUNICATIONS RECEIVER
IC-R30

INTRODUCTION

1 POWER SUPPLY

2 microSD CARD

3 RECORDING AND PLAYING BACK

4 MEMORY OPERATION

5 GPS OPERATION

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7 OTHER FUNCTIONS

8 Bluetooth® OPERATION

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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.

■ About the IC-R30 manuals

The following manuals are supplied for your IC-R30.

Basic manual (Supplied with the IC-R30)

Instructions for the basic operations, precautions.

Advanced manual (This manual)

Instructions for the advanced operations, as shown below.

- Battery operation*
- Using a microSD card*
- Recording the received audio*
- Memory operation*
- GPS operation*
- Menu screen*
- Other functions*
- Bluetooth® operation*
- Firmware updating
- Options*
- Specifications

△ *Only the basic instructions are described in the BASIC MANUAL.

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Functions of Adobe® Acrobat® Reader®

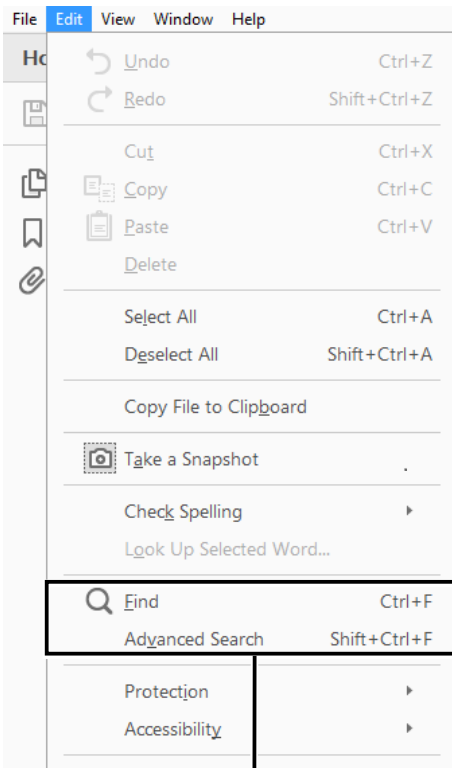
The following functions and features can be used with Adobe Acrobat Reader.

- **Keyword search**

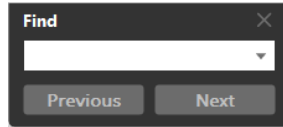
Click “Find” (Ctrl+F) or “Advanced Search” (Shift+Ctrl+F) in the Edit menu to open the search screen.

This is convenient when searching for a particular word or phrase in this manual.

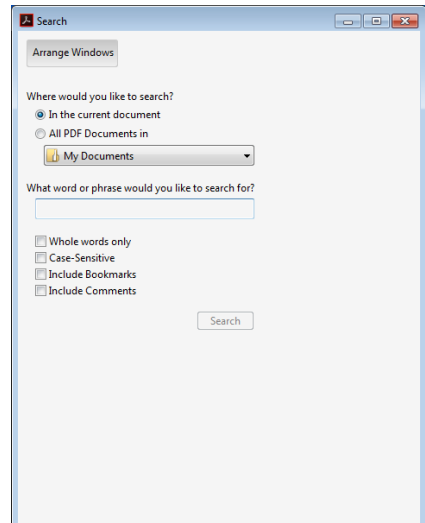
* The menu screen may differ, depending on the Adobe Acrobat Reader version.



- **Find screen**



- **Advanced search screen**



Click to open the find or search screen or advanced search screen.

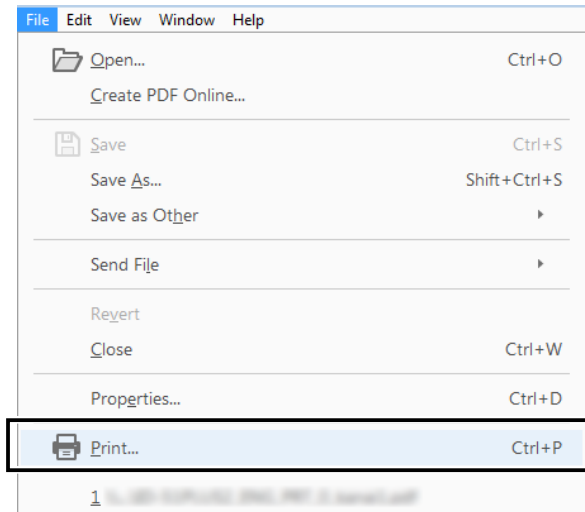
Functions of Adobe® Acrobat® Reader® (Continued)

- **Printing out the desired pages.**

Click “Print” in the File menu, and then select the paper size and page numbers you want to print.

*The printing setup may differ, depending on the printer. Refer to your printer’s instruction manual for details.

*Select "A5" size to print out the page in the original manual size.

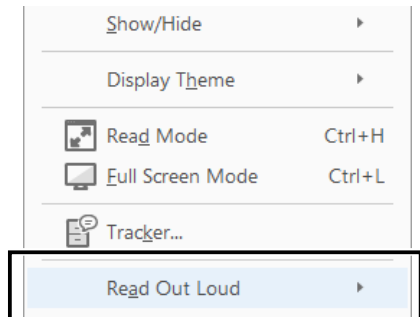


- **Read Out Loud feature.**

The Read Out Loud feature reads aloud the text in this PDF.

Refer to the Adobe Acrobat Reader Help for the details.

(This feature may not be usable, depending on your PC environment including the operating system.)



* The screen may differ, depending on the Adobe Acrobat Reader version.

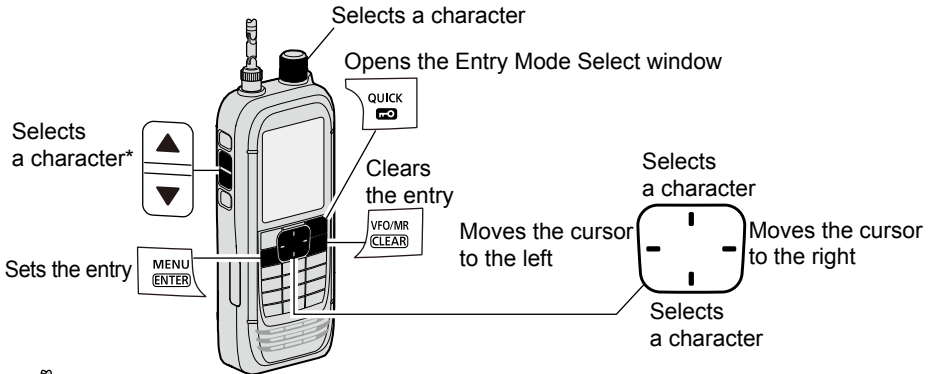
INTRODUCTION

Entering and editing text

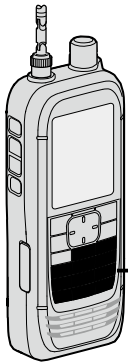
The usable characters are alphabets, numbers and symbols.

To enter characters

- To insert a text, move the cursor to a place to enter, then push the keypad.
- ① You can elect a character by rotating [DIAL], or pushing D-pad (Up) or D-pad (Down).
- When the character type is "AB" or "ab," and while entering a character, push [QUICK] to select upper case or lower case letters.
- To clear a character, push [CLEAR].
- To consecutively clear characters, continuously hold down [CLEAR].



*Only when the DIAL/VOL Switch function is ON.



Keypad

NAME		
-		
AB		
./@	ABC	DEF
GHI	JKL	MNO
PQRS	TUV	WXYZ
AB↔12		—

Alphabet
(Upper case)

NAME		
-		
ab		
./@	abc	def
ghi	jkl	mno
pqrs	tuv	wxyz
ab↔12		—

Alphabet
(Lower case)

NAME		
-		
12		
1	2	3
4	5	6
7	8	9
AB↔12	0	—

Number

Entry Mode Select window

NAME			
-			
AB	!"#	AB	
ab		C	DEF
12			
GHI	JKL	MNO	
PQRS	TUV	WXYZ	
AB↔12		—	

Character type	Selectable characters and symbols
AB	A to Z, 0 to 9, (space)
ab	a to z, 0 to 9, (space)
12	0 to 9, (space)
!"#	!"#\$%&'()*+,-./:;<=>?@ [\]^_`{ }~(space)

Entering and editing text (Continued)

◇ Usable characters

The usable characters and symbols, and the maximum characters differ, depending on the item. See the following list for details.

Category	Item	Character type	Maximum characters	Illegal characters	Ref.
Memory mode	Memory name	[AB] [ab] [12] [!"#]	16	–	p. ?-?
	Bank name	[AB] [ab] [12] [!"#]	16	–	
Program scan	Scan name	[AB] [ab] [12] [!"#]	16	–	
P-LINK	Scan Link name	[AB] [ab] [12] [!"#]	16	–	
SD Card	Save Setting	[AB] [ab] [12] [!"#]	20	/ ; * < >	p. ?-?
	Export	[AB] [ab] [12] [!"#]	20	/ ; * < >	p. ?-?
GPS Memory	Memory name	[AB] [ab] [12] [!"#]	16	–	p. ?-?
	Group name	[AB] [ab] [12] [!"#]	16	–	p. ?-?
Bluetooth®	Device name	[AB] [ab] [12]	8	–	p. ?-?

[AB]: A to Z, 0 to 9, (space)

[ab]: a to z, 0 to 9, (space)

[12]: 0 to 9, (space)

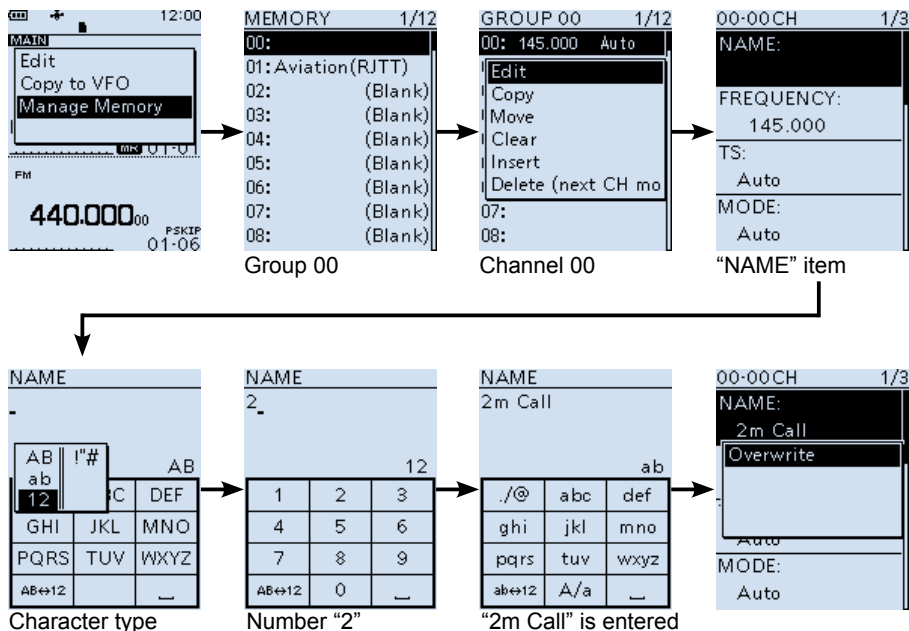
[!"#]: ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~ (space)

Entering and editing text (Continued)

◇ How to enter

Example: Entering “2m Call” as a Memory name of channel 00 in group 00.

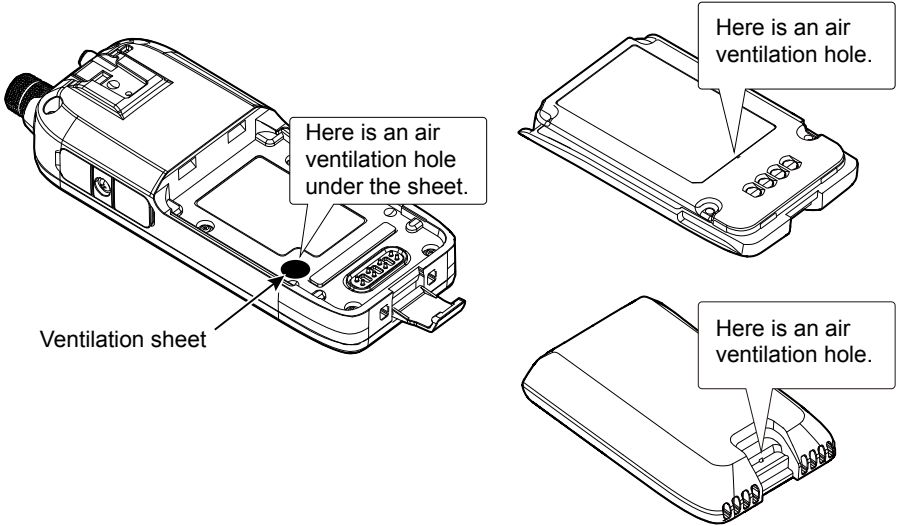
1. Push [VFO/MR] to enter the Memory mode.
2. Push [MW].
3. Select “Manage Memory.”
(Rotate [DIAL] to select it, then push [ENTER].)
4. Select group “00.”
5. Select channel “00,” then push [QUICK].
6. Select “Edit.”
 - The Edit screen is displayed.
7. Select “NAME.”
 - The Memory name edit screen is displayed.
8. Push [QUICK] to select a character type.
9. Push [MHz] to select “2.”
 - ① To enter symbols, select [!“#].
10. Repeat steps 8 ~ 9 to enter a name.
11. After entering, push [ENT].
 - Returns to the Edit screen and the entered name is displayed.
12. Push [QUICK], then select “<<Overwrite>>.”
 - A confirmation dialog appears.
13. Select <YES>.
 - A beep sounds, then returns to the Memory mode.



About the air ventilation holes

There are air ventilation holes on the receiver body and battery pack/case that adjust the air pressure inside of the receiver.

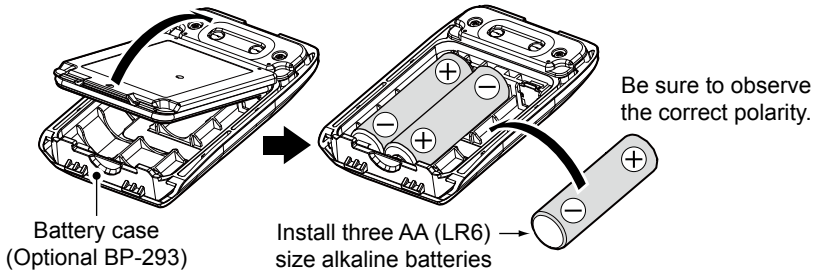
- ① Applying a sticker over the ventilation hole blocks the air pressure adjustment, and may decrease the audio output level.
- ① Damage to the ventilation sheet may reduce the water protection capability.



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◇ Battery life	1-2
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■ Charging with a USB cable	1-4

■ About the Battery Case

- Remove the battery case, then install three AA (LR6) size alkaline batteries, as described below.



◇ Battery life

The approximate battery life (operating time) is approximately 4 hours under the following assumptions:

- Dualwatch function: ON

(A band: Receiving, B band: Stand-by, Power Save function: ON (Auto (Short)))

- ① The battery life may differ, depending on the operating style, or the installed alkaline batteries.
- ① The batteries may seem to have low capacity when used in low temperatures. Keep the case warm in low temperature environments.

◇ About the battery replacement

When the alkaline batteries are almost exhausted, "LOW BATTERY" is displayed, then the receiver is automatically turned OFF. Replace all batteries with new alkaline batteries.

- ① When the BP-293 battery case is attached to the receiver, the battery icon cannot display the battery capacity of the alkaline batteries. The battery icon stays as "■," and it does not reflect with the true battery capacity.

1 POWER SUPPLY

◇ About the safety use of the battery case

- When installing batteries, make sure they are all the same brand, type and capacity. Also, do not mix new and old batteries together.
- Keep the battery terminals clean. It's a good idea to occasionally clean them.
- Never incinerate used battery cells since the internal battery gas may cause them to rupture.
- Never expose a detached battery case to water. If the battery case gets wet, be sure to wipe it dry before using it.
- Never use batteries whose insulated covering is damaged.

CAUTION: Install only alkaline batteries into the BP-293.

NOTE:

- Remove the alkaline batteries when battery case is not used.
- Do not connect a USB cable while the battery case is attached to the receiver. The operation while connecting a USB is not guaranteed.

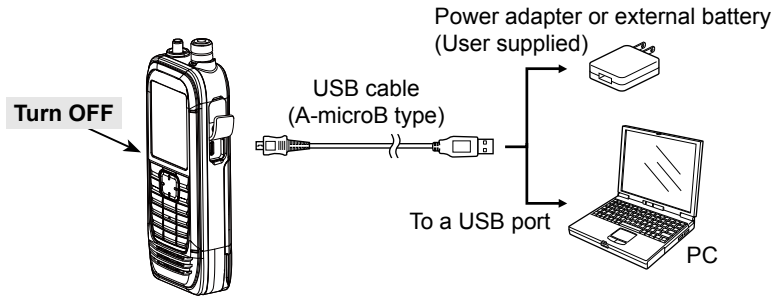
TIP:

- The BP-293 meets IPX4 requirements for waterproof protection, only when it is attached to the IC-R30.
- The batteries may seem to have low capacity when used in low temperatures. Keep the case warm in low temperature environments.

1 POWER SUPPLY

■ Charging with a USB cable

You can charge the battery pack with the supplied USB cable (A-microB type).



NOTE:

- **BE SURE** to turn OFF the receiver before charging the battery pack. Otherwise the attached battery pack cannot be charged completely, or it will take much longer to charge.
- If you use a third party USB cable, you may not be able to charge:
 - Depending on your USB cable or power adapter.
 - When using a USB hub or connecting to a low output USB port.

TIP:

- When the battery pack is fully charged, the charging will automatically stop. If you leave the receiver connected to the USB cable, the charging will automatically start when the battery has been almost exhausted. Even when the receiver power is OFF, a slight current still flows in the circuits. Remove the battery pack or batteries from the receiver when not using it for a long time. Otherwise, the installed battery pack or battery case cells will become exhausted, and will need to be recharged or replaced.
- You can select an option for while the receiver and PC are connected. (p. 6-21) ([MENU] > Function > **USB Connect**)

- About data saved on a microSD card..... 2-2
- Saving data onto the microSD card 2-2
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■ About data saved on a microSD card

- **Receiver data**

Memory channel contents, receiver settings, and so on.

- **Recorded audio**

Recorded received audio data.

- **Receive history**

Receive history log (Digital signal).

- **Position data from the GPS receiver**

Position data from the internal GPS receiver.

■ Saving data onto the microSD card

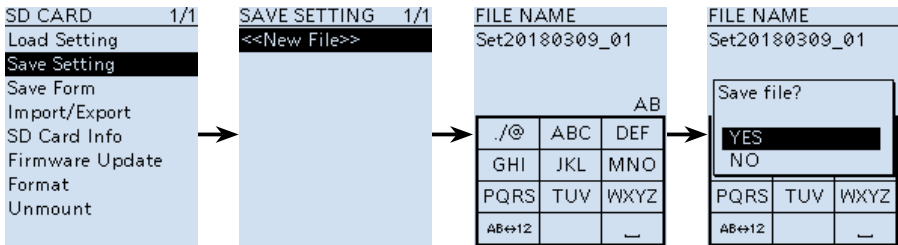
Memory channels and item settings on the menu screen can be saved on a microSD card. Saving data on the microSD card enables you to easily restore the receiver to its previous configuration, even if an All reset is performed.

① Data can be saved as a new file or overwritten to an older file.

Saving as a new file

[MENU] > SD Card > **Save Setting**

1. Push [MENU].
2. Select “Save Setting” in the “SD Card” menu.
(Rotate [DIAL] to select it, then push [ENTER].)
3. Select “<<New File>>.”
 - ① The file name is automatically named in the following manner: Setyyyyymmdd_xx
(yyyy: Year, mm: month, dd: day, xx: serial number).
 - ① If you want to change the file name, see page 2-3 for entry details.
4. Push [ENTER].
 - A confirmation dialog is displayed.
5. Select “YES,” and then push [ENTER].
 - ① Push [CLEAR] to return to the Main screen.



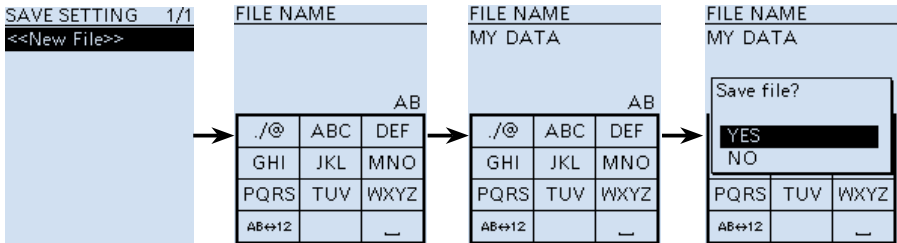
2 microSD Card

■ Saving data onto the microSD card

Saving with a different file name

[MENU] > SD Card > **Save Setting**

1. Push [MENU].
2. Select “Save Setting” in the “SD Card” menu.
(Rotate [DIAL] to select it, then push [ENTER].)
3. Select “<<New File>>.”
4. Push [CLEAR] to delete the selected character.
① Holding down [CLEAR] deletes the all characters.
5. After entering a file name, push [ENTER].
① Refer to page iv for character entry details.
6. Select “YES,” and then push [ENTER].
① Push [CLEAR] to return to the Main screen.



Saving in an earlier version

[MENU] > SD Card > **Save Form**

Select “Older Ver (X.XX - X.XX)” in the “Save Form” item (p.6-34) to save the setting file that is saved in an earlier firmware version.



■ Loading the saved data from the microSD card

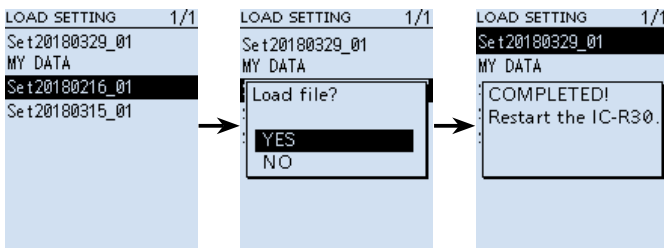
The saved memory channels, item settings on the menu screen can be copied to another IC-R30. This function is convenient when sharing data with other IC-R30s.

① Saving the current data on to a microSD card is recommended before loading the data.

Example: Loading setting data “Set20180216_01”

[MENU] > SD Card > Load Setting

1. Push [MENU].
2. Select “Load Setting” in the “SD Card” menu.
(Rotate [DIAL] to select it, then push [ENTER].)
3. Select the desired file to be loaded, then push [ENTER].
 - A confirmation dialog is displayed.
4. Select “YES,” and then push [ENTER].
 - Starts the file check. After checking, starts settings data loading.
 - After loading, “COMPLETED! Restart the IC-R30.” is displayed.
5. Restart the IC-R30.

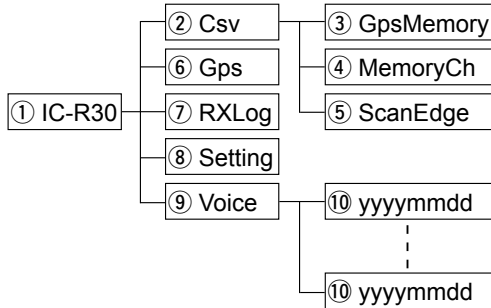


■ Backing up the data from a microSD card onto a PC

A backup file restoring, even if the data on the microSD card is accidentally deleted or corrupted.

◇ About the microSD card's folder

The folders contained in the microSD card are as follows:



① IC-R30 folder

The folders created in the IC-R30 are in this folder.

② Csv folder

Contains the GPS Memory, Memory channels, Programmable Scan Edges Import/Export folders.

③ GpsMemory folder

Contains the GPS Memory in the “csv” format to import or export.

④ MemoryCh folder

Contains the Memory channels in the “csv” format to import or export.

⑤ ScanEdge folder

Contains the Programmable Scan Edges in the “csv” format to import or export.

⑥ Gps folder

GPS logging data is stored in the “log” format.

⑦ RXLog folder

RX record log data is stored in the “csv” format.

⑧ Setting folder

IC-R30's setting data is stored in the “csv” format.

⑨ Voice folder

The recorded RX recorder audio date folders are created in the Voice folder.

⑩ yyyyymmdd folder

Recorded audio file is stored in the “wav” format.

The folder name is automatically created in the following format:

yyyyymmdd (yyyy:Year, mm:month, dd:day)

2 microSD Card

■ Backing up the data stored on the microSD card onto a PC (Continued)

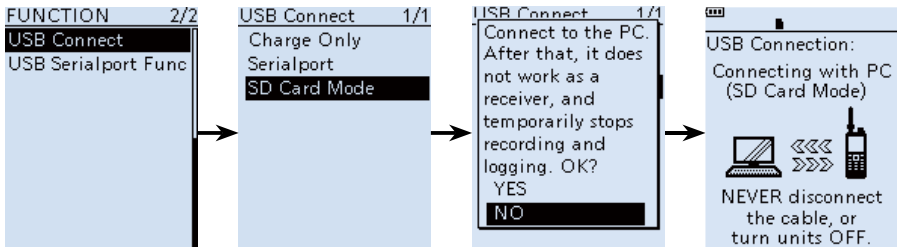
◇ Making a backup file on a PC

You can make a backup of the data that is stored on a microSD card, through a USB cable.

Operation on the receiver

[MENU] > Function > USB Connect > **SD Card Mode**

1. Connect the receiver to a PC using a USB cable.
2. Turn ON the receiver power.
3. Push [MENU].
4. Select "SD Card Mode" in the "Function" menu.
(Rotate [DIAL] to select it, then push [ENTER].)
 - A confirmation dialog appears.
5. Select "YES."
 - Displays the IC-R30 folder on the PC screen.



TIP: You can also read or write the data using the microSD card and a card reader (user supplied), without a USB cable. Remove the microSD card that contains the data from the IC-R30, then read it on the PC using the card reader.

2 microSD Card

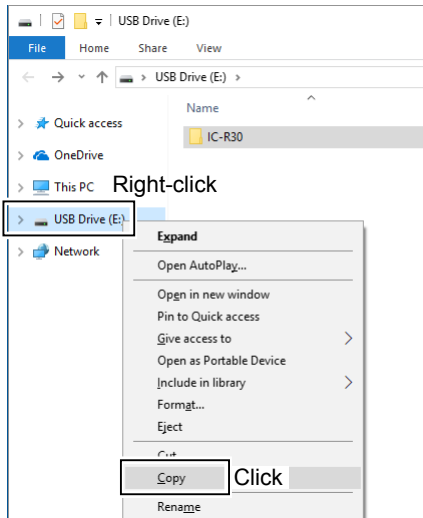
- Backing up the data stored on the microSD card onto a PC
- ◇ Making a backup file on a PC (Continued)

Operation on the PC

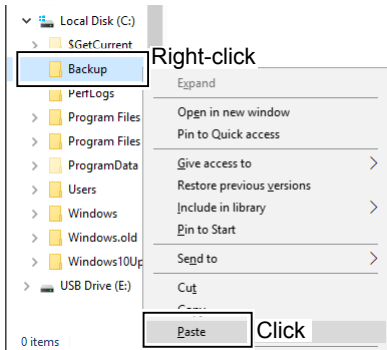
NOTE: If the “AutoPlay” screen is not displayed as shown below, click the Folder icon on the task bar.

Example: Saving the data in the folder “Backup” on drive C.

1. Put the mouse cursor on “USB Drive,” then right-click.
① The screen may differ, depending on your PC environment.
2. Click [Copy].



3. Right-click on the destination folder where the back up files are saved, then click [Paste]. (Example: Folder “Backup” on drive C.)
 - The data stored on the microSD card is saved on the PC hard disk.

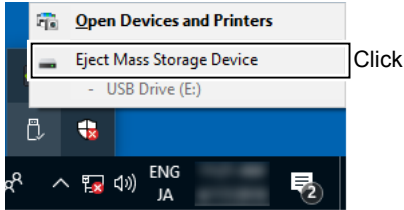


(Continued on the next page.)

2 microSD Card

- Backing up the data stored on the microSD card onto a PC
- ◇ Making a backup file on a PC (Continued)

4. To disconnect the IC-R30 from the PC, click the “Eject Mass Storage Device.”



5. When “Safe To Remove Hardware” is displayed, disconnect the USB cable from the PC.



■ Importing or Exporting a CSV format file

You can import or export a Comma Separated Values (CSV) format file to or from the microSD card. You can separately import or export the following data:

- Memory channels
- Programmable Scan Edges
- GPS Memories

NOTE: The receiver cannot display a file that has a file name longer than 10 characters. In this case, rename it using 10 characters or less.
When you export the data in a CSV format file using the CS-R30 (option), make sure to name it using 10 characters or less.

TIP: CSV is a file format that is used to read or write the IC-R30's setting data. You can import the setting data to a PC, and edit it using the CS-R30.

2 microSD Card

■ Importing or Exporting a CSV format file

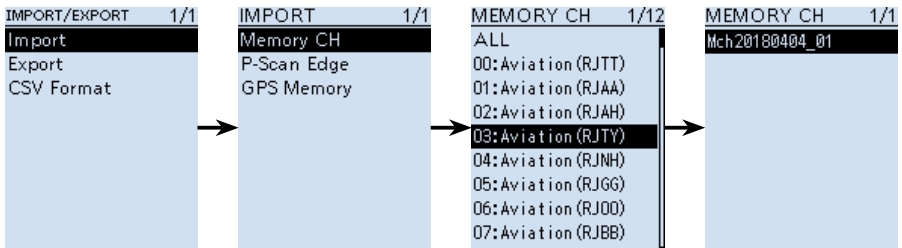
◇ Importing

TIP: Before importing, make a backup file of all the receiver's data to the microSD card in case of data loss.

Example: Importing memory channels.

[MENU] > SD Card > Import/Export > **Import**

1. Push [MENU].
2. Select "Import" in the "SD Card" menu.
(Rotate [DIAL] to select it, then push [ENTER].)
3. Select "Memory CH," and then push [ENTER].
4. Select the Memory group that contains the memory channel to import, then push [ENTER]. (Example: Group 03)
NOTE: If you select "ALL," all the memory channels except in the Auto Memory Write channel group (A:Auto MW CH) and Skip channel group (S:SKIP CH) are deleted, before importing.
5. Select the CSV file to import.
 - A confirmation dialog is displayed.
6. Select "YES," and then push [ENTER].
 - Starts to import.
 - ① After importing ends, "COMPLETED! Restart the IC-R30." is displayed.
7. Restart the IC-R30 to complete the importing.



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■ Importing or Exporting a CSV format file

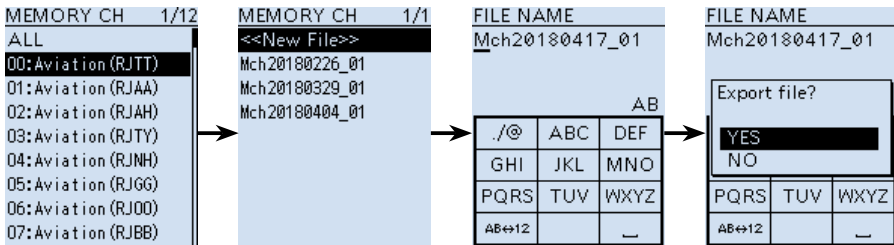
◇ Exporting

Saving as a new file

Example: Exporting memory channels.

[MENU] > SD Card > Import/Export > **Export**

1. Push [MENU].
2. Select "Export" in the "SD Card" menu.
(Rotate [DIAL] to select it, then push [ENTER].)
3. Select "Memory CH," and then push [ENTER].
4. Select the Memory group that contains the memory channels to export, then push [ENTER]. (Example: Group 00)
 - ① If you export all memory channels, select "ALL."
5. Select the "<<New File>>".
 - The FILE NAME screen is displayed.
 - The file name is automatically named in the following manner Mch*yyyymmdd_xx (yyyy: Year, mm: month, dd: day, xx: serial number)
 - * "Pscan" for Programmable Scan Edges. "Gps" for GPS Memory.
 - ① Refer to page iv for character entry details.
 - ① If you want to return to the Main screen, push [SQL].
6. Push [ENTER].
 - A confirmation dialog appears.
7. Select "YES," and then push [ENTER].
 - Starts to export.
 - ① Push [CLEAR] to return to the Main screen.



TIP: Saving on an existing file (Overwrite)

In Step 5, select a file to overwrite.

```
MEMORY CH 1/1
<<New File>>
Mch20180404_01
```

- Recording 3-2
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- Checking SD card information 3-9
- Playing back on a PC 3-10

3 RECORDING AND PLAYING BACK

■ Recording

The microSD and microSDHC cards are not supplied by Icom. User supplied.

◇ Starting recording

- Push [●REC].
 - “Recording started...” is briefly displayed.

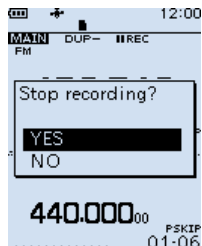
TIP:

- “●REC” is displayed during recording.
- “||REC” is displayed while recording is paused.
- If a single band display is selected, only the audio signal received on the band is recorded, even when the “REC Operation” item is set to “A/B Link.”
- The recording continues until you push [●REC], or the free space on the microSD card has run out.
- When the recording file’s content reaches 2 GB, the receiver continues to record, but to a new file.



◇ Stopping recording

1. Push [●REC] again.
 - A confirmation dialog is displayed.
2. Select “YES,” and then push [ENTER].
 - “Recording stopped.” is briefly displayed.



TIP:

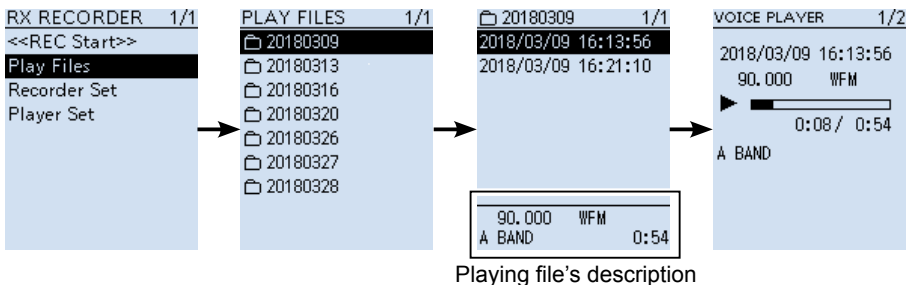
- As the default setting, the recording is paused while the squelch is closed, and resumes when a signal is received. But you can set to continue recording even while no signal is received. (p. 3-5)
([MENU] > RX Recorder > Recorder Set > **RX REC Condition**)
- You can select to record the received audio from only the main band or both the main and sub bands. (p. 3-5)
([MENU] > RX Recorder > Recorder Set > **REC Operation**)

3 RECORDING AND PLAYING BACK

■ Playing back

[MENU] > RX Recorder > **Play Files**

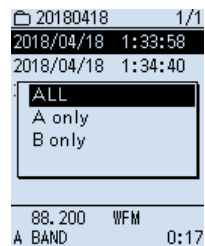
1. Push [MENU].
2. Select “Play Files” in the “RX Recorder” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The folder list is displayed.
3. Select a folder that contains the file you want to playback, and then push [ENTER].
 - The file list is displayed.
 - ① The folder is named in the following manner, “yyyymmdd” (yyyy: Year, mm: month, dd: day).
4. Select a file, and then push [ENTER].
 - The VOICE PLAYER screen appears and starts playing back the audio.
 - ① Push [ENTER] to pause while playing.
 - ① On the VOICE PLAYER screen, you can select the file to play by pushing D-pad (Up) or (Down).
5. Push [CLEAR] to stop playing.
 - The file list is displayed.
 - ① Push [CLEAR] again to return to the Main screen.



TIP: Selecting the record file type to display.

In Step 4 above, push [QUICK], then select “Display File” and select the record file type to display.

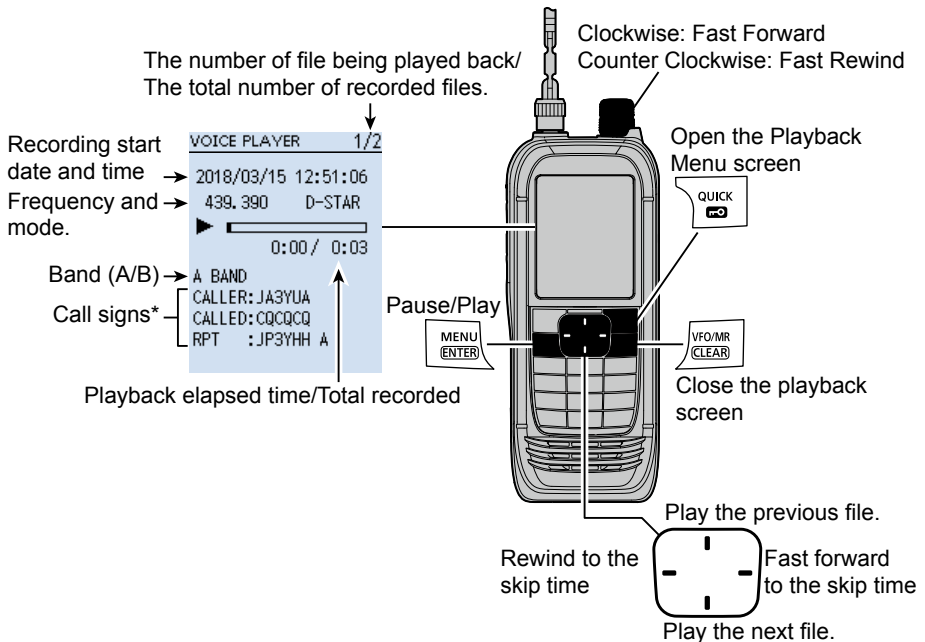
- ALL: Displays all recorded files.
- A only: Displays only the audio file that was recorded on the A band.
- B only: Displays only the audio file that was recorded on the B band.



3 RECORDING AND PLAYING BACK

■ Playing back (Continued)

◇ Playback screen



*When the receive mode is D-STAR, the received signal's call sign is displayed.

CALLER: The call sign of the caller station.

CALLED: The call sign of the called station.

RPT: The call sign of the repeater you received the call from.

Operations on the Playback screen

- [DIAL]: Rotate to set the playback point. The point is set in 1/20 duration of the file, regardless of the total duration.
 - D-pad (Left)/(Right): Push to fast forward or rewind to the skip time point.
(Default: 10 seconds)
- ① You can change the Skip Time. (p. 3-5)

[MENU] > RX Recorder > Player Set > **Skip Time**

- ① If you push this key within the first 1 second of the file, the end of the previously recorded file will play back.

3 RECORDING AND PLAYING BACK

■ Player/recorder set screen

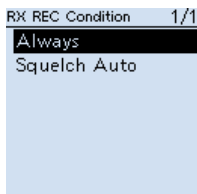
You can change the recording settings on the RX RECORDER screen. And you can also change the fast forward or rewind skip time on the PLAYER SET screen.

Recording condition

[MENU] > RX Recorder > Recorder Set > **RX REC Condition**

Set to “Always” to continue recording even while no signal is received.

As the default setting, the recording is paused while the squelch is closed, and resumes when a signal is received.



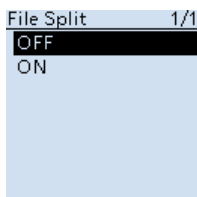
Recording file split

[MENU] > RX Recorder > Recorder Set > **File Split**

Turn the File Split function ON or OFF.

When “ON” (Default) is selected, the recorded audio file is newly created, according to the File Split setting.

See page 6-8 for the file split condition or operation.

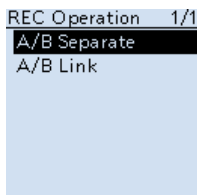


Recording operation

[MENU] > RX Recorder > Recorder Set > **REC Operation**

Set to “A/B separate” if you want to separately start or stop recording on the selected band (MAIN band).

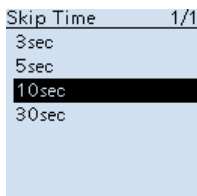
As the default setting (A/B Link), recording simultaneously starts on the MAIN and SUB bands.



Skip setting

[MENU] > RX Recorder > Player Set > **Skip Time**

Set to the skip amount for fast forward or rewind in seconds. (default: 10sec)



3 RECORDING AND PLAYING BACK

■ Deleting a file or folder

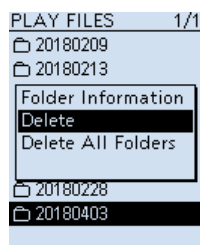
NOTE: Deleted file or folder cannot be recalled. All the files in the folder are also deleted.

Before deleting any file or folder, back up the data onto your PC.

◇ Deleting a folder

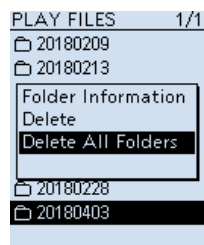
[MENU] > RX Recorder > **Play Files**

1. Push [MENU].
 2. Select “Play Files” in the “RX Recorder” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The folder list is displayed.
 3. Select a folder to delete, and then push [QUICK].
 4. Select “Delete,” and then push [ENTER].
 - A confirmation dialog is displayed.
 5. Select “YES,” and then push [ENTER].
 - The selected folder is deleted.
- ① Push [CLEAR] to return to the Main screen.



TIP: Deleting all folders

In Step 4 above, select “Delete All Folders.”



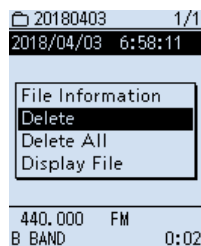
3 RECORDING AND PLAYING BACK

■ Deleting a file or folder (Continued)

◇ Deleting a file

[MENU] > RX Recorder > **Play Files**

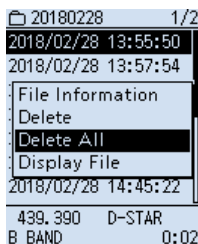
1. Push [MENU].
 2. Select “Play Files” in the “RX Recorder” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The folder list is displayed.
 3. Select a folder that contains the file you want to delete, and then push [ENTER].
 - The file list is displayed.
 4. Select a file to delete, and then push [QUICK].
 5. Select “Delete,” and then push [ENTER].
 - A confirmation dialog is displayed.
 6. Select “YES,” and then push [ENTER].
 - The selected file is deleted.
- ① Push [CLEAR] to return to the Main screen.



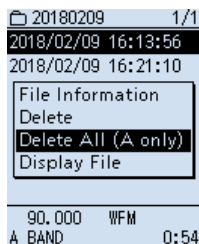
TIP: Deleting all files

In Step 5 above, select “Delete All.”

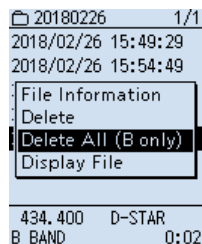
- ① If “Display File” is set to “A only” or “B only,” only displayed files are deleted.



“Display File” is “ALL”



“Display File” is “A only”



“Display File” is “B only”

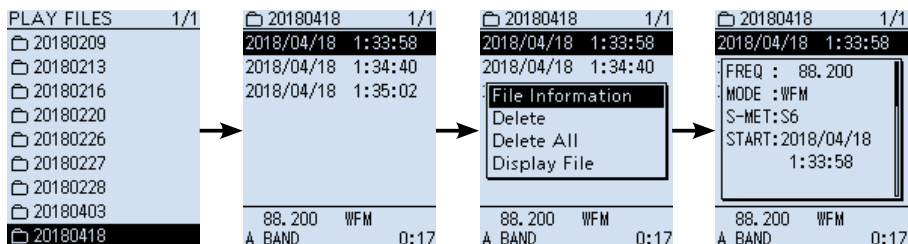
3 RECORDING AND PLAYING BACK

■ Checking the file information

The IC-R30 can display the recorded file's receive frequency, mode, date, and so on.

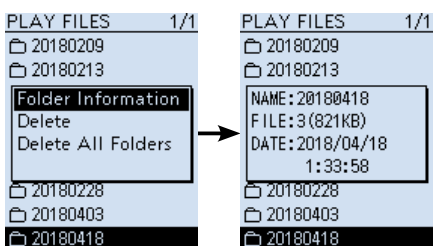
[MENU] > RX Recorder > **Play Files**

1. Push [MENU].
2. Select "Play Files" in the "RX Recorder" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The folder list is displayed.
3. Select a folder that contains the file you want to check, and then push [ENTER].
 - The file list is displayed.
4. Select a file to check, and then push [QUICK].
5. Select "File Information," and then push [ENTER].
 - The file information window is displayed.
 - Rotate [DIAL] to change the information display.
 - ① Push [CLEAR] to close the window.



TIP: Checking the folder information

In Step 3 above, select "Folder Information" to check the folder information.



3 RECORDING AND PLAYING BACK

■ Checking the file information (Continued)

File information examples

- Rotate [DIAL] in the information window, to change the information display.
- ① Some items are not displayed, depending on the receive mode.

20180315 1/2
2018/03/15 12:00:05
FREQ : 439.390
MODE :D-STAR
S-MET:S9++
START:2018/03/15
12:51:06
439.390 D-STAR
A BAND 0:03

20180315 1/2
2018/03/15 12:00:05
MY POSITION:
35° 34' 28"N
135° 48' 18"E
GL:PM75VN
ALT:4ft
439.390 D-STAR
A BAND 0:03

20180315 1/2
2018/03/15 12:00:05
CALLER:
JASUYUA
CALLED:
CQCQCQ
RXRPT:
JP3YHH A
439.390 D-STAR
A BAND 0:03

20180315 1/2
2018/03/15 12:00:05
RX POSITION:
34° 37' 40"N
135° 34' 22"E
GL:PM74SP
ALT:26ft
DST:164m
439.390 D-STAR
A BAND 0:03

20180315 1/2
2018/03/15 12:00:05
NAME:20180315_1251
SIZE:52KB
DATE:2018/03/15
12:51:09
439.390 D-STAR
A BAND 0:03

■ Checking SD card information

[MENU] > SD Card > SD Card Info

1. Push [MENU].
 2. Select "SD Card Info" in the "SD Card" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The SD card's free space and capacity are displayed.
- ① Push [CLEAR] to return to the Main screen.

SD CARD INFO
Free space:
15,083.8MB
(REC: 274h35m)
Capacity:
15,189.7MB

3 RECORDING AND PLAYING BACK

■ Playing back on a PC

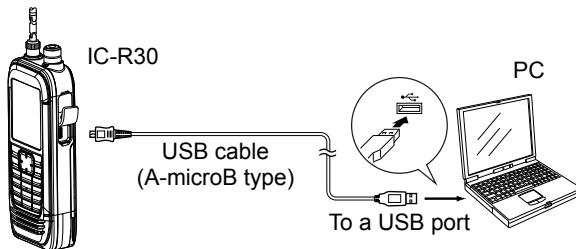
You can also playback on a PC.

- ① The recorded information (frequency, date, and so on) is not displayed.
- ① These instructions are based on Microsoft Windows 10.

Example: Connecting the IC-R30 and PC with a USB cable, then playing an audio file on a PC.

[MENU] > Function > **USB Connect**

1. Connect the IC-R30 and PC with a USB cable.



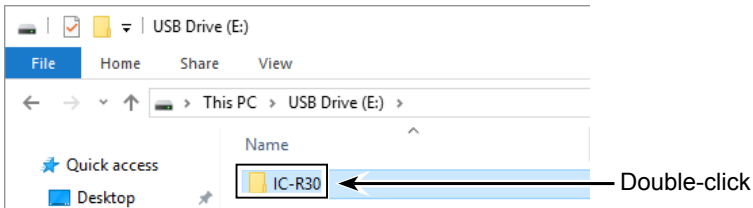
2. Push [MENU].
 3. Select "USB Connect" in the "Function" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 4. Select "SD Card Mode."
 - A confirmation dialog is displayed.
 5. Select "YES," and then push [ENTER].
 - The IC-R30 is connected to the PC in the SD Card mode, and the SD card folder is displayed on the PC screen.
- ① If the SD card folder is not displayed, click "Open folder to view files" to open the SD card folder.

(Continued on the next page.)

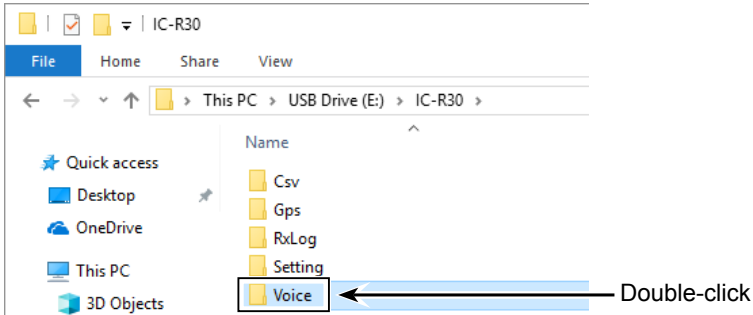
3 RECORDING AND PLAYING BACK

■ Playing back on a PC (Continued)

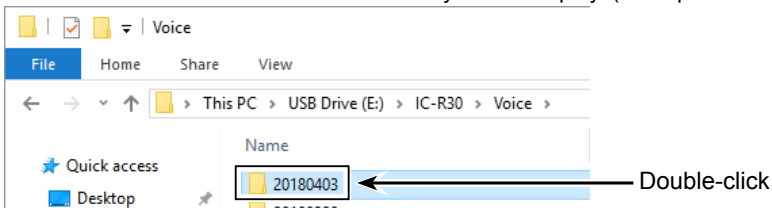
6. Double-click the “IC-R30” folder.



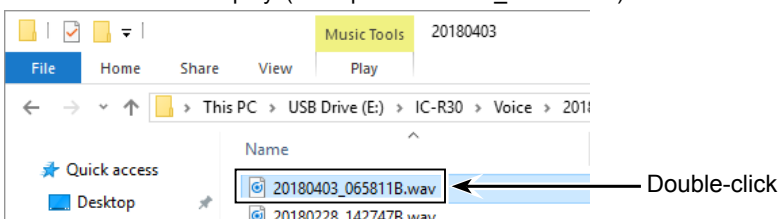
7. Double-click the “Voice” folder.



8. Double-click the folder that contains the file you want to play. (Example: 20180403)



9. Double-click the file to play. (Example: 20180403_06581.wav)



- Starts playing back the audio on the PC.

NOTE:

- The operations while playing back may differ, depending on the application. Refer to the application's instruction manual for details.
- When the file does not playback, even if you double click the file, download an appropriate software application. (Example: Windows Media® Player)

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◇ Write to the Selected Channel	4-7
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4 MEMORY OPERATION

■ General description

The Memory mode is very useful to quickly select often-used operating settings. The receiver has 2000 regular memory channels and 100 memory groups. Up to 100 channels can be assigned to a group.

NOTE:

Memory data may be erased by static electricity, electric transients, and other causes. In addition, they can be erased by a malfunction and during repairs. Therefore, we recommend that memory data be backed up by saving it to a microSD card or to a PC.

- The microSD card is user supplied.
- The CS-R30 CLONING SOFTWARE that is included on the supplied CD can also be used to backup the memory data.

◇ Memory channel contents

A single memory channel stores following items.

① Contents differs, depending on the receive mode.

- Memory name
- Frequency
- Tuning step
- Receive mode
- Duplex direction (DUP+/DUP-)
- Frequency offset
- RF Gain setting
- Scan skip setting
- Tone squelch or DTCS squelch setting*¹
- VSC (Voice Squelch Control) setting*²
- D.SQL (Digital code squelch) setting*³
- Descrambler setting*⁴
- Decryption setting*⁵
- GPS position data

*¹ Only FM and FM-N

*² Only FM, FM-N, WFM, AM and AM-N

*³ Only Digital

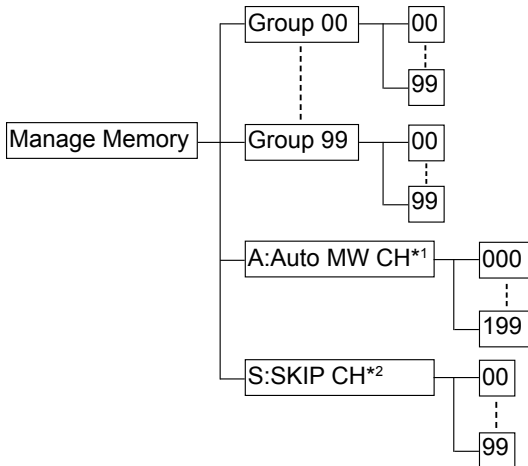
*⁴ Only dPMR

*⁵ Only NXDN-VN, NXDN-N and DCR

4 MEMORY OPERATION

■ Memory management

◇ Memory channel tree view



*1 Automatically writes when a signal is received.

*2 Skips the set frequency during a scan.
(Hold down [SKIP] for 1 second.)

◇ Checking a Memory channel contents

[MENU] > Manage Memory > (Memory Group)

1. Push [MENU].
2. Select "Manage Memory" in the menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The Memory Group list is displayed.
3. Select a group that contains the Memory channel you want to check, and then push [ENTER].
 - The Memory Channel list is displayed.
4. Select a channel, and then push [ENTER].
 - The contents in the selected Memory channel are displayed.
 - ① Rotate [DIAL] to scroll the screen.
 - ① Push [CLEAR] to return to the Main screen.

TIP: Editing the Memory channel contents

In Step 4 above, push [QUICK] and select "Edit" to edit the selected Memory channel contents.

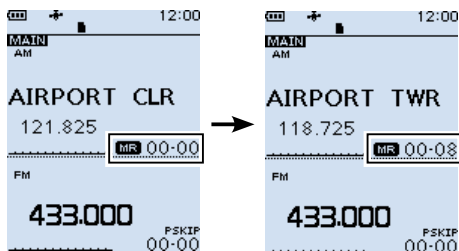
```
00-08CH 1/3
NAME:
Haneda TWR
Edit
Clear
```

4 MEMORY OPERATION

■ Selecting a memory channel

◇ Selecting with [DIAL]

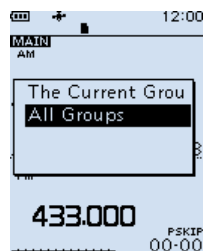
1. Push [VFO/MR] to select the Memory mode.
2. Push [BAND] to select a group.
3. Rotate [DIAL] to select a Memory channel.



TIP: Selecting a Memory channel beyond the group

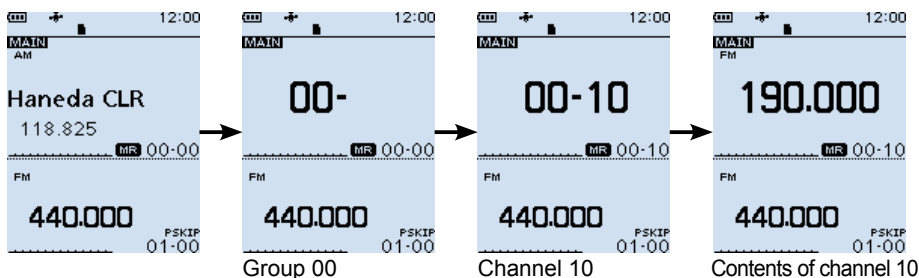
You can sequentially select a channel in a different group.

1. Push [QUICK].
2. Select "Channel Select Group Range."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "All Groups."



◇ Selecting with the keypad

1. Push [VFO/MR] to select a Memory mode.
2. Push [BAND] to select a group.
3. Push [F-INP] to select the Memory channel.
 - The selected group and "-" (hyphen) are displayed.
4. Push the numeric keys to enter the desired memory channel number.
 - When you entered two digits, a beep sounds and the channel is selected.
 - ① If the channel number is one digit, push [ENTER] after you entered the channel number.



4 MEMORY OPERATION

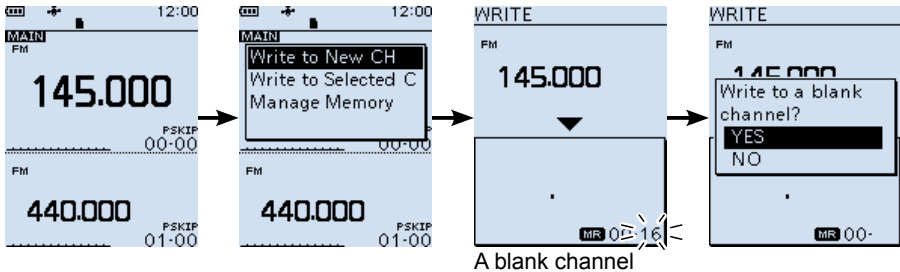
■ Writing a memory channel

◇ Selecting and Writing a channel

The channel is written to the selected channel.

Example: Writing 145.000 MHz to channel 16 in group 00.

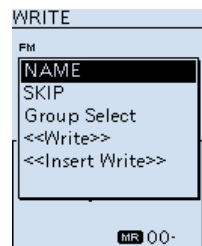
1. Push [VFO/MR] to select the VFO mode.
2. Rotate [DIAL] to set the frequency and receive mode and so on.
3. Push [MW].
4. Select "Write to Selected CH."
(Rotate [DIAL] to select it, and then push [ENTER].)
5. Select the channel.
 - The selected Memory channel number blinks.
6. Push [MW].
7. Select "Yes."
 - Beeps sound and the memory channel is written.



TIP: Selecting an option on the QUICK menu screen

In Step 5 above, push [QUICK], then select an option, as shown below.

- NAME: Enters to the Memory Name editing mode.
SKIP: Displays the Skip setting screen.
Group Select: Displays the Memory Group list.
<<Write>>: Writes the memory
<<Insert Write>>: Inserts the channel above the selected memory channel.



4 MEMORY OPERATION

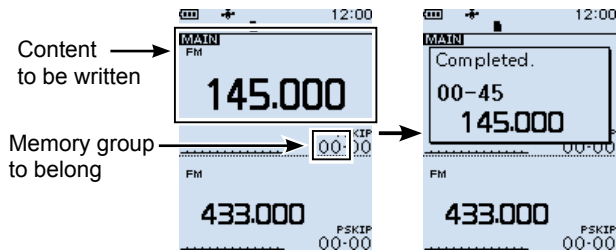
■ Writing a memory channel (Continued)

◇ Write to a New Channel

The contents such as frequency and operating mode are written to a blank channel in the selected group.

Example: Writing 145.000 MHz to a blank channel.

1. Push [VFO/MR] to select the VFO mode.
2. Rotate [DIAL] to set the frequency and receive mode.
3. Hold down [MW] until a beep sounds.
 - The memory channel contents are displayed for 2 seconds, and the memory channel is written to a blank channel.



4 MEMORY OPERATION

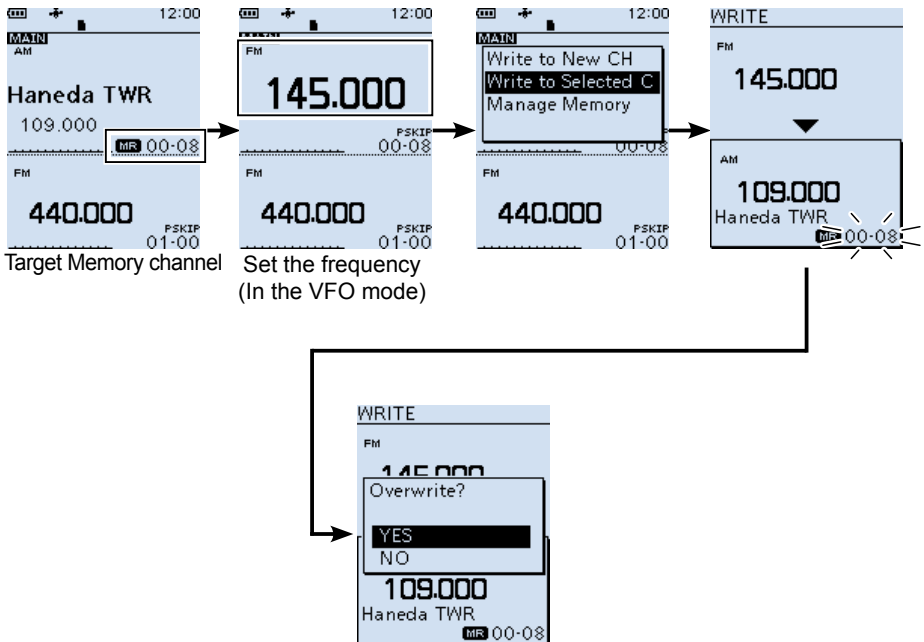
■ Writing a memory channel (Continued)

◇ Write to the Selected Channel

The selected channel is overwritten.

Example: Writing 145.000 MHz to channel 08 in group 00.

1. Push [VFO/MR] to select the Memory mode.
2. Rotate [DIAL] to select the channel to be written.
3. Push [VFO/MR] to select the VFO mode.
4. Rotate [DIAL] to set the frequency and receive mode.
5. Push [MW].
6. Select "Write to Selected CH."
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The selected Memory channel blinks.
 - ① You can change the channel to be written, by rotating [DIAL].
7. Push [MW].
 - A confirmation dialog appears.
8. Select "Yes."
 - Beeps sound and the memory channel is written, then returns to the VFO mode.



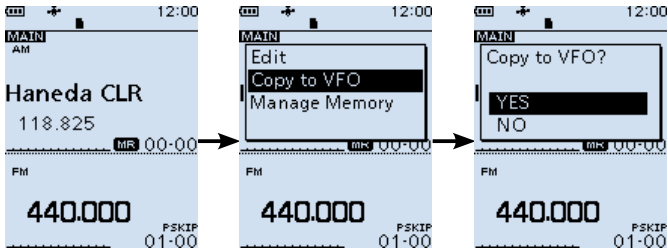
4 MEMORY OPERATION

■ Copying Memory contents to the VFO

You can copy the Memory contents to the VFO.

Example: Copying the contents of channel 00 in group 00 to the VFO.

1. Push [VFO/MR] to select the Memory mode.
2. Rotate [DIAL] to select the channel.
 - The selected Memory channel number blinks.
3. Push [MW].
4. Select “Copy to VFO.”
(Rotate [DIAL] to select it, and then push [ENTER].)
 - A confirmation dialog appears.
5. Select “Yes.”
 - Beeps sound and the selected memory contents are copied to the VFO, then returns to the VFO mode screen.

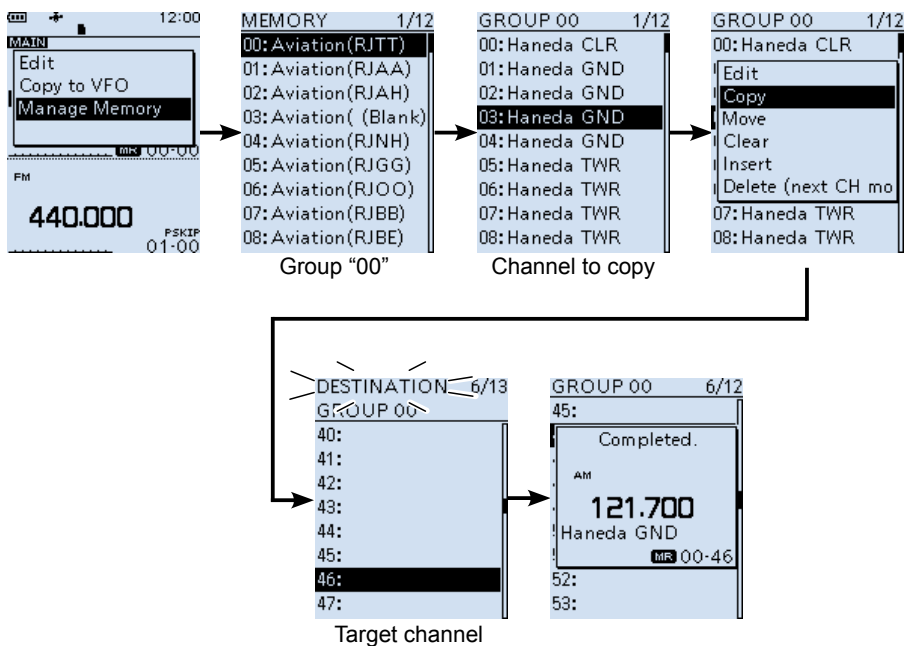


4 MEMORY OPERATION

■ Copying the Memory contents to another channel

Example: Copying the contents of channel 03 to channel 46 in the same group (group 00).

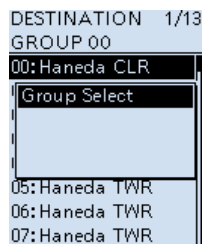
1. Push [MW].
2. Select “Manage Memory.”
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group.
4. Select the channel to copy.
5. Push [QUICK].
6. Select “Copy.”
 - “DESTINATION” blinks.
7. Select the target channel.
 - Beeps sound and the selected memory contents are copied to the selected channel.



TIP: Copying the channel to a different group

In Step 6 above, while “DESTINATION” is blinking, push [QUICK] and select “Group Select.”

- The Memory Group list is displayed.

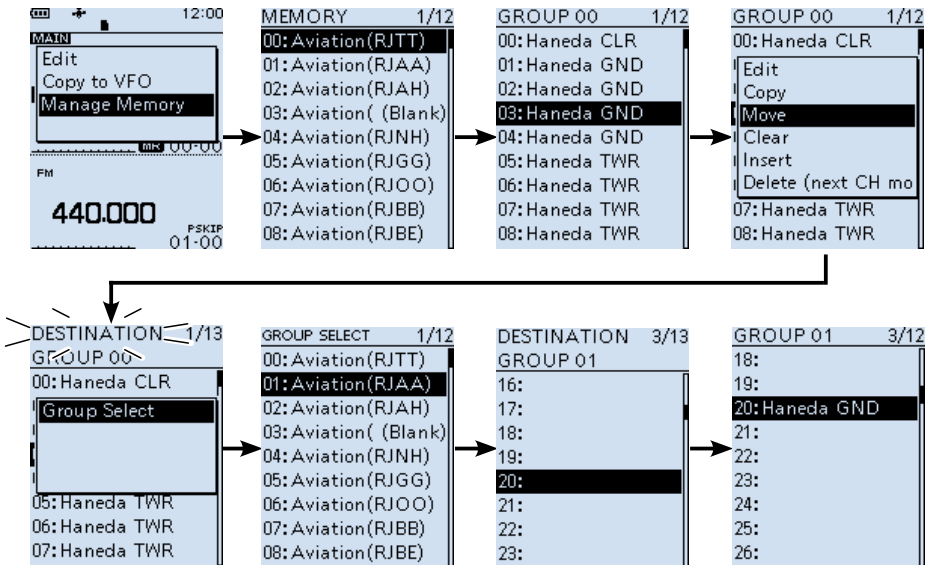


4 MEMORY OPERATION

■ Moving the Memory contents to another channel in a different group

Example: Copying the contents of channel 03 to channel 20 in group 01.

1. Push [MW].
2. Select "Manage Memory."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group.
4. Select the channel to move.
5. Push [QUICK].
6. Select "Move."
 - "DESTINATION" blinks.
7. Push [QUICK].
8. Select "Group Select."
9. Select the target group.
10. Select the target channel.
 - Beeps sound and the selected memory contents are move to the selected channel.
 - ① If the selected channel is not blank, a confirmation dialog appears.
 - ① Select "Insert end of list" to move the channel to the end of the group.
 - ① Channels other than the one that you moved will move up.



TIP: Rearranging the channel list

In Step 6 above, while "DESTINATION" is blinking, perform step 10 to rearrange the channel list in the group.

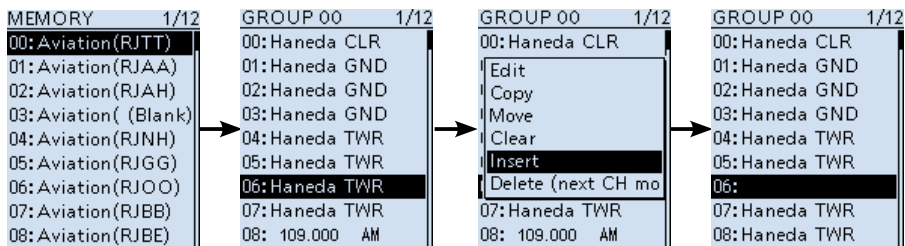
4 MEMORY OPERATION

■ Inserting a blank channel

You can insert a blank channel between 2 Memory channels.
This function is convenient to organize your memory channels.

Example: Inserting a blank channel between channel 5 and 6.

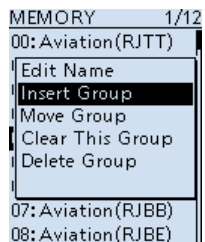
1. Push [MW].
2. Select "Manage Memory."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group.
4. Select the channel.
5. Push [QUICK].
6. Select "Insert."
 - Beeps sound and a blank channel is inserted above the selected channel.
 - ① Channels other than the one you moved will move up.
 - ① If you select channel 99 in step 4, 99th channel will be deleted.
(A confirmation dialog will appear.)



TIP: Inserting a blank group

On the Memory Group screen, select a group and push [QUICK] then select "Insert Group."

- A blank group is inserted above the selected group.



4 MEMORY OPERATION

■ Entering a group/memory name

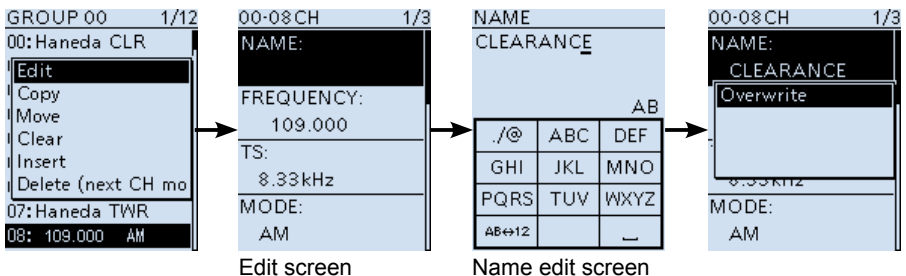
You can assign a name of up to 16 characters to each channel group (00 ~ 99) and memory channel.

① You cannot change the group name of Auto MW and Skip channels (Groups “A” and “S”).

1. Push [MW].
2. Select “Manage Memory.”
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group.
4. Select the channel to enter a name.
5. Push [QUICK].
6. Select “Edit.”
 - The Memory edit screen is displayed.
7. Select “NAME.”
 - The Memory name edit screen is displayed.
8. Enter the Memory name, then push [ENTER].
 - Returns to the Memory edit screen and the entered Memory name is displayed.

① Refer to page iv to enter characters.
9. Push [QUICK].
10. Select “Overwrite.”
 - A confirmation dialog appears.
11. Select “Yes.”
 - Beeps sound, then returns to the Memory channel screen.

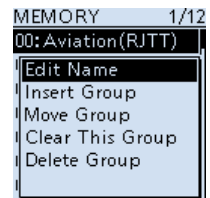
① Push [CLEAR] to return to the Main screen.



TIP: Entering a group name

On the Memory Group list screen, select a group and push [QUICK] then select “Edit Name.”

- The Group Name edit window appears.

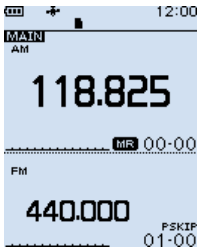


4 MEMORY OPERATION

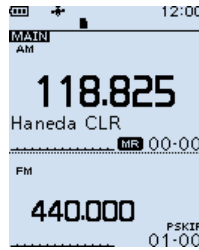
■ Selecting a memory name display

While in the memory mode, the entered memory name can be displayed in 3 different styles. You can select a display type.

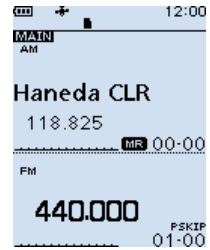
1. Push [VFO/MR] to select the Memory mode.
2. Push [QUICK].
3. Select "Display Type."
(Rotate [DIAL] to select it, and then push [ENTER].)
4. Select a display type.
① "Freq (Name OFF)" is set as the default.



"Freq (Name OFF)"
Only the frequency is displayed



"Freq"
Memory name is displayed under the frequency



"Name"
Frequency is displayed under the memory name

4 MEMORY OPERATION

■ Clearing a Memory contents

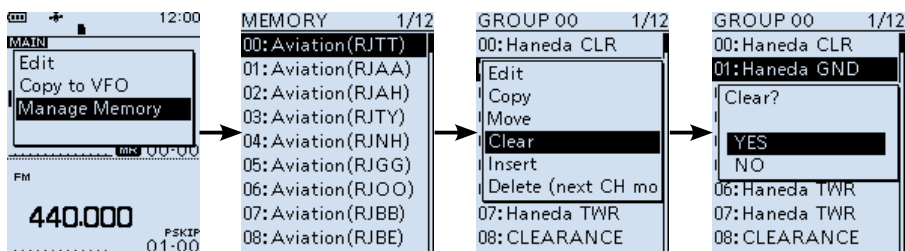
Contents of entered memories can be cleared (erased), if desired.

- ① The cleared channel becomes a blank channel.
- ① You can also clear the Auto MW and Skip channels (Groups “A” and “S”).

NOTE: Cleared memory channel contents cannot be restored.

Example: Clearing channel 01 in group 00.

1. Push [MW].
2. Select “Manage Memory.”
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group.
4. Select the channel to clear.
5. Push [QUICK].
6. Select “Clear.”
 - A confirmation dialog appears.
7. Select “Yes.”
 - Beeps sound, then returns to the Memory channel list screen.
 - ① Push [CLEAR] to return to the Main screen.

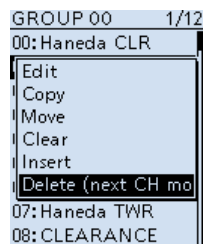


TIP: Deleting a memory channel

In Step 6 above, select “Delete (next CH moves up).”

- The selected channel is deleted.
- ① You can also delete Memory groups.

Select a group, then select “Delete Group.”



- GPS operation features..... 5-2
- Before starting GPS operation 5-2
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- GPS format types..... 5-3
- Checking your GPS location 5-4
 - ◇ Displaying Position Data..... 5-4
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 - ◇ About the RX screen..... 5-7
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 - ◇ Changing the GPS Memory or Alarm..... 5-11
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 - ◇ Confirming the GPS Logger function 5-25
 - ◇ Setting the GPS record interval 5-25
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 - ◇ The <<GPS Logger Only>> mode 5-28
 - ◇ <<GPS Logger Only>> outline..... 5-28
 - ◇ Setting the <<GPS Logger Only>> mode 5-28

NOTE: Before using the GPS function, read the “GPS OPERATION” section in the BASIC MANUAL.

■ GPS operation features

GPS Memory (p. 5-15)

You can enter up to 300 GPS Memories in the receiver. By adding destination position information in a GPS Memory, you can effectively use the GPS Alarm function. The position information that you acquired can also be entered in a GPS Memory.

GPS Alarm function (p. 5-22)

When a target station comes into the set alarm area, or when you approach an entered GPS Memory alarm area, the function can sound an alarm. With this function, you can know when you are approaching the destination.

GPS Logger function (p. 5-24)

The GPS Logger function enables you to save the position data from a GPS receiver onto a microSD card as a log.

If you use this GPS Logger while driving, you can check your driving history on a mapping software program.

D-PRS Extension function (p. 5-3)

The D-PRS Extension function enables you to receive Object, Item, and Weather information in addition to Position data. With this extension, you can simultaneously receive earthquake information, traffic accident information, emergency information, or weather information, and so on, along with voice audio in the DV mode.

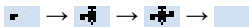
■ Before starting GPS operation

The receiver has a built-in internal GPS receiver. The GPS receiver's position data can be received in any mode.

◇ Checking the GPS signal

You can check the satellite acquisition status indicated by the GPS icon.

- The GPS icon blinks when receiving.



- The GPS icon is displayed when the current location is correctly received.



① INFORMATION

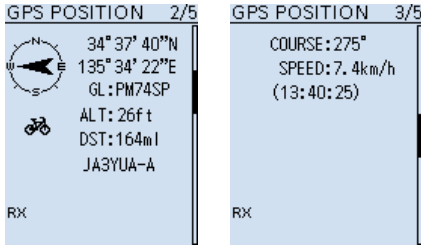
- The time it takes to receive the GPS data may differ, depending on your location.
- The GPS receiver cannot calculate its location if it cannot receive signals from the GPS satellites.
- The GPS icon is not displayed when “GPS Select” is set to “Manual.”
([MENU] > GPS > GPS Set > **GPS Select**)

5 GPS OPERATION

■ GPS format types

GPS position data has 2 TX modes, D-PRS and NMEA. Moreover, with the D-PRS mode data, 5 position formats. Position (Mobile station/Base station), Object, Item, and Weather, are selectable.

Examples: When the caller's TX format is D-PRS Position (Mobile)




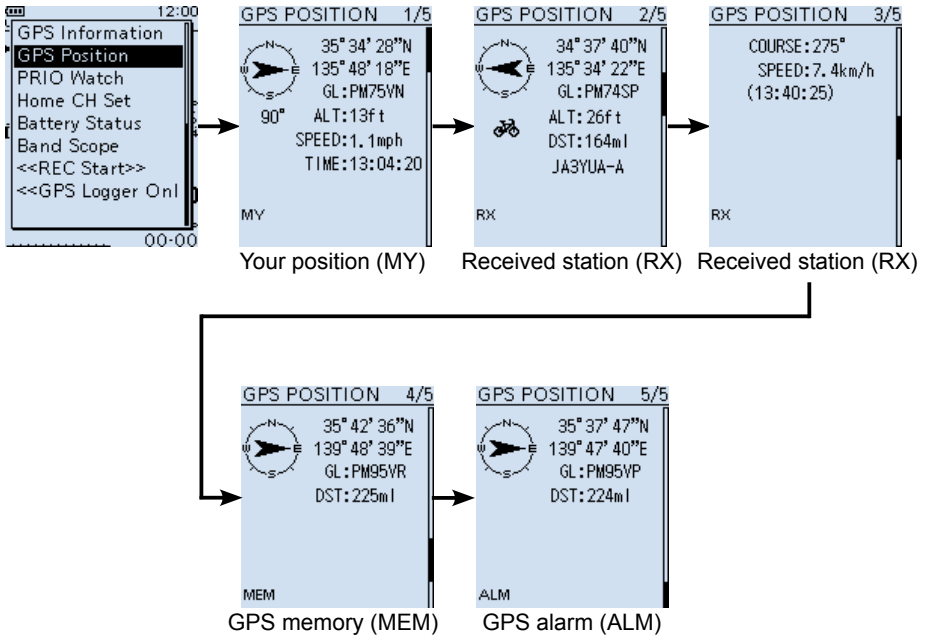
D-PRS	D-PRS is a function that simultaneously sends position data received from the internal or external GPS receiver, using the slow speed data packet space, along with voice.
Position (Mobile)	A station operating from a vehicle, or other position, away from it's normal base position.
Position (Base)	A station operating at home or in a building.
Object	Transmitting Object data such as an earthquake information, satellite track information, and so on. An Object contains a time stamp.
Item	Transmitting Item data such as a traffic accident, lighthouse, antenna, or DV access point position, and so on. An Item does not contain a time stamp.
Weather	A station transmitting weather information received from a weather device.
NMEA	A station transmitting position data (NMEA0183) received from the GPS receiver.

■ Checking your GPS location

You can check your current location.

◇ Displaying Position Data

1. Confirm  is displayed.
2. Push [QUICK].
3. Select "GPS Position."
(Rotate [DIAL] to select it, and then push [ENTER].)
• Displays the GPS POSITION screen.
4. Rotate [DIAL].
• Changes between the MY (My position), RX (Received position), MEM (GPS Memory position), or ALM (GPS Alarm position) screen.
① Push [CLEAR] to return to the Main screen.



(These screens are examples.)

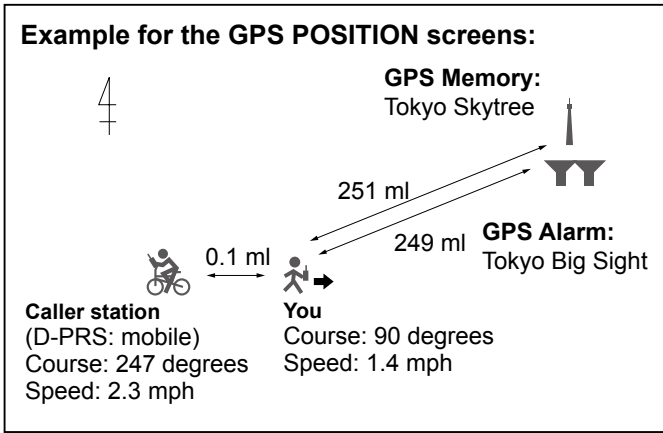
5 GPS OPERATION

■ Checking your GPS location (Continued)

◇ GPS POSITION screens and their meanings

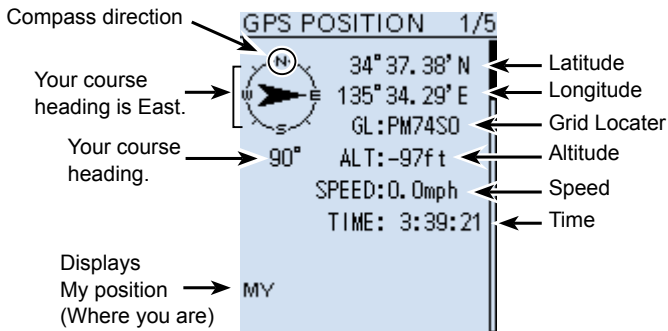
① Information

- Pushing [QUICK] to change the compass direction. (p. 5-12)
- About the Grid Locator (p. 5-10)
- About the Course (p. 5-10)



MY screen (Your position information)

When GPS Select is set to "Manual," the compass heading and course direction are not displayed. (p. 6-12)



GPS POSITION screen (MY)

NOTE: Latitude, longitude, and altitude data may differ, depending on your received GPS signal. The altitude data is only for reference.

5 GPS OPERATION

■ Checking your GPS location

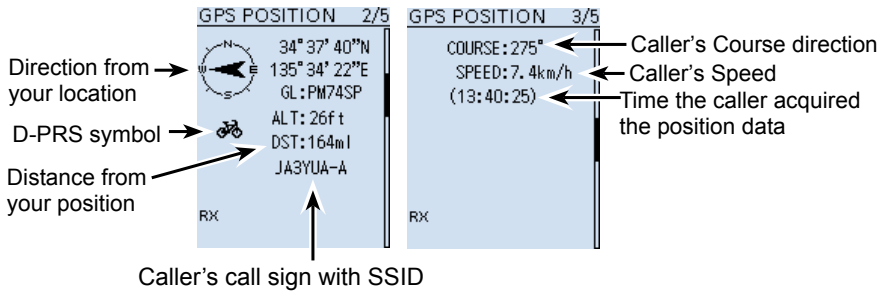
◇ GPS POSITION screens and their meanings (Continued)

RX screen (D-STAR station's location information)

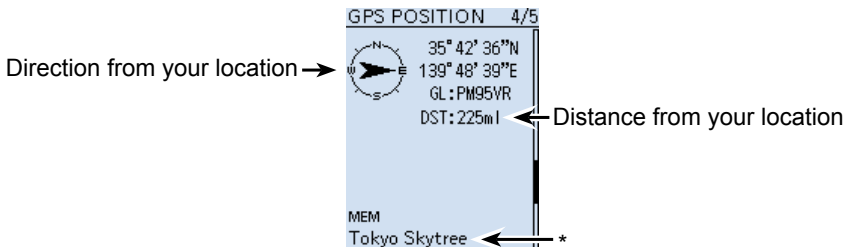
The displayed item's meanings may differ, and some data may not be displayed, depending on the caller's GPS TX Mode and TX format. (p. 5-3)

① Pushing [QUICK] to change the band (Main/Sub). (p. 5-11)

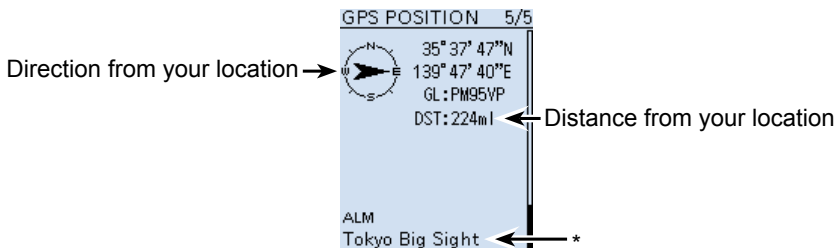
Example: The caller station's GPS TX Mode is "D-PRS" and its TX format is "Position (Mobile)."



MEM screen (GPS Memory channel's information)



ALM screen (GPS Alarm Memory channel's information)



* When a name is not entered in the GPS Memory channel, date and time are displayed instead of the name. You can change the GPS Memory or GPS Alarm on the GPS POSITION screen. (p. 5-5)

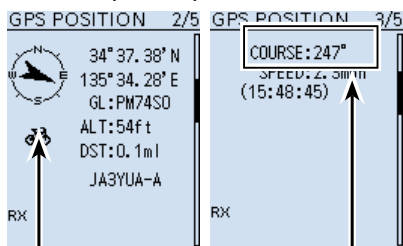
5 GPS OPERATION

■ Checking your GPS location (Continued)

◇ About the RX screen

D-PRS

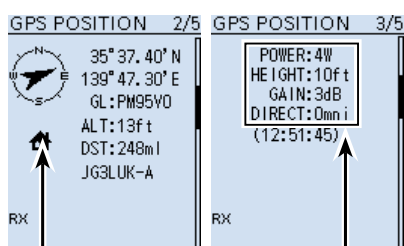
Position (Mobile)



Moving symbol

Course direction
and speed

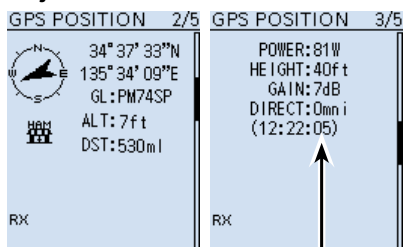
Position (Base)



Speed and course
you are heading

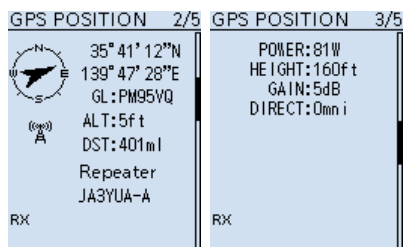
For a base station,
operating conditions
are displayed.

Object



Time that the caller
sent the Object's data.

Item



For an Item station, Time is not displayed.

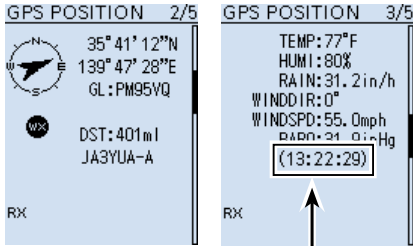
① Call sign is displayed with an SSID.

① When the Object or Item's status is finished, "KILLED" is displayed.

5 GPS OPERATION

- Checking your GPS location
- ◇ About the RX screen (Continued)

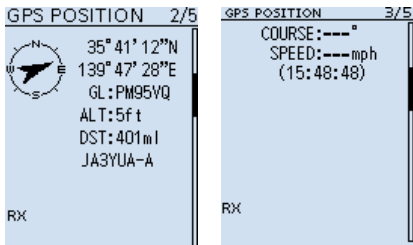
Weather



Time that the caller
sent the Weather data.

NMEA

- ① Symbol or SSID is not displayed when the TX format is NMEA.



TIP: About the SSID

To assist in identifying a station's type, designated call sign SSIDs are used in D-PRS (or APRS®), according to a common guideline. The guideline may be changed when the infrastructure environment, such as a product or network, is changed. Please check the latest guideline in the web site related to D-PRS and APRS®, and correctly set.
<http://aprs.org/aprs11/SSIDs.txt>

5 GPS OPERATION

- Checking your GPS location
- ◇ About the RX screen (Continued)

Selectable Symbol list

	Sheriff		Recreational Vehicle		Truck		Radio
	Digipeater		Shuttle		Node		Icom Radio
	Gateway		SSTV		Rover		Aircraft
	Small Aircraft		Bus		Repeater		Overlaid WX Station
	Red Cross		ATV		Ship (powerboat)		Overlaid Diamond
	House(VHF)		WX Service		Truck (18-wheeler)		RACES
	X		Helicopter		Van		Gale Flags
	Red Dot		Yacht		Yagi @ QTH		Ham Store
	Fire		Person		Overlaid Digipeater		Work Zone
	Campground		DF Station		Overlaid Gateway		Speed post (Value Signpost)
	Motorcycle		Large Aircraft		House (HF)		Triangle
	Railroad Engine		WX Station		Big Question Mark		Small Circle
	Car		Dish Antenna		Circle		Overlaid Ship
	Canoe		Ambulance		Park/Picnic Area		Tornado
	Eyeball		Bicycle		Overlaid Car		Overlaid Truck
	School		Fire Truck		Lighthouse		Overlaid Van
	PC User		Glider		Satellite		Wreck
	Balloon		Hospital		Sunny		Other
	Police		Jeep		Overlaid WX Service		

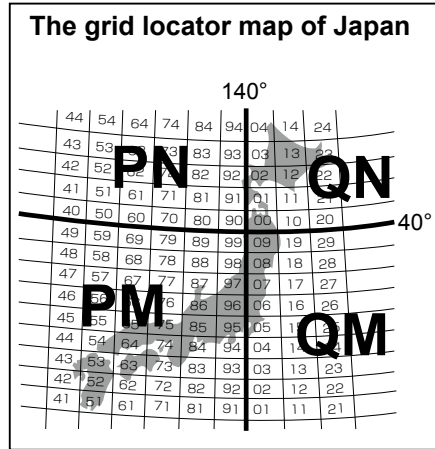
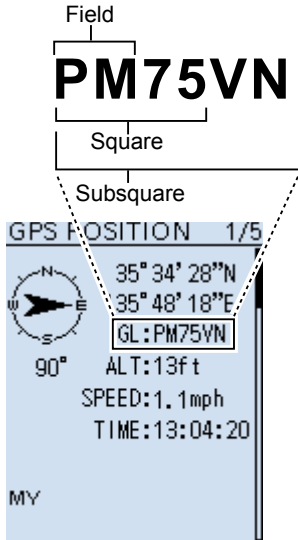
5 GPS OPERATION

■ Checking your GPS location (Continued)

◇ About the Grid Locator

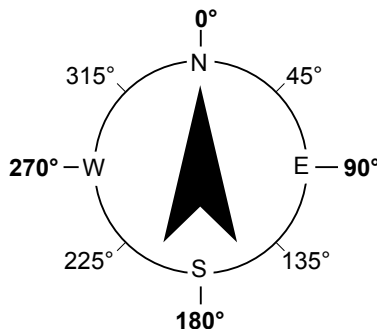
Grid Locator (GL) is a position compressed into a 6 character code, calculated by the longitude and the latitude.

The locator is simply calculated by dividing the earth surface into squares. It is used to find the area of a transceiver station.



◇ About the Course

The course displayed on the GPS POSITION screens are indicated in degrees.



5 GPS OPERATION

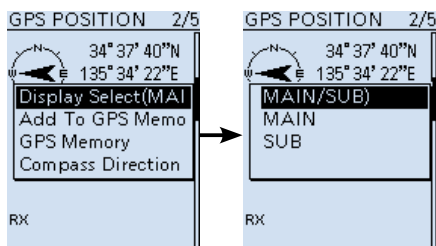
■ Checking your GPS location (Continued)

◇ Setting the display type (MAIN/SUB)

You can select the display type for the “GPS POSITION” screen.

1. Display the “GPS POSITION” screen.
2. Rotate [DIAL] to select the “RX” screen.
3. Push [QUICK].
4. Select “Display Select(MAIN/SUB).”
(Rotate [DIAL] to select it, then push [ENTER].)
5. Select the display type.

Latest (MAIN/SUB):	The last received station’s position data is displayed.
MAIN:	The position data of the station received on the MAIN band is displayed.
SUB:	The position data of the station received on the SUB band is displayed.

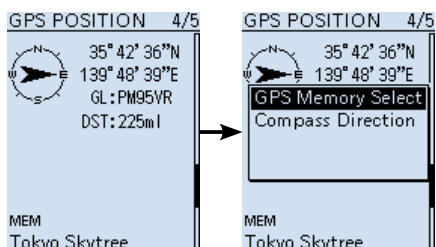


◇ Changing the GPS Memory or Alarm

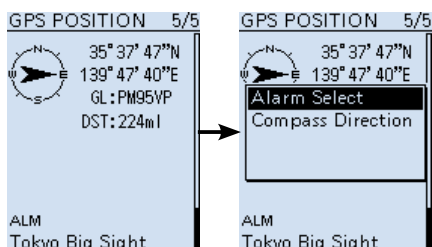
You can select the display type for the “GPS POSITION” screen.

1. Displays the “GPS POSITION” screen.
2. Rotate [DIAL] to select the “MEM” screen or “ALM” screen, then push [QUICK].
3. Select “GPS Memory Select,” or select “Alarm Select.”
4. Select the GPS Memory or GPS Alarm to display on the GPS POSITION screen.
 - ① Adding or editing a GPS Memory: p. 5-15
 - ① Setting the GPS Alarm: p. 5-22

MEM screen



ALM screen



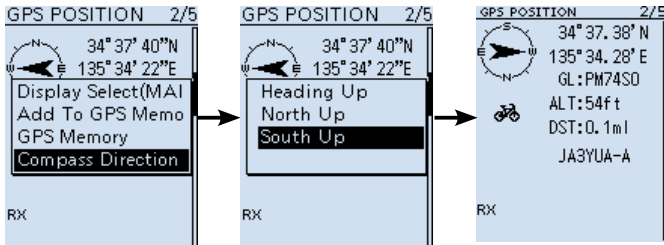
5 GPS OPERATION

■ Checking your GPS location (Continued)

◇ Changing the Compass Direction

You can set the compass direction to Heading Up, North Up, or South Up.

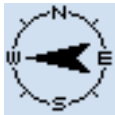
1. Push [QUICK].
2. Select "GPS Position."
(Rotate [DIAL] to select it, then push [ENTER].)
 - The "GPS POSITION" screen is displayed.
3. Push [QUICK].
4. Select "Compass Direction."
5. Select a direction type.
 - Heading Up: The top is always your course direction.
 - North Up: The top is always north.
 - South Up: The top is always south.



Heading Up



North Up



South Up



5 GPS OPERATION

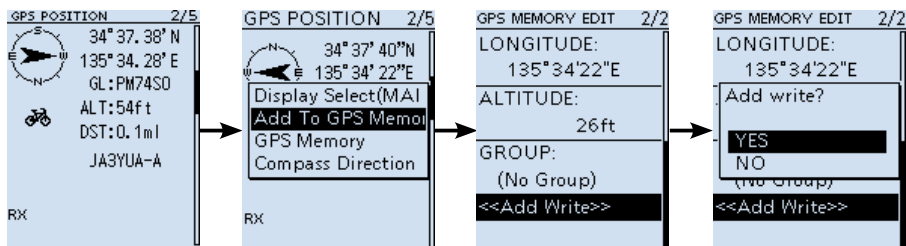
■ Checking your GPS location (Continued)

◇ Saving your own or a received station's location

You can save your own location and the caller station's location.

The GPS Memory has a total of 300 channels, and the channels can be assigned into one of 27 banks, A ~ Z, and (No Group). (p. 5-15)

1. Push [QUICK].
2. Select "GPS Position."
(Rotate [DIAL] to select it, then push [ENTER].)
3. Select the screen that you want to save.
 - To save your own location: MY screen
 - To save a received location: RX screen
4. Push [QUICK].
5. Select "Add To GPS Memory."
 - ① To edit an item, select the item, then push [ENTER].
6. Select "<<Add Write>>."
 - ① To select the destination group to be saved, select "GROUP."
 - A confirmation dialog appears.
7. Select "Yes."
 - Saves the data in the GPS Memory, then returns to the GPS POSITION screen.
 - ① Push [CLEAR] to return to the Main screen.



5 GPS OPERATION

■ Checking GPS information (Sky view screen)

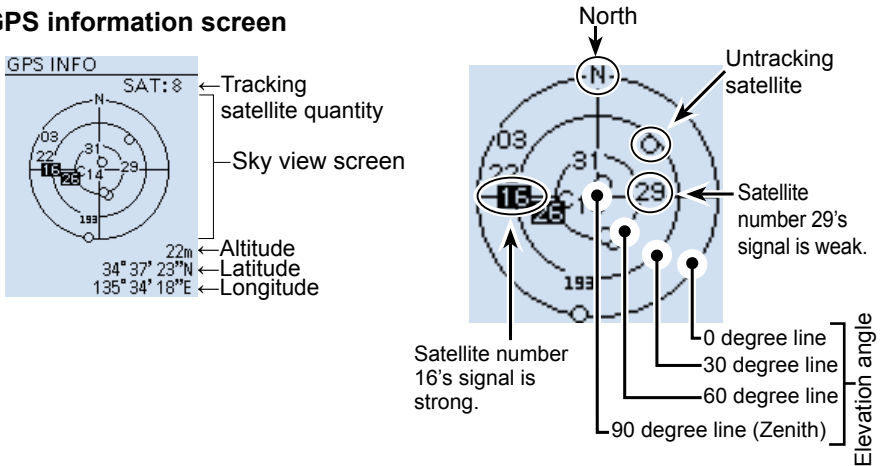
This screen is used to view GPS satellite information .

The GPS Information displays the quantity, signal power, and position of the GPS satellites.

The sky view screen displays the position of GPS satellites. The screen also displays the direction, elevation angle, satellite numbers, and their receiving signal strength status.

1. Push [QUICK].
2. Select "GPS Information." (Rotate [DIAL] to select it, then push [ENTER].)
 - Displays the "GPS INFO" screen.
 - ① Push [CLEAR] to return to the Main screen.

GPS information screen

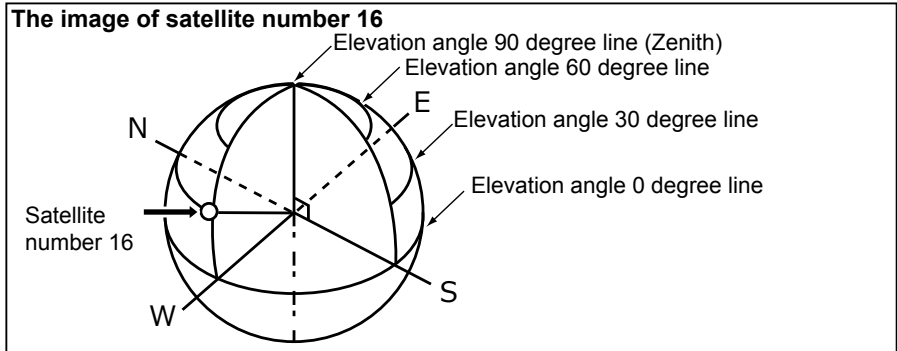


Meaning of each icon

- (○): Untracking satellite.
- (01): Tracking satellite with a weak signal, shown by the satellite number.
- (01): Tracking satellite with a strong signal, shown by the satellite number.
- (SAT): The quantity of tracking satellites.
- Altitude: The altitude of your station.

The altitude is displayed only when 4 or more satellites are tracked. When 3 or less satellites are tracked, "-----ft" is displayed.

- Longitude/Latitude: Longitude and Latitude of your location.



5 GPS OPERATION

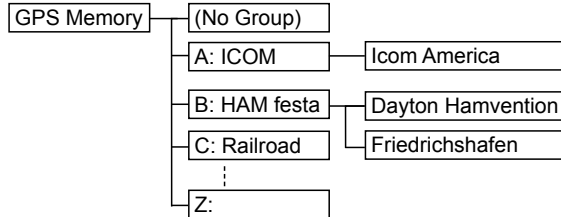
■ GPS Memory

You can add GPS data to GPS Memory.

You can add your own location, other station's location, or any locations that are manually entered.

You can save the GPS Memory up to 300 channels, and conveniently saved in up to 27 groups, from A ~ Z and "(No Group)." The A to Z groups can also be named.

Memory channel tree view



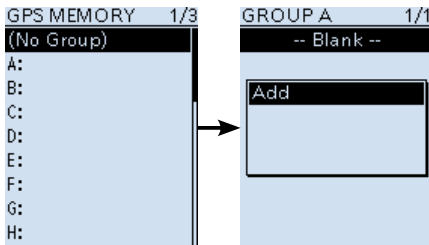
Group names are just examples.

◇ Adding a GPS Memory

1. Adding a GPS Memory and entering the edit mode

[MENU] > GPS > **GPS Memory**

1. Push [MENU].
2. Select "GPS Memory" in the "GPS" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "(No Group)."
4. Push [QUICK].
5. Select "Add."
 - Displays the GPS MEMORY EDIT screen.



Continued on the next page.

TIP: To edit the previously saved GPS Memory, select "Edit" in step 5. You can enter the content in the same way as described above.

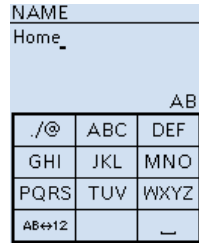
5 GPS OPERATION

■ GPS Memory

◇ Adding a GPS Memory (Continue)

2. Entering a GPS Memory name

1. Select "NAME."
(Rotate [DIAL] to select it, and then push [ENTER].)
2. Enter a GPS Memory name of up to 16 characters.
① Refer to page iv for details of character entry.
3. After entering, push [ENTER].
① Returns to the GPS MEMORY EDIT screen.



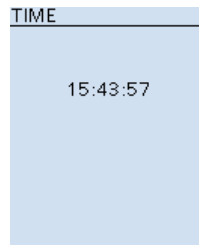
3. Entering the GPS Memory date

1. Select "DATE."
2. Push D-pad (Right) or D-pad (Left) to move the cursor to select a digit to enter.
3. Rotate [DIAL] to set the date.
① Set to between 2000/01/02 and 2099/12/30.
4. Repeat steps 2 and 3 to enter the date.
5. After entering, push [ENTER].
① Returns to the GPS MEMORY EDIT screen.



4. Entering the GPS Memory time

1. Select "TIME."
2. Push D-pad (Right) or D-pad (Left) to move the cursor to select a digit to enter.
3. Rotate [DIAL] to set the time.
① Set to between 00:00:00 and 23:59:59.
4. Repeat steps 2 and 3 to enter the time.
5. After entering, push [ENTER].
① Returns to the GPS MEMORY EDIT screen.



5 GPS OPERATION

■ GPS Memory

◇ Adding a GPS Memory (Continue)

5. Entering the GPS Memory latitude

1. Select "LATITUDE."
2. Push D-pad (Right) or D-pad (Left) to move the cursor to select a digit to enter.
3. Rotate [DIAL] to set the latitude.

① Information

- Set to between 0°00.00' to 90°00.00'.
 - You can change the unit to "ddd°mm'ss'." (p. 6-24)
 - To enter a north latitude, select "N," and to enter a south latitude, select "S."
4. Repeat steps 2 and 3 to enter the latitude.
 5. After entering, push [ENTER].
 - ① Returns to the GPS MEMORY EDIT screen.

LATITUDE

34°37.23'N

6. Entering the GPS Memory longitude

1. Select "LONGITUDE."
(Rotate [DIAL] to select it, and then push [ENTER].)
2. Push D-pad (Right) or D-pad (Left) to move the cursor to select a digit to enter.
3. Rotate [DIAL] to enter the longitude.

① Information

- Range: Set to between 0°00.00' to 180°00.00'.
 - You can change the unit to "ddd°mm'ss'." (p. 6-24)
 - To enter an east longitude, select "E," and to enter a west longitude, select "W."
4. Repeat steps 2 and 3 to enter the longitude.
 5. After entering, push [ENTER].
 - ① Returns to the GPS MEMORY EDIT screen.

LONGITUDE

135°34.17'E

7. Entering the GPS Memory altitude

1. Select "ALTITUDE."
2. Rotate [DIAL] to select plus or minus.
3. Push D-pad (Right) or D-pad (Left) to move the cursor to select a digit to enter.
4. Rotate [DIAL] to set the altitude.
 - ① Set to between -32808 and +32808 feet.
5. Repeat steps 3 and 4 to enter the altitude.
6. After entering, push [ENTER].
 - ① Returns to the GPS MEMORY EDIT screen.

ALTITUDE

+00008ft

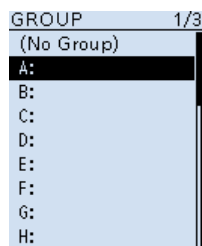
5 GPS OPERATION

■ GPS Memory

◇ Adding a GPS Memory (Continue)

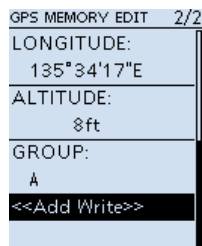
8. Selecting a GPS Memory group

1. Select "GROUP."
(Rotate [DIAL] to select it, and then push [ENTER].)
2. Select the group between (No Group) and A ~ Z.
① You can save up to 300 Memories in each group.
3. After selecting, push [ENTER].
① Returns to the GPS MEMORY EDIT screen.



9. Writing the GPS Memory

1. Select "<<Add Write>>."
 - A confirmation dialog appears.
 - ① If you edit a previously added GPS Memory, select "<<Overwrite>>."
2. Select "Yes."
 - The data is added to the GPS memory, and then the selected GPS Memory group screen is displayed.
3. Push [CLEAR] to return to the Main screen.



TIP:

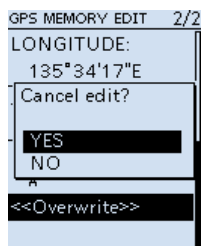
To view the entered content:

Select a GPS Memory channel, then push [ENTER].

To cancel the entered data:

While entering or editing the GPS Memory, push [CLEAR] to display a confirmation dialog.

Select "Yes" to cancel entering and the display returns to the GPS Memory group screen.



5 GPS OPERATION

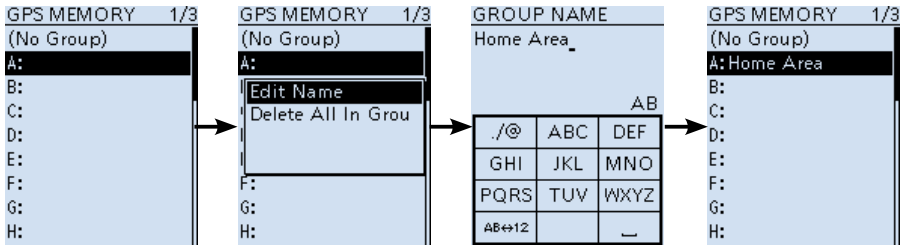
■ GPS Memory (Continued)

◆ Entering the GPS Memory group name

You can enter a name for each GPS Memory group.

[MENU] > GPS > **GPS Memory**

1. Push [MENU].
2. Select “GPS Memory” in the “GPS” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group that the name to be entered, then push [QUICK].
4. Select “Edit Name.”
5. Enter a group name of up to 16 characters. (Example: Home Area)
① Refer to page iv for character entry details.
6. After entering, push [ENTER].
① Push [CLEAR] to return to the Main screen.



5 GPS OPERATION

■ GPS Memory (Continued)

◇ Deleting GPS Memory

There are 2 ways to delete the Memories:

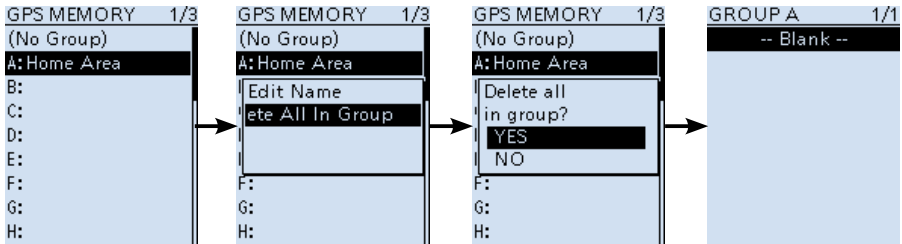
- Deletes all GPS Memory in a group.
- Deletes a specific GPS Memory.

NOTE: Deleted GPS Memories cannot be restored.

Example: Deleting all GPS Memories in the selected group.

[MENU] > GPS > **GPS Memory**

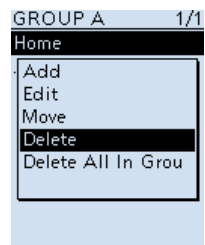
1. Push [MENU].
 2. Select “GPS Memory” in the “GPS” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 3. Select the group where the GPS Memory to delete is saved, then push [QUICK].
 4. Select “Delete All In Group.”
 - A confirmation dialog is appears.
 5. Select “Yes.”
 - All GPS Memories in the selected group are deleted, then returns to the GPS MEMORY screen.
- ① When selecting a blank group, “Blank” is displayed.
① Push [CLEAR] to return to the Main screen.



TIP: Deleting a specific GPS Memory

You can delete a specific GPS Memory.

1. Select the GPS Memory to delete, then push [QUICK].
2. Select “Delete.”
 - A confirmation dialog appears.
3. Select “YES.”
 - The selected GPS Memory is deleted.



5 GPS OPERATION

■ GPS Memory (Continued)

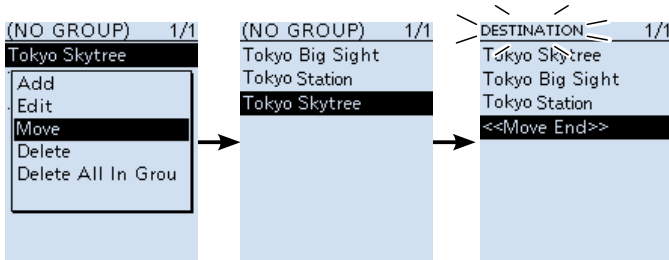
◇ Rearranging the display order of the GPS data

You can move the entered GPS Memories to rearrange their display order in the selected GPS Memory group.

In order to move the GPS Memory out of their assigned Memory group, edit and move, and then save.

[MENU] > GPS > **GPS Memory**

1. Push [MENU].
2. Select "GPS Memory" in the "GPS" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the group where the GPS Memory you want to move is saved.
4. Select the GPS Memory to move, then push [QUICK].
5. Select "Move."
 - "DESTINATION" blinks.
6. Select the position to insert the Memory you want to move.
 - The selected Memory is inserted above the destination Memory name.
 - ① If you select "<<Move End>>," the Memory is moved to the bottom of the group.
 - ① Push [CLEAR] to return to the Main screen.



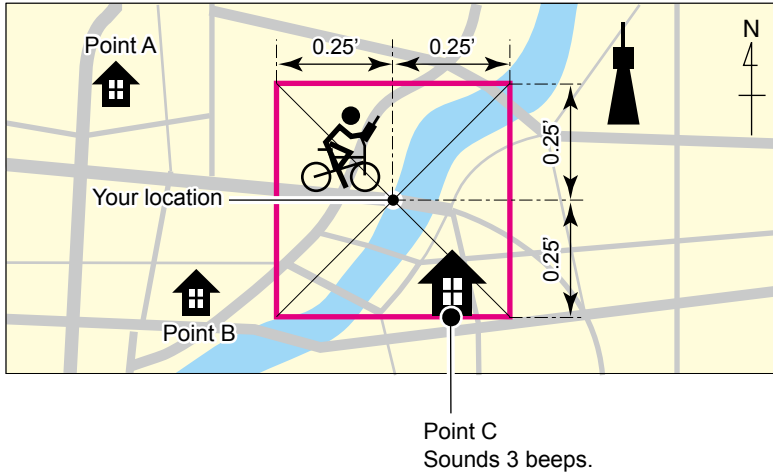
5 GPS OPERATION

■ GPS Alarm

The receiver can sound a GPS Alarm when a target station or position comes into the alarm area. This function can be set to a caller station, all GPS Memories, a selected GPS Memory group, or a selected GPS Memory.

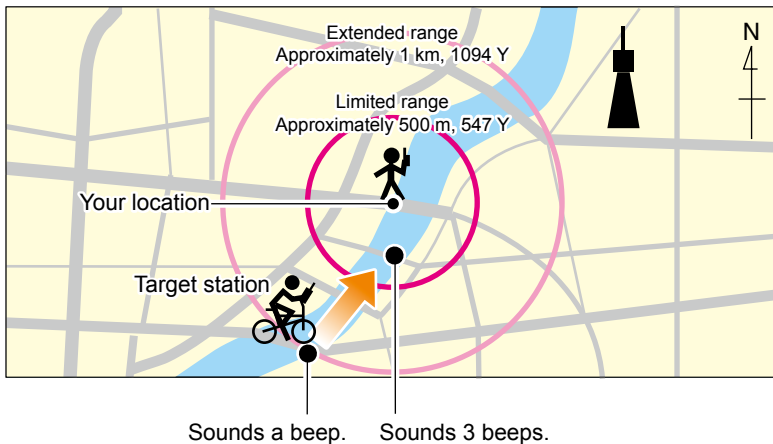
Alarm Area (Group) (Setting plural stations)

When "All Memories" or a GPS Memory group is selected:



Alarm Area (RX/Memory) (Setting specific station)

When a specific GPS Memory is selected:



5 GPS OPERATION

■ GPS Memory (Continued)

◇ Setting the GPS Alarm function to All Memories

NOTE: Even if “RX” is selected in step 4, when the received signal has no position data, the GPS Alarm does not sound.

[MENU] > GPS > **GPS Alarm**

1. Push [MENU].
2. Select “GPS Alarm” in the “GPS” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select “Alarm Select.”
4. Select an Alarm type.
 - OFF: Turns OFF the GPS Alarm function.
 - RX: When a station with its GPS Alarm set enters the range, the alarm sounds.
 - Group: When either one of the stations in the group enters the set range, the alarm sounds.
(Select a GPS Memory group from “(No Group)” and “A” to “Z.”)
 - Memory: When a station with its GPS Alarm set enters within an approximate 1 kilometer (1094 yard) range, the alarm sounds once.
5. Push [CLEAR] to return to the Main screen.

① When the alarm sounds, “GPS ALARM” appears up on the screen.

① To cancel the GPS Alarm function, select “OFF” in step 4.

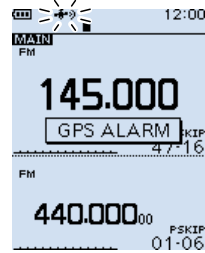
When “Group” is selected:

When either one of the stations in the group enters the set range, the alarm sounds 3 times.

When “RX/Memory” is selected:

When a station with its GPS Alarm set enters within an approximate 1 kilometer (1094 yard) range, the alarm sounds once. When it enters within an approximate 500 meter (547 yard) range, the alarm sounds 3 times.

The GPS Alarm icon blinks



When the alarm sounds

TIP:

You can change the Alarm activation area.

Group: ([MENU] > GPS > GPS Alarm > **Alarm Area (Group)**)

RX/Memory: ([MENU] > GPS > GPS Alarm > **Alarm Area (RX/Memory)**)

■ GPS Logger function

The GPS Logger function enables you to save the position data from a GPS receiver onto a microSD card as a log. The GPS Logger saves Latitude, Longitude, Altitude, Positioning state, Course, Speed, Date, and Time. If you use this GPS Logger while driving, you can check your driving history on a mapping application.

① The GPS Logger function is set to ON as the default setting.

◇ GPS Logger operating outline

To use the GPS Logger function, do the following:

1. Insert a microSD card (User supplied).
2. Confirm that the GPS receiver is receiving your position data. (p. 5-4)
3. Turn ON the GPS Logger function.



Completed.

You can start using the GPS Logger function.

NOTE:

- The GPS Logger function requires a microSD card (User supplied).
- Once the GPS Logger function is turned ON, the receiver continuously saves position data from the GPS receiver, even if the receiver is turned OFF, then ON again. To cancel this function, turn it OFF. While this function is ON, and when the receiver is turned OFF, the log file will be closed. When the receiver is turned ON and Positioning is carried out by the GPS receiver, a new log file will be created.
- When the microSD card is full, this function is automatically paused.
- While the GPS Logger is activated, you cannot use the receiver in the SD Card mode.

TIP: Using the <<GPS Logger Only>> mode

The receiver has an exclusive GPS Logger mode where only the GPS Logger functions. This mode is useful when you are traveling and do not want to use the receiver for listening, but you do want to use just the GPS Logger.

See page 5-28 for details.

5 GPS OPERATION

■ GPS Logger function (Continued)

◇ Confirming the GPS Logger function

Confirm the GPS Logger function is turned ON.

When the GPS Logger function is ON, the receiver saves position data from the GPS receiver onto a microSD card at a set time interval.

① The saved GPS sentences are GGA, RMC, GSA, and VTG.

[MENU] > GPS > GPS Logger > **GPS Logger**

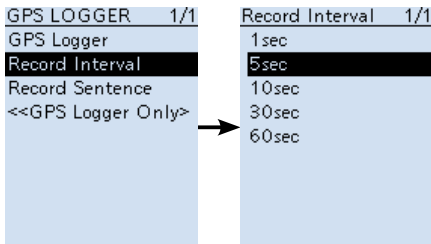
1. Push [MENU].
2. Select "GPS Logger" in the "GPS" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "GPS Logger" on the GPS LOGGER screen.
4. Select "ON."
① The default setting is "ON."
5. Push [CLEAR] to return to the Main screen.
① The GPS Logger function is ON.

◇ Setting the GPS record interval

For example, when you are walking and if the time interval is set to "1 sec," a lot of position data is saved in a short distance. Select the GPS Logger function record interval to suit your travel speed.

[MENU] > GPS > GPS Logger > **Record Interval**

1. Push [MENU].
2. Select "Record Interval" in the "GPS" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select a record interval.
① The default setting is "5sec."
4. Push [CLEAR] to return to the Main screen.



5 GPS OPERATION

■ GPS Logger function (Continued)

◇ Setting the GPS record sentence

Select the GPS sentence for the GPS Logger function.
 Select only required sentences to reduce the data volume.
 See the contents table shown below before selecting.

[MENU] > GPS > GPS Logger > **Record Sentence**

1. Push [MENU].
2. Select "GPS Logger" in the "GPS" menu.
 (Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "GPS Logger" on the GPS LOGGER screen.
4. Push [ENTER] to remove the checkmark "✓" from the unrequired sentence.
 ⓘ Select the unrequired sentence, then push [ENTER].
 ⓘ All sentences are set to ON as the default.
5. Push [CLEAR] to return to the Main screen.

Contents of GPS sentence

Sentence	Lon /Lat	Alt	UTC	Date (UTC)	Status	2D /3D	COG (True)	SOG (knot)
RMC	✓		✓	✓	✓		✓	✓
GGA	✓	✓	✓		✓			
VTG							✓	✓
GSA					✓	✓		

Sentence	Others
RMC	Mode Indicator
GGA	Number of satellites in use, HDOP, Geoidal separation, Age of Differential GPS data
VTG	COG (Magnetic north), SOG (km/h), Mode Indicator
GSA	ID numbers of satellites used in solution, PDOP, HDOP, VDOP

5 GPS OPERATION

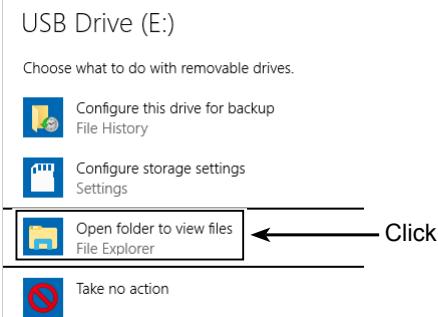
■ GPS Logger function (Continued)

◇ Viewing the log data on a PC

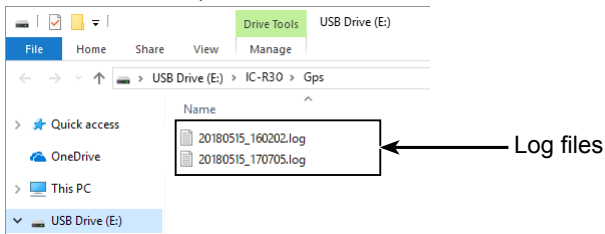
You can display your log data on a PC.

① Windows 10 is used for these instructions.

1. Connect the IC-R30 to a PC using the supplied USB cable.
2. Push [MENU].
3. Select the “SD Card Mode” on the MENU screen.
([MENU] > Function > **USB Connect**)
 - A confirmation dialog appears.
4. Select “Yes.”
 - Displays the ‘IC-R30’ folder.
5. Double-click the “IC-R30” folder.



6. Double-click the “Gps” folder.



- The log files are displayed.

① The files are named with the time that log was started, in the following format:

yyyymmdd_hhmmss.log

yyyy = year, mm = month, dd = day, hh = hour, mm = minute, ss = second

① You can see your route on a mapping software map.

① The file may not be compatible with all mapping software.

5 GPS OPERATION

■ GPS Logger function (Continued)

◇ The <<GPS Logger Only>> mode

The receiver has an exclusive GPS Logger mode where only the GPS Logger functions. This mode is useful when you are traveling and do not want to use the receiver for communication, but you do want to use just the GPS Logger.

◇ <<GPS Logger Only>> outline

To use GPS Logger function, do the following:

1. Insert a microSD card (User supplied).
2. Confirm that the GPS receiver is receiving your position data. (p. 5-4)
3. Confirm that the GPS Logger function is ON. (p. 5-24)
4. Turn ON the <<GPS Logger Only>> mode.

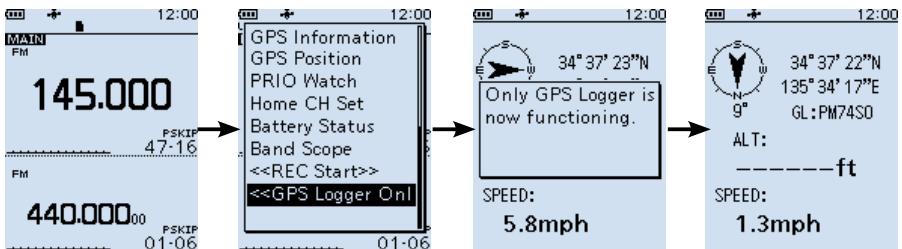


Completed.

You can start using the <<GPS Logger Only>> mode.

◇ Setting the <<GPS Logger Only>> mode

1. Push [QUICK].
 2. Select "<<GPS Logger Only>>."
(Rotate [DIAL] to select it, and then push [ENTER].)
 - "Only GPS Logger is now functioning." is displayed.
- ① You can also select the <<GPS Logger Only>> mode on the MENU screen.
([MENU] > GPS > GPS Logger > <<GPS Logger Only>>)



TIP: To cancel the <<GPS Logger Only>> mode

Turn OFF the receiver, then turn it ON again.

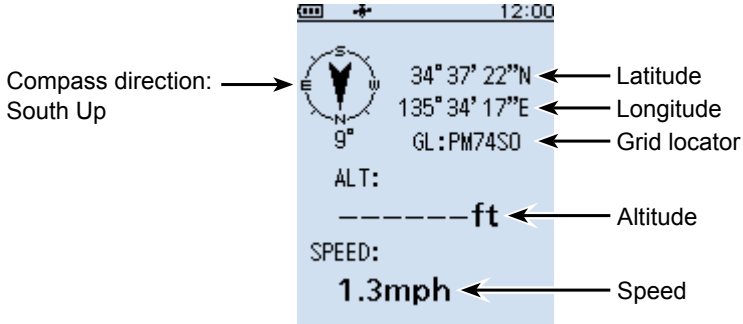
- ① When the receiver is tuned ON again, the normal GPS Logger function is still ON.
- ① While in the GPS Logger Only mode, you cannot operate the receiver except the GPS Logger function.

5 GPS OPERATION

■ GPS Logger function

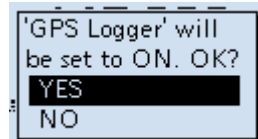
◇ The <<GPS Logger Only>> mode (Continued)

The <<GPS Logger Only>> mode screen

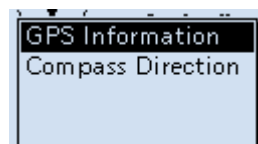


TIP:

- When GPS Logger is set to "OFF," the a dialog is displayed. (MENU > GPS > GPS Logger > **GPS Logger**)
To use the <<GPS Logger Only>> mode, select "YES."



- You can change the GPS Information, Grid Locator Display, or Compass Direction settings.
In the <<GPS Logger Only>> mode, push [QUICK] to open the Quick Menu window, and then select a setting item you want to change.



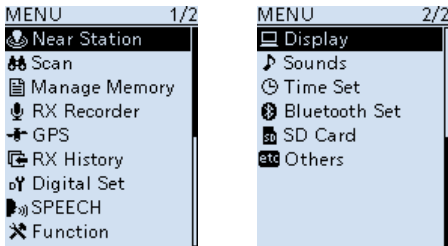
■ MENU screen.....	6-2
◇ MENU screen operation.....	6-2
◇ Selecting a Menu item	6-3
■ Near Station	6-4
■ Scan	6-4
■ Manage Memory	6-6
■ RX Recorder	6-7
■ GPS.....	6-9
■ RX History.....	6-13
■ Digital Set.....	6-14
■ SPEECH	6-16
■ Function	6-18
■ Display	6-22
■ Sounds	6-27
■ Time Set.....	6-29
■ Bluetooth Set.....	6-29
■ SD Card	6-34
■ Others	6-35

6 MENU SCREEN

■ MENU screen

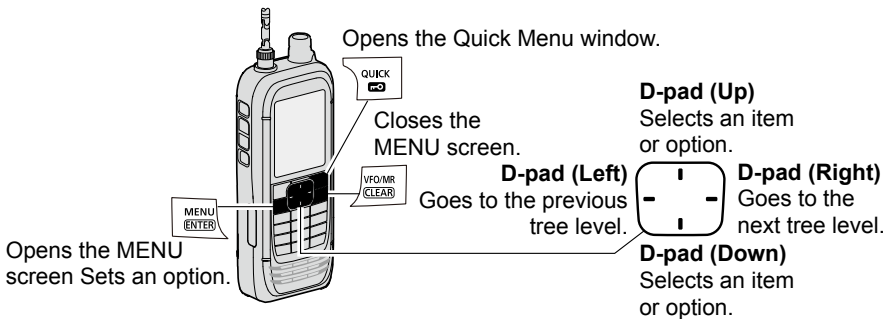
The MENU screen is displayed after pushing [MENU].
You can use the MENU screen to change settings.

MENU screen structure



TIP: The MENU screen is constructed in a tree structure. You may go to the next tree level, or go back a level, depending on the selected item.

◇ MENU screen operation



Simplified description—'Select' operation

In this manual, user's 'Select' operation is simplified, as described below.

Simplified description: Select "Function," and then push [ENTER].

Operation: Push D-pad (Up) or (Down) to select "Function," and then push [ENTER].

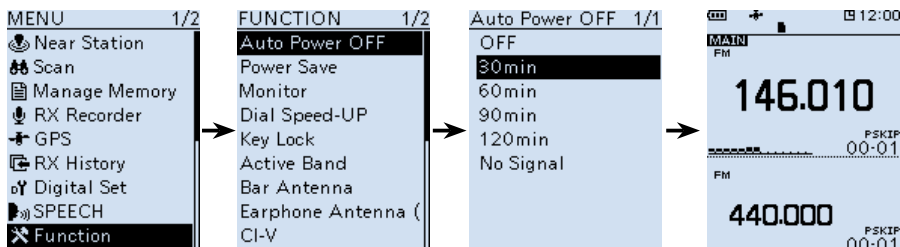
6 MENU SCREEN

◇ Selecting a Menu item

Example: Set “Auto Power OFF” to “30 min.”

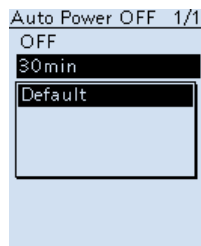
[MENU] > Function > **Auto Power OFF**

1. Push [MENU].
 2. Select “Auto Power OFF,” in the “Function” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 3. Select “30min,” and then push [ENTER].
 - Sets the option, then goes back a tree level.
- ① Push [CLEAR] to return to the Main screen.



TIP: To return to the default setting

1. Push [QUICK] in step 3.
2. Select “Default,” and then push [ENTER].
 - The setting returns to the default.



■ Near Station

Near Station

[MENU] > Near Station

Displays nearest stations (within 160 km) saved in the Memory channel.

- Select a Memory channel, and then push [ENTER] to receive.
- ① Maximum of 50 stations are displayed.

NOTE:

- Confirm the “Internal GPS” is selected in the Menu screen.
([MENU] > GPS > GPS Set > **GPS Select**) (p. 6-12)
- “No Station Found” is displayed if there are no stations within 160 km.
- “GPS is invalid. Search by last valid position.” is displayed if previously received position data is valid.
- Memory channel, that is set as a SKIP or PSKIP channel, is excluded from the near station list.

■ Scan

Pause Timer

(Default: 10sec)

[MENU] > Scan > Pause Timer

Select the Scan Pause Timer. When receiving a signal, the scan pauses for this set period of time.

- ① Individually selectable for A band and B band.
- 2sec ~ 20sec: When a signal is received, the scan pauses for 2 ~ 20 seconds (in 2 second steps).
- HOLD: The scan pauses on a received signal until the signal disappears.

Resume Timer

(Default: 2sec)

[MENU] > Scan > Resume Timer

Select the scan Resume Timer. When a received signal disappears, the scan resumes after this set period of time passed.

- ① Individually selectable for A band and B band.
- ① The Duplex scan resumes after 200 milliseconds (fixed) passed regardless of this setting.
- 0sec: The scan resumes immediately after the signal disappears.
- 1sec ~ 5sec: The scan resumes 1 ~ 5 seconds after the signal disappears.
- HOLD: The scan remains paused for the Pause Timer setting, even if the signal disappears.

NOTE: Rotate [DIAL] to resume the scan. The Resume Timer must be set shorter than the Pause Timer, otherwise this timer does not work properly.

Temporary Skip Timer

(Default: 5min)

[MENU] > Scan > Temporary Skip Timer

Set the Temporary Skip Timer. The unwanted frequencies that are set as Skip channels (PSKIP or SKIP) are skipped for this set period of time during a scan.

- ① This timer is activated for the VFO scan, and Memory scan.
- ① Individually settable for A band and B band.
- 5min/10min/15min: Skip channels are skipped for the set period of time.
- While Scanning: Skip channels are skipped until the Scan is stopped.
- While Powered ON: Skip channels are skipped until the receiver power is turned OFF.

6 MENU SCREEN

■ Scan (Continued)

Program Skip

(Default: ON)

[MENU] > Scan > **Program Skip**

Turn the Program Skip Scan function ON or OFF for a VFO scan.

This function enables the receiver to skip the unwanted frequencies that are entered as a Memory channel and is set to "PSKIP."

① Individually settable for A band and B band.

- OFF: The receiver scans all frequencies.
- ON: The receiver does not scan frequencies set as "PSKIP" frequencies.

Group Link

(Default: for all groups)

[MENU] > Scan > **Group Link**

Select groups to be scanned during a Group Link Scan. The Group Link function scans all channels in the selected groups.

Select a group, A ~ Z, and then push [ENTER] to turn the Link function ON or OFF.

- ① Displays "✓" when the function is set to ON.
- ① Individually selectable for A band and B band.

P-Scan Edge

[MENU] > Scan > **P-Scan Edge**

You can delete, copy, or edit the lower and higher frequencies for programmed scans.

The receiver has a total of up to 50 frequency ranges (00 ~ 49), and you can set scan name, tuning step, receive mode, and RF gain for each scan edge.

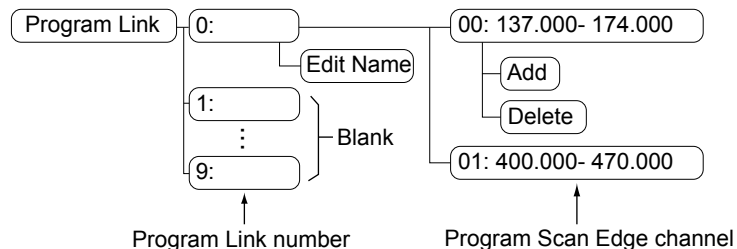
The default setting may differ, depending on the receiver version.

Program Link

[MENU] > Scan > **Program Link**

This item sets the link function for two or more program scan edge ranges to be sequentially scanned during the Program Link Scan. The link function scans all frequencies in the scan range.

Default settings of the Program Link:



- ① When only one Program Scan Edge channel is entered, or there is no Programmed Scan Edge is left, "Add" is not displayed after pushing [QUICK].

6 MENU SCREEN

■ Scan (Continued)

Auto MW SCAN Memory Clear

(Default: Display Dialog)

[MENU] > Scan > **Auto MW SCAN Memory Clear**

Select whether or not to delete "A:Auto MW" Channel contents when the auto memory write scan starts.

- OFF: Does not delete "A:Auto MW" Channel contents when the auto memory write scan starts.
- Display Dialog: Displays the dialog to select whether or not to delete "A:Auto MW" Channel contents when the auto memory write scan starts.
- ON: Deletes "A:Auto MW" Channel contents when the auto memory write scan starts.

DUP Check During MR Scan

(Default: OFF)

[MENU] > Scan > **DUP Check During MR Scan**

During a Memory scan, not only the set frequency, but also the offset frequency is scanned if Duplex is set to the channel.

- OFF: Offset frequency is not scanned.
- ON: Offset frequency is also scanned.

■ Manage Memory

[MENU] > **Manage Memory**

You can edit, copy, or delete groups and memory channels.
See section 4 for details.

■ RX Recorder

<<REC Start>> / <<REC Stop>>

[MENU] > RX Recorder > <<REC Start>> / <<REC Stop>>

Select, and then push [ENTER] to start or stop recording.

- ① BE SURE to insert a microSD card.
- ① If you turned OFF the receiver without stop recording, the receiver automatically starts recording when you turned ON next time.

Play Files

[MENU] > RX Recorder > Play Files

Displays saved voice data folders.

- ① BE SURE to insert a microSD card.

Playing back:

1. Select a folder that contains the file you want to playback, and then push [ENTER].
 - The file list is displayed.
2. Select a file, and then push [ENTER].
 - The VOICE PLAYER screen is displayed and starts playing back the audio.
 - ① See page 3-4 for details.
3. Push [CLEAR] to stop playing.
 - The file list is displayed.
 - ① Push [CLEAR] again to return to the Main screen.

NOTE:

- You can playback an audio while recording.
- The folder name is automatically created, as shown below:
Recording date: 15th March 2018 (Folder name: 20180315)
- The file name is automatically created, as shown below:
Recording date and time: 15th March 2018 12:00:00 (File name: 20180315_120000A*)
* "A" stands for A band.
- The recorded audio is saved in wav format.

RX REC Condition

(Default: Squelch Auto)

[MENU] > RX Recorder > Recorder Set > RX REC Condition

Select whether or not the squelch status affects the RX voice audio recording.

- Always: The receiver always records the RX voice audio regardless of the squelch status.
- Squelch Auto: The receiver records the RX voice audio only when the squelch is open.
 - ① Recording continues for 2 seconds after the squelch is closed.

6 MENU SCREEN

■ RX Recorder (Continued)

File Split

(Default: ON)

[MENU] > RX Recorder > Recorder Set > **File Split**

Turn the File Split function ON or OFF.

- OFF: The recorded audio saved to a file, until its size exceeds 2 GB. When the file size exceeds 2 GB, a new file is generated.
- ON: If the "RX REC Condition" is set to "Squelch Auto," the file splits according to the following split condition.

File split conditions:

- 2 seconds have passed after the squelch is closed.
- When you change the operating mode (VFO, Memory or WX mode).
- When you change the receive frequency greater than 5 kHz (other than WFM mode) or 200 kHz (WFM mode), or when you input the frequency from the keypad.
- When you change the Memory channel.
- When you change the receive mode other than between FM and FM-N, AM and AM-N or CW and CW-R.
- When you start a scan other than DUP scan or TONE scan.
- When or after a signal is received on a Priority channel during a Priority scan, when the receive frequency returns to the VFO frequency.
- After a signal is received during a VFO scan, when the receive frequency is changed greater than 5 kHz (other than WFM mode) or 200 kHz (WFM mode) then a signal is received.
- After a signal is received during a Memory scan, when the channel is changed then a signal is received.
- When a talk end code in the digital signal is received.

REC Operation

(Default: A/B Link)

[MENU] > RX Recorder > Recorder Set > **REC Operation**

Select the recording operation on the dual band display.

- A/B Separate: The recording function is separately active/inactive on the selected band (MAIN band) when the function is started or stopped.
- A/B Link: The recording function is simultaneously active/inactive on both MAIN and SUB bands when the function is started or stopped.
 - ① On the single band display, only displayed band (A or B) is recorded.

Skip Time

(Default: 10sec)

[MENU] > RX Recorder > Player Set > **Skip Time**

Select the skip time to rewind or skip forward the recorded voice audio for this period of time when you push the fast-rewind or fast-forward key during playback.

■ GPS

GPS Information

[MENU] > GPS > **GPS Information**

Displays the GPS satellite direction, elevation, satellite number, and receiving status. See page 5-14 for details.

GPS Position

[MENU] > GPS > **GPS Position**

Displays position data shown below. See page 5-4 for details.

① Rotate [DIAL] to change between MY, RX, MEM, and ALM screen.

- MY: My position
- RX: Received position
- MEM: GPS Memory position
- ALM: GPS Alarm position

GPS Memory

[MENU] > GPS > **GPS Memory**

You can save maximum of 300 position data, those come with GPS position or RX history. See page 5-15 for details.

Alarm Select

(Default: OFF)

[MENU] > GPS > GPS Alarm > **Alarm Select**

Select the target positions for the GPS Alarm function.

This function sounds alarm beeps when a target is in the active range.

See page 5-22 for details.

- OFF: Turns OFF the function.
- RX: The GPS Alarm sounds when a target (the last received position) enters in your active alarm range.
- Group: The GPS Alarm sounds when a target (positions in the GPS Memory, or in the selected GPS Memory Group) enters in your active alarm range.
- Memory: The GPS Alarm sounds when a target (the entered position in the GPS Memory) enters in the active alarm range.

6 MENU SCREEN

■ GPS (Continued)

Alarm Area (Group)

(Default: 0.25')

[MENU] > GPS > GPS Alarm > **Alarm Area (Group)**

Set the GPS active alarm range.

When a target enters in this set active alarm range, the GPS Alarm sounds.

① When Alarm Select (p. 6-9) is set to "Group," this setting is enabled.

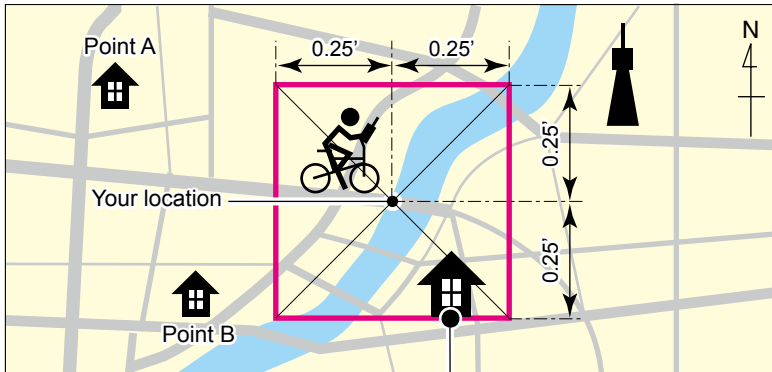
Ranges differs, depending on the "Latitude/Longitude" setting.

([MENU] > Display > Display Unit > **Latitude/Longitude**)

- Latitude/Longitude = ddd°mm.mm'
Ranges: 00.08' to 59.99' (0.01' steps)
- Latitude/Longitude = ddd°mm'ss"
Ranges: 00'05" to 59'59" (0'01" steps)

Example:

When a target enters in the active alarm range, the GPS Alarm sounds and the GPS alarm icon blinks.



Point C
Sounds 3 beeps.

6 MENU SCREEN

■ GPS (Continued)

Alarm Area (RX/Memory)

(Default: Both)

[MENU] > GPS > GPS Alarm > **Alarm Area (RX/Memory)**

Select the GPS active alarm range.

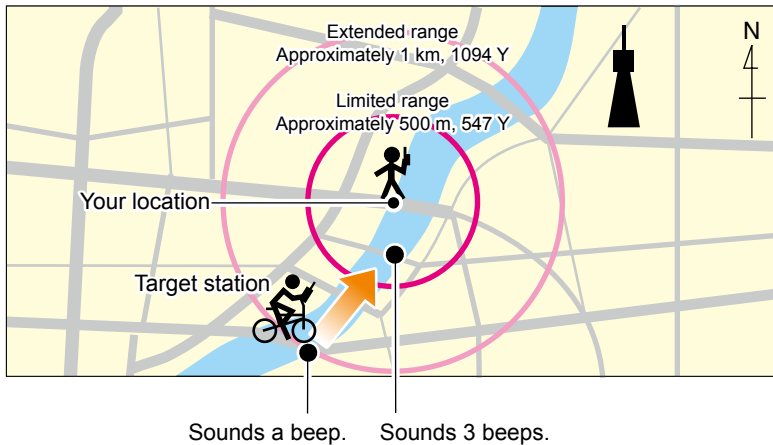
When a target enters in the active alarm range, the GPS Alarm sounds and the GPS alarm icon blinks.

① When Alarm Select (p. 6-9) is set to “RX” or “Memory,” this setting is enabled.

- Limited: The receiver sounds 3 beeps and the GPS Alarm icon blinks when the target enters the 500 meter range.
- Extended: The receiver sounds 3 beeps and the GPS Alarm icon blinks when the target enters the 1 kilometer range.
- Both: The receiver sounds a beep and the GPS Alarm icon blinks when the target enters the 1 kilometer range, and sounds 3 beeps and the icon blinks when it enters the 500 meter range.
When the target exits the 500 meter range, but is still in the 1 kilometer range, the icon continues to blink, but no beeps sound.

Example:

When a target station enters in the active alarm range (500 meter or 1 kilometer range, depending on the setting), the GPS Alarm sounds.



6 MENU SCREEN

■ GPS (Continued)

GPS Logger

(Default: ON)

[MENU] > GPS > GPS Logger > **GPS Logger**

Turn the GPS Logger function ON or OFF.

This function logs the position, altitude, course, speed, and number of satellites being used.

① BE SURE to insert a microSD card.

① When “GPS Select” is set to “OFF” or “Manual,” this function does not save the log.

TIP: The log data is saved on the microSD card. The file name is automatically created, as shown below:

- Log start date and time: 20th May 2018 15:30:00
- File name: 20180520_153000.log

Record Interval

(Default: 5sec)

[MENU] > GPS > GPS Logger > **Record Interval**

Set the GPS Logger function record interval to 1, 5, 10, 30, or 60 seconds.

Record Sentence

(Default: for all sentences)

[MENU] > GPS > GPS Logger > **Record Sentence**

Set the GPS Logger function record sentence to RMC, GGA, VTG, or GSA.

① Displays “✓” when the sentence is set.

NOTE: Select at least one sentence, otherwise an error beep will sound.

<<GPS Logger Only>>

[MENU] > GPS > GPS Logger > <<GPS Logger Only>>

You can turn ON the GPS Logger Only mode ON. In this mode, only the GPS Logger is functioning and the receiver does not receive signal.

① Information

- BE SURE to insert a microSD card.
- Set GPS Select to “Internal GPS.”
- To cancel the mode, restart the receiver.

GPS Select

(Default: Internal GPS)

[MENU] > GPS > GPS Set > **GPS Select**

Select how to capture position data.

- OFF: A GPS receiver is not used.
- Internal GPS: Position data of the internal GPS data is used for the GPS functions.
- Manual: Manually enter the current Latitude, Longitude, and Altitude in Manual Position.

6 MENU SCREEN

■ GPS (Continued)

Power Save (Internal GPS)

(Default: Auto)

[MENU] > GPS > GPS Set > **Power Save (Internal GPS)**

Select whether or not to use the Power Save function for the internal GPS receiver. When this function is ON, and if the GPS receiver does not receive signals from a satellite for 5 minutes, the function turns OFF the GPS receiver for this set period of time.

- OFF: The GPS receiver is always turned ON.
- 1, 2, 4, 8min: When the receiver cannot receive signals from a satellite for 5 minutes, the GPS receiver is turned OFF for the selected period of time. (1, 2, 4, or 8 minutes). After this period, the receiver resumes receiving.
- Auto: When the receiver cannot receive signals from a satellite for 5 minutes, the GPS receiver is turned OFF for 1 minute. After this period, the receiver resumes receiving. The Power Save interval time extends to 2, 4, and then 8 minutes when receiving no signals for another 5 minutes, respectively.

Manual Position (Default: Latitude:0°00.00'N/Longitude:0°00.00'E/Altitude:-----ft)

[MENU] > GPS > GPS Set > **Manual Position**

Manually enter the latitude, longitude, and Altitude of your current position.

■ RX History

[MENU] > **RX History**

When a call is received in a digital mode, the call information such as the caller station's call sign or the repeater's call sign are saved on this screen. Up to 50 records can be saved.

- ① When you receive the 51th call, the oldest history will be deleted.
- ① Even if the receiver is turned OFF, the saved records are not deleted.

TIP: To display the RX record contents

On the RX HISTORY screen, rotate [DIAL] to display the RX record contents (RX01 ~ RX50).

■ Digital Set

Bass (Default: Normal)

[MENU] > Digital Set > Tone Control > D-STAR/P25/dPMR/NXDN/DCR > **Bass**

Select the audio bass filter level.

- Cut: Reduces the low frequencies.
- Normal: Normal tone balance.
- Boost: Increases the low frequencies.

Treble (Default: Normal)

[MENU] > Digital Set > Tone Control > D-STAR/P25/dPMR/NXDN/DCR > **Treble**

Select the audio treble filter level.

- Cut: Reduces the high frequencies.
- Normal: Normal tone balance.
- Boost: Increases the high frequencies.

Bass Boost (Default: OFF)

[MENU] > Digital Set > Tone Control > D-STAR/P25/dPMR/NXDN/DCR > **Bass Boost**

Turn the Audio Bass Boost function ON or OFF.

- OFF: Turns OFF the function.
- ON: This function boosts the audio bass.

Digital Monitor (Default: Auto)

[MENU] > Digital Set > **Digital Monitor**

Select a Receive mode when you push [SQL] in the Digital mode.

- Auto: Receives in the digital mode or the analog mode, depending on the received signal.
- Digital: Monitors in the digital mode. (Forcibly opens the Digital Code squelch)
- Analog: Monitors in the analog mode.

RX History Log (Default: OFF)

[MENU] > Digital Set > RX Log > **RX History Log**

Select whether or not to make a Digital mode's receive history log on a microSD card.

The log is saved in the csv format.

① BE SURE to insert a microSD card.

- OFF: Turns OFF the function.
- ON: The receiver makes a history log on the microSD card.

6 MENU SCREEN

■ Digital Set (Continued)

Separator/Decimal

(Default: Sep [.] Dec [.])

[MENU] > Digital Set > RX Log > CSV Format > **Separator/Decimal**

Select the separator and decimal character for the csv format.

- Sep [.] Dec [.] : Separator is “,” and Decimal is “.”
- Sep [.] Dec [.] : Separator is “,” and Decimal is “.”
- Sep [.] Dec [.] : Separator is “,” and Decimal is “.”

Date

(Default: mm/dd/yyyy)

[MENU] > Digital Set > RX Log > CSV Format > **Date**

Select the separator and decimal character for the csv format.

Select the date format between “yyyy/mm/dd,” “mm/dd/yyyy,” and “dd/mm/yyyy.”
(y: year, m: month, d: day)

RX Record (D-STAR RPT)

(Default: ALL)

[MENU] > Digital Set > **RX Record (D-STAR RPT)**

The receiver can record the data of up to 50 individual calls. When the received signal includes a status message (“UR?” or “RPT?”) that is sent back from the Access repeater, you can record up to 50 messages, or only the last call, in the Received Call Record.

- ALL: Records up to 50 calls.
- Latest Only: Records only the last call.

D-STAR EMR AF Level

(Default: 19)

[MENU] > Digital Set > **D-STAR EMR AF Level**

Set the audio output level to between 0 and 39 for when an EMR communication signal is received. When an EMR signal is received, the audio is heard at this set level, or the volume control level, whichever is higher.

To disable the setting, set to “0.”

NOTE: After an EMR signal disappears, the audio level will remain at the EMR level. In this case, adjust the audio level.

Fast Unmute (NXDN)

(Default: ON)

[MENU] > Digital Set > **Fast Unmute (NXDN)**

Selects the mute state for the Encryption function in the NXDN mode.

This function releases the mute without confirming whether or not the encryption key matches. If you want to prevent cutting off the beginning of the received audio, set to “ON.”

- OFF: Releases the mute after confirming the encryption key matches.
- ON: Releases the mute without confirming whether or not the encryption key matches.

■ SPEECH

D-STAR RX Call Sign SPEECH

(Default: ON (Kerchunk))

[MENU] > SPEECH > **D-STAR RX Call Sign SPEECH**

Turn the RX Call Sign Speech function ON or OFF for a signal received in the D-STAR mode.

① Information

- When the Digital Squelch function is used, the calling station's call sign is not announced if the received signal is not addressed, or does not include a matching digital code.
 - When you receive a signal from a repeater ("UR?" or "RPT?"), the caller station's call sign is not announced.
 - While scanning, the receiver resumes the scan during an announcement.
 - Even if a note is entered after the call sign, it is not announced.
 - When you receive a signal during an announcement, the receiver cancels the announcement, and you can hear the received audio.
- OFF: The caller station's call sign is not announced, even when a call is received.
 - ON (Kerchunk): The caller station's call sign is announced only when they make a short transmission.
 - ON (All): The caller station's call sign is always announced.

DIAL SPEECH

(Default: OFF)

[MENU] > SPEECH > **DIAL SPEECH**

Turn the Dial Speech function ON or OFF. The Dial Speech function announces the frequency that is selected by rotating [DIAL].

- ① When you receive a signal during an announcement, the receiver cancels the announcement, and you can hear the received audio.
- OFF: The frequency is not announced.
- ON: The frequency is announced, 1 second after rotating [DIAL].

6 MENU SCREEN

■ SPEECH (Continued)

MODE SPEECH

(Default: OFF)

[MENU] > SPEECH > **MODE SPEECH**

Turn the Receive Mode Speech function ON or OFF.

When this function is ON, the selected receive mode is announced.

① While the VFO scanning, the receive mode is announced when you change the mode.

- OFF: The selected receive mode is not announced.
- ON: The selected receive mode is announced.

SPEECH Language

(Default: English)

[MENU] > SPEECH > **SPEECH Language**

Set the speech language to English or Japanese.

Alphabet

(Default: Normal)

[MENU] > SPEECH > **Alphabet**

Select either "Normal" or "Phonetic Code" to announce the alphabet characters.

- Normal: Normal code is used.
(Example: A as eh, B as bee)
- Phonetic Code: The Phonetic code is used.
(Example: A as Alfa, B as Bravo)

SPEECH Speed

(Default: Fast)

[MENU] > SPEECH > **SPEECH Speed**

Set the speech speed to Slow or Fast.

SPEECH Level

(Default: 5)

[MENU] > SPEECH > **SPEECH Level**

Adjust the voice synthesizer volume level to between 0 (OFF), 1 (minimum), and 9 (maximum).

■ Function

Auto Power OFF

(Default: OFF)

[MENU] > Function > **Auto Power OFF**

Select whether or not to automatically turn OFF the receiver after inactivity for this set period of time.

① "AUTO POWER OFF" is displayed and beeps sound 5 seconds before turning OFF the receiver. If you operate the receiver during this period of time, the Auto Power OFF timer is reset.

- OFF: Does not turn OFF the receiver.
- 30/60/90/120min: Turns OFF the receiver after inactivity for this set period of time.
- No Signal: The receiver will turn OFF when no signal is continuously received for 3 minutes.

Power Save

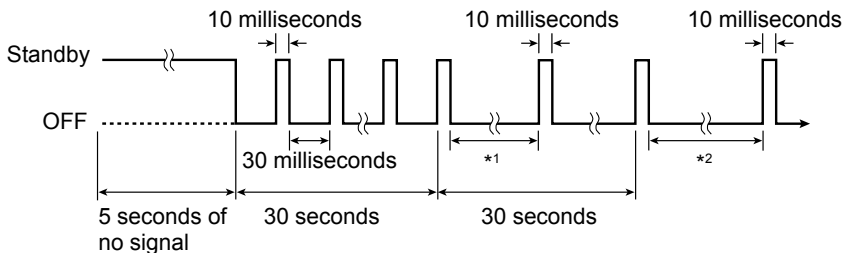
(Default: Auto (Short))

[MENU] > Function > **Power Save**

Set the Power Save function to reduce current drain and conserve battery power. When the Power Save function is activated, the call sign or the beginning of the signal may not be received correctly.

- OFF: Turns OFF the function.
- Auto (Short): This function is activated in a 1:3 ratio (10 milliseconds: 30 milliseconds) when no signal is received for 5 seconds.
- Auto (Middle): This function is activated in a 1:3 ratio (10 milliseconds: 30 milliseconds) when no signal is received for 5 seconds.
 - *1 The ratio becomes 1:10 (10 milliseconds: 100 milliseconds) when no signal is received for another 30 seconds.
- Auto (Long): This function is activated in a 1:3 ratio (10 milliseconds: 30 milliseconds) when no signal is received for 5 seconds.
 - *2 The ratio becomes 1:30 (10 milliseconds: 300 milliseconds) when no signal is received for another 30 seconds.

NOTE: The Power Save function is disabled when using an external power source, or if the receiving mode is set to LSB, USB, CW, or CW-R.



6 MENU SCREEN

■ Function (Continued)

Monitor

(Default: Push)

[MENU] > Function > **Monitor**

Select an option for the [SQL] Monitor function. (BASIC MANUAL Section 3)

- Push: Hold down [SQL] to monitor the frequency. Release to stop monitoring.
- Hold: Push [SQL] momentarily to monitor the frequency and push momentarily again to cancel it.

Dial Speed-UP

(Default: ON)

[MENU] > Function > **Dial Speed-UP**

Turn the Dial Speed Acceleration ON or OFF. The acceleration automatically speeds up the tuning dial speed when you rapidly rotate [DIAL].

- OFF: Turns OFF the function.
- ON: Turns ON the function.

Key Lock

(Default: Normal)

[MENU] > Function > **Key Lock**

Select the key lock type when the Key Lock function is ON.

- Normal: All keys and dials except [SQL] and [VOL] are locked.
- No SQL: All keys and dials except [SQL] is locked.
- No VOL: All keys and dials except [VOL] is locked.
- ALL: All keys and dials are locked.

Active Band

(Default: All)

[MENU] > Function > **Active Band**

Enables continuous frequency selection of the receive frequency across all bands using [DIAL].

① This setting does not affect the scan.

- Single: When you change the frequency on the band edge, the top or bottom frequency in the displayed band is selected.
- ALL: When you change the frequency, the next band is displayed. Set the selectable frequencies on the receiver to all bands for continuous selection.

Bar Antenna

(Default: Use)

[MENU] > Function > **Bar Antenna**

Select whether or not to use the internal bar antenna to receive the AM broadcast band (0.495 ~ 1.620 MHz).

① The Attenuator does not work, when using the bar antenna (BASIC MANUAL Section 3).

- Not used: Does not use the internal bar antenna.
- Use: Uses the internal bar antenna. (The bar antenna is used for only the AM broadcast band.)

6 MENU SCREEN

■ Function (Continued)

Earphone Antenna (~ 1.3G)

(Default: Not Used)

[MENU] > Function > **Earphone Antenna (~ 1.3G)**

Select whether or not to use the earphone cable connected to the receiver as an antenna.

- Not Used: Does not use the earphone cable as an antenna.
- Use: Uses the earphone cable as an antenna.*
*The external antenna is also used.

CI-V Address

(Default: 9C)

[MENU] > Function > CI-V > **CI-V Address**

To distinguish equipment, each CI-V receiver or transceiver has its own Icom standard address in hexadecimal code. The receiver's default address is 9C.

When 2 or more receivers are controlled through a PC at the same time, set a different address for each receiver.

CI-V Baud Rate

(Default: Auto)

[MENU] > Function > CI-V > **CI-V Baud Rate**

Set the CI-V data transfer speed to 4800, 9600, 19200 bps, or Auto.

- ① When "Auto" is selected, the baud rate is automatically set, according to the data rate of the controller.

CI-V Transceive

(Default: OFF)

[MENU] > Function > CI-V > **CI-V Transceive**

Turn the CI-V Transceive function ON or OFF.

OFF: Turns OFF the function.

ON: When you change a setting on one receiver, the same settings is automatically changed on other connected transceivers or receivers.

CI-V USB/Bluetooth -> REMOTE Transceive Address

(Default: 00)

[MENU] > Function > CI-V > **CI-V USB/Bluetooth -> REMOTE Transceive Address**

Set the address.

If you remotely operate using a USB cable or Bluetooth when CI-V Transceive is set to "ON," the device in the same system is externally controlled through the Speaker (REMOTE) jack.

Enter an address between 00 and DF (hexadecimal).

- ① Set other address than "00" to prohibit the external control by a third-party receiver.
- ① The control signal is output from the [SP] jack.

6 MENU SCREEN

■ Function (Continued)

USB Connect

(Default: Serialport)

[MENU] > Function > **USB Connect**

Select the mode when connecting the receiver to a PC with a USB cable.

- Charge Only: You can only charge the receiver using a USB cable.
- Serialport: You can program the receiver, output D-STAR data, GPS information, and remotely control the receiver using the CI-V commands.
- SD Card Mode*: You can transfer the files between the inserted microSD card and a PC, using an USB cable.

*A confirmation dialog is displayed.

TIP: Application setting to output D-STAR data:

Configure the communication software as follows.

- Port: COM port number that is used by the receiver.*
- Baud rate: 4800/9600 bps
- Data bit: 8 bit
- Parity: none
- Stop bit: 1 bit
- Flow control: Xon/Xoff

* Depending on the PC environment, the COM port number used by the receiver may be higher than 5. In that case, use an application that can set it to higher than 5.

NOTE:

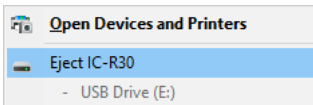
- Confirm that the "Internal GPS" is selected, when you output the received position data.

[MENU] > GPS > GPS Set > **GPS Select**

- While in the SD Card Mode, the receiver works not as a receiver but as a data storage device. It temporarily stops recording and logging.

TIP: Removing the receiver in the SD card mode

1. Click "[Eject]," and then click "Eject IC-R30."



2. Confirm "Safe To Remove Hardware" is displayed, and then remove the USB cable from the PC.



6 MENU SCREEN

■ Function (Continued)

USB Serialport Function

(Default: CI-V (Echo Back OFF))

[MENU] > Function > **USB Serialport Function**

Set the Serialport function for the USB connection to data device, PC and so on.

- CI-V (Echo Back OFF): The CI-V command is input or output through the USB port. Does not send back the CI-V command input from the USB port.
- CI-V (Echo Back ON): The CI-V command is input or output through the USB port. Sends back the CI-V command input from the USB port.
- D-STAR Data: The D-STAR data is output to the USB port.
- GPS Out: The GPS information from the internal GPS receiver is output to the USB port.

■ Display

Backlight

(Default: Auto (DC IN: ON))

[MENU] > Display > **Backlight**

Select an option for the receiver backlight.

- OFF: The backlight does not light.
- ON: The backlight lights continuously.
- Auto: The backlight lights when you push a key or rotate [DIAL], and goes out after the set period of time in the Backlight Timer.
- Auto (DC IN: ON): The backlight lights when you push a key or rotate [DIAL], and goes out* after the set period of time in the Backlight Timer.
* When using the GPS logger, or an external DC power source is connected, "Auto (DC IN: ON)" is automatically selected.

Backlight Timer

(Default: 5sec)

[MENU] > Display > **Backlight Timer**

Set the Backlight Timer to 5 or 10 seconds. Depending on the Backlight option, the backlight lights for this set period of time, and then automatically goes out.

LCD Dimmer

(Default: Bright)

[MENU] > Display > **LCD Dimmer**

Set the LCD backlight brightness level.

- Bright: The LCD backlight brightness level is bright.
- Dark: The LCD backlight brightness level is dim.

6 MENU SCREEN

■ Display (Continued)

LCD Contrast

(Default: 5)

[MENU] > Display > **LCD Contrast**

Set the LCD Contrast level to between 1 (the lowest) and 10 (the highest).

RX Popup

(Default: Normal)

[MENU] > Display > **RX Popup**

Select whether or not to display the pop-up when you receive a digital signal.

- OFF: The pop-up is not displayed.
- Normal: When the Digital signal is received, the call sign or ID of FROM/TO stations are displayed for 3 seconds.
- RX Hold: While receiving the Digital signal, the call sign or ID of FROM/TO stations are displayed until any key is pushed or [DIAL] is rotated.
- Hold: When the Digital signal is received, the call sign or ID of FROM/TO stations are displayed until any key is pushed or [DIAL] is rotated.

P25 RX ID Display

(Default: Dec)

[MENU] > Display > **P25 RX ID Display**

Set the display format of the received ID in the P25 mode to decimal number (Dec) or hexadecimal number (Hex).

RX Backlight

(Default: Digital Mode)

[MENU] > Display > **RX Backlight**

Select an option for the RX Backlight function.

This function turns ON the backlight when receiving a signal and the audio signal is output.

- OFF: The function is OFF.
- Digital Mode: The backlight automatically lights when displaying the calling station's call sign or ID, or a received message on the display in the Digital mode.
 - ① If the message is repeatedly displayed, the backlight does not light.
- ALL: The backlight automatically lights when receiving a signal, or while displaying the calling station's call sign or ID, or a received message on the display.

NOTE:

- The function is enabled only when the "Backlight" is set to "Auto" or "Auto (DC IN: ON)." ([MENU] > Display > **Backlight**)
- The backlight lights even if the function is OFF, when the "Backlight" is set to "ON" or "Auto (DC IN: ON)."
- The backlight automatically turns OFF, according to the "Backlight Timer" (p. 6-22) setting.

6 MENU SCREEN

■ Display (Continued)

Scroll Speed **(Default: Fast)**

[MENU] > Display > **Scroll Speed**

Set the scrolling speed of the message, call sign, or other text, that is displayed on the screen.

- Slow: The scroll speed is slow.
- Fast: The scroll speed is fast.

Opening Message **(Default: ON)**

[MENU] > Display > **Opening Message**

Select whether or not to display the opening message at power ON.

- OFF: The Opening message is not displayed.
- ON: The Opening message is displayed.

Battery Level (Power ON) **(Default: ON)**

[MENU] > Display > **Battery Level (Power ON)**

Select whether or not to display the battery pack level on the receiver's display at power ON.

- OFF: The battery level is not displayed.
- ON: The battery level is displayed.

Single Band Display **(Default: Date)**

[MENU] > Display > **Single Band Display**

Select to display the date or GPS information at the bottom of the display.

- Date: Displays the date.
- GPS Information: Displays the GPS information.

Latitude/Longitude **(Default: ddd°mm.mm')**

[MENU] > Display > Display Unit > **Latitude/Longitude**

Select either the ddd °mm.mm' or ddd °mm'ss" format to display the position.

Altitude/Distance **(Default: ft/ml)**

[MENU] > Display > Display Unit > **Altitude/Distance**

Select either the meter or feet/mile format to display the distance and altitude.

Speed **(Default: mph)**

[MENU] > Display > Display Unit > **Speed**

Select either the km/h, mph, or knots format to display the speed.

6 MENU SCREEN

■ Display (Continued)

Temperature (Default: °F)

[MENU] > Display > Display Unit > **Temperature**

Select either the degrees °C or °F format to display the temperature.

Barometric (Default: inHg)

[MENU] > Display > Display Unit > **Barometric**

Select either the hPa, mb, mmHg, or inHg format to display the barometric pressure.

Rainfall (Default: inch)

[MENU] > Display > Display Unit > **Rainfall**

Select either the mm or inch format to display the amount of rainfall.

Wind Speed (Default: mph)

[MENU] > Display > Display Unit > **Wind Speed**

Select either the m/s, km, mph, or knots format to display the wind speed.

Display Language (Default: English)

[MENU] > Display > **Display Language**

Set the screen display language type in the DR screen or MENU screen to English or Japanese.

NOTE: This item is displayed only when the System Language is set to “Japanese.”
([MENU] > Display > **System Language**)

6 MENU SCREEN

■ Display (Continued)

System Language

(Default: English)

[MENU] > Display > **System Language**

Set the system language of the receiver.

- English: The system language of the receiver is English. Only alphabetical characters (A to Z, a to z, 0 to 9) and symbols (! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~) can be displayed. If Japanese characters (Kanji, Hiragana, and Katakana) are included, the display shows “=” or “_” instead of that character. In that case, you can only delete “=” or “_” in the receiver’s edit mode.
- Japanese: The system language of the receiver is Japanese. Kanji, Hiragana and Katakana characters, and the 2-bytes symbols can be displayed. To display such characters, set Display Language to “Japanese.”
([MENU] > Display > **Display Language**)

Choose your language carefully

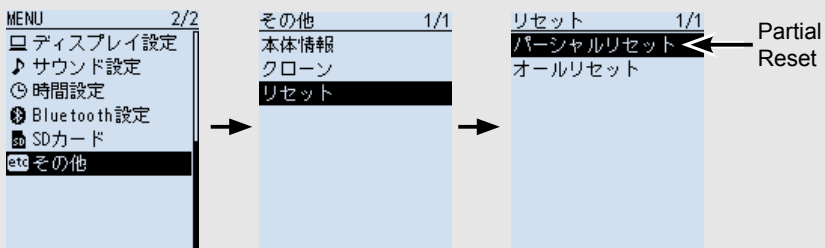
When the system language of the receiver is set to Japanese, the receiver has the capability to display both English and Japanese characters.

HOWEVER, if you select Japanese as the display language, all menu items throughout the receiver system are displayed in only Japanese characters.

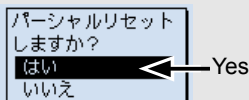
There will be no English item names. Unless you are fluent in reading Japanese characters, use this feature with extreme caution. If you change the receiver’s language to Japanese, and cannot understand the menu system in the new setting, you have to change the language back to English in Display Language or System Language, or by doing a partial reset of the receiver CPU. A partial reset will not delete your call sign databases.

To do a partial reset of the CPU, do the following steps:

1. Push [MENU].
2. Select “Partial Reset” as shown below, and then push [ENTER].
 - A confirmation dialog is displayed.



3. Select “Yes.”
 - The receiver starts partial reset.



6 MENU SCREEN

■ Sounds

Earphone Mode

(Default: OFF)

[MENU] > Sounds > **Earphone Mode**

Turn the Earphone mode ON or OFF.

This function automatically reduces the audio volume level to a comfortable level, to use an earphone.

① The audio volume level of the internal speaker also reduced.

- OFF: Turns OFF the Earphone mode.
- ON: Turns ON the Earphone mode.

CAUTION: DO NOT turn OFF the Earphone mode with wearing the earphone. It may be damage your ears.

Beep Level

(Default: 8)

[MENU] > Sounds > **Beep Level**

Set the beep audio output level to 0 (OFF) or 1 (minimum) ~ 15 (maximum).

Beep/Vol Level Link

(Default: OFF)

[MENU] > Sounds > **Beep/Vol Level Link**

Select whether or not the beep output level can be adjusted by pushing [▲]/[▼] or rotating [VOL].

- OFF: The output level is fixed to the level set in Beep Level.
- ON: The output level can be adjusted by pushing [▲]/[▼] or rotating [VOL].

A/B Vol Link

(Default: A/B Link)

[MENU] > Sounds > **A/B Vol Link**

Select whether or not to synchronize the A band and B band audio level.

- A/B Link: When you adjust the audio level, the A band and B band audio level changes.
- A/B Separate: When you adjust the audio level, only the MAIN band audio level changes.

Key-Touch Beep

(Default: ON)

[MENU] > Sounds > **Key-Touch Beep**

Turn the confirmation beep tones ON or OFF.

- OFF: No beep sounds.
- ON: A beep sounds when you push a key.

6 MENU SCREEN

■ Sounds (Continued)

Home CH Beep

(Default: ON)

[MENU] > Sounds > **Home CH Beep**

Turn the Home CH Beep ON or OFF.

- OFF: No beep sounds.
- ON: A beep sounds when the Home CH frequency or the Home CH memory is selected.

Scan Stop Beep

(Default: OFF)

[MENU] > Sounds > **Scan Stop Beep**

Turn the scan stop beep ON or OFF.

- OFF: No beep sounds.
- ON: A beep sounds when a scan stops by receiving a signal.

D-STAR Standby Beep

(Default: ON)

[MENU] > Sounds > **D-STAR Standby Beep**

Turn the Standby Beep function ON or OFF.

This function sounds a beep after a received signal disappears.

① Sounds even when the Key-Touch Beep is set to "OFF."

([MENU] > Sounds > **Key-Touch Beep**)

① The output level is depending on the Beep level setting.

([MENU] > Sounds > **Beep Level**)

- OFF: No beep sounds.
- ON: A beep sounds

Sub Band Mute (Main RX)

(Default: OFF)

[MENU] > Sounds > **Sub Band Mute (Main RX)**

Select whether or not to mute the SUB band audio signal while receiving on the MAIN band.

- OFF: The function is OFF.
- Mute: While receiving on the MAIN band, the SUB band audio signal is muted.
- Beep: When a signal disappears on the SUB band, a beep sounds.
The beep sounds even if no signal is received on the MAIN band.
- Mute & Beep: While receiving on the MAIN band, the SUB band audio signal is muted.

Scope AF Output

(Default: ON)

[MENU] > Sounds > **Scope AF Output**

Select whether or not to output receive audio during a Band Scope function sweep.

- OFF: No audio sounds during the sweep.
- ON: The receive audio sounds during the sweep.

6 MENU SCREEN

■ Time Set

DATE

[MENU] > Time Set > Date/Time > **DATE**

Manually set the date to between 2000/01/01 and 2099/12/31.

TIME

[MENU] > Time Set > Date/Time > **TIME**

Manually set the time that is displayed at the top of the screen. The time is displayed in the 24 hour format.

① When GPS Time Correct is set to “Auto,” the GPS receiver automatically sets the time by calculating the received Universal Time of Coordinated (UTC) time and UTC Offset.

GPS Time Correct

(Default: Auto)

[MENU] > Time Set > **GPS Time Correct**

This function corrects the time by using the time information that a GPS sentence contains. It is corrected by calculating the received UTC time and the “UTC Offset” setting.

- OFF: Does not correct the time.
- Auto: Automatically corrects the time.

UTC Offset

(Default: ±0:00)

[MENU] > Time Set > **UTC Offset**

Set the time difference between UTC time and the local time to between -14:00 and +14:00 in 00:05 steps.

■ Bluetooth Set

Bluetooth

(Default: OFF)

[MENU] > Bluetooth Set > **Bluetooth**

Turns the Bluetooth function ON or OFF.

- OFF: Turns OFF the function.
- ON: Turns ON the function.

Auto Connect

(Default: ON)

[MENU] > Bluetooth Set > **Auto Connect**

Select whether or not to automatically connect to the paired Bluetooth device when its power is turned ON.

- OFF: Does not connect to the paired device.
- ON: Automatically connects to the last connected device.

6 MENU SCREEN

■ Bluetooth Set (Continued)

Pairing/Connect

[MENU] > Bluetooth Set > **Pairing/Connect**

Searches for the Bluetooth device to connect, or display the paired Bluetooth devices in the list.

<<Pairing Reception>>

[MENU] > Bluetooth Set > <<Pairing Reception>>

Enters the Pairing Reception mode.

① If the Bluetooth function is OFF, a confirmation dialog is displayed. Select “YES” to turn ON the Bluetooth and enter the Pairing Reception mode.

AF Output

(Default: Headset Only)

[MENU] > Bluetooth Set > Headset Set > **AF Output**

Select the AF Output device when a Bluetooth headset is connected.

- Headset Only: Outputs audio to only the connected Bluetooth headset.
- Headset & Speaker: Outputs audio to both the connected Bluetooth headset and the receiver’s speaker.

Auto Disconnect

(Default: OFF)

[MENU] > Bluetooth Set > Headset Set > **Auto Disconnect**

Set the disconnect timer between 0 and 10 seconds or OFF.

If there is no audio signal to the Bluetooth headset, or no operation is performed for a set period of time, the receiver automatically disconnects the SCO (Synchronous Connection-Oriented) link.

① When a signal is received or an operation is performed while the SCO link is disconnected, the receiver will automatically reconnect the SCO link again.

RX Priority Setting (LE Device)

(Default: RX Audio)

[MENU] > Bluetooth Set > Headset Set > **RX Priority Setting (LE Device)**

Select the communication priority for the D-STAR Fast Data and receive audio, when connecting an iOS device (Bluetooth LE (Low Energy)) and a Bluetooth headset. The Bluetooth LE communication cannot be simultaneously used for both D-STAR Fast Data and Headset audio.

① When connecting to a SPP (Serial Port Profile) device such as data device or PC, the Bluetooth device functions according to the “Serialport Function” (p. 6-33) setting.

- D-STAR Fast Data: Received audio is not output from the headset, regardless of the band (MAIN or (SUB)).
- RX Audio: D-STAR Fast Data is not transferred during the received audio is output from the headset.
- MAIN band: The audio received on the SUB band is not output from the headset when a D-STAR Fast Data is received on the MAIN band. D-STAR Fast Data that is received on the SUB band is not transferred while a signal is received on the MAIN band.

6 MENU SCREEN

■ Bluetooth Set (Continued)

Power Save **(Default: OFF)**

[MENU] > Bluetooth Set > Headset Set > Icom Headset > **Power Save**

Select whether or not to operate with the Power Save mode while the optional VS-3 headset is connected.

① When a data device is connected, the Power Save mode is automatically turned OFF, regardless of this setting.

- OFF: Turns OFF the function.
- ON: The Power Save mode is enabled when no communication or operation is performed for 120 seconds.

Custom Key Beep **(Default: OFF)**

[MENU] > Bluetooth Set > Headset Set > Icom Headset > **Custom Key Beep**

Set the beep sound when the optional VS-3 headset's Custom Key ([PTT]/[PLAY]/[FWD]/[RWD]) is pushed.

- OFF: No beep sounds.
- ON: A beep sounds when you push a VS-3 headset's key.

6 MENU SCREEN

■ Bluetooth Set (Continued)

Custom Key

(Default: [FWD] : UP, [RWD] : DOWN)

[MENU] > Bluetooth Set > Headset Set > Icom Headset > **Custom Key**

The following functions can be assigned to the optional VS-3 Bluetooth® HEADSET's Custom Keys, [PTT], [PLAY], [FWD], and [RWD].

Assignable functions:

Function	Description
---	No function
UP	Push to increase the frequency or change the channels up in the Memory mode.
DOWN	Push to decrease the frequency or change the channels down in the Memory mode.
VOL UP	Push to turn up the volume level.
VOL DOWN	Push to turn down the volume level.
SQL UP	Push to turn up the squelch level.
SQL DOWN	Push to turn down the squelch level.
RF Gain UP	Push to turn up the RF gain.
RF Gain DOWN	Push to turn down the RF gain.
ATT	Push to change the ATT setting.
Monitor (Push)	Hold down to open the squelch. Release to close the squelch.
Monitor (Hold)	Push to open or close the squelch.
VFO/MR	Push to toggle between the VFO mode and the Memory mode.
Home CH	Push to directly select the Home CH that is set to the selected mode (VFO/Memory). While in the weather channel mode, or when no Home CH is set, an error beep sounds.
BAND	In the VFO mode, push to change the receive band. In the Memory mode, push to change the memory group.
SCAN	Push to start the scan. While scanning, push to stop the scan.
Temporary Skip	Push to set the frequency to be skipped while scanning. The selected frequencies are temporarily skipped while scanning for faster scanning. Hold down for 1 second to clear the skip setting.
SPEECH	Hold down for 1 second to announce the frequency, receive mode, or call sign. ① In the VFO or Memory channel mode, the receive frequency and mode are announced.
MAIN/DUAL	While in the single display mode, push the key to toggle between the A band and B band. While in the dual display mode, push the key to toggle between the SUB band and MAIN band. Hold down the key to toggle between the single display and the dual display mode.
MODE	Push to change the receive mode.
DUP	Push to turn the Duplex mode ON or OFF, and the shift direction (-DUP/+DUP).
PRIO	Push to turn the Priority Scan ON or OFF.
MW	In the VFO mode, hold down to save the frequency displayed in the MAIN band in the Memory channel. ① The frequency is saved in an empty channel which is automatically selected.
MUTE	Push to turn the Mute function ON or OFF.
NB	Push to turn the NB function ON or OFF.
ANL	Push to turn the ANL function ON or OFF.
AFC	Push to turn the AFC function ON or OFF.
REC	Push to start recording. To stop recording, hold down for 1 second.

6 MENU SCREEN

■ Bluetooth Set (Continued)

Serialport Function

(Default: CI-V (Echo Back OFF))

[MENU] > Bluetooth Set > Data Device Set > **Serialport Function**

Set the Serialport function for the Bluetooth Serial Port Profile (SPP) connection to data device, PC and so on.

- CI-V (Echo Back OFF): To transmit or receive a CI-V command. Does not send back the serial data received from the SPP connection.
- CI-V (Echo Back ON): To transmit or receive a CI-V command.
- D-STAR Data: To receive D-STAR low-speed data.

Bluetooth Device Information

[MENU] > Bluetooth Set > **Bluetooth Device Information**

Displays the built-in Bluetooth unit information.

Initialize Bluetooth Device

[MENU] > Bluetooth Set > **Initialize Bluetooth Device**

Initialize the built-in Bluetooth unit and restart the receiver.*

* A confirmation dialog is displayed.

6 MENU SCREEN

■ SD Card

Load Setting

[MENU] > SD Card > **Load Setting**

Select a setting file to load from the list.

Save Setting

[MENU] > SD Card > **Save Setting**

Save the setting file.

Save Form

(Default: Now Ver)

[MENU] > SD Card > **Save Form**

Selects the format to save the settings to an SD card.

Now Ver: Saves the settings in the current version format.

Old Ver (X.XX - X.XX): Saves the settings in the older version format.

NOTE

- If you select "Old Ver (X.XX - X.XX)," a function that is added when the receiver's firmware format is updated will not be saved.
- You cannot load a setting file that is saved in the current version format to an earlier firmware version.

Import

[MENU] > SD Card > Import/Export > **Import**

Import Memory Channel, P-Scan Edge, or GPS Memory data in the csv format file.

Export

[MENU] > SD Card > Import/Export > **Export**

Export Memory Channel, P-Scan Edge, or GPS Memory data in the csv format file.

Separator/Decimal

(Default: Sep [,] Dec [.])

[MENU] > SD Card > Import/Export > CSV Format > **Separator/Decimal**

Select the separator and the decimal character for the csv format.

- Sep [,] Dec [.]: Separator is "," and Decimal is "."
- Sep [.] Dec [,:]: Separator is ";" and Decimal is "."
- Sep [.] Dec [,:]: Separator is ";" and Decimal is ","

Date

(Default: mm/dd/yyyy)

[MENU] > SD Card > Import/Export > CSV Format > **Date**

Select the date format "yyyy/mm/dd," "mm/dd/yyyy," or "dd/mm/yyyy."
(y: year, m: month, d: day)

6 MENU SCREEN

■ SD Card (Continued)

SD Card Info

[MENU] > SD Card > **SD Card Info**

Displays the microSD card's free space and its remaining recording time.

Firmware Update

[MENU] > SD Card > **Firmware Update**

Update the receiver's firmware. See Section 9 for details.

Format

[MENU] > SD Card > **Format**

Formats the microSD card, deleting all data.

Unmount

[MENU] > SD Card > **Unmount**

Electrically unmounts the microSD card while the receiver is ON.

■ Others

Battery Status

[MENU] > Others > Information > **Battery Status**

Displays the battery pack (Li-ion battery) status (Battery level, Health, Cycle count) and external power connection status.

- ① The remaining battery capacity is indicated in % (0 ~ 100%).
- ① The battery health is indicated in 3 steps ("Normal," "Caution," "Warning").
When "Warning" is displayed, the battery pack is deteriorated. Replace the battery pack with a new one.
A warning window appears on the start up screen, when the battery status is "Caution" or "Warning."
- ① The battery voltage is displayed, when using the battery case (BP-293).

Version

[MENU] > Others > Information > **Version**

Displays the receiver's firmware version.

Clone Mode

[MENU] > Others > Clone > **Clone Mode**

Enters the Clone mode. See page 7-25 for details.

6 MENU SCREEN

■ Others (Continued)

Partial Reset

[MENU] > Others > Reset > **Partial Reset**

Select to partially reset the operating settings to their default values. See page 7-19 for details.

All Reset

[MENU] > Others > Reset > **All Reset**

Select to clear all contents and return all settings to their factory defaults. See page 7-20 for details.

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■ Tone squelch operation

The Tone squelch opens only when you receive a signal that includes a matching subaudible tone.

① Refer to section 4 in the BASIC MANUAL for Tone scan or Code scan.

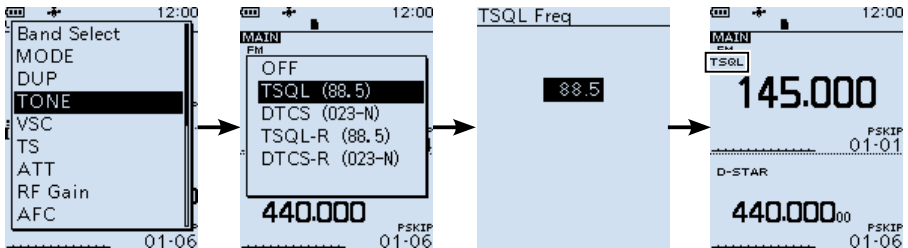
◇ Tone squelch frequency setting

<MODE> FM and FM-N

1. Push [QUICK].
2. Select "TONE."
- (Rotate [DIAL] to select it, and then push [ENTER].)
3. Select a Tone Squelch type.
4. Select a Tone Squelch frequency or DTCS code.

① You can select the DTCS code polarity from "Normal" or "Reverse," by rotating [DIAL].

① The selected Tone Squelch type is displayed under the receive mode.



7 OTHER FUNCTIONS

■ Tone squelch operation

◇ Tone squelch frequency setting (Continued)

Tone Frequency (Hz)

67.0	88.5	114.8	151.4	177.3	203.5	250.3
69.3	91.5	118.8	156.7	179.9	206.5	254.1
71.9	94.8	123.0	159.8	183.5	210.7	
74.4	97.4	127.3	162.2	186.2	218.1	
77.0	100.0	131.8	165.5	189.9	225.7	
79.7	103.5	136.5	167.9	192.8	229.1	
82.5	107.2	141.3	171.3	196.6	233.6	
85.4	110.9	146.2	173.8	199.5	241.8	

DTCS Code

023	054	125	165	245	274	356	445	506	627	732
025	065	131	172	246	306	364	446	516	631	734
026	071	132	174	251	311	365	452	523	632	743
031	072	134	205	252	315	371	454	526	654	754
032	073	143	212	255	325	411	455	532	662	
036	074	145	223	261	331	412	462	546	664	
043	114	152	225	263	332	413	464	565	703	
047	115	155	226	265	343	423	465	606	712	
051	116	156	243	266	346	431	466	612	723	
053	122	162	244	271	351	432	503	624	731	

■ D.SQL (Digital Squelch) function

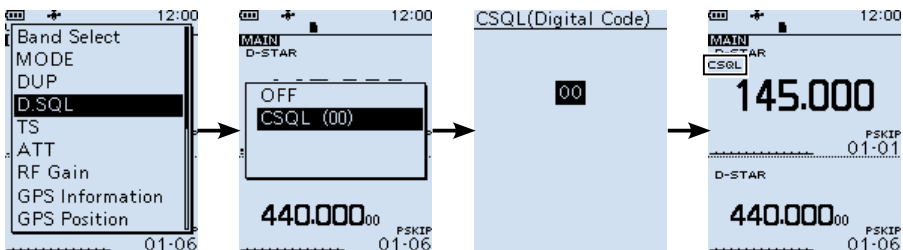
◇ Digital Code Squelch (CSQL)

<MODE> D-STAR

The squelch opens only when you receive a D-STAR signal that includes a matching CSQL (Code Squelch).

• Selectable codes: 00 ~ 99

1. Push [QUICK].
2. Select "D.SQL."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "CSQL (00)."
4. Select a Digital code.
① "CSQL" is displayed under the receive mode.



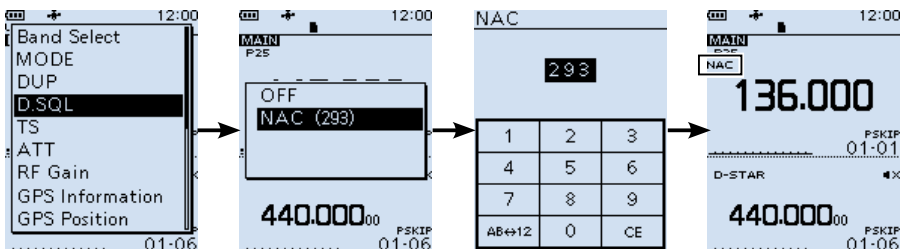
◇ Network Access Code (NAC)

<MODE> P25

The squelch opens only when you receive an APCO P25 signal that includes a matching NAC.

• Selectable codes: 000 ~ FFF (in hexadecimal)

1. Push [QUICK].
2. Select "D.SQL."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "NAC (293)."
4. Select an Network Access Code.
① "NAC" is displayed under the receive mode.



7 OTHER FUNCTIONS

■ D.SQL (Digital Squelch) function (Continued)

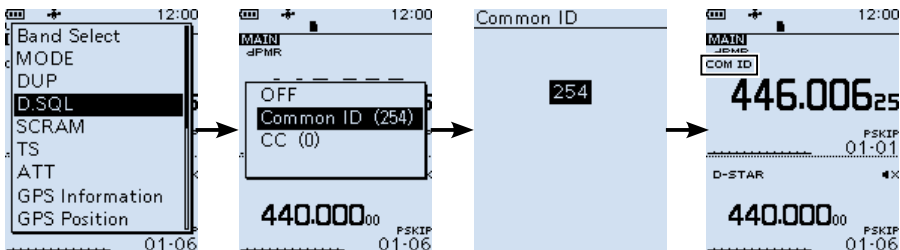
◇ Group Code (COM ID)

<MODE> dPMR

The squelch opens only when you receive a dPMR (Tier1) signal that includes a matching COM ID (Common ID).

• Selectable codes: 1 ~ 255

1. Push [QUICK].
2. Select "D.SQL."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "Common ID (254)."
4. Select a code.
① "COM ID" is displayed under the receive mode.



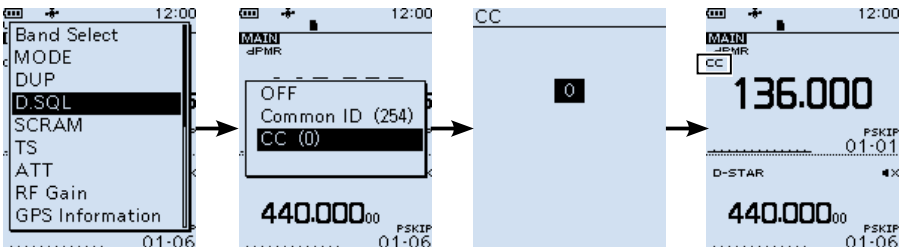
◇ CC

<MODE> dPMR

The squelch opens only when you receive a dPMR (Tier2 Mode1/Mode2) signal that includes a matching CC.

• Selectable codes: 0 ~ 63

1. Push [QUICK].
2. Select "D.SQL."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "CC (0)."
4. Select a code.
① "CC" is displayed under the receive mode.



7 OTHER FUNCTIONS

■ D.SQL (Digital Squelch) function (Continued)

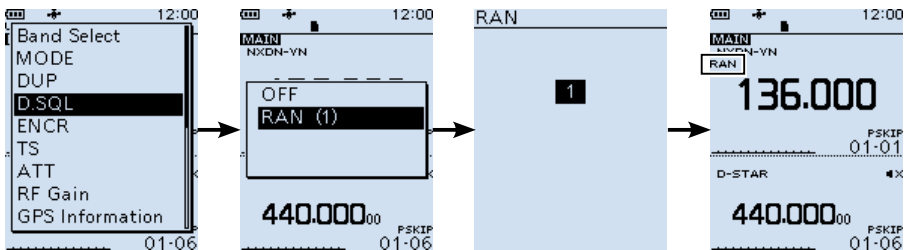
◇ Radio Access Number (RAN)

<MODE> NXDN-VN and NXDN-N

The squelch opens only when you receive a NXDN signal that includes a matching RAN.

• Selectable codes: 0 ~ 63

1. Push [QUICK].
2. Select “D.SQL.”
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select “RAN (1).”
4. Select a code.
① “RAN” is displayed under the receive mode.



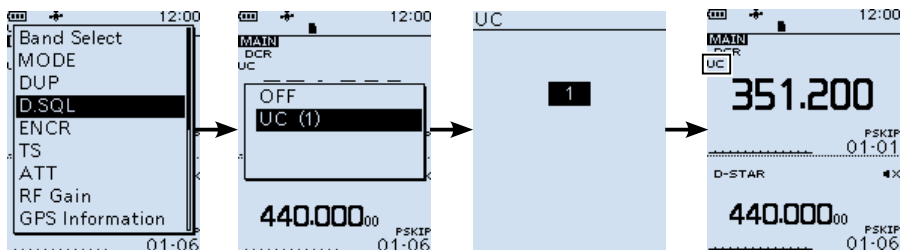
◇ User Code (UC)

<MODE> DCR

The squelch opens only when you receive a DCR signal that includes a matching UC.

• Selectable codes: 1 ~ 511

1. Push [QUICK].
2. Select “D.SQL.”
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select “UC (1).”
4. Select a code.
① “UC” is displayed under the receive mode.



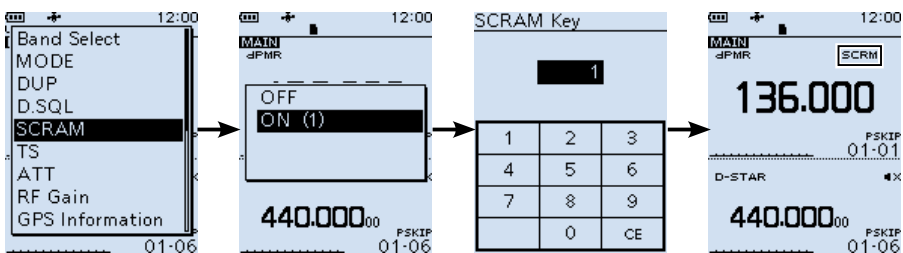
■ Descrambler function

<MODE> dPMR

You can descramble the scrambled dPMR (Tire2 Mode1/Mode2) communication by entering the appropriate key.

• Selectable keys: 1 ~ 32767

1. Push [QUICK].
2. Select "SCRAM."
- (Rotate [DIAL] to select it, then push [ENTER].)
3. Select "ON (1)."
4. Select the key.
- ① "SCRM" is displayed on the right side of the screen.



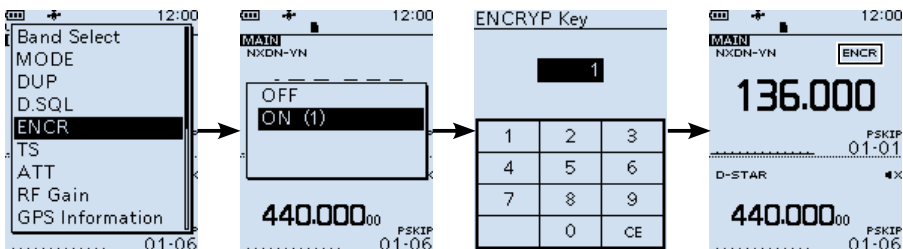
■ Decryption function

<MODE> NXDN-VN, NXDN-N and DCR

You can decrypt the encrypted NXDN or DCR communication by entering the appropriate key.

• Selectable keys: 1 ~ 32767

1. Push [QUICK].
2. Select "ENCR."
- (Rotate [DIAL] to select it, then push [ENTER].)
3. Select "ON (1)."
4. Select the key.
- ① "ENCR" is displayed on the right side of the screen.



7 OTHER FUNCTIONS

■ Receive history log

<MODE> Digital

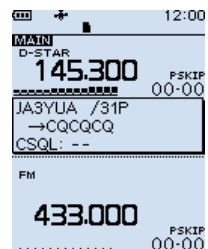
When a digital is received, the call signs, IDs and so on are stored in the RX history. Up to 50 log entries can be stored.

- When you receive the 51th call, the oldest history will be deleted.
- Even if the receiver is turned OFF, the RX record will not be deleted.

1. Push [MENU].
 2. Select "RX History."
(Rotate [DIAL] to select it, then push [ENTER].)
 3. Select a history to view.
 - ① In the D-STAR mode, push [QUICK] to view the log details.
 - ① Push [CLEAR] to return to the Main screen.
 - ① The first page of the "RX HISTORY" screen displays the latest RX record of the MAIN band. The second page or later displays the record according to the received date and time, regardless of the band it was received on.
- ① Refer to page 7-8 for RX history items.
- ① You can save the log on to an SD card. (p. 2-5)
([MENU] > Digital Set > **RX Log**)

TIP:

- When a D-STAR signal is received, the received call sign and message are automatically displayed and scrolled.
- When an FM signal is received while in a digital mode, the digital mode icon and "FM" icon alternately blink.



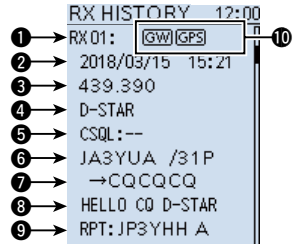
7 OTHER FUNCTIONS

■ Receive history log (Continued)

◇ RX history items in the D-STAR mode

The first page of the “RX HISTORY” screen

- ① Log number (RX01~50)
- ② Time and Date
- ③ Receive frequency
- ④ Receive mode
- ⑤ Digital Code squelch code
- ⑥ Caller call sign (The call sign of the caller station.)
- ⑦ Called call sign (The call sign of the called station.)
- ⑧ Message (Any message included in the received call, if programmed.)
- ⑨ The call sign of the repeater that was accessed by the caller station.
- ⑩ D-PRS icon



[GW]: Displayed when a call is received through the Internet.

[GPS]*: Displayed when position data is included. (NMEA or Mobile/Base station)

[OBJ]*: Displayed when the Object's data is included.

[ITEM]*: Displayed when the Item's data is included.

[WX]*: Displayed when the weather station's data is included.

(UP): Displayed when an uplink signal is received.

*Displayed only when the position data is included in the received signal.

7 OTHER FUNCTIONS

■ Receive history log

◇ RX history items in the D-STAR mode (Continued)

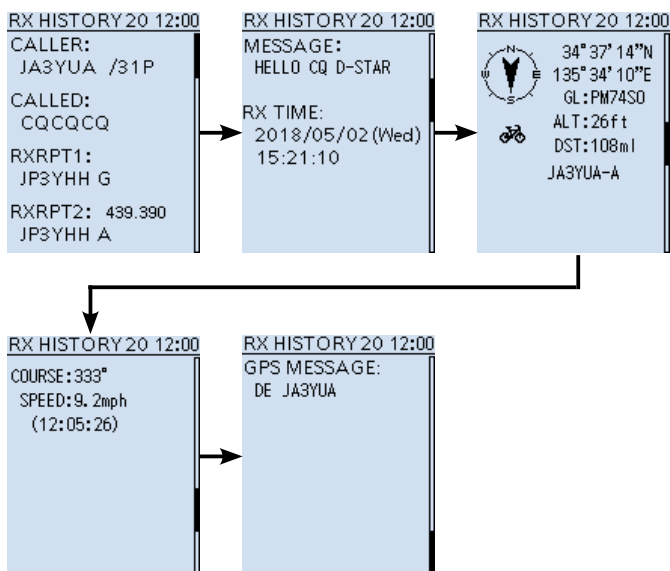
Contents of the detail screen

The contents of the detail screen differ, whether position data is included in received data or not.

Position data that is included in received data can be divided into 5 categories. Depending on the caller's TX mode or TX format, the displayed items and these meanings differ.

Example: When a D-PRS position data (Mobile) is received.

① Rotate [DIAL] or push [ENTER] to scroll the screen.

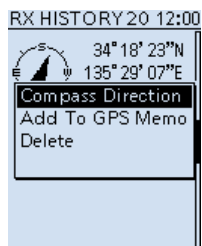


TIP: RX log menu

On the Detail screen, push [QUICK], the menu window will appear.

Compass Direction: You can change the Compass Direction.

Add To GPS Memory: Save a received station's position.



7 OTHER FUNCTIONS

■ Receive history log

◇ RX history items in the D-STAR mode (Continued)

Common items

CALLER	Displays the caller station's name*1.
CALLED	Displays the called station's name*1.
RXRPT1	Displays the name of the repeater that was accessed by the caller station. If it was a call through a gateway and the Internet, this item displays the Gateway repeater name of your local area repeater.
RXRPT2	Displays the name of the repeater you received the call from.
MESSAGE	Displays any message included in the received call, if entered.
RX TIME	Displays the date and time the call was received.

When the caller's TX mode is NMEA

Compass*	Displays the caller's direction from your position.
Latitude	Displays the caller's latitude.
Longitude	Displays the caller's longitude.
GL	Displays the grid locator based on the caller's latitude and longitude.
ALT	Displays the caller's altitude.
DST*	Displays the caller's distance from your position.
COURSE	Displays the caller's direction over ground.
SPEED	Displays the caller's speed.
GPS Time Stamp	Displays the time that the caller acquired the position data.
Call sign	Displays the caller's call sign.
GPS MESSAGE	Displays the GPS message included in the position data of the received call.

*Not displayed when the position data is not included.

7 OTHER FUNCTIONS

■ Receive history log

◇ RX history items in the D-STAR mode (Continued)

When the caller's TX format is D-PRS Position (Mobile/Base station)

Compass*1	Displays the caller's direction from your position.
Latitude	Displays the caller's latitude.
Longitude	Displays the caller's longitude.
GL	Displays the grid locator based on the caller's latitude and longitude.
ALT	Displays the caller's altitude.
DST*1	Displays the caller's distance from your position.
COURSE*2	Displays the caller's direction over ground.
SPEED*2	Displays the caller's speed.
POWER*3	Displays the caller's TX power level.
HEIGHT*3	Displays the height of caller's antenna.
GAIN*3	Displays the gain of caller's antenna.
DIRECT*3	Displays the direction that the caller's antenna was pointing.
GPS Time Stamp	Displays the time that the caller acquired position data.
Call sign	Displays the caller's call sign (with SSID).
GPS MESSAGE	Displays the GPS message included in the position data of the received call.
Symbol	Displays the caller's D-PRS symbol.

*1 Not displayed when the position data is not included.

*2 For mobile stations.

*3 For base stations.

7 OTHER FUNCTIONS

■ Receive history log

◇ RX history items in the D-STAR mode (Continued)

When the caller's TX format is D-PRS Object/Item

Compass*	Displays the Object/Item's direction from your position.
Latitude	Displays the Object/Item's latitude.
Longitude	Displays the Object/Item's longitude.
GL	Displays the grid locator based on the Object/Item's latitude and longitude.
ALT	Displays the Object/Item's altitude.
DST*	Displays the Object/Item's distance from your position.
COURSE	Displays the Object/Item's direction over ground.
SPEED	Displays the Object/Item's speed.
POWER	Displays the Object/Item's TX power level.
HEIGHT	Displays the height of Object/Item's antenna.
GAIN	Displays the gain of Object/Item's antenna.
DIRECT	Displays the direction that the Object/Item's antenna was pointing.
GPS Time Stamp	Displays the time that the caller sent the Object's data.
Call sign	Displays the caller's call sign (with SSID).
GPS MESSAGE	Displays the GPS message included in position data of the received call.
Symbol	Displays the Object/Item's D-PRS symbol.
Object/Item name	Displays the Object/Item station's name.

* Not displayed when the position data is not included.

① When the object or item station is disabled, "KILLED" appears.

When the caller's TX format is D-PRS Weather

Compass*	Displays the caller's direction from your position.
Latitude	Displays the caller's latitude.
Longitude	Displays the caller's longitude.
GL	Displays the grid locator based on the caller's latitude and longitude.
DST*	Displays the caller's distance from your position.
TEMP	Displays the temperature of the caller's area.
RAIN	Displays the rainfall of the caller's area.
WIND DIR	Displays the wind direction of the caller's area.
WIND SPD	Displays the wind speed of the caller's area.
BARO	Displays the barometric pressure of the caller's area.
HUMI	Displays the humidity of the caller's area.
Symbol	Displays the caller's D-PRS symbol.
GPS Time Stamp	Displays the time that the caller acquired the position data.
Call sign	Displays the caller's call sign (with SSID)

* Not displayed when the position data is not included.

7 OTHER FUNCTIONS

■ Receive history log (Continued)

◇ RX History screen (P25)

- ① History number (RX01~50)
- ② Received date and time
- ③ Receive frequency
- ④ Receive mode
- ⑤ Network Access Code
- ⑥ Caller's ID
- ⑦ Called station's ID (Call type)
Call Type: "ALL," "IND" (Individual) or "GRP" (Group)

	RX HISTORY	12:00
①	RX 02:	
②	(2018/03/15 15:18)	
③	136.000	
④	P25	
⑤	NAC:293	
⑥	1	
⑦	→65535 (ALL)	

◇ RX History screen (dPMR Tier1)

- ① History number (RX01~50)
- ② Received date and time
- ③ Receive frequency
- ④ Receive mode
- ⑤ Common ID

	RX HISTORY	12:00
①	RX 03:	
②	(2018/03/15 15:15)	
③	436.00625	
④	dPMR446	
⑤	COM ID:254	

◇ RX History screen (dPMR Tier2 Mode1/Mode2)

- ① History number (RX01~50)
- ② Received date and time
- ③ Receive frequency
- ④ Receive mode
- ⑤ Identification number
- ⑥ Caller's ID
- ⑦ Called station's ID

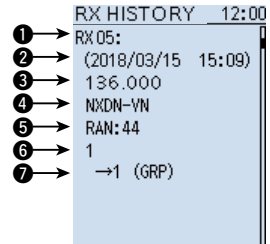
	RX HISTORY	12:00
①	RX 04:	
②	(2018/03/15 15:12)	
③	136.000	
④	dPMR	
⑤	CC:1	
⑥	0000002	
⑦	→0000001	

7 OTHER FUNCTIONS

■ Receive history log (Continued)

◇ RX History screen (NXDN-VN/NXDN-N)

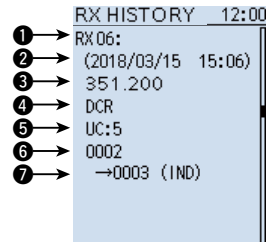
- ① History number (RX01~50)
- ② Received date and time
- ③ Receive frequency
- ④ Receive mode
- ⑤ Radio Access Number
- ⑥ Caller's Unit ID
- ⑦ Called station's Unit ID (Call type)
Call Type: "ALL," "IND" (Individual), or "GRP" (Group)



◇ RX History screen (DCR)

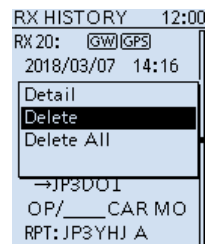
- ① History number (RX01~50)
- ② Received date and time
- ③ Receive frequency
- ④ Receive mode
- ⑤ User Code*
- ⑥ Caller's ID
- ⑦ Called station's ID (Call type)
Call Type: "ALL," "IND" (Individual), or "GRP" (Group)

*If the received call is not an Individual call, or the DCR transceiver manufacturer is not Icom, only the User Code is displayed.



TIP: Deleting a history log

Push [QUICK] on the "RX HISTORY" screen, then select "Delete."



■ Duplex operation

The Duplex operation shifts the transmit frequency up or down from the receive frequency by an offset. You can receive a communication that uses different frequencies for transmitting and receiving (Duplex), by setting the frequency offset and shift direction. While monitoring, the displayed frequency automatically changes to the transceiver transmit frequency (Repeater input frequency).

When Duplex direction is set to "DUP+," the transmit frequency shifts down from the receive frequency by the offset amount.

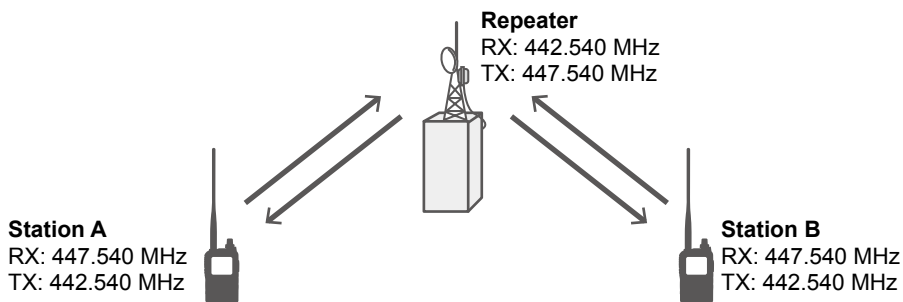
When Duplex direction is set to "DUP-," the transmit frequency shifts down from the receive frequency by the offset amount.

◇ Frequency offset

The receive frequency shifts according to the set frequency offset and direction, while holding down [SQL]. You can set the frequency offset in the QUICK menu. (p. 7-17)

Repeater access image

Example: Receiving a 430 MHz band repeater signal



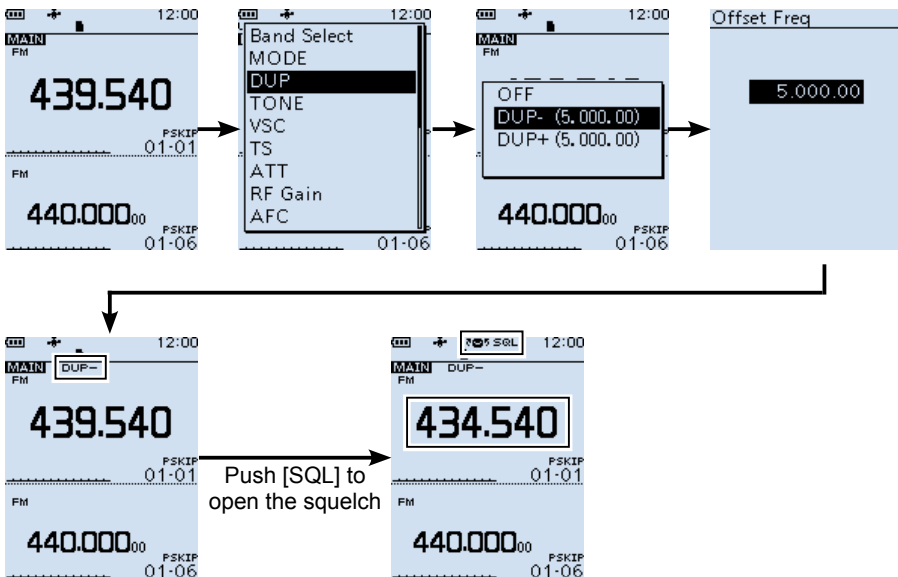
Reverse the RX/TX frequencies and titles. The arrows FROM the transceivers to the repeater are transceiver TX and the arrows FROM the repeater to the transceiver are transceiver RX.

7 OTHER FUNCTIONS

■ Duplex operation (Continued)

◇ Setting the Duplex direction and frequency offset

1. Push [QUICK].
2. Select "DUP."
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the Duplex direction.
 - OFF: For simplex operation (the receive and transmit frequencies are the same).
 - DUP-: The transmit frequency shifts down from the receive frequency by the offset amount.
 - DUP+: The transmit frequency shifts up from the receive frequency by the offset amount.
4. Rotate [DIAL] to set the offset.
 - Set to between 0.000.00 and 159.999.99 MHz.
 - ① The selected tuning step in the VFO mode is used to set the offset.
 - ① 5.000 MHz is set as the default on the 430M band.
 - 20.000 MHz is set as the default on the 1200/2400M band.
5. Push [ENTER].
 - "DUP-" or "DUP+" is displayed.
6. Hold down [SQL].
 - ① The Monitor function is ON. The receive frequency is shifted while [SQL] is hold down.



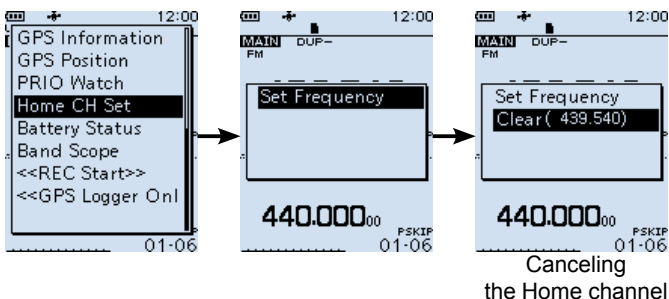
■ Home channel function

Home channels are often-used frequencies you can preset in the receiver's VFO mode and Memory mode.

◆ Home channel setting

Example: In the VFO mode

1. Select a mode (VFO or Memory), frequency or channel in which you want to set the Home channel.
2. Push [QUICK].
3. Select "Home CH Set."
(Rotate [DIAL] to select it, and then push [ENTER].)
4. Select "Set Frequency."
① If you set a channel, select "Set Channel" in the Memory mode.
① To clear the Home channel, select "Clear."



◆ Home CH Beep function

When the set Home CH is selected by rotating [DIAL], a beep sounds.

You can make the Home CH selection without looking at the display.

You can assign the [Home CH] key function to an optional VS-3 key. (pp. 6-31, 6-32 and 8-4)

① You can turn OFF the Home CH Beep function on the MENU screen.

((MENU) > Sounds > **Home CH Beep**)

■ Resetting

Occasionally, erroneous information may be displayed. This may be caused by static electricity or by other factors.

If this problem occurs, turn OFF the receiver. After waiting a few seconds, then turn it ON again. If the problem still exists, perform a Partial reset, as described below.

If the problem still exists after a Partial reset, perform an All reset.

The resets affect the following:

Partial reset	Settings on the MENU screen, receive history log, operating settings in the VFO mode will be reset to their default values.
All reset	Settings on the MENU screen, receive history log, operating settings in the VFO mode, Memory channel contents, Programmable Scan edges and GPS memories will be reset to their default values.

NOTE: Before do a reset, make a backup of your setting data so you can reload it after the reset.

◇ Partial reset

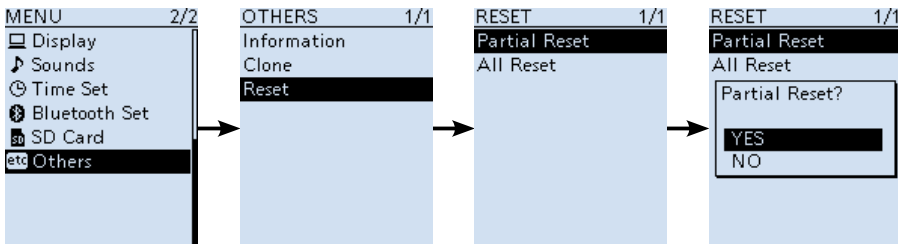
A Partial reset resets operating settings to their default values.

① The following settings are not returned to their default values.

- **Memory channels**
- **Programmable Scan edges**
- **GPS memories**

[MENU] > Others > Reset > **Partial Reset**

1. Push [MENU].
2. Select "Partial Reset" in the "Others" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
• A confirmation dialog appears.
3. Select "YES," then push [ENTER].
• After resetting, the IC-R30 will automatically restart.



7 OTHER FUNCTIONS

■ Resetting (Continued)

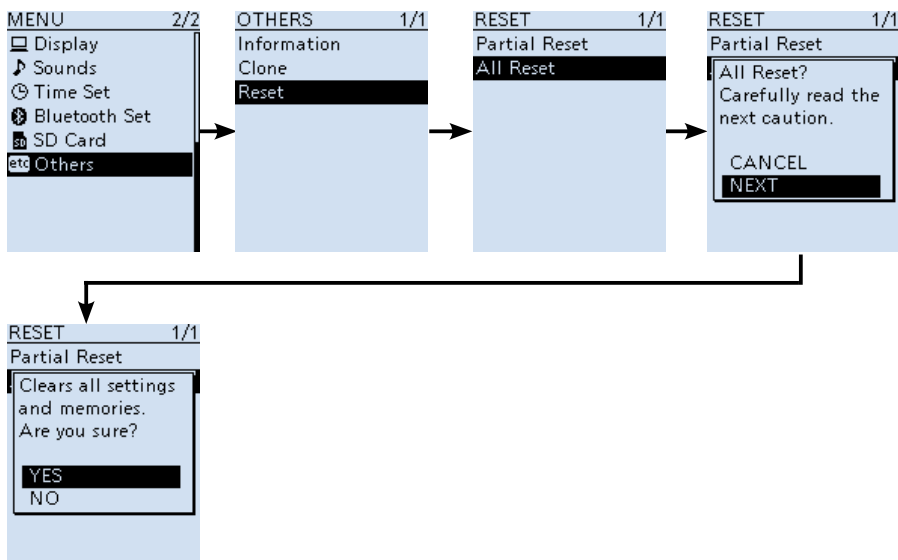
◇ All reset

NOTE:

An All reset clears all data and returns all settings to their factory defaults. Save memory channel contents, setting status, and so on, onto an SD card before doing an All reset. So you will need to reenter your Memories, list, and operating settings. The Bluetooth pairing list is not cleared by an All reset.

[MENU] > Others > Reset > **All Reset**

1. Push [MENU].
2. Select "All Reset" in the "Others" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - A confirmation dialog appears.
3. Select "NEXT," then push [ENTER].
 - Another confirmation dialog is displayed.
4. Select "YES," then push [ENTER].
 - After "ALL RESET" is displayed, the IC-R30 will automatically restart.



■ USB driver installation

Please read this installation guide before installing the USB driver.

This installation describes how to install the USB driver included in the Icom product's CD. If you download the USB driver from the Icom Download Service, specify the folder to store the driver.

TIP: If you have already installed the CS-R30 on your PC, the driver installation is not necessary.

◇ System requirements

To install the driver, the following hardware and software are required:

- Microsoft Windows 10 (32/64 bit)
- Microsoft Windows 8.1 (32/64 bit)*
*Except for the "RT" version.
- Microsoft Windows 7 (32/64 bit)
- A USB 1.1, 2.0, or 3.0 port

NOTE:

- Icom is not responsible for problems using a PC with one of the above OSs installed.
- In this installation guide, the above OSs are described as "Windows 10," "Windows 8.1," and "Windows 7."

USB driver downloading

The latest driver can be downloaded from here.

<http://www.icom.co.jp/world/support/>

Access the above URL, and download the driver from the "Firmware Updates/Software Downloads"* menu.

*The menu name may be changed without notice.

7 OTHER FUNCTIONS

■ USB driver installation (Continued)

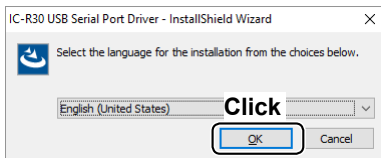
◇ Installation

① These instructions are based on Microsoft® Windows® 10.

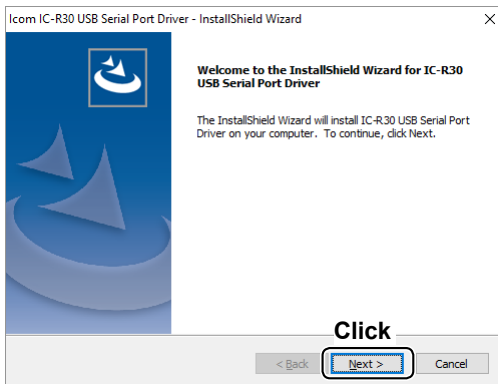
NOTE:

- **NEVER** connect the USB cable between the receiver and the PC until AFTER the USB driver has been installed.
- This USB driver is not supported by the automatic recognition system.

1. Confirm that the radio and PC are not connected.
2. Double-click the USB driver installer in the extracted folder.
 - If you want to install to the 32 bit version OS, double-click "CP210xVCPInstaller_x86.exe."
 - If you want to install to the 64 bit version OS, double-click "CP210xVCPInstaller_x64.exe."
- ① When the "User Account Control" dialog is displayed, click <Yes>.
3. When the language select window is displayed, click <OK>.



4. When the install window is displayed, click <Next>.



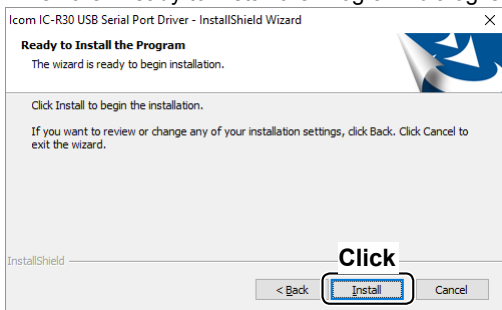
(Continued on the next page.)

7 OTHER FUNCTIONS

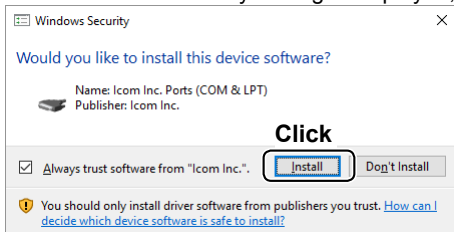
■ USB driver installation

◇ Installation (Continued)

5. When the “Ready to Install the Program” dialog is displayed, click <Install>.

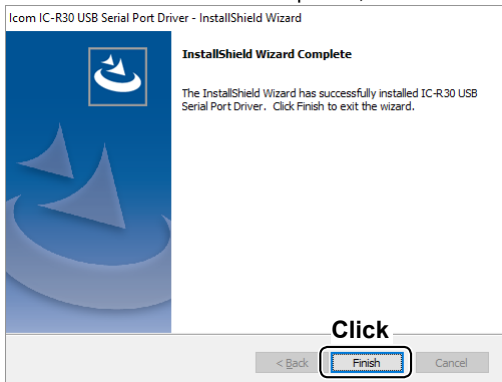


6. If the “Windows Security” dialog is displayed, click <Install>.



- Windows starts installing the driver.

7. After the installation has completed, click <Finish>.



8. Connect the USB cable between the IC-R30* and the PC. Then, turn ON the radio's power.

*Confirm that the IC-R30's "USB Connect" is set to "Serialport" on the Menu screen.
([MENU] > Function > **USB Connect**)

- ① Depending on your system version and settings, you may be prompted to restart the PC. In this case, follow the instructions on the screen.

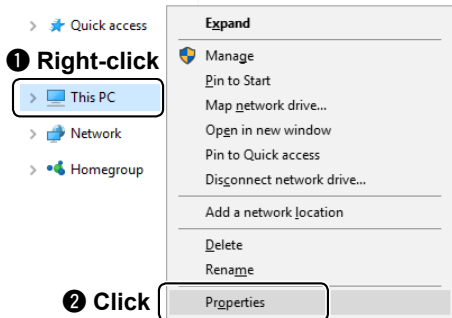
7 OTHER FUNCTIONS

■ USB driver installation (Continued)

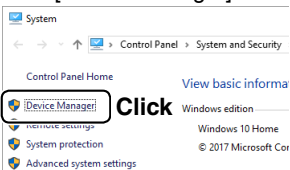
◇ Confirming the port number

After the driver installation has been completed, confirm the port connection and port number.

1. Click the folder icon on the taskbar.
2. Right-click “This PC,” and then click “Properties.”

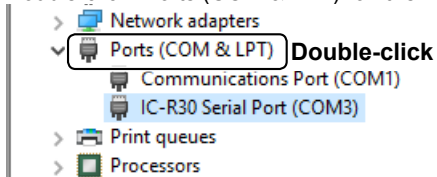


3. Click [Device Manager].



- The “Device Manager” screen is displayed.

4. Double-click “Ports (COM & LPT)” on the “Device Manager” screen.



- The screen is an example of the USB serial COM port number “3.”

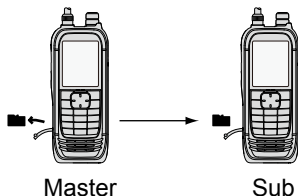
- ① Depending on the PC environment, the COM port number may differ.
- ① If “!” or “x” is displayed on the “Device Manager” screen, the driver may not be properly installed. In such a case, first uninstall the USB driver, then reinstall it.

7 OTHER FUNCTIONS

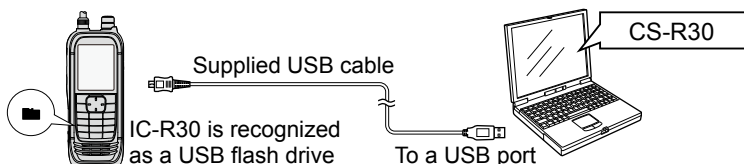
■ Cloning function

The receiver has a data cloning capability. This function is useful when you want to copy all of the entered contents from one IC-R30 to another. You can also clone with a PC, using the optional CS-R30 software.

Receiver-to-Receiver cloning using a microSD card (p. 7-26)

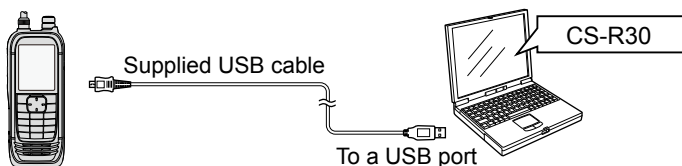


Cloning from a PC using a microSD card (p. 7-28)



NOTE: If your PC does not have a microSD card slot, connect a memory card reader (user supplied) to use the microSD card. Refer to the CS-R30 Instruction manual.

Cloning from a PC using an optional cloning cable



By using the CS-R30 CLONING SOFTWARE and the supplied USB cable, you can clone with a PC.

7 OTHER FUNCTIONS

■ Cloning function (Continued)

◇ Receiver-to-Receiver cloning using a microSD card

You can clone receivers using a microSD card.

- ① Recorded voice memories are not included in the cloning data. To play back the master receiver's voice memory, insert the microSD card into a sub receiver, or make a copy onto the sub receiver's microSD card using a PC.
- ① Assumes that the microSD card has already been inserted into the receiver.

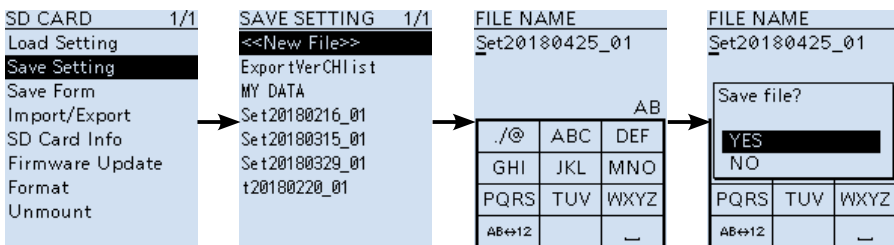
NOTE:

- Before removing or inserting, turn OFF the receiver.
- If you do any of the following, the card data may be corrupted or deleted.
 - Remove the card from the receiver while accessing the card.
 - Change the external power supply's voltage while accessing the card.
 - Drop, impact or vibrate the card.
- See BASIC MANUAL Section 4 for microSD card details.

Step 1. Saving the master receiver's setting data onto the microSD card.

[MENU] > SD Card > **Save Setting**

1. Push [MENU].
2. Select "Save Setting" in the "SD Card" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select "<<New File>>."
 - Displays the FILE NAME screen.
 - ① The file name is automatically named in the following manner: Setyyyyymmdd_xx
(yyyy: Year, mm: month, dd: day, xx: serial number)
Example: If a second file is saved on April 25, 2018, the file is named "Set20180425_01."
 - ① To change the file name, see page iii on how to enter characters.
4. Push [ENTER].
 - The confirmation dialog is displayed.
5. Select "YES."
 - Saves the data settings.
 - Returns to the SD CARD screen after the saving is completed.
6. Push [CLEAR].
 - Returns to the main screen.



(Continued on the next page.)

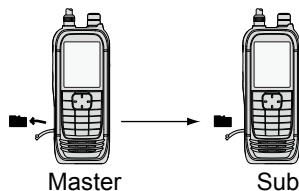
7 OTHER FUNCTIONS

■ Cloning function

◇ Receiver-to-Receiver cloning using a microSD card (Continued)

Step 2. Remove the microSD card from the master receiver, then insert it into the sub receiver.

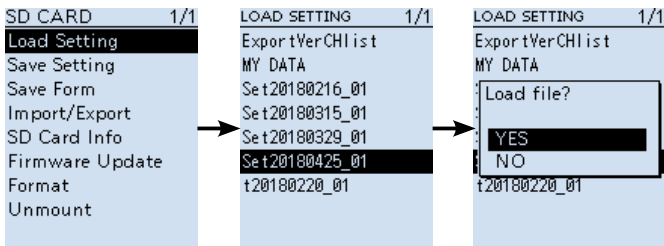
1. Hold down the master receiver's [POWER] to turn it OFF.
2. Remove the microSD card from the master receiver.
3. Insert the microSD card into the sub receiver, then hold down the sub receiver's [POWER] to turn it ON.



Step 3. Loading the setting data into the sub receiver.

[MENU] > SD Card > **Load Setting**

1. Push [MENU].
2. Select "Load Setting," in the "SD Card" menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select a file to load.
① A confirmation window appears.
4. Select "YES."
 - Starts the file check. After checking, starts settings data loading.
 - After loading, "COMPLETED! Restart the IC-R30." is displayed.
5. Restart the receiver.



TIP: The setting data are saved in the "icf" file format that is used in the CS-R30 CLONING SOFTWARE. When the saved data on a card is copied to a PC, you can edit it with the cloning software.

7 OTHER FUNCTIONS

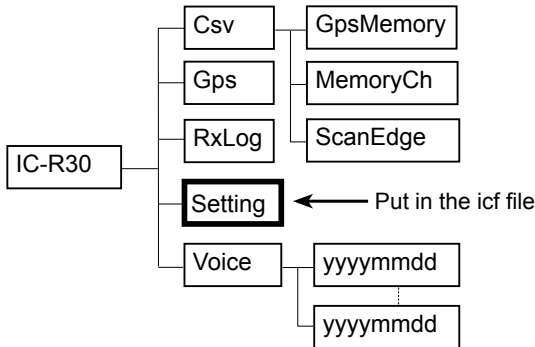
■ Cloning function (Continued)

◇ Cloning from a PC using a microSD card

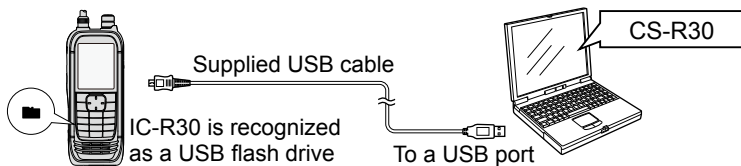
You can clone receivers from a PC using a microSD card.

1. Connect the receiver and a PC using the supplied USB cable.
2. Turn ON the receiver power.
3. Push [MENU].
4. Select "USB Connect" in the "Function" menu.
(Rotate [DIAL] to select it, then push [ENTER].)
 - A confirmation dialog appears.
5. Select "SD Card Mode."
6. Select "YES," and then push [ENTER].
 - Displays the IC-R30 folder on the PC screen.
7. Save the setting data as an "icf" file, then put it into the "Setting" folder in the "IC-R30" folder on the microSD card.
8. Perform the SD card removal on the PC.
9. Insert the microSD card that includes the "icf" file, then load it to complete the cloning.

microSD card configuration



Connections



■ CI-V information

◇ CI-V data setting

Set the IC-R30's address, data transfer speed and transceive function. See page 6-20 to set the CI-V settings using the MENU list screen.

([MENU] > Function > **CI-V**)

Before connecting the IC-R30 to a PC using the supplied USB cable, set the "USB Connect" item to "Serialport," and set the "USB Serialport Function" to "CI-V (Echo Back ON)" or "CI-V (Echo Back OFF)," to enable the serial communication with a PC.

([MENU] > Function > **USB Connect**)

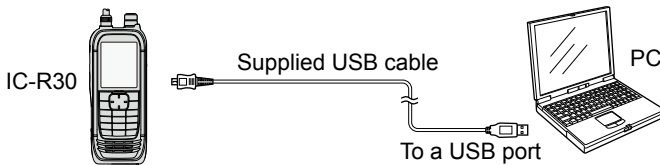
([MENU] > Function > **USB Serialport Function**)

◇ Connecting to a PC

You can control the IC-R30 from a PC, through the supplied USB cable.

Using the Icom Communications Interface-V (CI-V) serial communication interface, you can set the receive frequency, mode, and so on.

① You need to install the USB driver first. (p. 7-21)



7 OTHER FUNCTIONS

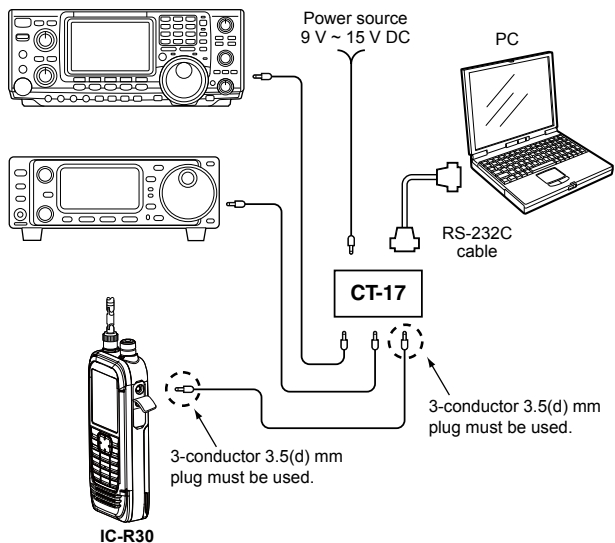
■ CI-V information (Continued)

TIP: CI-V connection example

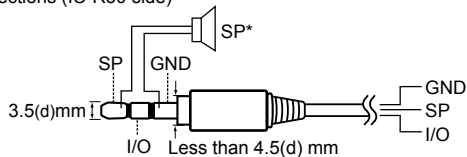
The receiver can be connected through an optional CT-17 CI-V LEVEL CONVERTER to a PC equipped with an RS-232C port.

① Remote operation through the [SP] jack is not guaranteed.

See the CT-17 instruction manual for details of remotely controlling transceivers and receivers.



• Connections (IC-R30 side)



*No speaker is necessary for the CT-17 side.

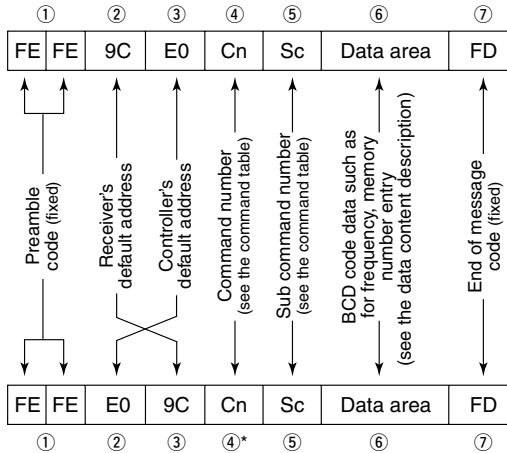
7 OTHER FUNCTIONS

■ CI-V information (Continued)

◇ Data format

The CI-V system can be operated using the following data formats. Data formats differ, depending on the command numbers. A data area or sub command is added to some commands.

Controller to IC-R30



IC-R30 to controller

*The reply message from the receiver is command "FB" (OK) or "FA" (NG).

7 OTHER FUNCTIONS

■ CI-V information (Continued)

◇ Command table

Commands added from Version 1.10 are in blue.

Cmd.	Sub cmd.	Data	Description
00		See p. 7-37	Output the frequency data for transceiver
01		See p. 7-37	Output the receive mode for transceiver
03		See p. 7-37	Read the receive frequency
04		See p. 7-37	Read the receive mode
05		See p. 7-37	Set the receive frequency
06		See p. 7-37	Select the receive mode
07	D0		Select the A band (In the Dual band display, set the MAIN band to the A band.)
	D1		Select the B band (In the Dual band display, set the MAIN band to the B band.)
08		See p. 7-37	Select a Memory channel
	A0	See p. 7-37	Select a Memory group
0C			Read offset frequency
0D		See p. 7-38	Set offset frequency
0F		10 ~ 12	Read duplex setting (10=OFF, 11=DUP-, 12=DUP+)
	10		Set Simplex
	11		Set Duplex -
	12		Set Duplex +
10*		00 ~ 18	Set Tuning Step 00=0.01 kHz, 01=0.1 kHz, 02=1 kHz, 03=3.125 kHz, 04=5 kHz, 05=6.25kHz, 06=8.33 kHz, 07=9 kHz, 08=10 kHz, 09=12.5 kHz, 10=15 kHz, 11=20 kHz, 12=25 kHz, 13=30 kHz, 14=50 kHz, 15=100 kHz, 16=125 kHz, 17=200 kHz
11*		00/15/30/45	Send/read Attenuator (00=OFF, 15=ATT1, 30=ATT2, 45=ATT3)
12*		00/01	Select antenna 495 kHz ~ 1.620 MHz: (00=Only external antenna, 01=Internal bar antenna) Other than 495 kHz ~ 1.620 MHz: (00=Only external antenna, 01=External antenna and earphone antenna)
14*	01	0000 ~ 0255	Send/read the AF gain level (0000=Minimum ~ 0255=Maximum)
	02	0000 ~ 0255	Send/read the RF gain level (0000=Minimum ~ 0255=Maximum)
	03	0000 ~ 0255	Send/read the squelch level (0000=Minimum ~ 0255=Maximum)
15	01	00/01	Read noise or S-meter squelch status (00=Close, 01=Open)
	02	0000 ~ 0255	Read the S-meter level (0000=S0, 0170=S9)
	05	00/01	Read various squelch function's (including the tone squelch) status (00=Close, 01=Open)
16*	22	00/01	Send/read the Noise blanker function status (00=OFF, 01=ON)
	43	00 ~ 02	Send/read the Tone squelch status (00=OFF, 01=ON, 02=TSQL-R)
	4A	00/01	Send/read the AFC function status (00=OFF, 01=ON)
	4B	00 ~ 02	Send/read DTCS setting (00=OFF, 01=ON, 02=DTCS-R ON)
	4C	00/01	Send/read the VSC function setting (00=OFF, 01=ON)
	52	00/01	Send/read the P25 digital squelch (D.SQL) setting (00=OFF, 01=NAC)

*(Asterisk) Send/read data

7 OTHER FUNCTIONS

■ CI-V information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	
16*	59	00/01	Send/read the display type (00=Single band display, 01=Dual band display)	
	5B	00/02	Send/read the D-STAR digital squelch (D.SQL) setting (00=OFF, 02=CSQL)	
	5F	00 ~ 02	Send/read the dPMR digital squelch (D.SQL) setting (00=OFF, 01=COM ID, 02=CC)	
	60	00/01	Send/read the NXDN digital squelch (D.SQL) setting (00=OFF, 01=RAN)	
	61	00/01	Send/read the DCR digital squelch (D.SQL) setting (00=OFF, 01=UC)	
	62	00/01	Send/read the dPMR SCRAMBLER function status (00=OFF, 01=ON)	
	63	00/01	Send/read the NXDN ENCRYPTION function status (00=OFF, 01=ON)	
	64	00/01	Send/read the DCR ENCRYPTION function status (00=OFF, 01=ON)	
18	00		Turn OFF the receiver	
	01**		Turn ON the receiver (See page 7-35)	
19	00		Read the receiver ID	
1A	00*	00/01	Send/read the ANL (Automatic Noise Limiter) function (00=OFF, 01=ON)	
	01*	00/01	Send/read the Earphone mode (00=OFF, 01=ON)	
	02	See p. 7-37	Set the receive frequency (The receive mode is automatically set, according to the band that the set frequency belongs.)	
	03	00/01	Select the frequency or channel change direction (00= Down, 01=Up)	
	04*	00 ~ 02	Send/read the Operating mode (00=VFO mode, 01=Memory mode, 02=WX (Weather Alert) mode)	
	06*	00/01	Send/read the A band and B band audio level synchronize setting (00=A/B Link, 01=A/B Separate)	
	07*	0000 ~ 0255	Send/read the AF gain level and cancel the mute (0000=Minimum ~ 0255=Maximum)	
	08*	00 ~ 02	Send/read the SKIP/PSKIP setting (00=OFF, 01=SKIP, 02=PSKIP)	
	09	00/01	Start/Stop recording (00=Stop, 01=Start)	
	0A	00	See p. 7-39	Start a scan
		01		Cancel the scan
		02		Set the temporarily skip setting (Frequency or Memory channel)
		03	00/01	Read the temporarily skip setting (00=Temporarily skip is NOT set, 01=Temporarily skip is set)
		04		Cancel all the temporarily skip settings
	0B	00*	00/01	Send/read the transceive setting in a scan (00=transceive OFF, 01=transceive ON)
		01	See p. 7-39	Transceive setting in a scan for transceive
		02	See p. 7-39	Read the scan condition
	0C		See p. 7-40	Read the scan type
	0D	00	See p. 7-42	Read the Program link name
	0E	00	See p. 7-42	Read the Program scan edge name
01		00/01	Read the Program scan edge name change (00=Not changed from the previous read, 01=Changed from the previous read)	

*(Asterisk) Send/read data

7 OTHER FUNCTIONS

■ CI-V information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	
1A	0F 00	See p. 7-42	Read the Memory Group name	
	0F 01	00/01	Read the Memory Group name change (00=Not changed from the previous read, 01=Changed from the previous read)	
	10	00*	00/01	Send/read the Display contents change report (00=Does not reports the indication change, 01=Reports the indication change)
		01	00 ~ 03	Read the Display contents change report for transceive (00=No change on the both A and B bands, 01=Change on the A band, 02=Change on the B band, 03=Change on the both A and B bands)
		02	00 ~ 03	Read the Display contents change report (00=No change on the both A and B bands, 01=Change on the A band, 02=Change on the B band, 03=Change on the both A and B bands)
	11	See p. 7-43	Read the Display contents	
	12	See p. 7-45	Read the Noise squelch status (open or close) and s-meter level	
	13	00*	00/01	Send/read the Bluetooth headset detection report (00=OFF, 01=ON)
		01	00/01	Send/read the Bluetooth headset detection report for transceive (00=No headset, 01=Headset)
		02	00/01	Send/read the Bluetooth headset detection report for transceive (00=No headset, 01=Headset)
	1B*	01	See p. 7-46	Send/read the TSQL tone frequency
02		See p. 7-46	Send/read the DTCS code	
03		000 ~ FFF See p. 7-46	Send/read the P25 NAC (First 4 bits in each byte are fixed to "0.")	
07		00 ~ 99 See p. 7-47	Send/read the D-STAR CSQL code	
08		001 ~ 255 See p. 7-47	Send/read the dPMR COM ID	
09		00 ~ 63 See p. 7-47	Send/read the dPMR CC	
0A		00 ~ 63 See p. 7-47	Send/read the NXDN RAN	
0B		001 ~ 511 See p. 7-47	Send/read the DCR UC	
0C		00001 ~ 32767 See p. 7-47	Send/read the dPMR scrambler key	
0D		00001 ~ 32767 See p. 7-47	Send/read the NXDN encryption key	
0E		00001 ~ 32767 See p. 7-47	Send/read the DCR encryption key	
20	00	00*	00/01* ²	Send/read the D-STAR Call sign output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-48	Output the D-STAR Call sign setting for transceive
		02	See p. 7-48	Read the D-STAR Call sign contained in the received signal
	01	00*	00/01* ²	Send/read the D-STAR message output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-49	Output the D-STAR message for transceive
		02	See p. 7-49	Read the D-STAR message contained in the received signal
	02	00*	00/01* ²	Send/read the D-STAR RX status output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-49	Output the D-STAR RX status for transceive
	02	See p. 7-49	Read the D-STAR RX status	

*(Asterisk) Send/read data

7 OTHER FUNCTIONS

■ CI-V information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description
20	03	00*	Send/read the D-STAR RX GPS/D-PRS data output setting (00=Transceive OFF, 01=Transceive ON)
		01	See pp. 7-50 Output the D-STAR RX GPS/D-PRS data for transceive
		02	See pp. 7-50 Read the D-STAR RX GPS/D-PRS data
	04	00*	Send/read the D-STAR RX GPS/D-PRS message output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-53 Output the D-STAR RX GPS/D-PRS message for transceive
		02	See p. 7-53 Read the D-STAR RX GPS/D-PRS message
	05	00*	Send/read the D-STAR RX CSQ code output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-47 Output the D-STAR RX CSQ code for transceive
		02	See p. 7-47 Read the D-STAR RX CSQ code
	06	00*	Send/read the P25 ID output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-54 Output the P25 ID for transceive
		02	See p. 7-54 Read the P25 ID
	07	00*	Send/read the P25 RX status output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-58 Output the P25 RX status for transceive
		02	See p. 7-58 Read the P25 RX status
	08	00*	Send/read the dPMR RX ID output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-55 Output the dPMR RX ID for transceive
		02	See p. 7-55 Read the dPMR RX ID
	09	00*	Send/read the dPMR RX status output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-58 Output the dPMR RX status for transceive
02		See p. 7-58 Read the dPMR RX status	
0A	00*	Send/read the NXDN RX ID output setting (00=Transceive OFF, 01=Transceive ON)	
	01	See p. 7-56 Output the NXDN RX ID for transceive	
	02	See p. 7-56 Read the NXDN RX ID	
0B	00*	Send/read the NXDN RX status output setting (00=Transceive OFF, 01=Transceive ON)	
	01	See p. 7-59 Output the NXDN RX status for transceive	
	02	See p. 7-59 Read the NXDN RX status	
0C	00*	Send/read the DCR RX ID output setting (00=Transceive OFF, 01=Transceive ON)	
	01	See p. 7-57 Output the DCR RX ID for transceive	
	02	See p. 7-57 Read the DCR RX ID	
0D	00*	Send/read the DCR RX status output setting (00=Transceive OFF, 01=Transceive ON)	
	01	See p. 7-59 Output the DCR RX status for transceive	
	02	See p. 7-59 Read the DCR RX status	
22	01	00*	Send/read the D-STAR RX data output setting (00=Transceive OFF, 01=Transceive ON)
		01	See p. 7-59 Output the D-STAR RX data for transceive
23	00	See p. 7-60 Read the position data	
	01*	00/01/03 Send/read the internal GPS OFF (00=OFF, 01=Internal GPS, 03= Manual)	
	02*	See p. 7-60 Send/read the manually input GPS position	
29		00 or 01 + Supported commands See p. 7-61	Regardless of active/inactive of the A or B band, you can directly specify the A or B band, and send/read the supported command settings. (00=A band, 01=B band)

*(Asterisk) Send/read data

7 OTHER FUNCTIONS

■ CI-V information

◇ Command table (Continued)

Remarks:

*1 When sending the power ON command (18 01), you need to repeatedly send "FE" for 13 milliseconds before the standard format. The following is the approximate number of needed repetitions. (Not necessary when the IC-R30 is connected through the [USB] connector.)

- 19200 bps: 27 "FE"s
- 9600 bps: 13 "FE"s
- 4800 bps: 7 "FE"s

Example: When using 4800 bps

		Preamble				IC-R30's address		Controller's address		Command		Sub command		Post amble	
F	E	F	E	F	E	9	C	E	0	1	8	0	1	F	D

x7

*2 When you turn OFF the receiver, the data output setting is automatically set to OFF.

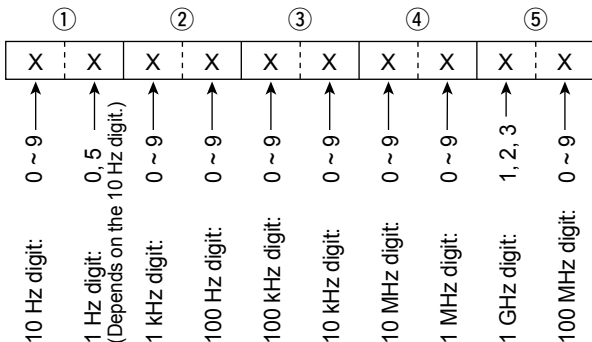
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands

• Receive frequency

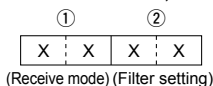
Command: **00, 03, 05, 1A 02**



① Only when the 10 Hz digit is 2 or 7, the 1 Hz digit is fixed to 5.

• Receive mode

Command: **01, 04, 06**

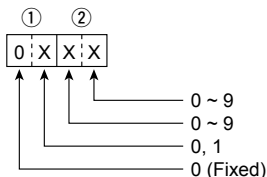


Receive mode	①	②	Receive mode	①	②
LSB	00	01	CW-R	07	01
USB	01	01	P25	16	01
AM	02	01	D-STAR	17	01
AM-N	02	02* ¹	dPMR	18	01
CW	03	01	NXDN-VN	19	01
FM	05	01	NXDN-N	20	01
FM-N	05	02* ²	DCR	21	01
WFM	06	01			

*1 If ② is omitted, AM is set. *2 If ② is omitted, FM is set.

• Memory channel and group number

Command: **08, 08 A0**



Data	Channel contents
0000 ~ 0099	Memory CH (00 ~ 99)
0000 ~ 0199	Auto Memory Write CH (000 ~ 199)
0000 ~ 0099	SKIP CH 00 ~ 99

Data	Group contents
0000 ~ 0099	Memory CH (00 ~ 99)
0100	A: Auto Memory Write CH
0101	S: SKIP CH

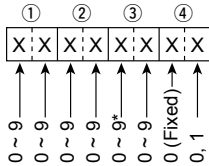
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Offset frequency

Command: **0D**



1 kHz digit:
 100 Hz digit:
 100 kHz digit:
 10 kHz digit:
 10 MHz digit:
 1 MHz digit:
 1 GHz digit:
 100 MHz digit:

*Depends on the 100 MHz digit

- ① When the 100 MHz digit is 0, the 10 MHz digit is 0 ~ 9.
 When the 100 MHz digit is 1, the 10 MHz digit is 0 ~ 5.

• Audio output level setting

Command: **14 01, 1A 07**

VOL0	VOL1	VOL2	VOL3	VOL4
0000 ~ 0006	0007 ~ 0012	0013 ~ 0019	0020 ~ 0025	0026 ~ 0031
VOL5	VOL6	VOL7	VOL8	VOL9
0032 ~ 0037	0038 ~ 0044	0045 ~ 0050	0051 ~ 0057	0058 ~ 0063
VOL10	VOL11	VOL12	VOL13	VOL14
0064 ~ 0069	0070 ~ 0076	0077 ~ 0082	0083 ~ 0089	0090 ~ 0095
VOL15	VOL16	VOL17	VOL18	VOL19
0096 ~ 0101	0102 ~ 0108	0109 ~ 0114	0115 ~ 0121	0122 ~ 0127
VOL20	VOL21	VOL22	VOL23	VOL24
0128 ~ 0133	0134 ~ 0140	0141 ~ 0146	0147 ~ 0153	0154 ~ 0159
VOL25	VOL26	VOL27	VOL28	VOL29
0160 ~ 0165	0166 ~ 0172	0173 ~ 0178	0179 ~ 0185	0186 ~ 0191
VOL30	VOL31	VOL32	VOL33	VOL34
0192 ~ 0197	0198 ~ 0204	0205 ~ 0210	0211 ~ 0217	0218 ~ 0223
VOL35	VOL36	VOL37	VOL38	VOL39
0224 ~ 0229	0230 ~ 0236	0237 ~ 0242	0243 ~ 0249	0250 ~ 0255

• RF Gain setting

Command: **14 02**

RFG1	RFG2	RFG3	RFG4	RFG5
0000 ~ 0025	0026 ~ 0051	0052 ~ 0076	0077 ~ 0102	0103 ~ 0127
RFG6	RFG7	RFG8	RFG9	RFG MAX
0128 ~ 0153	0154 ~ 0178	0179 ~ 0204	0205 ~ 0229	0230 ~ 0255

• Squelch level setting

Command: **14 03**

OPEN	AUTO	LEVEL1	LEVEL2	LEVEL3
0000 ~ 0023	0024 ~ 0046	0047 ~ 0069	0070 ~ 0093	0094 ~ 0116
LEVEL4	LEVEL5	LEVEL6	LEVEL7	LEVEL8
0117 ~ 0139	0140 ~ 0162	0163 ~ 0186	0187 ~ 0209	0210 ~ 0232
LEVEL9				
0233 ~ 0255				

7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Scan setting

Command: **1A 0A 00**



↑ ↑ ↑ ↑
 Scan type Data Data

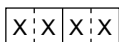
00: Normal scan
 01: Auto MW scan

Scan type	Data
VFO ALL scan	00
VFO BAND scan	01
VFO P-LINK scan	02 XX* ¹
VFO Programmable scan	03 XX* ²
Memory ALL scan	04
Memory MODE scan	05
Memory near station scan	06
Memory group link scan	07
Memory group scan	08 XXXX* ³
DUP scan	09
TONE scan	10

Contents	Data
*1 P-LINK No.0 ~9	00 ~ 09
*2 Scan edge No.00 ~49	00 ~ 49
*3 Memory group	0000 ~ 0099
Memory group (Auto MW)	0100
Memory group (SKIP CH)	0101

• Scan condition (Transceive and read)

Command: **1A 0B 01, 02**



↑ ↑
 Scan condition Scan condition
 (A band) (B band)

Contents	Data
During the scan is stopped	00
During an up scan	01
During a down scan	02
During receiving a signal in an up scan	03
During receiving a signal in a down scan	04

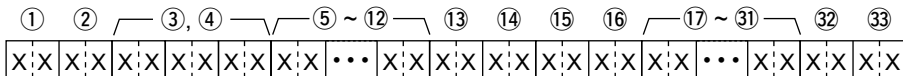
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Scan type

Command: **1A 0C**



① VFO ALL scan

② VFO BAND scan

⑬ Memory ALL scan

⑭ Memory MODE scan

⑮ Memory near station scan

⑯ Memory group link scan

⑳ DUP scan

㉓ TONE scan

00=Cannot start a scan

01=Can start a scan

③, ④ VFO P-LINK scan

0=Cannot start a scan

1=Can start a scan

1st byte

Data	Contents
bit7 (Fixed to 0)	—
bit6	0/1 Link6
bit5	0/1 Link5
bit4	0/1 Link4
bit3	0/1 Link3
bit2	0/1 Link2
bit1	0/1 Link1
bit0	0/1 Link0

Second byte

Data	Contents
bit7 (Fixed to 0)	—
bit6 (Fixed to 0)	—
bit5 (Fixed to 0)	—
bit4 (Fixed to 0)	—
bit3 (Fixed to 0)	—
bit2	0/1 Link9
bit1	0/1 Link8
bit0	0/1 Link7

⑤ ~ ⑫ VFO programmable scan

0=Cannot start a scan

1=Can start a scan

Data	1st byte	2nd byte	3th byte
bit7 (Fixed to 0)	—	—	—
bit6	0/1 Edge 6	Edge 13	Edge 20
bit5	0/1 Edge 5	Edge 12	Edge 19
bit4	0/1 Edge 4	Edge 11	Edge 18
bit3	0/1 Edge 3	Edge 10	Edge 17
bit2	0/1 Edge 2	Edge 9	Edge 16
bit1	0/1 Edge 1	Edge 8	Edge 15
bit0	0/1 Edge 0	Edge 7	Edge 14

Data	4th byte	5th byte	6th byte
bit7 (Fixed to 0)	—	—	—
bit6	0/1 Edge 27	Edge 34	Edge 41
bit5	0/1 Edge 26	Edge 33	Edge 40
bit4	0/1 Edge 25	Edge 32	Edge 39
bit3	0/1 Edge 24	Edge 31	Edge 38
bit2	0/1 Edge 23	Edge 30	Edge 37
bit1	0/1 Edge 22	Edge 29	Edge 36
bit0	0/1 Edge 21	Edge 28	Edge 35

Data	7th byte	8th byte
bit7 (Fixed to 0)	—	—
bit6	0/1 Edge 48	—
bit5	0/1 Edge 47	—
bit4	0/1 Edge 46	—
bit3	0/1 Edge 45	—
bit2	0/1 Edge 44	—
bit1	0/1 Edge 43	—
bit0	0/1 Edge 42	Edge 49

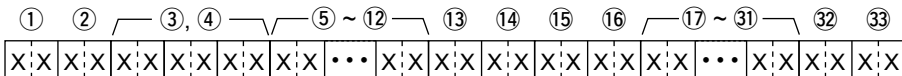
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Scan type

Command: 1A 0C



⑰ ~ ⑳ Memory group scan

0=Cannot start a scan

1=Can start a scan

	Data	1st byte	2nd byte	3th byte	4th byte	5th byte	6th byte	7th byte
bit7	(fixed to 0)	—	—	—	—	—	—	—
bit6	0/1	GRP6	GRP13	GRP20	GRP27	GRP34	GRP41	GRP48
bit5	0/1	GRP5	GRP12	GRP19	GRP26	GRP33	GRP40	GRP47
bit4	0/1	GRP4	GRP11	GRP18	GRP25	GRP32	GRP39	GRP46
bit3	0/1	GRP3	GRP10	GRP17	GRP24	GRP31	GRP38	GRP45
bit2	0/1	GRP2	GRP9	GRP16	GRP23	GRP30	GRP37	GRP44
bit1	0/1	GRP1	GRP8	GRP15	GRP22	GRP29	GRP36	GRP43
bit0	0/1	GRP0	GRP7	GRP14	GRP21	GRP28	GRP35	GRP42

	Data	8th byte	9th byte	10th byte	11th byte	12th byte	13th byte	14th byte
bit7	(fixed to 0)	—	—	—	—	—	—	—
bit6	0/1	GRP55	GRP62	GRP69	GRP76	GRP83	GRP90	GRP97
bit5	0/1	GRP54	GRP61	GRP68	GRP75	GRP82	GRP89	GRP96
bit4	0/1	GRP53	GRP60	GRP67	GRP74	GRP81	GRP88	GRP95
bit3	0/1	GRP52	GRP59	GRP66	GRP73	GRP80	GRP87	GRP94
bit2	0/1	GRP51	GRP58	GRP65	GRP72	GRP79	GRP86	GRP93
bit1	0/1	GRP50	GRP57	GRP64	GRP71	GRP78	GRP85	GRP92
bit0	0/1	GRP49	GRP56	GRP63	GRP70	GRP77	GRP84	GRP91

	Data	15th byte
bit7	(fixed to 0)	—
bit6	(fixed to 0)	—
bit5	(fixed to 0)	—
bit4	(fixed to 0)	—
bit3	0/1	Group S
bit2	0/1	Group A
bit1	0/1	GRP99
bit0	0/1	GRP98

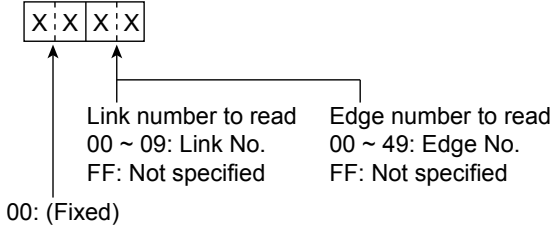
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Program link name, Program scan edge name

Command: **1A 0D 00, 1A 0E 00**



Send the command to specify 10 link numbers and 15 edge numbers to read. The receiver will return the name in 16-digit ASCII code (00h ~ EFh) or SHIFT JIS code (FCh will be replaced to FFh.).

1st byte ~ 16th byte: The name of Link or Edge for Link/Edge No. 1

17th byte ~ 32th byte: The name of Link or Edge for Link/Edge No. 2

⋮

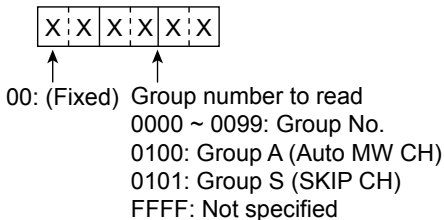
145th byte ~ 160th byte: The name of Link or Edge for Link/Edge No. 10

⋮

225th byte ~ 240th byte: The name of Edge for Edge No. 15

• Memory group name

Command: **1A 0F 00**



Send the command to specify 15 group numbers to read.

The receiver will return the name in 16-digit ASCII code (00h ~ EFh) or SHIFT JIS code (FCh will be replaced to FFh.).

1st byte ~ 16th byte: The Group name for Group No. 1

17th byte ~ 32th byte: The Group name for Group No. 2

⋮

225th byte ~ 240th byte: The Group name for Group No. 15

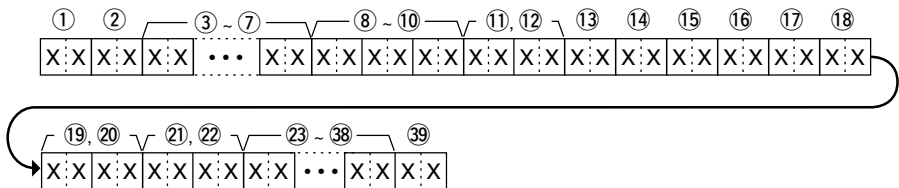
7 OTHER FUNCTIONS

■ CI-V information

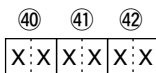
◇ Commands (Continued)

• Display contents

Command: **1A 11**



When the receive mode is:
FM/D-STAR/P25/dPMR/NXDN/DCR



When the receive mode is:
AM/SSB/CW



① Status indication

Data	Contents
00	Single A band MAIN
01	Single B band MAIN
02	Dual A band MAIN
03	Dual B band MAIN

② Operating mode

Data	Contents
00	VFO mode
01	Memory mode
02	WX mode

③ ~ ⑦ Receive frequency

Set the Receive frequency. (p. 7-37)

① In the Memory mode, and if the channel is blank, "FF FF FF FF FF" will be returned.

⑧ ~ ⑩ Receive mode

① In the Memory mode, and if the channel is blank, "00 FF FF" will be returned.

⑧ (fixed to 00)

⑨, ⑩ Receive mode and IF bandwidth

Data	Receive mode + IF bandwidth	Data	Receive mode + IF bandwidth
00 01	LSB	07 01	CW-R
01 01	USB	16 01	P25
02 01	AM	17 01	D-STAR
02 02	AM-N	18 01	dPMR
03 01	CW	19 01	NXDN-VN
05 01	FM	20 01	NXDN-N
05 02	FM-N	21 01	DCR
06 01	WFM		

⑪, ⑫ RF gain

Data	Contents	Data	Contents
0012	RFG1	0140	RFG6
0038	RFG2	0166	RFG7
0064	RFG3	0192	RFG8
0089	RFG4	0217	RFG9
0115	RFG5	0243	RFG MAX

⑬ ATT (Attenuator)

00=OFF, 15=ATT1, 30=ATT2, 45=ATT3

7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Display contents

Command: 1A 11

⑩ DUP

10=OFF (Simplex), 11=DUP-, 12=DUP+

⑮ WX

Data		Contents
bit7	(fixed to 0)	–
bit6	(fixed to 0)	–
bit5	0/1	WX Alert setting
bit4	0/1	WX Alert call status
bit3	0/1	WX CH number (0~9=CH 1 ~ CH 10)
bit2	0/1	
bit1	0/1	
bit0	0/1	

⑯ Mute/Recording condition

Data		Contents
bit7~ 3	(fixed to 0)	–
bit2	0/1	Mute status (0=Mute OFF, 1=Mute ON)
bit1	0/1	See the table below
bit0	0/1	

Data		Description
bit1	bit0	
0	0	Record stop
0	1	Record pause
1	0	Recording

⑰ AFC

00=AFC OFF, 01=AFC ON

⑱ SKIP/PSKIP

00=OFF, 01=SKIP, 02=PSKIP

⑲ ~ ⑳ Memory group number (p. 7-36.)

㉑ ~ ㉒ Memory channel number (p. 7-36.)

㉓ ~ ㉔ Memory name

Same as Memory name (p. 7-41)

㉙ VSC

00=VSC OFF, 01=VSC ON

• FM mode

④ TSQL

00=OFF, 01=TSQL, 02=TSQL-R

④ DTCS

00=OFF, 01=DTCS, 02=DTCS-R

④ (fixed to 0)

• AM mode

④ ANL

00=ANL OFF, 01=ANL ON

• SSB/CW mode

④ NB

00=NB OFF, 01=NB ON

• D-STAR mode

④ D.SQL

00=OFF, 02=CSQL

④ Packet loss

Data		Contents
bit7	(fixed to 0)	–
bit6	(fixed to 0)	–
bit5	(fixed to 0)	–
bit4	(fixed to 0)	–
bit3	0/1	0=Not receiving BK 1=Receiving BK
bit2	0/1	0=Not receiving EMR 1=Receiving EMR
bit1	(fixed to 0)	–
bit0	0/1	0=No packet loss 1=Packet loss

④ Interfere

0=Receiving no interfere

1=Receiving a synchronous signal

2=Receiving an interference signal

7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

- Display contents
Command: 1A 11

• P25 mode

- ④0 D.SQL
00=OFF, 01=NAC
- ④1 EMR
00=OFF, 01=EMR
- ④2 Interfere
0=Receiving no interfere
1=Receiving a synchronous signal
2=Receiving an interference signal

• dPMR mode

- ④0 D.SQL
00=OFF, 01=COM ID, 02=CC
- ④1 Descrambler
00=OFF, 01=ON
- ④2 Interferer
0=Receiving no interfere
1=Receiving a synchronous signal
2=Receiving an interference signal

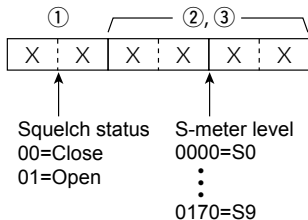
• NXDN mode

- ④0 D.SQL
00=OFF, 01=RAN
- ④1 Decryption
00=OFF, 01=ON
- ④2 Interferer
0=Receiving no interfere
1=Receiving a synchronous signal
2=Receiving an interference signal

• DCR mode

- ④0 D.SQL
00=OFF, 01=UC
- ④1 Decryption
00=OFF, 01=ON
- ④2 Interferer
0=Receiving no interfere
1=Receiving a synchronous signal
2=Receiving an interference signal

- Noise squelch status and S-meter level
Command: **1A 12**



① Squelch status

- 00=Close
- 01=Open

②, ③ Squelch status

- 0000=S0
- 0034=S1
- 0051=S2
- 0068=S3
- 0085=S4
- 0102=S5
- 0119=S6
- 0136=S7
- 0153=S8
- 0170=S9

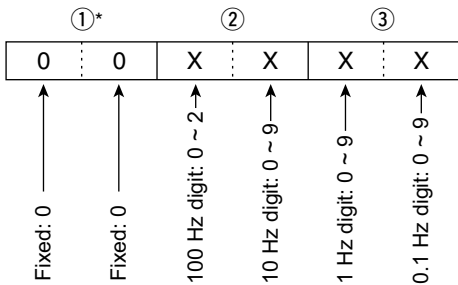
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• Tone squelch frequency setting

Command: **1B 01**

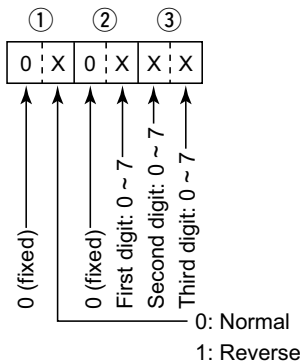


*Not necessary when setting a frequency.

See page 7-3 for the tone frequency list.

• DTCS code and polarity setting

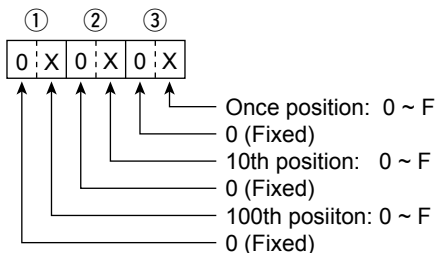
Command : **1B 02**



See page 7-3 for the DTCS code list.

• NAC (P25) setting

Command : **1B 03**



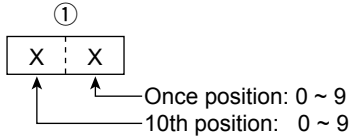
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

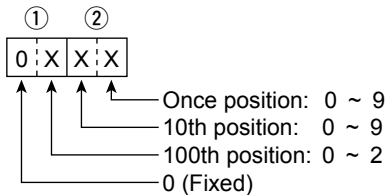
• Digital code squelch (CSQL) code (D-STAR)

Command : 1B 07, 20 0501, 20 0502



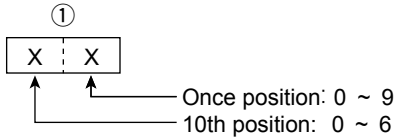
• COM ID (dPMR)

Command : 1B 08



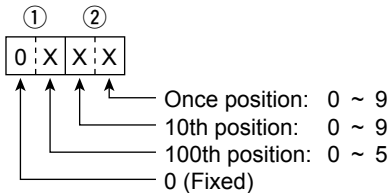
• CC (dPMR), Radio Access Number (RAN) code (NXDN)

Command : 1B 09, 1B 0A



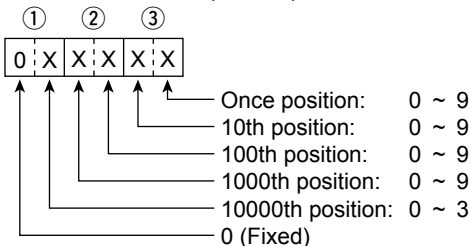
• UC (DCR)

Command : 1B 0B



• dPMR Scrambler key/NXDN/DCR encryption key

Command : 1B 0C, 1B 0D, 1B 0E



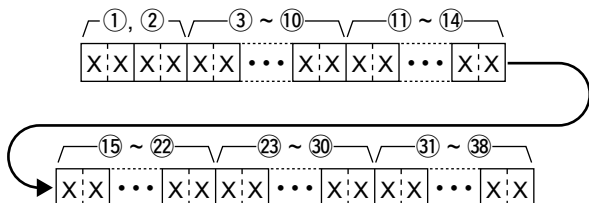
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• D-STAR RX Call sign

Command: **20 0001**, **20 0002**



① Header flag data (First byte)

Data	Description	
bit7 0 (Fixed)	—	—
bit6 0 (Fixed)	—	—
bit5 0 (Fixed)	—	—
bit4 0/1	0=Voice, 1=Data	
bit3 0/1	0=Direct, 1=Through repeater	
bit2 0/1	0=No Break-in, 1=Break-in	
bit1 0/1	0=Data, 1=Control	
bit0 0/1	0=Normal, 1=EMR	

② Header flag data (Second byte)

Data			Description
bit2	bit1	bit0	
1	1	1	Repeater control
1	1	0	Send auto acknowledge
1	0	1	(Not used)
1	0	0	Request to re-transmit
0	1	1	Send acknowledge
0	1	0	Receive no reply
0	0	1	Repeater disabled
0	0	0	NULL

③ ~ ⑩: Call sign of the CALLER station (8 characters)

⑪ ~ ⑭: Note of the CALLER station (4 characters)

⑮ ~ ⑳: CALLED station's call sign (8 characters)

㉑ ~ ㉒: RXRPT1's call sign (8 characters)

㉓ ~ ㉔: RXRPT2's call sign (8 characters)

① FF: No signal has been received since the power was turned ON.

① Refer to the next page for CALLER, CALLED, RXRPT1 and RXRPT2.

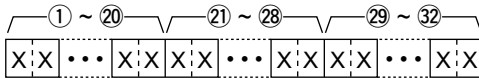
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• D-STAR RX message

Command: **20 0101**, **20 0102**



- ① ~ ⑳: Message (20 characters)
- ㉑ ~ ㉘: Call sign of the CALLER station (8 characters)
- ㉙ ~ ㉚: Note of the CALLER station (4 characters)
- ① FF: No signal has been received since the power was turned ON.

CALLER: The call sign of the caller station.

CALLED: The call sign of the called station.

RXRPT1: The call sign of the repeater that was accessed by the caller station.
(FROM repeater)

RXRPT2: The call sign of the repeater you received the call from.
(TO repeater)

• D-STAR RX STATUS

Command: **20 0201**, **20 0202**

Data	Function	Description
bit7	0 (Fixed)	—
bit6	0/1 Receiving a voice call	While receiving a digital voice signal, "1" is returned. (Regardless of DSQL and CSQL setting)
bit5	0/1 Last call finisher	When the last call was finished by a user, "1" is returned.
bit4	0/1 Receiving a signal	When the audio tone can be heard, "1" is returned.
bit3	0/1 Receiving a BK call	While receiving a BK call, "1" is returned.
bit2	0/1 Receiving an EMR call	While receiving an EMR call, "1" is returned.
bit1	0/1 Receiving a signal other than D-STAR	While under an interference (Mode icon D-STAR and FM alternately blink), "1" is returned.
bit0	0/1 Packet loss status	While displaying a packet loss, "1" is returned.

7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

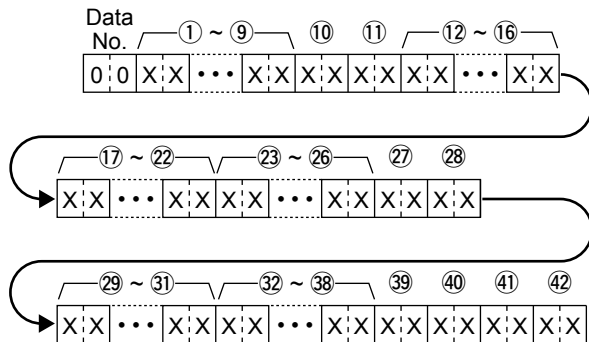
• D-STAR GPS/D-PRS data

Command: **20 0301**, **20 0302**

Data number and description:

Data number	Description
00	D-PRS-Position
01	D-PRS-Object
02	D-PRS-Item
03	D-PRS-Weather

• GPS/D-PRS data— Position



① ~ ⑨: Call sign/SSID (9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))

⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))

⑫ ~ ⑯: Latitude (dd°mm.mmm format)

⑰ ~ ⑳: Longitude (ddd°mm.mmm format)

㉓ ~ ㉖: Altitude (0.1 meter steps)

㉗, ㉘: Course (1 degree steps)

㉙ ~ ㉛: Speed (0.1 km/h steps)

㉜ ~ ㉟: Date (UTC:

yyymmddHHMMSS)

* y: Year, m: Month, d: Day,

H: Hour, M: Minute, S: Second

㉞: Power (see the table to the right)

㉟: Height (see the table to the right)

㊱: Gain (see the table to the right)

㊲: Directivity (see the table to the right)

① The item that is not contained the received data is filled with "FF."

Item Data	Power (W)	Height (m/ft)	Gain (dB)	Directivity (deg)
0	0	3/10	0	Omnidirectional
1	1	6/20	1	45°NE
2	4	12/40	2	90°E
3	9	24/80	3	135°SE
4	16	49/160	4	180°S
5	25	98/320	5	225°SW
6	36	195/640	6	270°W
7	49	390/1280	7	315°NW
8	64	780/2560	8	360°N
9	81	1561/5120	9	-

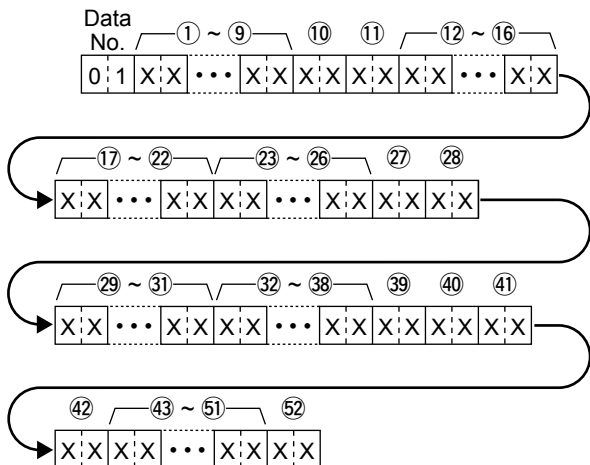
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• GPS/D-PRS data— Object

Command: **20 0301, 20 0302**



① ~ ⑨: Call sign/SSID (9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))

⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))

⑫ ~ ⑯: Latitude (dd°mm.mmm format)

⑰ ~ ⑳: Longitude (ddd°mm.mmm format)

㉓ ~ ㉖: Altitude (0.1 meter steps)

㉗, ㉘: Course (1 degree steps)

㉙ ~ ㉚: Speed (0.1 km/h steps)

㉛ ~ ㉞: Date (UTC:
yyymmddHHMMSS)

*y: Year, m: Month, d: Day, H:

Hour, M: Minute, S: Second

㉟: Power (see the table to the right)

㊱: Height (see the table to the right)

㊲: Gain (see the table to the right)

㊳: Directivity (see the table to the right)

㊴ ~ ㊷: Name (9 ASCII characters
(00h ~ EFh))

㊸: Type (1=Live, 0=Killed)

⓪ The item that is not contained the received data is filled with "FF."

Item Data	Power (W)	Height (m/ft)	Gain (dB)	Directivity (deg)
0	0	3/10	0	Omnidirectional
1	1	6/20	1	45°NE
2	4	12/40	2	90°E
3	9	24/80	3	135°SE
4	16	49/160	4	180°S
5	25	98/320	5	225°SW
6	36	195/640	6	270°W
7	49	390/1280	7	315°NW
8	64	780/2560	8	360°N
9	81	1561/5120	9	-

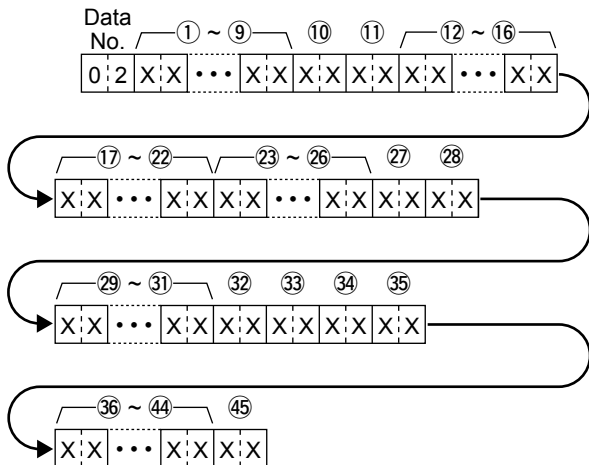
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• GPS/D-PRS data— Item

Command: **20 0301, 20 0302**



① ~ ⑨: Call sign/SSID (9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))

⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))

⑫ ~ ⑯: Latitude (dd°mm.mmm format)

⑰ ~ ⑳: Longitude (ddd°mm.mmm format)

㉓ ~ ㉖: Altitude (0.1 meter steps)

㉗, ㉘: Course (1 degree steps)

㉙ ~ ㉚: Speed (0.1 km/h steps)

㉛: Power (see the table to the right)

㉜: Height (see the table to the right)

㉝: Gain (see the table to the right)

㉞: Directivity (see the table to the right)

㉟ ~ ㊴: Name (9 ASCII characters (00h~EFh))

㊵: Type (1=Live, 0=Killed)

① The item that is not contained the received data is filled with "FF."

Item Data	Power (W)	Height (m/ft)	Gain (dB)	Directivity (deg)
0	0	3/10	0	Omnidirectional
1	1	6/20	1	45°NE
2	4	12/40	2	90°E
3	9	24/80	3	135°SE
4	16	49/160	4	180°S
5	25	98/320	5	225°SW
6	36	195/640	6	270°W
7	49	390/1280	7	315°NW
8	64	780/2560	8	360°N
9	81	1561/5120	9	—

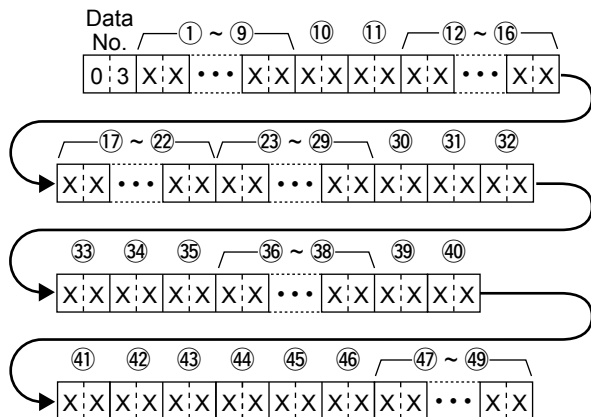
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• GPS/D-PRS data— Weather

Command: **20 0301**, **20 0302**



① ~ ⑨: Call sign/SSID (9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))

⑩, ⑪: Symbol (2 ASCII characters (00h ~ EFh))

⑫ ~ ⑯: Latitude (dd°mm.mmm format)

⑰ ~ ⑳: Longitude (ddd°mm.mmm format)

㉓ ~ ㉙: Date (UTC: yyyyymmddHHMMSS)

(y: Year, m: Month, d: Day, H: Hour, M: Minute, S: Second)

⑳, ㉑: Wind direction (1 degree steps)

㉒, ㉓: Wind speed (0.1 m/s steps)

㉔, ㉕: Gust speed (0.1 m/s steps)

㉖ ~ ㉘: Temperature (0.1°C steps)

㉙, ㉚: Rainfall (1 hour) (0.1 mm steps)

㉛, ㉜: Rainfall (24 hours) (0.1 mm steps)

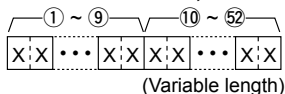
㉝, ㉞: Rainfall (Midnight) (0.1 mm steps)

㉟, ㊱: Humidity (1% steps)

㊲ ~ ㊴: Barometric pressure (0.1 hPa steps)

• GPS/D-PRS message

Command: **20 0401**, **20 0402**



① ~ ⑨: Call sign/SSID (9 ASCII characters (A ~ Z, 0 ~ 9, /, -, space))

⑩ ~ ⑵: Message (Up to 43 ASCII characters (00h ~ EFh))

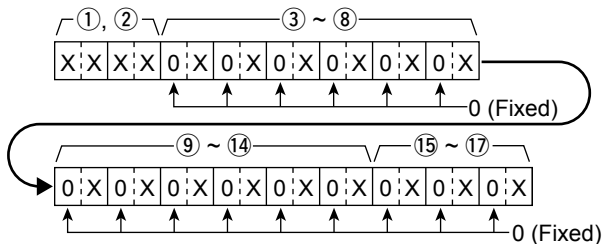
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• P25 RX ID

Command: **20 0601**, **20 0602**



① Header flag data (First byte)

Data	Description
bit7	0 (Fixed) —
bit6	0 (Reserved)
bit5	0 (Reserved)
bit4	0 (Reserved)
bit3	See the table below Type of call
bit2	
bit1	0/1 0=Encryption OFF, 1=Encryption ON
bit0	0/1 0=Normal, 1=EMR

Data	Description
bit3 bit2	
1 1	All call
1 0	Group call
0 1	Individual call
0 0	Not identified

② Header flag data (Second byte)

Data	Description
bit7	0 (Fixed) —
bit6	0 (Reserved)
bit5	0 (Reserved)
bit4	0 (Reserved)
bit3	0 (Reserved)
bit2	0 (Reserved)
bit1	0 (Reserved)
bit0	0 (Reserved)

③ ~ ⑧: ID of the CALLER station (6 digits in Hexer decimal)

⑨ ~ ⑭: ID of the CALLED station (6 digits in Hexer decimal)

⑮ ~ ⑰: NAC (3 digits in Hexer decimal)

① If the NAC, CALLER or CALLED station is not identified, "FF" is returned.

① FF: No signal has been received since the power was turned ON.

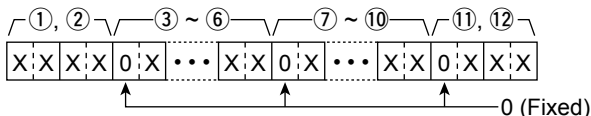
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• dPMR RX ID

Command: **20 0801**, **20 0802**



① Header flag data (First byte)

Data		Description
bit7	0 (Fixed)	—
bit6	0	(Reserved)
bit5	0	(Reserved)
bit4	0/1	0=dPMR446, 1=Tier2
bit3	See the table below	Type of call
bit2		
bit1	0/1	0=Scramble OFF, 1=Scramble ON
bit0	0	(Reserved)

Data		Description
bit3	bit2	
1	1	All call
1	0	(Not used)
0	1	Individual or Group call
0	0	Not identified

② Header flag data (Second byte)

Data		Description
bit7	0 (Fixed)	—
bit6	0	(Reserved)
bit5	0	(Reserved)
bit4	0	(Reserved)
bit3	0	(Reserved)
bit2	0	(Reserved)
bit1	0	(Reserved)
bit0	0	(Reserved)

③ ~ ⑥: ID of the CALLER station (7 digits in decimal)

⑦ ~ ⑩: ID of the CALLED station (7 digits in decimal*)

⑪ ~ ⑫: CC/COM ID (2 or 3 digits in decimal)

*If a wildcard is contained, corresponding digit is filled with "A."

① If the CC/COM ID, CALLER or CALLED station is not identified, "FF" is returned.

① FF: No signal has been received since the power was turned ON.

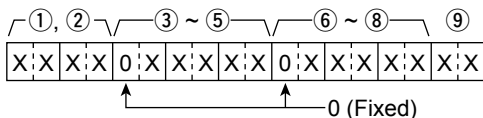
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• NXDN RX ID

Command: **20 0A01**, **20 0A02**



① Header flag data (First byte)

Data		Description
bit7	0 (Fixed)	—
bit6	0	(Reserved)
bit5	0	(Reserved)
bit4	0/1	0=Very narrow, 1=Narrow
bit3	See the table below	Type of call
bit2		
bit1	0/1	0=Encryption OFF, 1=Encryption ON
bit0	0	(Reserved)

Data		Description
bit3	bit2	
1	1	All call
1	0	Group call
0	1	Individual call
0	0	Not identified

② Header flag data (Second byte)

Data		Description
bit7	0 (Fixed)	—
bit6	0	(Reserved)
bit5	0	(Reserved)
bit4	0	(Reserved)
bit3	0	(Reserved)
bit2	0	(Reserved)
bit1	0	(Reserved)
bit0	0	(Reserved)

③ ~ ⑤: ID of the CALLER station (5 digits in decimal)

⑥ ~ ⑧: ID of the CALLED station (5 digits in decimal)

⑨: RAN (2 digits in decimal)

① If the RAN, CALLER or CALLED station is not identified, "FF" is returned.

① FF: No signal has been received since the power was turned ON.

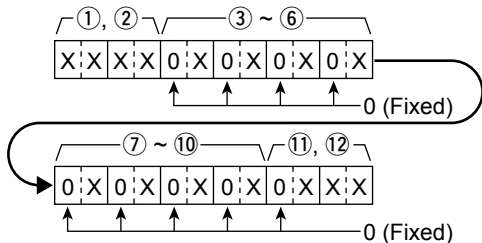
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• DCR RX ID

Command: **20 0C01**, **20 0C02**



① Header flag data (First byte)

Data		Description
bit7	0 (Fixed)	—
bit6	0	(Reserved)
bit5	0	(Reserved)
bit4	0	(Reserved)
bit3	See the table below	Type of call
bit2		
bit1	0/1	0=Encryption OFF, 1=Encryption ON
bit0	0	(Reserved)

Data		Description
bit3	bit2	
1	1	All call
1	0	Group call
0	1	Individual call
0	0	Not identified

② Header flag data (Second byte)

Data		Description
bit7	0 (Fixed)	—
bit6	0	(Reserved)
bit5	0	(Reserved)
bit4	0	(Reserved)
bit3	0	(Reserved)
bit2	0	(Reserved)
bit1	0	(Reserved)
bit0	0	(Reserved)

③ ~ ⑥: ID of the CALLER station (4 digits in Hexer decimal)

⑦ ~ ⑩: ID of the CALLED station (4 digits in Hexer decimal)

⑪, ⑫: UC (3 digits in decimal)

① If the UC, CALLER or CALLED station is not identified, "FF" is returned.

① FF: No signal has been received since the power was turned ON.

7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• P25 RX status data

Command: **20 0701**, **20 0702**

Data	Function	Description
bit7	0 (Fixed)	—
bit6	0/1 —	(Reserved)
bit5	0/1 Receive status	While receiving a P25 signal, “1” is returned. (Regardless of NAC)
bit4	0/1 Last call finisher	When the last call was finished by a user, “1” is returned.
bit3	0/1 Receiving a signal	When the audio tone can be heard, “1” is returned.
bit2	0/1 Emergency call	While receiving an emergency call, “1” is returned.
bit1	0/1 Interfere detection	While under an interference (Mode icon P25 and FM alternately blink), “1” is returned.
bit0	0/1 Encryption	When the call is encrypted, “1” is returned.

• dPMR RX status data

Command: **20 0901**, **20 0902**

Data	Function	Description
bit7	0 (Fixed)	—
bit6	0/1 —	(Reserved)
bit5	0/1 dPMR mode	While receiving a dPMR Tier 2 signal, “1” is returned.
bit4	0/1 Receive status	While receiving a dPMR signal, “1” is returned. (Regardless of CC or COM ID)
bit3	0/1 Last call finisher	When the last call was finished by a user, “1” is returned.
bit2	0/1 Receiving a signal	When the audio tone can be heard, “1” is returned.
bit1	0/1 Interfere detection	While under an interference (Mode icon dPMR and FM alternately blink), “1” is returned.
bit0	0/1 Scrambler	When the call is scrambled, “1” is returned.

7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• NXDN RX Status data

Command: **20 0B01**, **20 0B02**

Data	Function	Description
bit7	0 (Fixed)	—
bit6	0/1 —	(Reserved)
bit5	0/1 NXDN mode	When the received NXDN signal is "Narrow," "1" is returned.
bit4	0/1 Receive status	While receiving an NXDN signal, "1" is returned. (Regardless of RAN)
bit3	0/1 Last call finisher	When the last call was finished by a user, "1" is returned.
bit2	0/1 Receiving a signal	When the audio tone can be heard, "1" is returned.
bit1	0/1 Interfere detection	While under an interference (Mode icon NXDN-VN/N and FM alternately blink), "1" is returned.
bit0	0/1 Encryption	When the call is encrypted, "1" is returned.

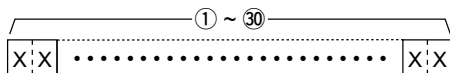
• DCR RX Status data

Command: **20 0D01**, **20 0D02**

Data	Function	Description
bit7	0 (Fixed)	—
bit6	0/1 —	(Reserved)
bit5	0/1 —	(Reserved)
bit4	0/1 Receive status	While receiving a DCR signal, "1" is returned. (Regardless of UC)
bit3	0/1 Last call finisher	When the last call was finished by a user, "1" is returned.
bit2	0/1 Receiving a signal	When the audio tone can be heard, "1" is returned.
bit1	0/1 Interfere detection	While under an interference (Mode icon DCR and FM alternately blink), "1" is returned.
bit0	0/1 Encryption	When the call is encrypted, "1" is returned.

• D-STAR RX data (transceive)

Command: **22 0101**



① ~ ③①: Rx data (Up to 30 Bytes)

① "FA" to "FF" are entered after converted to "FF 0A" to "FF 0F" automatically. In this case, the data length can be up to 60 Bytes.

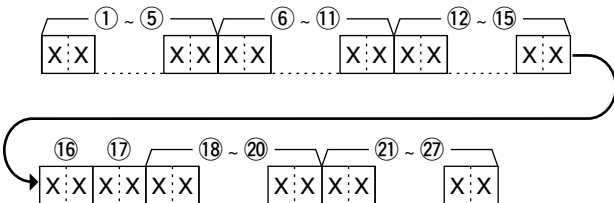
7 OTHER FUNCTIONS

■ CI-V information

◇ Commands (Continued)

• MY position data

Command: **23 00**



① ~ ⑤: Latitude (dd°mm.mmm format)

⑥ ~ ⑪: Longitude (ddd°mm.mmm format)

⑫ ~ ⑮: Altitude (0.1 meter steps)

⑰, ⑱: Course (1 degree steps)

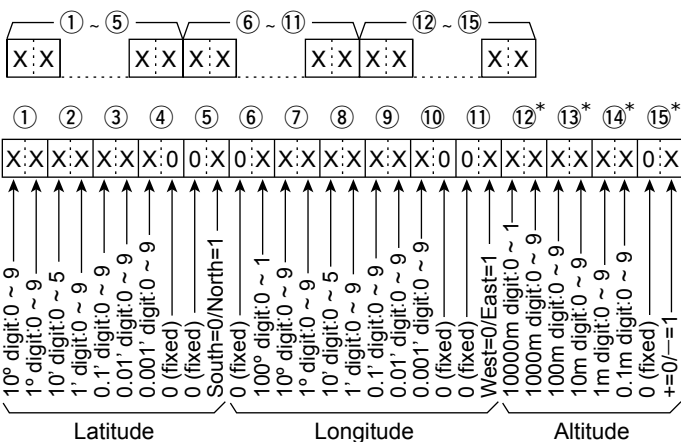
⑳ ~ ㉒: Speed (0.1 km/h steps)

㉓ ~ ㉔: Date (UTC: yyymmddHHMMSS)

*y: Year, m: Month, d: Day, H: Hour, M: Minute, S: Second

• Manually input position data

Command: **23 02**



① ~ ⑤: Latitude (dd°mm.mmm format)

⑥ ~ ⑪: Longitude (ddd°mm.mmm format)

⑫ ~ ⑮: Altitude (0.1 meter steps)

*About the Altitude data:

On read: If the received Altitude data is invalid, these bytes are filled with "FF."

On write: If you set no Altitude data, fill these bytes with "FF."

7 OTHER FUNCTIONS

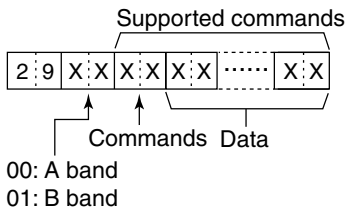
■ CI-V information

◇ Commands (Continued)

• Setting after directly specify the A/B band

Command: 29

Specify the Main or Sub band before entering the supported commands.
When you receive the OK code (FB), or the NG code (FA), the Command 29 and A/B specify (00 or 01) is omitted.



Supported commands: 15 01, 15 02, 1A 11, 1A 12

■ Operating Bluetooth®.....	8-2
◇ Turning ON the Bluetooth function.....	8-2
■ Setting the headset.....	8-3
◇ AF Output.....	8-3
◇ About the Icom headset (VS-3).....	8-4
■ Setting the headset.....	8-3
■ Downloading the RS-R30I from the Apple App store ..	8-5
◇ Required items.....	8-5
◇ Download procedures.....	8-5
■ Connecting to an iOS™ device.....	8-6
◇ Pairing with an iOS™ device	8-6
◇ Connection.....	8-8
■ Editing the Bluetooth® unit name.....	8-9
■ Initializing the Bluetooth® unit.....	8-10
■ The maximum number of paired devices.....	8-10

■ Operating Bluetooth®

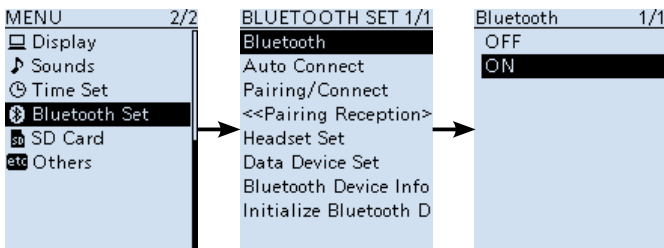
The receiver has a built-in Bluetooth unit. You can connect Bluetooth headsets, or other Bluetooth devices. When you connect a Bluetooth headset to the receiver, you can wirelessly receive.

- ① The communication range of Bluetooth is approximately 10 meters (33 feet).
- ① These instructions describe pairing with the VS-3 Bluetooth® HEADSET, as an example.
- ① Refer to the BASIC MANUAL to pair, disconnect or delete devices.

◇ Turning ON the Bluetooth function

[MENU] > Bluetooth Set > **Bluetooth**

1. Push [MENU].
2. Select “Bluetooth” in the “Bluetooth Set” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select “ON,” and then push [ENTER].
 - ① Push [CLEAR] to return to the Main screen.



NOTE:

- The Bluetooth communication range may vary, depending on the environment where you operate the device.
- 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.

■ Setting the headset

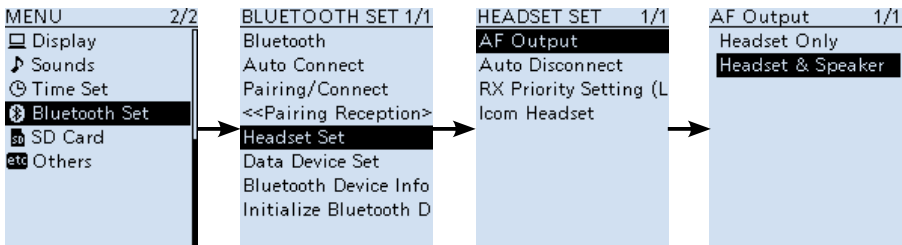
◇ AF Output

Select the AF Output device.

If “AF Output” is set to “Headset & Speaker,” you can hear audio from both a connected Bluetooth headset and the receiver’s speaker.

[MENU] > Bluetooth Set > Headset Set > **AF Output**

1. Push [MENU].
2. Select “AF Output” in the “Bluetooth Set” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Select “Headset & Speaker.”
4. Push [CLEAR] to return to the Main screen.
 - Audio is heard from both the connected Bluetooth headset and the receiver’s speaker.



8 Bluetooth® OPERATION

■ Setting the headset (Continued)

◇ About the Icom headset (VS-3)

You can set the detailed settings of the optional VS-3 Bluetooth headset. Also, you can assign a key function to [PLAY], [FWD], and [RWD] on the VS-3's "Custom Key" screen.

Power Save screen

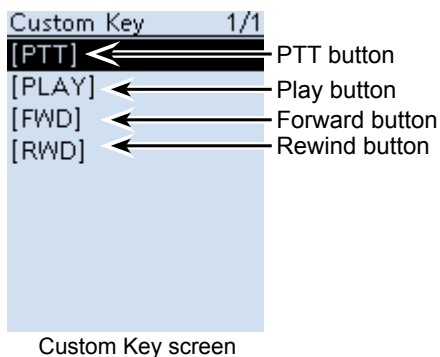
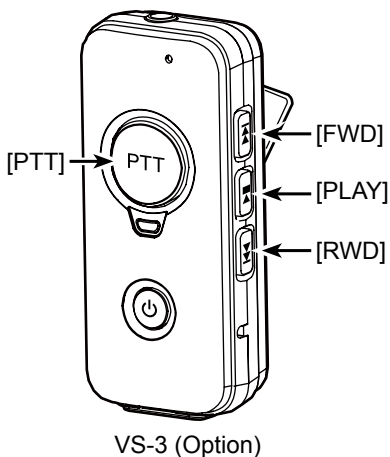
The Power Save function temporarily disconnects the Bluetooth connection if no receive audio or operation is performed for 120 seconds.

Custom Key Beep screen

Set the beep to sound when you push [PLAY], [FWD] or [RWD] on the VS-3. (p. 6-31)

Custom key screen

You can assign a key function to [PLAY], [FWD] and [RWD] on the VS-3. (pp. 6-32)



■ Downloading the RS-R30I from the Apple App store

The RS-R30I is a freeware application for iOS devices.

With the RS-R30I, you can remotely control the IC-R30.

To use the RS-R30I, download it from the Apple App store installed in your iOS device.

◇ Required items

You can use the RS-R30I with the iPhone or iPad (iPhone 5s or iPad Air with 64-bit CPU) that have iOS 9.0 or later installed.

① Information

- Some function may not work correctly, depending on the application installed in your iOS device or memory capability, even if you use one of the above products.
- See the instruction manual for details of the operation or account setting of the iOS device.
- The screen shot in this manual may differ, depending on your device's OS or its version. iPad (iOS 11.4.1) is used for the explanation on this manual.

◇ Download procedures

1. Turn ON your iOS device.
2. Tap "App Store."
3. Tap "🔍."
4. Enter "RS-R30I" in the search field.
 - Displays "RS-R30I" in the application list.
5. Tap "RS-R30I."
 - Displays the introduction screen of the RS-R30I.
6. Tap <GET>.
7. Tap <INSTALL>.
 - Installation starts.
 - After finishing the installation, the RS-R30I icon is displayed on the screen.



■ Connecting to an iOS™ device

Before connecting to an iOS device, you must pair with it.

- How to pair (see below)
- ① See page 8-8 to connect to the paired device.

NOTE: Before connecting, check the following items are correctly set.

- Set “CI-V Transceive” to “ON.”
([MENU] > Function > CI-V > **CI-V Transceive**)
- Set “Serialport Function” to “CI-V (Echo Back OFF).”
([MENU] > Bluetooth Set > Data Device Set > **Serialport Function**)
- Set the same CI-V address between the receiver and the RS-R30I.

Receiver:

“CI-V Address” in the MENU screen

([MENU] > Function > CI-V > **CI-V Address**) (Default: 9C)

RS-R30I:

“Application Setting” → “CI-V address”

(Default: Receiver[9C])

◇ Pairing with an iOS™ device

NOTE: Depending on the device, you may not be able to pair with the Bluetooth device.

Step 1. Starting the RS-R30I

(iOS device)

1. Turn ON Bluetooth with your iOS device.
 - ① See the instruction manual of the iOS device for details.
2. Tap the RS-R30I icon to start.
 - Displays the pairing device list.
 - ① See page 8-5 for details on downloading the RS-R30I.



8 Bluetooth® OPERATION

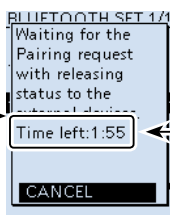
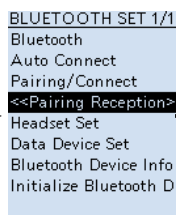
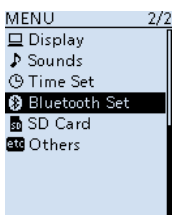
■ Connecting to an iOS™ device (Continued)

Step 2. Entering the pairing reception mode

(Receiver)

[MENU] > Bluetooth Set > <<Pairing Reception>>

1. Turn ON the Bluetooth function. (p. 8-2)
2. Push [MENU].
3. Rotate [DIAL] to select “<<Pairing Reception>>” in the Bluetooth menu. (Rotate [DIAL] to select it, and then push [ENTER].)



Perform the pairing operation with your iOS device within the displayed period of time. When the time runs out, the receiver exits the Pairing reception mode.

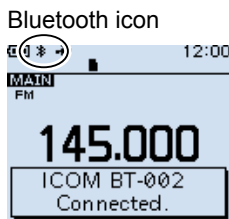
Step 3. Sending a pairing request to the receiver

(iOS device)

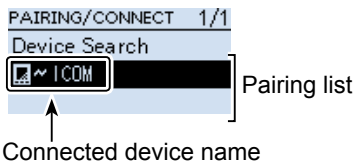
1. On the RS-R301, tap “Scan.”
 - The device displays the internal Bluetooth unit name.
 - ① You can confirm the device name on the Bluetooth Device Information screen. (Default: ICOM BT-003) (p. 11-4)
2. Tap the displayed unit name to send a pairing request.
 - The iOS device starts to send a pairing request.
 - After the connection has succeeded, the iOS device displays “Bluetooth connected to ICOM BT-003” (Default).

① About the receiver's display

After the connection has succeeded, the receiver displays “*** Connected.” and the Bluetooth icon is displayed. (“***” is the Bluetooth name of the iOS device.)



On the PAIRING/CONNECT screen, the connected device name is displayed. ([MENU] > Bluetooth Set > **Pairing/Connect**)



8 Bluetooth® OPERATION

■ Connecting to an iOS™ device (Continued)

◇ Connection

This section describes how to connect to the paired receiver from an iOS device.


1. Tap the RS-R30I icon to start.

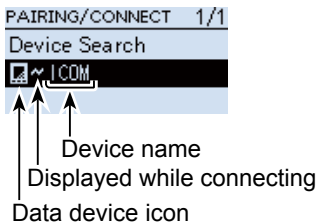


2. Tap the displayed device name to connect on the Pairing Device screen.
 - If the “Pairing Device” is not displayed, tap “Application Settings” then “Bluetooth Settings.”
 - The iOS device starts to connect to the receiver.
 - After the connection has succeeded, the iOS device displays “Bluetooth connected to ICOM BT-003” (Default).

TIP: To connect to the iOS device from the receiver:

When the RS-R30I is started on the iOS device, you can connect to the device from the receiver.

1. Push [MENU].
2. Rotate [DIAL] to select “Pairing/Connect” in the Bluetooth menu. (Rotate [DIAL] to select it, and then push [ENTER].)
3. Select the iOS device name displayed in the pairing list.
 - Displays “* * * Connecting...” (“* * *” is the Bluetooth name of the iOS device.)
 - ① “” is displayed to the left of the iOS device name.



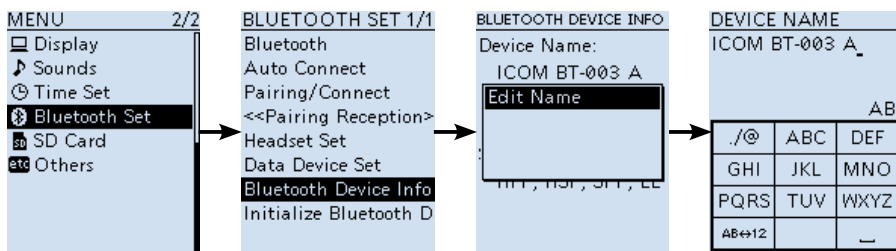
8 Bluetooth® OPERATION

■ Editing the Bluetooth® unit name

You can edit the Bluetooth unit name. After initializing the unit, the edited name remains.

[MENU] > Bluetooth Set > **Bluetooth Device Information**

1. Push [MENU].
2. Select “Bluetooth Device Information” in the “Bluetooth Set” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
3. Push [QUICK], then [ENTER].
 - Displays the DEVICE NAME edit screen.
4. Enter the device name, then push [ENTER].
 - ① Refer to page iv for details on entering characters.
5. Push [CLEAR] to return to the Main screen.

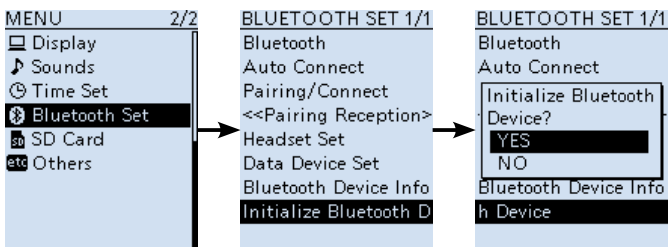


■ Initializing the Bluetooth® unit

You should initialize the unit if you have trouble during Bluetooth operation. When you do a partial reset or all reset, the Bluetooth settings returns to their factory defaults. However, the device name and pairing/connection information remain.

[MENU] > Bluetooth Set > **Initialize Bluetooth Device**

1. Push [MENU].
2. Select "Initialize Bluetooth Device" in the "Bluetooth Set" menu. (Rotate [DIAL] to select it, and then push [ENTER].)
 - A confirmation window appears.
3. Select "YES."
 - The IC-R30 automatically restarts.

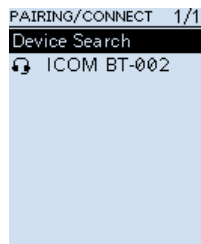


■ The maximum number of paired devices

You can pair 3 types of the Bluetooth devices: Headset, Data device and iOS device. Up to 7 Bluetooth devices can be paired with the IC-R30.

Number of maximum pairing devices

- Up to 5 Bluetooth headset and data devices can be paired. (Headset 1~4, Data device 1~4)
- Up to 2 iOS devices (Bluetooth LE) can be paired.



Bluetooth devices paired with the IC-R30 are displayed

■ Preparation.....	9-2
◇ Firmware update caution	9-2
◇ Required equipment.....	9-2
◇ Checking the firmware version.....	9-3
■ Updating the firmware	9-4

9 UPDATING THE FIRMWARE

■ Preparation

You can update the IC-R30's firmware using an SD card. Updating the firmware may add new functions and improves performance parameters.

You can download the latest firmware from the Icom website.

<http://www.icom.co.jp/world/index.html>

◇ Firmware update caution

- ① Update the firmware at your own risk.
- ① Some updates may reset the receiver setting. Read notes on the firmware download page before starting update.
- ① We recommend that you make a backup of your receiver's settings and memory channels.
- ① **NEVER** turn OFF the receiver while updating the firmware.
- ① **NEVER** start the update when the battery capacity is low, or when using optional battery case.

◇ Required equipment

- A PC
- A microSD card
- The supplied USB cable

NOTE: To update the firmware, first format your SD card. Refer to the BASIC MANUAL for details.

9 UPDATING THE FIRMWARE

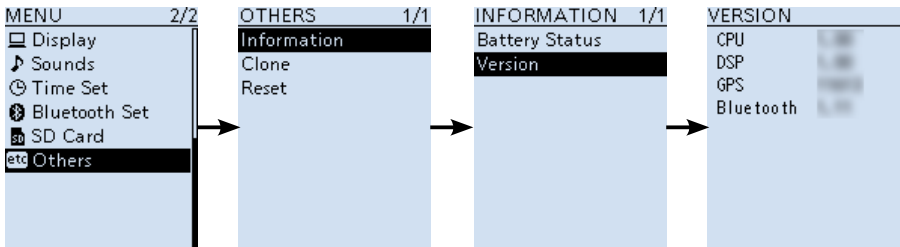
■ Preparation (Continued)

◇ Checking the firmware version

You can check the firmware version on the MENU screen.

[MENU] > Others > Information > **Version**

1. Push [MENU].
2. Select “Version” in the “Others” menu.
(Rotate [DIAL] to select it, and then push [ENTER].)
 - The VERSION screen is displayed.



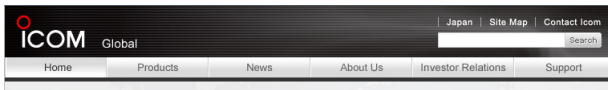
9 UPDATING THE FIRMWARE

■ Updating the firmware

① These instructions are based on Microsoft® Windows® 10.

1. Downloading the firmware file

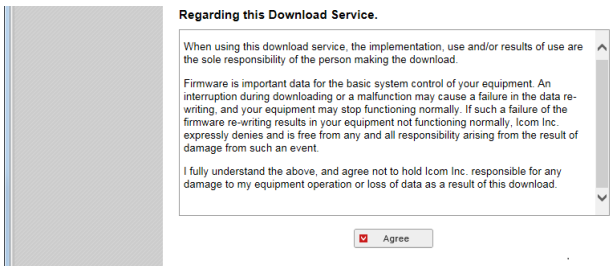
1. Access the following URL and download the firmware file.
<http://www.icom.co.jp/world/>
2. Click **<Support>**.



3. Click **"Firmware Updates/Software Downloads."**



4. Click the desired firmware file link.
Read "Regarding this Download Service" carefully, and then click **<Agree>**.



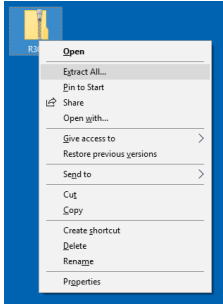
5. Click "Save as" in the displayed File Download dialog.
6. Select the location where you want to save the firmware, and then click **<Save>** in the displayed File Download dialog.
 - The file starts downloading.
 - The firmware and the firmware utility are compressed in a "zip" format folder. Unzip it before using.

9 UPDATING THE FIRMWARE

■ Updating the firmware (Continued)

2. Unzipping the firmware folder

1. Right-click the downloaded firmware folder (zip format).
2. Click “Extract All...”
 - After unzipping, a folder is created in the same location as the downloaded folder.
 - ① In the “R30_X*” folder, “R30EXXX.dat*” is created.



* X represents the release number.

3. Connect the IC-R30 to a PC

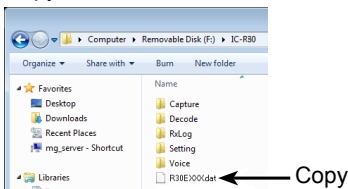
1. Connect the IC-R30 to a PC using the supplied USB cable.
 2. Turn ON the receiver power.
- ① Do not remove the microSD card from the receiver.

4. Enter the SD Card mode

You can access the data on the microSD card, through a USB cable.

[MENU] > Function > USB Connect > **SD Card Mode**

1. Push [MENU].
2. Select “SD Card Mode” in the “Function” menu.
(Rotate [DIAL] to select it, then push [ENTER].)
 - A confirmation dialog appears.
3. Select “YES.”
 - Displays the IC-R30 folder on the PC screen.
4. Copy the downloaded firmware data into the IC-R30 folder on the SD card.



5. After the SD card removal operation (p. 2-8), disconnect the IC-R30 from the PC.

9 UPDATING THE FIRMWARE

■ Updating the firmware (Continued)

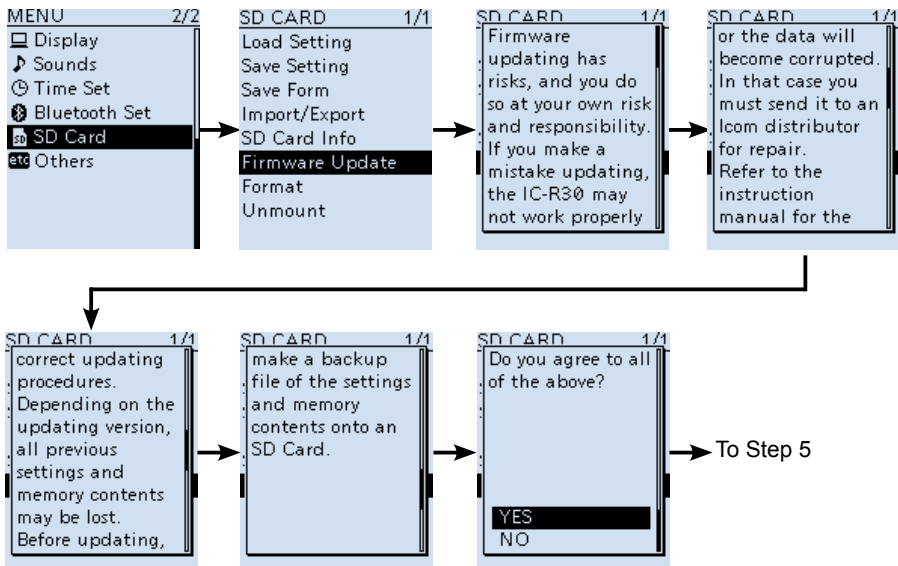
5. Updating the firmware

CAUTION: DO NOT turn OFF the receiver while updating the firmware.

If you turn OFF the receiver, or if a power failure occurs while updating, the firmware may be damaged and you may have to send the receiver back to the nearest Icom distributor for repair. This type of repair is out of warranty, even if the receiver warranty period is still valid.

[MENU] > SD Card > **Firmware Update**

1. Push [MENU].
2. Select "Firmware Update." in the "SD Card" menu.
(Rotate [DIAL] to select it, then push [ENTER].)
 - The Firmware Update Agreement window appears.
3. Rotate [DIAL] to scroll the screen.
 - ① Carefully read all the displayed precautions.
4. After you read and agree with all the precautions, select "YES."
 - ① If you want to cancel the updating, select "NO."



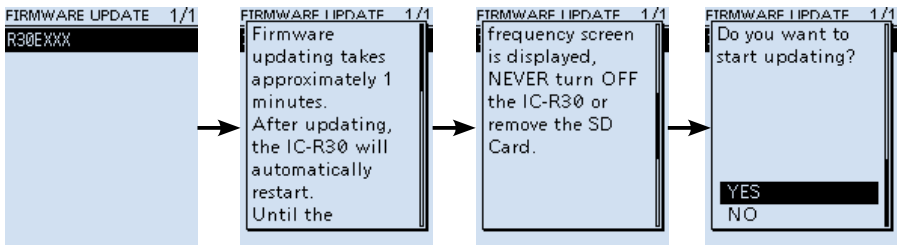
(Continued on the next page)

9 UPDATING THE FIRMWARE

■ Updating the firmware

5. Updating the firmware (Continued)

5. Select the Firmware (Example: R30EXXX.dat*).
 - The final confirmation dialog appears.
 - ① Carefully read all precautions.
 - * X represents the release number.
6. After you read all the precautions, select “YES.”
 - The updating starts.
 - ① If you want to cancel the updating, select “NO.”
 - ① After the updating finishes, the IC-R30 will automatically restart.



TIP: To check the firmware version after the updating, see “Checking the firmware version (p. 9-3)” for details.

OPTIONS

Section 10

- About the optional products 10-2
- Option list 10-2

10 OPTIONS

■ About the optional products

Approved Icom optional equipment is designed for optimal performance when used with an Icom receiver. Icom is not responsible for the destruction or damage to an Icom receiver in the event the Icom receiver is used with equipment that is not manufactured or approved by Icom.

■ Option list

Earphone

SP-40 EARPHONE (3.5 mm, 1/8 in (d))

Batteries/Chargers

BC-223 BATTERY CHARGER

Same as the supplied charger. The shape may be different, depending on the charger version.

BP-287 Li-ion BATTERY PACK

Voltage: 3.6 V

Discharge capacity: 3120 mAh (minimum)
3280 mAh (typical)

BP-293 BATTERY CASE

Uses 3 LR6 (AA) alkaline batteries.

Software

CS-R30 CLONING SOFTWARE

RS-R301 iOS® APPLICATION (Freeware)

Others

MB-133 BELT CLIP

Same as the supplied belt clip.

VS-3 Bluetooth® HEADSET

LC-189 CARRYING CASE

① Be careful that the handy strap touches the Velcro tape on the carrying case.

① Cannot be used while the BP-293 BATTERY CASE is attached.

About the free download software

You can download each manual and guide from the Icom website.

<http://www.icom.co.jp/world/support/>

Before using, read each manual and guide, and use it according to the instructions.

SPECIFICATIONS

Section 11

■ General	11-2
■ Receiver	11-2
■ About the Bluetooth unit.....	11-4
■ BC-223 Charger	11-4
■ BP-287 Battery pack	11-4

11 SPECIFICATIONS

■ General

- Frequency coverage:

[A band]

USA-01 version 0.100000 ~ 821.999990 MHz
 851.000000 ~ 866.999990 MHz
 896.000000 ~ 3304.999990 MHz

USA-02 version 0.100000 ~ 3304.999990 MHz

EUR-01 version 0.100000 ~ 3304.999990 MHz

[B band]

USA-01 version 108.000000 ~ 520.000000 MHz

USA-02 version 108.000000 ~ 520.000000 MHz

EUR-01 version 108.000000 ~ 520.000000 MHz

- Receive modes:

A band (≤1300 MHz) FM/FM-N/WFM*1/AM/AM-N/LSB/USB/CW/CW-R/
 D-STAR (DV)/P25/dPMR/NXDN-VN/NXDN-N/DCR

(>1300 MHz) FM/FM-N/WFM/AM/AM-N

B band FM/FM-N/AM/AM-N/D-STAR (DV)/P25/dPMR/NXDN-
 VN/NXDN-N/DCR

- Operating temperature range:

–20°C ~ +60°C, –4°F ~ +140°F

- Frequency stability:

Less than ±2.5 ppm (–20°C ~ +60°C, –4°F ~ +140°F)

- Frequency resolution:

0.01, 0.1, 1, 3, 12.5, 5, 6, 25, 8.33*2, 9*3, 10, 12.5, 15, 20,
25, 30, 50, 100, 125, 200 kHz

- Number of memory channels:

2000 (in 100 groups)
+ 400 (Scan edges: 100 (50 pairs),
Auto Memory Write: 200, and Scan Skip: 100)

- Number of GPS memories:

300

- Power supply requirement:

5.0 V DC (±5%) (Using the supplied USB cable)

3.6 V DC (Using the supplied battery pack)

4.5 V DC (Using the battery case)

- Antenna impedance:

50 Ω Unbalanced

- Dimensions (Projections not included):

58 (W) × 143 (H) × 30.5 (D) mm,

2.3 (W) × 5.6 (H) × 1.2 (D) in

- Weight (approximate):

200 g, 7.1 oz

(The antenna and the battery pack not included)

■ Receiver

- Receive system:

Triple superheterodyne and Down converter
(A band except WFM)

Double superheterodyne (B band and WFM)

- Intermediate frequencies:

Band	1st IF (MHz)	2nd (MHz)	3rd (MHz)
A band	266.65, 266.7, 266.75	58.0500 (except WFM) 10.7000 (WFM)	0.4500 (except WFM)
B band	46.3500	0.4500	–

*1 “WFM” may not be selectable, depending on the receiver version and receive frequency.

*2 For only the AIR band. *3 For only the BC band.

① All stated specifications are typical and subject to change without notice or obligation.

11 SPECIFICATIONS

■ Receiver (Continued)

- Sensitivity for all versions:

Mode	Frequency range (MHz)	Sensitivity (μV)	Squelch Sensitivity (μV)
SSB/CW (10 dB S/N)	0.495000 ~ 1.899990	0.4	—
	1.900000 ~ 14.999990	0.25	
	15.000000 ~ 29.999990		
	50.000000 ~ 53.999990		
	144.000000 ~ 147.999990		
	430.000000 ~ 449.999990	0.32	
AM (10 dB S/N)	0.495000 ~ 1.899990	2.2	2.2
	1.900000 ~ 14.999990	1.4	1.4
	15.000000 ~ 29.999990		
	118.000000 ~ 136.999990		
FM (12 dB S/N) (1 kHz±3.5 kHz DEV)	28.000000 ~ 221.999990	0.4	0.4
	222.000000 ~ 832.999990	0.56	0.56
	833.000000 ~ 1299.999990		
	1300.000000 ~ 1999.999990	1.8	1.8
	2000.000000 ~ 2699.999990	1.8	1.8
	2700.000000 ~ 3304.999990	18	18
WFM (12 dB S/N) (1 kHz±52.5 kHz DEV)	76.000000 ~ 107.999990	1.8	5.6
D-STAR (1% BER)	28.000000 ~ 29.999990	0.71	—
	50.000000 ~ 53.999990		
	144.000000 ~ 147.999990		
	430.000000 ~ 449.999990	1	
	1260.000000 ~ 1299.999990		
NXDN, dPMR, DCR (1% BER)	136.000000 ~ 173.999990	0.71	—
	350.000000 ~ 379.999990	1	
	380.000000 ~ 511.999990		
P25 (5% BER)	136.000000 ~ 173.999990	0.4	—
	400.000000 ~ 469.999990	0.56	
	763.000000 ~ 832.999990	0.71	
	833.000000 ~ 869.999990		

- Selectivity:
 - SSB/CW More than 1.8 kHz/−6 dB
 - AM/FM More than 12 kHz/−6 dB,
Less than 30 kHz/−60 dB (Less than 1305 MHz),
Less than 30 kHz/−40 dB (1305 MHz or higher)
 - WFM More than 150 kHz/−6 dB
- Audio output power (3.6 V):
 - External speaker More than 0.2 W (8 Ω load, at 10% distortion)
 - Internal speaker More than 0.4 W (16 Ω load, at 10% distortion)
- Power consumption (3.6V, FM, Single Watch mode, Recording function OFF, GPS function OFF, Backlight OFF):
 - Receiving 330 mA typical
 - Standby 200 mA typical (Power saving: 100 mA typical)

11 SPECIFICATIONS

■ About the Bluetooth unit

Version:	Bluetooth Ver.4.2
Transmission power:	Class2
Profiles:	HFP, HSP, SPP, GATT (Serial) over LE
Maximum number of pairing devices:	7 devices (Headset and Data device) (Headset 1~4, Data device 1~4) (Up to 2 iOS devices)
Default device name:	"ICOM BT-003"
Pass key:	"0000"

■ BC-223 Charger

Input voltage:	DC 12 ~ 16 V (Used with the BC-123S power adapter)
Operating temperature range:	15°C ~ 40°C (59°F ~ 104°F)
Dimensions:	87 (W) × 47.3 (H) × 71 (D) mm, 3.4 (W) × 1.9 (H) × 2.8 (W) in (Projections not included)
Weight:	Approximately 120 g, 4.2 oz (Power adapter not included)

■ BP-287 Battery pack

Battery type:	Li-ion battery
Voltage:	3.6 V DC
Capacity:	3120 mA (minimum), 3280 mA (typical)
Operating temperature range:	-20°C ~ +60°C (-4°F ~ 140°F)
Storage temperature range:	1 month -20°C ~ +50°C (-4°F ~ 122°F)
	3 months -20°C ~ +40°C (-4°F ~ 104°F)
	1 year -20°C ~ +20°C (-4°F ~ 68°F)
Dimensions:	57.4 (W) × 84.5 (H) × 13.1 (D) mm, 2.3 (W) × 3.3 (H) × 0.5 (W) in (Projections not included)
Weight:	Approximately 82 g, 2.9 oz

Count on us!

