ICOM

ADVANCED INSTRUCTIONS

UHF TRANSCEIVER

ID-31A
ID-31E

Icom Inc.

INTRODUCTION

About this Advanced Instructions (PDF format)

These Advanced Instructions describe the details of the ID-31A/E's features. And, this PDF formatted manual provides you with convenient functions, as follows.

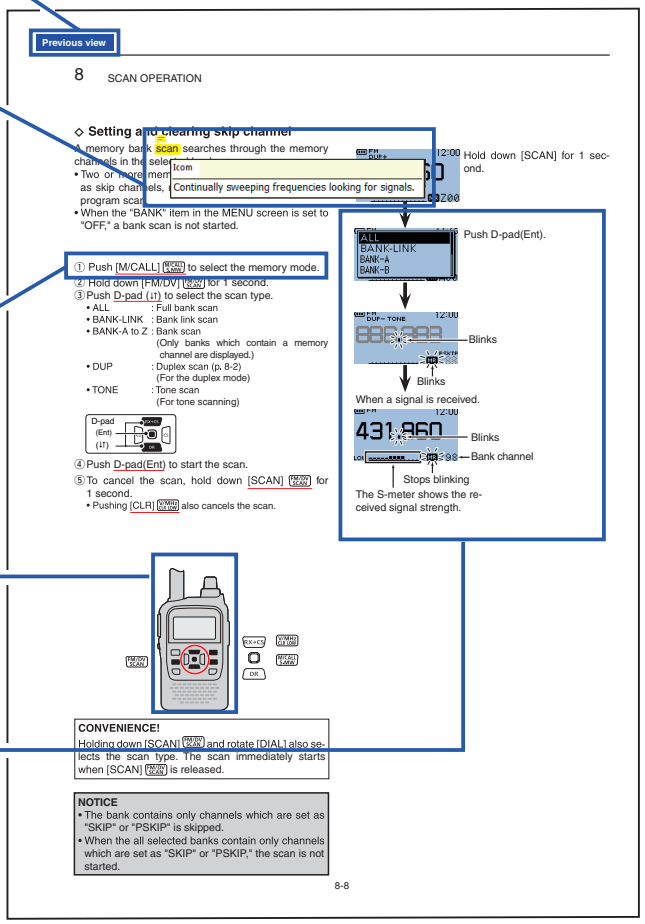
Move to the previously read page.
Click [Previous view] at the left top on an each page, to move back to the previously read page.

Shows a term description
When the mouse cursor is moved over a term which is highlighted in yellow, the description of term is displayed.

Shows the location of keys
When the cursor is moved over a term with a red underline, a red circle appears around the appropriate key(s) on the figure of transceiver.

Example: When the cursor is moved over "D-pad(↓↑)" in the description, a red circle appears around the appropriate key(s).

The screen shots at the right column, correspond to the operating instructions and procedures shows both setting and operating example.

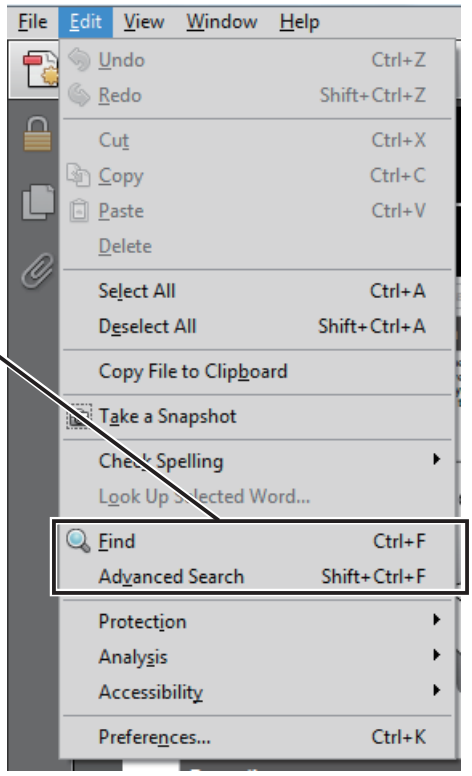


Functions and features of Adobe® Reader®

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

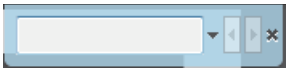
• **Keyword search**

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® Reader® version.

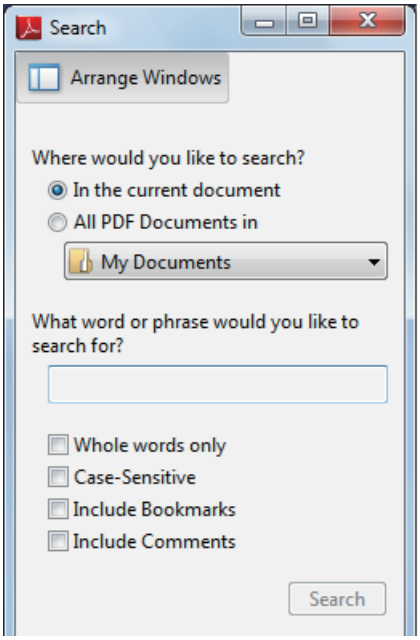


Click to open the find or search screen or advanced search screen.

• Find screen



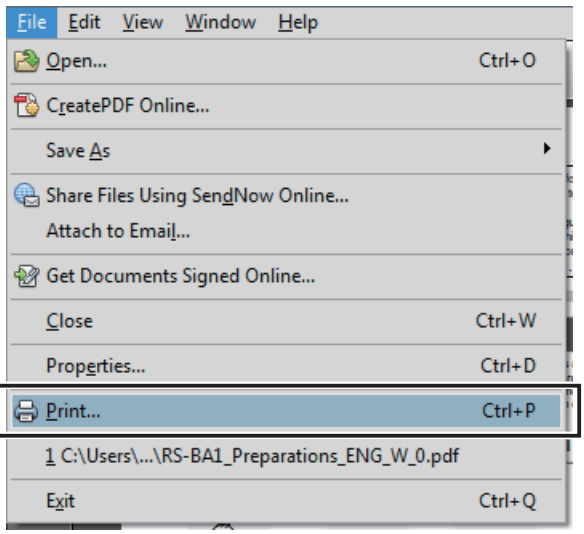
• Advanced search screen



• **Printing out the desired pages.**

Click “Print (P)” in File menu, and then select the paper size and number of copies you want to print.
*The printing setup may differ, depending on the printer. Refer to your printer’s instruction manual for details.
*Select "A4" size to print out the page in the equalized size.

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

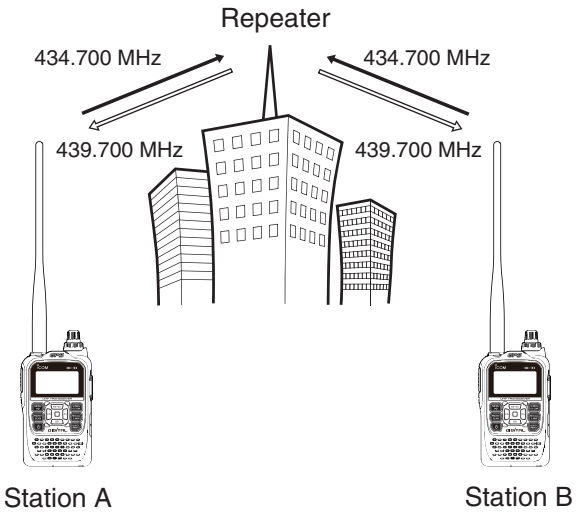


Click to open the printing setup screen.

REPEATER AND DUPLEX OPERATIONS Section 1

■ FM Repeater operation

A repeater receives transmitted signals and retransmits them on a different frequency. The transmit frequency is shifted from the receive frequency by a preset frequency offset.
In duplex operation, the transceiver's frequency offset is set to the same as that of the repeater. (p. 10-12)



◇ Repeater frequency setting

① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Push [FM/DV] (FM/DV SCAN) several times to select the FM mode.
③ Rotate [DIAL] to set the receive frequency (repeater output frequency).
- The frequency changes according to the preset tuning steps. See the page 23 on the printed manual for details.

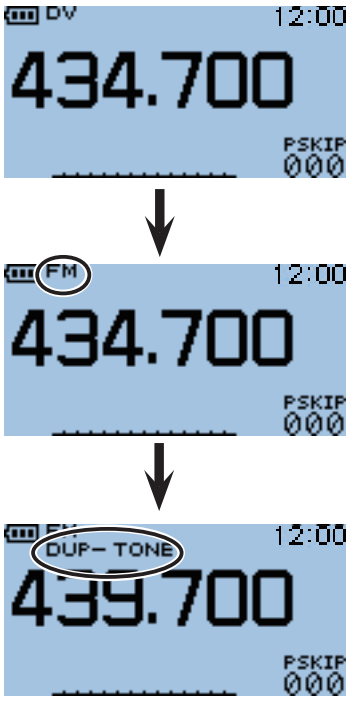
Only USA and Korean versions have an Auto Repeater function:
When the function is turned ON, steps ④ and ⑤ are not necessary.*
(Default for USA version : ON (DUP))
(Default for Korean version : ON)
The Auto Repeater function can be turned OFF in "Auto Repeater" on the MENU screen.
(MENU > Function > **Auto Repeater**)
See page 10-52 for details.

④ Set the duplex offset direction. (p. 1-5)
- "DUP–" or "DUP+" appears.

⑤ Turn ON the repeater tone. (See page 30 on the printed manual.)
- "TONE" appears.
- The tone frequency can be set in the "REPEATER TONE" screen. 88.5 Hz is set by default. (p. 10-12)

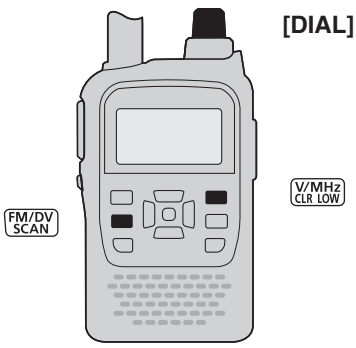
⑥ Communicate in the normal way.

*For USA version, the Auto repeater function turns ON the duplex operation only. To turn ON the repeater tone, you should manually set as step ⑤, or select "ON (DUP, TONE)" in "Auto Repeater" on the MENU screen. (p. 10-52)



✓ *Information*

The frequency offset (amount of shift) and the repeater tone frequency are set in "Offset Freq" and "Repeater Tone" of the MENU screen. (p. 10-12)
(MENU > DUP/TONE... > **Repeater Tone**)
(MENU > DUP/TONE... > **Offset Freq**)

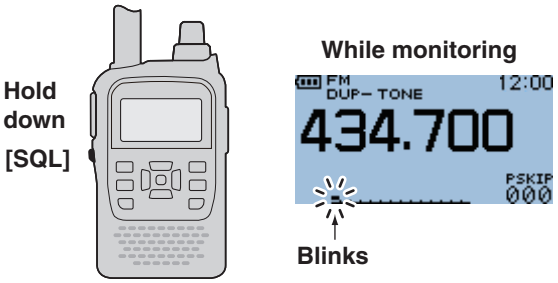


NOTE:
- The Auto repeater function uses the preset repeater tone frequency and frequency offset. Depending on the frequency offset value, the off band indication, "OFF," appears on the display when [PTT] is pushed, and transmit is inhibited. (p. 1-5)
- See section 3 for details on accessing a D-STAR® repeater.

◇ Checking the repeater input signal

You can check whether the other station's transmit signal can be received directly or not, by listening on the repeater input frequency.

➥ Hold down [SQL] to listen on the repeater input frequency.
- While monitoring, the TX/RX indicator lights green, and an S/RF meter dot blinks.
- While monitoring, the displayed frequency automatically changes to the transmit frequency (repeater input frequency).
- When the other station's signal can be directly received, move to a non-repeater frequency and use simplex. (duplex OFF)



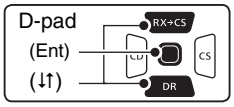
■ Duplex operation

The Duplex operation shifts the transmit frequency up or down from the receive frequency by an offset amount.

◇ Setting the frequency offset

① Push [MENU] (MENU).

② Push D-pad(↓↑) to select the root item ("DUP/TONE..."), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select the "Offset Freq," and then push D-pad(Ent).

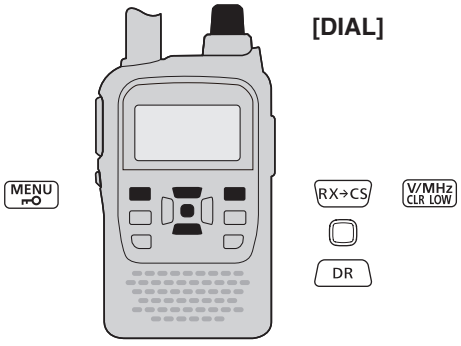
④ Rotate [DIAL] to set the frequency offset to between 0.000.00 and 59.995.00 MHz, and then push D-pad(Ent). (Setting example: 5.000.00)

- The selected tuning step in the VFO mode is used when setting the offset frequency.
- Pushing [V/MHz] (V/MHz CLR LOW) toggles the tuning digit, as shown below.

→TS*→1 MHz→10 MHz→

*The frequency changes according to the preset tuning steps. See page 23 on the printed manual for details.

⑤ Push [MENU] (MENU) to exit the [MENU] screen.

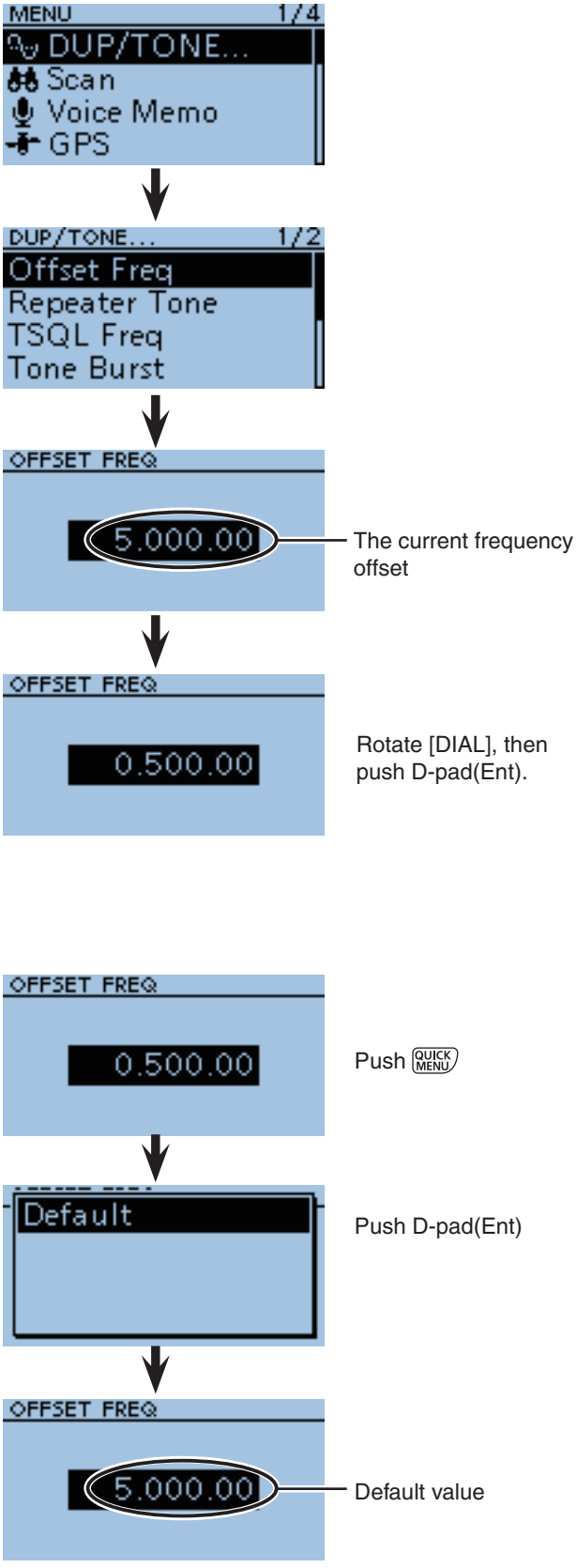


To reset to the default value.

Push (QUICK MENU) in step ④ as described above, then push D-pad(Ent) to reset to the default value.

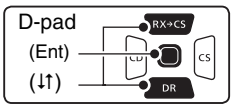
NOTE:

- The frequency offset cannot be changed in the DR mode.
- The Auto repeater function uses the preset frequency offset. Depending on the frequency offset value, the off band indication, "OFF," appears on the display when [PTT] is pushed. (p. 1-5)

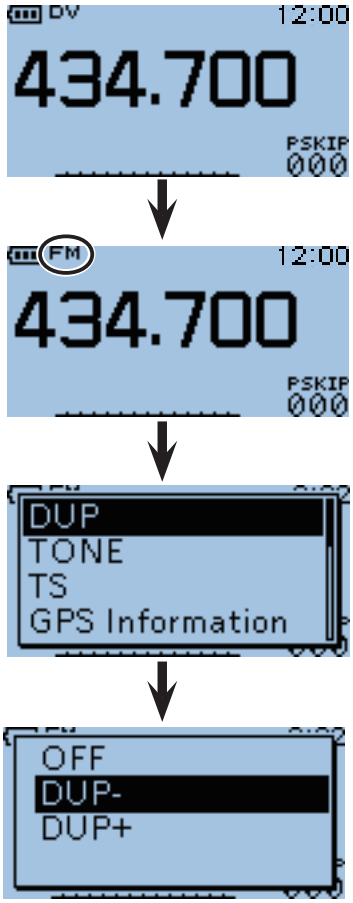


◇ Setting the duplex direction

① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Push [FM/DV] (FM/DV SCAN) several times to select the FM mode.
③ Rotate [DIAL] to set the operating frequency.
④ Push (QUICK MENU).
⑤ Push D-pad(↑) to select "DUP," and then push D-pad(Ent).

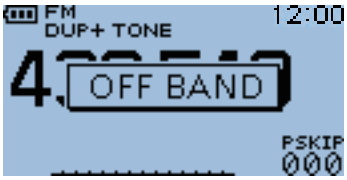


⑥ Push D-pad(↓↑) to select "DUP–" (negative offset) or "DUP+" (positive offset), and then push D-pad(Ent).
- OFF : For simplex operation (the receive and transmit frequencies are the same).
- –DUP : The transmit frequency shifts down from the receive frequency by the offset amount.
- +DUP : The transmit frequency shifts up from the receive frequency by the offset amount



■ Off band indication

If the transmit frequency is out of the amateur band, the off band indication, "OFF," appears on the display when [PTT] is pushed. Check the frequency offset (p. 1-4) or duplex direction (see above) in this case.



■ Auto repeater function

When the operating frequency falls within the repeater output frequency range, the Auto Repeater function can automatically sets the repeater settings (duplex ON/OFF, duplex direction, tone encoder ON/OFF).
The Auto repeater function uses the preset repeater tone frequency and frequency offset. See page 10-2 for details of the setting.

◇ Frequency range and offset direction

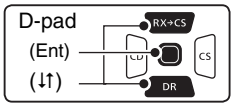
• U.S.A. version

FREQUENCY RANGE	SHIFT DIRECTION
442.000–444.995 MHz	"DUP+" is set
447.000–449.995 MHz	"DUP–" is set

• Korean version

FREQUENCY RANGE	SHIFT DIRECTION
439.000–440.000 MHz	"DUP–" is set

① Push D-pad(↓↑) to select the root item ("Function"), and then push D-pad(Ent).



② Push D-pad(↓↑) to select "Auto Repeater," and then push D-pad(Ent).

③ Rotate [DIAL] to select the Auto repeater setting.

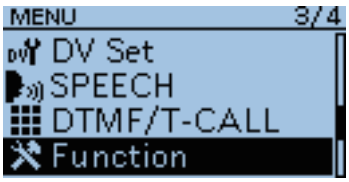
U.S.A. version:

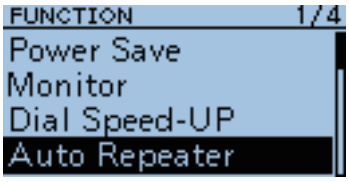
- OFF : The Auto repeater function is OFF.
- ON (DUP) : Turns ON only the duplex operation. (Default)
- ON (DUP, TONE) : Turns ON the duplex operation and tone encoder

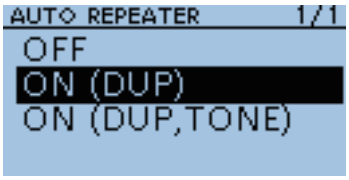
Korean version:

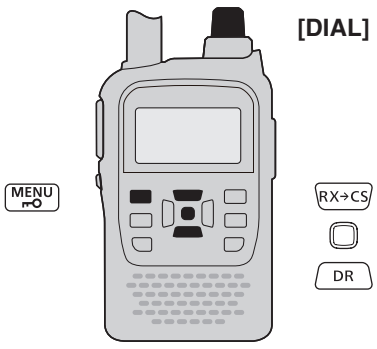
- OFF : The Auto repeater function is OFF.
- ON : Turns ON the duplex operation and tone encoder. (Default)

④ Push [MENU] (MENU) to save and exit the [MENU] screen.









NOTE:
When turned ON, the Auto repeater function uses the preset repeater tone frequency and frequency offset. See page 10-2 for details of the setting.

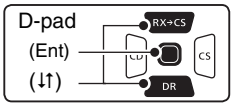
For the U.S.A. and Korean versions:
When turned ON, the Auto repeater function has priority over the manual duplex setting. If the transmit frequency changes after setting, the Auto repeater function may have changed the duplex setting.

■ 1750 Hz tone

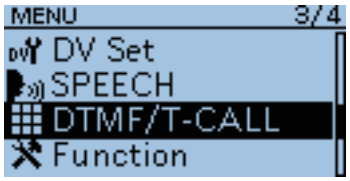
To access most European repeaters, the transceiver must transmit a 1750 Hz tone. For such European repeaters, perform the following.
• This tone can also be used as a 'Call signal.'

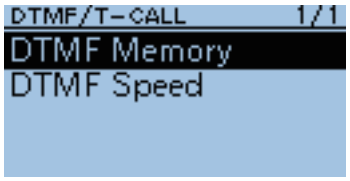
For only the ID-31E:
Push [PTT] briefly, then hold down [PTT] to transmit a 1750 Hz tone burst signal.

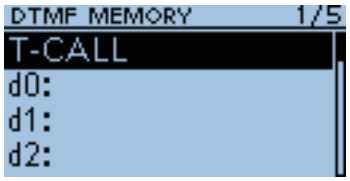
① Push D-pad(↓↑) to select the root item ("DTMF/T-CALL"), and then push D-pad(Ent).

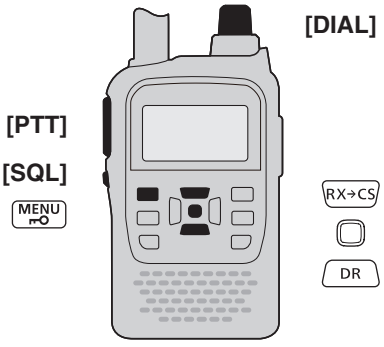


② Push D-pad(↓↑) to select "DTMF Memory," and then push D-pad(Ent).
③ Rotate [DIAL] to select "T-CALL," and then push D-pad(Ent) to set.
④ Push [MENU] (MENU) to exit the MENU screen.
⑤ Rotate [DIAL] to set the receive frequency (repeater output frequency).
⑥ Set the duplex offset direction. (p. 1-5)
• "DUP–" or "DUP+" appears.
⑦ While holding down [PTT], push [SQL] to transmit a 1750 Hz tone signal.
• If "OFF BAND" appears, check the offset frequency or shift direction. (pp. 1-4, 1-5)
• While transmitting, the displayed frequency automatically changes to the transmit frequency (repeater input frequency).
⑧ Hold down [SQL] to check whether the other station's transmit signal can be received directly or not, by listening on the repeater input frequency.
• While monitoring, the TX/RX indicator lights green, and the S/RF meter dot blinks.
• While monitoring, the displayed frequency automatically changes to the transmit frequency (repeater input frequency).
• If you can hear the other station, you may want to change to the Simplex mode and contact directly.
⑨ Push [PTT] to transmit.
⑩ Release [PTT] to receive.









DR MODE <PREPARATION> Section 2

To begin the digital mode communication except for the DR mode

To begin the digital mode communication except for the DR mode, you can use the VFO mode, Memory mode and Call channel mode.
This manual describes focusing on the DR mode operation which can be set up easily, and if you want to use other mode, see the procedures as described to the right.

For a Local area call or Gateway call:
① Set the access repeater’s frequency. (p. 23 on the printed manual)
② Set the frequency offset. (p. 1-4)
③ Set the Duplex direction. (p. 1-5)
④ Set the call signs. (p. 3-22)

For a Simplex call:
① Set the operating frequency.
② Set the call sign. (p. 3-21)

IMPORTANT!
- The repeater list, described in this manual, may differ from your transceiver’s preset contents.
- Although the Japanese repeaters are used in the setting examples, the Japanese repeater node (port) letters are different from other country’s.
  Be sure to add a repeater node letter as the 8th digit in the call sign field after a repeater call sign, according to the repeater frequency band, as shown below.
  1200 MHz : A (B in Japan)
  430 MHz : B (A in Japan)
  144 MHz : C (no D-STAR® repeaters in Japan)

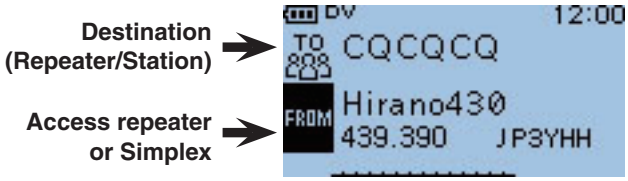
■ D-STAR® INTRODUCTION

- In the original D-STAR® (Digital Smart Technologies for Amateur Radio) plan, JARL envisioned a system of repeaters grouped together into Zones.
- The transceiver can be operated in the digital voice mode, including low-speed data operation, for both transmit and receive. It can also be connected to a GPS receiver* to transmit and receive position data.
  * Compatible with an RS-232 output/NMEA format/ 4800bps/9600 bps
- The transceiver has a Time-Out Timer function for digital repeater operation. The timer limits a continuous transmission to approximately 10 minutes. Warning beeps will sound approximately 30 seconds before time-out and then again immediately before time-out.

■ About the DR (D-STAR® Repeater) mode

The DR (D-STAR® Repeater) mode is one mode you can use for D-STAR® repeater operation. In this mode, you can select the preprogrammed repeater or frequency in “FROM” (the access repeater or simplex), and UR call sign in “TO” (destination), as shown to the right.

NOTE: If the repeater, set to “FROM” (Access Repeater) has no Gateway call sign, you cannot make a gateway call.

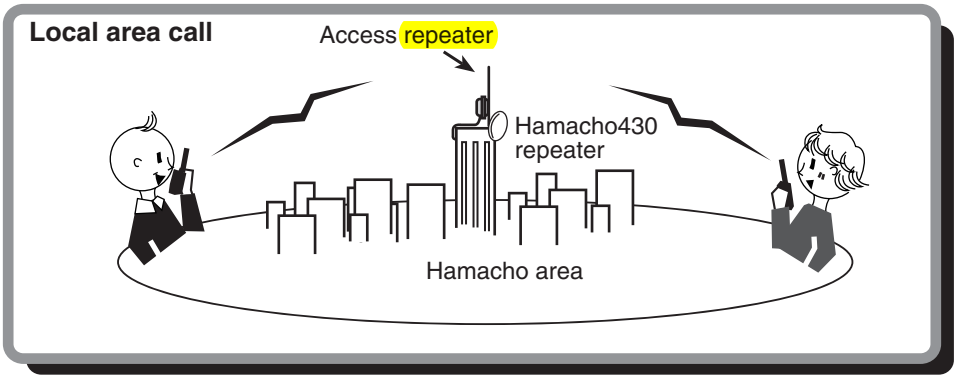


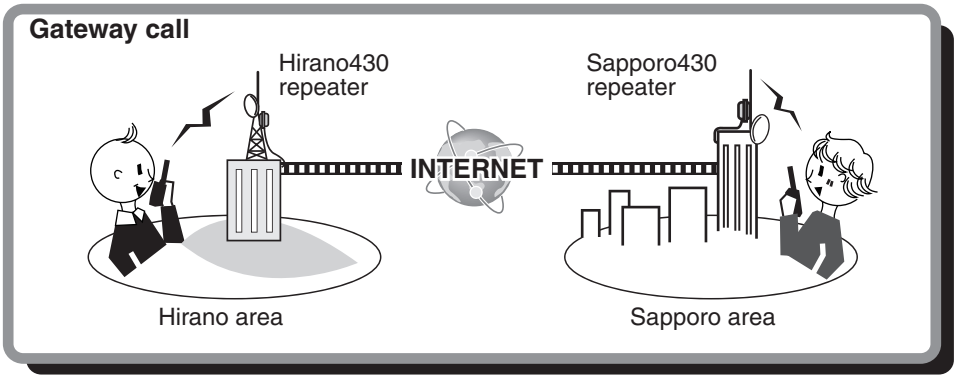
In the DR mode

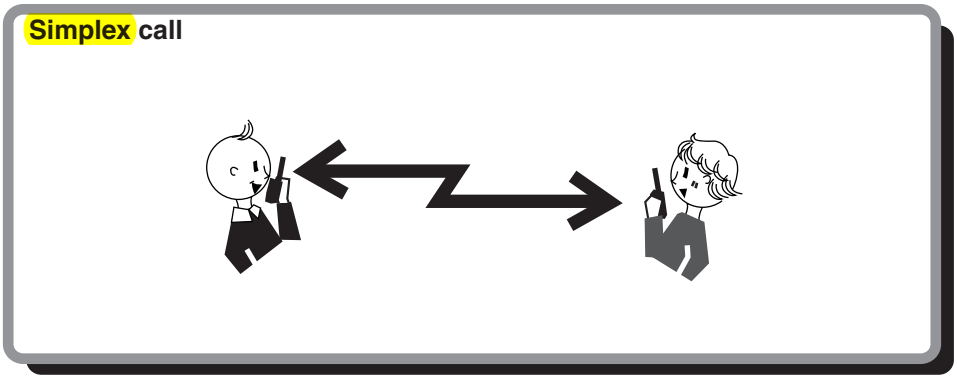
■ Communication Form

In the DR mode, the transceiver has three communication forms as shown below.

- Local area call: To call a station through your local area (access) repeater.
- Gateway call : To call through your local area (access) repeater, repeater gateway, and the internet to your destination repeater or individual station's last used repeater, using call sign routing.
- Simplex call : To call a station through no repeater.

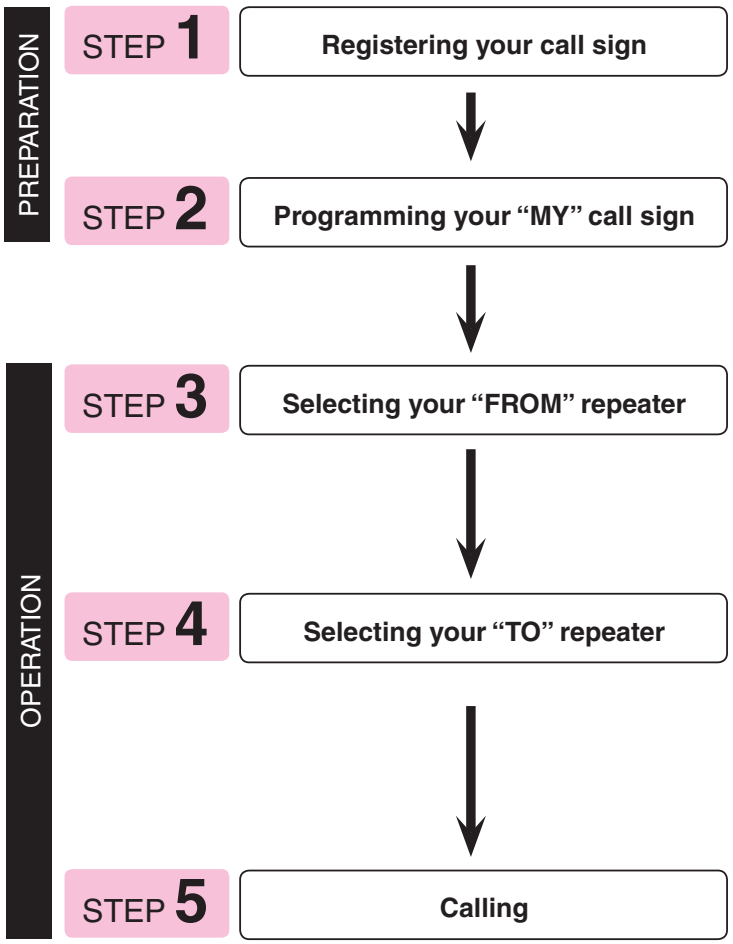






NOTE:
- Programming the repeater list is required for DR mode operation. (pp. 4-21 to 4-28)
- You cannot make an Internet contact if your access repeater has no gateway.
- Before operating in the DV mode, be sure to check whether the repeater is busy, or not. If the repeater is busy, wait until it is clear, or ask for a "break" using a method acceptable to your local procedures.

■ DR mode operation flow chart



To use a repeater gateway, you must register your call sign with a gateway repeater, usually one near your home location.
Ask your nearest repeater's administrator for details.

Your own call sign must be programmed for both digital voice and low-speed data communications, including GPS transmission.

For Local area calls or Gateway calls, select your access repeater.
For Simplex calls, select a preset frequency.

NOTE: If the repeater has no Gateway call sign, you cannot make a gateway call.

Select the destination repeater or the destination call sign.

For a Simplex call (p. 3-20)
For a Local area call (p. 3-2)
For a Gateway call (p. 3-3)

Push [PTT] to transmit.

◇ About Sections 3 and 4

In sections 3 [DR mode <Basic>], and 4 [DR mode <Advance>], the following themes are described.
Convenient information and settings for using D-STAR® are described on each item.
Click the title as shown below to jump to the detail page.

Reply to a call	Describes how to quickly and easily reply to a call. (p. 3-4)
Other settings	Describes convenient functions (pp. 4-10 to 4-18) (e.g. Auto reply function, Speech function, Low-speed data communication, and so on)
Repeater list information	Describes the preset repeater list information (p. 4-39)
Repeater programming	Describes how to program new repeater information (pp. 4-21 to 4-28)
Troubleshooting	Describes troubleshooting in using D-STAR® (See 'TROUBLESHOOTING')

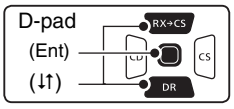
■ “MY” (Your own call sign) programming

Your own call sign must be programmed for both digital voice and low-speed data communications (including GPS transmission).

You can store up to 6 “MY” call signs, [MY1]–[MY6].
If necessary, enter a note of up to 4 characters, such as the model of the transceiver, name, area indication, and so on, after your call sign.

Example: Program “JA3YUA/ID31” into the call sign memory channel [MY1].

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“My Station”), and then push D-pad(Ent).



③ Push D-pad(↑) to select “My Call Sign,” and then push D-pad(Ent).
④ Push D-pad(↑) to select the call sign memory channel “1” ([MY1]).
⑤ Push (QUICK MENU).
⑥ Push D-pad(↑) to select “Edit.”
⑦ Push D-pad(Ent) to enter the call sign programming mode.
- A cursor appears and blinks.

⑧ Rotate [DIAL] to select the first digit. (Example: J)
- A to Z, 0 to 9, / and (Space) can be selected.
- If you make a mistake, push [CLR] (V/MHz CLR LOW) to delete the selected character, symbol or number.
- Push D-pad(→) to enter a space.
- Push D-pad(⇆) to move the cursor backward or forward.

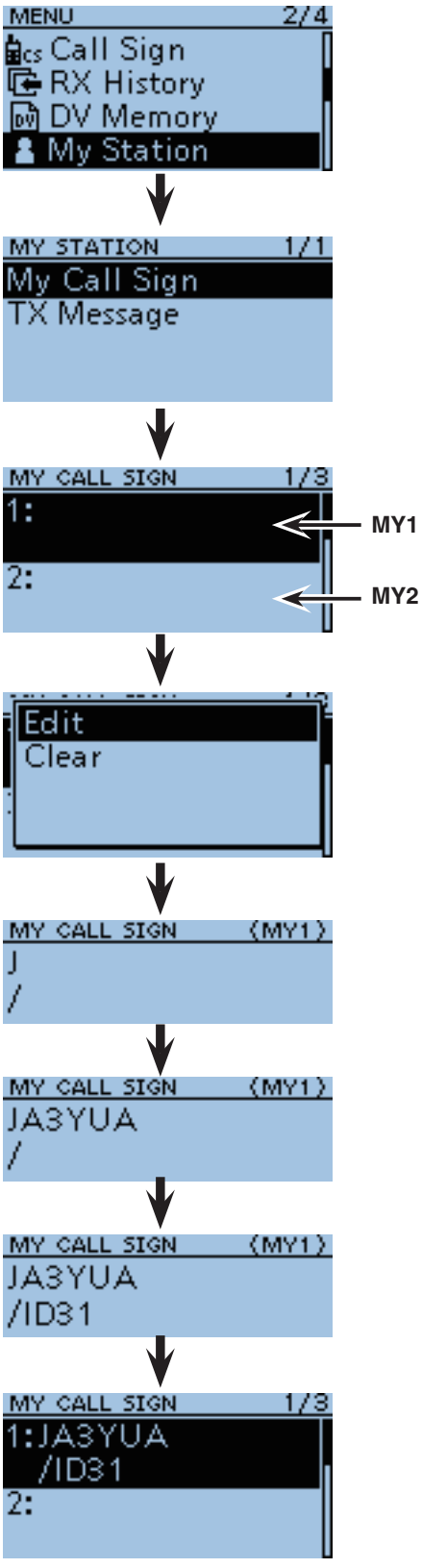
⑨ Push D-pad(→) to move the cursor to second digit.
⑩ Repeat steps ⑧ and ⑨ to enter your own call sign of up to 8 characters, including spaces.
(For example: First, J, then A, then 3, then Y, then U, then A)

To program a note (up to 4 characters, for operating radio type, area, and so on.), go to step ⑪, otherwise go to step ⑬.

⑪ Push D-pad(→) several times to move the cursor to the right of “/”.
⑫ Repeat steps ⑧ and ⑨ to program the desired 4 character note.
(Example: ID31)
⑬ Push D-pad(Ent) to set the programmed call sign and note.
⑭ Push D-pad(Ent) again to save and return to the MY CALL SIGN screen.
- Two beeps sound.

⑮ Push [MENU] (MENU) to exit the MENU screen.

NOTE: If you have some D-STAR® transceiver, ask your gateway repeater administrator for details.



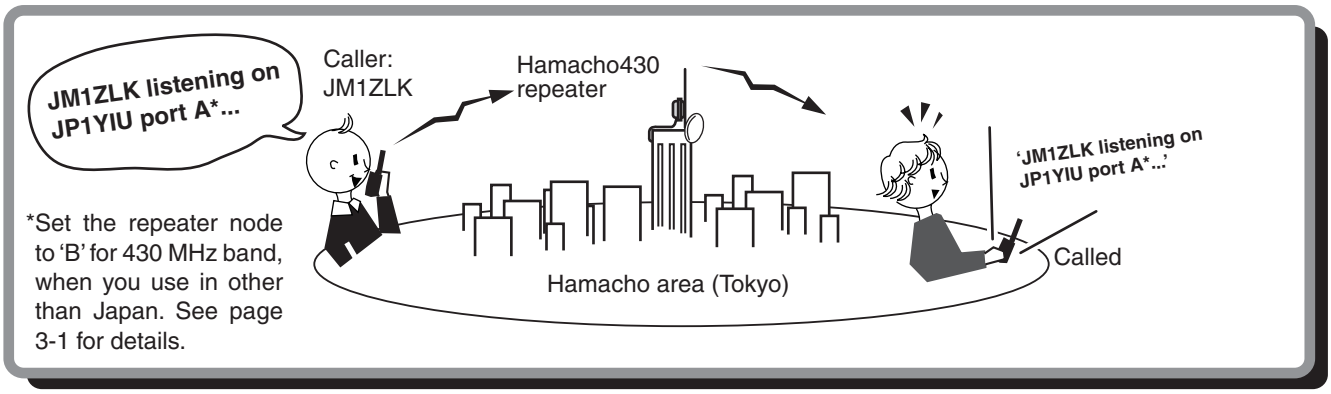
DR MODE <BASIC> Section 3

IMPORTANT!

- The repeater list, described in this manual, may differ from your transceiver's preset contents.
- Although the Japanese repeaters are used in the setting examples, the Japanese repeater node (port) letters are different from other country's.
  Be sure to add a repeater node letter as the 8th digit in the call sign field after a repeater call sign, according to the repeater frequency band, as shown below.
  1200 MHz : A (B in Japan)
  430 MHz : B (A in Japan)
  144 MHz : C (no D-STAR® repeaters in Japan)

■ Making a Local area call

To call a station through your local area (access) repeater.



◇ Making a CQ call through your local area (access) repeater (Local Area CQ)

This section describes how to make a call through your local area (access) repeater.

Example: Making a local CQ call by accessing the "Hamacho430" repeater.

① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↓) to select "FROM" (Access repeater).

③ Rotate [DIAL] to select "Hamacho430."

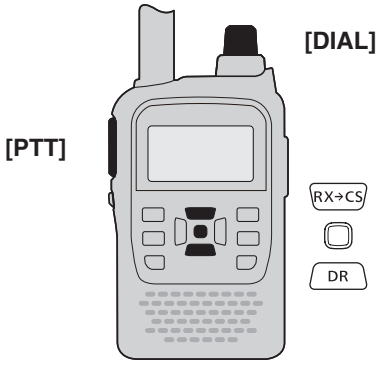
④ Push D-pad(↑) to select "TO" (Destination), and then push D-pad(Ent).

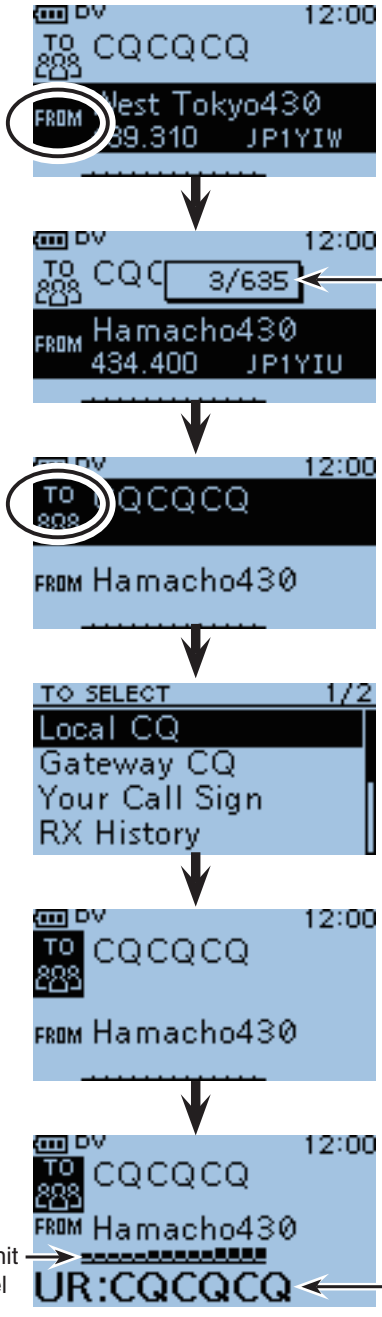
⑤ Push D-pad(↓↑) to select "Local CQ," and then push D-pad(Ent).
- "CQCQCQ" is displayed on "TO."

⑥ While holding down [PTT], speak into the microphone at your normal voice level.
- The TX/RX indicator lights red.
- The S/RF meter shows the transmit output power level.

⑦ Release [PTT] to receive.

To maximize the readability of your signal, hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at a normal voice level.





Means this repeater is programmed as the 3rd of 635 repeaters in the repeater list.

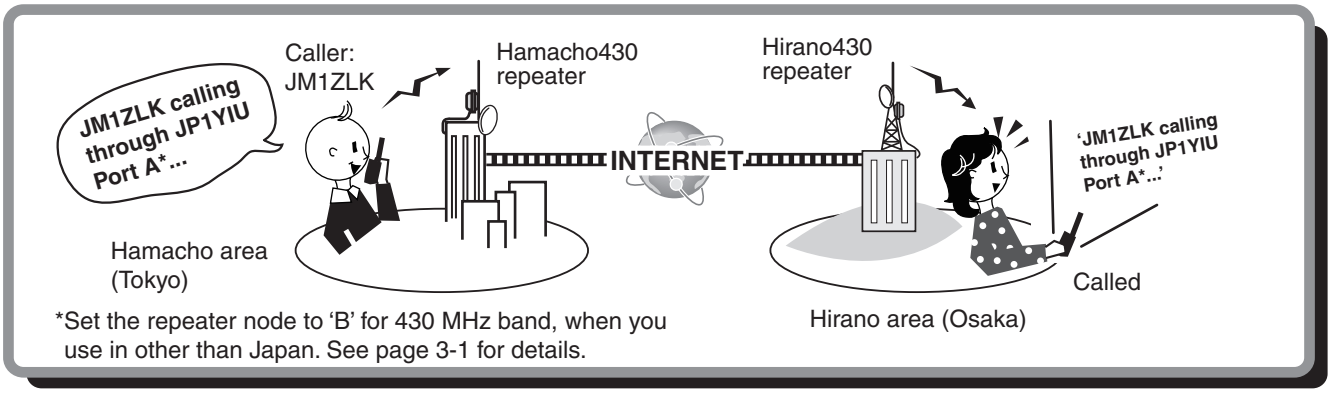
Settings are complete

Shows the transmit output power level

"CQCQCQ" selected in "TO" scrolls.

■ Making a Gateway call

To call a station through your local area (access) repeater, gateway repeater, the internet and then to your destination repeater.



*Set the repeater node to 'B' for 430 MHz band, when you use in other than Japan. See page 3-1 for details.

◇ Making a CQ call through a gateway repeater (Gateway CQ)

This section describes how to make a CQ call through a gateway repeater.

Example: Making a gateway CQ call to (Japan; Hirano430) from the "Hamacho430" repeater.

① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↓) to select "FROM."

③ Rotate [DIAL] to select "Hamacho430."

④ Push D-pad(↑) to select "TO," and then push D-pad(Ent).

⑤ Push D-pad(↓↑) to select "Gateway CQ," and then push D-pad(Ent).
- The REPEATER GROUP screen is displayed.

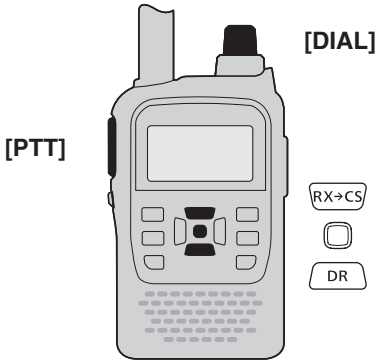
⑥ Push D-pad(↓↑) to select "11: Japan" (the repeater group where your destination repeater is listed), and then push D-pad(Ent).

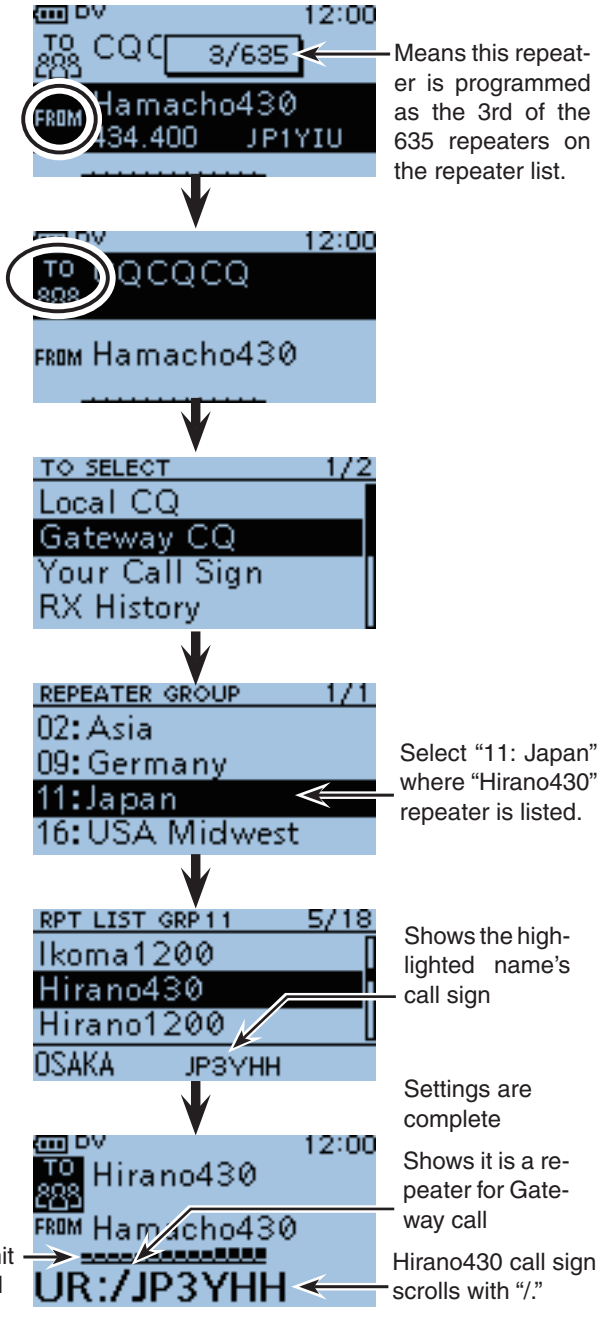
⑦ Push D-pad(↓↑) to select "Hirano430," and then push D-pad(Ent).
- "Hirano430" is displayed on "TO."

⑧ While holding down [PTT], speak into the microphone at your normal voice level.
- The TX/RX indicator lights red.
- The S/RF meter shows the transmit output power level.

⑨ Release [PTT] to receive.

To maximize the readability of your signal, hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at a normal voice level.

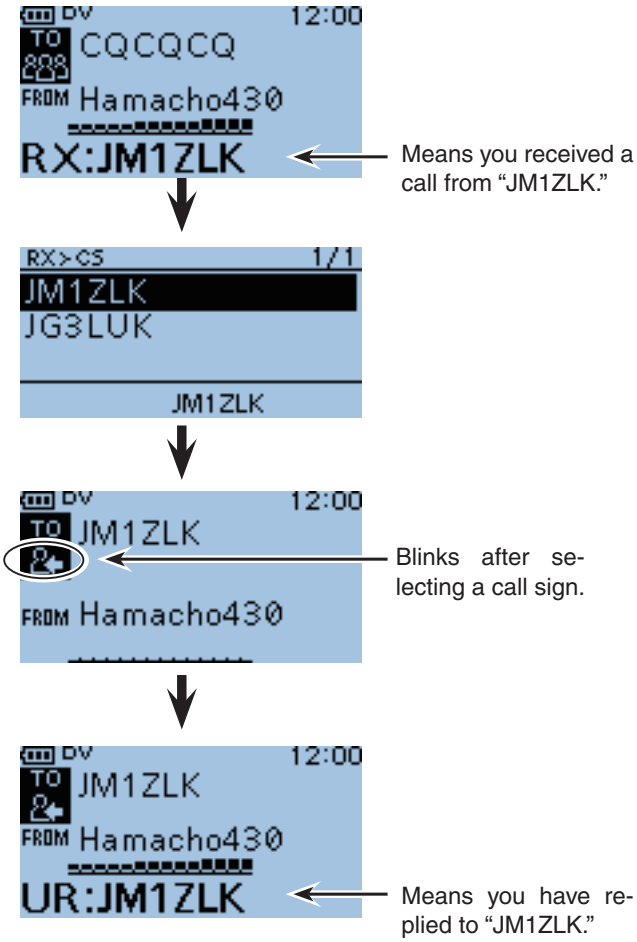




■ One-touch reply after receiving a call

The calling station's call sign can be used to quickly and easily reply.

Example: Replying to a call from "JM1ZLK."
After receiving a call, the LCD shows the calling station's call sign, as shown to the right.

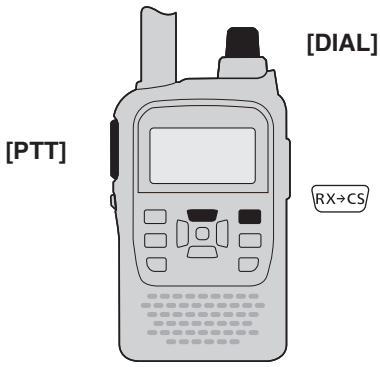


① While holding down [RX→CS], rotate [DIAL] to select a call sign to send a reply.
If you want to reply to the last calling station, hold down [RX→CS] for 1 second. (It is not necessary to rotate [DIAL].)
- After selecting, release [RX→CS], and then the selected station call sign is announced. (RX>CS Speech function*)
- When a call sign has not been received correctly, error beeps sound, and no call sign is set.
- After selecting a call sign, the arrow icon blinks on "TO."

② While holding down [PTT], speak into the microphone at your normal voice level.
- The TX/RX indicator lights red.
- The S/RF meter shows the transmit output power level.

③ Release [PTT] to receive.
- Push [CLR] (V/MHz CLR LOW) to return to the previous screen. (The arrow icon on "TO" disappears.)

*The RX>CS Speech function can be turned OFF in "RX>CS SPEECH" on the MENU screen. (p. 10-49)
(MENU > SPEECH > **RX>CS SPEECH**)



NOTE:
The call sign, used for the One-touch reply function, is only for temporary operation, and if another call sign is set, the previous call sign will be cleared.
To store the set call sign into the Your call sign memory, follow the procedures on pages 3-5 and 3-6.

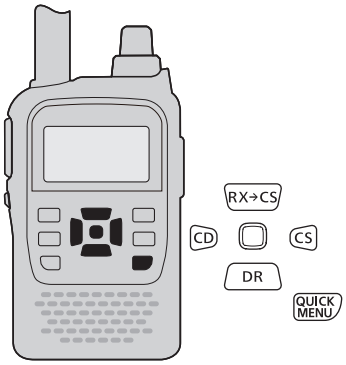
■ "UR" (Destination call sign) programming using the RX History

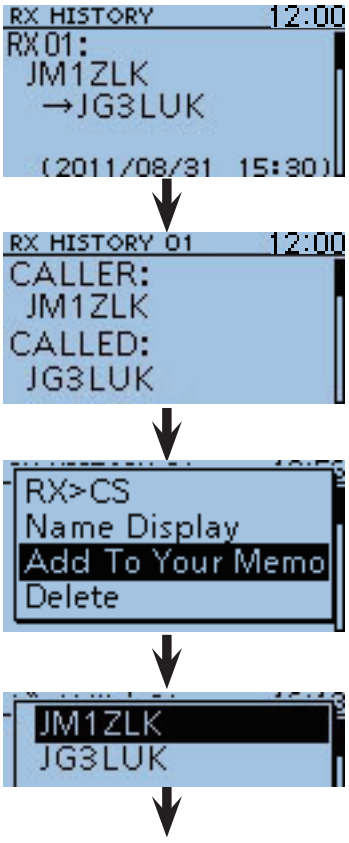
A destination call sign must be programmed to a specific individual station or a repeater, for both digital voice and low-speed data communications.
Up to 200 call signs can be stored.

• RX History
When a call is received in the DV mode, the calling station and repeater call signs being used can be stored in the received call record. Up to 40 calls can be stored.

Example: Programming "JM1ZLK" and "TOM" into Your Memory using the RX History.

① Hold down [CD] for 1 second.
  • The RX HISTORY screen is displayed.
② Push D-pad(↓↑) to select "RX01."
③ Push [CS] to display CALLER/CALLED, and then push [QUICK MENU].
④ Push D-pad(↓↑) to select "Add To Your Memory."
⑤ Push D-pad(Ent).
⑥ Push D-pad(↓↑) to select "JM1ZLK," and then push D-pad(Ent).





RX HISTORY screen is displayed

This screen shows you receive the signal that "JM1ZLK" send to "JG3LUK."

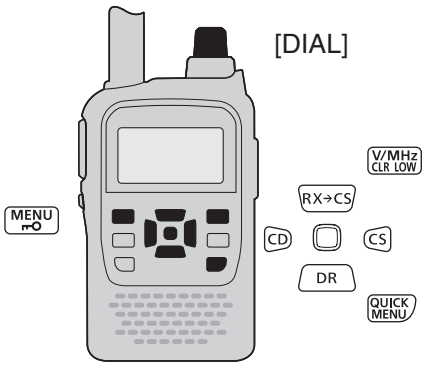
The display changes to the YOUR CALL SIGN EDIT screen.

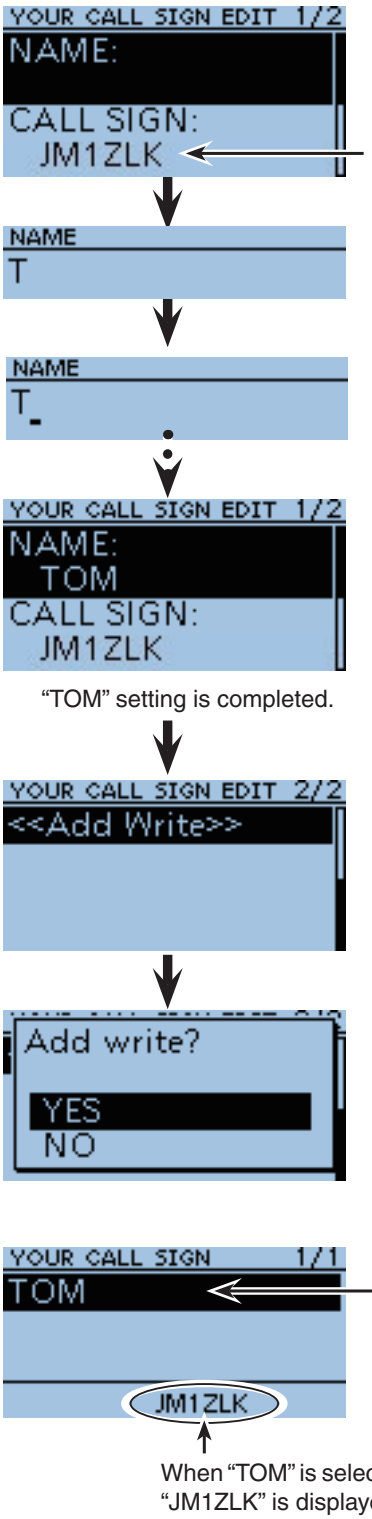
☞ Continued on the next page.

■ “UR” (Destination call sign) programming (Continued)

⑦ Push D-pad(↓↑) to select “NAME,” and then push D-pad(Ent).
⑧ Rotate [DIAL] to select a desired character.
(For example: T)
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push [QUICK MENU] to change the character to a upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.
- A space can be selected, even for any input mode selected.
- Push [CLR][V/MHz CLR LOW] to erase the selected character, or hold down [CLR][V/MHz CLR LOW] to continuously erase the characters after the cursor.
- See page 4-2 for programming details.

⑨ Push D-pad(→) to move the cursor to the second digit.
⑩ Repeat steps ⑧ and ⑨ to enter a name of up to 16 characters, including spaces.
(For example: First, T, then O, then M.)
⑪ After entering the name, push D-pad(Ent).
⑫ Push D-pad(↓↑) to select “<<Add Write>>,” and then push D-pad(Ent).
⑬ Push D-pad(↓↑) to select “YES,” and then push D-pad(Ent).
⑭ Push [MENU][MENU] to exit the [RX HISTORY] screen.

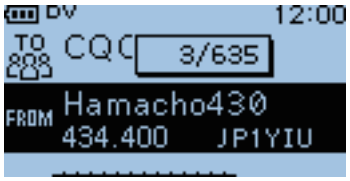




■ "FROM" (Access repeater) setting

Your access repeater must be set to "FROM" when you transmit a call in the DR mode.
You have five ways to set the access repeater.
Click the title shown below to jump to the specified page.

1: Using [DIAL] (p. 3-2)
Select the repeater preloaded in your transceiver by rotating [DIAL].*



When using [DIAL]

When you know your access repeater

2: From the repeater list (p. 3-8)
Select the repeater preloaded in your transceiver's repeater list.*

When you don't know which repeater you can access.

3: Search for the nearest repeater (p. 3-9)
The transceiver searches the nearest repeater by using your own and repeater's position data.

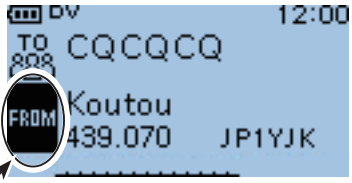
[FROM SELECT] screen

When the "FROM" data is stored in the TX History.

4: Setting from the TX History (p. 3-11)
When you transmit a call in the DR mode, "FROM" (the access repeater) data is stored in the TX History.
You can select the access repeater from the record.

When you don't know which repeater you can access.

5: Search for a repeater using the DR mode scan (p. 3-12)
Searches for DV signals from a repeater or a simplex frequency.

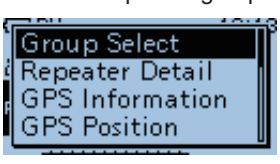


Blinks While DR mode scanning

* Before selecting, be sure to load the desired repeater list in your transceiver. (p. 12-9)

How to switch the repeater group:

➥ While in the DR mode, push QUICK MENU to display the quick menu. Then push D-pad(↓↑) to select [Group Select].
• You can switch the repeater group using D-pad(↓↑)



■ “FROM” (Access repeater) setting (Continued)

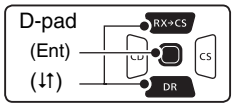
◇ “FROM” (Access repeater) setting using the preloaded repeater list

For easy operation, the repeater list is preloaded into your transceiver.

Example: Select the “Hirano430” repeater in Japan from preset repeater list.

①Hold down [DR] for 1 second.
- The DR mode is selected.

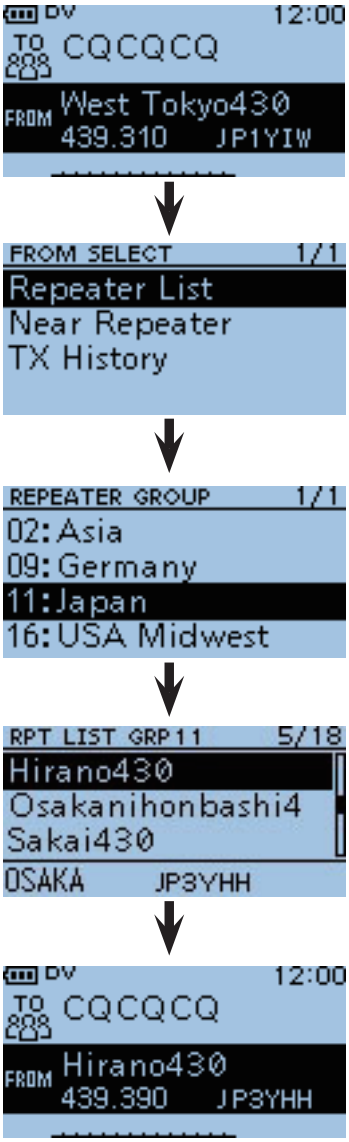
②Push D-pad(↓) to select “FROM,” and then push D-pad(Ent).



④Push D-pad(↓↑) to select “Repeater List,” and then push D-pad(Ent).

⑥Push D-pad(↓↑) to select “11: Japan,” and then push D-pad(Ent).

⑦Push D-pad(↓↑) to select “Hirano430,” and then push D-pad(Ent).
- “Hirano430” is displayed in “FROM.”



“Hirano430” setting is completed.

◇ "FROM" (Access repeater) setting using the Repeater Search function

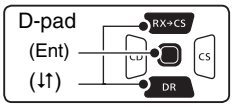
The transceiver searches for the nearest repeater by using your own and repeater's position data.

Example: Select the "Hirano430" repeater that is the top search result.

1. Receiving your own position data from the GPS receiver

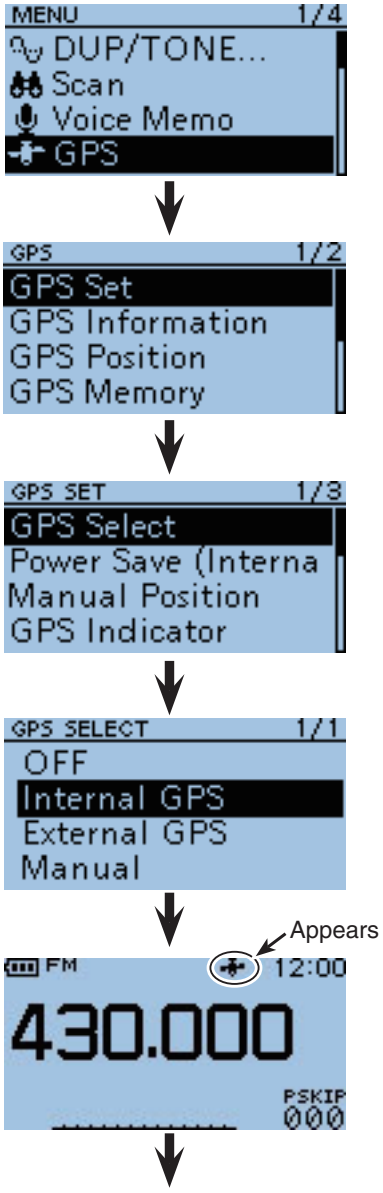
When it is difficult to receive signals indoors, even if you are near a window, try going outdoors for better reception.

① Push [MENU] (MENU).
② To display the GPS SELECT screen, push D-pad(↓↑) to select the root item ("GPS"), and then push D-pad(Ent) to go to the next level.



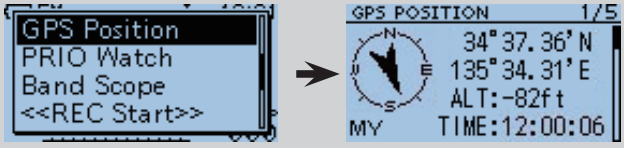
③ Repeat step ② until the desired item is selected.
④ Push D-pad(↓↑) to select "Internal GPS."
• The transceiver starts to receive your position data.
⑤ Push [MENU] (MENU) to save and exit the MENU screen.
• When invalid data is received, the GPS indicator blinks, as shown below.

• The GPS indicator fully appears when valid position data is received.
• Depending on your environment, it may take time to receive position data.



☞ Continued on the next page.

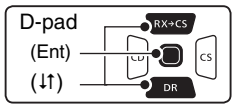
To display your position data:
① Push (QUICK MENU).
② Push D-pad(↓↑) to select "GPS Position," and then push D-pad(Ent).
• Your position data is displayed on the GPS POSITION screen.
③ Push [CLR](V/MHz CLR LOW) to exit the GPS POSITION screen.



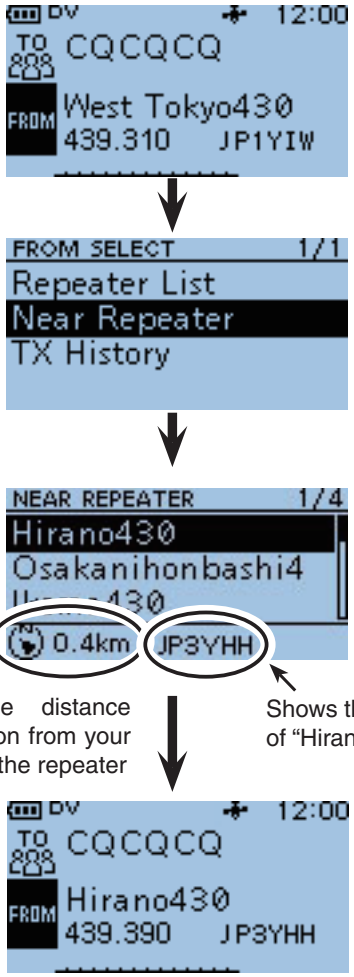
■ “FROM” (Access repeater) setting
◇ “FROM” (Access repeater) setting using the Repeater Search function (Continued)

2. Receiving your own position data from the GPS receiver

①Hold down [DR] for 1 second.
• The DR mode is selected.
②Push D-pad(↓) to select “FROM,” and then push D-pad(Ent).



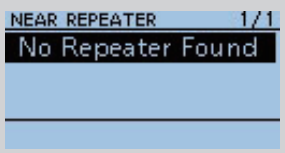
③Push D-pad(↓↑) to select “Near Repeater,” and then push D-pad(Ent).
• The Repeater Search function starts. Up to 10 of the nearest repeaters are displayed.
④Push D-pad(↓↑) to select “Hirano430,” and then push D-pad(Ent).
• “Hirano430” is displayed in “FROM.”



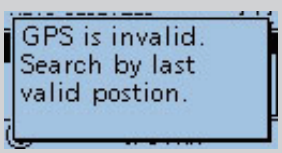
“Hirano430” setting is completed.

NOTE: When the position data accuracy level is set to “Approximate,” direction data is not displayed if the distance to the repeater is under 5 kilometers.

NOTE:
When using the Repeater Search function, be sure to first receive your own position data.
• If no repeater is found, screen 1, as shown to the right, will be displayed.
• If the last used repeater can be used, the screen 2 as shown to the right will be displayed.



Screen 1



Screen 2

◇ "FROM" (Access repeater) setting using the TX History

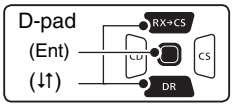
The TX History stores up to 10 "FROM" (Access repeater) repeaters used when you transmit a call in the DR mode.

NOTE: Only repeaters you transmitted to in the DR mode are stored in the TX History.

Example: Select the "Hirano430" repeater from the TX History.

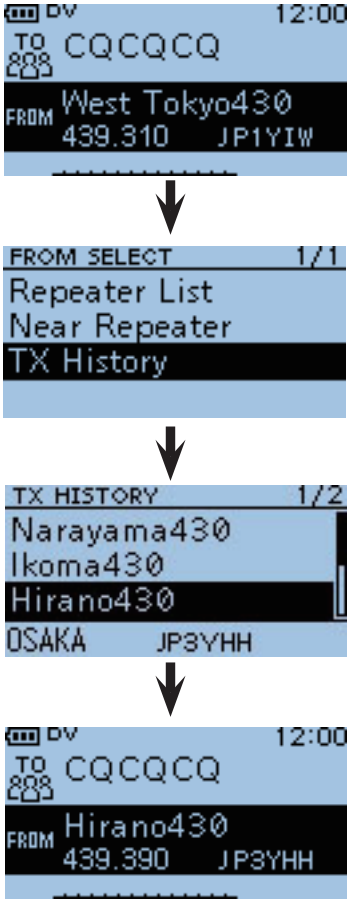
① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↓) to select "FROM," and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "TX History," and then push D-pad(Ent).

④ Push D-pad(↓↑) to select "Hirano430," and then push D-pad(Ent).
- "Hirano430" is displayed on "FROM."



"Hirano430" setting is completed.

✓ ***Information***

You can display detailed repeater information on the TX HISTORY screen, or delete it from there.

➥ Push [QUICK MENU] on the TX HISTORY screen, then push D-pad(↓↑) to select the desired repeater, and then push D-pad(Ent).

■ "FROM" (Access repeater) setting (Continued)

◇ "FROM" (Access repeater) setting using the DR mode scan

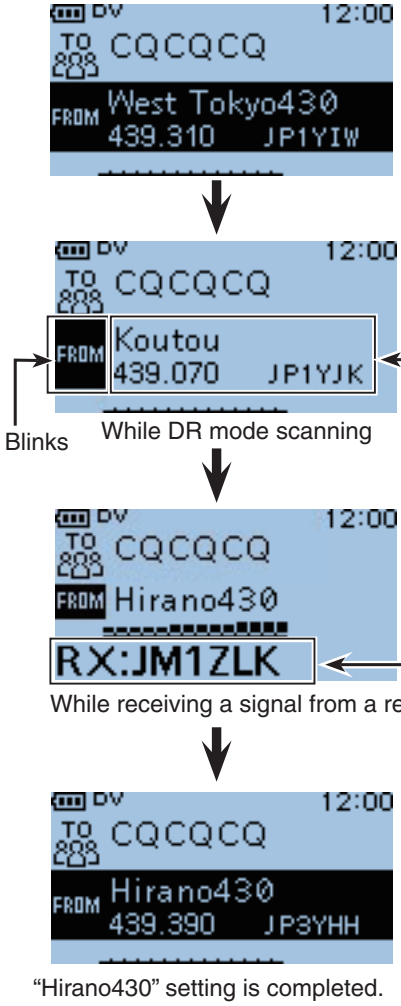
The DR mode scan is useful to find a repeater.
To quickly find a repeater, the DR mode scan skips repeaters that are not specified as an access repeater. ("USE (FROM)" setting is "NO" on the repeater list.)

Example: Select the "Hirano430" repeater using the DR mode scan

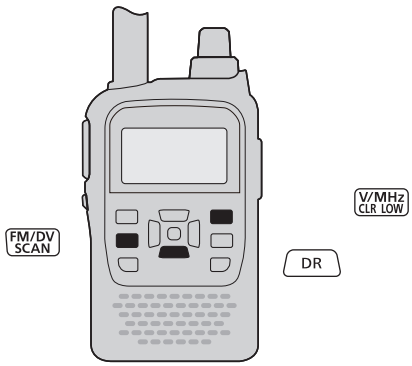
① Hold down [DR] for 1 second.
- The DR mode is selected.

② Hold down [SCAN] (FM/DV SCAN) to start the DR mode scan.
- The frequency decimal point and "FROM" blink while scanning.
- The repeaters in the repeater list are sequentially displayed.
- The scan pauses when a signal is received. The scan resumes the same as other scanning. (p. 10-14)

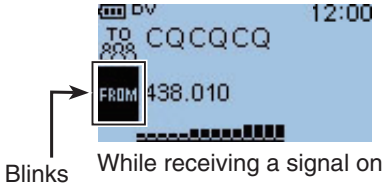
③ When the transceiver receives a signal from a repeater, and stops at "Hirano430," push [CLR] (V/MHz CLR LOW).
- The DR mode scan is cancelled.
- "Hirano430" is displayed on "FROM."



NOTE: You can skip certain repeaters from a scan target. You can also skip all repeaters in certain groups from a scan. See page 4-32 for details.



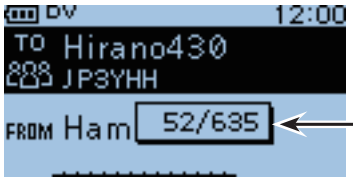
NOTE: The DR mode scan scans simplex frequencies if they are entered in the repeater list.



■ “TO” (Destination) setting

The destination repeater or station must be set to “TO” when you transmit a call in the DV mode.
You have eight ways to set the destination.
Click the title as shown below to jump to the specified page.

1: Using [DIAL]
Select the repeater or station preset in your transceiver by rotating [DIAL]. (Invalid when “CQCQCQ” is selected.)



When using [DIAL]

Means this repeater is programmed as the 52nd of the 635 repeaters in the repeater list.

To make a CQ call in your local area

2: “Local CQ” setting (p. 3-2)
Set “CQCQCQ” to “TO”

To make a CQ call to another area

3: “Gateway CQ” setting (p. 3-3)
Select a repeater from the repeater list.

To make a call to a specific station

4: “Your Call Sign” setting (p. 3-14)
Select the station call sign in the Your Call Sign memory.

When the destination data is stored in the RX History

5: Setting from the RX History (p. 3-15)
When you receive a call, the calling station data is stored in the RX History.
You can select the destination from the record.

When the destination data is stored in the TX History

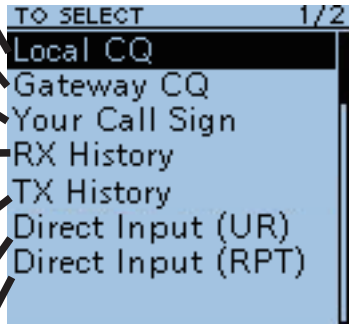
6: Setting from the TX History (p. 3-16)
When you transmit a call, the destination repeater or station data is stored in the TX History.
You can select the destination from the record.

To directly input the destination station call sign

7: Direct Input (UR) (p. 3-17)
Directly input the destination station call sign.

To directly input the destination repeater call sign

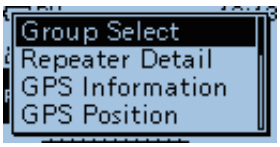
8: Direct Input (RPT) (p. 3-18)
Directly input the destination repeater call sign.



[TO SELECT] screen

How to change the repeater group:
When “Local CQ” or “Gateway CQ” is selected, you can change the repeater group.

➥ While in the DR mode, push QUICK MENU to display the quick menu, and then push D-pad(↓↑) to select [Group Select].
- You can change the repeater group using D-pad(↓↑)



■ “TO” (Destination) setting (Continued)

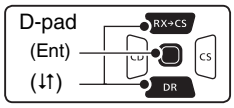
◇ “TO” (Destination) setting using the “Your Call Sign”

The “Your Call Sign” memory stores the programmed “UR” (destination) call sign.
When you select an individual station call sign for the “TO” (Destination) setting using “Your Call Sign,” a gateway call can be made.
When you call the destination through a gateway, the signal is automatically sent to the last repeater that the station accessed.
So, even if you don't know where the station is, you can make a call.

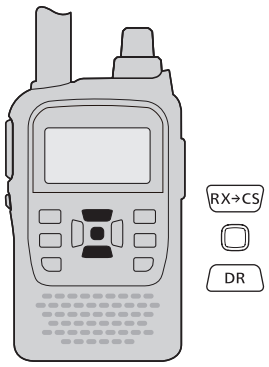
NOTE: If the repeater, set to “FROM” (Access Repeater) has no Gateway call sign, you cannot make a gateway call.

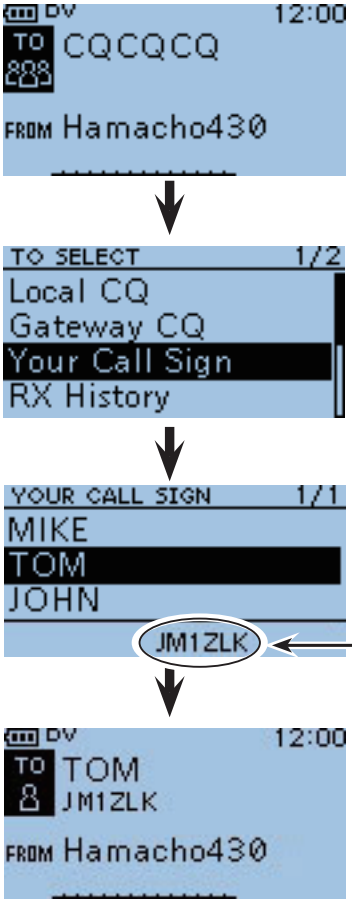
Example: Select “TOM” from the “Your Call Sign.”

① Hold down [DR] for 1 second.
• The DR mode is selected.
② Push D-pad(↑) to select “TO,” and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “Your Call Sign,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select “TOM,” and then push D-pad(Ent).
• “TOM” is displayed on “TO.”





The call sign of the selected station is displayed.

“TOM” setting is completed.

NOTE: After selecting a destination, you can select other stations in the UR field that are programmed in “Your Call Sign,” by rotating [DIAL].

◇ "TO" (Destination) setting using the RX History

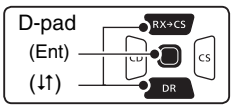
The RX History function stores the name and/or call sign of up to 40 CALLERs, and the only the last CALLED call sign that you received.

Even if there was no reply, the CALLED station call sign is also stored, and you can make a call to the CALLED station using RX History.

Example: Select "TOM" from RX History.

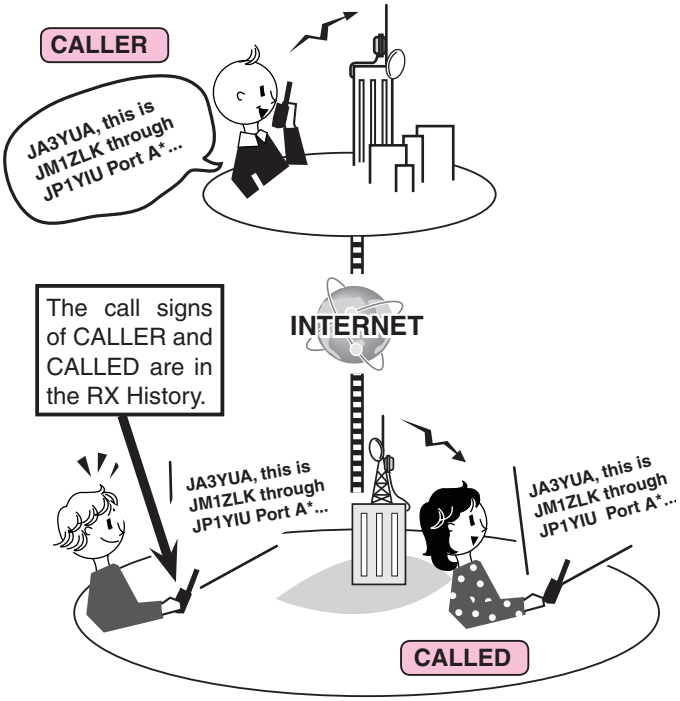
① Hold down [DR] for 1 second.
- The DR mode is selected.

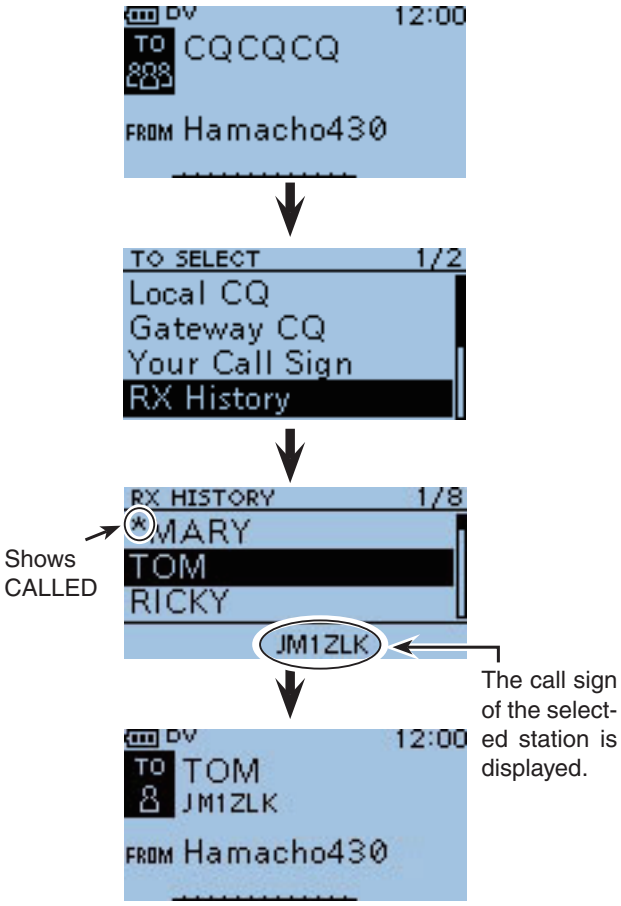
② Push D-pad(↑) to select "TO," and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "RX History," and then push D-pad(Ent).

④ Push D-pad(↓↑) to select "TOM," and then push D-pad(Ent).
- "TOM" is displayed on "TO."





"TOM" setting is completed.

*Set the repeater node to 'B' for 430 MHz band, when you use in other than Japan. See page 3-1 for details.

✓ ***Information***

To add the RX HISTORY data to memory, push [QUICK MENU] on the RX HISTORY screen, then push D-pad(Ent).

■ “TO” (Destination) setting (Continued)

◇ “TO” (Destination) setting using the TX History

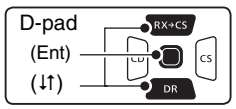
The TX History stores the name and/or call sign of up to 20 “TO” (Destination) settings which were used when you made the calls.

NOTE: If you never transmit a call in the DV mode, you cannot select “TO” (destination) from the TX History.

Example: Select the “Hirano430” repeater in the TX History.

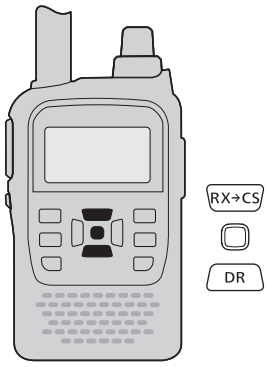
① Hold down DR for 1 second.
- The DR mode is selected.

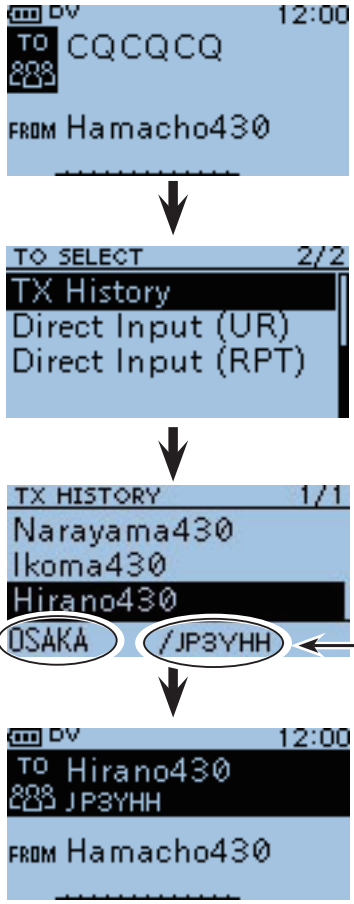
② Push D-pad(↑) to select “TO,” and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “TX History,” and then push D-pad(Ent).

④ Push D-pad(↓↑) to select “Hirano430,” and then push D-pad(Ent).
- “Hirano430” is displayed on “TO.”





The Sub name is displayed when a repeater is selected.

The call sign of the selected repeater is displayed.

“Hirano430” setting is completed.

✓ ***Information***

You can add the TX HISTORY data to the repeater list or “Your Call Sign” memory, or delete if from there.

➥ Push QUICK MENU on the TX HISTORY screen, then push D-pad(↓↑) to select the desired item. And then push D-pad(Ent).

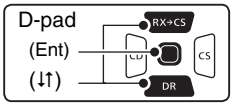
◇ "TO" (Destination) setting using the [Direct Input (UR)]

The destination station call sign can be directly input.

Example: Directly input the call sign "JM1ZLK."

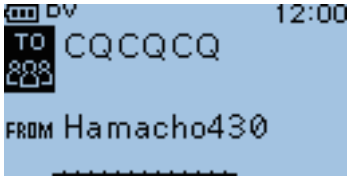
① Hold down [DR] for 1 second.
- The DR mode is selected.

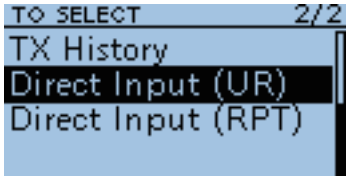
② Push D-pad(↑) to select "TO," and then push D-pad(Ent).

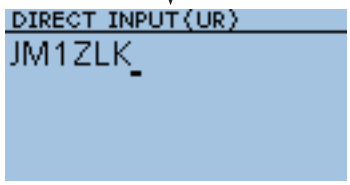


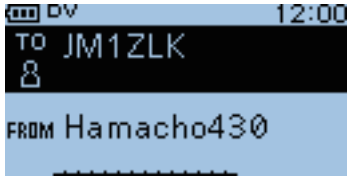
③ Push D-pad(↓↑) to select "Direct Input (UR)."
④ Push D-pad(Ent) to enter the edit mode.
⑤ Rotate [DIAL] to select a desired character.
(For example: J)
- A to Z, 0 to 9, / and a space can be selected.
- A space can be selected, even for any input mode selected.
- Push [CLR][V/MHz CLR LOW] to erase the selected character, or hold down [CLR][V/MHz CLR LOW] to continuously erase the characters after the cursor.

⑥ Push D-pad(→) to move the cursor to the second digit.
⑦ Repeat steps ⑤ and ⑥ to enter a call sign of up to 8 characters, including spaces.
(For example: First, J, then M, then 1, then Z, then L, then K.)
⑧ After entering, push D-pad(Ent) twice.
- "JM1ZLK" is displayed in "TO."
- After programming, you can correct the call sign in the DIRECT INPUT (UR) screen.
- The programmed call sign remains on the DIRECT INPUT (UR) screen, until inputting a new call sign.









"JM1ZLK" setting is completed.

NOTE: If the programmed call sign is duplicated in "Your Call Sign" memory, the name is displayed. (Only when the name has been programmed.)

■ "TO" (Destination) setting (Continued)

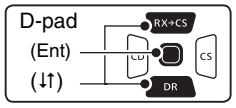
◇ "TO" (Destination) setting using the [Direct Input (RPT)]

The destination repeater call sign can be directly input.

Example: Directly input the call sign "JP3YHH" (Hirano430 repeater).

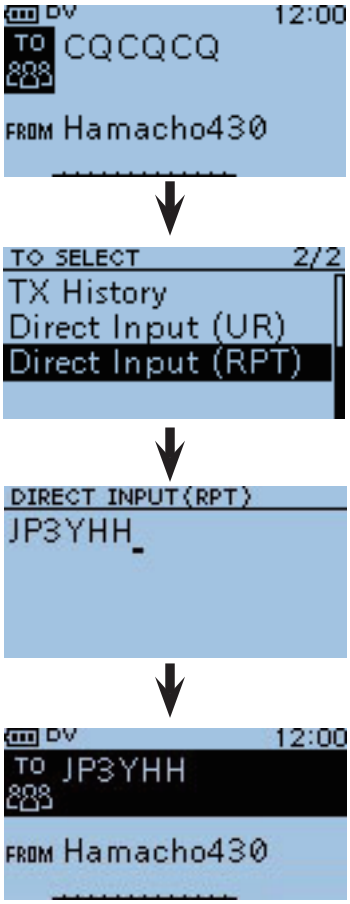
① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↑) to select "TO," and then push D-pad(Ent).



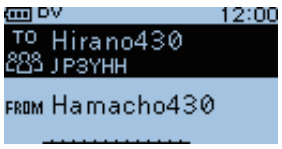
③ Push D-pad(↓↑) to select "Direct Input (RPT)."
④ Push D-pad(Ent) to enter the edit mode.
⑤ Rotate [DIAL] to select a desired character.
(For example: J)
- A to Z, 0 to 9, / and a space can be selected.
- A space can be selected, even for any input mode selected.
- Push [CLR](V/MHz CLR LOW) to erase the selected character, or hold down [CLR](V/MHz CLR LOW) to continuously erase the characters after the cursor.

⑥ Push D-pad(→) to move the cursor to the second digit.
⑦ Repeat steps ⑤ and ⑥ to enter a name of up to 8 characters, including spaces.
(For example: First, J, then P, then 3, then Y, then H, then H.)
⑧ After entering, push D-pad(Ent) twice.
- "JP3YHH" is displayed on "TO."
- After programming, you can correct the call sign in the DIRECT INPUT (RPT) screen.
- The programmed call sign remains on the DIRECT INPUT (RPT) screen, until inputting a new call sign.

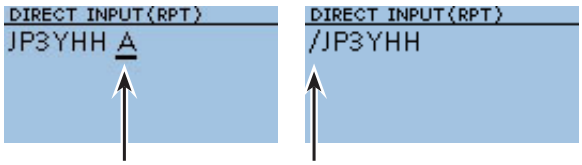


"JP3YHH" setting is completed.

NOTE: If the programmed call sign is duplicated to the repeater list, the name is displayed. (Only when the name has been programmed.)



If you input the call sign as shown below, it is correctly set.



The repeater node is input.

"/" is input. In this case, the call sign is of a repeater for a Gateway call.

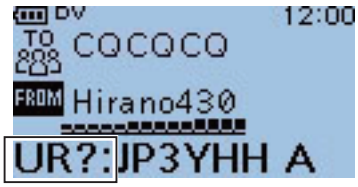
*Although the repeater node letter is 'B' for 430 MHz band, 'A' is used in Japan. See page 3-1 for details.

■ About “UR?” and “RPT?” error messages

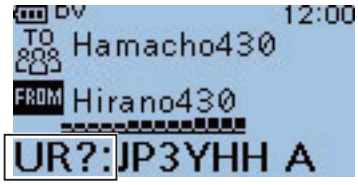
The transceiver includes a status message in the signal received back from the access repeater, after transmitting.

◇ Shows “UR?”

The call was successfully sent, but no station’s signal was immediately received.
The called station may have missed your call, so after waiting for a while, try calling again.



This means that your local area call was correctly sent from the “Hirano430” repeater.



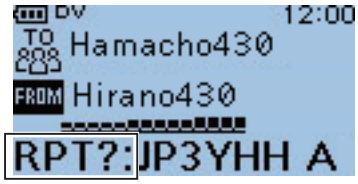
This means that your gateway call was correctly sent from the “Hirano430” repeater to the “Hamacho430” repeater.

◇ Shows “RPT?” or “RX”

The destination repeater was not found, there is a programming error, or the destination repeater was busy.

When “RPT?” is displayed, after waiting for a while, try calling again, because in a gateway call, your signal is sent even if the destination repeater is busy.

NOTE: “RPT?” or “RX” is displayed when;
- the repeater call sign programming is error.
- your own call sign is not registered on a gateway repeater, or the registration contents is not matched.
- the destination call sign is not registered on a gateway repeater, or the registration contents is not matched.
- the destination repeater cannot be accessed.
- a blank MY call sign memory is selected. (“RX” is displayed)

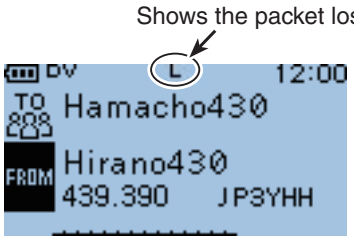


This means that your gateway call was sent from the “Hirano430” repeater to the “Hamacho430” repeater, but the “Hamacho430” repeater was busy at the time.

◇ Shows “L”

While operating voice communication or low-speed data communication through the internet, some packets may be lost due to network error, or the caller’s signal is weak getting into the repeater. In such a case, the transceiver displays “**L**” on the display to indicate Packet Loss has occurred.

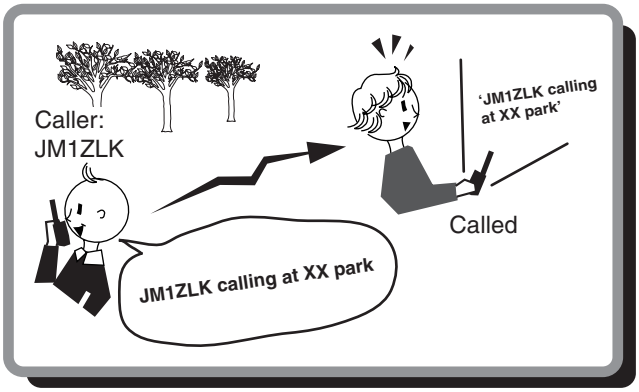
When the transceiver receives corrupted data, and misidentifies it is Packet Loss, “**L**” is displayed, even if it is a Local area call.



“**L**” blinks while packet loss is occurring.

■ Making a Simplex call

To call a station not using a repeater.



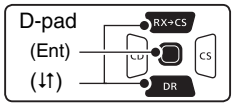
◇ Making a CQ call through no repeater (Simplex CQ)

This section describes how to make a CQ call not through a repeater.

Example: Making a simplex CQ call on 438.010 MHz.

① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↓) to select "FROM."



③ Rotate [DIAL] to select "Repeater List."

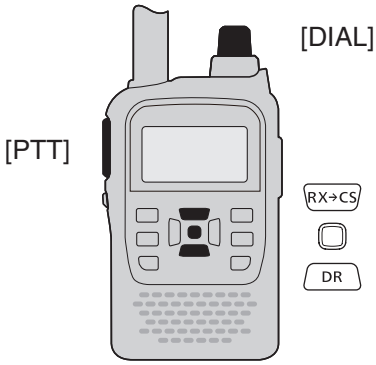
④ Push D-pad(↓↑) to select "Simplex," and then push D-pad(Ent).

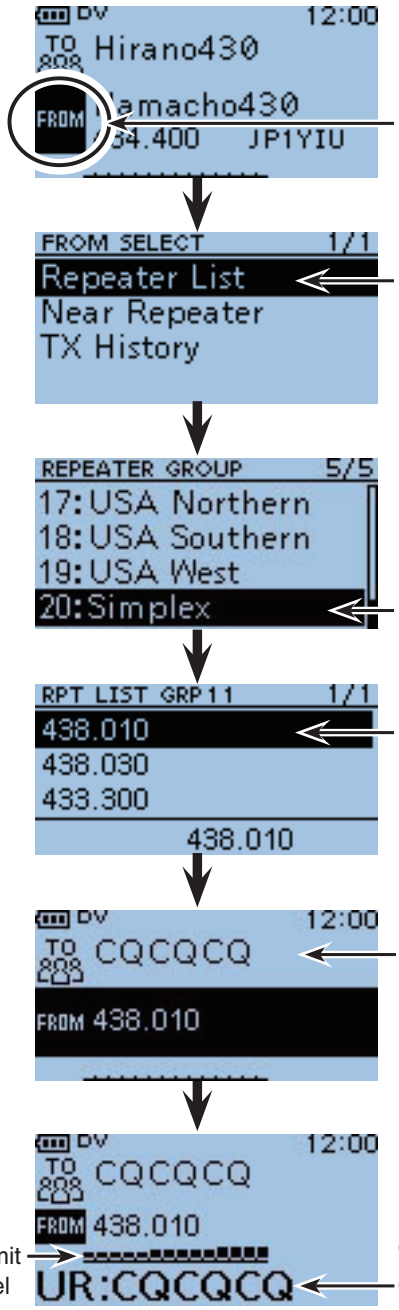
⑤ Push D-pad(↓↑) to select "438.010," and then push D-pad(Ent).
- "438.010" is displayed in "FROM."
- "CQCQCQ" is displayed on "TO."
  - If a station call sign is set to "TO", select "Local CQ" on the TO SELECT screen to set "CQCQCQ."
- The station call sign can also be selected.

⑥ While holding down [PTT], speak into the microphone at your normal voice level.
- The TX/RX indicator lights red.
- The S/RF meter shows the transmit output power level.

⑦ Release [PTT] to receive.

To maximize the readability of your signal, hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at a normal voice level.





*Name or the call sign is displayed, if the station call sign is selected in step ⑤.

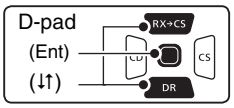
■ For your reference

Besides the DR mode, you can use the VFO mode, Memory mode or Call channel mode to make DV calls.

◇ Making a Simplex call in the VFO mode

① Push [V/MHz] to select the VFO mode.
② Push [FM/DV] one or more times to select the DV mode.
③ Set the desired simplex frequency. (p. 23 on the printed manual)
- Select the output power and audio volume, if desired. (pp. 19, 26 on the printed manual)
- If duplex is ON, push [QUICK MENU], then push D-pad(↑) to select "DUP," and then push D-pad(Ent). Push D-pad(↑) to select "OFF," and then push D-pad(Ent) to turn it OFF.

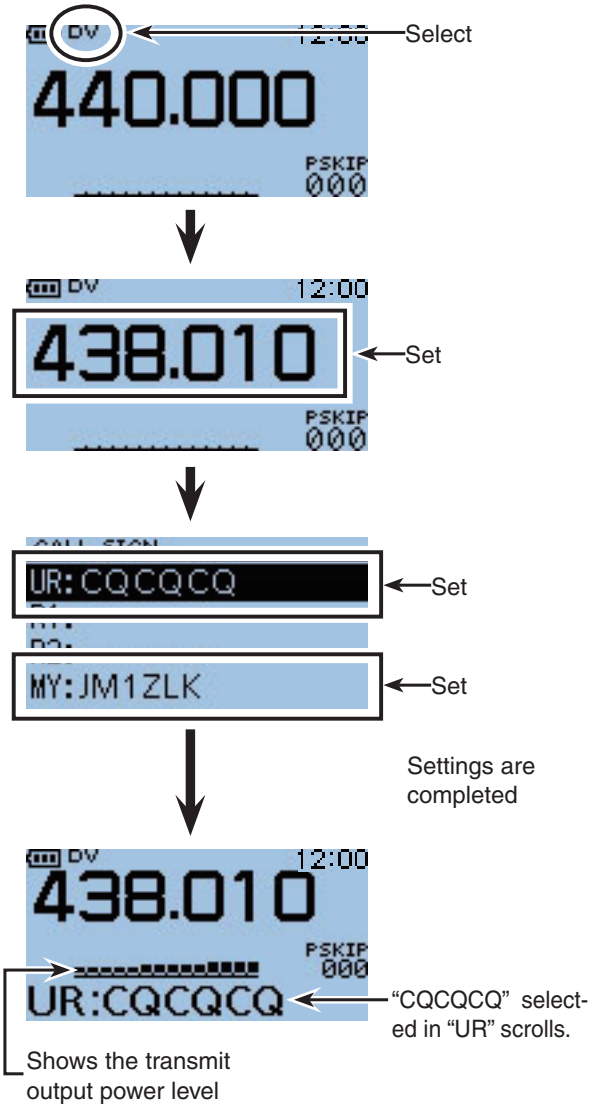
④ Hold down [CS] for 1 second to display the CALL SIGN screen.
⑤ Push D-pad(↓↑) to select "UR," and then push D-pad(Ent).



⑥ Push D-pad(↓↑) to select the desired item, and then push D-pad(Ent).
- CQCQCQ : Select to make a CQ call, or set CQ and then just say the call sign of the station you want to talk to.
- Your Call Sign : Select a station call sign in the Your Call Sign memory to make a call.
- RX History : Select a station call sign in the RX History to make a call.
- TX History : Select a station call sign in the TX History to make a call.

⑦ Push D-pad(↓) to select "MY," and then push D-pad(Ent).
⑧ Push D-pad(↓↑) to select the desired MY Call sign and then push D-pad(Ent).
⑨ Push [CLR] to set, and exit the CALL SIGN screen.
⑩ While holding down [PTT], speak into the microphone at your normal voice level.
- The TX/RX indicator lights red.
- The S/RF meter shows the transmit output power level.

⑪ Release [PTT] to receive.



✓ ***Information***

After setting, hold down [S.MW] for 1 second to enter the Select Memory write mode, and then rotate [DIAL] to select a desired memory channel.
Hold down [S.MW] for 1 second to save this programmed data into the channel.

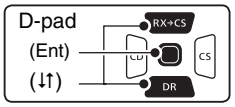
■ For your reference (Continued)

◇ Making a Local Area call or a Gateway call in the VFO mode

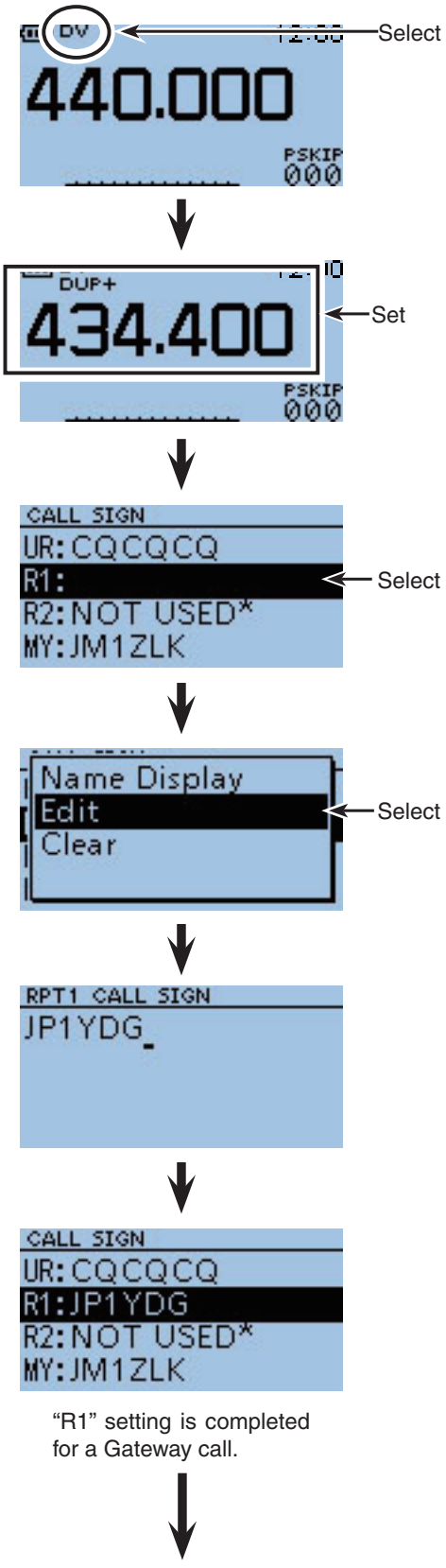
Besides the DR mode, you can use the VFO mode, Memory mode or Call channel mode to make DV calls.

1. Access Repeater settings (R1)

① Push [V/MHz](V/MHz CLR LOW) to select the VFO mode.
② Push [FM/DV](FM/DV SCAN) one or more times to select the DV mode.
③ Set the access repeater's transmit frequency, duplex direction and frequency offset. (pp. 23, 30, 33 on the printed manual)
④ Hold down (CS) for 1 second to display the CALL SIGN screen.
⑤ Push D-pad(↓) to select "R1," and then push (QUICK MENU).
⑥ Push D-pad(↓) to select "Edit."
⑦ Push D-pad(Ent) to enter the call sign programming mode.
• A cursor appears and blinks.



⑧ Rotate [DIAL] to select the first digit. (Example: J)
• A to Z, 0 to 9, / and a space can be selected.
• If you make a mistake, push [CLR](V/MHz CLR LOW) to delete the selected character.
• Push D-pad(→) to enter a space.
• Push D-pad(⇆) to move the cursor left or right.
⑨ Push D-pad(→) to move the cursor to second digit.
⑩ Repeat steps ⑧ and ⑨ to enter a repeater call sign of up to 8 characters, including spaces.
(For example: First, J, then P, then 1, then Y, then D, then G)
⑪ Push D-pad(Ent).



"R1" setting is completed for a Gateway call.

2. UR call sign setting

⑫ Push D-pad(↑) to select “UR,” and then push D-pad(Ent).
⑬ Push D-pad(↓↑) to select the desired item, and then push D-pad(Ent).

- CQCQCQ : Select to make a Local Area CQ call or to a station by saying the station's call sign.
- Gateway CQ : Select to make a Gateway CQ call. After selecting “Gateway CQ,” select the destination repeater in the repeater list.
- Your Call Sign : Select a station call sign in the Your Call Sign memory to make a Local Area/Gateway call.
- RX History : Select a station call sign in the RX History to make a Local Area/Gateway call.
- TX History : Select a station call sign in the TX History to make a Local Area/Gateway call.

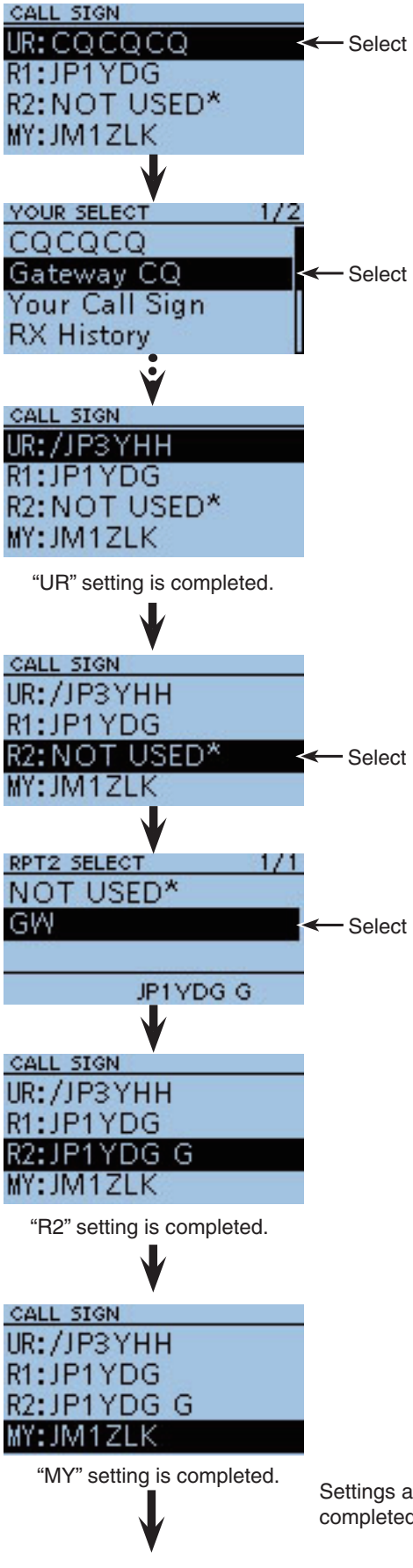
3. R2 setting

⑭ Push D-pad(↓↑) to select “R2,” and then push D-pad(Ent).
⑮ Push D-pad(↓↑) to select the desired item, and then push D-pad(Ent).

- NOT USED* : “R2” setting is not used.
- GW : Select your gateway repeater.
- (Repeater) : Select the destination repeater to send a call. (only for Zones)

4. MY call sign setting

⑯ Push D-pad(↓↑) to select “MY,” and then push D-pad(Ent).
⑰ Push D-pad(↓↑) to select a desired MY Call sign, and then push D-pad(Ent).
⑱ Push [CLR](V/MHz CLR LOW) to set, and exit the CALL SIGN screen.



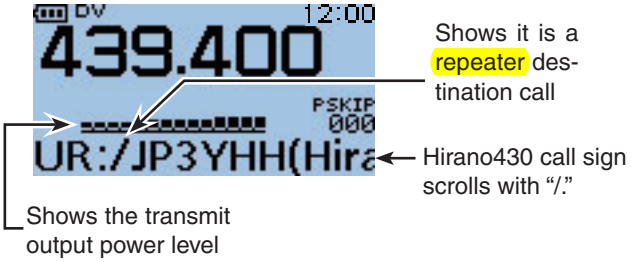
☞ Continued on the next page.

■ For your reference
◇ Making a Local Area call or Gateway call in the VFO mode (Continued)

5. Calling

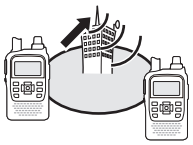
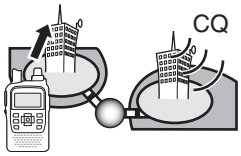
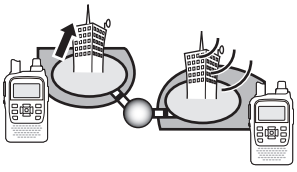
⑲ While holding down [PTT], speak into the microphone at your normal voice level.
- The TX/RX indicator lights red.
- The S/RF meter shows the transmit output power level.

⑳ Release [PTT] to receive.



✓ ***Information***
After setting, hold down [S.MW](M/CALL S.MW) for 1 second to enter the Select Memory write mode, and then rotate [DIAL] to select a desired memory channel.
Hold down [S.MW](M/CALL S.MW) for 1 second to save this programmed data into the channel.

• Settings for "UR" and "R2," depending on the type of call you wish to make

Destination: CQ	Destination: An individual station
<Call type: Local area call>  • UR setting : CQCQCQ • R2 setting : NOT USE✱	**<Call type: Local area call>**  • UR setting : An individual station • R2 setting : NOT USE✱
<Call type: Gateway call>  • UR setting : Destination repeater to call CQ • R2 setting : Your gateway repeater	**<Call type: Gateway call sign routing call>**  • UR setting : An individual station • R2 setting : Your gateway repeater

NOTE: The R1 setting is set to your access repeater's call sign.

DR MODE <ADVANCED> Section 4

IMPORTANT!

- The repeater list, described in this manual, may differ from your transceiver's preset contents.
- Although the Japanese repeaters are used in the setting examples, the Japanese repeater node (port) letters are different from other country's.
  Be sure to add a repeater node letter as the 8th digit in the call sign field after a repeater call sign, according to the repeater frequency band, as shown below.
  1200 MHz : A (B in Japan)
  430 MHz : B (A in Japan)
  144 MHz : C (no D-STAR® repeaters in Japan)

■ Message operation

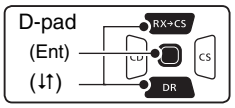
The transceiver has a total of 5 message memories to store short messages to transmit during DV mode operation. Messages of up to 20 characters can be programmed in each memory.

◇ TX message programming

TX messages of up to 20 characters can be programmed in each of the 5 message memories.

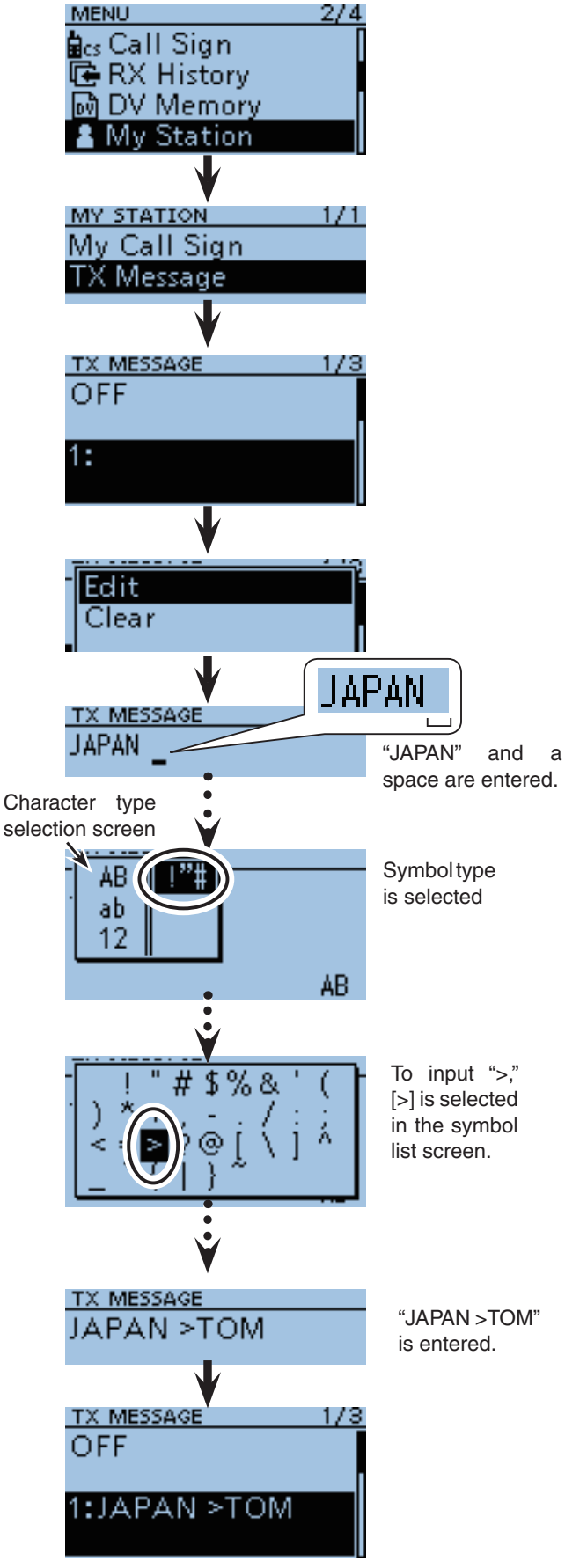
Example: To program “JAPAN >TOM” into message memory number 1.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“My Station”), and then push D-pad(Ent).



③ Push D-pad(↓) to select “TX Message,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select message memory number “1.”
⑤ Push (QUICK MENU).
⑥ Push D-pad(↑) to select “Edit.”
⑦ Push D-pad(Ent) to enter the TX message edit mode.
⑧ Rotate [DIAL] to select a desired character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push (QUICK MENU) to change the character to a upper case or lower case letter.
- While selecting a digit, push (QUICK MENU) to open the input mode selection window.
  Push D-pad(↓↑⇆) to select the desired modes to Upper case letters, Lower case letters, Numbers and Symbols. To enter symbols, select “!”#,” and then push D-pad(Ent) to display the symbol character selection window. And rotate [DIAL] to select the desired symbol character, and then push D-pad(Ent).
- A space can be selected, even for any input mode selected.
- Push D-pad(→) to enter a space to the right of the last character.
  To insert a space to the left of any selected character, rotate [DIAL] to select a space to insert it.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.

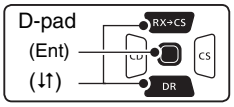
⑨ Push D-pad(→) to move the cursor to the second digit.
⑩ Repeat steps ⑧ and ⑨ to enter up to 20 characters, including spaces.
⑪ After entering the message, push D-pad(Ent) one or more times.
⑫ Push [MENU] (MENU) to exit the MENU screen.



◇ Message Transmission

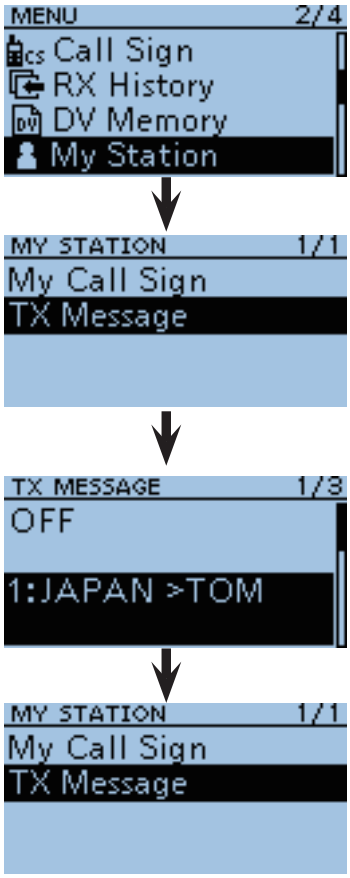
You can select a TX message to turn ON the message transmission function. When a TX message is selected, and [PTT] is pushed, the transceiver transmits the preprogrammed text message.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“My Station”), and then push D-pad(Ent).



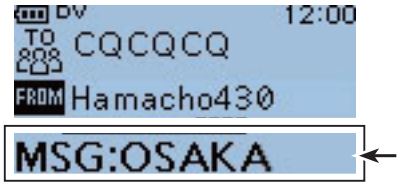
③ Push D-pad(↓) to select “TX Message,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select message memory number 1 to 5.
- To turn OFF the message transmission function, select “OFF.”

⑤ After selecting, push D-pad(Ent).
⑥ Push [MENU] (MENU) to exit the MENU screen.
- The message is transmitted with a voice signal.
- The message is transmitted each time you push [PTT].
- The message is automatically transmitted every 30 seconds during continuous transmission.



RX message display function

As the default, the received message is automatically displayed and scrolled on the LCD.
To not display and scroll the received message, turn OFF the RX message display function in “RX Message” of the MENU screen. (p. 10-58)
(MENU > Display > **RX Message**)



The received message is displayed and scrolled here.

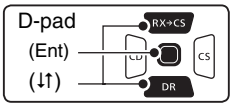
■ Message operation (Continued)

◇ TX message deleting

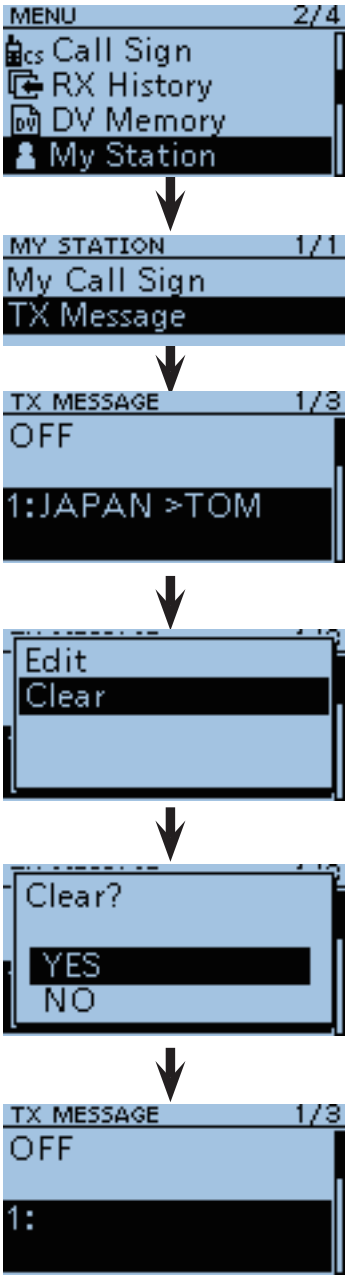
The programmed TX message can be deleted, as described below.

Example: To delete the programmed TX message “JAPAN >TOM” from message memory number 1.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“My Station”), and then push D-pad(Ent).



③ Push D-pad(↓) to select “TX Message,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select message memory number 1.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓) to select “Clear,” and then push D-pad(Ent).
⑦ Push D-pad(↑) to select “YES,” and then push D-pad(Ent).
⑧ Push [MENU] (MENU) to exit the MENU screen.

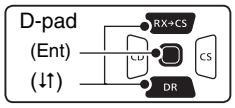


■ Received call sign confirmation

When a DV call is received, the calling station and the repeater's call signs are stored in the RX HISTORY screen.
Up to 40 calls can be stored.
Even if the transceiver is turned OFF, the RX record won't be deleted.
The stored call signs can be displayed in the following manner.

◇ Confirm in the RX History screen

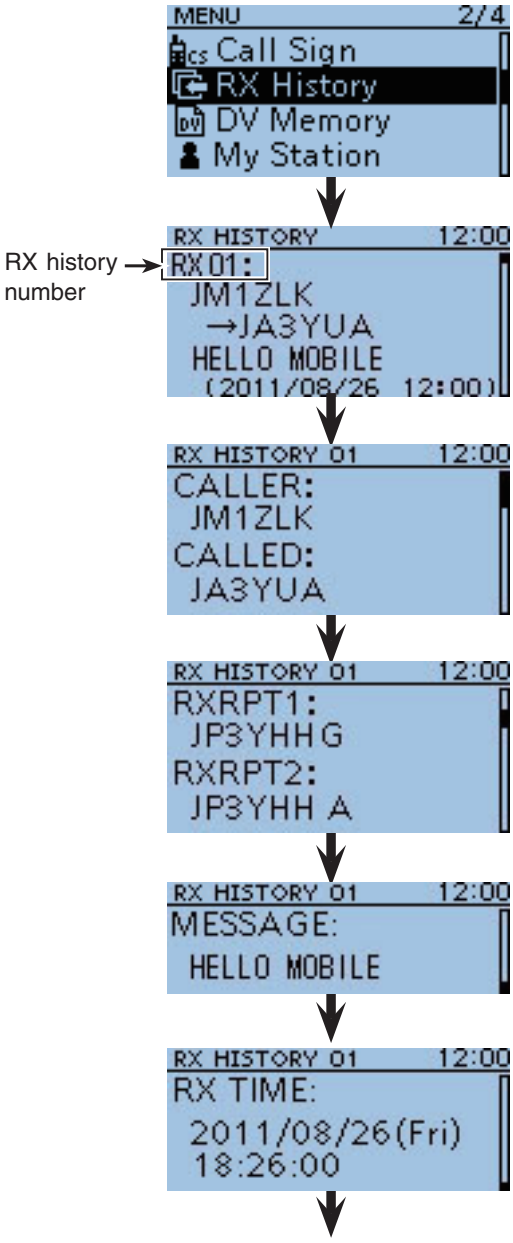
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("RX History"), and then push D-pad(Ent).



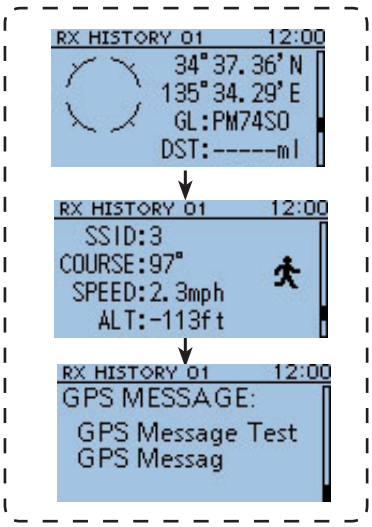
③ Push D-pad(↓↑) to select an RX history number between "RX01" and "RX40."
- In addition to the RX history number, the call signs of the caller and called station, RX message, received date and time are displayed on the LCD.
- If only one call is received, skip step ③.

④ Push D-pad(Ent).
⑤ Push D-pad(↓↑) to switch the displayed contents of the RX history.
- CALLER : Shows the call sign of the caller station and any note programmed after the call sign.
- CALLED : Shows the call sign of the called station.
- RXRPT1 : Shows the call sign 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 call sign of your local area repeater.
- Rx RPT2 : Shows the call sign of the repeater you received the call from.
- MESSAGE : Shows any message included in the received call, if programmed.
- RX TIME : Shows the date and time the call was received.
- When the received call includes GPS position data, it is displayed after RX TIME.

⑥ Push [MENU] (MENU) to exit the MENU screen.



When the received call includes the GPS position data, it is displayed after RX TIME.



✓ ***Information***
You can delete the RX HISTORY data.
➥ On the RX HISTORY screen, push (QUICK MENU), and push D-pad(↓↑) to select "Delete" or "Delete All." And then push D-pad(Ent).

■ BK mode communication

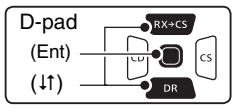
The BK (Break-in) function allows you to break into a conversation, where the two other stations are communicating with call sign squelch enabled. (Default: OFF)

NOTE: The BK function is automatically turned OFF when transceiver is turned OFF.

① After receiving a DV call, hold down [RX→CS] for 1 second.
- After releasing [RX→CS], the called station call sign is announced. (RX>CS Speech function)
- The called station or used repeater call sign is automatically set.
- When a call sign has not been received correctly, error beeps sound, and no call sign is set.

② Push [MENU] [MENU].

③ Push D-pad(↓↑) to select the root item ("DV Set"), and then push D-pad(Ent).



④ Push D-pad(↓↑) to select "BK," and then push D-pad(Ent).

⑤ Push D-pad(↓) to select "ON."

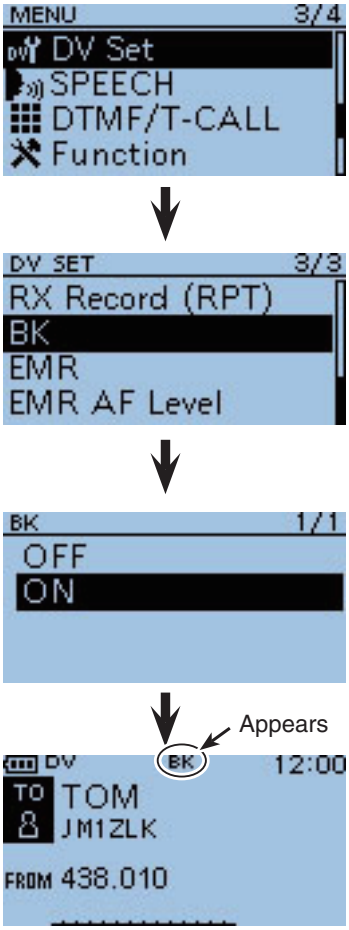
⑥ Push [MENU] [MENU] to exit the MENU screen.
- "BK" appears.

⑦ When both stations are in standby, push [PTT] to transmit.
- The TX/RX indicator lights red.
- "BK" blinks on a station that receives the break-in call.

⑧ Release [PTT] to receive.
Wait for a reply call from the station.

⑨ After receiving the reply call, communicate normally.

⑩ To cancel the BK mode communication, select "OFF" in "BK," as step ⑤, or turn OFF the power.

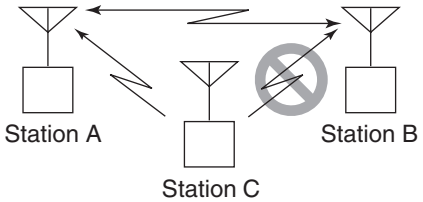


How to use Break-in?

While using digital call sign squelch, the squelch never opens (no audio is heard) even if a call is received, unless your own call sign is specified.
However, when a call including the "BK ON" signal (break-in call) is received, the squelch will open and audio is heard even if the call is specified for another station.

• Station C calling to Station A with "BK OFF"

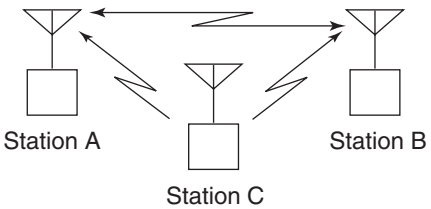
Station A and B are communicating using the digital call sign squelch.



Station B never hears that Station C is calling Station A.

• Station C calling to Station A with "BK ON"

Station A and B are communicating using the digital call sign squelch.



Station B also hears that Station C is calling Station A.

■ EMR communication

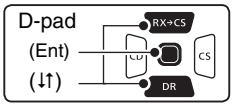
The EMR (Enhanced Monitor Receive) communication mode can be used in only the DV mode. In the EMR mode, no call sign setting is necessary. When an EMR mode signal is received, the audio (voice) will be heard at the specified level, even if the volume setting level is set to the minimum level, or digital call sign/digital code squelch is in use. (Default: OFF)

NOTE: The EMR communication function is automatically turned OFF when the transceiver is turned OFF.

Example: To transmit from "Hamacho430" repeater in the EMR mode

① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↓) to select "FROM," and then push D-pad(Ent).

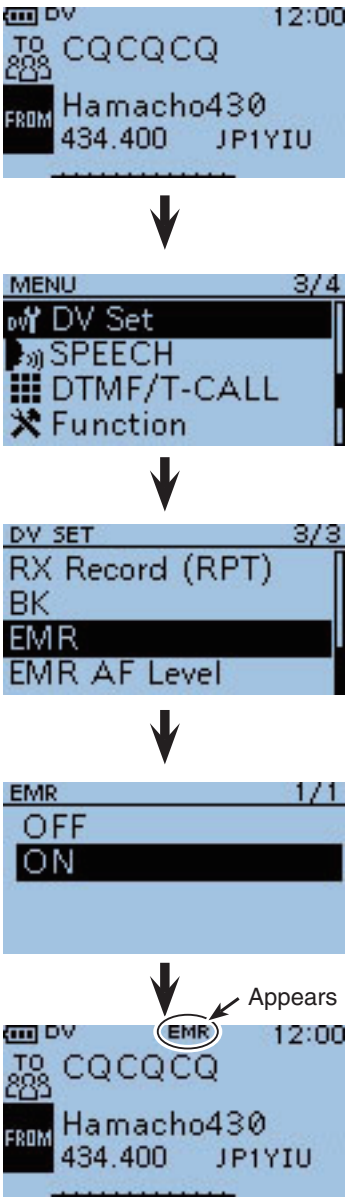


③ Push D-pad(↑) to select "Repeater List," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select "11: Japan," and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select "Hamacho430," and then push D-pad(Ent).
- "Hamacho430" is displayed on "FROM".

⑥ Push [MENU] [MENU].
⑦ Push D-pad(↓↑) to select the root item ("DV Set"), and then push D-pad(Ent).
⑧ Push D-pad(↓↑) to select "EMR," and then push D-pad(Ent).
⑨ Push D-pad(↓) to select "ON."
⑩ Push [MENU] [MENU] to exit the MENU screen.
- "EMR" appears.

⑪ Push [PTT] to transmit.
- The TX/RX indicator lights red.
- "EMR" blinks on a station that receives the EMR signal. And the audio (voice) will be heard at the specified level.

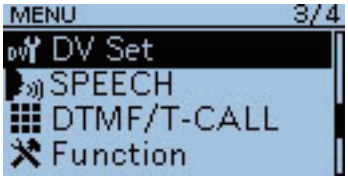
⑫ Release [PTT] to receive.
⑬ To cancel the EMR mode communication, select "OFF" in step ⑨, as described above, or turn OFF the power.

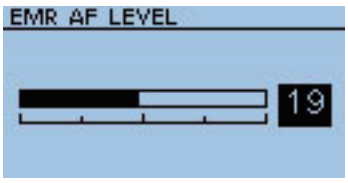


■ EMR communication (Continued)

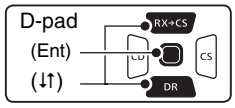
◇ Adjusting the EMR AF level

The audio output level when an EMR signal is received is adjustable between 0 and 39.
When an EMR signal is received, the audio will be heard at the preset level, or the [VOL] control level, whichever is higher.
To disable the setting, set it to "0."





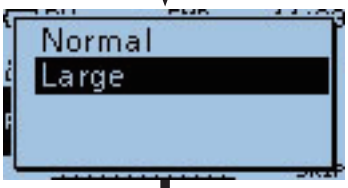
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("DV Set"), and then push D-pad(Ent).

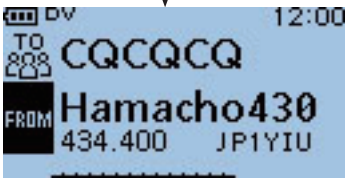


③ Push D-pad(↓) to select "EMR AF Level," and then push D-pad(Ent).
④ Push D-pad(↓↑) to adjust the EMR audio output level between 0 (minimum) and 39 (maximum) in 1 step.
(Default: 19)
⑤ Push [MENU] (MENU) to exit the MENU screen.

■ Display type setting

The display type in the DR mode, such as a repeater name, call sign, and so on, can be set to Large.
(Default: Normal)



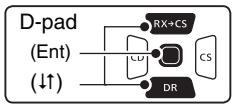


① Push (QUICK MENU).
② Push D-pad(↓↑) to select "Display Type," and then push D-pad(Ent).
③ Push D-pad(↓) to select "Large," and then push D-pad(Ent).
• The display type changes to large such as the repeater name set to "TO" and "FROM".

■ DV automatic detection

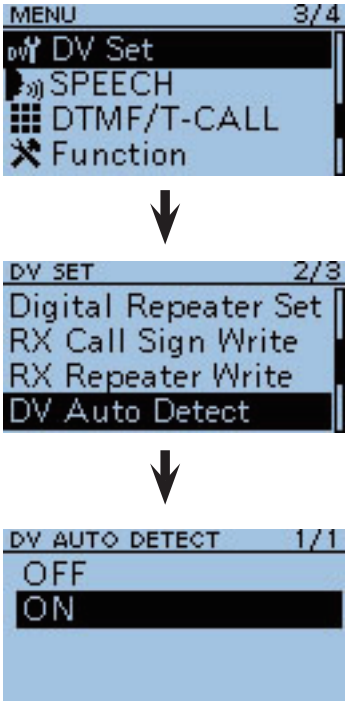
When an FM Signal is received while in the DV mode, the “DV” and “FM” icons alternately blink. If the DV Auto Detect function is turned ON, the transceiver automatically selects the FM mode to temporarily monitor the signal. (Default: OFF)

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“DV Set”), and then push D-pad(Ent).



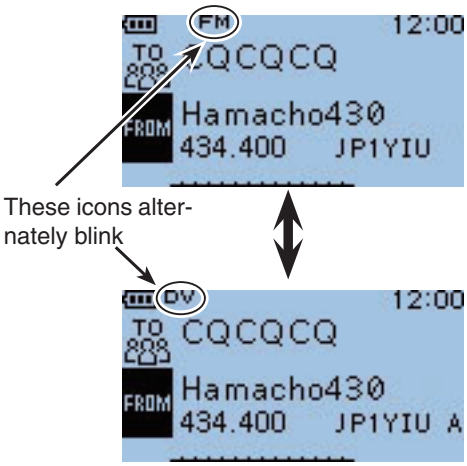
③ Push D-pad(↓↑) to select “DV Auto Detect,” and then push D-pad(Ent).
④ Push D-pad(↓) to select “ON.”
⑤ Push [MENU] (MENU) to exit the MENU screen.
• When an FM signal is received in the DV mode, the “DV” and “FM” icons sequentially blink.

The FM audio may be distorted when using this function.



When digital call sign squelch (DSQL) or digital code squelch (CSQL) is set, the transceiver does not receive the FM signal, even if this function is ON.
You can silently wait for calls from others.

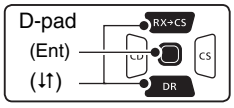
When an FM mode signal is received while in the DV mode



■ Automatic Reply function

When a call addressed to your own call sign is received, the Automatic Reply function automatically replies with your call sign. (Default: OFF)

① Push [MENU] [MENU].
② Push D-pad(↓↑) to select the root item (“DV Set”), and then push D-pad(Ent).

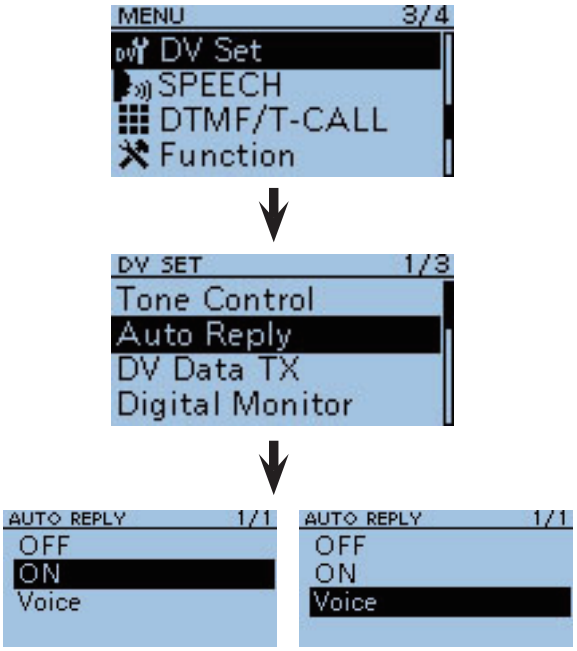


③ Push D-pad(↓↑) to select “Auto Reply,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select “ON” or “Voice.”
- ON : Replies to the call with your own call sign. (No audio signal is sent)
- Voice : Replies to the call with your own call sign and the recorded Auto Reply voice signal that is saved on the microSD card for this function.
  If no microSD card is inserted, or no voice signal is saved, the transceiver replies to the call in the same way as the “ON” option.

⑤ Push [MENU] [MENU] to exit the MENU screen.

NOTE:
- The Automatic Reply function is automatically turned OFF, when you push [PTT].
- When this function is activated, the Power Save function is disabled.
- The destination call sign is temporarily set for the Automatic Reply function.

To record the voice signal
You can record a voice announcement for the Auto Reply function in “DV Auto Reply” on the MENU screen. (p. 10-21)
(MENU > Voice Memo > **DV Auto Reply**)



- **When “ON” is selected**

Sends your own call sign, including the programmed memo. (No voice announcement is sent)

- **When “Voice” is selected**

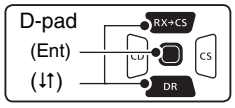
Sends your own call sign, including the programmed memo and the recorded Auto Reply voice announcement.

◇ Recording a Auto Reply voice announcement

The Auto Reply voice announcement can be recorded and saved on the microSD card to reply to the call with your voice.

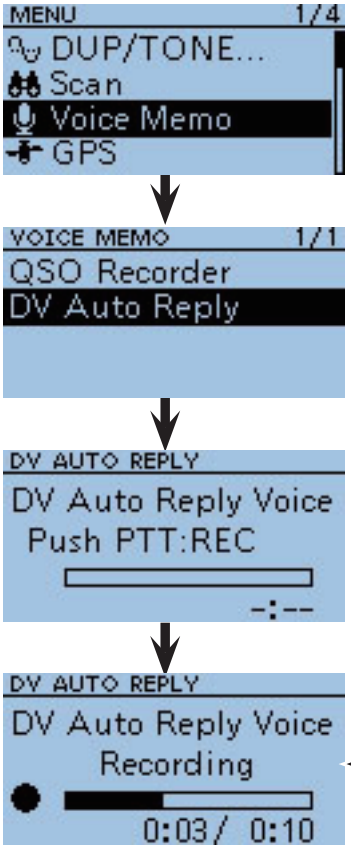
NOTE: Be sure to insert a microSD card to the [micro SD] slot of the transceiver before starting to record a voice signal.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("Voice Memo"), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "DV Auto Reply," and then push D-pad(Ent).
④ Push [PTT] to start recording.
- After releasing [PTT], the recording is cancelled.
- Maximum record period is 10 second
- Hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak into the microphone at a normal voice level.
- Only one announcement can be recorded. The current contents will be overwritten if you record again.

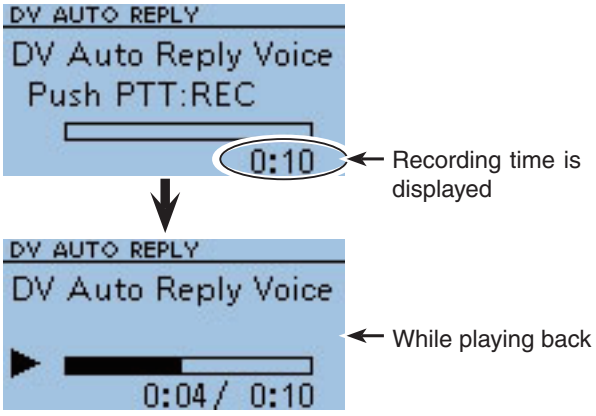
⑤ Push [MENU] (MENU) to exit the MENU screen.



◇ The recorded voice audio playing back

The recorded voice audio for the Auto Reply function can be played back.

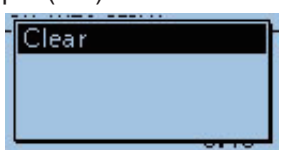
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("Voice Memo"), and then push D-pad(Ent).
③ Push D-pad(↓↑) to select "DV Auto Reply," and then push D-pad(Ent).
④ Push D-pad(Ent) to start the playback.
⑤ Push [MENU] (MENU) to exit the MENU screen.



✓ ***Information***

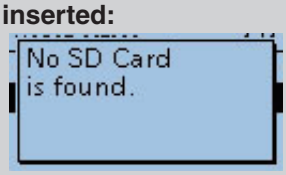
You can delete the recorded audio.

➥ On the DV AUTO REPLY screen, push (QUICK MENU), and then push D-pad(Ent).



When no microSD card is inserted:

When no microSD card is inserted, this error message is displayed.

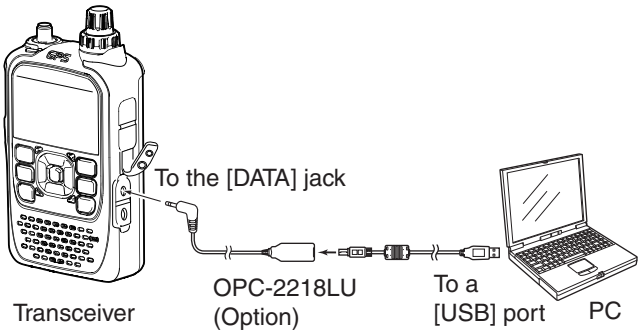


■ Low-speed data communication

In addition to digital voice communication, low-speed data communication can be made.
Use the optional OPC-2218LU DATA COMMUNICATION CABLE with a third-party serial data communication software.

◇ Connection

Connect the transceiver to your PC using the OPC-2218LU cable, as illustrated below.



NOTE: Before starting to the low-speed data communication, be sure to set the following items;
- Set the “GPS SELECT” option to “OFF,” “Internal GPS” or “Manual” in the MENU screen. (p. 5-2)
  (MENU > GPS > GPS Set > **GPS Select**)
- Set the “GPS OUT” option to “OFF” in the MENU screen. (p. 10-25)
  (MENU > GPS > GPS Set > **GPS Out**)
- Set the “GPS TX Mode” option to “OFF” in the MENU screen. (p. 5-16)
  (MENU > GPS > **GPS TX Mode**)

◇ Low-speed data communication application setting

Configure the serial data communication software as follows.
- Port : The COM port number which is used by the ID-31A/E.*1
- Baud rate : 4800/9600 bps*2
- Data : 8 bit
- Parity : None
- Stop : 1 bit
- Flow control : Xon/Xoff

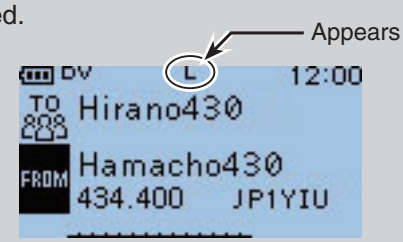
*1 Depending on the PC environment, the COM port number used by the ID-31A/E may be higher than 5. In such case, use the application which can set to higher than 5.
*2 The baud rate can be set in the “Data Speed” item of the MENU screen. (p. 10-55)
(MENU > Function > **Data Speed**)

Before starting low-speed data communication:
The “DV Data TX” item is set to “Auto” by default.
So, depending on the data communication application software, the transceiver may automatically transmit the data only when you input text on the software screen.

◇ Low-speed data communication operation

① Set your own call sign, UR call sign and the repeater call sign.
② Follow the instructions of the data communication application software.
③ When data is input from a PC through the [DATA] jack, the transceiver automatically transmits it.
- The TX/RX indicator lights red.
- Push [PTT] to transmit the data and a voice signal when “PTT” is selected in the “DV Data TX” item of the MENU screen. (p. 10-46)
  (MENU > DV Set > **DV Data TX**)
- Before transmission, the transceiver sends approximately 500 milliseconds carrier sense.

NOTE:
- Only the ASCII code can be used for the low-speed data communication.
- A message of up to 20 characters can be transmitted with a DV voice signal.
- Depending on the combination of your PC and your serial data communication software, some data may be lost.
- While receiving voice communication or low-speed data communication through the internet, some packets may be lost due to network error (poor data throughput performance). In such a case, “L” appears on the LCD to show the Packet Loss has occurred.



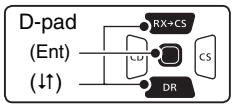
■ Speech function

The speech function announces the called station call sign, or the individual or station call sign that is selected from the RX History by holding down [RX→CS] and rotating [DIAL]. (Default: ON (Kerchunk))
It is convenient when you cannot watch the LCD, or you missed the call's audio.
This function helps you to know the call sign of the caller station without seeing the LCD.

◇ To announce the received call sign

The received call sign can be announced.

① Push [MENU] [MENU].
② Push D-pad(↓↑) to select the root item ("SPEECH"), and then push D-pad(Ent).

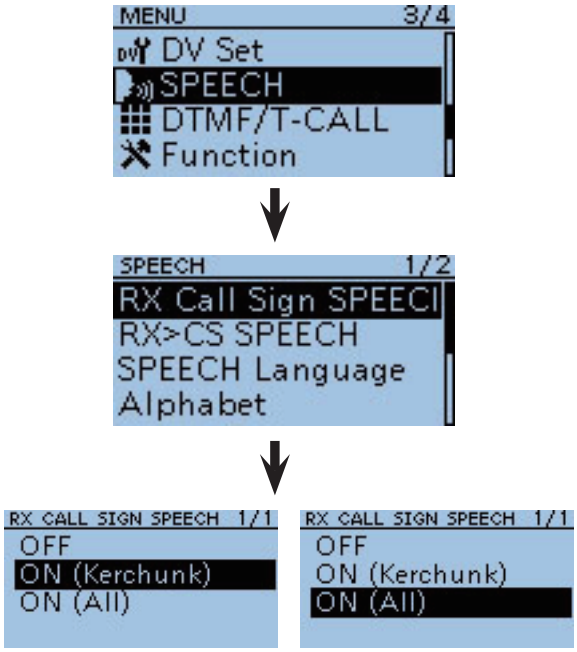


③ Push D-pad(↓↑) to select "RX Call Sign SPEECH," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select "ON (Kerchunk)" or "ON (All)."
- ON (Kerchunk) : When a DV call is received, and if the call time is short, the calling station's call sign is announced.
- ON (All) : When a DV call is received, the calling station's call sign is announced.

⑤ Push [MENU] [MENU] to exit the MENU screen.
- When a DV call is received, the standby beep sounds, and after approximately 1 second, the call sign is announced.

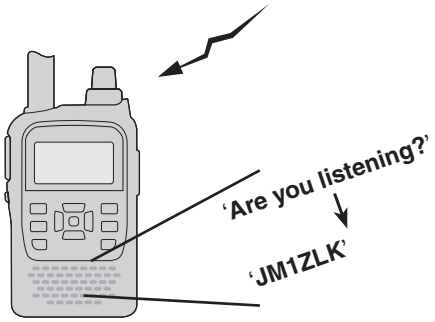
NOTE:
- Even if a "/" and a note are after a call sign, they are not announced.
- The announced contents cannot be recorded on the microSD card.

When the digital squelch function is used, and if a received signal is not addressed to your call sign, or does not include an unmatched digital code, the calling station's call sign is not announced.



• When "ON (Kerchunk)" is selected

• When "ON (All)" is selected

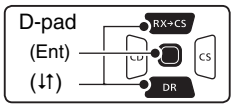


■ Speech function (Continued)

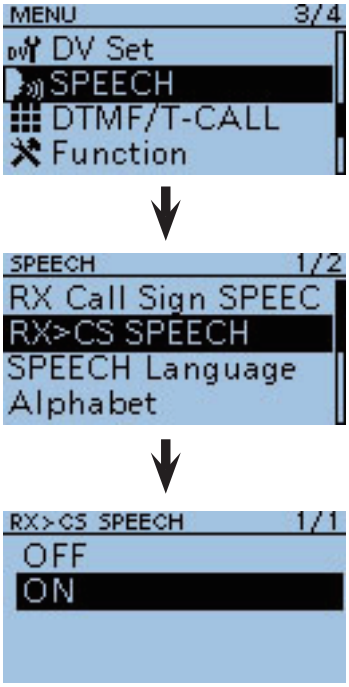
◇ To announce the RX>CS call sign

The station call sign that is selected from the RX History by holding down [RX→CS] and rotating [DIAL], will be announced. (RX>CS Speech function, Default: ON)

① Push [MENU][MENU].
② Push D-pad(↓↑) to select the root item (“SPEECH”), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select the root item (“RX>CS SPEECH”), and then push D-pad(Ent).
④ Push D-pad(↓) to select “ON.”
⑤ Push [MENU] [MENU] to exit the MENU screen.
⑥ While holding down [RX→CS], rotating [DIAL] to select the station call sign.
• After releasing [RX→CS], the selected station call sign is announced.



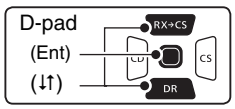
NOTE:
While the call sign is being announced, you cannot hear any received audio, and the audio is not recorded on the microSD card.
If the call sign is announced while recording, the recorded contents are silent during the announcement.

• When “ON” is selected

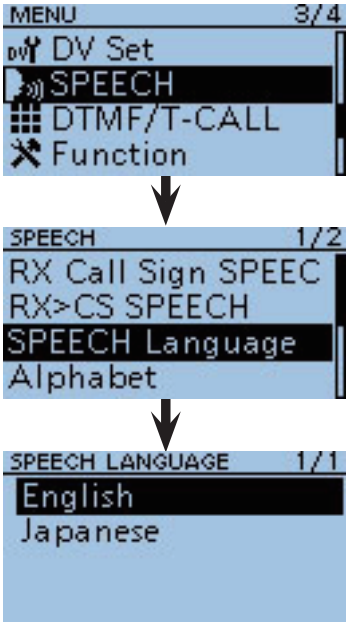
◇ Speech Language selection

The speech language can be set to English or Japanese. (Default: English)
The selected language is used for both the received call sign speech and the RX>CS call sign speech.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“SPEECH”), and then push D-pad(Ent).



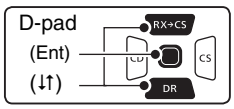
③ Push D-pad(↓↑) to select the root item (“SPEECH Language”), and then push D-pad(Ent).
④ Push D-pad(↑) to select “English” or “Japanese.”
⑤ Push [MENU] (MENU) to exit the MENU screen.
• A call sign is announced in the selected language.



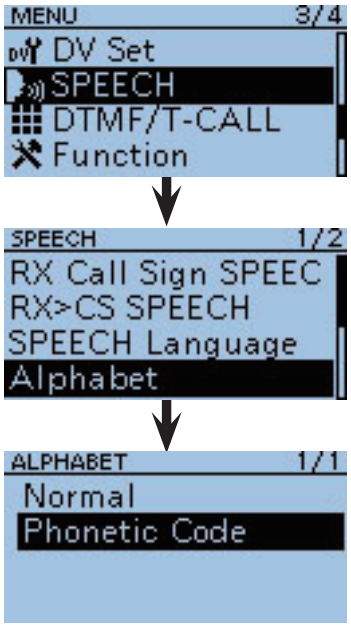
◇ Speech alphabet character selection

The speech alphabet character can be set to normal code or phonetic code. (Default: Normal)

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“SPEECH”), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “Alphabet,” and then push D-pad(Ent).
④ Push D-pad(↑) to select the speech alphabet character.
• Normal : Normal code is used.
(Example: A as eh, B as bee)
• Phonetic Code : Phonetic code is used.
(Example: A as Alfa, B as Bravo)
⑤ Push [MENU] (MENU) to exit the MENU screen.

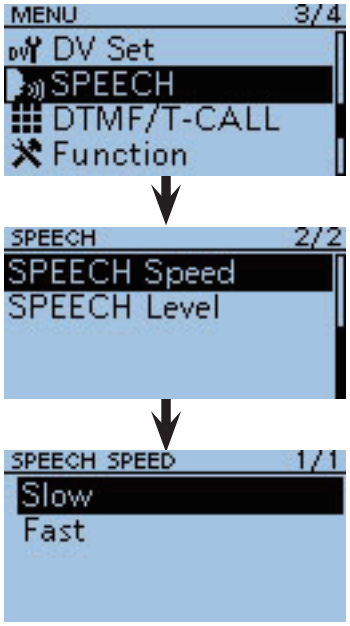


• When “Phonetic Code” is selected

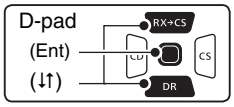
■ Speech function (Continued)

◇ Speech speed selection

The speech speed can be set to slow or fast.
(Default: Fast)



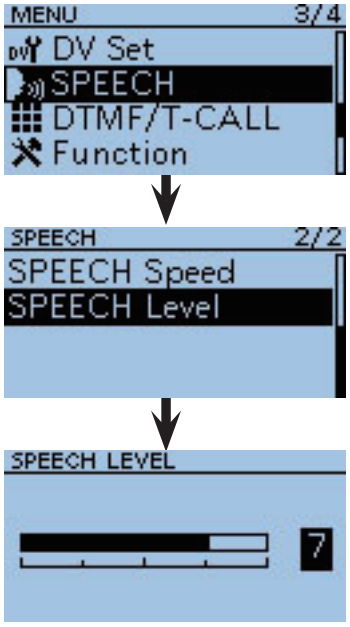
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“SPEECH”), and then push D-pad(Ent).



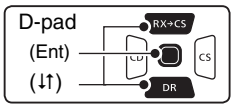
③ Push D-pad(↓↑) to select “SPEECH Speed,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select “Slow” or “Fast.”
⑤ Push [MENU] (MENU) to exit the MENU screen.

◇ Speech level selection

The speech volume level can be set to between 0 (minimum) and 9 (maximum). (Default: 7)



① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“SPEECH”), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “SPEECH Level,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to set the speech volume level to between 0 (minimum) and 9 (maximum).
⑤ Push [MENU] (MENU) to exit the MENU screen.
- When “0” (minimum) is selected, the call sign won’t be announced.
- The volume level can be adjusted with the [VOL] control.

■ Digital squelch functions

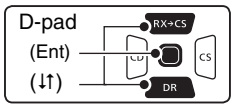
The digital squelch opens only when receiving a signal addressed to your own call sign, or a signal that includes a matching digital code. You can silently wait for calls from others.

◇ The digital call sign squelch setting

① Hold down [DR] for 1 second.
- The DR mode is selected.
- To use the digital call sign squelch function in another mode, push [V/MHz] [V/MHz CLR LOW] or [M/CALL] [M/CALL S.MW] to select the VFO, Memory or CALL channel mode.

② Push [QUICK MENU].

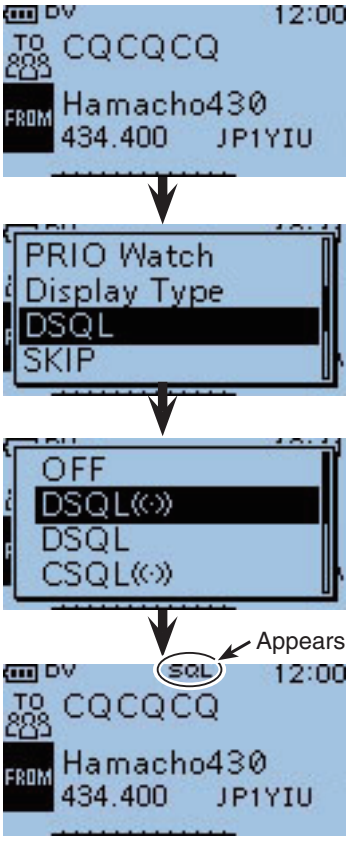
③ Push D-pad(↓↑) to select "DSQL," and then push D-pad(Ent).



④ Push D-pad(↓↑) to select "DSQL ((•)) " or "DSQL."
- DSQL ((•)) : Turn ON the digital call sign squelch pocket beep.
- DSQL : Turn ON the digital call sign squelch.

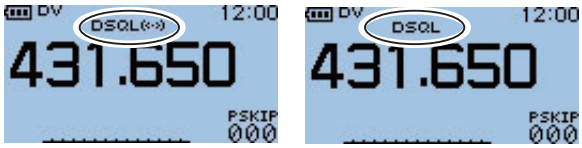
⑤ Push D-pad(Ent) to set the digital call sign squelch, and then exit the Quick menu screen.
- "SQL" appears.
- "DSQL ((•)) " or "DSQL" appears when the VFO, Memory or CALL channel mode is selected.

⑥ When the received signal includes a matching call sign, the squelch opens and the audio is heard.
- When the received signal's call sign does not match, digital call sign squelch does not open; however, the S/RF meter shows the received signal level.



NOTE:
- **DO NOT** use the digital code squelch function when communicating with two or more stations, because the digital call sign squelch function opens only when receiving a signal addressed to your own call sign. Thus the digital call sign squelch function can be used when communicating with only one station.
- While operating in the low-speed data communication mode, the digital squelch opens even if receiving a signal is not addressed to your own call sign.

When "DSQL ((•)) " or "DSQL" is selected in the VFO, Memory or CALL channel mode.



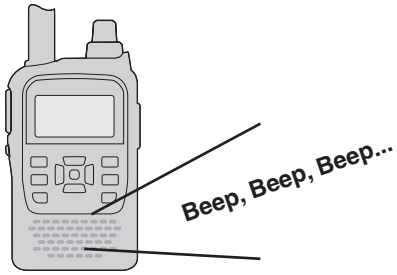
◇ Pocket beep function with the digital call sign squelch

When a received signal is addressed to your own call sign, the transceiver emits beep tones for 30 seconds (other than in the DR mode, in which "((•)) " blinks).

➥ Push [PTT] to answer, or push D-pad(Ent) to stop the beeps or "((•)) " blinking.
* Except for the DR mode, "((•)) " disappears.

If no operation is performed for 30 seconds, the beep tones automatically stops (other than the DR mode, in which "((•)) " continues to blink to inform you of a call).

• When "DSQL ((•)) " is selected



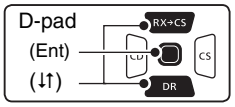
■ Digital squelch functions (Continued)

◇ The digital code squelch setting

① Hold down [DR] for 1 second.
- The DR mode is selected.
- To use the digital code squelch function in another mode, push [V/MHz] [V/MHz CLR LOW] or [M/CALL] [M/CALL S.MW] to select the VFO, Memory or CALL channel mode.

② Push [QUICK MENU].

③ Push D-pad(↓↑) to select "DSQL," and then push D-pad(Ent).



④ Push D-pad(↓↑) to select "CSQL ((•)) " or "CSQL."
- CSQL ((•)) : Turn ON the digital code squelch pocket beep.
- CSQL : Turn ON the digital code squelch.

⑤ Push D-pad(Ent) to set the digital code squelch, and then exit the quick menu screen.
- "SQL" appears.
- "CSQL ((•)) " or "CSQL" appears when the VFO, Memory or CALL channel mode is selected.

⑥ Push [MENU] [MENU].

⑦ Push D-pad(↑) to select the root item ("DUP/TONE..."), and then push D-pad(Ent).

⑧ Push D-pad(↓) to select "Digital Code," and then push D-pad(Ent).

⑨ Rotate [DIAL] to select a digital code between 00 and 99 for the digital code squelch function.

⑩ Push [MENU] [MENU] to set and exit the MENU screen.

⑪ When the received signal includes a matching code, the squelch opens and the audio is heard.
- When the received signal's code does not match, digital code squelch does not open; however, the S/RF meter shows the received signal strength.

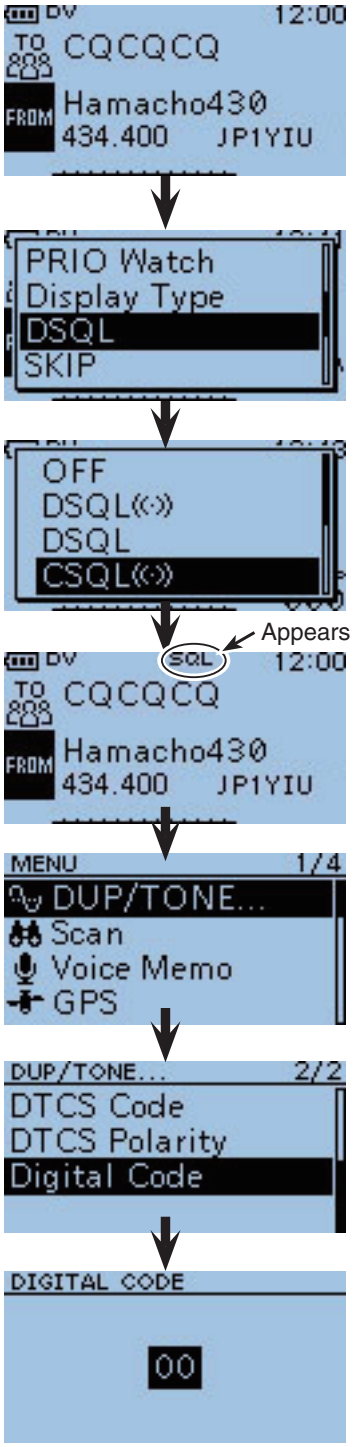
NOTE: While operating in the low-speed data communication mode, the digital code squelch opens even if receiving a signal does not match to your digital code.

◇ Pocket beep function with the digital code squelch

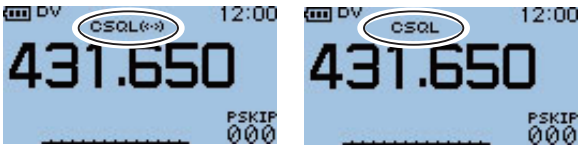
When a received signal matches your digital code, the transceiver sounds beep tones for 30 seconds (except for the DR mode, " ((•)) " blinks).

➥ Push [PTT] to answer, or push D-pad(Ent) to stop the beeps or " ((•)) " blinking.
* Except for the DR mode, in which " ((•)) " disappears.

If no operation is performed for 30 seconds, the beep tones automatically stop (except for the DR mode, in which " ((•)) " continues to blink to inform you of a call).



When "CSQL ((•)) " or "CSQL" is selected in the VFO, Memory or CALL channel mode.



■ DV mode operation in the Memory mode

You can save the temporary settings in the DR mode to memory.
The saved settings can be selected by rotating [DIAL].

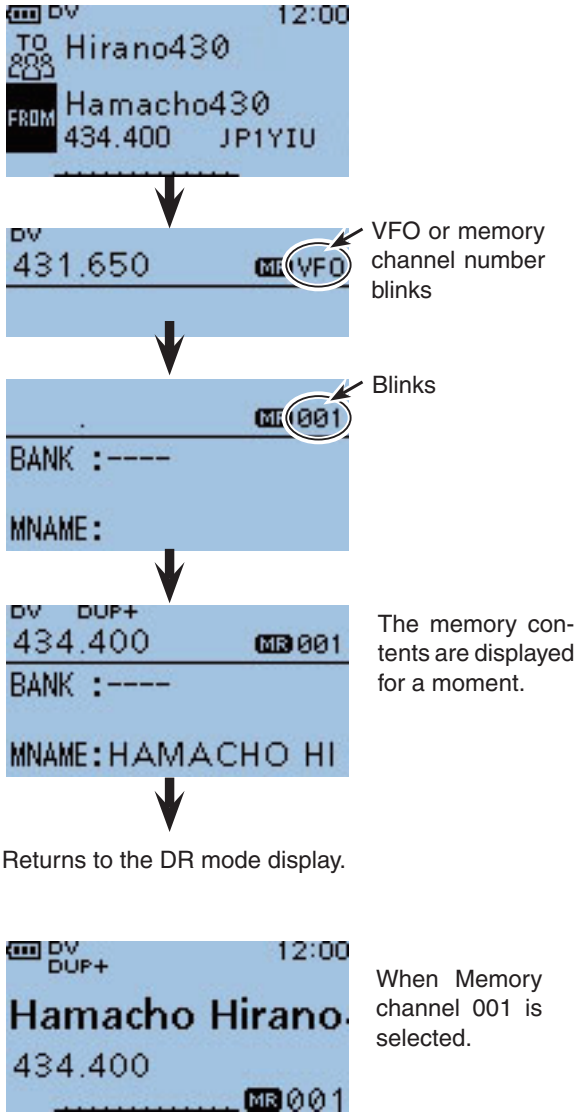
◇ Storing the temporary setting data

Example: To register "FROM: Hamacho430" and "TO: Hirano430" into Memory channel 001.

① Hold down [DR] for 1 second.
- The DR mode is selected.

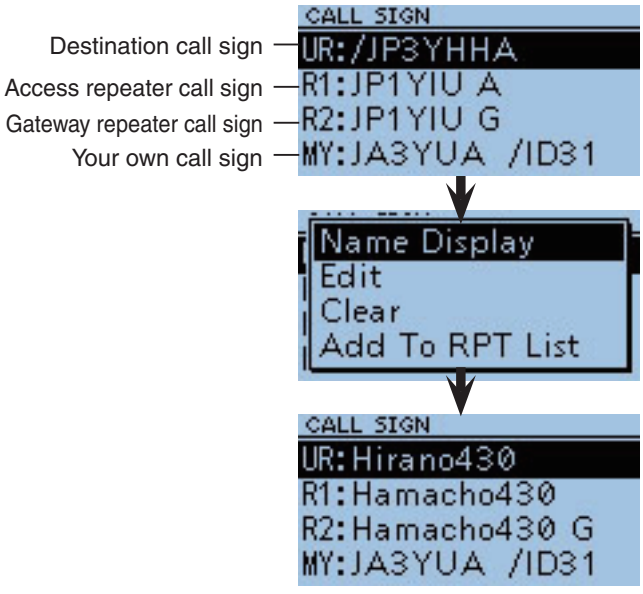
② Push D-pad(↓) to select "FROM," and then push D-pad(Ent).
③ Push D-pad(↑) to select "Repeater List," and then push D-pad(Ent).
④ Push D-pad(↑) to select "11:Japan," and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select "Hamacho430," and then push D-pad(Ent).
⑥ Push D-pad(↑) to select "TO," and then push D-pad(Ent).
⑦ Push D-pad(↓↑) to select "Gateway CQ," and then push D-pad(Ent).
⑧ Push D-pad(↓↑) to select "11:Japan," and then push D-pad(Ent).
⑨ Push D-pad(↓↑) to select "Hirano430," and then push D-pad(Ent).
⑩ Hold down [S.MW] [M/CALL S.MW] for 1 second to enter the memory select write mode.
- The previously selected channel number blinks, and the channel contents are displayed.
  - If you continuously hold down [S.MW] [M/CALL S.MW], the setting is stored into the VFO mode.

⑪ Rotate [DIAL] to select the Memory channel 001.
⑫ Hold down [S.MW] [M/CALL S.MW] for 1 second to store the setting, and the transceiver returns to the DR mode display.
- The memory contents are displayed for a moment.
- When the stored channel is blank, the names, set to "TO" and "FROM," are automatically set to the Memory channel.



■ Confirming the call sign

① Push [FM/DV] [FM/DV SCAN] several times to select the DV mode.
② Hold down [CS] for 1 second to display the CALL SIGN screen.
- The CALL SIGN screen can be displayed in the DR, VFO, Memory or Call channel mode.
- To select the name display mode, push [QUICK MENU], and then push D-pad(↑) to select "Name Display." After selecting, push D-pad(Ent).



■ Repeater list

You can store repeater information for quick and simple communication in up to 700 repeater memory channels (Repeater list) in up to 20 Groups.
Programming the repeater list is required for DR mode operation.

NOTE: For easy operation, the repeater list is loaded into your transceiver. However, if the CPU clears all programmed contents (All Reset), the repeater list is also cleared. We recommend that memory data be backed up externally or be saved to a PC using the supplied CS-31 CLONING SOFTWARE.

About the repeater list:
The repeater list can be downloaded from our website.
http://www.icom.co.jp/world/index.html

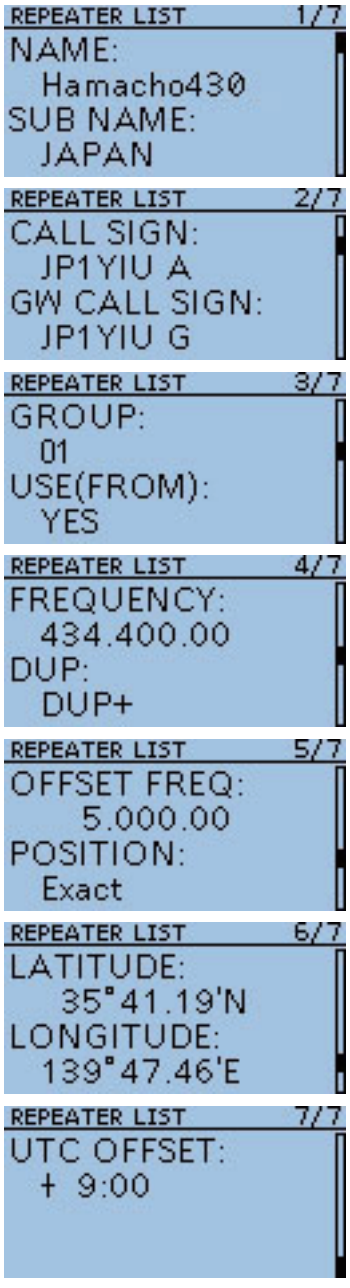
◇ Repeater list contents

The following contents are included in the repeater list:

- NAME (Repeater name) (p. 4-22)
- SUB NAME (Repeater sub name) (p. 4-22)
- CALL SIGN (Repeater call sign and port letter) (p. 4-23)
- GW CALL SIGN (Gateway repeater's call sign and port "G") (p. 4-24)
- GROUP (Repeater group) (p. 4-24)
- USE(FROM) (Access repeater use) (p. 4-25)
- FREQUENCY (Access repeater's input frequency)* (p. 4-25)
- DUP (Duplex direction)* (p. 4-26)
- OFFSET FREQ (Frequency offset)* (p. 4-26)
- POSITION (Position data accuracy level) (p. 4-26)
- LATITUDE (Latitude position of the repeater) (p. 4-27)
- LONGITUDE (Longitude position of the repeater) (p. 4-27)
- UTC OFFSET (UTC Offset) (p. 4-27)

* Appears only when USE(FROM) is selected as YES.

Example: "Hamacho430" repeater information



■ Repeater list programming

This section describes how to manually program new repeater information into the repeater list.

The required setting items differ, depending on the repeater use. Be sure to confirm the required items, as shown to the right.

NOTE: To program the repeater information into the repeater list, the repeater call sign MUST be entered.

◇ Required items for the communication cases

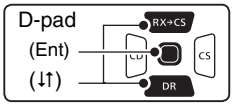
Repeater list contents	Used as an access repeater	Used as a destination repeater	Used for a simplex communication
NAME	–	–	–
SUB NAME	–	–	–
CALL SIGN	✔	✔	–*1
GW CALL SIGN	✔ (For Gateway call)	✔	–
GROUP	–	–	–
USE(FROM)	✔	–	✔
FREQUENCY	✔	–	✔
DUP	✔	–	–*2
OFFSET FREQ	✔	–	–
POSITION	–	–	–
LATITUDE	–	–	–
LONGITUDE	–	–	–
UTC OFFSET	–	–	–

*1 This item MUST be blank.
*2 This item MUST be set to "OFF."

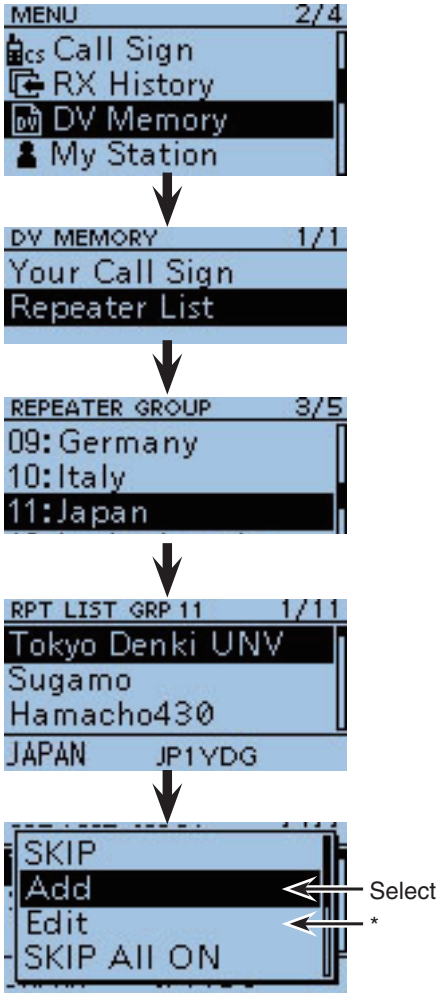
◇ New repeater programming

1. Repeater group selection

❶ Push [MENU] (MENU).
❷ Push D-pad(↓↑) to select the root item ("DV Memory"), and then push D-pad(Ent).



❸ Push D-pad(↓) to select "Repeater List," and then push D-pad(Ent).
• The repeater groups are displayed.
❹ Push D-pad(↓↑) to select the desired repeater group to be programmed, and then push D-pad(Ent).
• The repeater list of the selected repeater group is displayed.
❺ Push (QUICK MENU).
❻ Push D-pad(↓) to select "Add," and then push D-pad(Ent).
• REPEATER LIST EDIT screen is displayed.



*When you want to add a new repeater by editing a programmed repeater memory contents, select "Edit." In this case, after programming, be sure to select "<<Add Write>>." If you select "<<Overwrite>>," the original repeater programmed contents are overwritten.

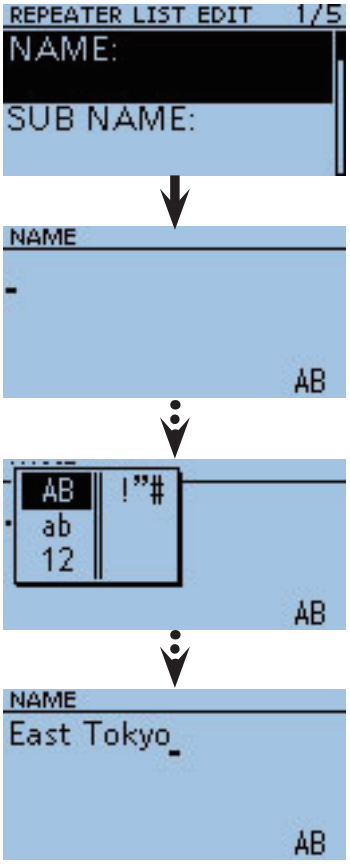
☞ Continued on the next page.

■ Repeater list programming (Continued)

2. Repeater name programming

❼ Push D-pad(↑) to select “NAME,” and then push D-pad(Ent) to enter the repeater name edit mode.
❽ Rotate [DIAL] to select a desired character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push [QUICK MENU] to change the character to a upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.
- A space can be selected, even for any input mode selected.
- Push [CLR] [V/MHz CLR LOW] to erase the selected character, or hold down [CLR] [V/MHz CLR LOW] to continuously erase the characters after the cursor.
- See page 4-2 for programming details.

❾ Push D-pad(→) to move the cursor to the second digit.
❿ Repeat steps ❽ and ❾ to enter a name of up to 16 characters, including spaces.
⓫ After entering the name, push D-pad(Ent).



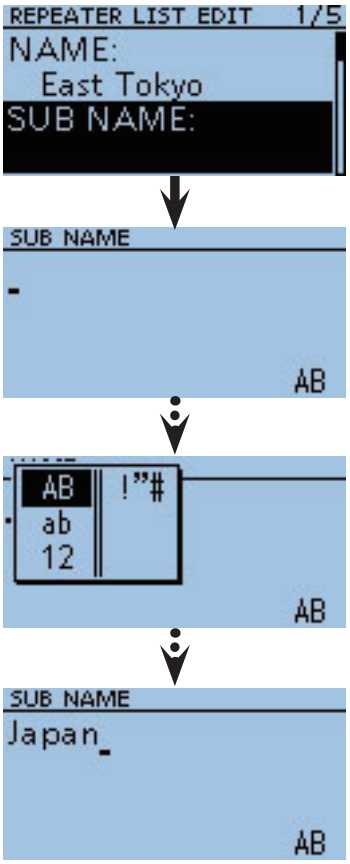
Character type selection screen

Example:
“East Tokyo” is entered.

3. Repeater sub name programming

⓬ Push D-pad(↓↑) to select “SUB NAME,” and then push D-pad(Ent) to enter the repeater sub name edit mode.
⓭ Rotate [DIAL] to select a desired character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push [QUICK MENU] to change the character to a upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.
- A space can be selected, even for any input mode selected.
- Push [CLR] [V/MHz CLR LOW] to erase the selected character, or hold down [CLR] [V/MHz CLR LOW] to continuously erase the characters after the cursor.
- See page 4-2 for programming details.

⓮ Push D-pad(→) to move the cursor to the second digit.
⓯ Repeat steps ⓭ and ⓮ to enter a sub name of up to 8 characters, including spaces.
⓰ After entering the name, push D-pad(Ent).



Character type selection screen

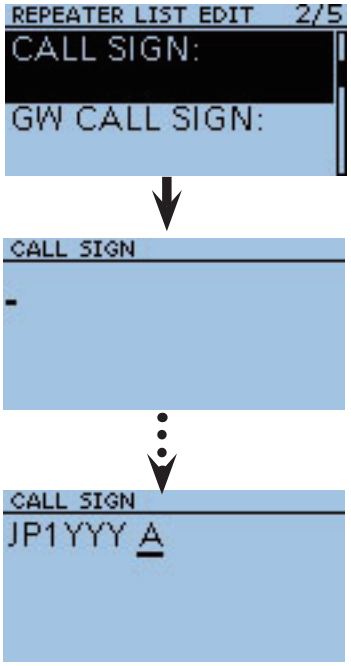
Example:
“Japan” is entered.

4. Repeater call sign programming

When used for simplex communication, go to [7. Access repeater setting].

⓱ Push D-pad(⇃↾) to select “CALL SIGN,” and then push D-pad(Ent) to enter the repeater call sign edit mode.
⓲ Rotate [DIAL] to select the first character.
- A to Z, 0 to 9, / and a space can be selected.
- A space can be selected, even for any input mode selected.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.

⓳ Push D-pad(→) to move the cursor to the second digit.
⓴ Repeat steps ⓲ and ⓳ to enter a name of up to 8 characters, including spaces.
㉑ After entering the call sign, push D-pad(Ent).



Example:
“JP1YYY A” is entered.

✓ ***Information***

Be sure to add a repeater node (port) letter as the 8th digit in the call sign field after a repeater call sign, according to the repeater frequency band, as shown below.
Note that Japanese repeater node letters are different.
1200 MHz : A (B in Japan)
430 MHz : B (A in Japan)
144 MHz : C (no D-STAR® repeaters in Japan)

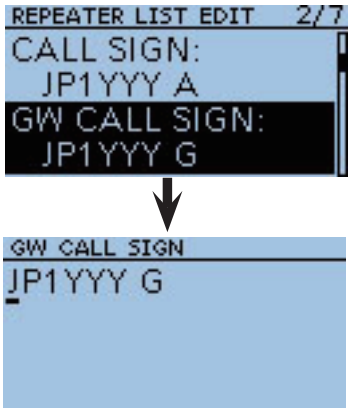
Cross band operation between different nodes at the same repeater site can be made.

☞ Continued on the next page.

■ Repeater list programming (Continued)

5. Gateway repeater call sign programming

The 8th digit in the call sign, programmed in [4. Repeater call sign programming] as described above, is automatically set to "G" as the gateway port. And you can skip this setting and go to the next item.
If you need to change it, follow the steps, as described below.



Example:
"JP1YYY G" is entered.

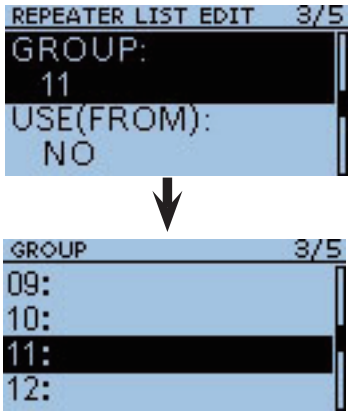
㉒ Push D-pad(↓↑) to select "GW CALL SIGN," and then push D-pad(Ent) to enter the gateway repeater call sign edit mode.
㉓ Rotate [DIAL] to select the first character.
- A to Z, 0 to 9, / and a space can be selected.
- A space can be selected, even for any input mode selected.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.

㉔ Push D-pad(→) to move the cursor to the second digit.
㉕ Repeat steps ㉓ and ㉔ to enter a name of up to 8 characters, including spaces.
- The 8th digit in the gateway repeater call sign is set to only "G" or a space.

㉖ After entering the gateway repeater call sign, push D-pad(Ent).

6. Repeater group confirmation

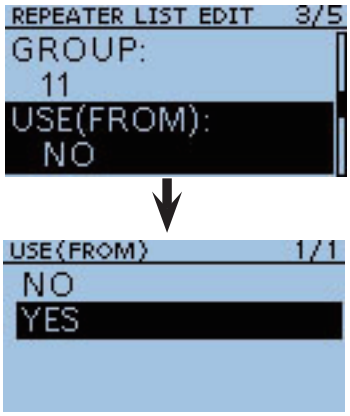
In this item, you can confirm the repeater group that is selected in [1. Repeater group selection]. And you can skip this setting and go to the next item.
If necessary, you can change the repeater group.



㉗ Push D-pad(↓↑) to select "GROUP," and then push D-pad(Ent) to enter the repeater group selection mode.
㉘ Push D-pad(↓↑) to select the desired repeater group (01 to 20), and then push D-pad(Ent).
- The selected repeater group is displayed on the REPEATER LIST EDIT screen.

7. Access repeater setting

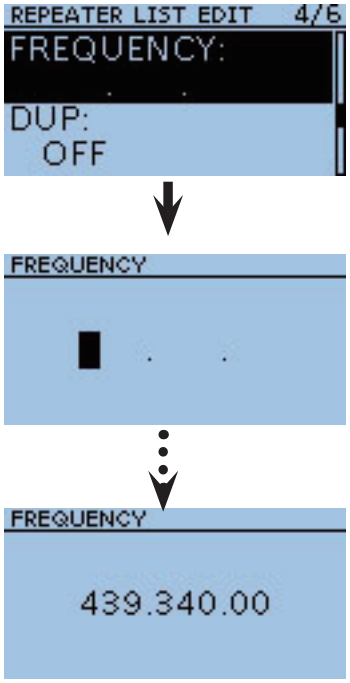
The programmed repeaters can be used as an access repeater in the DR mode.
For simplex operation, or when the programmed repeater is not used as an access repeater, select "NO." In this case, the programmed repeater does not appear in the "FROM" selection.



29 Push D-pad(↓↑) to select "USE(FROM)," and then push D-pad(Ent).
30 Push D-pad(↓) to select "YES," and then push D-pad(Ent).
- You can select the programmed repeater as an access repeater (FROM).

8. Access repeater frequency programming

This item appears only when "YES" is selected in [7. Access repeater setting].



31 Push D-pad(↓↑) to select "FREQUENCY," and then push D-pad(Ent) to enter the frequency edit mode.
- A cursor appears and blinks.

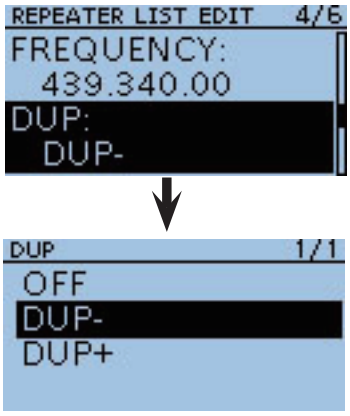
32 Rotate [DIAL] to input the 100 MHz digit of the frequency to "4."
33 Push [CD] to move the cursor backward, or push [CS] to move the cursor forward.
34 Repeat steps 32 and 33 to enter the frequency.
35 After entering, push D-pad(Ent).

Example:
"439.340.00" is entered.

☞ Continued on the next page.

■ Repeater list programming (Continued)

9. Duplex direction setting

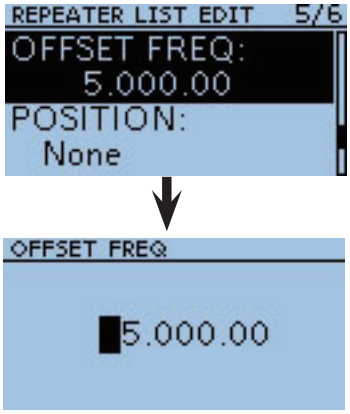


- This item appears only when "YES" is selected in [7. Access repeater setting].
- "DUP–" is automatically set when the access repeater frequency is programmed in [8. Access repeater frequency programming].
- If necessary, you can change the duplex direction.

㊱ Push D-pad(↓↑) to select "DUP," and then push D-pad(Ent).
㊲ Push D-pad(↓↑) to select the duplex direction.
- OFF : Turn the duplex function OFF. For a simplex operation, this item MUST be set to "OFF."
- 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.

㊳ After setting, push D-pad(Ent).

10. Frequency offset programming

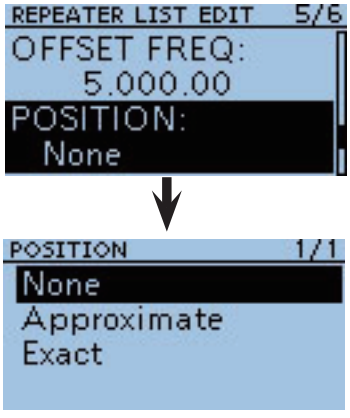


- This item appears only when "YES" is selected in [7. Access repeater setting].
- The offset value* is automatically set when the access repeater frequency is programmed in [8. Access repeater frequency programming].
  *The default value is differ depending on the version.
- If necessary, you can change the frequency offset.

㊴ Push D-pad(↓↑) to select "OFFSET FREQ," and then push D-pad(Ent) to enter the frequency offset edit mode.
- A cursor appears and blinks.

㊵ Rotate [DIAL] to input the frequency offset.
㊶ Push CD to move the cursor backward, or push CS to move the cursor forward.
㊷ Repeat steps ㊵ and ㊶ to enter the frequency offset.
㊸ After entering, push D-pad(Ent).

11. Position data accuracy level setting



When the Repeater Search function is not used, or the distance between your position and a repeater is not displayed, select "OFF."

㊹ Push D-pad(↓↑) to select "POSITION," and then push D-pad(Ent).
㊺ Push D-pad(↓↑) to select the position data accuracy level.
- None : Select when the repeater has no position data.
- Approximate : Select when the programmed position data is approximate.
- Exact : Select when the programmed position data is exactly correct.

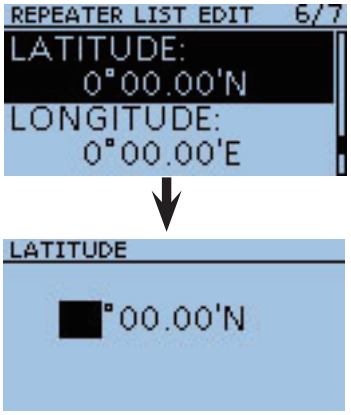
㊻ After setting, push D-pad(Ent).

12. Latitude programming

This item appears only when “Approximate” or “Exact” is selected in [11. Position data accuracy level setting].

47 Push D-pad(↓↑) to select “LATITUDE,” and then push D-pad(Ent) to enter the latitude data edit mode.
- A cursor appears and blinks.

48 Rotate [DIAL] to input the latitude data.
49 Push CD to move the cursor backward, or push CS to move the cursor forward.
50 Repeat steps 48 and 49 to enter the latitude data.
51 After entering, push D-pad(Ent).

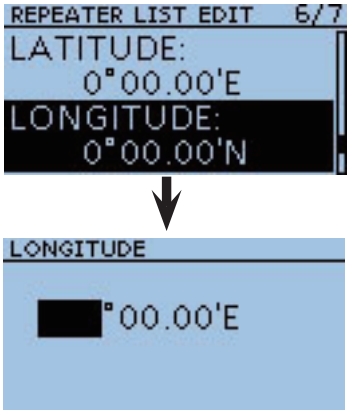


13. Longitude programming

This item appears only when “Approximate” or “Exact” is selected in [11. Position data accuracy level setting].

52 Push D-pad(↓↑) to select “LONGITUDE,” and then push D-pad(Ent) to enter the longitude data edit mode.
- A cursor appears and blinks.

53 Rotate [DIAL] to input the longitude data.
54 Push CD to move the cursor backward, or push CS to move the cursor forward.
55 Repeat steps 53 and 54 to enter the longitude data.
56 After entering, push D-pad(Ent).



14. UTC Offset programming

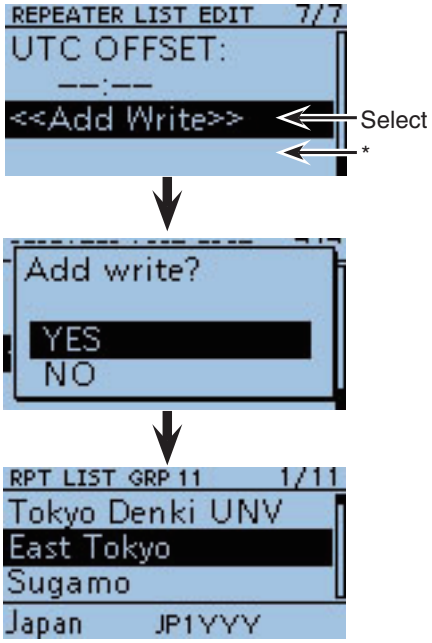
UTC (Universal Time Coordinated) offset is the time difference between UTC and repeater local time. This item enables you to check the destination repeater’s time when you make a gateway call.

57 Push D-pad(↓↑) to select “UTC OFFSET,” and then push D-pad(Ent) to enter the UTC offset edit mode.
58 Rotate [DIAL] to input the time difference between UTC and the local time.
59 Push CD to move the cursor backward, or push CS to move the cursor forward.
60 Repeat steps 58 and 59 to enter the UTC offset.
61 After entering, push D-pad(Ent).

■ Repeater list programming (Continued)

15. Storing the repeater list

62 Push D-pad(↓) to select "<<Add Write>>," and then push D-pad(Ent).
63 Push D-pad(↑) to select "YES," and then push D-pad(Ent).
• The programmed contents are stored to the repeater list, and the transceiver is returned to the RPT LIST screen.



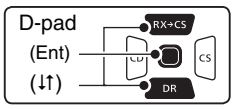
* "<<Overwrite>>" appears when "Edit" is selected in [1. Repeater group selection].

To cancel the programmed data:
To cancel the programmed data, push [CLR] (V/MHz CLR LOW) to display "Cancel edit?." Push D-pad(↑) to select "YES," and then push D-pad(Ent) to cancel programming and the transceiver returns the RPT LIST screen.

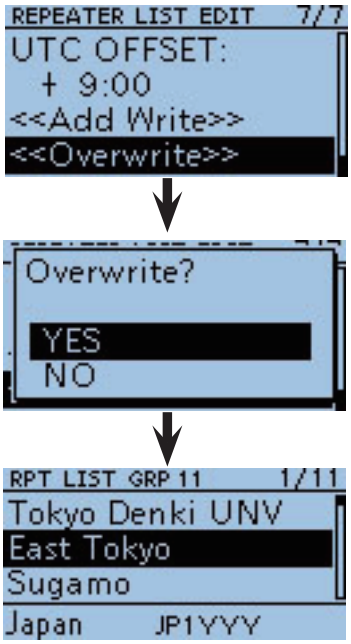
■ Editing a repeater list

This function re-programs a repeater's data. This is useful when already-programmed data is incorrect, has changed or some data should be added to the list.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("DV Memory"), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "Repeater List," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the repeater group that include the repeater you want to edit, and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select the repeater to be edited.
⑥ Push (QUICK MENU).
⑦ Push D-pad(↓↑) to select "Edit."
⑧ Push D-pad(↓↑) to select the desired item, and then push D-pad(Ent).
• See pages 4-21 to 4-28 for programming details.
⑨ After programming, returns to the REPEATER LIST EDIT screen.
⑩ Push D-pad(↓) to select "<<Overwrite>>," and then push D-pad(Ent).
⑪ Push D-pad(↑) to select "YES," and then push D-pad(Ent).
• The programmed contents are overwritten on the repeater list, and the transceiver returns the RPT LIST screen.

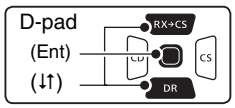


Example:
"East Tokyo" is entered.

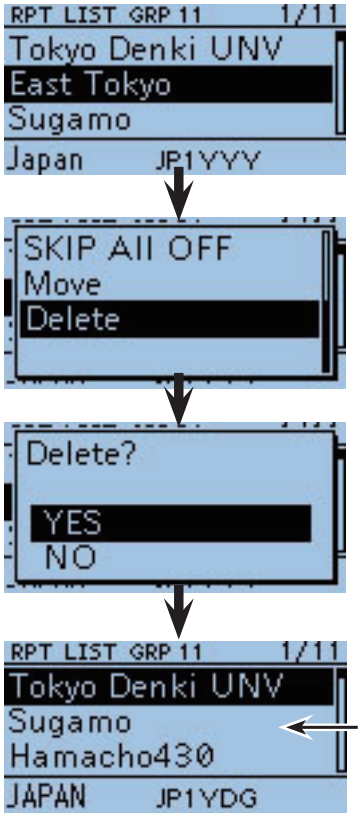
■ Deleting a repeater list

The programmed repeater contents can be deleted from the repeater list.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“DV Memory”), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “Repeater List,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the repeater group that includes the repeater you want to delete, and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select the repeater to be deleted.
⑥ Push (QUICK MENU).
⑦ Push D-pad(↓) to select “Delete,” and then push D-pad(Ent).
⑧ Push D-pad(↑) to select “YES,” and then push D-pad(Ent).
• The programmed repeater contents are deleted from the repeater list, and the transceiver returns to the RPT LIST screen.



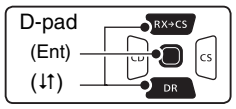
Example:
“East Tokyo” is deleted.

4

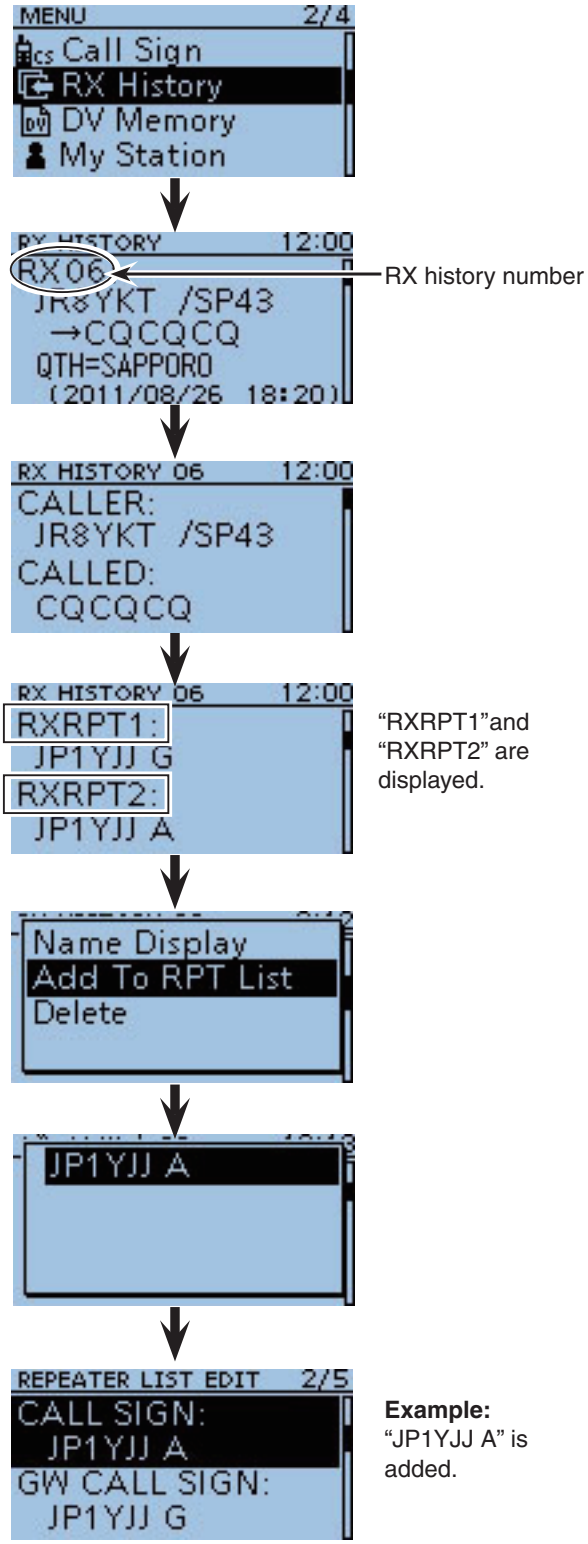
■ Adding the Repeater information using the RX History

This section describes how to add a new repeater information to the repeater list using the RX history.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("RX History"), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select the RX history number that include the repeater you want to add to the repeater list.
④ Push D-pad(Ent).
• The RX history detail screen is displayed.
⑤ Push D-pad(↓↑) to display "RXRPT1" and "RXRPT2."
⑥ Push (QUICK MENU).
⑦ Push D-pad(↓↑) to select "Add To RPT List," and then push D-pad(Ent).
⑧ Push D-pad(↓↑) to select the repeater call sign you want to add to the repeater list, and then push D-pad(Ent).
• When only one call sign is displayed, directly push D-pad(Ent).
• The display is switched from the RX HISTORY screen to the REPEATER LIST EDIT screen of the MENU. The selected repeater call sign is automatically programmed.
• If necessary, edit the contents. (pp. 4-21 to 4-28)
⑨ Push D-pad(↓↑) to select "<<Add To RPT List>>," and then push D-pad(Ent).
⑩ Push D-pad(↑) to select "YES," and then push D-pad(Ent).
• The programmed contents are added to the repeater list, and the transceiver returns to the RX HISTORY screen.



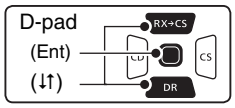
How to switch the name display:
When the call sign is displayed on the RX HISTORY screen, you can switch the display type to "Name Display."
When the repeater name is not programmed in the repeater list, the display does not switch to the name display. It is convenient that you find a repeater that is not included in the repeater list.

➥ When the RX HISTORY screen is displayed, push (QUICK MENU) to display the Quick menu. Push D-pad(↑) to select "Name Display," and then push D-pad(Ent).

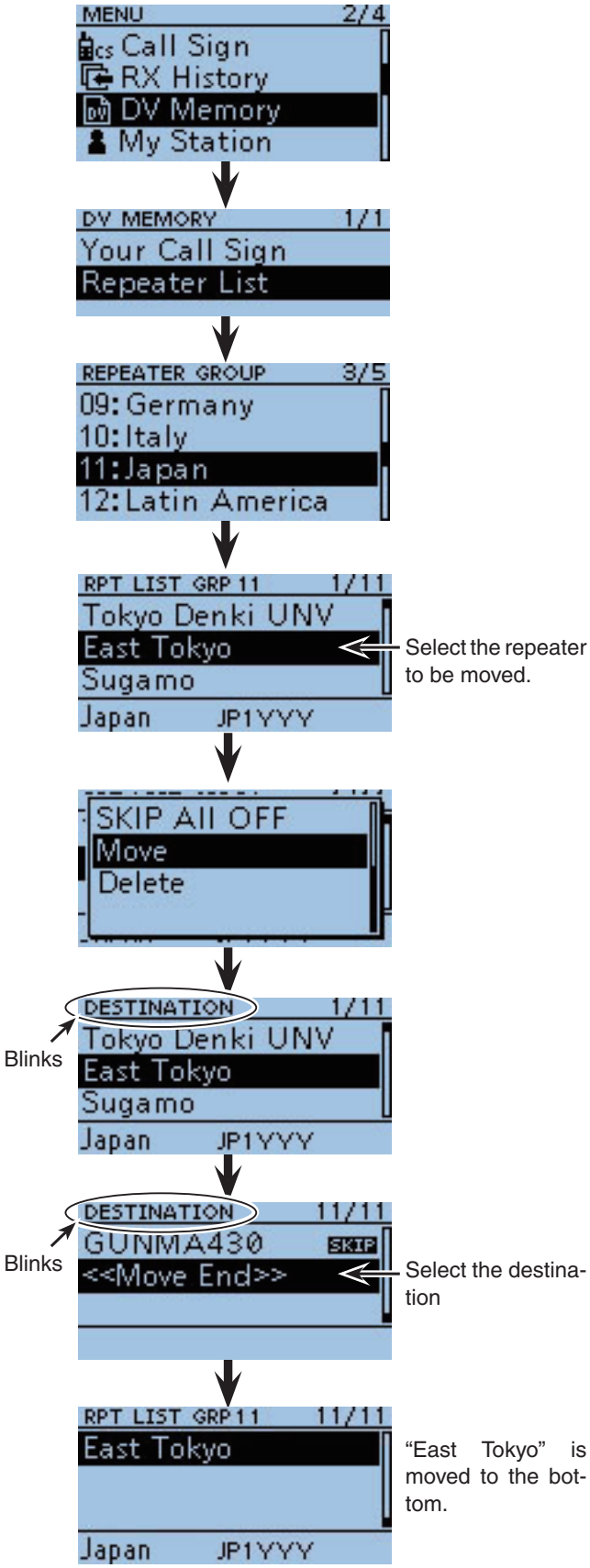
■ Rearrange the display order of the repeater

You can move the programmed repeater in selected lines to rearrange the display order of the repeater in the selected repeater group.
The programmed repeater cannot be moved beyond the repeater group.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“DV Memory”), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “Repeater List,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the repeater group that includes the repeater you want to move, and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select the repeater to be moved.
⑥ Push (QUICK MENU).
⑦ Push D-pad(↓↑) to select “Move,” and then push D-pad(Ent).
• “DESTINATION” blinks on the upper left of the LCD.
⑧ Push D-pad(↓↑) to select the destination repeater name to be moved, and then push D-pad(Ent).
• The selected repeater contents are moved to above the destination repeater name.
• When “<<Move End>>” is selected, the selected repeater contents are moved to the bottom of the repeater group.



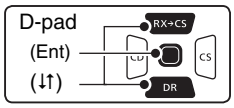
■ Skip setting for the DR mode scan

You can set the unnecessary repeaters to scan skip targets. The selected repeaters are skipped during scanning for faster selection and scanning.
You can set the skip setting to all repeaters in the selected repeater group, or the individual repeater.

When a repeater is specified as a skip target, its "USE (FROM)" setting is automatically set to "NO." In this case, the repeater cannot be selected to "FROM" (Access repeater).

◇ Individual skip setting

① Push MENU.
② Push D-pad(↓↑) to select the root item ("DV Memory"), and then push D-pad(Ent).

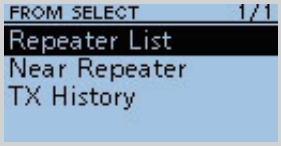


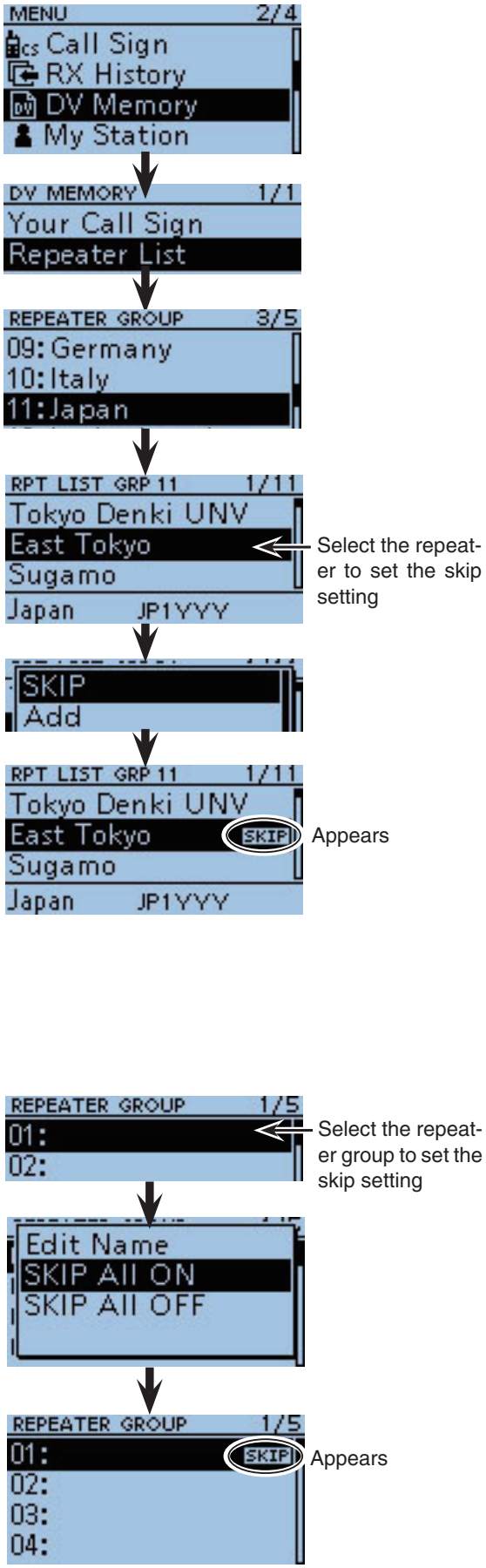
③ Push D-pad(↓↑) to select "Repeater List," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the repeater group that includes the repeater you want to set the skip setting on, and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select the repeater to be skipped during the DR mode scan.
⑥ Push (QUICK MENU).
⑦ Push D-pad(↑) to select "SKIP," and then push D-pad(Ent).
- "SKIP" appears on the selected repeater.
- Push (QUICK MENU) and select "SKIP" again, then push D-pad(Ent) to cancel the skip setting.
- When "SKIP All ON" is selected, push D-pad(Ent) to set all repeaters in the group as skip targets.

◇ Group skip setting

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("DV Memory"), and then push D-pad(Ent).
③ Push D-pad(↓↑) to select "Repeater List," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the repeater group to be skipped during the DR mode scan.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "SKIP All ON," and then push D-pad(Ent).
- "SKIP" appears on the selected repeater group.
- Push (QUICK MENU) again and select "SKIP All OFF," then push D-pad(Ent) to cancel the skip setting.

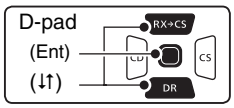
While in the DR mode, and if you select "Repeater List" on the FROM SELECT screen, you can set the skip settings in the same way as described above.





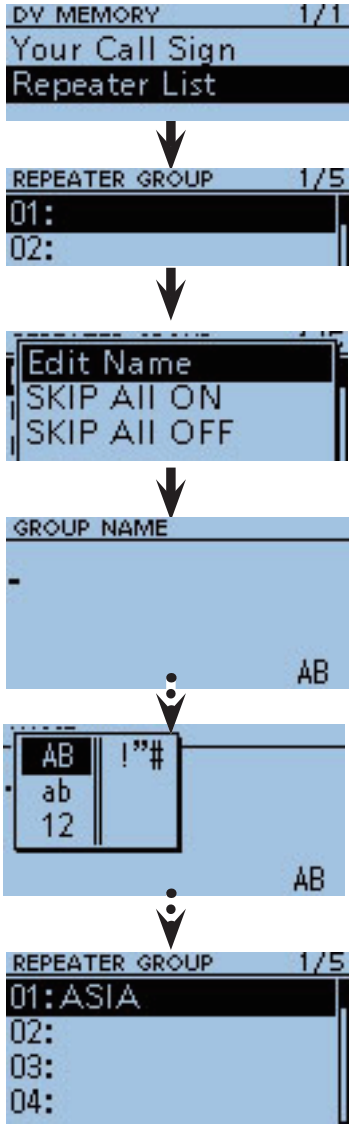
■ Repeater group name programming

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("DV Memory"), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "Repeater List," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the repeater group you want to program the name.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↑) to select "Edit Name," and then push D-pad(Ent) to enter the group name edit mode.
⑦ Rotate [DIAL] to select a desired character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push (QUICK MENU) to change the character to a upper case or lower case letter.
- While selecting a digit, push (QUICK MENU) to open the input mode selection window.
- A space can be selected, even for any input mode selected.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.
- See page 4-2 for programming details.

⑧ Push D-pad(→) to move the cursor to the second digit.
⑨ Repeat steps ⑦ and ⑧ to enter a name of up to 16 characters, including spaces.
⑩ After entering, push D-pad(Ent).



Groupname edit mode

Character type selection screen

Example:
"ASIA" is programmed.

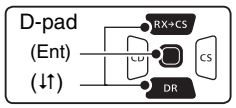
■ Repeater detail screen

According to the programmed contents, such as position data, UTC offset, and so on, the distance between your position and the repeater or repeater time can be displayed on the REPEATER DETAIL screen.

Example: Shows the "Hirano430" repeater detail screen

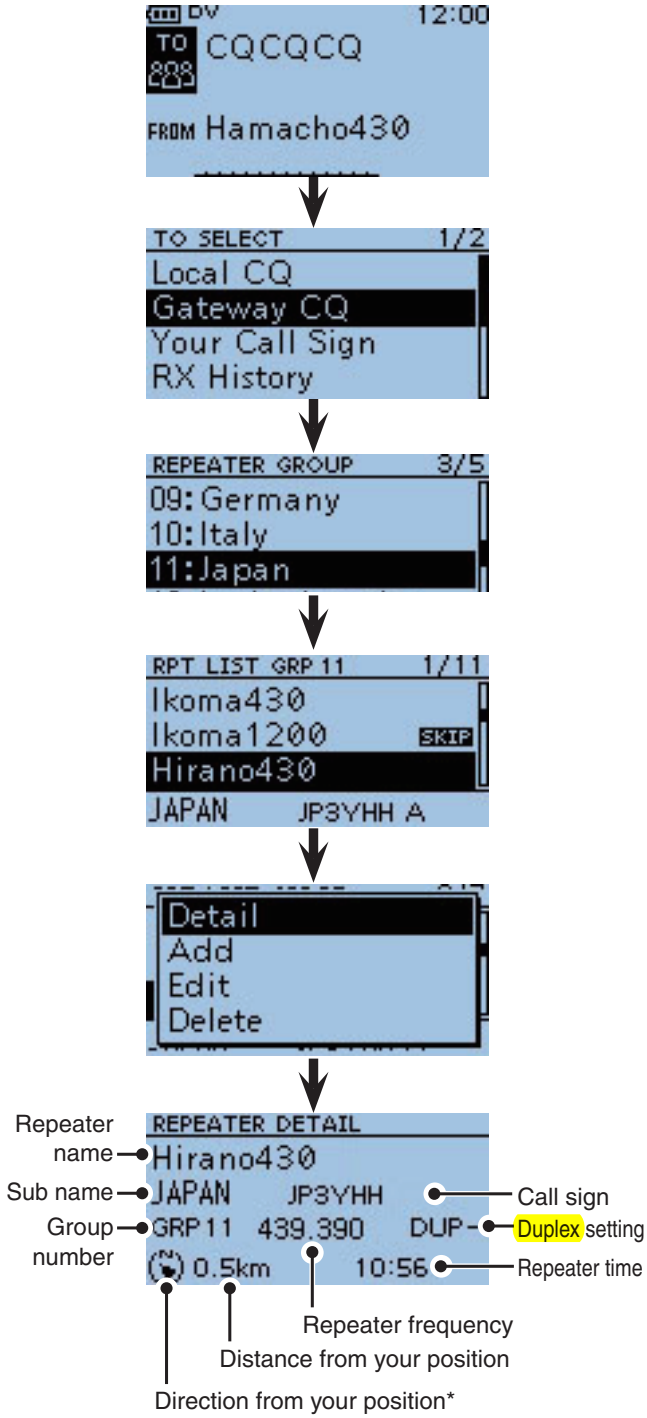
① Hold down [DR] for 1 second.
- The DR mode is selected.

② Push D-pad(↑) to select "TO," and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "Gateway CQ," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select "11:Japan," and then push D-pad(Ent).
⑤ Push D-pad(↓↑) to select "Hirano430," and then push D-pad(Ent).
⑥ Push [QUICK MENU].
⑦ Push D-pad(↓↑) to select "Detail," and then push D-pad(Ent).
- The REPEATER DETAIL screen is displayed.

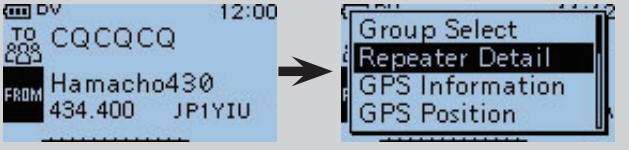
⑧ Push D-pad(Ent) to return to the RPT LIST screen.



* When the position data accuracy level is set to "Approximate," direction data is not displayed if the distance to the repeater is under 5 kilometers.

While in the DR mode, and if you set the repeater as shown to the right, the repeater details screen can be displayed.

① Push [QUICK MENU] to display the quick menu screen.
② Push D-pad(↓↑) to select "Repeater Detail," and then push D-pad(Ent).
- The REPEATER DETAIL screen is displayed.



Repeater is set to "FROM" "Repeater Detail" is selected

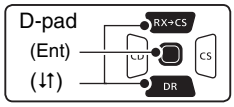
■ Your (destination) call sign programming

A Your (destination) call sign can be manually programmed.
The Your (destination) call sign is set to "TO," you can make a call to a station, even if you don't know where the station is currently located.

Up to 200 Your call signs can be programmed.

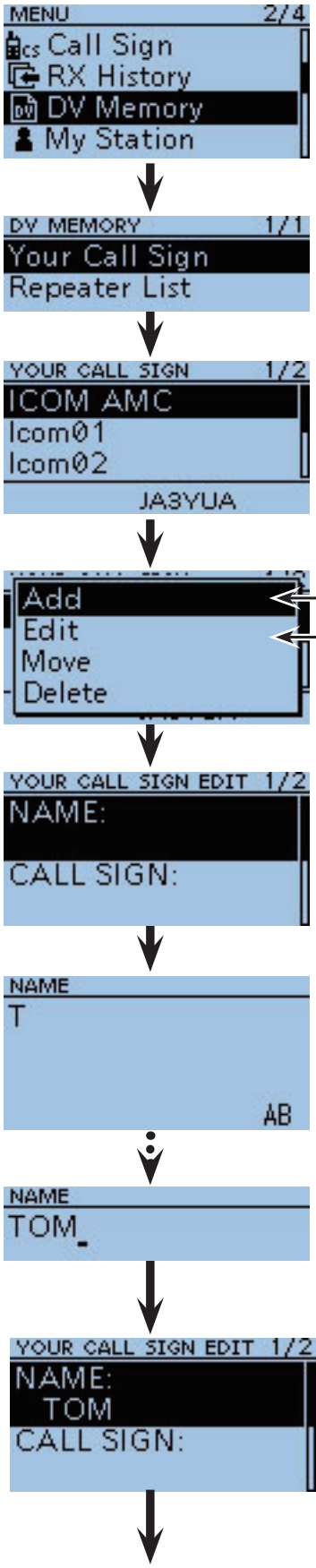
Example: Program "TOM/JM1ZLK" to the Your Call Sign memory.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("DV Memory"), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "Your Call Sign," and then push D-pad(Ent).
④ Push (QUICK MENU).
⑤ Push D-pad(↑) to select "Add," and then push D-pad(Ent) to enter the edit mode.
⑥ Push D-pad(↓↑) to select "NAME," and then push D-pad(Ent).
⑦ Rotate [DIAL] to select a desired character.
(For example: T)
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push (QUICK MENU) to change the character to a upper case or lower case letter.
- While selecting a digit, push (QUICK MENU) to open the input mode selection window.
- A space can be selected, even for any input mode selected.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.
- See page 4-2 for programming details.

⑧ Push D-pad(→) to move the cursor to the second digit.
⑨ Repeat steps ⑦ and ⑧ to enter a name of up to 16 characters, including spaces.
(For example: First, T, then O, then M.)
⑩ After entering the name, push D-pad(Ent).

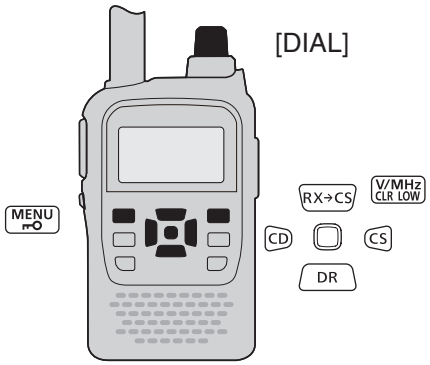


☞ Continued on the next page

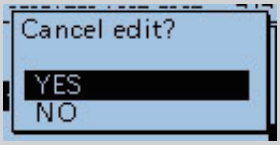
■ Destination call sign programming (Continued)

⑪ Push D-pad(↓↑) to select "CALL SIGN," and then push D-pad(Ent).
⑫ Rotate [DIAL] to select the first character.
(For example: J)
- A to Z, 0 to 9, / and a space can be selected.
- A space can be selected, even for any input mode selected.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.

⑬ Push D-pad(→) to move the cursor to the second digit.
⑭ Repeat steps ⑫ and ⑬ to enter a call sign of up to 8 characters, including spaces.
(For example: First, J, then M, then 1, then Z, then L, then K.)
⑮ After entering, push D-pad(Ent).
⑯ Push D-pad(↓) to select "<<Add Write>>," and then push D-pad(Ent).
⑰ Push D-pad(↑) to select "YES," and then push D-pad(Ent).
⑱ Push MENU to exit the MENU screen.



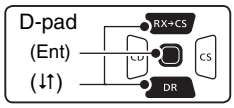
To cancel the programmed data:
To cancel the programmed data, push [CLR] (V/MHz CLR LOW) to display "Cancel edit?." Push D-pad(↑) to select "YES," and then push D-pad(Ent) to cancel programming and the transceiver returns the YOUR CALL SIGN screen.



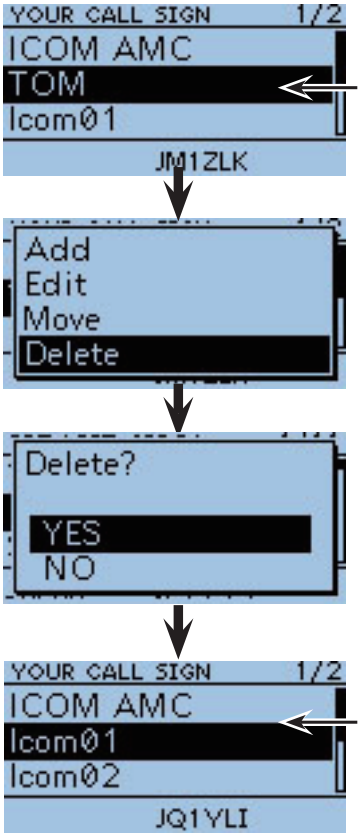
■ Deleting Your (destination) call sign

The Your (destination) call signs can be deleted from the Your Call Sign memory.

①Push [MENU] (MENU).
②Push D-pad(↓↑) to select the root item (“DV Memory”), and then push D-pad(Ent).



③Push D-pad(↓↑) to select “Your Call Sign,” and then push D-pad(Ent).
④Push D-pad(↓↑) to select the Your call sign you want to delete.
⑤Push (QUICK MENU).
⑥Push D-pad(↓↑) to select “Delete,” and then push D-pad(Ent).
⑦Push D-pad(↑) to select “YES,” and then push D-pad(Ent).
• The selected call sign is deleted from the memory, and the transceiver returns the YOUR CALL SIGN screen.



Select the call sign you want to delete.

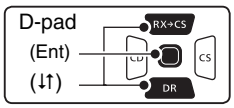
Example:
“TOM” is deleted.

4

■ Rearrange the display order of Your (destination) call sign

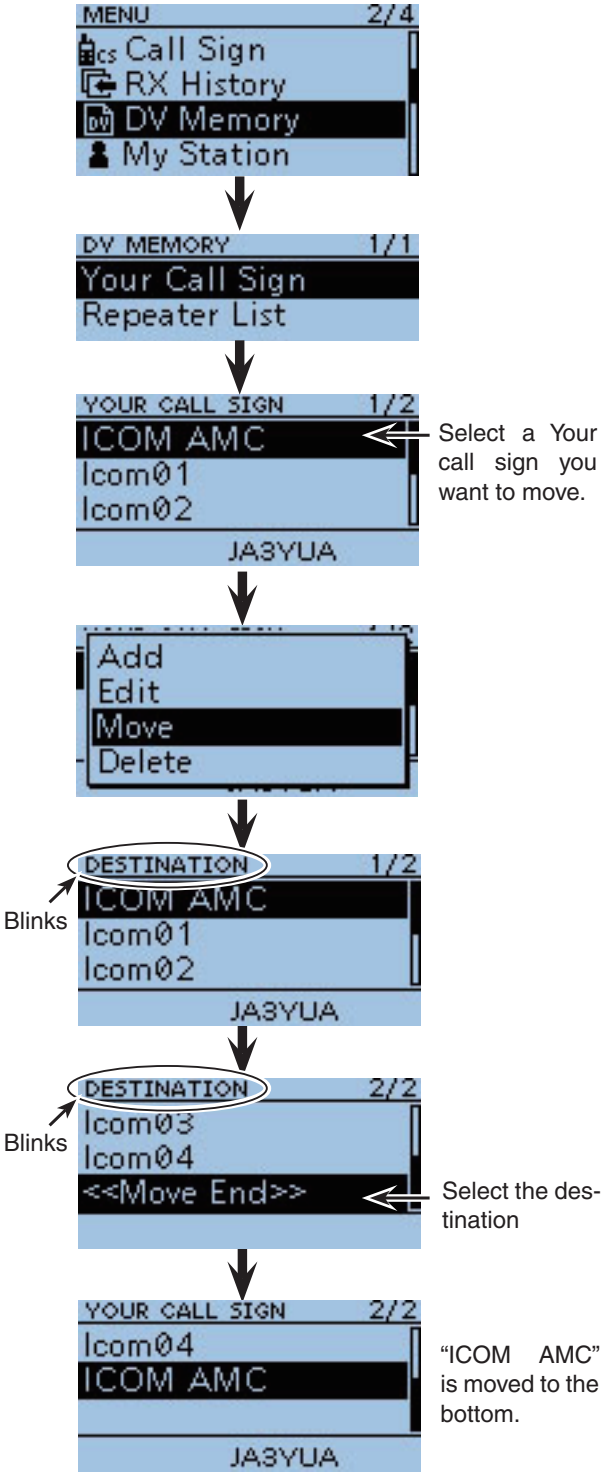
You can move Your call signs in selected lines to rearrange the display order of Your call sign memory.
It is easy to find stations that you often communicate if the stations are moved to the top of the memory.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“DV Memory”), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select “Your Call Sign,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the call sign you want to move.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select “Move,” and then push D-pad(Ent).
- “DESTINATION” blinks on the upper left of the LCD.

⑦ Push D-pad(↓↑) to select the destination to be moved to, and then push D-pad(Ent).
- The selected contents are moved to above the destination.
- When “<<Move End>>” is selected, the selected contents are moved to the bottom of the YOUR CALL SIGN screen.



■ About the repeater list default values

You can check the repeater list default values using the supplied CS-31 CLONING SOFTWARE.

The ICF (Icom Cloning Format) file, including the default repeater list, can be downloaded from our website.
Access the following URL to download the ICF file.
http://www.icom.co.jp/world/index.html

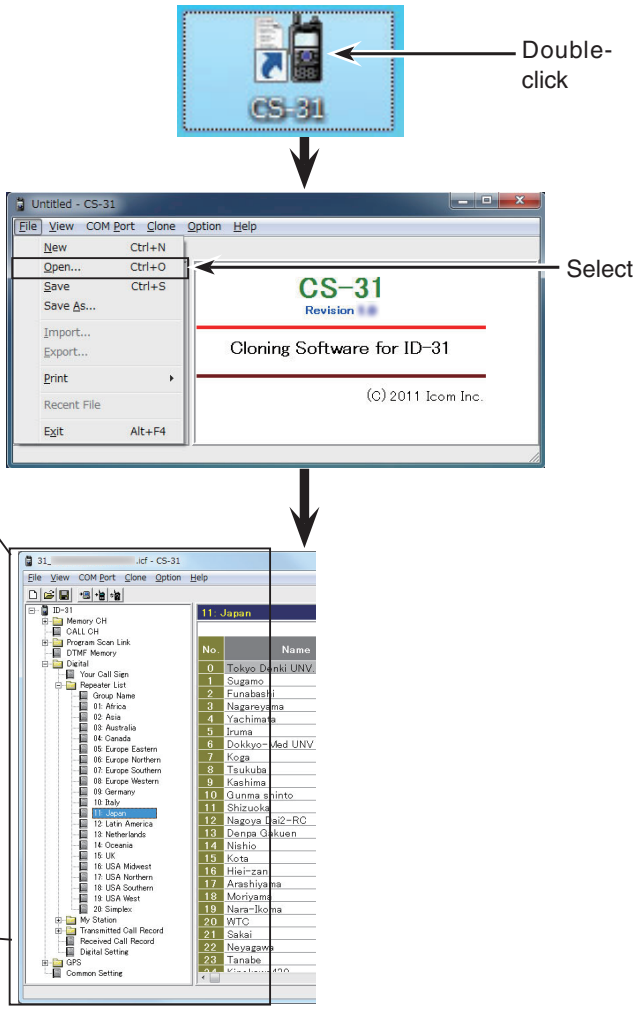
If you open the downloaded ICF file with the CS-31, the repeater list default values are displayed on the screen.
To reset the programmed repeater list to the default, write the ICF file to the transceiver using the CS-31*1, or copy the ICF file to the microSD card*2, and then write to the transceiver.

*1 See the CS-31 instruction manual when using the CS-31.
*2 See page 12-9 when using the microSD card.

◇ Opening the default repeater list

①Start the CS-31.
- See the CS-31 instruction manual for how to install the software.

②Click [Open] to open the ICF file.
③Click the [Repeater list] folder to show the default repeater list.



When the ICF file is opened on the CS-31.

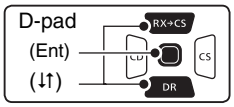
GPS/GPS-A OPERATION Section 5

■ GPS operation

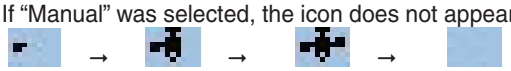
The ID-31A/E has a built-in internal GPS receiver. The GPS receiver Position information can be received in any modes. Also, a NMEA format compatible external GPS receiver can be connected to the ID-31A/E through the [DATA] port.

◇ Receiving GPS data

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent) to go to the next screen.

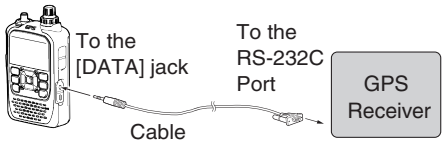


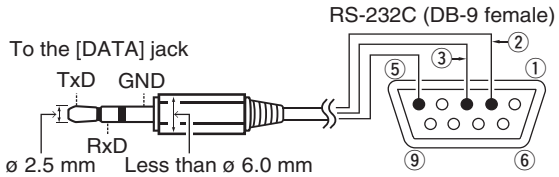
(MENU > GPS > GPS Set> **GPS Select**)
③ Refer to the menu sequence shown directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select "Internal GPS."
• If an external GPS receiver is connected, select "External GPS."
⑤ Push [MENU] (MENU) to exit the Menu screen.
• The GPS icon blinks when receiving data, as illustrated below, and stops blinking when valid data has been received. If "Manual" was selected, the icon does not appear.



• It may take a longer or shorter time to receive, depending on the environment. If you have difficulties receiving, we recommend that you try a different location.

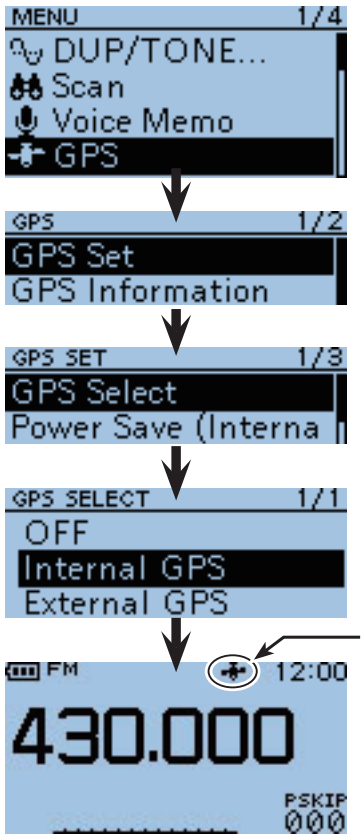
• Connection





Connect ② with RxD, ③ with TxD and ⑤ with GND.

To receive signals from an external GPS source, connect an external NMEA format compatible receiver to the ID-31A/E according to the instructions, shown below. The cable is not an Icom product and must be made separately. Refer to the wiring diagram for pin connections.
• Position data can be transmitted in only the DV mode.



GPS SELECT screen

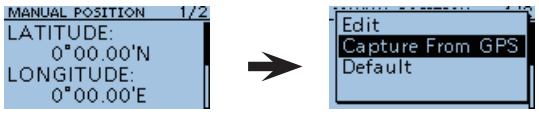
GPS icon blinks (stops when valid data is received)

NOTE: While continuously using the Internal GPS mode, the battery in the ID-31A/E can quickly become exhausted. Longer battery time can be achieved by turning ON the Power Save mode.
(MENU > GPS > GPS Set > **Power Save (Internal GPS)**)
See page 10-22 for details.

Extending battery life while traveling in the GPS mode

When traveling in the Internal GPS receiver mode, the battery in the ID-31A/E can quickly be exhausted. Longer battery time can be achieved by setting the GPS option to Manual, and then occasionally capture your position to update your data.

① Open the Menu screen and select the "GPS" item, then push D-pad(Ent) to enter the next menu.
② Select the "GPS Set" item and push D-pad(Ent), then select the "Manual Position" item, and then push D-pad(Ent).
• Your last received or entered position is displayed.
③ Push (QUICK MENU), then select the "Capture From GPS" option, and then push D-pad(Ent).
• Your current position is now memorized and displayed on the MANUAL POSITION screen.
④ Push (MENU) to save the setting and return to the operating screen.
• After that, set to "Manual" in the "GPS Select" item.



[MANUAL POSITION] menu is displayed

Select [Capture From GPS]

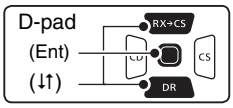
■ Checking GPS Position

You can check your current position.

◇ Displaying Position Data

① Push [MENU] to open the main Quick Menu screen.

② Push D-pad(↓↑) to select the "GPS position" item, and then push D-pad(Ent).
The first MY GPS position screen appears. (1/5)



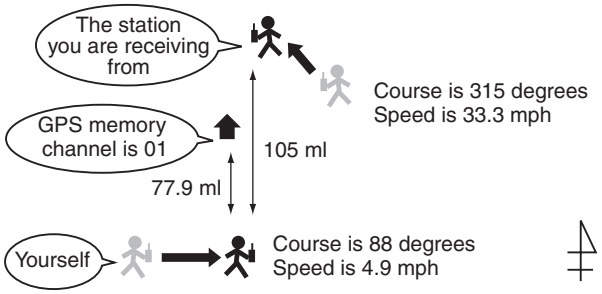
③ Pushing D-pad(↓↑) allows you to scroll through two MY screen, two RX received screen and one Memory screen 1/5 to 5/5.

- My Position 1 : Your position in Latitude, Longitude, elevation and time are displayed. A compass heading is also displayed.
- My Position 2 : Your course in degrees and speed in a selected format is displayed.
- RX Position 1 : The position of the station you are receiving from in Latitude, Longitude and the distance from the station to you is displayed.
- RX Position 2 : The SSID, course, speed and altitude of the station you are receiving from is displayed.
  Depending on the activity of the station you are receiving from, some data may not be displayed.
- MEM Position : The position of the memory channel location in Latitude and Longitude is displayed. Also, the distance from you to the memory channel is displayed.

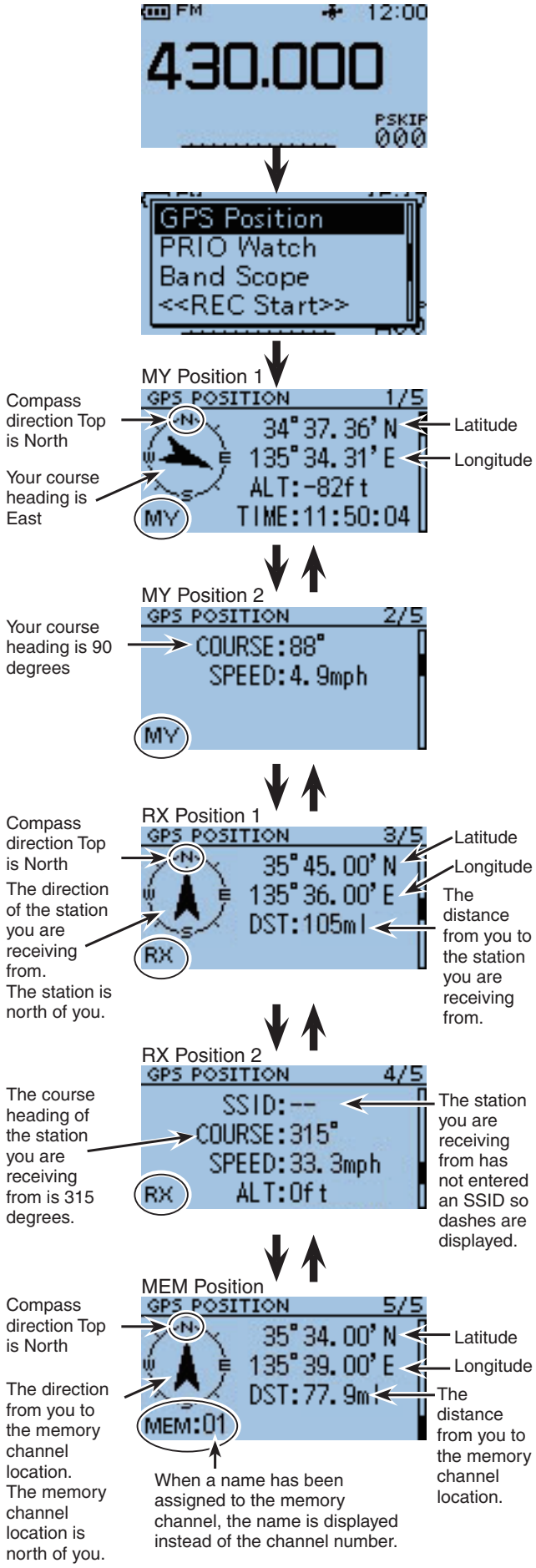
NOTE: Data entered manually in the "Manual Position" Edit option is not displayed.
(MENU > GPS > GPS Set > **GPS Select**)
See page 10-22 for details.

④ Push [CLR] [V/MHz CLR LOW] to cancel the GPS POSITION screen and return to the operating screen.

• This is a graphic example of the GPS data screens to the right.



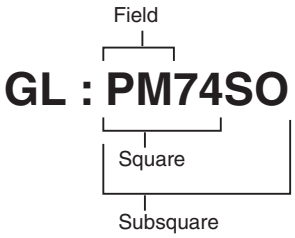
NOTE:
The latitude, longitude and altitude may differ, depending on your GPS selection of either the internal or an external GPS receiver.
Also, the time may not be displayed, depending on the external GPS.



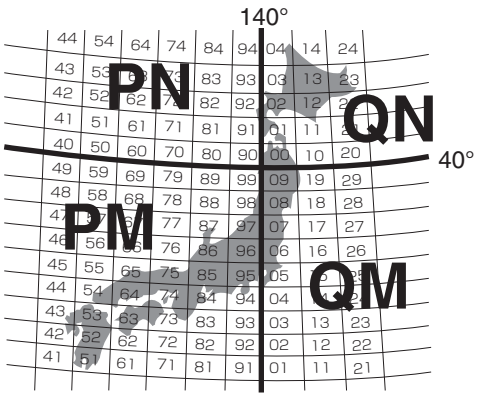
■ Checking GPS Position (Continued)

◇ Changing the Grid Locator

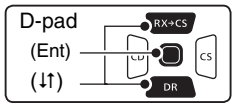
Grid Locator (GL) is a location compressed into a 6 character code, calculated by the longitude and the latitude.
The locator is simply calculated by dividing the earth surface into squares.
It is used to find the location of a radio station.



• The grid locator map of Japan



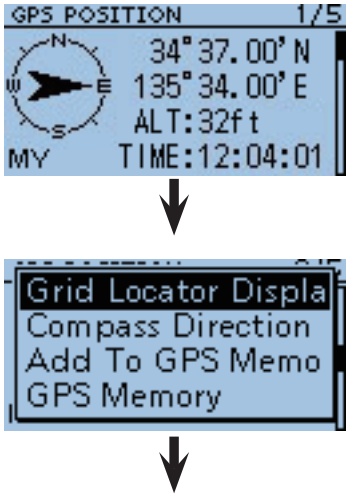
① Push QUICK MENU while the MY Position1/ RX Position 1/ MEM Position screen is displayed.
② Push D-pad(↓↑) to select "Grid Locator Display" and push D-pad(Ent).



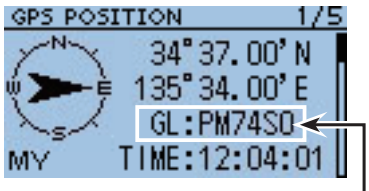
- MY Position 1 : Display the Grid Locator, instead of the altitude.
- RX Position 1 : Display the Grid Locator, instead of the distance.
- MEM Position : Display the Grid Locator, instead of the distance.

Push QUICK MENU and select the [Altitude display] or [Distance display] to go back to the previous screen.

MY Position1

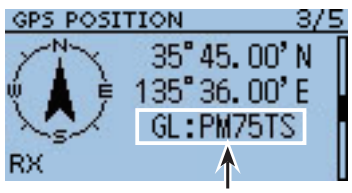


- MY Position1



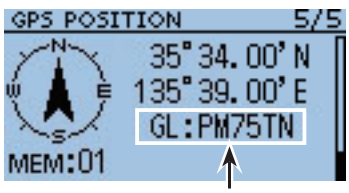
Displays the Grid Locator, instead of altitude.

- RX Position1



Displays the Grid Locator, instead of distance.

- MEM Position1

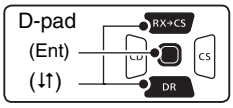


Displays the Grid Locator, instead of distance.

◇ Changing the Compass Direction

You can change the compass direction between Heading Up, North Up and South Up.

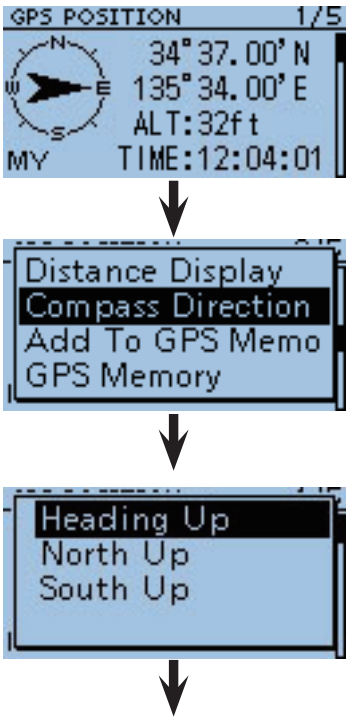
①Push QUICK MENU while the MY Position 1/ RX Position 1/ MEM Position screen is displayed.
②Push D-pad(⇃↾), then push D-pad(Ent) to display the Compass Direction menu.



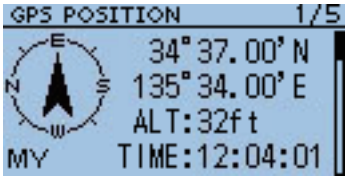
③Push D-pad(⇃↾) to select the compass direction, then push D-pad(Ent).

- Heading Up: The compass always pointed to your heading course direction.
- North Up : The top is always north.
- South Up : The top is always south.

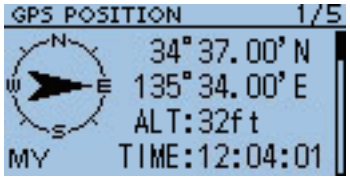
MY Position 1



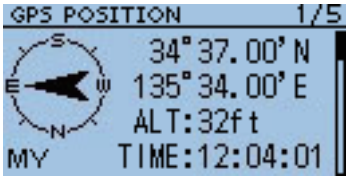
- Heading Up



- North Up



- South Up



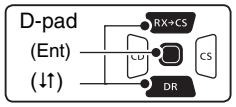
■ Checking GPS Position (Continued)

◇ Saving your own or received position data

With this function, you can save the position information of your station from wherever you are, and also the position information of the station you received it from.

The GPS Memory is capable of storing 100 channels in total, assignable to one of 26 banks, A to Z.

① Push QUICK MENU.
② Push D-pad(↓↑) to select "GPS Position," and then push D-pad(Ent).



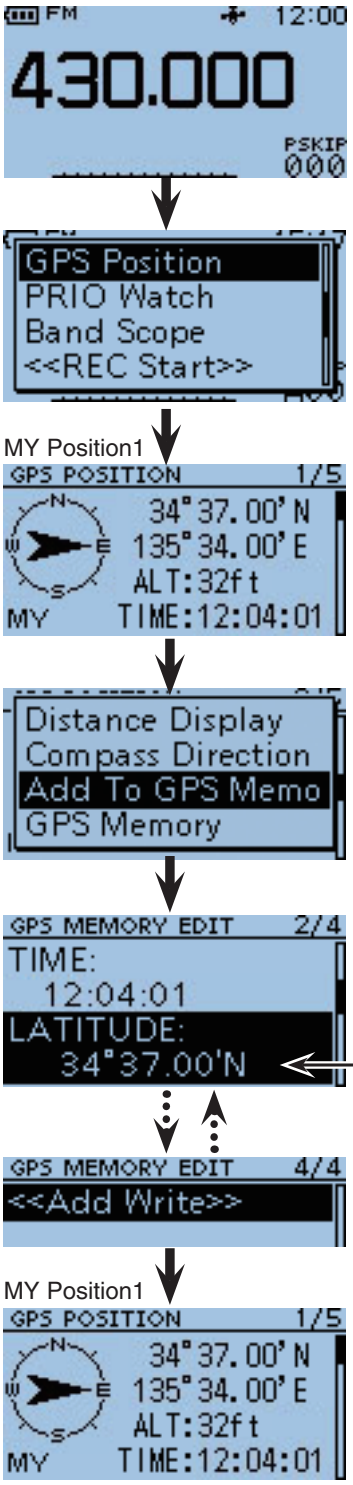
③ Push D-pad(↓↑) to select the position information that you want to save.
- To save the position information of your station, select : MY Position 1
- To save the position information of the station you received from, select : RX Position 1

④ Push QUICK MENU.
⑤ Push D-pad(↓↑) to select "Add To GPS Memory," and push D-pad(Ent) to save.
The GPS MEMORY EDIT screen is displayed.
- The position information (Latitude/Longitude) is automatically added.
- See 5-8 to 5-11 for details on editing position data.

⑥ Push D-pad(↓↑) to select "<<Add Write>>," then push D-pad(Ent).
- The confirmation screen "Add Write?" appears.

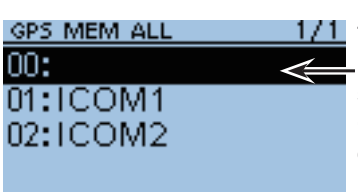
⑦ Push D-pad(↑) to select "Yes," and then push D-pad(Ent).
- The added GPS Memory Channel is saved as [00], and the previously saved channel numbers are moved up.
- The channel is added to GPS Memory and returns to the GPS POSITION screen.

⑧ Push [CLR] V/MHz CLR LOW to exit the GPS POSITION screen.



Select the MY Position 1 to save the position of your station.

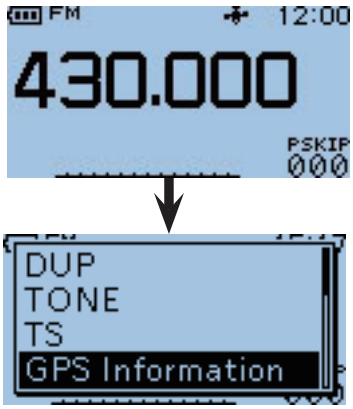
GPS MEMORY EDIT screen is displayed, and Latitude/Longitude is added.



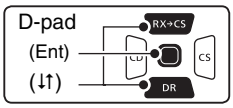
The position information selected for GPS memory channel [00] is saved.

■ Checking GPS Information (Sky view screen)

This screen is used to receive GPS satellite when the GPS indicator does not stop blinking for a long time.
GPS Information displays the quantity, signal power and position of the GPS satellites.
Sky view screen shows the position of GPS satellites.
The screen also shows the direction, elevation angle, satellite numbers and their receiving signal strength status.



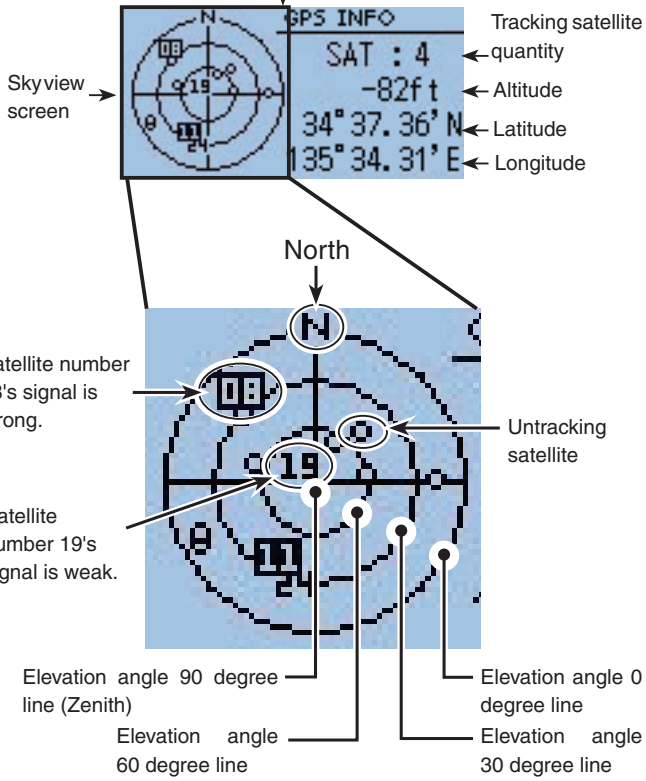
① Push QUICK MENU.
② Push D-pad(↓↑) to select "GPS Information," and push D-pad(Ent).



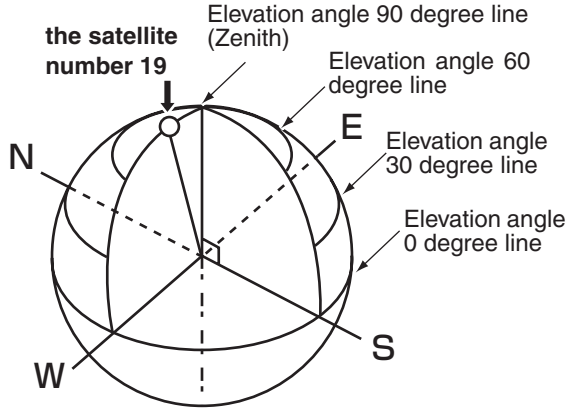
Meaning of display

- (○) : Untracking satellite.
- (01) : Tracking satellite with a weak signal shown in satellite number.
- (01) : Tracking satellite with a strong signal shown in satellite number.
- (SAT) : The quantity of tracking satellites.
- Altitude : The altitude of your station. The altitude is only displayed when more than 4 satellites are tracked. When less than 3 satellites are tracked, [------ft] is displayed.
- Longitude/Latitude : Longitude and Latitude of your station.

③ Push QUICK MENU to exit the GPS INFO screen.



• The image of the satellite number 19



■ Adding or editing GPS memory

◇ GPS Memory

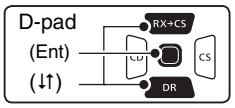
You can add GPS data to GPS Memory.
You can add the your own position, other station's position or any positions that are manually programmed. Also, an alarm can be set to GPS Memory to sound, depending on the distance from your station.

The GPS Memory is capable of storing a total of 100 channels in a "ALL" folder, or conveniently stored in up to 26 banks, from A to Z. The banks can also be named. (p. 7-10)

◇ Add a GPS memory

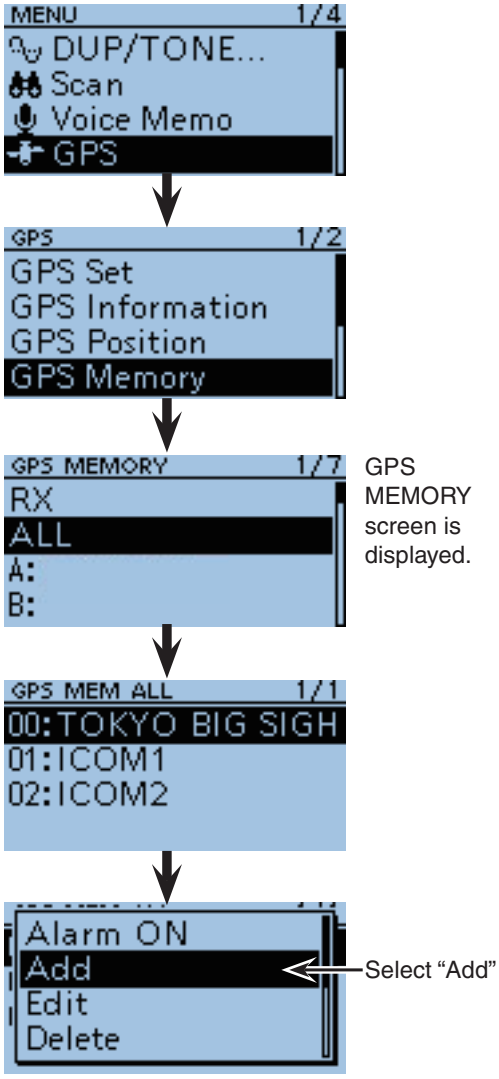
1. Adding GPS Memory and entering the edit mode

❶ Push [MENU] (MENU).
❷ Push D-pad(↓↑) and D-pad(Ent) to select "GPS," and then select "GPS Memory."



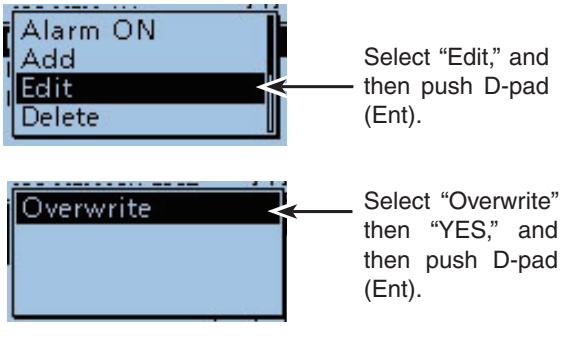
❸ Push D-pad(↓↑) to select "ALL," and then push D-pad(Ent).
• All the previously added GPS memories are displayed.
❹ Push (QUICK MENU).
❺ Push D-pad(↓↑) to select "Add," and then push D-pad(Ent).
• GPS MEMORY EDIT screen is displayed.

(Continued on the next page)



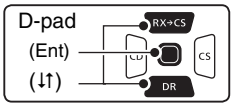
Editing the assigned data:

① Select "Edit" by pushing D-pad(Ent), as illustrated to the right while the desired bank is selected.
② Select the desired data, then the editing screen is displayed.
③ When the desired editing is completed, push (QUICK MENU).
④ Select "Overwrite," then select "YES." The editing is completed.



2. GPS Memory name programming

❻ Push D-pad(↓↑) to select “NAME.”



❼ Push D-pad(Ent), then the editing screen appears.

❽ Rotate [DIAL] to select the first character.

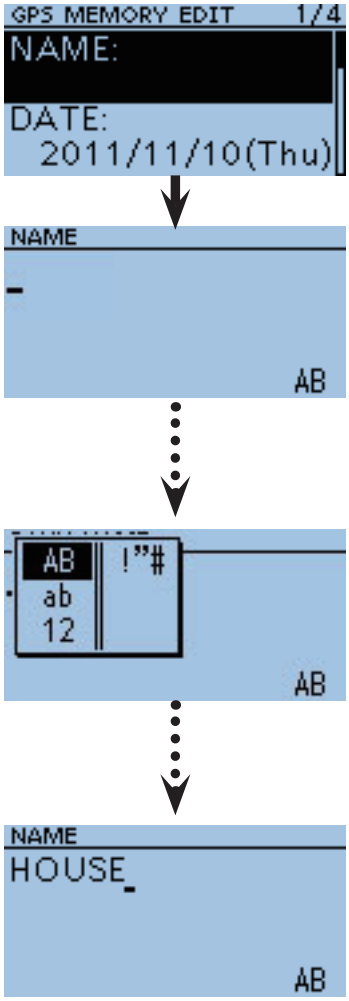
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push [QUICK MENU] to change the character to a upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.
  Push D-pad(↓↑⇆) to select the desired modes to Upper case letters, Lower case letters, Numbers and Symbols. To enter symbols, select “!”#,” and then push D-pad(Ent) to display the symbol character selection window. And rotate [DIAL] to select the desired symbol character, and then push D-pad(Ent).
- A space can be selected, even for any input mode selected.
- Push D-pad(→) to enter a space to the right of the last character.
  To insert a space to the left of any selected character, rotate [DIAL] to select a space to insert it.
- Push [CLR] [V/MHz CLR LOW] to erase the selected character, or hold down [CLR] [V/MHz CLR LOW] to continuously erase the characters after the cursor.

❾ Push D-pad(→) to move the cursor to the second digit.

❿ Repeat steps ❽ and ❾ to enter a GPS Memory name of up to 16 characters, including spaces.

⓫ After entering the name, push D-pad(Ent).

(Continued on the next page)



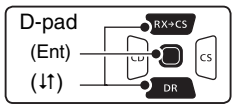
Character type selection screen

(Example) When entering "HOUSE."

■ GPS memory operation (Continued)

3. GPS Memory date programming

⓬ Push D-pad(⇵) to select “DATE.”



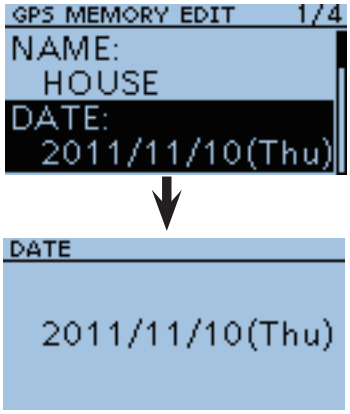
⓭ Push D-pad(Ent), then the editing date screen appears.
- The edited dates are displayed.

⓮ Rotate [DIAL] to edit the date.
- The dates between 2000/01/02 to 2099/12/30 are programmable.

⓯ Push D-pad(⇆) to move the cursor left or right to select and edit the year, month or day.

⓰ Repeat steps ⓮ and ⓯ to enter a GPS Memory date.

⓱ After entering the date, push D-pad(Ent).



4. GPS Memory time programming

⓲ Push D-pad(⇵) to select “TIME.”

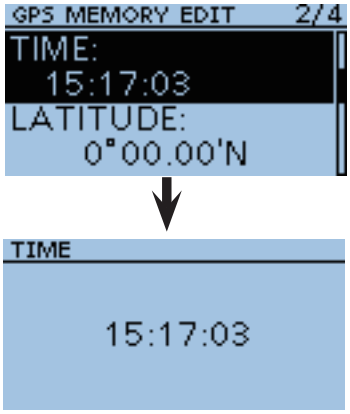
⓳ Push D-pad(Ent), then the editing screen appears.
- The edited time is displayed.

⓴ Rotate [DIAL] to edit the time.
- The time between 00:00:00 to 23:59:59 are programmable.

㉑ Push D-pad(⇆) to move the cursor left or right to select and edit the hour, minute or second.

㉒ Repeat steps ⓴ and ㉑ to enter GPS Memory time.

㉓ After entering the time, push D-pad(Ent).



5. GPS Memory latitude programming

㉔ Push D-pad(⇵) to select “LATITUDE.”

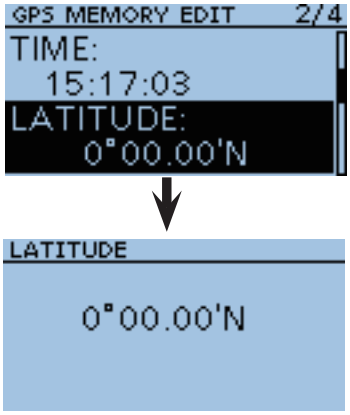
㉕ Push D-pad(Ent), then the editing screen appears.

㉖ Rotate [DIAL] to edit the latitude.
- The latitude between 0°00.00' to 90°00.00' are programmable.
  If "ddd° mm' ss"" is selected in POSITION FORMAT screen, between 0°00'00" to 90°00'00" are programmable.
  (MENU > GPS > GPS Set > **Position Format**)

㉗ Push D-pad(⇆) to move the cursor to left or right to select and edit degrees or decimal minutes.

㉘ Repeat steps ㉖ and ㉗ to enter a GPS Memory latitude.
- Select “N” to program the north latitude, and “S” when program the South latitude.

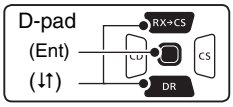
㉙ After entering the latitude, push D-pad(Ent).



(Continued on the next page)

6. GPS Memory longitude programming

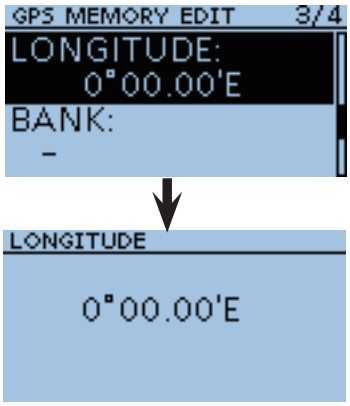
㉚ Push D-pad(↓↑) to select “LONGITUDE.”



㉛ Push D-pad(Ent), then the editing screen appears.
㉜ Rotate [DIAL] to edit the longitude.
- The longitude between 0°00.00' to 180°00.00' are programmable.
  If "ddd° mm' ss"" is selected in POSITION FORMAT screen, between 0°00'00" to 90°00'00" are programmable.
  (MENU > GPS > GPS Set > **Position Format**)

㉝ Push D-pad(⇆) to move the cursor to left or right to select and edit degrees or decimal minutes.
㉞ Repeat steps ㉜ and ㉝ to enter a GPS Memory longitude.
- Select “E” to program the east longitude, and “W” when program the west longitude.

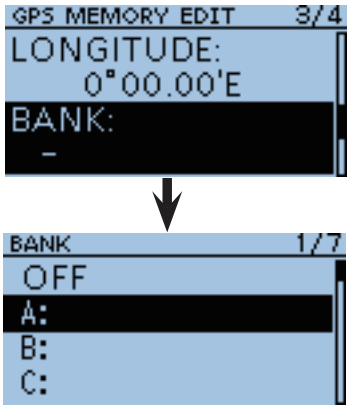
㉟ After entering the longitude, push D-pad(Ent).



7. GPS Memory Bank programming

㊱ Push D-pad(↓↑) to select “BANK.”
㊲ Push D-pad(Ent), then the editing screen appears.
㊳ Push D-pad(↓↑) to select a bank between A to Z, or select “OFF” and push D-pad(Ent).
- Each bank is capable of storing up to 100 GPS memories.

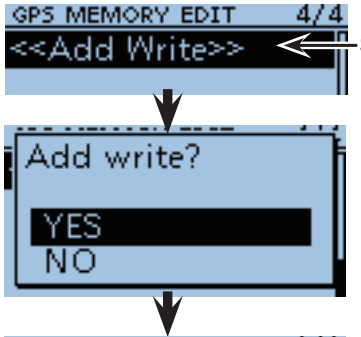
㊴ After selecting the GPS Memory bank, push D-pad(Ent).



8. Writing GPS Memory

㊵ Push D-pad(↓↑) to select “<<Add Write>>,” and then push D-pad(Ent).
- If a previously added GPS memory is edited, select “<<Overwrite>>.”

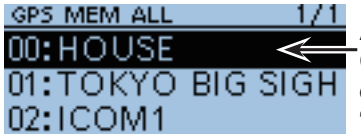
㊶ Push D-pad(↑) to select “YES,” and then push D-pad(Ent).



Bank screen

(Example) When “HOUSE” is saved in bank A.

GPS Memory channel list

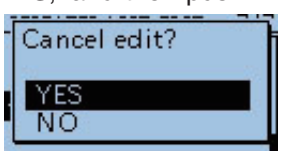


Added to the GPS Memory channel list “00:.”

To cancel the programmed data:

① To cancel the programmed data, push [CLR] (V/MHz CLR LOW) to display “Cancel edit?.”

② Push D-pad(↑) to select “YES,” and then push D-pad(Ent) to cancel programming and return to the GPS Memory’s channel list screen.

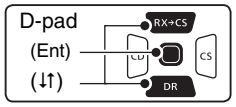


■ GPS memory operation (Continued)

◇ GPS bank name programming

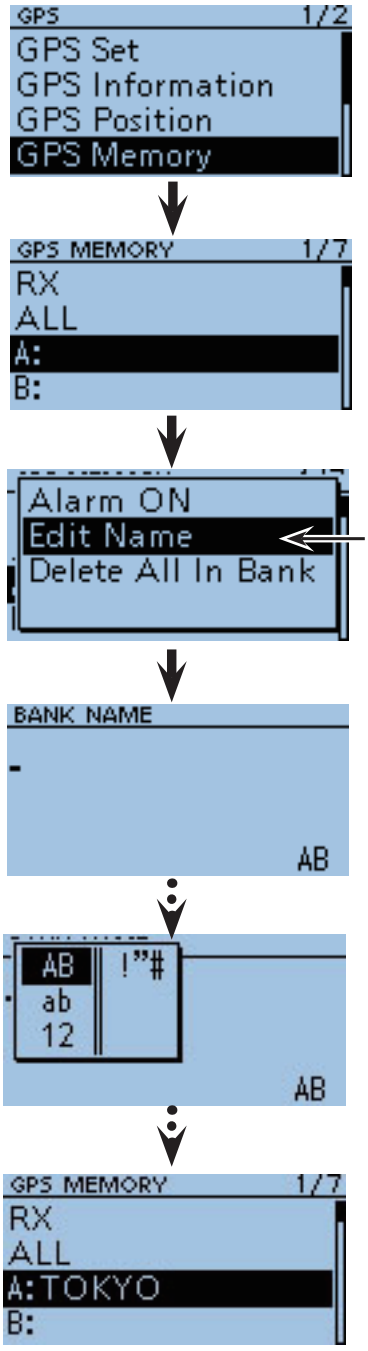
You can program the name of each GPS bank.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "GPS Memory," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select the desired bank to edit its name.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑), then push D-pad(Ent) to select "Edit Name."
⑦ The bank name editing screen appears.
⑧ Rotate [DIAL] to select the first character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push (QUICK MENU) to change the character to a upper case or lower case letter.
- While selecting a digit, push (QUICK MENU) to open the input mode selection window.
  Push D-pad(↓↑⇆) to select the desired modes to Upper case letters, Lower case letters, Numbers and Symbols. To enter symbols, select "!"#," and then push D-pad(Ent) to display the symbol character selection window. And rotate [DIAL] to select the desired symbol character, and then push D-pad(Ent).
- A space can be selected, even for any input mode selected.
- Push D-pad(→) to enter a space to the right of the last character.
  To insert a space to the left of any selected character, rotate [DIAL] to select a space to insert it.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.

⑨ Push D-pad(→) to move the cursor to the second digit.
⑩ Repeat steps ⑧ and ⑨ to enter a bank name of up to 16 characters, including a space.
⑪ After entering the name, push D-pad(Ent).

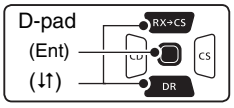


◇ Clearing a GPS data

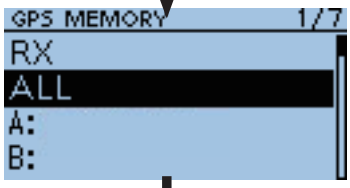
GPS memories can be cleared (erased).
Please note that erased GPS memories cannot be restored.

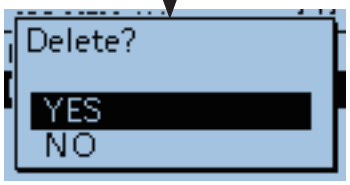
Example: Erasing “My home”

①Push [MENU] (MENU).
②Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent).



③Push D-pad(↓↑) to select “GPS Memory,” and then push D-pad(Ent).
④Push D-pad(↓↑) to select “ALL.”
⑤While a specific channel is selected as illustrated to the right, push (QUICK MENU).
⑥Push D-pad(↓↑) and D-pad(Ent) to select “Delete.”
⑦Push D-pad(↓↑) to select “YES,” and then push D-pad(Ent).
• The selected memory is erased and the transceiver returns to the GPS MEMORY screen.

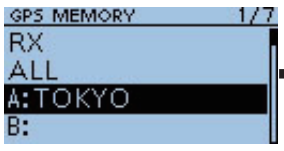




“My home” is erased from the channel list".

To erase a specific GPS memory bank:

All the contents of a GPS memory bank can be erased.
①Select a specific bank, as illustrated to the right, and then push (QUICK MENU).
②Select “Delete All In Bank” by pushing D-pad(↓↑) and then D-pad(Ent). The contents in the selected bank are erased.

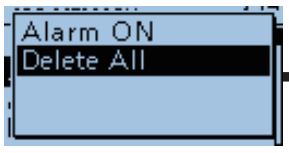


Bank A is selected

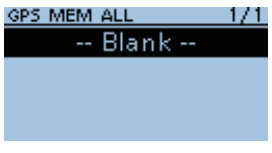
“Delete All In Bank” is selected.

To erase all GPS memories:

All GPS memories can be erased at one time.
①Push D-pad(↓↑) to select “ALL” and then push (QUICK MENU).
②Select “Delete All,” and then select “YES,” then push D-pad(Ent).
• All the memories are erased and the transceiver returns to the GPS MEMORY screen.



“Delete All” is selected.



After all memories are erased, “--Blank--” is displayed.

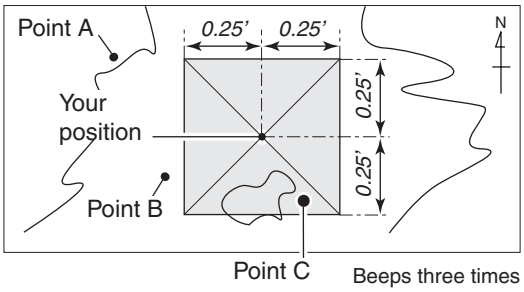
■ GPS memory operation (Continued)

◇ GPS alarm setting

A GPS alarm can sound when a target position comes into the alarm area.
This function can be set to the caller station, all GPS Memory channels, a specified Memory bank or a specified Memory channel.

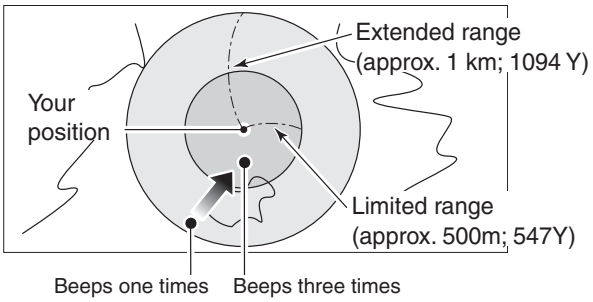
Alarm area 1 (Setting plural stations)

When all channels or bank is selected:



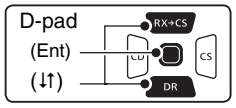
Alarm area 2 (Setting specific stations)

When a specified memory is selected:



Example: Alarm Area 1
Setting alarm to all GPS Memories.

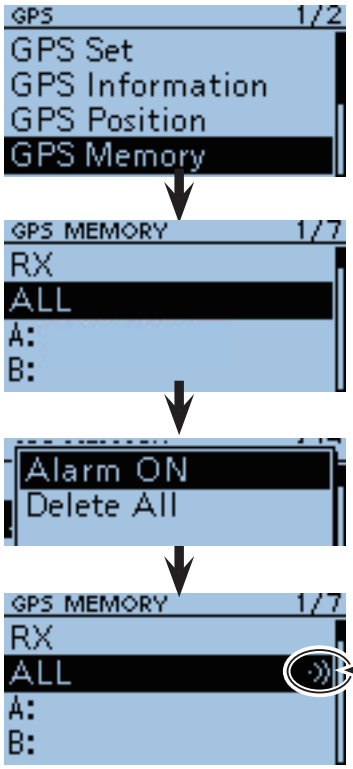
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "GPS Memory," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select "ALL."
- If you wish to set the alarm to a GPS Memory bank, select one between A to Z.

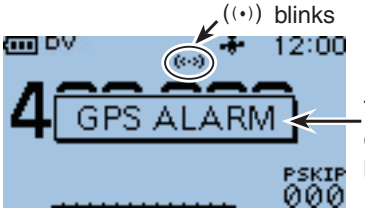
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "Alarm ON," and then push D-pad(Ent).
- When the alarm is set, •)) is displayed next to the item.

⑦ Push [MENU] (MENU) to exit the Menu screen.
- When either one of the stations in a specified group enters its set range, the beep sounds three times.
- When the GPS alarm beeps, "GPS ALARM" pops up on the screen and then the ((•)) icon blinks.
- To cancel the GPS alarm, repeat step ⑤ and select "Alarm OFF."



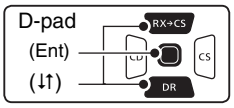
NOTE: When "ALL" or a memory bank is selected, the alarm functions depend on the "Alarm Area1" setting in the Menu screen. (p. 10-24)
(MENU > GPS > GPS Set > **Alarm Area 1**)

• GPS Alarm beeping screen



Example: Alarm Area 2
Setting alarm for all GPS Memories.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent).

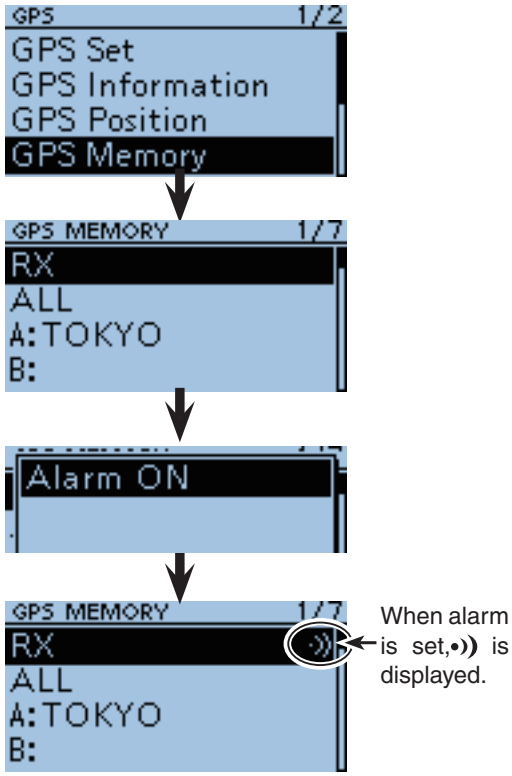


③ Push D-pad(↓↑) to select "GPS Memory," and then push D-pad(Ent).
④ Push D-pad(↓↑) to select "RX."
- If you wish to set the alarm to a specified GPS memory channel, select "All" or a channel from between "A to Z."

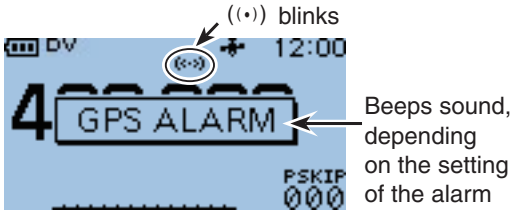
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "Alarm ON," and then push D-pad(Ent).
- When the alarm is set, •)) is displayed next to the item.

⑦ Push [MENU] (MENU) to exit the Menu screen.
- When a set station is in the approximate 1 kilometer range, GPS Alarm beeps once, and when it is in the approximate 500 meter range, beeps three times. (Default setting : Both)
- When the GPS alarm beeps, "GPS ALARM" pops up on the screen, and then the ((•)) icon blinks.
- To cancel a GPS alarm, repeat step ⑥ and select "Alarm OFF."

NOTE: When "RX" or memory channel is selected, the alarm functions depend on the "Alarm Area2" setting in the Menu screen. (p. 10-25)
(MENU > GPS > GPS Set > **Alarm Area 2**)



• GPS Alarm beeping screen



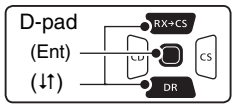
5

■ Transmitting GPS data

Set a GPS sentence to transmit GPS data in DV mode.

◇ GPS data sentence setting

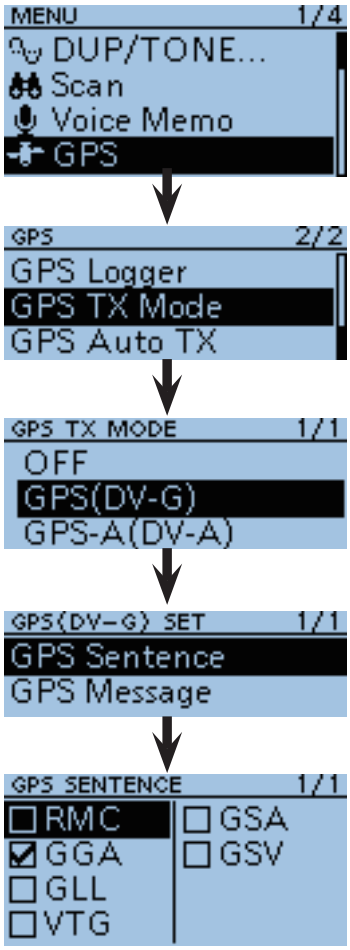
① Push [MENU] (MENU) and select "GPS."
② Push D-pad(↓↑) and D-pad(Ent) to select "GPS TX Mode."



③ Push D-pad(↓↑) and D-pad(Ent) to select "GPS(DV-G)."
④ Push D-pad(↓↑) to select "GPS Sentence" and then push D-pad(Ent.) The GPS SENTENCE screen is displayed.
⑤ Push D-pad(↓↑) to select the your desired GPS sentence to edit, and then push D-pad(Ent) to turn it ON or OFF.
- The selectable GPS sentences are RMC, GGA, GLL, VTG, GSA and GSV. The GGA sentence is set to ON as default GPS sentence.
- Push (QUICK MENU), then select "Default" by pushing D-pad(Ent) to set the sentence as the default.

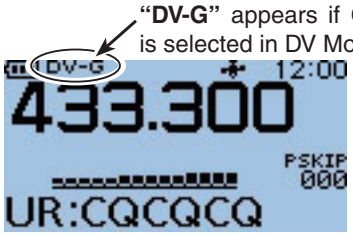
⑥ Repeat step ⑤ to set other GPS sentences.
- A maximum of 4 GPS sentences can be set at a time.

⑦ Push [MENU] (MENU) to exit the Menu screen.



NOTE:
- Set the GSV sentence to OFF when sending the GPS message to conventional digital transceivers (IC-2820H, IC-E2820, ID-800H, IC-91AD, IC-E91, IC-V82, IC-U82, IC-2200H, ID-1).
  The GSV sentence is incompatible with them.
  Those transceivers will not display GPS messages properly if a GSV sentence is sent from the ID-31A/E.
- If "Manual" is selected in the GPS select, the GPS sentence is artificially selected and transmitted, according to the manually set position data in "Manual Position." (p. 10-23)
  (MENU > GPS > GPS Set > **Manual Position**)
- Please note that if "GPS Auto TX" is set to any other setting than "OFF," the data is transmitted each and every setting time [PTT] is pushed. (p. 5-24)
  (MENU > GPS > **GPS Auto TX**)

• The display while transmitting GPS (DV-G)



When transmitted, the set GPS sentence is transmitted.

• Contents of GPS sentence

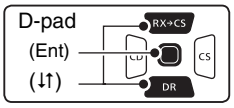
Sentence	Lon /Lat	Alt	UTC	Date (UTC)	Status	2D /3D	COG (True)	SOG (knot)	Others
RMC	✔		✔	✔	✔				Mode Indicator,
GGA	✔	✔	✔		✔				Number of satellites in use, HDOP, Geoidal separation, Age of Differential GPS data
GLL	✔		✔		✔				Mode Indicator
VTG							✔	✔	COG (Magnetic north), SOG (km/h), Mode Indicator
GSA					✔	✔			ID numbers of satellites used in solution, PDOP, HDOP, VDOP
GSV									Total number of sentences, Sentence number, Total number of satellites in view, Satellite information (ID, Elevation, Azimuth, S/N)

◇ GPS message programming

Enter a GPS message of up to 20 characters to be transmitted with the position data.

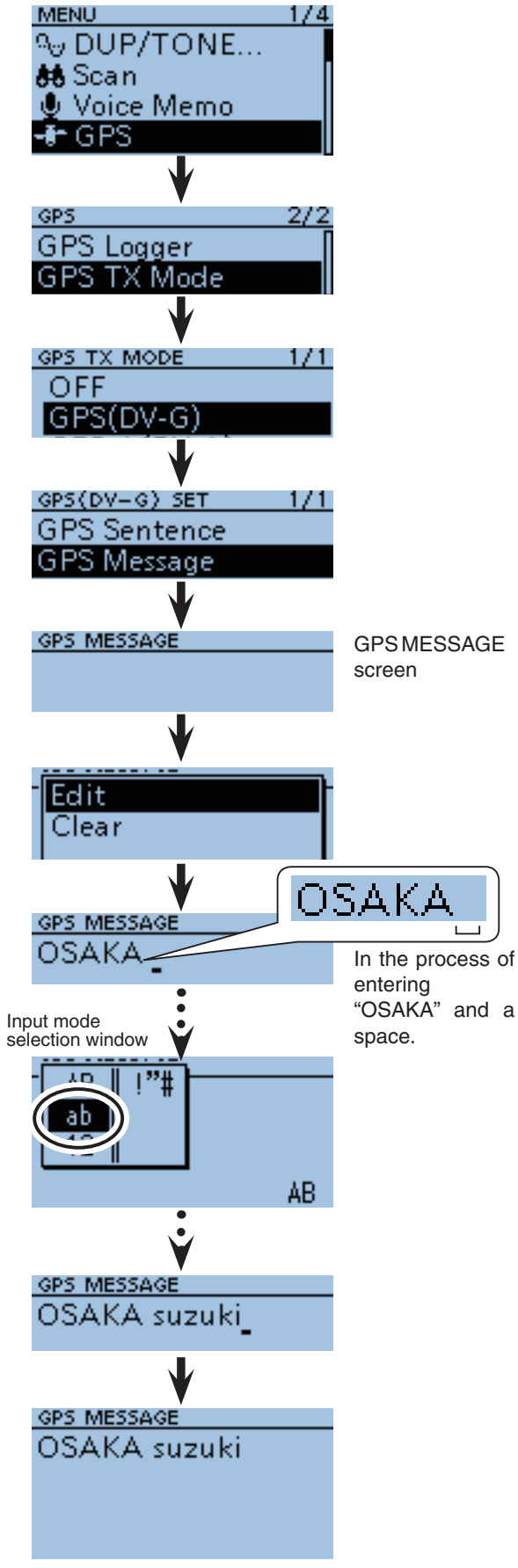
Example: Adding “OSAKA suzuki”

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent) to go to the next screen.



(MENU > GPS > GPS TX MODE > GPS(DV-G) SET > **GPS Message**)
③ Refer to the menu sequence shown directly above, and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push (QUICK MENU).
⑤ Push D-pad(↓↑) to select “Edit” and then push D-pad(Ent).
⑥ The message editing screen appears.
⑦ Rotate [DIAL] to select the first character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push (QUICK MENU) to change the character to a upper case or lower case letter.
- While selecting a digit, push (QUICK MENU) to open the input mode selection window.
  Push D-pad(↓↑⇆) to select the desired modes to Upper case letters, Lower case letters, Numbers and Symbols. To enter symbols, select “!”#,” and then push D-pad(Ent) to display the symbol character selection window. And rotate [DIAL] to select the desired symbol character, and then push D-pad(Ent).
- A space can be selected, even for any input mode selected.
- Push D-pad(→) to enter a space to the right of the last character.
  To insert a space to the left of any selected character, rotate [DIAL] to select a space to insert it.
- Push [CLR] (V/MHz CLR LOW) to erase the selected character, or hold down [CLR] (V/MHz CLR LOW) to continuously erase the characters after the cursor.

⑧ Push D-pad(→) to move the cursor to the second digit.
⑨ Repeat steps ⑦ and ⑧ to enter a group name of up to 20 characters, including spaces.
⑩ After entering the name, push D-pad(Ent).
⑪ Push [MENU] (MENU) to exit the Menu screen.



■ Transmitting GPS-A data

GPS-A mode is an operating mode supported with the D-PRS to transmit position data.
In GPS-A operation, the following codes are transmitted to the PC connected to the ID-31A/E.
GPS-A code is based on APRS® code.
(APRS® : Automatic Packet Reporting System).

About GPS-A data

GPS-A data is formatted as shown below.

(e.g.) JA3YUA>APIO31,DSTAR*/002338h3437.38N/13534.29E>000/000/A=000000Who are you?
① ② ③ ④ ⑤ ⑥ ⑤ ⑦ ⑧

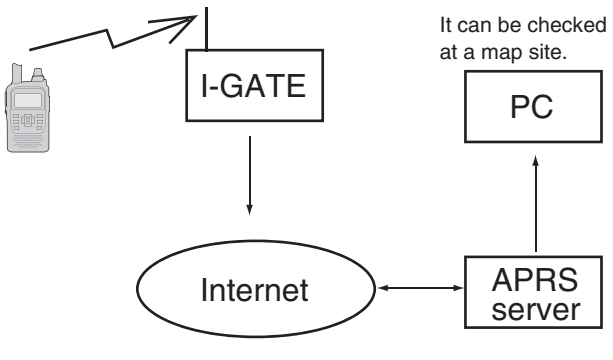
① Your own call sign ③ Time stamp* ⑤ GPS-A symbol (Car) ⑦ Data extension
② Unproto address ④ Latitude ⑥ Longitude ⑧ GPS-A comment/Altitude

*h: "hhmmss", z: "ddhhmm
• The UTC time is used.
• The data from the internal or external GPS is used.

◇ D-PRS

D-PRS is a function which simultaneously sends position data received from the internal or external GPS receiver, using the slow speed data packet space, along with voice in the DV mode.
In the analog format you can transmit or receive only voice or data at one time. However a D-PRS capable radio can transmit or receive message data or GPS position data at the same time voice is been transmitted or received.

• The image of D-PRS



◇ Operating GPS-A

To transmit in GPS-A, follow the steps written below, and for more details, see the pages listed along with the steps.

1. **"MY"(Your own call sign) programming** (p. 2-4)
2. **Receiving GPS data** (p. 5-2)
3. **Set GPS TX MODE to GPS-A** (p. 5-16)
4. **Transmitting GPS-A data setting** (pp. 5-19 to 5-22)

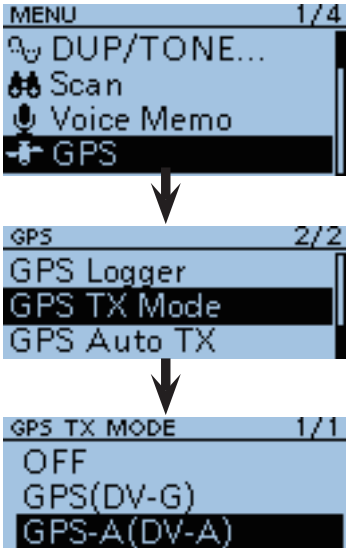
↓

Setting is completed.
(Transmission is enabled in GPS-A)

NOTE:
- If "Manual" is selected in the GPS select screen, the processed GPS-A code is transmitted, according to the manually set position data in "Manual Position." (p. 10-23)
  (MENU > GPS > GPS Set > **Manual Position**)
- Please note that if "GPS Auto TX" is set as any other setting than "OFF," the data is transmitted each and every setting time. (p. 5-24)
  (MENU > GPS > **GPS Auto TX**)

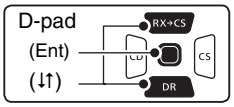
◇ Setting GPS-A

Set to transmit in the GPS-A mode.



1. Setting GPS-A in the GPS TX Mode

❶ Push [MENU] (MENU) and select “GPS.”
❷ Push D-pad(↓↑) and D-pad(Ent) to select “GPS TX Mode.”

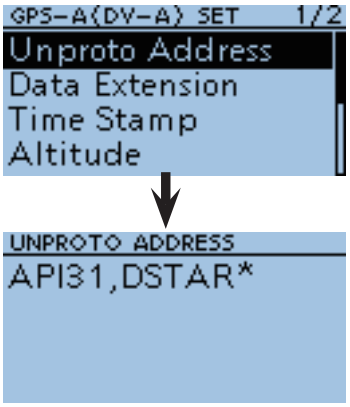


❸ Push D-pad(↓↑) and D-pad(Ent) to select “GPS-A(DV-A).”

2. Unproto Address display

The default address should be used, and editing is not recommended.

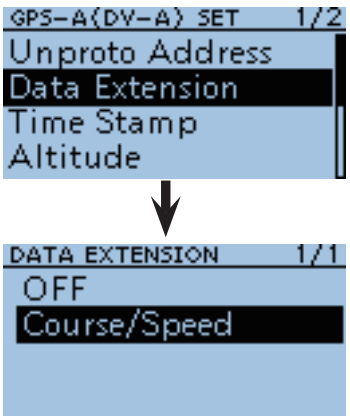
❹ Push D-pad(↓↑) to select “Unproto Address,” and then push D-pad(Ent).
• The default setting is “API31,DSTAR*.”
❺ Push D-pad(↓↑) to display the next screen.



3. Setting Data Extension

Set the data extension of your station's course direction and speed information.

❻ Push D-pad(↓↑), and then push D-pad(Ent) to select “Data Extension.”
❼ Push D-pad(↓↑), and then push D-pad(Ent) to select “Course/Speed.”



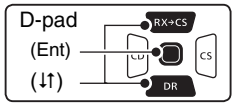
(Continued on the next page)

■ Transmitting GPS-A data (Continued)

4. Setting Time Stamp

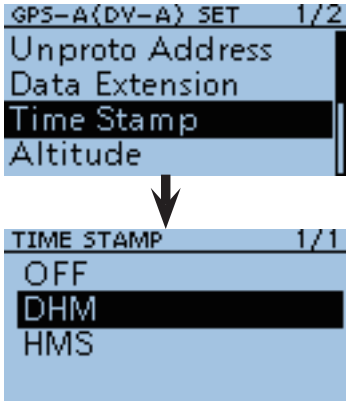
Set the time stamp function to transmit the received time data in UTC (Universal Time Coordinated) time.

❽ Push D-pad(↓↑) and D-pad(Ent) to select "Time Stamp."



❾ Push D-pad(↓↑) and D-pad(Ent) to select either the DHM or HMS format.

- OFF : Does not transmit the time information.
- DHM : Transmits the time stamp in the Day, Hour, and Minute format.
- HMS : Transmits the time stamp in the Hour, Minute, and Second format.



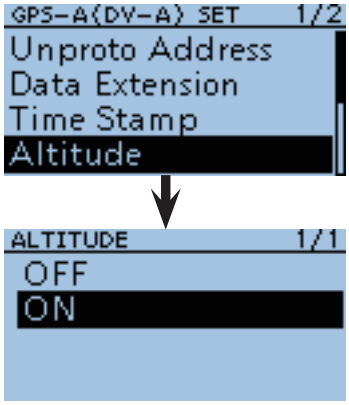
5. Setting Altitude

Set the altitude data transmission.

❿ Push D-pad(↓↑) and D-pad(Ent) to select "Altitude."

⓫ Push D-pad(↓↑) and D-pad(Ent) to select "ON."

NOTE:
If you transmit with the altitude setting ON, to those products that are not capable of displaying the altitude (IC-9100, IC-80AD, IC-E80D, ID-880H, ID-E880, IC-92AD, IC-E92D), the characters appear as a comment.



6. Setting GPS-A Symbol

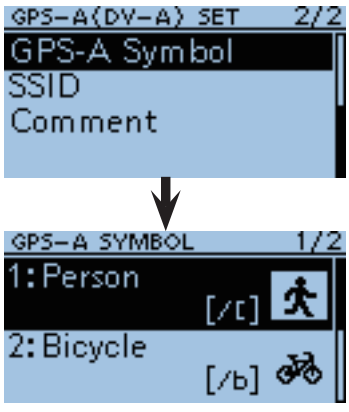
Select the desired GPS-A symbol which represents your operating situation.
The selected GPS-A symbol channel's symbols (1~4) are transmitted along with the position data.

⓬ Push D-pad(↓↑) and D-pad(Ent) to select "GPS-A Symbol."

⓭ Push D-pad(↓↑) to select a symbol between 1: Person, 2: Bicycle, 3: Car and 4: House.

- If you wish to use any GPS-A symbol (characters) or previously saved symbol, see page 10-34 for details.

⓮ Set your desired symbol, and then push D-pad(Ent).



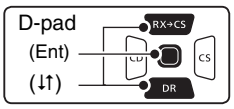
Push QUICK MENU to display the "Edit Symbol" screen.

(Continued on the next page)

7. Setting SSID

To assist in identifying a station's type, the displayed APRS® based SSID is added after the GPS-A data call sign.
The SSID's adding method differs, depending on whether if you enter a space in your call signs or not.

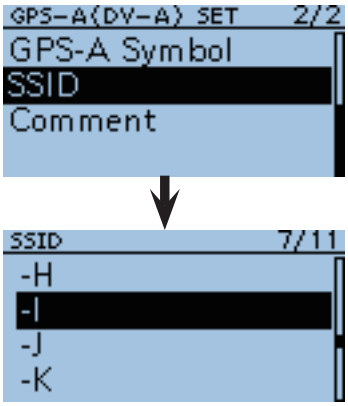
⓯ Push D-pad(↓↑) and D-pad(Ent) to select "SSID."



⓰ Push D-pad(↓↑) to select SSID.

- --- : Change the space in call sign to "-". If the space is the last character, delete the space instead of changing it to a "-".
  Example: JA3YUA A → JA3YUA-A
- (-0) : No SSID. If you use a capital letter, it will be deleted.
  Example: JA3YUA A → JA3YUA
- -1 to -15 : Adds an SSID of -1 to -15 to your call sign.
  Example: "-9" is entered
  JA3YUA A → JA3YUA-9
- -A to -Z : Adds an SSID of -A to -Z to your call sign.
  Example: "-Z" is entered
  JA3YUA A → JA3YUA-Z

⓱ After setting SSID, push D-pad(Ent).



(Continued on the next page)

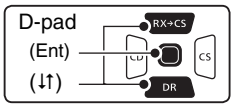
■ Transmitting GPS-A data (Continued)

8. Comment programming

Program your comment and transmit it with the GPS-A position data.
The number of characters you can enter differs, depending on the settings of data extension (p. 5-19) and altitude (p. 5-20).

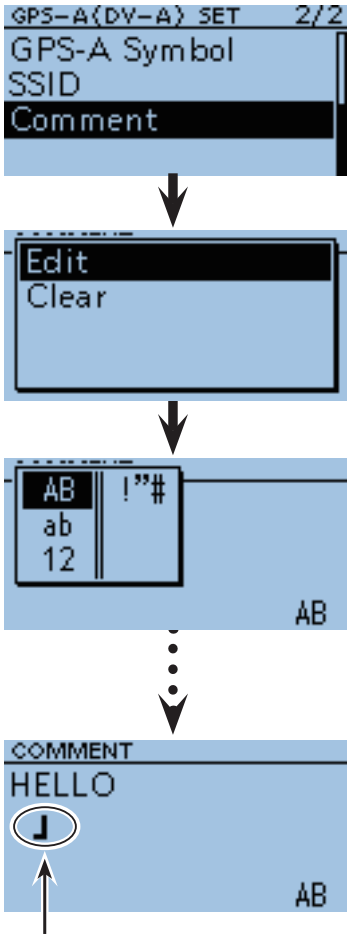
Data Extension	Altitude	The number of characters
OFF	OFF	less than 43 (Default)
OFF	ON	less than 35
Course/Speed	OFF	less than 36
Course/Speed	ON	less than 28

⓲ Push D-pad(⇃↾) and D-pad(Ent) to select “Comment.”



⓳ Push [QUICK MENU].
⓴ Push D-pad(⇃↾) to select “Edit,” then push D-pad(Ent), and then the comment editing screen appears.
㉑ Rotate [DIAL] to select the first character.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push [QUICK MENU] to change the character to a upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.
  Push D-pad(⇃↾⇆) to select the desired modes to Upper case letters, Lower case letters, Numbers and Symbols. To enter symbols, select “!”#,” and then push D-pad(Ent) to display the symbol character selection window. And rotate [DIAL] to select the desired symbol character, and then push D-pad(Ent).
- A space can be selected, even for any input mode selected.
- Push D-pad(→) to enter a space to the right of the last character.
  To insert a space to the left of any selected character, rotate [DIAL] to select a space to insert it.
- Push [CLR] [V/MHz CLR LOW] to erase the selected character, or hold down [CLR] [V/MHz CLR LOW] to continuously erase the characters after the cursor.
- A character after “⌟” would not be transmitted.

㉒ After entering the comment, push D-pad(Ent).
㉓ Push [MENU] [MENU] to cancel the Menu screen.



Ending icon (Up to 28 characters can be input)

◇ Displaying your position using a mapping software

If you transmit to an I-GATE station, then enter the call sign information on the internet map website, the set GPS-A symbol is displayed.

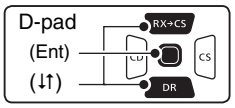
■ GPS Auto transmission for only Simplex

In the DV mode, this function automatically transmits the GPS receiver's current position data, at a selected interval, and should only be used in Simplex transmission.

NOTE:
- Your own call sign must be entered to activate the GPS automatic transmission.
- When the "GPS Select" menu on page 10-20 is set to "OFF" or "Manual," this function is disabled.
  (MENU > GPS > GPS Set > **GPS Select**)

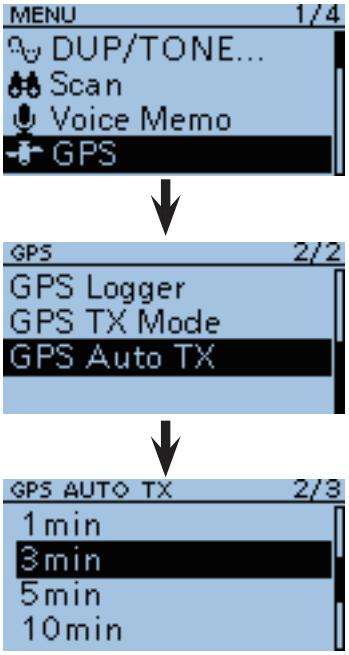
◇ Setting the GPS automatic transmission

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent).



③ Push D-pad(↓↑) to select "GPS Auto TX," and then push D-pad(Ent).
④ Rotate [DIAL] to select a desired position data transmit interval.
- Selectable settings are OFF, 5*, 10, 30seconds and 1, 3, 5, 10 and 30minutes.
  * If four GPS sentences are selected in GPS SENTENCE menu on page 5-16, "5sec" cannot be selected.
- Selecting "OFF" cancels the GPS automatic transmission.
- The GPS message is also transmitted, if programmed.

⑤ Push [MENU] (MENU) to exit the Menu screen.



NOTE:
- Use GPS automatic transmission in only the simplex mode.
- GPS automatic transmission through a repeater may interfere with other communications.
  When a GPS message is programmed, the transceiver transmits it along with the position data. See page 5-17 for the GPS message programming.

■ GPS Logger function

The GPS Logger function allows you to store the positions from a GPS receiver, into a microSD card, as your route.
The GPS Logger stores Latitude, Longitude, Altitude, Positioning state, Course, Speed and Date.
If you use this GPS Logger while driving, you can check your driving course on a mapping software.

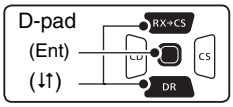
◇ GPS Logger operating outline

To use GPS Logger function, perform following operations.

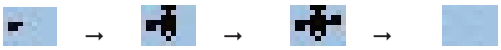
1. Insert a microSD card.
(The microSD card is not available from Icom. Purchase a card to meet your needs)
2. Turn ON the GPS receiver.
3. Turn ON the GPS Logger function.
↓
The logger function starts.

◇ GPS Logger operation

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent) to go to the next screen.



(MENU > GPS > GPS Set > **GPS Select**
③ Refer to the menu sequence shown directly above, and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select "Internal GPS."
• If an external GPS receiver is connected, select "External GPS."
⑤ Push [MENU] (MENU) to exit the Menu screen.
• The GPS icon blinks as illustrated below when receiving data as illustrated below, and stops blinking when valid data is received. If "Manual" was selected, the icon does not appear.

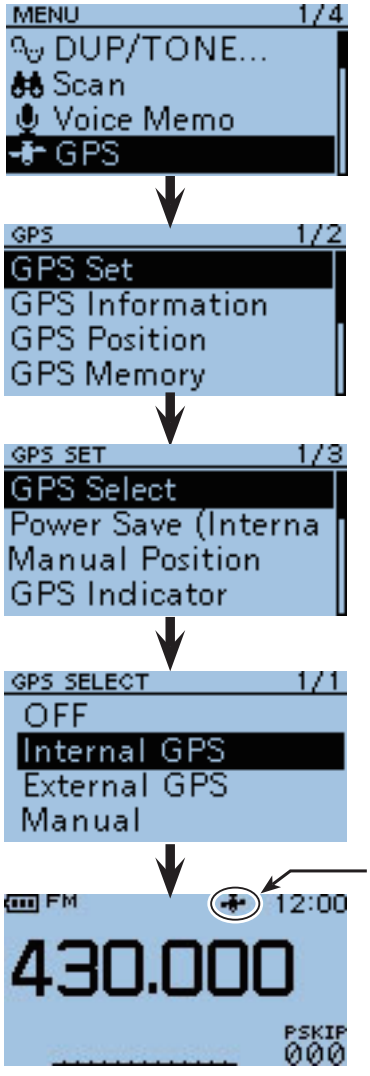


• It may take longer or shorter time to receive, depending on the environment. If you find difficulties receiving, we recommend that you change to a better location.

NOTE:
When the "GPS Select" item is set to "Internal GPS," the battery pack or batteries may become exhausted soon, due to the internal GPS receiver working all the time. To minimize this, use the "Power Save (Internal GPS)" function in GPS Menu.
(MENU > GPS > GPS Set > **Power Save (Internal GPS)**)

NOTE:
• The GPS logger function requires inserting a microSD card.
• Once the GPS logger function is turned ON, the transceiver continuously stores the position data from the GPS receiver, even if the transceiver is rebooted. To cancel this function, turn the function OFF.
During this function is ON, and when the transceiver is turned OFF, the log file will be closed. Then the transceiver is turned ON and Positioning is carried out by the GPS receiver, a new log file will be created.
• When a free space of the microSD card is lost, this function will be automatically paused.

To use the GPS logger function with the transceiver in the Sleep mode, the transceiver has an exclusive mode that is used only the GPS Logger function.
For example, when you are moving, and if you don't want to use the transceiver as a transceiver, but you want to use it just a GPS logger for a long time, this mode is useful. See page 5-29 for details of the "GPS Logger Only" item.



GPS SELECT screen

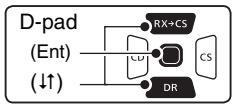
GPS icon blinks (stops when data is received)

■ GPS Logger function (Continued)

◇ Turning ON the GPS Logger function

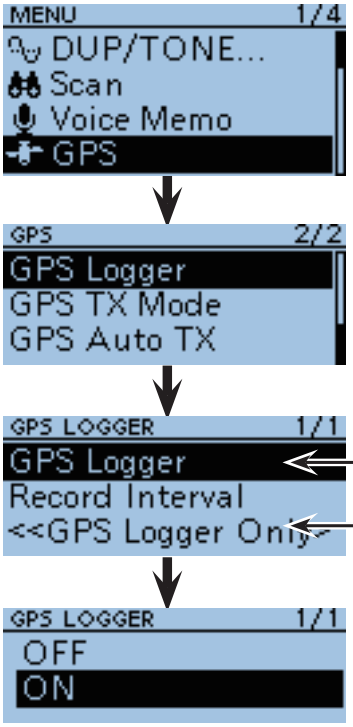
Turn the GPS logger function ON or OFF, to store your route as you move.
When the GPS Logger function is set to ON, the transceiver stores the position data from GPS receiver into microSD card in a specified time interval.
While using the Internal GPS receiver only four GPS sentences, GGA, RMC, GSA and VTG, are used.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent) to go to the next screen.



(MENU > GPS > GPS Logger > **GPS Logger**
③ Refer to the menu sequence shown directly above, and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select "ON."
⑤ Push [MENU] (MENU) to exit the Menu screen.
• The GPS Logger starts.

NOTE:
While using the external GPS receiver, uses only the compatible GGA, RMC, GSA and VTG sentences.



GPS LOGGER screen

Select "GPS Logger."

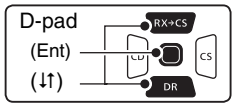
*

*To use the GPS logger function with the transceiver in the Sleep mode, the transceiver has an exclusive mode that is used only the GPS Logger function. See page 5-29 for details of the "GPS Logger Only" item.

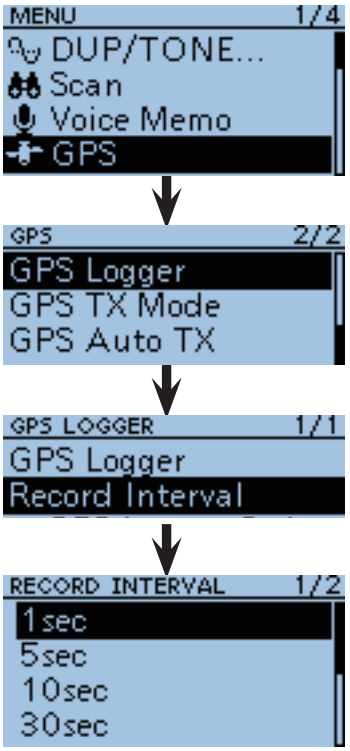
◇ Setting the GPS record interval

For example, when you are walking and if the time interval is set to "1sec," a lot of position data is stored at almost same place. Select the GPS Logger function record interval to suit your travel speed.

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (GPS), and then push D-pad(Ent) to go to the next screen.



(MENU > GPS > GPS Logger > **Record Interval**
③ Refer to the menu sequence shown directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select a desired record interval.
• Selectable settings are 1, 5, 10, 30 or 60seconds.
⑤ Push [MENU] (MENU) to exit the Menu screen.



RECORD INTERVAL screen

◇ Viewing the route on a PC Map

If you want to display the your route as you move, copy the log file to your PC.

①Turn OFF the transceiver, if it's ON.
②Lift OFF the [micro SD] slot cover on the side panel.
③Push the microSD card in to release, then carefully pull it out, to remove the card.

BE CAREFUL!:
- **DO NOT** touch the terminals.
- When removing the card during transceiver power ON, the Unmounting it first is necessary. See page 12-4 for more details.

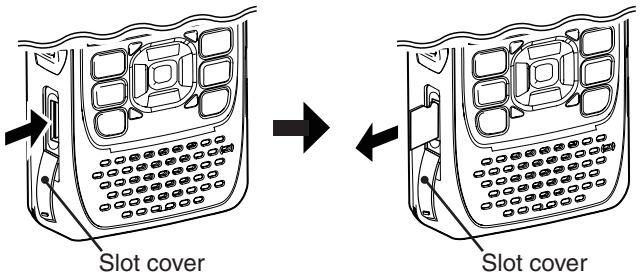
④Insert the microSD card into the Memory Card slot on your PC.
- To use the card on your PC, a card reader may be required.
- The screen appears as shown to the right.

⑤Click the "Open folder to view files" option to access the card.
- The "ID-31" folder appears.

⑥Double click the folder.
- Four folders appear.

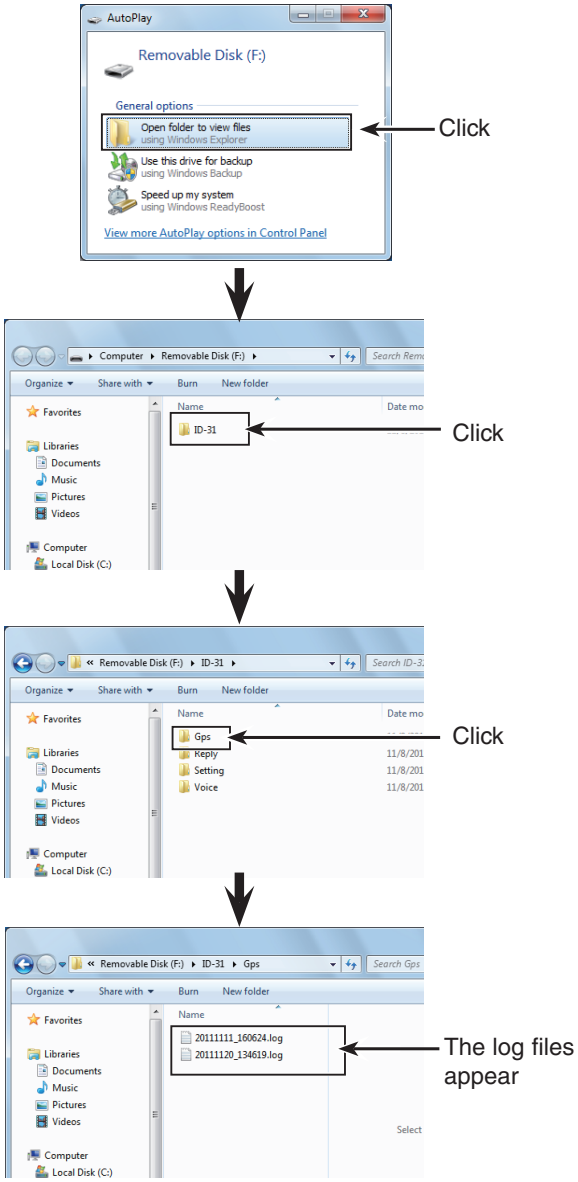
⑦Double click the "Gps" folder.
- The log files appear.
- The files are named with the time the log was started, in the following format:
  yyyymmdd_hhmmss.log
  yyyy = year, mm = month, dd = day, hh = hour, mm = minute, ss = second

⑧Import the selected file to a mapping software.
- You can see your route on the software map. Those file may not be compatible with all mapping software.



Push in the microSD card until a click sounds.

Pull the microSD card out.



■ GPS Logger function (Continued)

For your information— About the recorded NMEA sentence for GPS logging

Regarding the GPS logging data of the ID-31A/E, each sentence corresponds to the NMEA standard and is recorded in the following format.

◇ GGA sentence

(e.g.) $GPGGA,161229.487,3723.2475,N,12158.3416,W,1,07,1.0,9.0,M,25.5,M,3,0000*18<CR><LF>
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

① GGA protocol header ($GPGGA)
② UTC of position (16:12:29.487)
③ Latitude (North 37° 23.2475′) N=North, S=South
④ Longitude (West 121° 58.3416′) E=East, W=West
⑤ GPS quality indicator (1)
0=Fix not available or invalid, 1=SPS mode
2=DGPS (SPS), 6=Estimated (Dead Reckoning) mode
⑥ Number of satellites in use (7), 00–12
⑦ Horizontal Dilution of Precision (1.0) 0.0–50.0
⑧ Altitude re: mean-sea-level (geoid), meters (9.0 meters)
⑨ Geoidal separation, meters (25.5 meters)
⑩ Age of Differential GPS data (3 seconds)
⑪ Check Sum (*18) Error detection data started with "*" (hex code)
⑫ End code
*Blank shows when not positioned.

◇ RMC sentence

(e.g.) $GPRMC,161229.487,A,3723.2475,N,12158.3416,W,0.13,309.62,120511, , ,D*10<CR><LF>
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① RMC protocol header ($GPRMC)
② UTC of position (16:12:29.487)
③ Status (A) A=Data valid
V=Data invalid/not positioned
④ Latitude (North 37° 23.2475′) N=North, S=South
⑤ Longitude (West 121° 58.3416′) E=East, W=West
⑥ Speed over ground (0.13 knots)
⑦ Course Over Ground (309.62°; degrees True)
0.00°–359.99°
⑧ UTC date of position ('11 May 12th) yymmdd
⑨ Mode Indicator (D)
A=Autonomous mode, D=DGPS,
E=Estimated (dead reckoning) mode,
N=Data not valid, R=Almanac data
⑩ Check Sum (*10) Error detection data started with "*" (hex code)
⑪ End code
*Blank shows when not positioned.

◇ GSA sentence

(e.g.) $GPGSA,A,3,07,02,26,27,09,04, , , , , ,15,1.8,1.0,1.5*33<CR><LF>
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① GSA protocol header ($GPGSA)
② Mode indicator 1 (A)
M=Manual, forced to operate in 2D or 3D mode
A=Automatic, allowed to automatically switch 2D/3D
③ Mode indicator 2 (3)
1=Fix not available,
2=2D (using satellites; less than 3),
3=3D (using satellites; more than 4)
④ ID numbers of satellites used in solution (07, 02, 26, 27, 09, 04…15)
01–32 *Shows up to 12 ID's
⑤ Position Dilution of Precision (1.8) 0.0–50.0
⑥ Horizontal Dilution of Precision (1.0) 0.0–50.0
⑦ Vertical Dilution of Position (1.5) 0.0–50.0
⑧ Check Sum (*33) Error detection data started with "*" (hex code)
⑨ End code
*Blank shows when not positioned.

◇ VTG sentence

(e.g.) $GPVTG,309.62,T, ,M,0.13,N,0.2,K,A*03<CR><LF>
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① VTG protocol header ($GPVTG)
② Course Over Ground (309.62°; degrees True)
0.00°–359.99°
③ Course over ground degrees; Magnetic north
④ Speed over ground, knots (0.13 knots)
⑤ Speed over ground, kilometer per hour (0.2 km/hr)
⑥ Mode Indicator (A)
A=Autonomous mode, D=DGPS,
E=Estimated (dead reckoning) mode,
N=Data not valid, R=Almanac data
⑦ Check Sum (*03) Error detection data started with "*" (hex code)
⑧ End code
*Blank shows when not positioned.

◇ Using <<GPS Logger Only>> mode

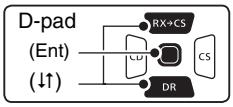
You can use only the GPS logger function, with the transceiver turned OFF, by using the exclusive “GPS Logger Only” mode.
For example, when you are traveling and don't want to use the transceiver for communication, but you do want to use just a GPS logger, this mode is useful. In the “GPS Logger Only” mode, the GPS Logger function is ON, but the transceiver function is disabled, until you reboot the transceiver.

<<GPS Logger Only>> outline

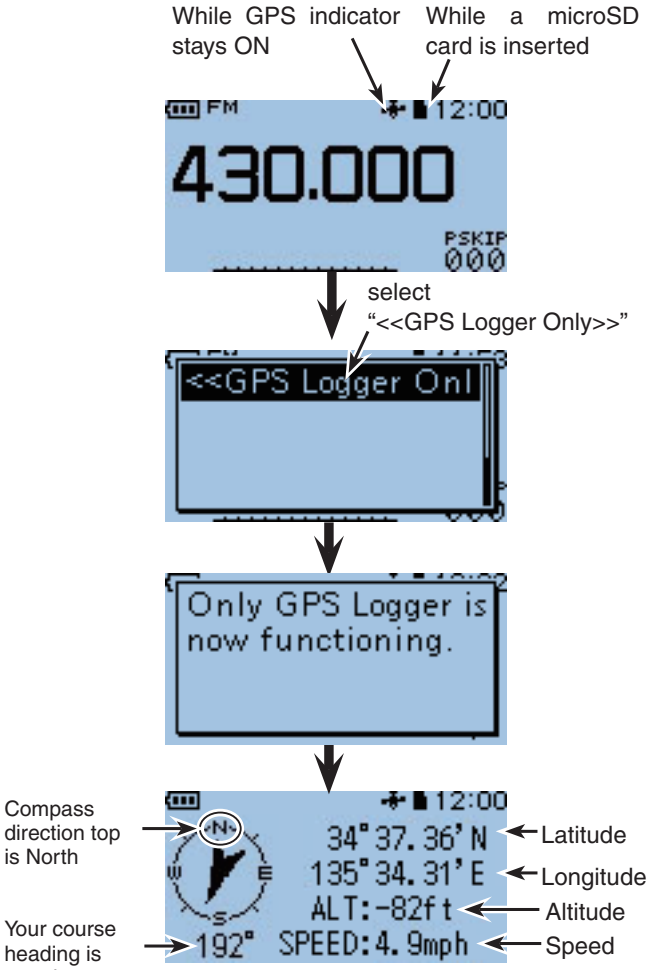
1. Insert the microSD card.
(The microSD card is not available from Icom. Purchase a card to meet your needs)
2. Turn ON the GPS receiver.
3. Turn ON the GPS Logger function.
4. Turn ON the <<GPS Logger Only>> mode.
↓
(The <<GPS Logger Only>> mode starts.)

① Push [QUICK MENU].

② Push D-pad(↓↑) to select “<<GPS Logger Only>>,” then push D-pad(Ent).



- After the “Only GPS Logger is now functioning” message appears, then the GPS position is displayed to start the GPS Logger Only mode.
  Also you can select the <<GPS Logger Only>> mode in the GPS Menu. (p. 10-30)
  (MENU > GPS > GPS LOGGER > **<<GPS Logger Only>>**)

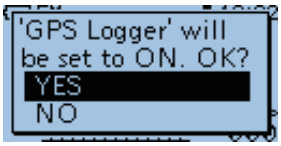


GPS LOGGER ONLY screen

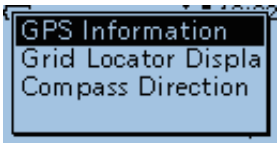
To cancel the <<GPS Logger Only>> mode, reboot the transceiver by turning it OFF and then ON again.
- When the transceiver is tuned ON, the normal GPS Logger restarts.

If the GPS Logger is set to OFF when step ② above is performed, the confirmation screen “ ‘GPS Logger’ will be set to ON. OK?” appears.

Push D-pad(↓↑) to select “YES,” and push D-pad(Ent) to turn the GPS Logger function ON.



The GPS Information, Grid Locator Display or Compass Direction settings can be changed.
In the <<GPS Logger Only>> mode, push [QUICK MENU] to open the Sub Menu as shown to the right.
Then push D-pad(↓↑) to select a desired item, and push D-pad(Ent) to enter.



VOICE MEMORY FUNCTION Section 6

NOTE:
A microSD card or a microSDHC card is required if you use the voice memory function.
A card is not supplied with this product, therefore purchase a card to fit your needs.
When you insert the card into the ID-31A/E, first format it in the ID-31A/E. See Section 12 for details.

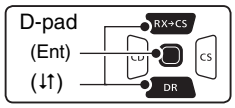
■ Recording receive and transmit audio onto the microSD card

You can record communication audio onto the microSD card.
The transceiver records both received and transmitted audio.

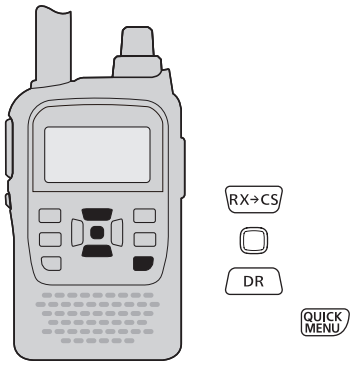
➥ If you want to record only received audio, see "Changing the recording mode" to change the recording mode to "RX only."

◇ When you start to record audio

① Push QUICK MENU to enter the Quick Menu screen.
② Push D-pad(↓↑) to select "<<REC Start>>."
③ Push D-pad(Ent) to start voice recording.



- The transceiver displays "Recording started" and automatically exits the Quick Menu screen.
- "■" and "□" are alternately displayed while the transceiver is recording.
- Recording is continuous until you manually stop recording, or the card becomes full.
- If the recording file's capacity reaches 2GB, the transceiver automatically creates a new file, and continues recording.



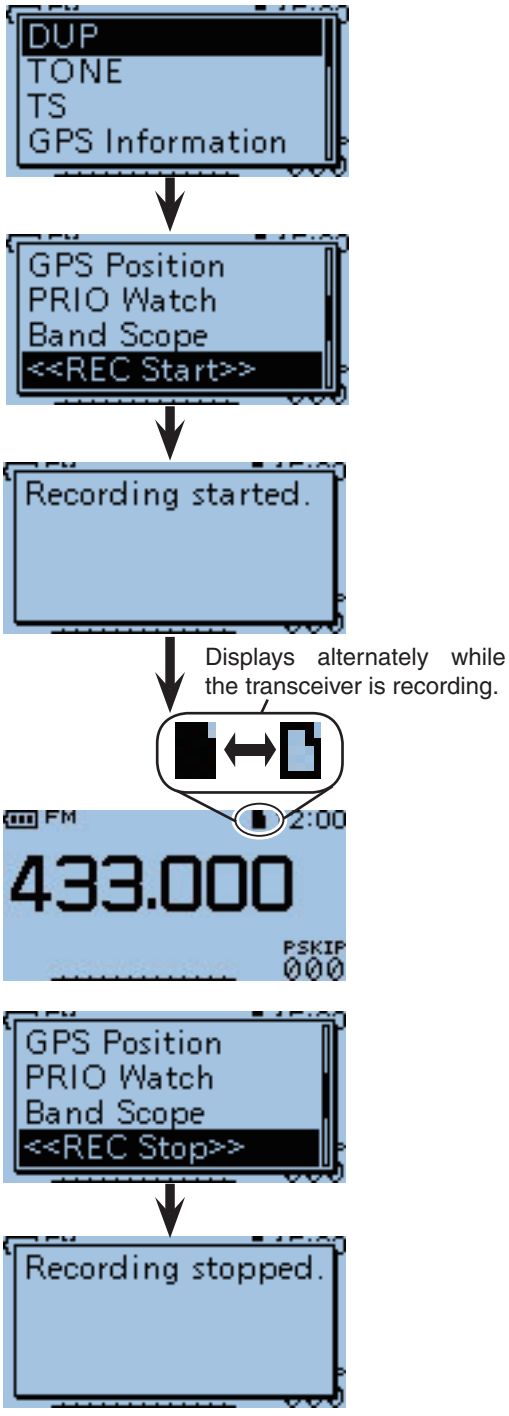
◇ When you stop to recording

① Push QUICK MENU to enter the Quick Menu screen.
② Push D-pad(↓↑) to select "<<REC Stop>>."
③ Push D-pad(Ent) to stop voice recording.

- The transceiver displays "Recording stopped," and automatically exits the Quick Menu screen.

NOTE:

- The DV automatically detecting function the transceiver records in only the DV mode. It records only silence an FM signal is received. (When the DV automatically detecting function is ON, or the monitor function is ON).
- The transceiver continuously records audio until you stop it, even if you turn the transceiver's power OFF with the recording still ON. The transceiver will only pause recording, and after you turn the transceiver's power back ON, it will automatically resume recording.

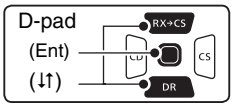


■ Changing the recording mode

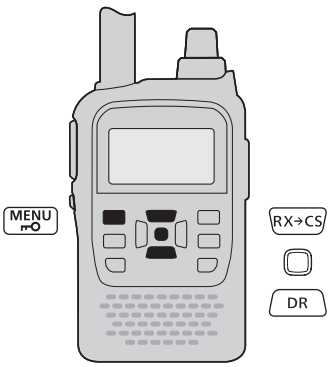
The transceiver can record audio only in the “REC Mode” item on the Menu screen.

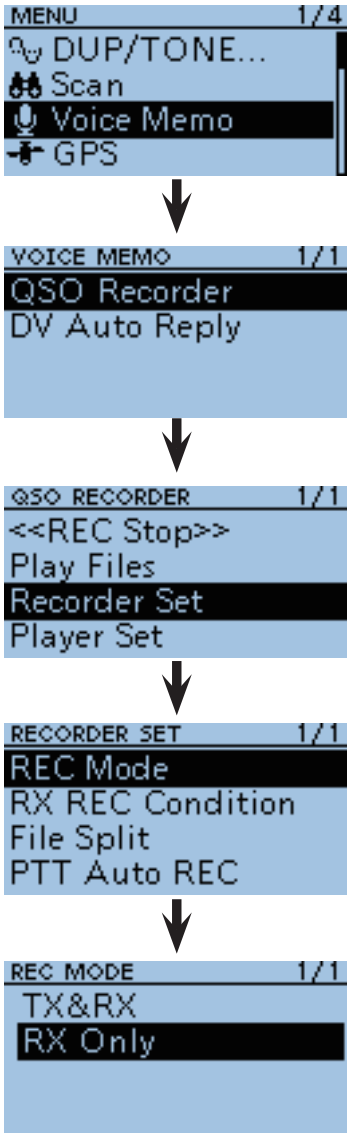
➥ The default setting is “TX&RX” (Both transmit and receive signals are recorded).

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



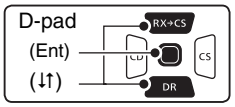
(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Recorder Set ➪ REC Mode)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select “RX Only,” and then push D-pad(Ent).
⑤ The RECORDER SET screen is displayed, then push [MENU] (MENU) to exit the Menu screen.





■ Playing back the recorded audio

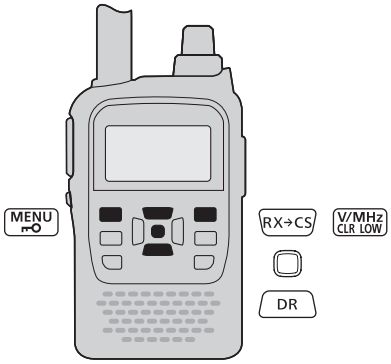
① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.

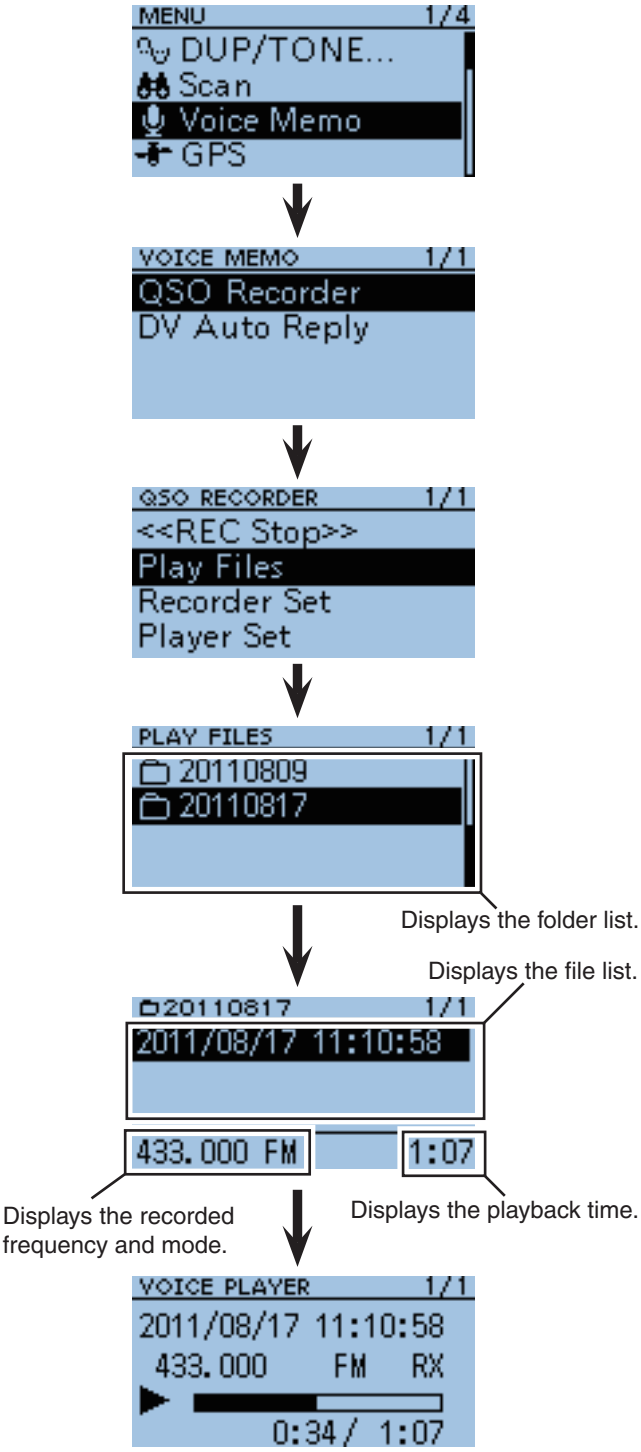


(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play Files ➪ Folder List ➪ File List)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The file list is displayed.
- The file name is composed yyyy/mm/dd hh:mm:ss (y: year, m: month, d: day, hh: hour, mm: minute, ss: second.)

④ Push D-pad(↓↑) to select the file that you want to play, then push D-pad(Ent) to play it back.
- The VOICE PLAYER screen is displayed, and the file starts to play back.
- If you want to fast-forward or rewind, see "Operation while playing" for details.

⑤ Push [MENU] (MENU) or [CLR] (V/MHz CLR LOW) to stop the playback.
- The file list is automatically displayed.





NOTE:
In case there are other files in the folder, if you do not stop the playback, the files are played continuously, as explained below.

Example: There are files Ⓐ, Ⓑ and Ⓒ in the folder.
Ⓐ 2011/08/17 11:10:58
Ⓑ 2011/08/17 13:05:15
Ⓒ 2011/08/17 19:46:02
- When Ⓐ is finished playing back, Ⓑ automatically starts to play back.
- When Ⓑ is finished playing back, Ⓒ automatically starts to play back.

■ Operation while playing back

You can fast-forward or rewind while playing back.

◇ Fast-forward while playing

Push D-pad(→) to fast-forward (default setting: 10 seconds.)
If you want to change the fast-forward time, see "Changing the SKIP TIME."

◇ Rewind while playing

Push D-pad(←) to rewind (default setting: 10 seconds.)
If you want to change the rewind time, see "Changing the SKIP TIME."

- If you push D-pad(←) within 1 second after starting to play back, the end of the previously recorded file will play back.

◇ Pause while playing

Push D-pad(Ent) to pause.
To exit the pause, push D-pad(Ent) again.

◇ Playing the previously file

Push D-pad(↑) to play back the previously file.

- In case there are other files in the folder, while the oldest file is playing back, push D-pad(↑) to start playing the beginning of the file .

◇ Playing the next file

Push D-pad(↓) to play the next file.

- In case there are other files in the folder, while the most recent file is playing back, push D-pad(↓) to stop the file.

◇ Pause at the beginning of the previously file (Fast forward the file)

When the playback is paused anywhere within the file, push D-pad(←) to return to the beginning of the file, and pause.

- Push D-pad(Ent) to play back it.

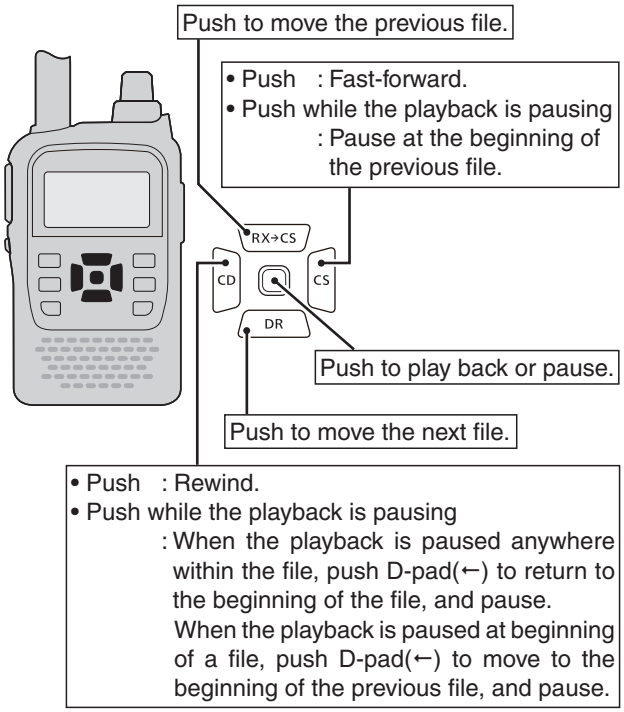
When the playback is paused at beginning of a file, push D-pad(←) to move to the beginning of the previous file, and pause.

- Push D-pad(Ent) to play back it.

◇ Pause at the beginning of the next file (Rewind the file)

When the playback is paused, push D-pad(→) to move to the beginning of the next file, and pause.

- Push D-pad(Ent) to play back it.



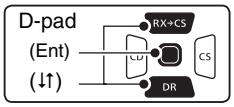
NOTE:
You can also change the playback location by rotating [DIAL].

- If you use [DIAL] to change the location, regardless of "Skip time," you can change the location in steps of 1/20 of the file's playback time.

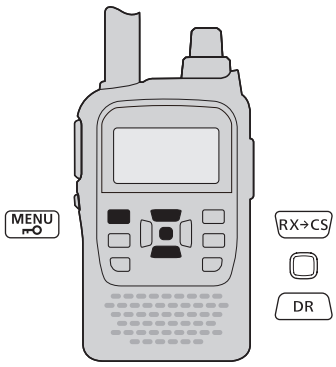
■ Changing the skip time

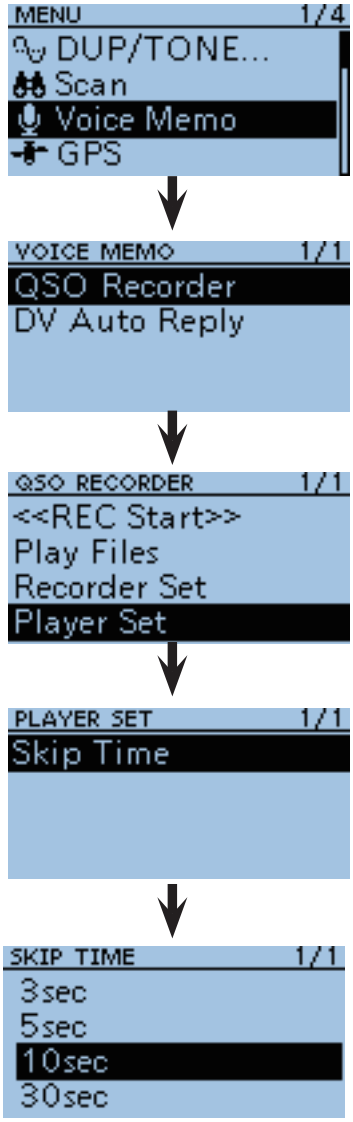
You can change the skip time of fast forward and rewind.

①Push [MENU] (MENU) to enter the Menu screen.
②Push D-pad(⇃↾) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



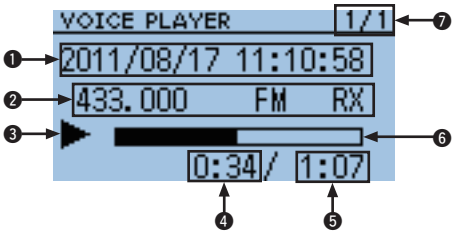
(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Player Set ➪ Skip Time)
③Refer to the menu sequence show directly above and push D-pad(⇃↾) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④Push D-pad(⇃↾) to select the skip time of 3 seconds, 5 seconds, 10 seconds or 30 seconds, and then push D-pad(Ent).
⑤The PLAYER SET screen is displayed, then push [MENU] (MENU) to exit the Menu screen.





■ VOICE PLAYER screen's explanation

The displayed items are follows.



❶ File name
The playback file name is displayed.

❷ Recording information
The recorded frequency, mode and audio category are displayed.
- When the receiving audio is playing back, the audio category is displayed as "RX."
  When the transmitting audio is playing back, the audio category is displayed as "TX."

❸ Playback mark
While the audio is playing back, the mark is displayed.
- The mark disappears while doing fast forward, rewind or pausing.

❹ Playing back time
The playing back time is displayed.

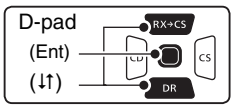
❺ Total time
The file's total playing back time is displayed.

❻ Progress bar
The playing back progress bar is displayed.

❼ File number/Total file number
The playing back file number, and total file number in the folder are displayed.

■ Erasing the recorded contents (audio)

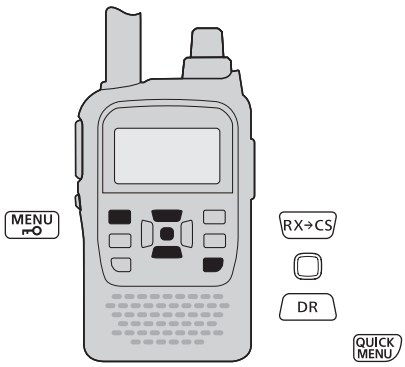
① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play files ➪ Folder List ➪ File List)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The file list is displayed.
- The file name is composed yyyy/mm/dd hh:mm:ss (y: year, m: month, d: day, hh: hour, mm: minute, ss: second.)

④ Push D-pad(↓↑) to select the file that you want to erase, then push (QUICK MENU) to enter the Quick Menu screen.
⑤ Push D-pad(↓↑) to select "Delete," then push D-pad(Ent).
- The confirmation screen "Delete file?" apperas.

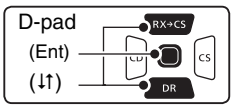
⑥ Push D-pad(↑) to select "YES," then push D-pad(Ent).
- The selected file is erased.



NOTE:
When you want to erase all files in the folder at a time, see "Erasing the all recorded contents (audio) in the folder at a time" for details. (p. 6-9)

■ Erasing the all recorded contents (audio) in the folder at a time

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.

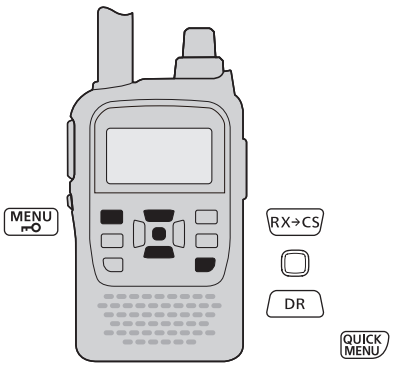


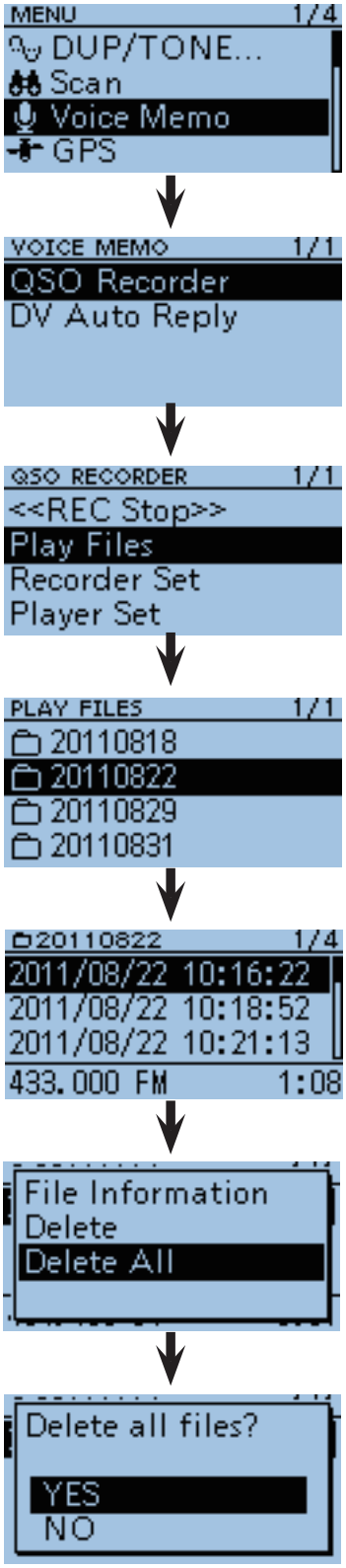
(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play Files ➪ Folder List ➪ File List)

③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The file list is displayed.
- The file name is composed yyyy/mm/dd hh:mm:ss (y: year, m: month, d: day, hh: hour, mm: minute, ss: second.)

④ Push (QUICK MENU) to enter the Quick Menu screen.
⑤ Push D-pad(↓↑) to select the Delete All item, then push D-pad(Ent).
- The confirmation screen "Delete all file?" appears.

⑥ Push D-pad(↑) to select "YES," then push D-pad(Ent).
- All the files are erased.

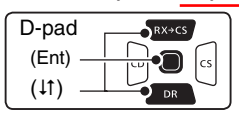




■ Erasing the folder

NOTE:
All the files in the folder are also erased.

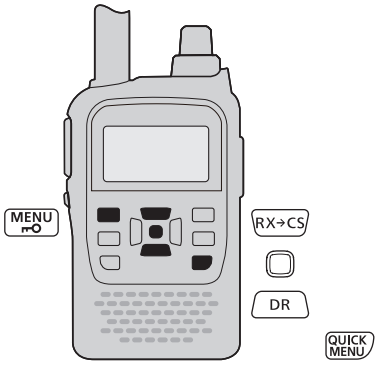
① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play Files ➪ Folder List)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The folder list is displayed. (The folders are automatically made at recording.)
- The folder name uses the following format: yyyymmdd (y: year, m: month, d: day.)

④ Push D-pad(↓↑) to select the folder which you want to erase.
⑤ Push (QUICK MENU) to enter the Quick Menu screen.
⑥ Push D-pad(↓↑) to select "Delete," then push D-pad(Ent).
- The confirmation screen "Delete folder?" appears.

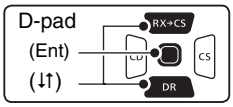
⑦ Push D-pad(↑) to select "YES," then push D-pad(Ent).
- The folder is erased.



■ Erasing the all folder

NOTE:
All the files in the folders are also erased.

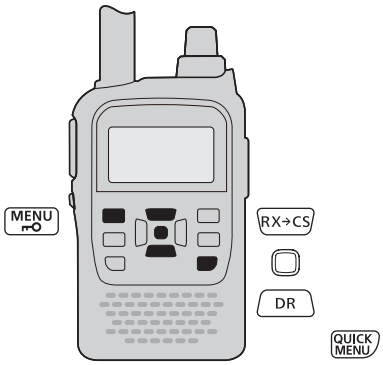
① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.

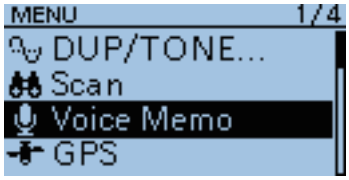


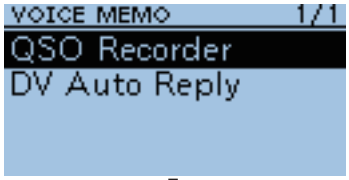
(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play Files ➪ Folder List)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The folder list is displayed. (The folders are automatically made at recording.)
- The folder name uses the following format: yyyymmdd (y: year, m: month, d: day.)

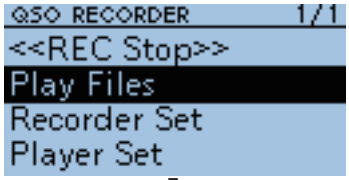
④ Push (QUICK MENU) to enter the Quick Menu screen.
⑤ Push D-pad(↓↑) to select "Delete All Folders," then push D-pad(Ent).
- The confirmation screen "Delete all folders?" appears.

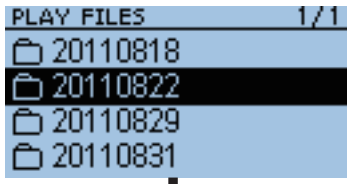
⑥ Push D-pad(↑) to select "YES," then push D-pad (Ent).
- All the folders are erased.







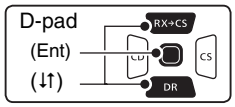




■ Continue to record even if no signals receives

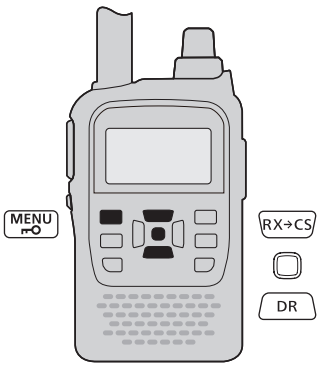
In the default settings, the transceiver records audio only during receiving signals (the squelch opens).
If you want to continue recording even if no signal is receiving, do the following steps.

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Recorder Set ➪ RX REC Condition)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↑) to select "Always," and then push D-pad(Ent).
- Always : Recording continues, even if no signals are received.
- Squelch Auto : The transceiver records audio only while receiving signals (the squelch opens).

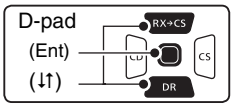
⑤ Push [MENU] (MENU) to exit the Menu screen.



■ Record the transmitting and receiving audios into the same file

The transceiver can record the transmitting and receiving audios to the same file.

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



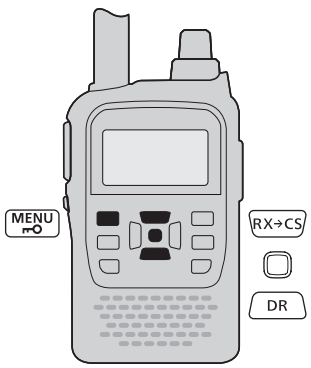
(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Recorder Set ➪ File Split)

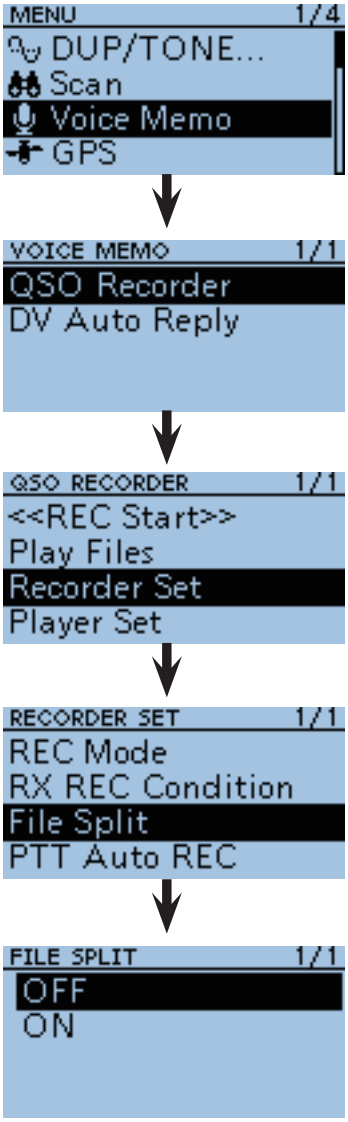
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select the OFF item, and then push D-pad(Ent).

- OFF : The transceiver records the transmitting and receiving audios to the same file.
- ON : The transceiver records the transmitting and receiving audios to each files.
  The transceiver makes separate new files for transmit and receive audio. (Default setting)
  When you set the RX REC CONDITION screen to "Squelch Auto," the transceiver records audios to the new file when the squelch is closed.

  Voice Memo > QSO Recorder > Recorder set > RX REC Condition

⑤ Push [MENU] (MENU) to exit the Menu screen.



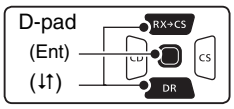


NOTE:
Even if you set FILE SPLIT to OFF, when the recording file's capacity becomes 2GB, the transceiver continues to record, but to a new file.

■ Start to record when the [PTT] switch is pushed

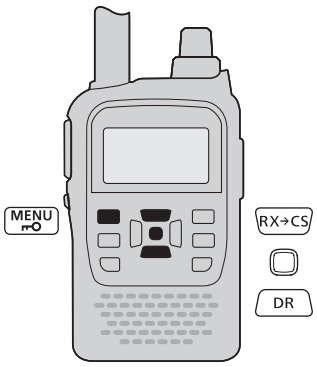
The transceiver starts to record the transmitted audio at the same time the [PTT] switch is pushed.
After transmitting, the transceiver receives signal in a given amount of time, it also records the received audio.
Therefore, you can record all communication audios to use this function.

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Recorder Set ➪ PTT Auto REC)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
④ Push D-pad(↓↑) to select the ON item, then push D-pad(Ent).
- OFF : The transceiver does not start to record when the [PTT] switch is pushed.
- ON : The transceiver starts to record when the [PTT] switch is pushed.

⑤ Push [MENU] (MENU) to exit the Menu screen.

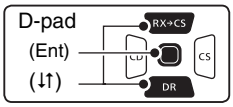


NOTE: When you set PTT AUTO REC to ON, see the notes below.
- The transceiver also starts to record audios when pushing the optional microphone's [PTT] switch, transmitting using with the VOX function or CI-V remote controller.
- All transmitting audios are recorded.
- When the transceiver receives a signal less than 10 seconds after transmitting, the transceiver also records the receiving signal.
- In addition, when the transceiver receives a signal less than 10 seconds after the signal is received, it also records the receiving audio.

■ Verifying the file information

The transceiver can display the recorded file's frequency, mode, date, and so on.

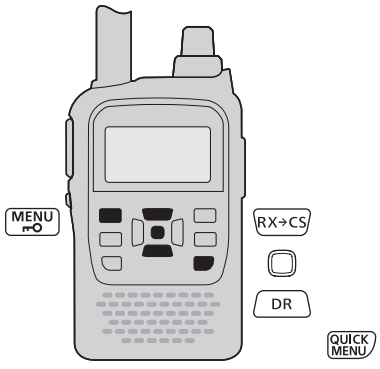
① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.

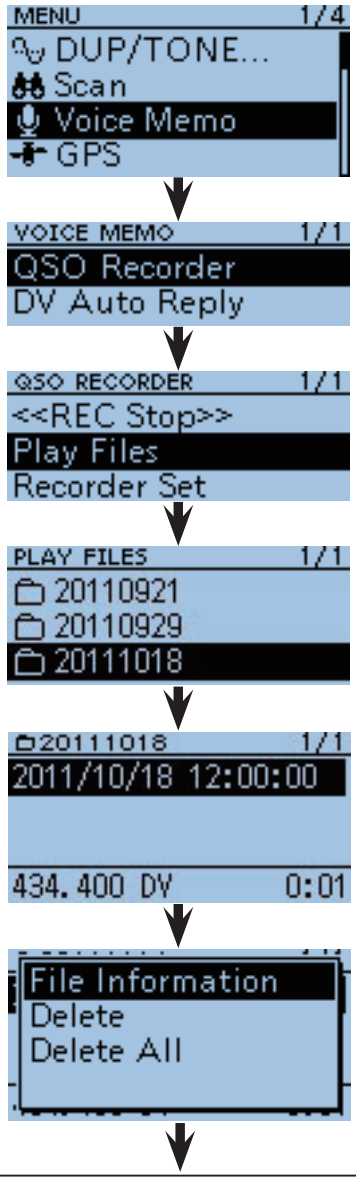


(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play Files ➪ Folder List ➪ File List)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The file list is displayed.
- The file name is composed yyyy/mm/dd hh:mm:ss (y: year, m: month, d: day, hh: hour, mm: minute, ss: second.)

④ Push D-pad(↓↑) to select the file that you want to verify the information, then push (QUICK MENU) to enter the Quick Menu screen.
⑤ Push D-pad(↓↑) to select the File Information item, then push D-pad(Ent).
- The information screen appears.

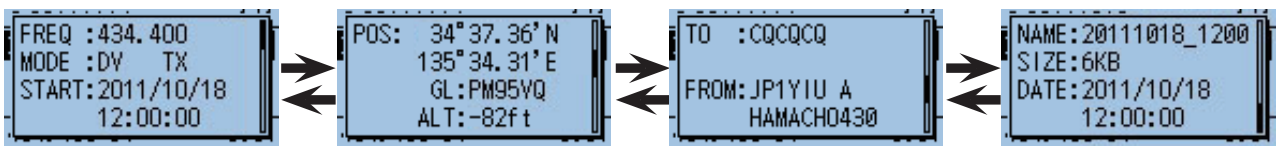
⑥ Push D-pad(Ent) to exit the information screen.
⑦ Push [MENU] (MENU) to exit the Menu screen.



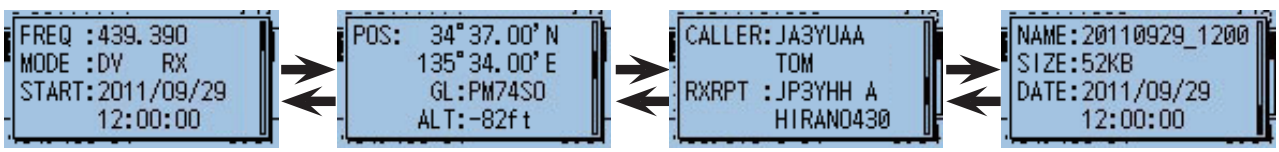


Example of file information screens (The display items are depending on the recording contents.)

- **Transmit Information screen** (Your own position information is displayed) (Transmitting in the DR mode)



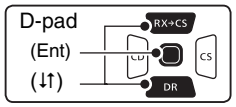
- **Receive Information screen** (Your own position information is displayed) (Receiving in the DR mode)



■ Verifying the folder information

The transceiver can display the folder's name, number of the files in the folder, total capacity of the files and date.

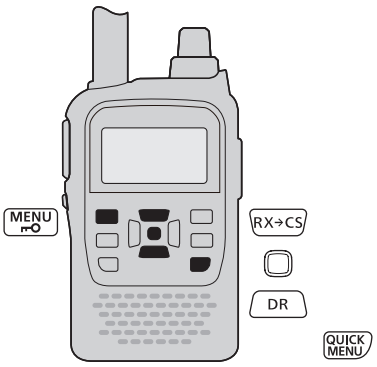
① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (Voice Memo), and then push D-pad(Ent) to go to the next level.



(MENU ➪ Voice Memo ➪ QSO Recorder ➪ Play Files ➪ Folder List)
③ Refer to the menu sequence show directly above and push D-pad(↓↑) to select, and then D-pad(Ent) to enter, one or more times until the last screen is displayed.
- The folder list is displayed. (The folders are automatically made at recording.)
- The folder name uses the following format: yyyymmdd (y: year, m: month, d: day.)

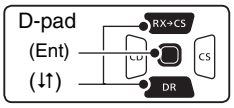
④ Push D-pad(↓↑) to select the folder want to verify the file information, then push (QUICK MENU) to enter the Quick Menu screen.
⑤ Push D-pad(↓↑) to select the Folder Information item, then push D-pad(Ent).
- The information screen appears.

⑥ Push D-pad(Ent) to exit the information screen.
⑦ Push [MENU] (MENU) to exit the Menu screen.

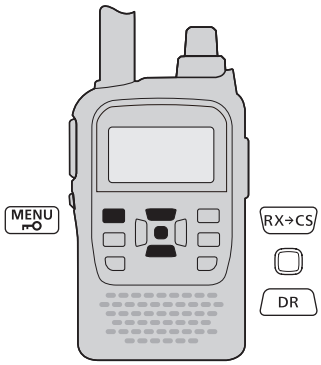


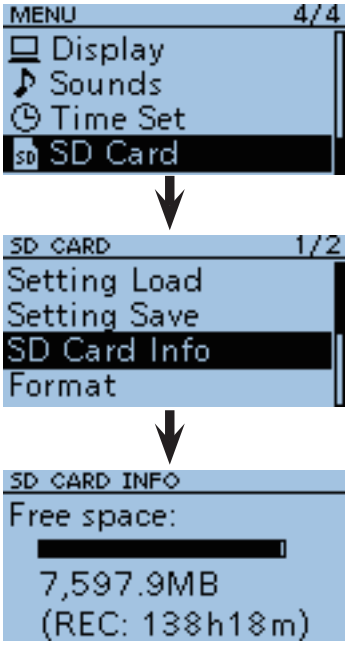
■ Verifying the microSD card's free space and recordable time

① Push [MENU] (MENU) to enter the Menu screen.
② Push D-pad(↓↑) to select the root item (SD Card), and then push D-pad(Ent).
③ Push D-pad(↓↑) to select "SD Card Info," and then push D-pad(Ent) to display the SD Card Information.



• The information screen appears.
④ Push D-pad(Ent) to exit the information screen.
⑤ Push [MENU] (MENU) to exit the Menu screen.





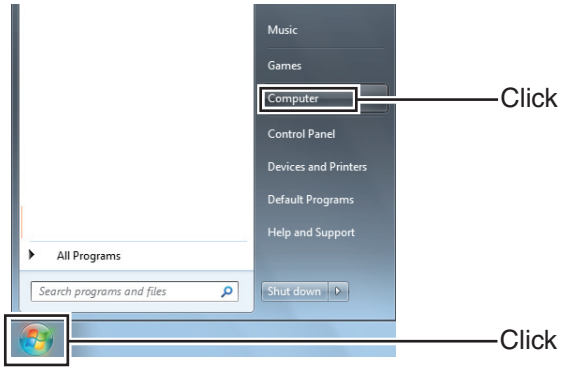
■ Playing back the voice memory data with the PC

You can also play back the voice memory data with a PC.
However, the recorded information (frequency, date, and so on) are not displayed.

- The OS is described as “Windows 7.”
- When you copy the voice memory data from the microSD card to the PC’s hard disk drive, you also operate same as following steps for playing back data.
- (e.g.) A memory card reader (3rd party products) is connected to the PC, and insert the microSD card into the reader. Then playing back the voice memory data in the card.

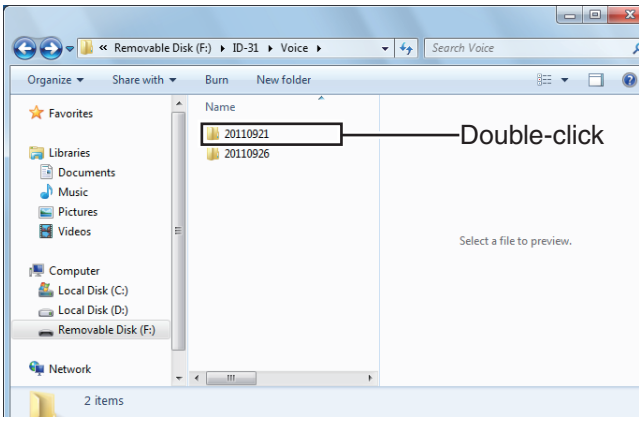
① Connect the memory card reader to the PC, and then insert the microSD card into the reader.
- If your PC has a microSD card drive, insert the card into the drive.

② Click [Computer] in the <Start> menu.
- Explorer appears.

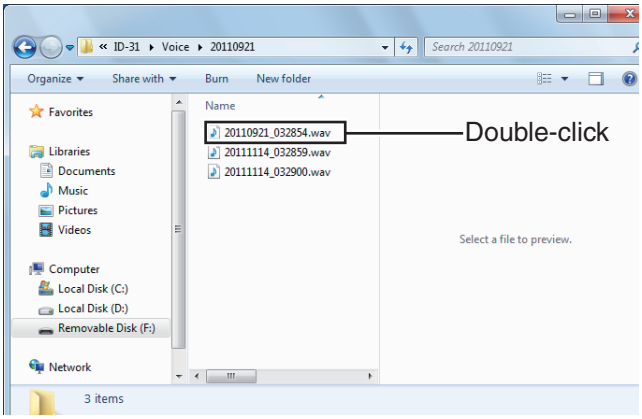


③ Click [Removable Disk.]
④ Double-click the [ID-31] folder.
⑤ Double-click the [Voice] folder.

⑥ Double-click the folder in which the file you want to play back is stored.
(e.g. 20110921 folder)



⑦ To play back the file, double-click it.
(e.g. 20110921_032854.wav)



NOTE:
- The playing operations are different by your using playing software. Therefore, refer to the software’s instruction manual for details.
- When the file does not play back, even if you double-click the file, download the playing software (e.g. Windows Media® Player.)

MEMORY CHANNEL PROGRAMMING Section 7

■ General description

The Memory mode is very useful to quickly select often-used operating settings.
The transceiver has 500 regular memory channels, 50 scan edge channels (25 pairs) and 2 call channels. Also, 26 memory banks, A to Z, can be used to store groups of operating channels, and so on. Up to 100 channels can be assigned to a bank.

◇ Memory channel contents

The following information can be programmed into memory channels:

- Operating frequency
- Operating mode
- Duplex direction (DUP+/DUP–) with a frequency offset
- Subaudible tone encoder, tone squelch or DTCS squelch ON/OFF
- Subaudible tone frequency, tone squelch frequency or DTCS code with polarity
- Scan skip setting
- Memory bank
- Memory name
- Tuning step
- UR Station call sign
- R1/R2 call sign
- Digital Call sign squelch or Digital code squelch ON or OFF
- Digital code

NOTE: Memory data can 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 or be saved to a microSD card or to a PC.

- The microSD card is not available from Icom. Purchase a microSD card to meet your needs.
- The CS-31 cloning software that is included on the supplied CD can also be used to backup the memory data.
- The optional OPC-2218LU is required to connect the transceiver and a PC.

■ Memory channel selection

The Memory mode is used for operation on memory channels, which store programmed frequencies, call signs and other data.

① Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode.
- "MR" blinks when the Memory mode is selected.
- Push [M/CALL] (M/CALL S.MW) again to select the Call channels. The Memory mode or Call channels are alternately selected.

② Rotate [DIAL] to select a desired memory channel.
- Only programmed memory channels can be selected.
- See page 7-4 for memory programming details.

Appears

Rotate [DIAL] to change the memory channel number

[DIAL]

(M/CALL S.MW)

■ Selecting a call channel

Call channels are used for quick recall of most often used operating settings.

① Push [M/CALL] (M/CALL S.MW) once or twice to select the Call channels.
- Push [M/CALL] (M/CALL S.MW) again to select the Memory mode. Memory mode or Call channels are alternately selected.

② Rotate [DIAL] to select either the "C0" or "C1" Call channel.

Rotate [DIAL] to select

[DIAL]

(M/CALL S.MW)

■ Memory channel programming

[Example]: Programming 430.520 MHz/FM mode into memory channel 11 (a blank channel).

① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.

② Set a desired frequency and operating mode:
- ➥ Rotate [DIAL] to set a desired frequency.
- ➥ Push [FM/DV] one or more times to select a desired operating mode.
- ➥ Set the duplex direction, frequency offset, tone squelch, and so on, if needed.

③ Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.
- 1 short and 1 long beep sound.
- The memory channel number blinks.

④ Rotate [DIAL] to select a desired channel.

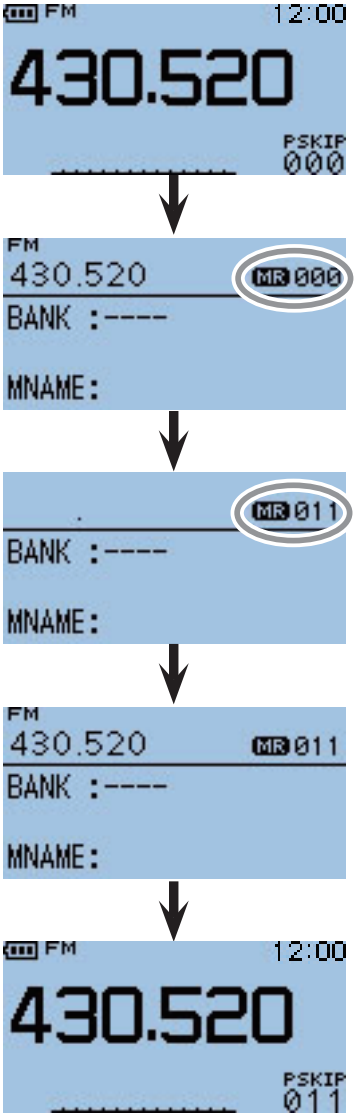
⑤ Hold down [S.MW] (M/CALL S.MW) for 1 second to save.
- 3 beeps sound.
- Before returning to the VFO mode, the programmed memory contents are displayed.
- The Memory channel number automatically increases when continuing to hold down [S.MW] (M/CALL S.MW) for 1 second after saving.

NOTE:
- Push [CLR] (V/MHz CLR LOW) to cancel the program and exit the Select Memory write mode before memory programming is saved.
- Call channels (C0, C1), VFO and scan edge channels (00A/00B to 24A/24B), as well as regular memory channels, can be programmed in this same way.

[DIAL]

V/MHz CLR LOW

M/CALL S.MW



Set 430.520MHz in the VFO mode.

Hold down [S.MW] (M/CALL S.MW) to enter the Select Memory write mode

Rotate [DIAL] to select channel 011

Hold down [S.MW] (M/CALL S.MW) for 1 second to program.

Returns to the VFO mode.

■ Copying memory and Call channel contents

This function copies a memory channel's contents to the VFO, another memory or Call channels. This is useful when searching for signals around a memory channel frequency, and for recalling the frequency offset, subaudible tone frequency and so on.

◇ Memory or Call channel⇨VFO

① Select the memory or call channel to be copied.
➥ Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode (or the Call channel mode,) then rotate [DIAL] to select a desired channel.

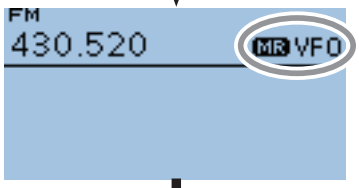
② Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode and copy the memory contents.
• 1 short and 1 long beep sounds.
• The memory channel number blinks.

③ Rotate [DIAL] to select "VFO."

④ Hold down [S.MW] (M/CALL S.MW) for 1 second to write the selected channel contents to the VFO.
• The transceiver automatically returns to the VFO.

Holding down [S.MW] (M/CALL S.MW) for 2 seconds in step ② will also copy the memory contents to the VFO. In that case, steps ③ and ④ are not necessary.

Select the memory or call channel to be copied.



Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the VFO mode.

VFO mode screen appears.

■ Copying memory and Call channel contents (Continued)

◇ Memory or Call channel⇨Another memory or Call channel

① Select the memory or call channel to be copied.
➥ Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode or the Call channel mode, then rotate [DIAL] to select a desired channel.

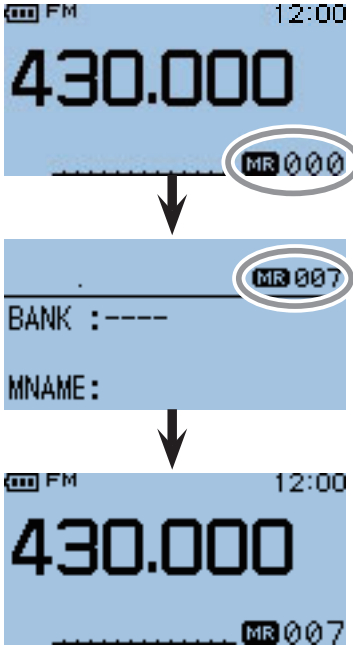
② Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.
- 1 short and 1 long beep sounds.
- The memory channel number blinks.
- DO NOT hold down [S.MW] (M/CALL S.MW) for more than 2 seconds. If you do, the memory contents will be copied to the VFO.

③ Rotate [DIAL] to select the target memory or Call channel.

④ Hold down [S.MW] (M/CALL S.MW) for 1 second again to copy.

[DIAL]

(M/CALL S.MW)



Select the memory channel to be copied.

Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.
Rotate [DIAL] to select the channel.

Hold down [S.MW] (M/CALL S.MW) for 1 second again to copy.

■ Memory bank setting

The ID-31A/E has a total of 26 banks (A ~ Z).
Regular memory channels 0 to 499 are assigned to any desired bank for easy memory management. Up to 100 channels can be assigned to a bank.

NOTE: The memory banks are only used to hold memory channels. Thus if the original memory channel contents have been changed, the memory bank contents are also changed at the same time.

◇ Assigning a memory channel to a memory bank

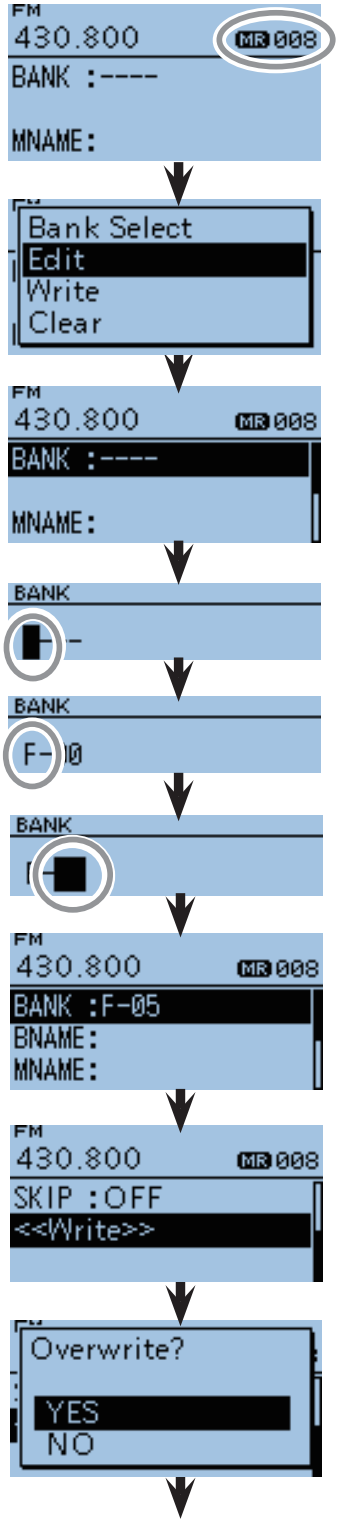
① Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode, and then rotate [DIAL] to select a desired channel to be assigned to a bank.
② Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.
- 1 short and 1 long beep sounds.
- The memory channel number blinks.
- DO NOT hold down [S.MW] (M/CALL S.MW) for more than 2 seconds. Otherwise the memory contents will be copied to the VFO.

③ Push (QUICK MENU) to open the Quick Menu screen.
④ Push D-pad(↓↑) to select “Edit.”
⑤ Push D-pad(Ent) to enter the Memory bank edit mode.
⑥ Push D-pad(↓↑) to select “BANK,” and then push D-pad(Ent).
- “– – – –” appears, then the first digit blinks.
- If the selected memory channel has already been assigned to a bank, the Bank group and channel number are displayed.
- If the Bank name has already been programmed, it is also displayed.

⑦ Rotate [DIAL] to select a desired bank group, “A” to “Z.”
⑧ Push D-pad(→) to select the bank channel digit.
⑨ Rotate [DIAL] to select a desired bank channel number between “00” and “99.”
- A memory channel assigned to another Bank channel is not displayed.
- Push D-pad(⇆) to change the bank group or bank channel number.

⑩ Push D-pad(Ent) to exit the Memory bank edit mode.
⑪ Push D-pad(↓↑) to select “<<Write>>,” and then push D-pad(Ent).
- The confirmation screen “Overwrite?” appears.

⑫ Push D-pad(↑) to select “YES,” and then push D-pad(Ent).
- The selected memory channel is updated and assigned to the bank, and then the transceiver returns to the Memory mode.



Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.

Push D-pad(↓↑) to select “Edit.”

Push D-pad(↓↑) to select “BANK,” and then push D-pad(Ent).

The first digit blinks.

Rotate [DIAL] and select “F”, then push (CS).

Rotate [DIAL] and select “05”, then push D-pad (Ent).

Select“<<Write>>,” and then push D-pad(Ent).

Push D-pad(↑) to select “YES.”

Push D-pad(Ent) and returns to the Memory Mode.

■ Memory bank setting (Continued)

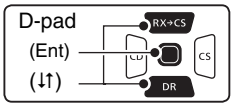
◇ Directly programming in to a memory bank

Example: Programming 432.000 MHz,FM mode into memory bank channel J-01.

① Push [V/MHz] (M/CALL S.MW) to select the VFO mode.
② Set a desired frequency and operating mode:
- ➥ Rotate [DIAL] to set a desired frequency. (Example: 432.000 MHz)
- ➥ Push [FM/DV] one or more times to select a desired operating mode. (Example: FM mode)
- ➥ Set duplex direction, frequency offset, tone squelch and so on, if desired.

③ Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.
- 1 short and 1 long beep sound.
- The memory channel number blinks.

④ Push (QUICK MENU) to open the Quick Menu screen.
⑤ Push D-pad(↓↑) to select “Bank Select,” and then push D-pad(Ent).

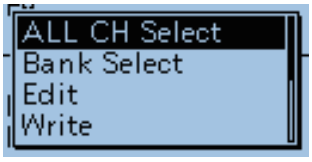


⑥ Rotate [DIAL] to select a desired bank group, “A” to “Z,” and then push D-pad(Ent).
- If you want to change the bank group after pushing D-pad(Ent), return to step ④.

⑦ Rotate [DIAL] to select a desired or blank bank channel between “00” and “99.”
- The bank channel number blinks.
- If the selected bank channel has already been assigned, the memory contents are displayed.

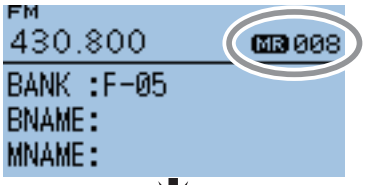
⑧ Hold down [S.MW] (M/CALL S.MW) for 1 second to program.
- 3 beeps sound.
- If an already assigned bank channel is selected in step ⑦, the memory contents will be overwritten into the memory channel and bank channel.
- The Bank channel number automatically increases when continuing to hold down [S.MW] (M/CALL S.MW) for 1 second after programming.
- Returns to the VFO mode.

NOTE:
If the Memory bank display is already selected and you want to program the contents into the memory channel, perform following operations.
- ➥ Select “ALL CH Select” in step ⑤.
- ➥ Rotate [DIAL] to select a desired memory channel.
- ➥ Hold down [S.MW] (M/CALL S.MW) for 1 second to program.

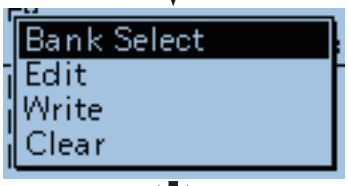


You can also program the memory contents directly into a memory bank channel. This way is a short cut to programming the memory channel, and then assigning it to a bank. In that case, the transceiver automatically selects the lowest blank memory channel, to program.

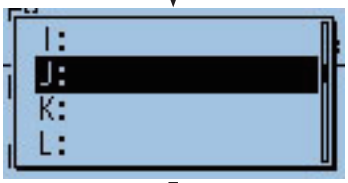
Push [CLR] (V/MHz CLR LOW) to cancel the program and exit the Select Memory write mode before memory programming is finished.



Hold down [S.MW] (M/CALL S.MW) for 1 second to enter the Select Memory write mode.



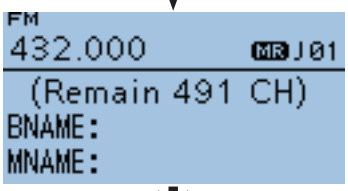
Push D-pad(↓↑) to select “Bank Select.”



Select the bank group, “J.”

The bank channel number blinks.

Rotate [DIAL] to select the bank channel “01.”

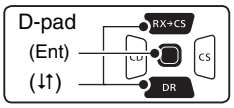


Hold down (M/CALL S.MW) for 1 second to program.

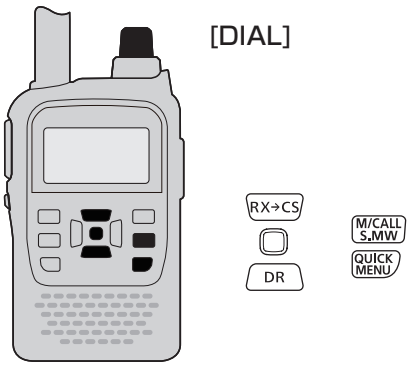
Returns to the VFO mode.

■ Memory bank selection

①Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode.
②Push (QUICK MENU) to open the Quick Menu screen.
③Push D-pad(↓↑) to select “Bank Select,” and then push D-pad(Ent).



④Rotate [DIAL] to select a desired bank group, “A” to “Z.”
• Only Bank groups that have memory channels assigned to them are displayed.
⑤Push D-pad(Ent).
⑥Rotate [DIAL] to select a desired bank channel.
• Only assigned Bank channels are displayed.
• To return to the Memory channels display, repeat steps ② to ⑤, and select “OFF” in step ④.

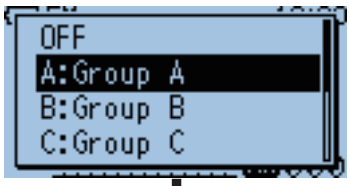


[Example]: Selecting the bank group “A.”

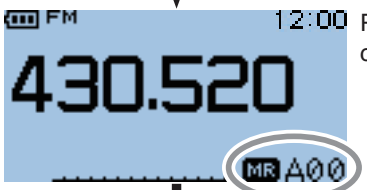
Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode

Push (QUICK MENU) to open the Quick Menu screen.

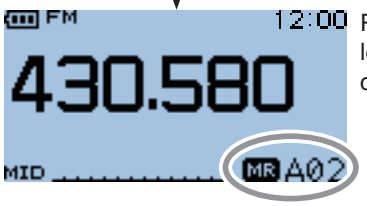
Then, select “Bank Select.”



Rotate [DIAL] to select the bank group “A.”



Push D-pad(Ent) to confirm.



Rotate [Dial] to select a desired bank channel.

■ Programming memory/bank/scan name

Each memory channel can be programmed with an alphanumeric channel name for easy recognition. Names can be a maximum of 16 characters.

NOTE: Only one name can be programmed for each bank. Therefore, the previously programmed bank name will be displayed when bank name is selected. Also, the bank names are automatically updated in other memory channels assigned to the same bank group.

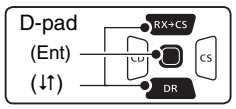
◇ Programming memory name, bank name or scan name

①Hold down [S.MW](M/CALL S.MW) for 1 second to enter the Select Memory write mode.
- 1 short and 1 long beep sounds.
- The memory channel number blinks.
- DO NOT hold down [S.MW](M/CALL S.MW) for more than 2 seconds.

②Rotate [DIAL] to select a desired memory channel.
- Select Call channels (C0 or C1) to program a Call channel name, or Scan edge channels (0A/0B to 24A/24B) to program a scan name.

③Push (QUICK MENU) to open the Quick Menu screen.

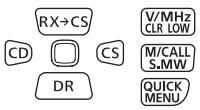
④Push D-pad(↓↑) to select “Edit,” and then push D-pad(Ent) to enter the name programming mode.



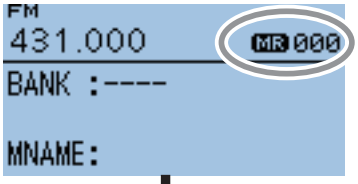
⑤Push D-pad(↓↑) to select “MNAME,” “BNAME” or “SNAME,” and then push D-pad(Ent).
- MNAME” is for a memory name, “BNAME” for a bank name or “SNAME” for a scan name.
- If the selected memory channel’s name has already been programmed, the name is displayed.
- “BNAME” appears only when the selected memory channel has been assigned to a bank.
- “SNAME” appears only when the selected memory channel is a scan edge channel. The same name is automatically assigned to both scan edge channels, A and B.
- After pushing D-pad(Ent), the cursor blinks on the first digit.

NOTE: When entering the scan type selection mode, the programmed Scan name is displayed instead of the frequency range indication.

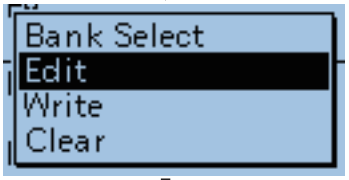
[DIAL]



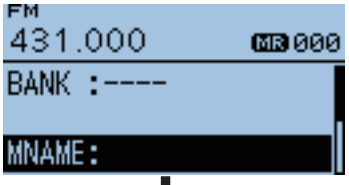
[Example]:
Programming the memory name “IC-31” in M-CH000.



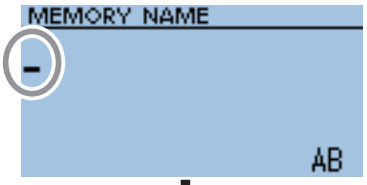
In the Select Memory Write mode, select M-CH000, and push (QUICK MENU).



Push D-pad(↓↑) to select “Edit,” and then push D-pad(Ent).



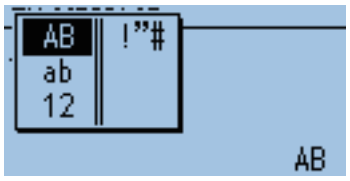
Select “MNAME.”



The first digit space to enter a character blinks.
The cursor blinks on the first digit.

Continued on the next page

⑥ Rotate [DIAL] to select a desired character.
- Selectable input characters modes are Upper case letters, Lower case letters, Numbers or Symbols.
- The selected character blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a letter, push [QUICK MENU] to change the letter to an upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.



- A space can be entered, even with any input mode selected.
- Push D-pad(→) to enter a space to the right of the last character.
- To insert a space to the left of any selected character, rotate [DIAL] to select a space to insert it.
- Push [CLR][V/MHz CLR LOW] to erase the selected character, or hold down [CLR][V/MHz CLR LOW] to continuously erase the characters to the left of the cursor.

⑦ Push D-pad(→) to move the cursor to the second digit.

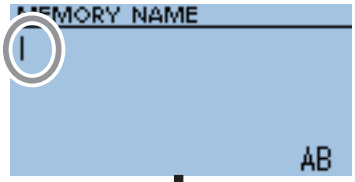
⑧ Repeat steps ⑥ and ⑦ until the desired channel name is programmed.

⑨ Push D-pad(Ent) to save the name and exit the Memory name edit mode.

⑩ Push D-pad(↓↑) to select "<<Write>>," and then push D-pad(Ent).
- The confirmation screen "Overwrite?" appears.

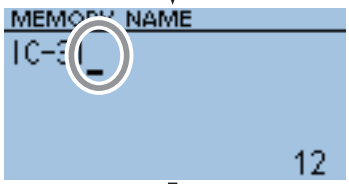
⑪ Push D-pad(↑) to select "YES," and then push D-pad(Ent).
- Returns to the screen viewed before entering the Select Memory write mode in step ②.

Continued from the previous page

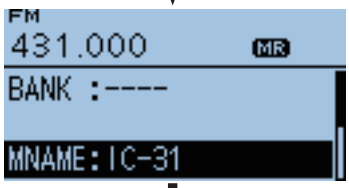


Rotate [DIAL] to select "I".
Push D-pad(→) to move the cursor to the second digit.

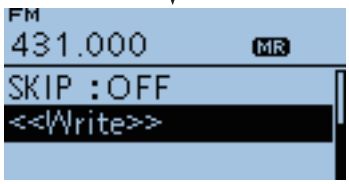
Rotate [DIAL] to select "C."



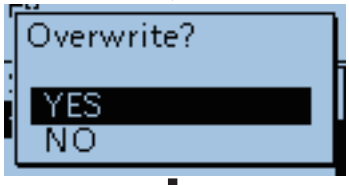
Repeat steps ⑥ and ⑦ until the desired memory name is programmed.



Push D-pad(Ent) to save the name and exit the Memory name edit mode.



Select"<<Write>>," and then push D-pad(Ent.)



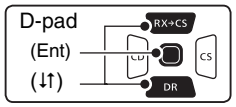
Select "YES," and push D-pad(Ent).

Returns to the screen viewed before entering the Select Memory write mode.
Memory name is displayed.

■ Selecting a memory name display

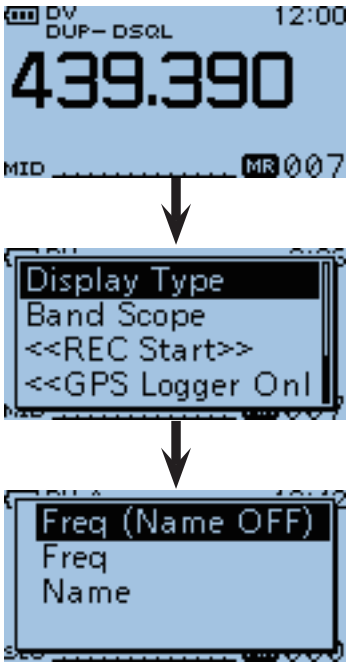
While in the memory mode, the programmed memory name can be displayed.

①Push [M/CALL] (M/CALL S.MW) once or twice to select the Memory mode.
②Push (QUICK MENU) to open the Quick Menu screen.
③Push D-pad(↓↑) to select “Display Type,” and then push D-pad(Ent).



④Rotate [DIAL] to select a desired Display type, and then push D-pad(Ent.)

- Freq (Name OFF) : Displays only the frequency.
- Freq : Displays the large font sized frequency and small font sized memory name.
- Name : Displays large font sized memory name and a small font sized frequency.

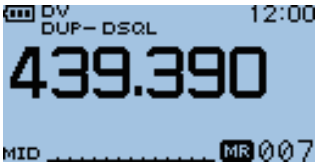


Push (QUICK MENU).

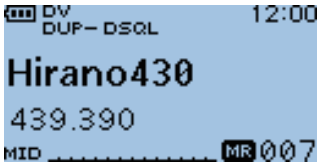
Rotate [DIAL] to select a desired Display type, and then push D-pad(Ent).

[Example]: When Memory Name [Hirano430] is programmed into **M-CH 007 (439.390MHz).**

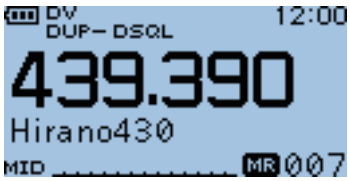
- Freq (Name OFF)



- Name



- Freq



■ Memory clearing

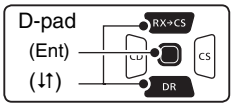
Contents of programmed memories can be cleared (erased), if desired.

①Hold down [S.MW](M/CALL S.MW) for 1 second to enter the Select Memory write mode.
- 1 short and 1 long beep sounds.
- The memory channel number blinks.
- DO NOT hold down [S.MW](M/CALL S.MW) for more than 2 seconds.

②Rotate [DIAL] to select a desired memory channel to be cleared.
- Select Call channels (C0 or C1) to erase a call channel, or scan edge channels (0A/0B to 24A/24B) to erase a scan channel.

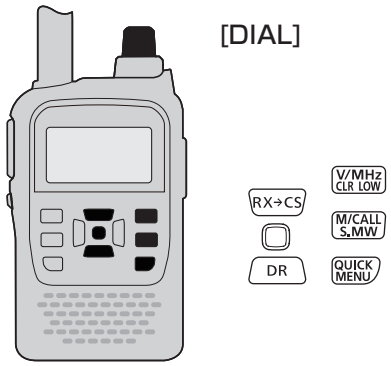
③Push (QUICK MENU) to open the Quick Menu screen.

④Push D-pad(↓↑) to select "Clear," and then push D-pad(Ent).
- The confirmation screen "Clear?" appears.

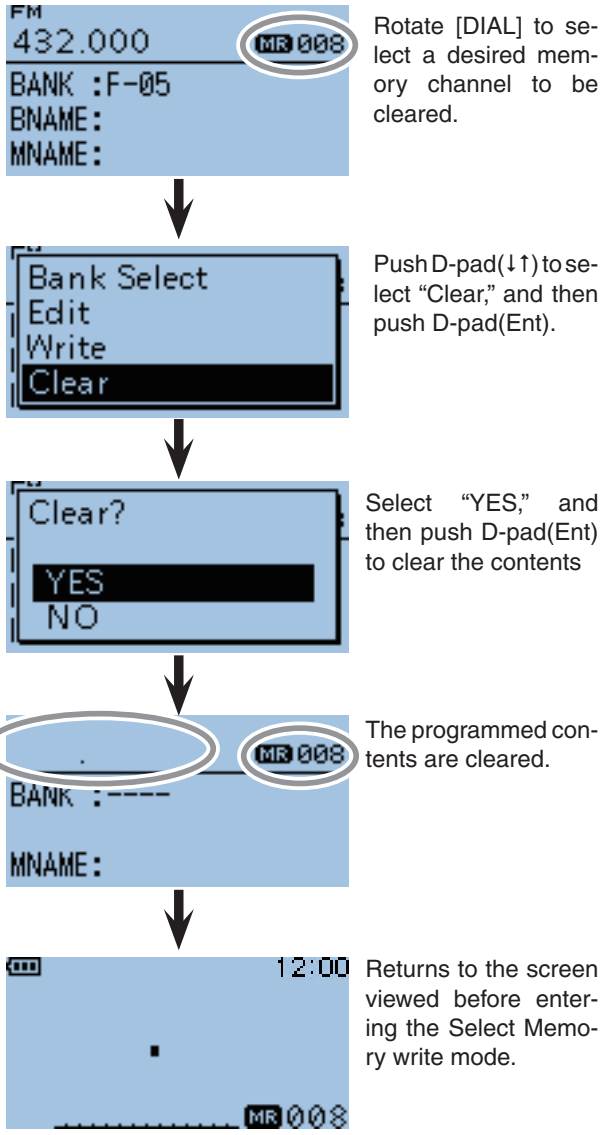


⑤Push D-pad(↑) to select "YES," and then push D-pad(Ent) to clear the contents.
- After clearing, the display returns to the Select Memory write mode.
- To cancel the memory clearing, select "NO" and push D-pad(Ent.)

⑥Push [CLR](V/MHz CLR LOW) to exit the Select Memory write mode.
- Returns to the previous screen viewed before entering the Select Memory write mode in step ①.



[Example]: Clearing the memory channel 008.



Rotate [DIAL] to select a desired memory channel to be cleared.

Push D-pad(↓↑) to select "Clear," and then push D-pad(Ent).

Select "YES," and then push D-pad(Ent) to clear the contents

The programmed contents are cleared.

Returns to the screen viewed before entering the Select Memory write mode.

SCAN OPERATION Section 8

■ Scan

Scanning is a versatile function that can automatically search for signals and makes it easier to locate stations to contact or listen to, or to skip unwanted channels or frequencies.

◇ About the scan function

• In the VFO mode

The frequencies that are set as “PSKIP” (p. 8-6) are skipped during a scan.

NOTE:
One or more pare of the scan edge channels must be programmed to start a program scan.

• In the memory mode

The frequencies that are set as skip channels “PSKIP” and “SKIP” (p. 8-10) are not scanned.

NOTE:
Two or more memory channels must be programmed to start a memory scan.

[Duplex (DUP) scan]

The Duplex scan searches for both TX and RX frequencies which are used in duplex operation. (pp. 1-4, 1-5)

- The “DUP–” or “DUP+” icon is displayed in the duplex mode.
- A duplex scan will not start when the frequency offset is set to “0.000 MHz.”

[Tone scan]

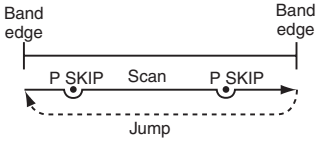
The tone scan searches for tone frequencies or DTCS codes that are used by stations using the Tone Squelch function.

- A tone scan can be made in any mode: VFO, memory or Call channel.
- During a tone scan, rotate [DIAL] to switch scan direction.

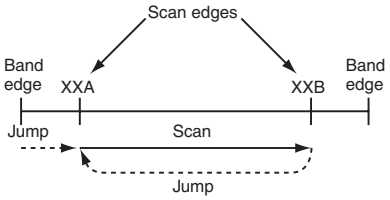
Refer to “**Tone Squelch function/DTCS code Squelch function**” (pp. 11-7 to 11-10) for details.

◇ VFO scan

- **ALL** (Full scan) p. 8-4
  Repeatedly scans the entire band.



- **PROG 0–24** (Program scan) p. 8-4
  Scans the frequency range which is programmed into the program scan channels (PROGRAM-CH).



- **P-LINK0–9** (Program link scan) p. 8-4
  Sequentially scans the program scan channels which are set to link in the “PROGRAM LINK” item in the MENU screen. (p. 10-16)
  (MENU > Scan > **Program Link**)

◇ Memory scan

- **ALL** (Memory full scan) p. 8-7
  Scans all memory channels.

- **MODE** (Mode memory scan) p. 8-7
  Scans memory channels which are programmed with the same receiving mode as the currently selected mode.

◇ Memory bank scan

- **ALL** (Full bank scan) p. 8-8
  Scans all banks.

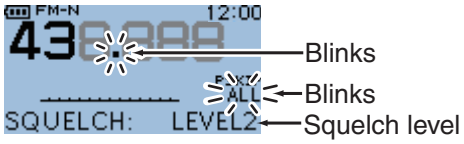
- **BANK-LINK** (Bank link scan) p. 8-8
  Sequentially scans the banks which are set to link in the “BANK LINK” item in the MENU screen.
  (MENU > Scan > **Bank Link**)

- **BANK-A–Z** (Bank scan) p. 8-8
  Scans the memory channels in the selected bank.

◇ Squelch setting for a scan

The squelch level can be changed to suit your operating style. Set the squelch level to open the squelch, according to the received signal strength.
The default squelch level is "AUTO."

- During a scan, while holding down [SQL], and then rotate [DIAL] to adjust the squelch level. Release [SQL] to restart the scan.



◇ Scanning direction

- If desired, rotate [DIAL] to switch the scanning direction during a scan.
- When a signal is received, the scan pauses. Rotate [DIAL] to resume the scan.

◇ Tuning step for a VFO scan

The selected tuning step is applied to the scan.

◇ Skip function

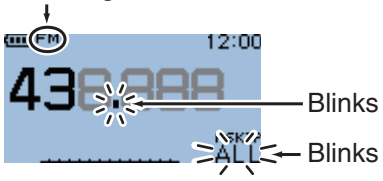
The skip function speeds up scanning by not scanning those frequencies set as skip channels.

When the "PROGRAM SKIP" item is set to OFF, the Scan Skip function cannot be used. (p. 10-14)
(MENU > Scan > **Program skip**)

◇ Receive mode for a scan

- The selected receive mode is used by the scan.
- During a memory or bank scan, the receive mode programmed into the channel is used by the scan.

Scanning in the FM mode

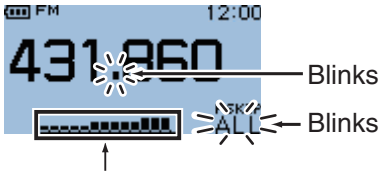


◇ When a signal is received

When a signal is received, the scan pauses for approximately 10 seconds (default).
The scan resumes approximately 2 seconds after the signal is disappears.

- These settings can be changed in the MENU screen. (p. 10-14)

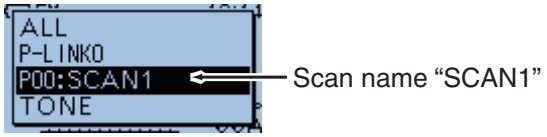
(MENU > Scan > **Pause Timer**)
(MENU > Scan > **Resume Timer**)



The S-meter shows the received signal strength.

◇ Scan name

A desired name can be assigned to each PROGRAM-CH (**A/**B). (p. 7-10)
By selecting the scan name, the scanning frequency range will be set.



The scan type selecting screen.

◇ Scan Stop Beep function

The Scan Stop Beep function sounds a beep when a signal is received.
The function can be turned ON in the MENU screen. (p. 10-62)
(MENU > Sounds > **Scan Stop Beep**)

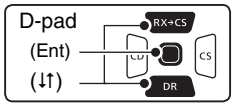
■ VFO scan

There are 5 scan types: full scan, program scan, program link scan, duplex scan and tone scan.

NOTE:
The frequencies that are set as skip channels "PSKIP" are skipped during a scan.
When the "PROGRAM SKIP" item in the MENU screen is set to OFF, the frequencies that are set as skip channels "PSKIP", are not skipped during a scan.

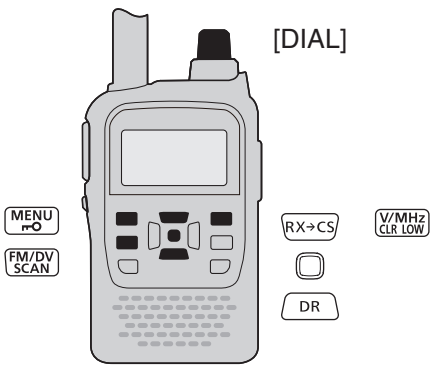
◇ VFO mode scan

① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Push [FM/DV] (FM/DV SCAN) to select the operating mode.
③ Hold down [SCAN] (FM/DV SCAN) for 1 second.
④ Push D-pad(↓↑) to select the scan type.
- ALL : Full scan.
- P-LINK0–9 : Program link scan.
- P00–24 : Program scan.
- DUP : Duplex scan (p. 8-2). (For the duplex mode)
- TONE : Tone scan. (For tone squelch scanning)

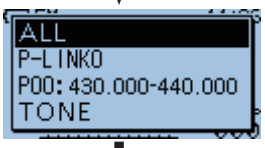


⑤ Push D-pad(Ent) to start the scan.
- If desired, rotate [DIAL] to switch the scanning direction during a scan.
- If desired, push [FM/DV] (FM/DV SCAN) to change the operating mode during a scan.
- If desired, hold down for 1 second [LOCK] (MENU) to turn ON the Lock function during a scan. To turn the function OFF, hold down [LOCK] (MENU) again for 1 second.
- The scan resumes even while the MENU screen is displayed.

⑥ To cancel the scan, hold down [SCAN] (FM/DV SCAN) for 1 second.
- Pushing [CLR] (V/MHz CLR LOW) also cancels the scan.



Hold down [SCAN] (FM/DV SCAN) for 1 second.



Push D-pad(Ent).

e.g. The full scan in the FM mode.

Blinks
Blinks

When a signal is received.

Blinks
Blinks

The S-meter shows the received signal strength.

CONVENIENCE!
Holding down [SCAN] (FM/DV SCAN) and rotate [DIAL] also selects the scan type. The scan immediately starts when [SCAN] (FM/DV SCAN) is released.

◇ VFO mode scan (continued)

When a scan name is assigned.

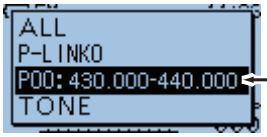
When a scan name is assigned, the scan type can be set by selecting the scan name from the scan type list. (Step ④ on page 8-4.)

NOTE: The scan name is not displayed during a scan.

• When the scan name is assigned

Scan name “SCAN0”

• When the scan name is not assigned



Scan edges

When a program link name is assigned.

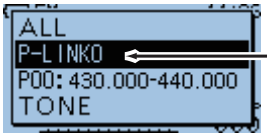
When a program link name is assigned, the scan type can be set by selecting the program link name from the scan type list. (Step ④ on page 8-4.)

NOTE: The program link name is not displayed during a scan.

• When the program link name is assigned

Program link name “LINK0”

• When the program link name is not assigned



Program link

■ Setting and clearing the skip frequencies

◇ Setting the skip frequencies

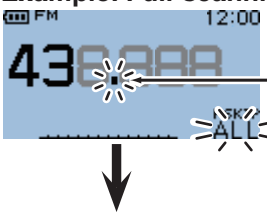
The frequencies set as skip channels "PSKIP" are skipped (not scanned).

① Start the VFO scan (p. 8-4).
- When a signal is received, the scan pauses.

② Hold down [S.MW] (M/CALL S.MW) for 1 second (until the 3 beeps sound).
- The memory channel number blinks.
- When a signal is received during the scan, the transceiver attempts to program the frequency as a skip channel, into empty memory channel 499.
- If channel 499 is already programmed, the transceiver automatically searches backwards for a blank channel to program.
  If no blank memory channel is found, a beep sounds, and no skip channel is programmed.

③ After the skip channel is programmed, or the beep sounds, the scan resumes.

Example: Full-scanning in the FM mode.



When a signal is received.

Hold down [M/CALL] (M/CALL S.MW) for 1 second.

431.860 MHz is programmed into memory channel "496," as the skip frequency.

The channel is programmed as a skip frequency.

Blinks

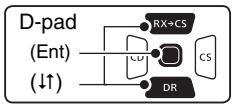
◇ Clearing the skip frequency

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.

② Rotate [DIAL] to select the memory channel you want to clear as the skip channel.

③ Push (QUICK MENU).

④ Push D-pad(↓↑) to select "SKIP," and then push D-pad(Ent).
- OFF : Cancel the skip setting.
- SKIP : Skipped during a memory scan.
- PSKIP : Skipped during both VFO and memory scans.



⑤ Push D-pad(↓↑) to select "OFF," and then push D-pad(Ent) to save the selection.
- The skip setting is canceled.

[DIAL]

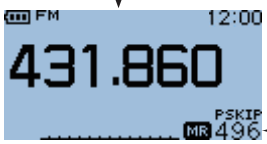
RX→CS

M/CALL S.MW

DR

QUICK MENU

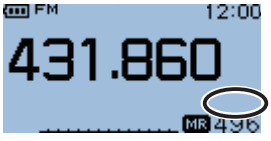
Push [M/CALL] (M/CALL S.MW).



Push (QUICK MENU).

The channel that is programmed as a skip frequency is .

Push D-pad(Ent).



"PSKIP" has disappeared.

FOR YOUR CONVENIENCE!
The skip setting is also cancelled when the memory channel set as skip channel is deleted. See page 7-13 for details.

■ Memory scan

There two types of scan in the memory mode: Memory scan and memory bank scan.

- Channels set as “PSKIP” or “SKIP” is skipped during a scan.
- Two or more memory channels, which are not set as skip channels, must be programmed into start a memory scan.

◇ Setting the skip memory channel

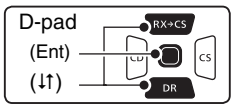
The memory channels set as “PSKIP” or “SKIP” skip channels are not scanned.

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.

② Hold down [FM/DV] (FM/DV SCAN) for 1 second.

③ Push D-pad(↓↑) to select the scan type.

- ALL : Full scan
- MODE : Mode memory scan
- DUP : Duplex scan (p. 8-2) (For the duplex mode)
- TONE : Tone scan (For tone scanning)

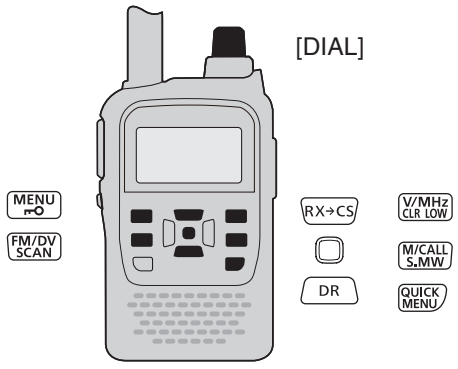


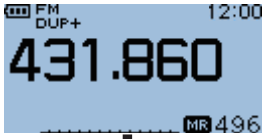
④ Push D-pad(Ent) to start the scan.

- If desired, rotate [DIAL] to switch the scanning direction during a scan.
- If desired, hold down for 1 second [LOCK] (MENU) to turn ON the Lock function during a scan. To turn the function OFF, hold down [LOCK] (MENU) again for 1 second.
- The scan resumes even while the MENU screen is displayed.

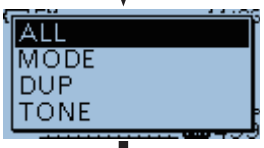
⑤ To cancel the scan, hold down [SCAN] (FM/DV SCAN) for 1 second.

- Pushing [CLR] (V/MHz CLR LOW) also cancels the scan.

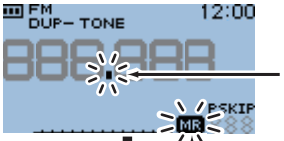




Hold down [SCAN] (FM/DV SCAN) for 1 second.



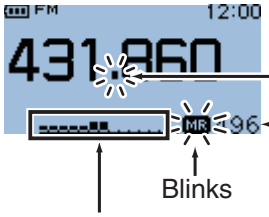
Push D-pad(Ent).



Blinks

Blinks

When a signal is received.



Blinks

Memory channel number

Blinks

The S-meter shows the received signal strength.

CONVENIENCE!

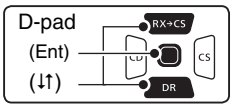
Holding down [SCAN] (FM/DV SCAN) and then rotating [DIAL] also selects the scan type. The scan immediately starts when [SCAN] (FM/DV SCAN) is released.

◇ Memory bank scan

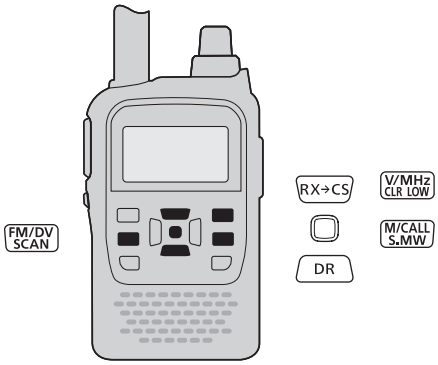
A memory bank scan searches through the memory channels in the selected bank.

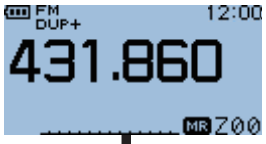
- Two or more memory channels, which are not set as skip channels, must be programmed into start a memory bank scan.
- When the "BANK" item in the MENU screen is set to "OFF," a bank scan is not started.

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Hold down [FM/DV] (FM/DV SCAN) for 1 second.
③ Push D-pad (↓↑) to select the scan type.
- ALL : Full bank scan
- BANK-LINK : Bank link scan
- BANK-A to Z : Bank scan (Only banks which contain a memory channel are displayed.)
- DUP : Duplex scan (p. 8-2) (For the duplex mode)
- TONE : Tone scan (For tone scanning)

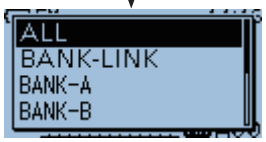


④ Push D-pad(Ent) to start the scan.
⑤ To cancel the scan, hold down [SCAN] (FM/DV SCAN) for 1 second.
- Pushing [CLR] (V/MHz CLR LOW) also cancels the scan.





Hold down [SCAN] (FM/DV SCAN) for 1 second.



Push D-pad(Ent).

Blinks

Blinks

When a signal is received.

Blinks

Bank channel

Blinks

The S-meter shows the received signal strength.

CONVENIENCE!

Holding down [SCAN] (FM/DV SCAN) and rotate [DIAL] also selects the scan type. The scan immediately starts when [SCAN] (FM/DV SCAN) is released.

NOTICE

- The bank contains only channels which are set as "SKIP" or "PSKIP" is skipped.
- When the all selected banks contain only channels which are set as "SKIP" or "PSKIP," the scan is not started.

◇ Memory bank scan (continued)

When a bank name is programmed

When a bank name is programmed, the scan type can be set by selecting the bank name from the scan type list. (Set ③ on page 8-8.)

NOTE: The bank name is not displayed during a scan.

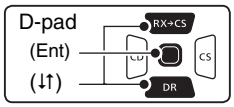
• When the bank name is programmed.

Bank name “UHF CONTEST”

■ Setting and clearing skip channel

The channels set as “SKIP” skip channels are skipped (not scanned).

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Rotate [DIAL] to select the memory channel to be set as a skip channel.
③ Push (QUICK MENU).
④ Push D-pad(↓↑) to select “SKIP,” and then push D-pad(Ent).
- OFF : Cancel the skip setting.
- SKIP : Skipped during a memory scan.
- PSKIP : Skipped during both VFO and memory scans.



⑤ To cancel the skip, D-pad(↓↑) to select “OFF,” and then push D-pad(Ent) to save the selection.
- The skip is set or cleared.

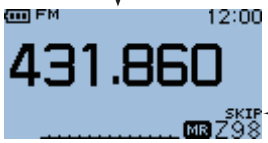
Example: Set “SKIP” to bank channel “Z98.”

Rotate [DIAL] to select the memory channel.

Push (QUICK MENU).

← Memory channel number

Push D-pad(Ent).



← “SKIP” is set.

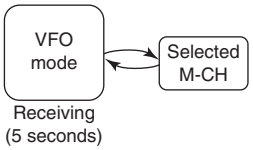
PRIORITY WATCH Section 9

■ PRIORITY WATCH

While operating on a VFO frequency, DR mode or while scanning, Priority watch checks for signals on a selected frequency every 5 seconds.

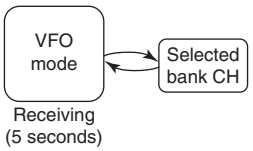
◇ VFO frequency and a memory channel

Checks the selected memory channel every 5 seconds, while receiving on a VFO frequency.



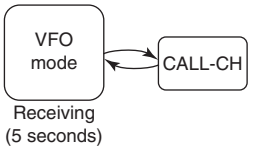
◇ VFO frequency and a bank channel

Checks the memory channels in the selected bank every 5 seconds, while receiving on a VFO frequency.



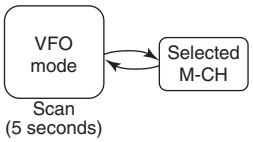
◇ VFO frequency and a Call channel

Checks the memory channels in the Call channel every 5 seconds, while receiving on a VFO frequency.



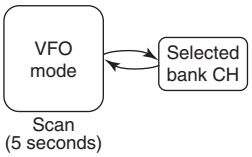
◇ VFO scan and a memory channel

Checks the selected memory channel every 5 seconds, during a VFO mode scan.



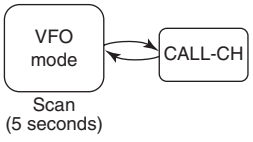
◇ VFO scan and a bank channel

Checks the memory channels in the selected bank every 5 seconds, during a VFO mode scanning.



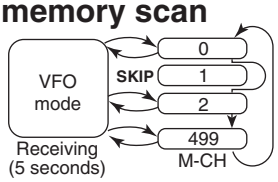
◇ VFO scan and a Call channel

Checks the memory channels in the selected Call channel every 5 seconds, during a VFO mode scan.



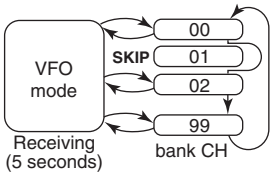
◇ VFO frequency and a memory scan

Sequentially checks the memory channels every 5 seconds, while receiving on a VFO frequency.



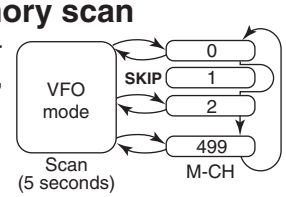
◇ VFO frequency and a bank scan

Sequentially checks the bank channels every 5 seconds, while receiving on a VFO frequency.



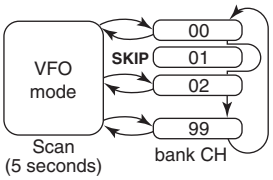
◇ VFO scan and a memory scan

Sequentially checks the memory channels every 5 seconds, during a VFO mode scan.



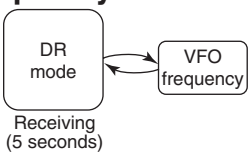
◇ VFO scan and a bank scan

Sequentially checks the bank channels every 5 seconds, during a VFO mode scan.



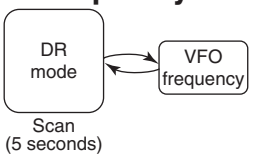
◇ DR mode and a VFO frequency

Checks a VFO frequency every 5 seconds, while receiving on a repeater in the DR mode.



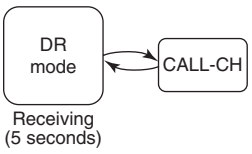
◇ DR mode scan and a VFO frequency

Checks a VFO frequency every 5 seconds, during a DR mode scan.



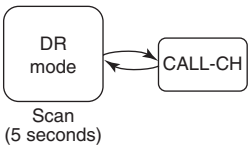
◇ DR mode and a Call channel

Checks a Call channel every 5 seconds, while receiving on a repeater in the DR mode.



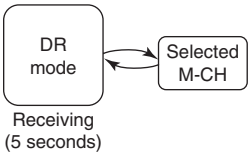
◇ DR mode scan and a Call channel

Checks a Call channel every 5 seconds, during a DR mode scan.



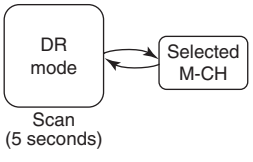
◇ DR mode and a memory channel

Checks a memory channel every 5 seconds, while receiving on a repeater in the DR mode.



◇ DR mode scan and a memory channel

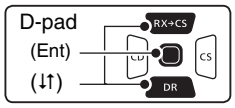
Checks a memory channel every 5 seconds, during a DR mode scan.



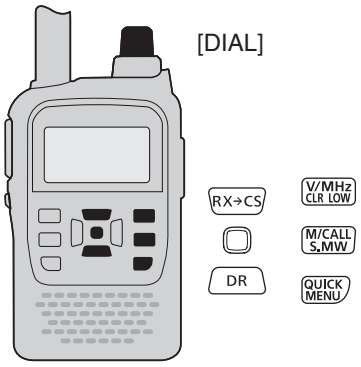
■ VFO FREQUENCY AND A MEMORY CHANNEL

Checks for signals on the selected memory channel every 5 seconds, while receiving on a VFO frequency.

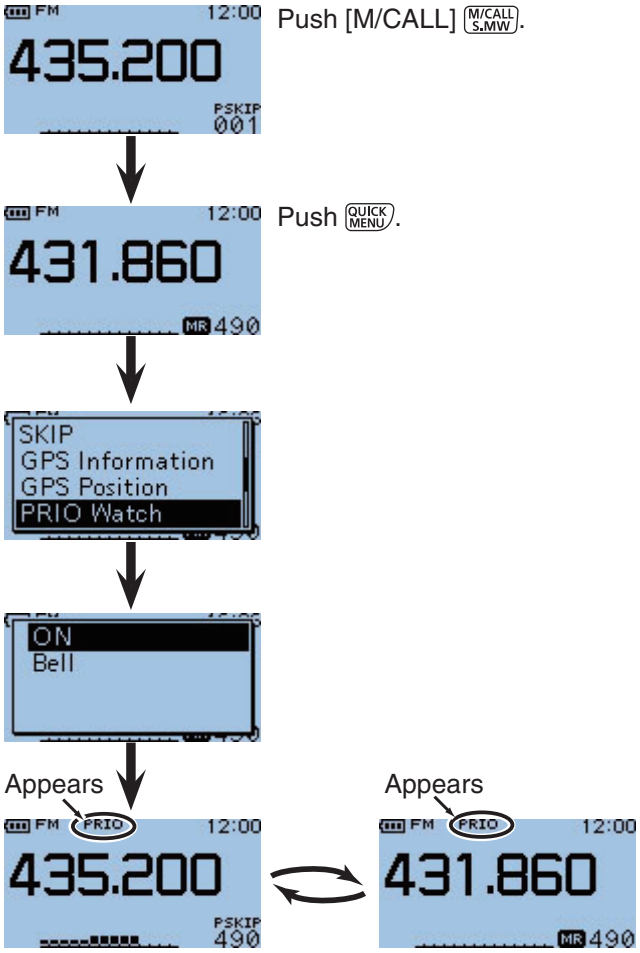
① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Push [M/CALL] (M/CALL S.MW) to select the memory mode.
④ Rotate [DIAL] to select the channel you want to watch.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent). The "PRIO" icon appears on the screen.
- ON : When a signal is received on the priority channel, the memory mode is automatically selected.
- Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.



⑦ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- To cancel the scan, push [CLR] (V/MHz CLR LOW).



Example: Checks memory channel "490" every 5 seconds, while receiving on 435.200 MHz.



Checks the memory channel every 5 seconds.

(Continued on page 9-4.)

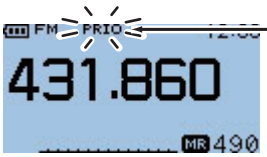
■ VFO FREQUENCY AND A MEMORY CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory mode is automatically selected. The "PRIO" icon blinks on the screen.

* The scan pause timer and resume settings are the same as for a normal scan.



Blinks

Automatically changes to the memory mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks on the screen.

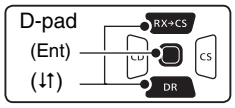
Blinks

Remains the VFO mode.

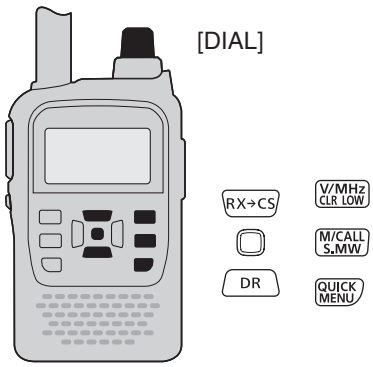
■ VFO FREQUENCY AND BANK CHANNEL

Checks the selected bank channel (priority channel), while receiving on a VFO frequency.

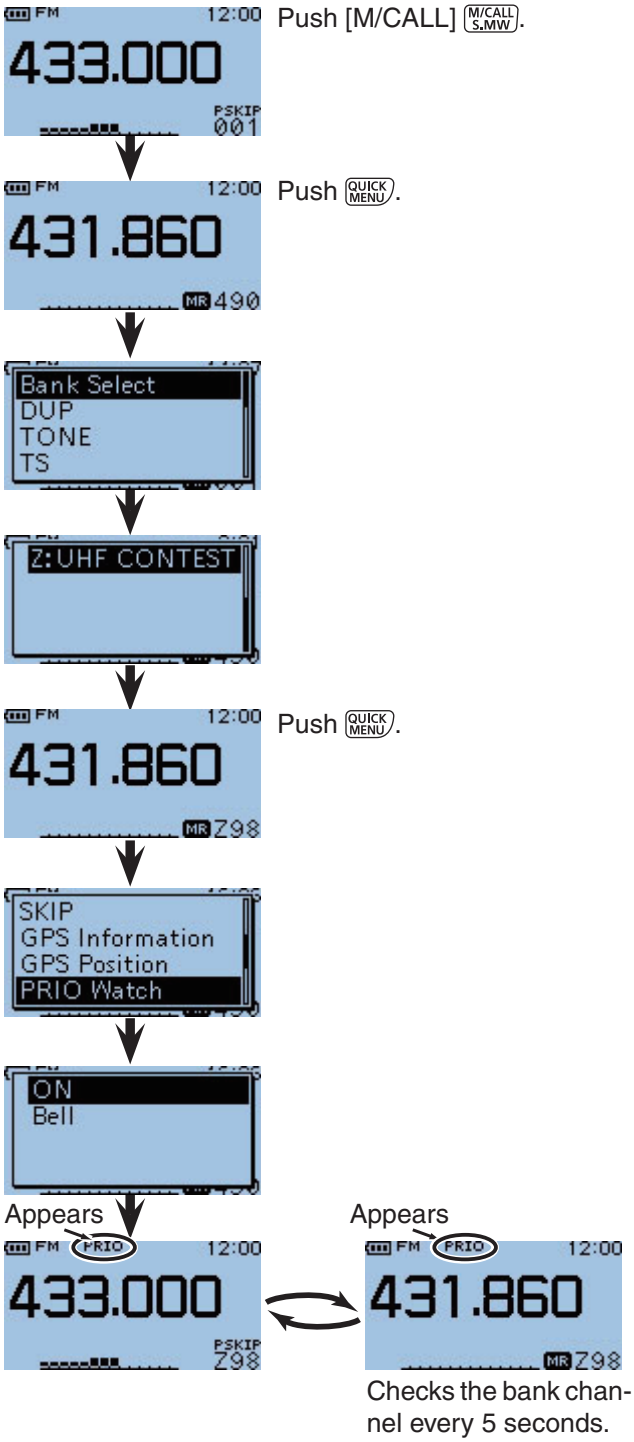
① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Push [M/CALL] (M/CALL S.MW) to select the memory mode.
④ Push (QUICK MENU).
⑤ Push D-pad(↓↑) to select "Bank Select," and then push D-pad(Ent).
• The list of banks is displayed.



⑥ Push D-pad(↓↑) to select the bank that contains the channel to watch, and then push D-pad(Ent).
⑦ Rotate [DIAL] to select the bank channel to watch.
⑧ Push (QUICK MENU).
⑨ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
• ON : When a signal is received on the priority channel, the memory bank mode is automatically selected.
• Bell : When a signal is received on the priority channel, the "((•))" icon appears in the VFO mode.
⑩ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
• The "PRIO" icon is displayed and the priority scan starts.
• To cancel the scan, push [CLR] (V/MHz CLR LOW).



Example: Checks bank channel "Z98" every 5 seconds, while receiving on 433.000 MHz.



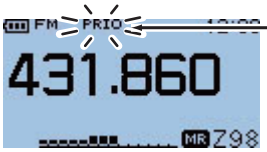
Checks the bank channel every 5 seconds.

(Continued on page 9-6.)

■ VFO FREQUENCY AND BANK CHANNEL (Continued)

When a signal is received.

- **When "ON" is selected.**
  When a signal is received on the priority channel, the memory bank mode is automatically selected. The "PRIO" icon blinks on the screen.
  * The scan pause timer and resume settings are the same as for a normal scan.



Blinks

Automatically changes to the memory bank mode.

- **When "Bell" is selected.**
  When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks on the screen.

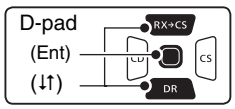
Blinks

Remains in the VFO mode.

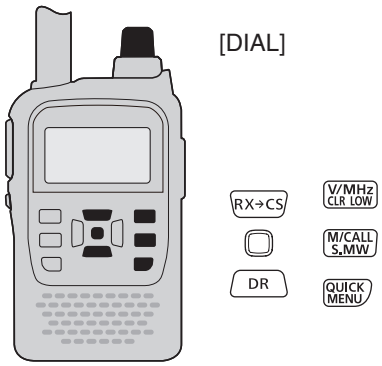
■ VFO FREQUENCY AND CALL CHANNEL

Checks the selected Call channel (priority channel), while receiving on a VFO frequency.

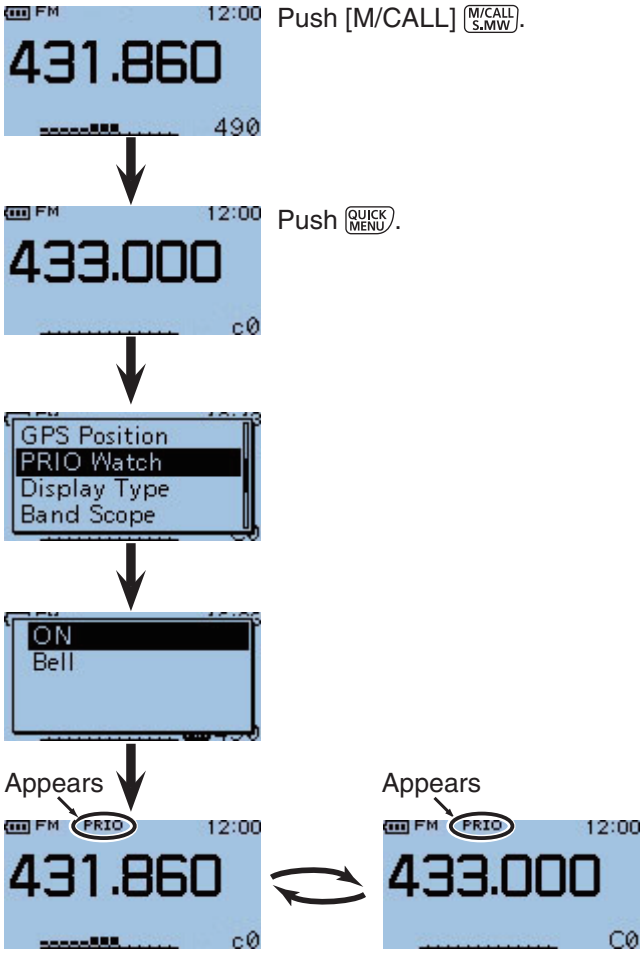
① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Push [M/CALL] (M/CALL S.MW) to select the Call channel mode.
④ Rotate [DIAL] to select the Call channel you want to watch.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the Call channel mode is automatically selected. The "PRIO" icon blinks on the screen.
- Bell : When a signal is received on the priority channel, the "((•))" icon blinks in the VFO mode.



⑦ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon appears and the priority scan starts.
- To cancel the scan, push [CLR] (V/MHz CLR LOW).



Example: Checks Call channel "C0" every 5 seconds, while receiving on 431.860 MHz.



Checks the Call channel every 5 seconds.

(Continued on page 9-8.)

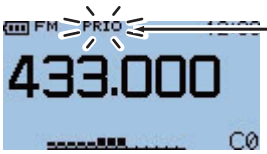
■ VFO FREQUENCY AND CALL CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the Call channel mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.



Blinks

Automatically changes to the Call channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "((•))" icon is displayed on the screen.

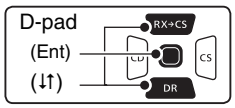
Blinks

Remains in the VFO mode.

■ VFO SCAN AND MEMORY CHANNEL

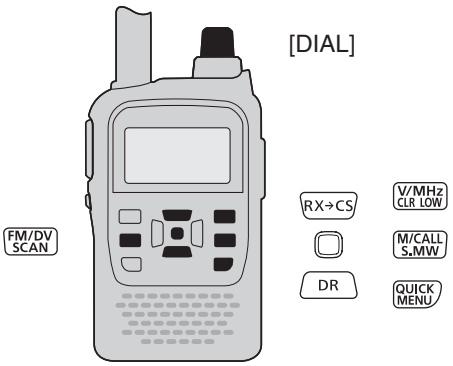
Checks the selected memory channel (priority channel), during a VFO scan.

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Rotate [DIAL] to select the channel you want to watch.
③ Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
④ Push [FM/DV] (FM/DV SCAN) to select the receive mode.
⑤ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑥ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the VFO scan (p. 8-4).

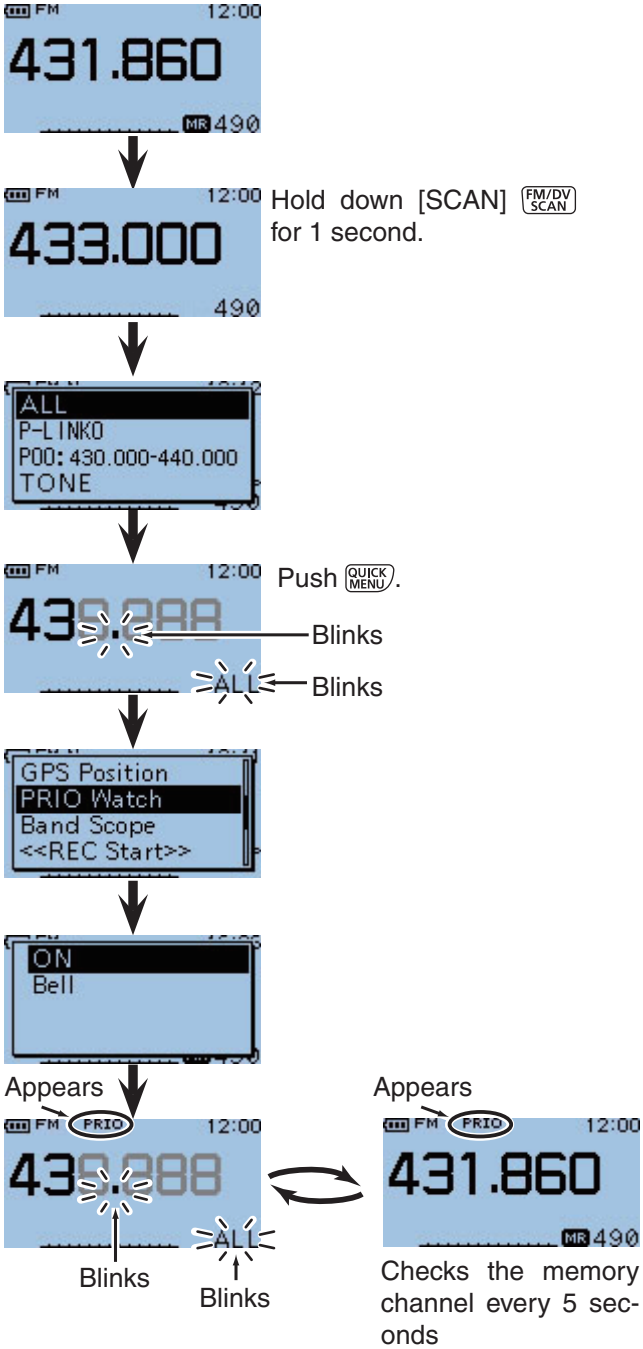


⑦ Push (QUICK MENU).
⑧ Push D-pad(↓↑) to select “PRIO Watch,” and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the memory mode is automatically selected.
- Bell : When a signal is received on the priority channel, the “((•))” icon is displayed in the VFO mode.

⑨ Push D-pad(↓↑) to select “ON” or “Bell,” and then push D-pad(Ent).
- The “PRIO” icon is displayed and the priority scan starts.
- Regardless of the scan setting, when a signal is received on the VFO frequency during the scan, the transceiver checks the memory channel every 5 seconds.
- Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and VFO scan.



Example: Checks memory channel “490” every 5 seconds, during a VFO scan.



(Continued on page 9-10.)

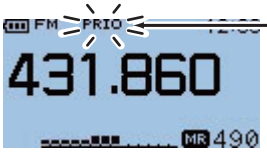
■ VFO SCAN AND MEMORY CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.



Automatically changes to the memory mode.

• When "Bell" is selected.

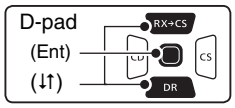
When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks. The VFO scan resumes.

Remains in the VFO mode.

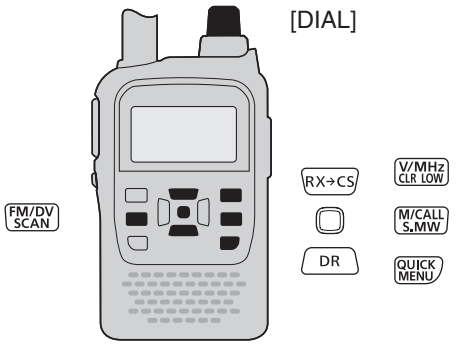
■ VFO SCAN AND BANK CHANNEL

Checks the selected bank channel (priority channel), during a VFO scan.

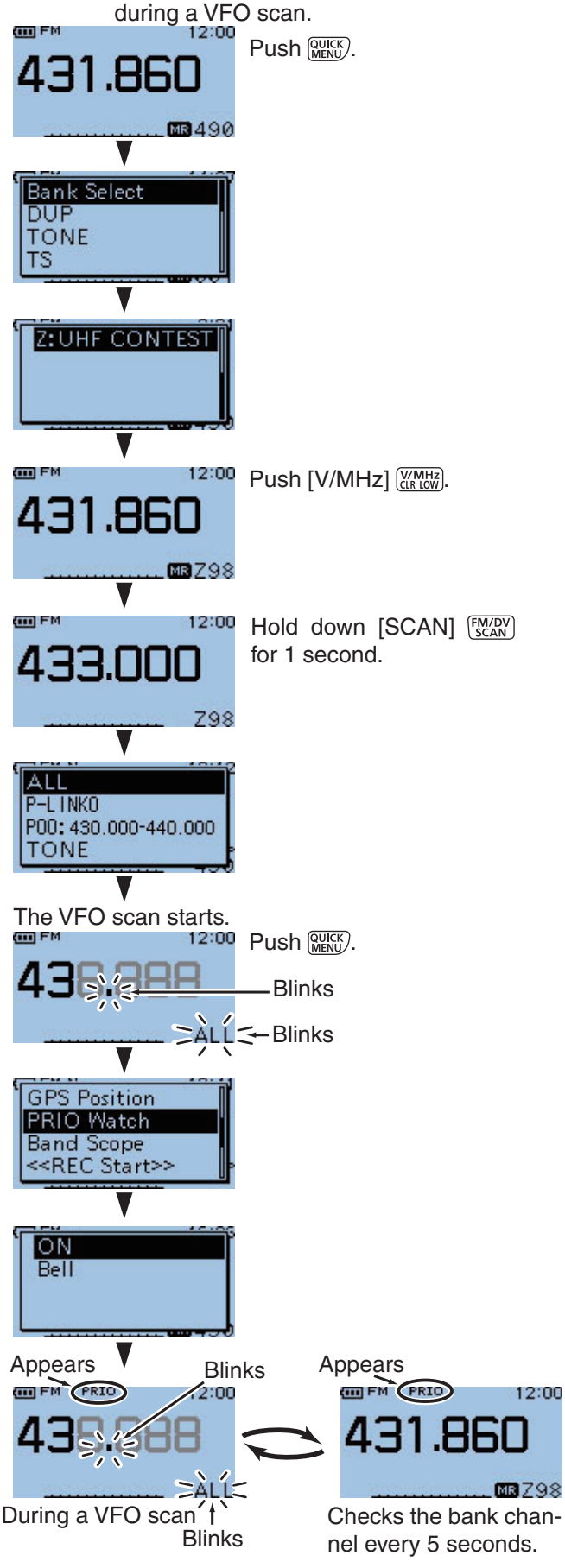
① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Push (QUICK MENU).
③ Push D-pad(↓↑) to select "Bank Select," and then push D-pad(Ent).
• The list of banks is displayed.



④ Push D-pad(↓↑) to select the bank that contains the channel to watch, and then push D-pad(Ent).
⑤ Rotate [DIAL] to select the bank channel to watch.
⑥ Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
⑦ Push [FM/DV] (FM/DV SCAN) to select the receive mode.
⑧ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑨ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the VFO scan (p. 8-4).
⑩ Push (QUICK MENU).
⑪ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
• ON : When a signal is received on the priority channel, the memory bank mode is automatically selected.
• Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.
⑫ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
• The "PRIO" icon is displayed and the priority scan starts.
• Regardless of the scan setting, when a signal is received during the scan, the transceiver continues to check the bank channel every 5 seconds.
• Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and VFO scan.



Example: Checks bank channel "Z98" every 5 seconds, during a VFO scan.



(Continued on page 9-12.)

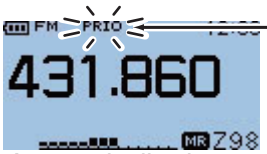
■ VFO SCAN AND BANK CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory bank mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.



Automatically changes to the bank channel mode.

• When "Bell" is selected.

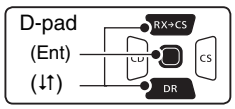
When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks. The VFO scan resumes.

Remains in the VFO mode.

■ VFO SCAN AND CALL CHANNEL

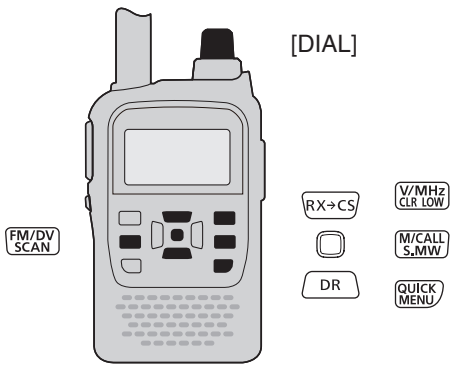
Checks the selected Call channel (priority channel), during a VFO scan.

① Push [M/CALL] (M/CALL S.MW) to select the Call channel mode.
② Rotate [DIAL] to select the Call channel you want to watch.
③ Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
④ Push [FM/DV] (FM/DV SCAN) to select the receive mode.
⑤ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑥ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the VFO scan (p. 8-4).

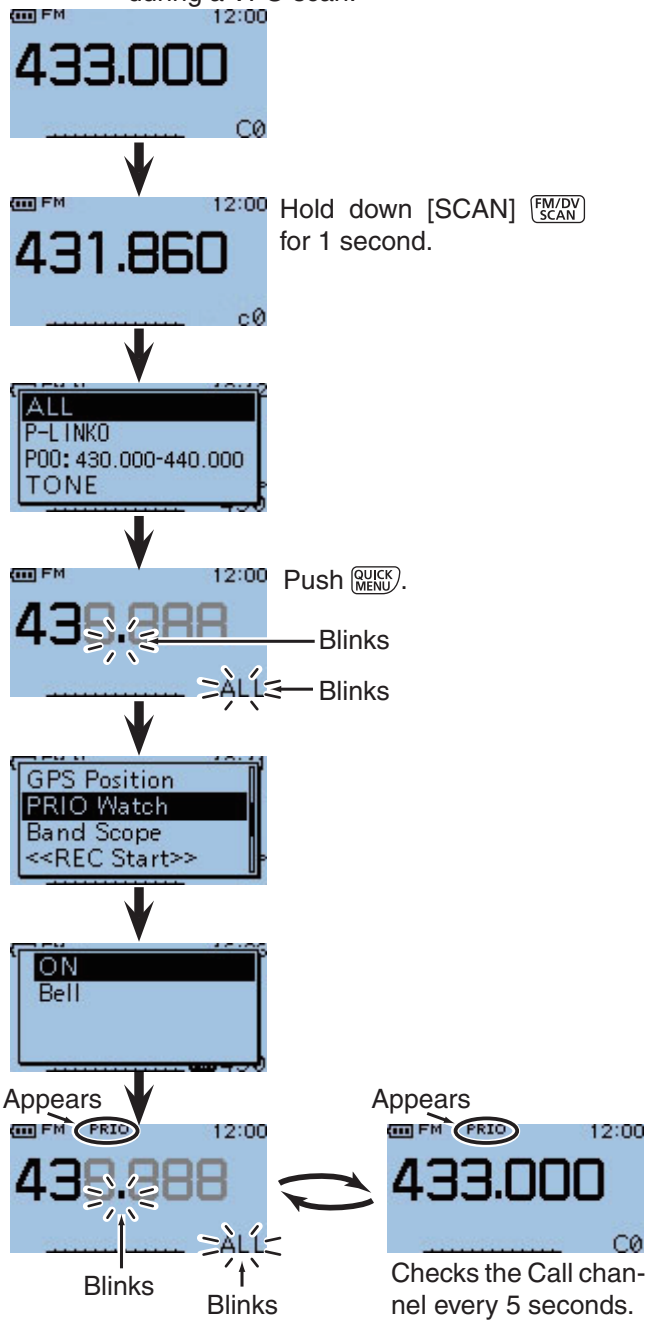


⑦ Push (QUICK MENU).
⑧ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the Call channel mode is automatically selected.
- Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.

⑨ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- Regardless of the scan setting, when a signal is received during the scan, the transceiver continues to check the Call channel every 5 seconds.
- Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and VFO scan.



Example: Checks Call channel "C0" every 5 seconds, during a VFO scan.



(Continued on page 9-14.)

■ VFO SCAN AND CALL CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the Call channel mode is automatically selected. The "PRIO" icon blinks.

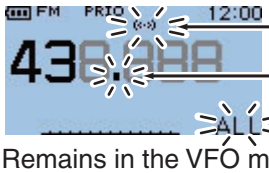
* The scan pause timer and resume settings are the same as for a normal scan.

Blinks

Automatically changes to the Call channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks. The VFO scan resumes.



Blinks

Blinks

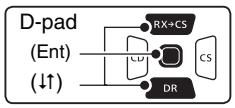
Blinks

Remains in the VFO mode.

■ VFO FREQUENCY AND MEMORY SCAN

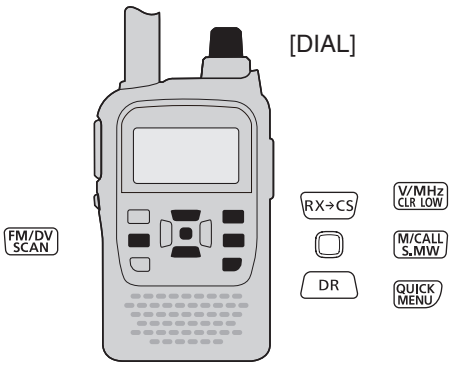
Checks the memory channels (priority channel) every 5 seconds, in sequence, while receiving on a VFO frequency.

① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Push [M/CALL] (M/CALL S.MW) to select the memory mode.
④ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑤ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the memory scan (p. 8-7).

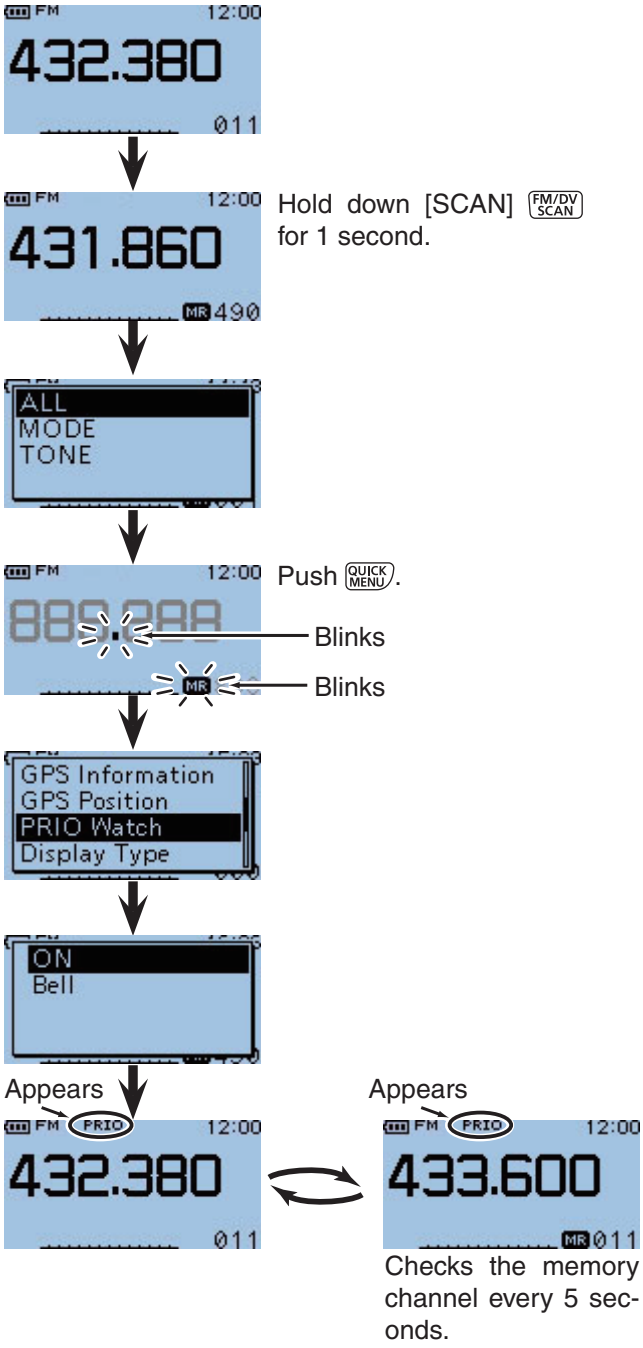


⑥ Push (QUICK MENU).
⑦ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the memory mode is automatically selected.
- Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.

⑧ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- To cancel the scan, push [CLR] (V/MHz CLR LOW).



Example: Sequentially checks the memory channels every 5 seconds, while receiving on 432.380 MHz.



(Continued on page 9-16.)

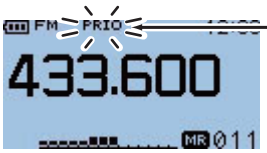
■ VFO FREQUENCY AND MEMORY SCAN (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.

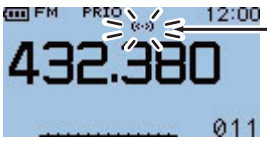


Blinks

Automatically changes to the memory mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks on the screen.



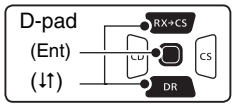
Blinks

Remains in the VFO mode.

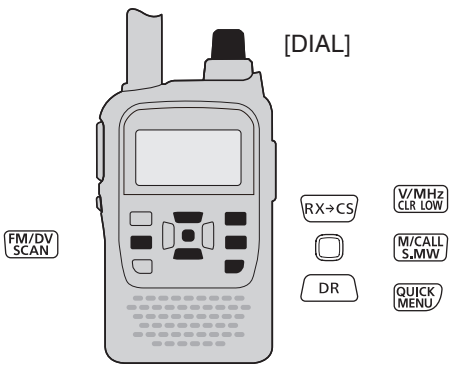
■ VFO FREQUENCY AND BANK SCAN

Checks the bank channels (priority channel) every 5 seconds, in sequence, while receiving on a VFO frequency.

① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Push [M/CALL] (M/CALL S.MW) to select the memory mode.
④ Push (QUICK MENU).
⑤ Push D-pad(↓↑) to select "Bank Select," and then push D-pad(Ent).
• The list of banks is displayed.

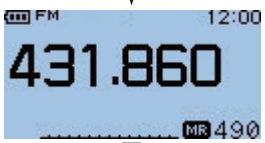


⑥ Push D-pad(↓↑) to select the bank, and then push D-pad(Ent).
⑦ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑧ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the bank scan (p. 8-8).
⑨ Push (QUICK MENU).
⑩ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
• ON : When a signal is received on the priority channel, the memory bank mode is automatically selected.
• Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.
⑪ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
• The "PRIO" icon is displayed and the priority scan starts.
• To cancel the scan, push [CLR] (V/MHz CLR LOW).

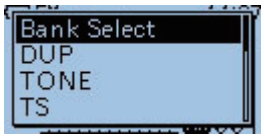


Example: Sequentially checks the memory channels in bank "Z" every 5 seconds, while receiving 432.380 MHz.

Push [M/CALL] (M/CALL S.MW).



Push (QUICK MENU).

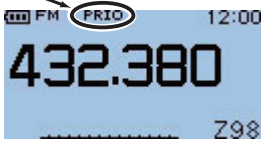


Hold down [SCAN] (FM/DV SCAN) for 1 second.

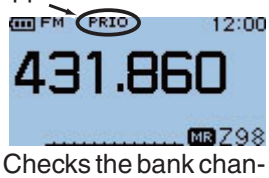
Bank scan starts.

Push (QUICK MENU).
Blinks
Blinks

Appears



Appears



Checks the bank channel every 5 seconds.

(Continued on page 9-18.)

9

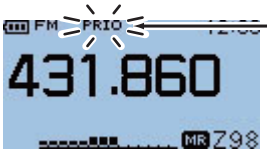
■ VFO FREQUENCY AND BANK SCAN (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory bank mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.



Blinks

Automatically changes to the bank channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks on the screen.

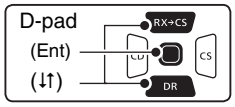
Blinks

Remains in the VFO mode.

■ VFO SCAN AND MEMORY SCAN

Checks the memory channels (priority channel) every 5 seconds, in sequence, during a VFO scan.

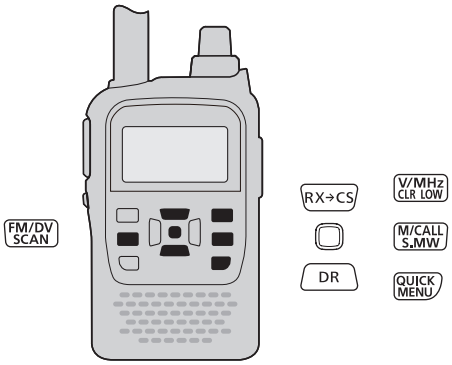
① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Hold down [SCAN] (FM/DV SCAN) for 1 second.
③ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the memory scan (p. 8-7).



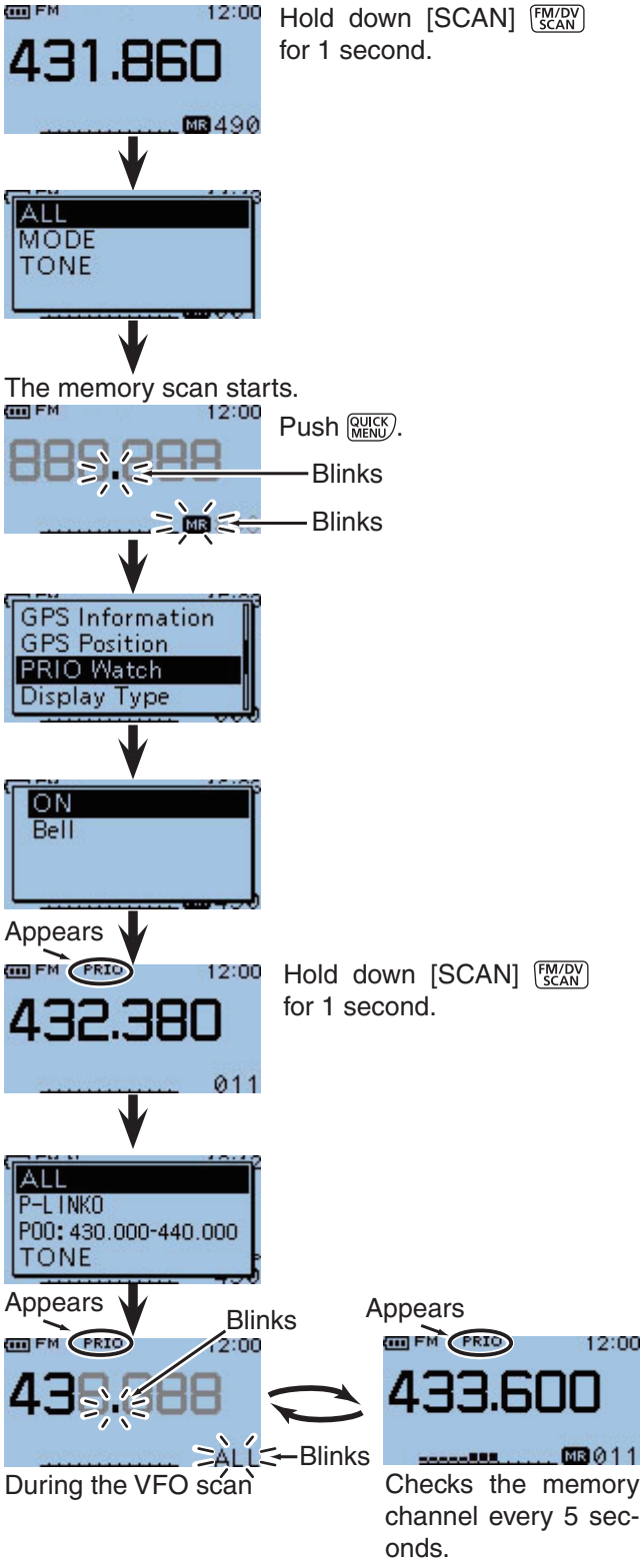
④ Push (QUICK MENU).
⑤ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the memory mode is automatically selected.
- Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.

⑥ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon appears and the priority scan (VFO frequency and memory scan) starts. (p. 9-15)

⑦ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑧ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the VFO scan (p. 8-4).
- Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and VFO scan.



Example: Checks the memory channels every 5 seconds, in sequence, during a VFO scan.



(Continued on page 9-20.)

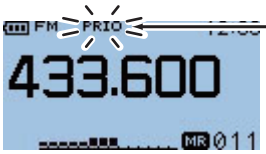
■ VFO SCAN AND MEMORY SCAN (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.

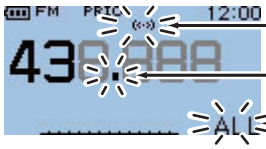


Blinks

Automatically changes to the memory mode.

• When "BELL" is selected.

When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks. The VFO scan resumes.



Blinks

Blinks

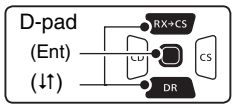
Blinks

Resumes in the VFO mode.

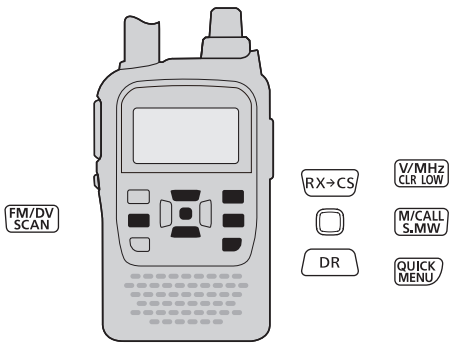
■ VFO SCAN AND BANK SCAN

Checks the bank channels (priority channel) every 5 seconds, in sequence, during a VFO scan.

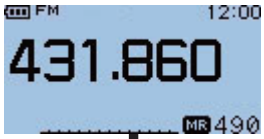
① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Push (QUICK MENU).
③ Push D-pad(↓↑) to select "Bank Select," and then push D-pad(Ent).
• The list of banks is displayed.



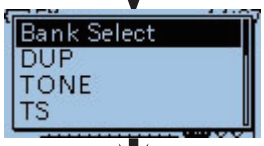
④ Push D-pad(↓↑) to select the bank, and then push D-pad(Ent).
⑤ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑥ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the bank scan (p. 8-8).
⑦ Push (QUICK MENU).
⑧ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
• ON : When a signal is received on the priority channel, the memory bank mode is automatically selected.
• Bell : When a signal is received on the priority channel, the "((•))" icon is displayed in the VFO mode.
⑨ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
• The "PRIO" icon appears and the priority scan (VFO frequency and bank scan) (p. 9-15) starts.
⑩ Hold down [SCAN] (FM/DV SCAN) for 1 second.
⑪ Push D-pad(↓↑) to select the scan type, and then push D-pad(Ent) to start the VFO scan (p. 8-4).
• Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and VFO scan.

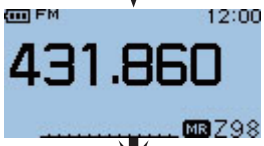


Example: Checks the bank channels every 5 seconds, in sequence, during the VFO scan.



Push (QUICK MENU).





Hold down [SCAN] (FM/DV SCAN) for 1 second.

The bank scan starts.

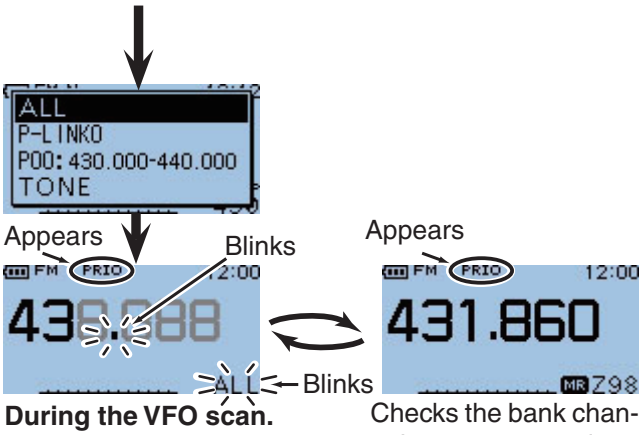
Push (QUICK MENU).
Blinks
Blinks

Appears

Hold down [SCAN] (FM/DV SCAN) for 1 second.

(Continued on page 9-22.)

■ VFO SCAN AND BANK SCAN (Continued)



During the VFO scan.

Checks the bank channel every 5 seconds.

When a signal is received.

- **When "ON" is selected.**

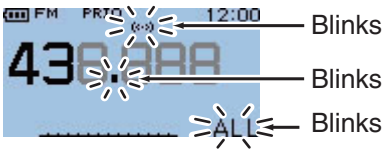
  When a signal is received on the priority channel, the memory bank mode is automatically selected. The "PRIO" icon blinks.

  * The scan pause timer and resume settings are the same as for a normal scan.

Automatically changes to the bank channel mode.

- **When "Bell" is selected.**

  When a signal is received on the priority channel, a beep sounds and the "((•))" icon blinks. The VFO scan resumes.

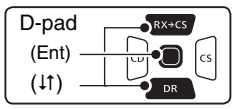


Resumes in the VFO mode.

■ DR MODE AND VFO FREQUENCY

Checks the VFO frequency (priority channel) every 5 seconds, while receiving a repeater in the DR mode.

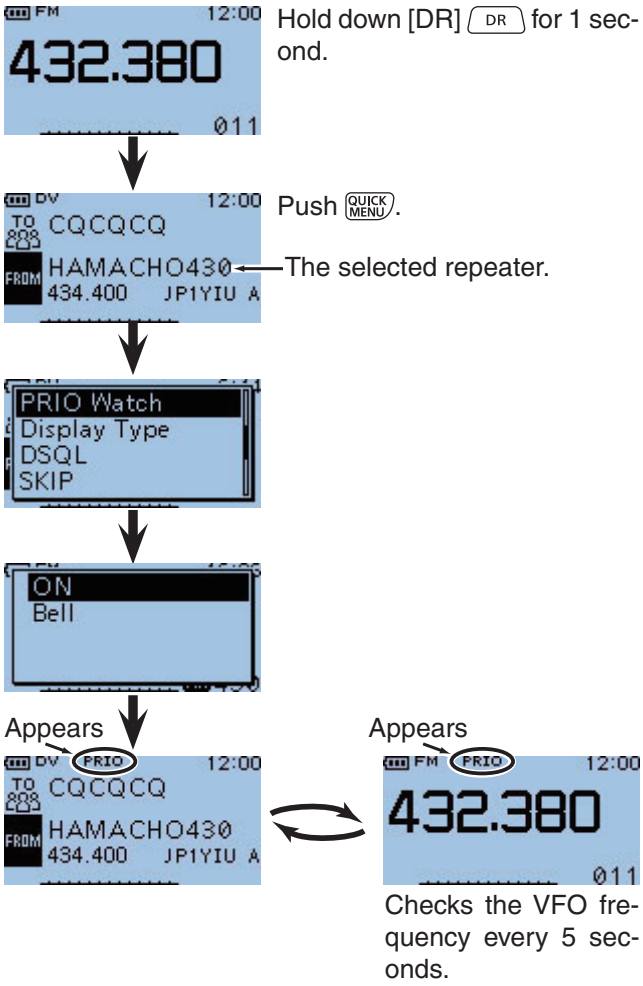
① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Hold down [DR] (DR) for 1 second to select the DR mode.
④ Push D-pad(↓↑) to select the "FROM" (Access repeater) item.

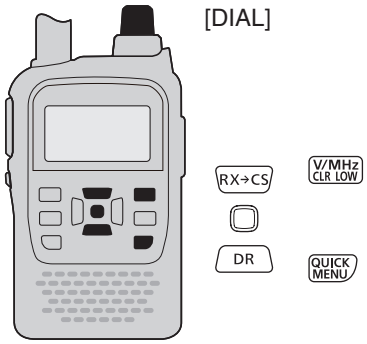


⑤ Rotate [DIAL] to select the desired repeater.
⑥ Push (QUICK MENU).
⑦ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the VFO mode is automatically selected.
- Bell : When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the DR mode screen.

⑧ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- To cancel the scan, push [CLR] (V/MHz CLR LOW).

Example: Checks "432.380 MHz" every 5 seconds, while receiving on the repeater in the DR mode.





(Continued on page 9-24.)

■ DR MODE AND VFO FREQUENCY (Continued)

When a signal is received.

• When "ON" is selected.

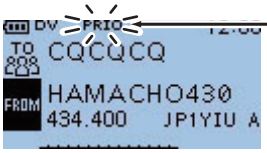
When a signal is received on the priority channel, the VFO mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.

Automatically changes to the VFO mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the screen.

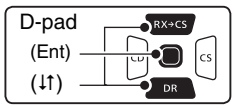


Remains in the DR mode.

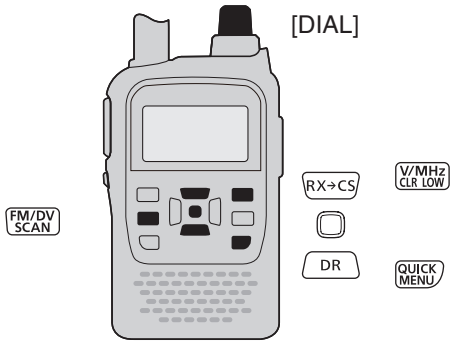
■ DR MODE SCAN AND VFO FREQUENCY

Checks the VFO frequency (priority channel) every 5 seconds, during a DR mode scan.

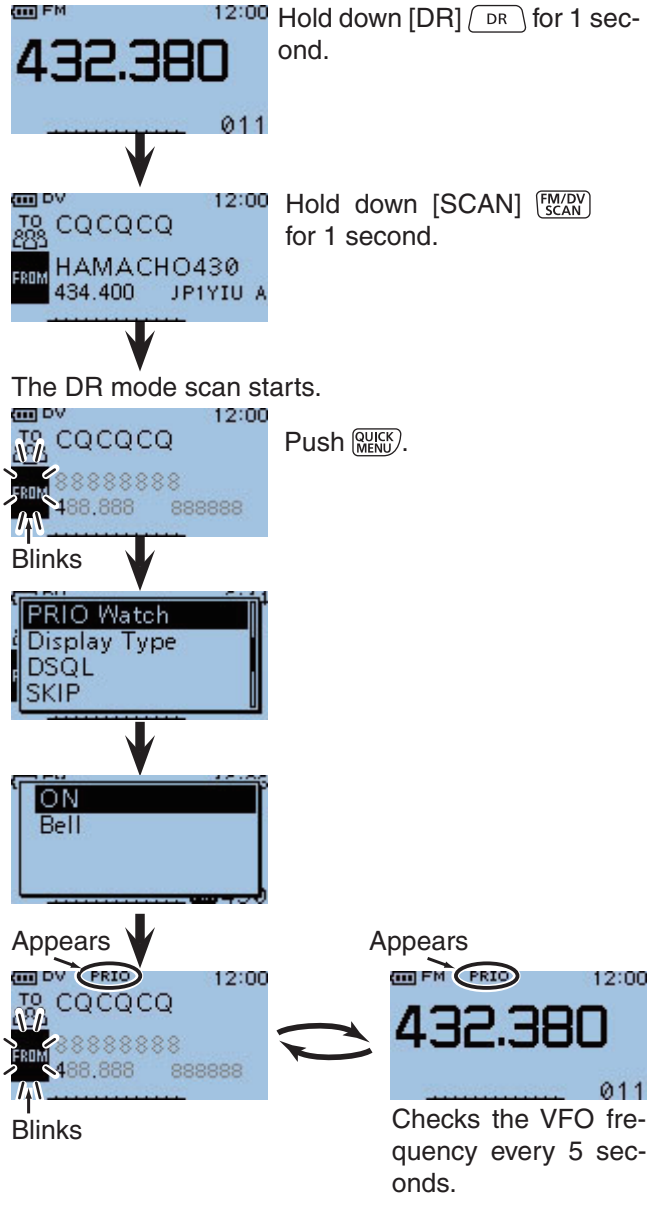
① Push [V/MHz] (V/MHz CLR LOW) to select the VFO mode.
② Rotate [DIAL] to set the receive frequency.
③ Hold down [DR] (DR) for 1 second to select the DR mode.
④ Hold down [SCAN] (FM/DV SCAN) for 1 second.
• The DR mode scan starts.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
• ON : When a signal is received on the priority channel, the VFO mode is automatically selected.
• Bell : When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the DR mode screen.



⑦ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
• The "PRIO" icon is displayed and the priority scan starts.
• Regardless of the scan setting, when a signal is received during the DR mode scan, the transceiver continues to check the VFO frequency every 5 seconds.
• Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and DR mode scan.



Example: Checks "432.380 MHz" every 5 seconds, during the DR mode scan



(Continued on page 9-26.)

■ DR MODE SCAN AND VFO FREQUENCY (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the VFO mode is automatically selected. The "PRIO" icon blinks.

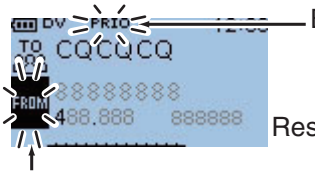
Push [CLR] (V/MHz CLR LOW) to resume the priority scan. Push it again to cancel the scan.

* The scan pause timer and resume settings are the same as for a normal scan.

Automatically changes to the VFO mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks. The DR mode scan resumes.

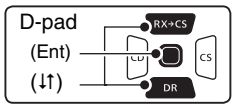


Resumes in the DR mode.

■ DR MODE AND CALL CHANNEL

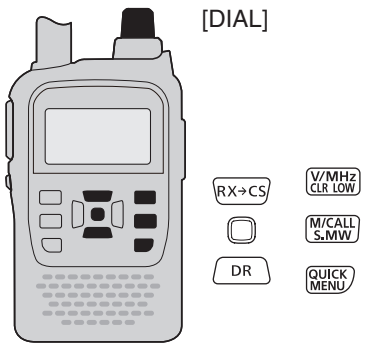
Checks the Call channel (priority channel) every 5 seconds, while receiving a repeater in the DR mode.

① Push [M/CALL] (M/CALL S.MW) to select the Call channel mode.
② Hold down [DR] (DR) for 1 second to select the DR mode.
③ Push D-pad(↓↑) to select the "FROM" (Access repeater) item.

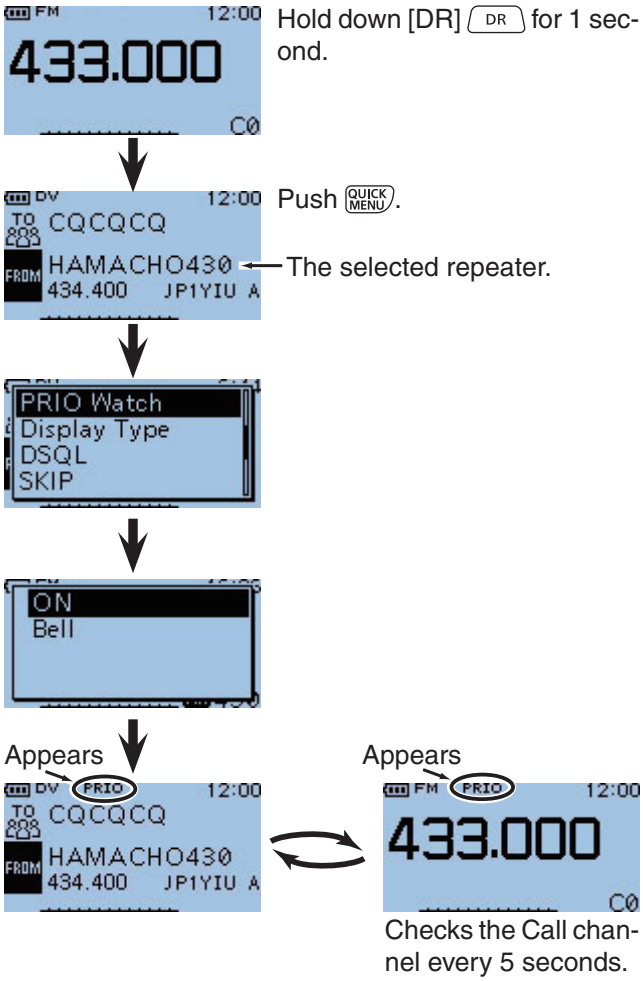


④ Rotate [DIAL] to select the desired repeater.
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the Call channel mode is automatically selected.
- Bell : When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the DR mode screen.

⑦ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- To cancel the scan, push [CLR] (V/MHz CLR LOW).



Example: Checks Call channel "C0" every 5 seconds, while receiving the repeater in the DR mode.



Checks the Call channel every 5 seconds.

(Continued on page 9-28.)

■ DR MODE AND CALL CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the Call channel mode is automatically selected. The "PRIO" icon blinks.

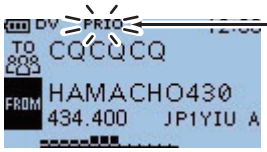
* The scan pause timer and resume settings are the same as for a normal scan.

Blinks

Automatically changes to the Call channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the screen.



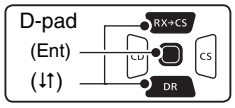
Blinks

Remains in the DR mode.

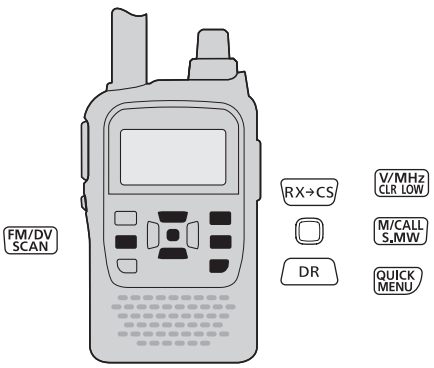
■ DR MODE SCAN AND CALL CHANNEL

Checks the Call channel (priority channel) every 5 seconds, during a DR mode scan.

① Push [M/CALL] (M/CALL S.MW) to select the Call channel mode.
② Hold down [DR] (DR) for 1 second to select the DR mode.
③ Hold down [SCAN] (FM/DV SCAN) for 1 second.
• The DR scan starts.
④ Push (QUICK MENU).
⑤ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
• ON : When a signal is received on the priority channel, the Call channel mode is automatically selected.
• Bell : When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the DR mode screen.

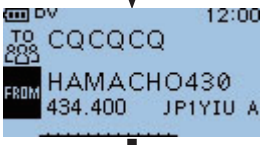


⑥ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
• The "PRIO" icon is displayed and the priority scan starts.
• Regardless of the scan setting, when a signal is received during a DR scan, the transceiver continues to check the Call channel every 5 seconds.
• Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and DR mode scan.



Example: Checks Call channel "CO" every 5 seconds, during the DR mode scan.

Hold down [DR] (DR) for 1 second.



Hold down [SCAN] (FM/DV SCAN) for 1 second.

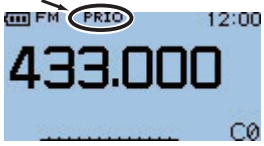
The DR mode scan starts.

Push (QUICK MENU).

Blinks

Appears

Appears



Blinks
During the DR mode scan.

Checks the Call channel every 5 seconds.

(Continued on page 9-30.)

■ DR MODE SCAN AND CALL CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the Call channel mode is automatically selected. The "PRIO" icon blinks.

Push [CLR] (V/MHz CLR LOW) to resume the priority scan. Push it again to cancel the scan.

* The scan pause timer and resume settings are the same as for a normal scan.

Blinks

Automatically changes to the Call channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks. The DR mode scan resumes.

Blinks

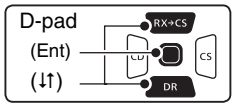
Blinks

Resumes in the DR mode.

■ DR MODE AND MEMORY CHANNEL

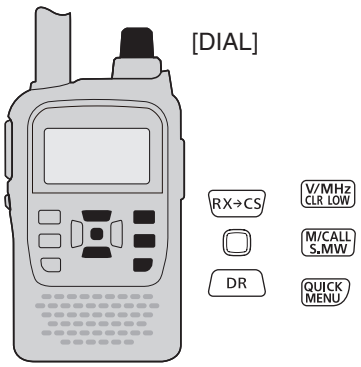
Checks the memory channel (priority channel) every 5 seconds, while receiving a repeater in the DR mode.

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Rotate [DIAL] to select the channel you want to watch.
③ Hold down [DR] (DR) for 1 second to select the DR mode.
④ Push D-pad(↓↑) to select the "FROM" (Access repeater) item.

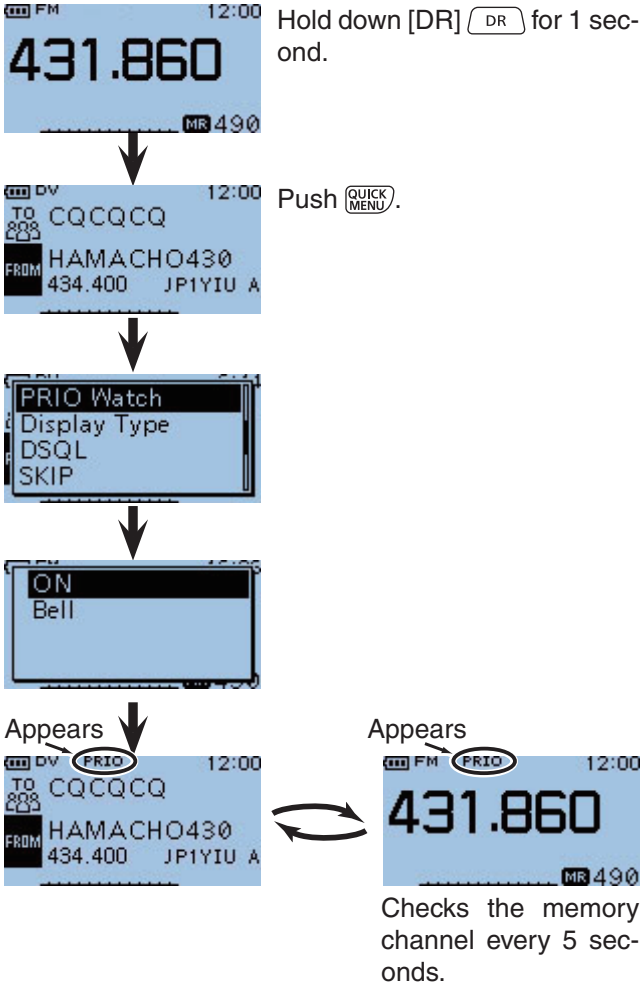


⑤ Rotate [DIAL] to select the desired repeater.
⑥ Push (QUICK MENU).
⑦ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the Call channel mode is automatically selected.
- Bell : When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the DR mode screen.

⑧ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- To cancel the scan, push [CLR] (V/MHz CLR LOW).



Example: Checks memory channel "490" every 5 seconds, while receiving the repeater in the DR mode.



9

(Continued on page 9-32.)

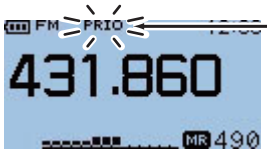
■ DR MODE AND MEMORY CHANNEL (Continued)

When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory mode is automatically selected. The "PRIO" icon blinks.

* The scan pause timer and resume settings are the same as for a normal scan.

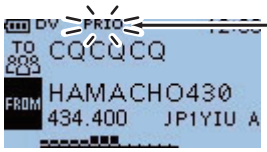


Blinks

Automatically changes to the memory channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the screen.



Blinks

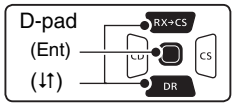
Remains in the DR mode.

■ DR MODE SCAN AND MEMORY CHANNEL

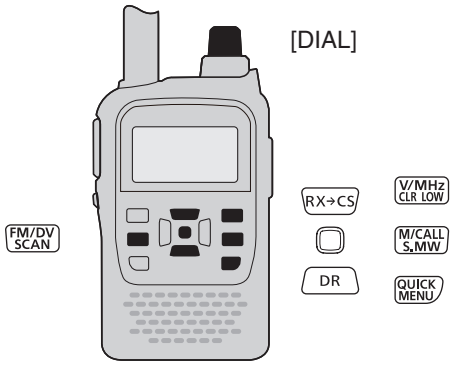
Checks the memory channel (priority channel) every 5 seconds, during a DR mode scan.

① Push [M/CALL] (M/CALL S.MW) to select the memory mode.
② Rotate [DIAL] to select the channel you want to watch.
③ Hold down [DR] (DR) for 1 second to select the DR mode.
④ Hold down [SCAN] (FM/DV SCAN) for 1 second.
- The DR scan starts.

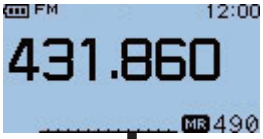
⑤ Push (QUICK MENU).
⑥ Push D-pad(↓↑) to select "PRIO Watch," and then push D-pad(Ent).
- ON : When a signal is received on the priority channel, the memory mode is automatically selected.
- Bell : When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks on the DR mode screen.



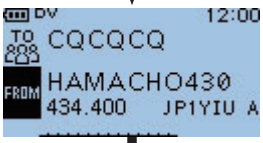
⑦ Push D-pad(↓↑) to select "ON" or "Bell," and then push D-pad(Ent).
- The "PRIO" icon is displayed and the priority scan starts.
- Regardless of the scan setting, when a signal is received during the DR scan, the transceiver continues to check the memory channel every 5 seconds.
- Push [CLR] (V/MHz CLR LOW) to cancel the priority scan and DR mode scan.



Example: Checks memory channel "490" every 5 seconds, during the DR mode scan.



Hold down [DR] (DR) for 1 second.

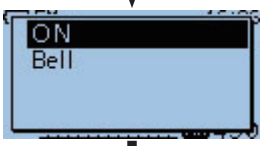


Hold down [SCAN] (FM/DV SCAN) for 1 second.

The DR mode scan starts.

Push (QUICK MENU).

Blinks

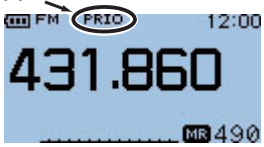


Appears

Blinks

During the DR mode scan.

Appears



Checks the memory channel every 5 seconds.

(Continued on page 9-34.)

■ DR MODE SCAN AND MEMORY CHANNEL (Continued)

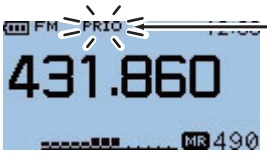
When a signal is received.

• When "ON" is selected.

When a signal is received on the priority channel, the memory mode is automatically selected. The "PRIO" icon blinks.

Push [CLR] (V/MHz CLR LOW) to resume the priority scan. Push it again to cancel the scan.

* The scan pause timer and resume settings are the same as for a normal scan.



Blinks

Automatically changes to the memory channel mode.

• When "Bell" is selected.

When a signal is received on the priority channel, a beep sounds and the "PRIO" icon blinks. The DR mode scan resumes.

Blinks

Blinks

Resumes in the DR mode.

MENU SCREEN OPERATION Section 10

■ Menu items and Default settings

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

DUP/TONE... In this item, set the repeater options, for example duplex offset or the channel tone types.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Offset Freq	0.000~**5.000.00**~59.995	Sets the frequency offset for duplex (repeater) operation.
Repeater Tone	67.0~**88.5**~254.1	Selects the tone frequency used to access the repeaters.
TSQL Freq	67.0~**88.5**~254.1	Selects the tone frequency for the Tone squelch or the pocket beep function.
Tone Burst	**OFF** or ON	Turns the Tone Burst function ON or OFF. When this setting is ON and you transmit a signal which superimposes the CTCSS tone or subaudible tone, the squelch tail noise of FM mode is suppressed on the RX side.
DTCS Code	**023**~754	Selects DTCS (both encoder/decoder) code for DTCS squelch or the pocket beep function.
DTCS Polarity	**Both N**, TN-RR, TR-RN or Both R	Selects the DTCS polarity for the DTCS squelch or the pocket beep function.
Digital Code	**00**~99	Selects the digital code for the Digital Code squelch function.

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

Scan — In this item, set the scan options.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Pause Timer	2sec~**10sec**~20sec or HOLD	Selects the scan pause time. When receiving signals, the scan pauses according to the scan pause timer.
Resume Timer	0sec~**2sec**~5sec or HOLD	Selects the scan resume time from a pause after the received signal disappears.
Program Skip	OFF or **ON**	Turns the Program Skip Scan function ON or OFF for a VFO mode scan.
Bank Link	A:☑~Z:☑	Selects banks to be scanned during a Bank Link Scan.
Program Link*1		Selects program scans to be scanned during a the Program Link Scan.

*1 See page 10-16 for details on the preset values.

Voice Memo — In this item, set the TX/RX voice recording options.

			RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
QSO Recorder	<<REC Start>>*2			Starts recording the received signal audio.
	Play Files*2	PLAY FILES		The recorded audio is played or erased.
	Recorder Set	REC Mode	**TX&RX** or RX Only	Selects to record the TX audio or not.
		RX REC Condition	Always or **Squelch Auto**	Selects whether or not the squelch status affects the RX voice signal recording.
		File Split	OFF or **ON**	Selects whether or not to automatically create a new file if transmission and reception, or squelch status (open and close) is switched.
		PTT Auto REC	**OFF** or ON	Turns the PTT Automatic Recording function ON or OFF.
	Player Set	Skip Time	3sec, 5sec, **10sec** or 30sec	Sets the Skip time to rewind or forward the recorded audio when you push the fast-rewind or fast-forward key during playback.
DV Auto Reply*2				Records a voice audio to use the Auto Reply function in the DV mode.

*2 Be sure to insert the microSD card into the transceiver before selecting these items.

■ Menu items and Default settings (Continued)

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

GPS — In this item, set the GPS options.

		RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
GPS Set	GPS Select	**OFF**, Internal GPS, External GPS or Manual	Selects a GPS receiver that the transceiver receives its position data from.
	Power Save (Internal GPS)	OFF, 1min, 2min, 4min, 8min or **Auto**	Selects the internal GPS receiver power save function.
	Manual Position		Manually enters your current position.
	GPS Indicator	OFF or **ON**	Turns the GPS indicator ON or OFF.
	Position Format	**ddd°mm.mm'** or ddd°mm'ss"	Selects position format to display the position.
	Altitude/Distance Units	m or **ft/ml**	Selects units to display the distance and elevation.
	Speed Units	km/h, **mph** or knots	Selects units to display the speed.
	Alarm Area1	0'05"/0.08'~**0'15"/0.25'**~59'59"/59.99'	Enters the GPS alarm active range.
	Alarm Area2	Limited, Extended or **Both**	Selects the GPS alarm active range.
	GPS Out	**OFF** or ON	Selects the GPS information from the internal GPS receiver that is output to the [DATA] jack.
GPS Information			Displays the received GPS information.
GPS Position			Displays your position or other station's positions.
GPS Memory			Displays memorized positions, or turns the GPS alarm function ON or OFF.
GPS Logger*2	GPS Logger	**OFF** or ON	Turns the GPS logger function ON or OFF, to store your route as you move.
	Record Interval	**1sec**, 5sec, 10sec, 30sec or 60sec	Selects the GPS Logger function record interval.
	<<GPS Logger Only>>		Turns ON the GPS logger function with the transceiver in the Sleep mode.
GPS TX Mode			Selects an operating mode to transmit position data received from a GPS receiver.
OFF			Turns OFF the GPS TX function.
GPS(DV-G)	GPS Sentence	RMC, **GGA**, GLL, VTG, GSA or GSV	Transmits position data in selected GPS sentences.
	GPS Message		Enter a GPS message of the GPS TX function.

*2 Be sure to insert the microSD card into the transceiver before selecting these items.

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

GPS (Continued) In this item, set the GPS options.

		RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
GPS TX Mode			
GPS-A(DV-A)	Unproto Address	**APRS,DSTAR***	Enters an unproto Address.
	Data Extension	**OFF** or Course/Speed	Selects whether to transmit the course and speed data.
	Time Stamp	**OFF**, DHM or HMS	Selects to transmit the current UTC time as a time stamp.
	Altitude	**OFF** or ON	Turns the altitude transmit option ON or OFF.
	GPS-A Symbol	**1:Person**, 2:Bicycle, 3:Car or 4:House QTH (VHF)	Selects a specified GPS-A Symbol to transmit.
	SSID	**- - -**, (-0), -1~-15 or -A~-Z	Selects the APRS® call sign SSID.
	Comment		Enters a comment to transmit.
GPS Auto TX		**OFF**, 5sec, 10sec, 30sec, 1min, 3min, 5min, 10min or 30min	Selects a time option for the GPS automatic transmission function.

10 MENU SCREEN OPERATION

■ Menu items and Default settings (Continued)

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

Call Sign — In this item, set and display the call signs used in the DV mode.

	DESCRIPTIONS
UR: CQCQCQ, R1: --------, R2: --------, MY: --------	Displays the operating call signs. Sets the operating call signs on other than the DR mode.

RX History — In this item, display the received call history.

None	Displays the Received Call record.

DV Memory — In this item, enter and edit Your Call sign or repeater information to use in the DV and DR modes.

Your Call Sign	None	Stores station call signs.
Repeater List*1	01:~20:	Stores repeater information.

*1 See page 4-39 for details on the preset values.

NOTE: The repeater list described on this manual may differ from your presetting.

My Station — In this item, set your own call sign to use in the DV mode.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
My Call Sign	**1:**~6:	Stores and selects Your own call signs.
TX Message	1:~5: or **OFF**	Stores and selects TX Messages.

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

DV Set — In this item, set infrequently changed values or functions in the DV mode.

		RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Tone Control	RX Bass	Cut, **Normal** or Boost	Sets the DV mode received audio bass filter level to Cut, Normal or Boost.
	RX Treble	Cut, **Normal** or Boost	Sets the DV mode received audio treble filter level to Cut, Normal or Boost.
	RX Bass Boost	**OFF** or ON	Turns the DV mode received audio Bass Boost function ON or OFF
	TX Bass	Cut, **Normal** or Boost	Sets the DV mode transmit audio bass filter level to Cut, Normal or Boost.
	TX Treble	Cut, **Normal** or Boost	Sets the DV mode transmit audio treble filter level to Cut, Normal or Boost.
Auto Reply		**OFF**, ON or Voice	Selects the Automatic Reply function ON, OFF or Voice.
DV Data TX		PTT or **Auto**	Selects manually or automatically to transmit low speed data.
Digital Monitor		**Auto**, Digital or Analog	Selects the DV mode RX monitoring when [SQL] is held down.
Digital Repeater Set		OFF or **ON**	Turns the digital repeater setting function ON or OFF.
RX Call Sign Write		**OFF** or Auto	Turns the RX call sign automatic write function ON or OFF.
RX Repeater Write		**OFF** or Auto	Turns the repeater call sign automatic write function ON or OFF.
DV Auto Detect		**OFF** or ON	Turns the DV mode automatic detect function ON or OFF.
RX Record (RPT)		**ALL** or Latest Only	The transceiver can record the data of up to 40 individual calls. When you receive a call that the destination station did not reply to, or one in which the link repeater was not found, you can record all of them or only the latest one, in the Received Call Record.
BK		**OFF** or ON	Turns the BK (Break-in) function ON or OFF. The BK function allows you to break into a conversation where the two original stations are communicating with call sign squelch enabled.
EMR		**OFF** or ON	Turns the EMR (Enhanced Monitor Receive) communication mode ON or OFF. The EMR mode can be used in the DV mode and no call sign setting is necessary. When an EMR mode signal is received, the audio (voice) will be heard at the specified level even the volume setting level is set to minimum level, or digital call sign/digital code squelch is turned ON.
EMR AF Level		0~**19**~39	Sets the audio output level when an EMR mode signal is received.

■ Menu items and Default settings (Continued)

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

SPEECH — In this item, set the Speech functions.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
RX Call Sign SPEECH	OFF, **ON (Kerchunk)** or ON (All)	Selects the RX call sign speech function option while ON or turns it OFF.
RX>CS SPEECH	OFF or **ON**	Turns the RX>CS Speech function ON or OFF.
SPEECH Language	**English** or Japanese	Selects either English or Japanese as the desired speech language.
Alphabet	**Normal** or Phonetic Code	Selects the alphabet character announcement type.
SPEECH Speed	Slow or **Fast**	Selects Slow or Fast speech speed
SPEECH Level	0~**7**~9	Sets a volume level for the voice synthesizer.

DTMF/T-CALL — In this item, set the DTMF Memory functions.

DTMF Memory	T-CALL, **d0:**~d9:, dA:~dD:, d*: or d#:	Selects a DTMF memory channel to transmit.
DTMF Speed	**100ms**, 200ms, 300ms or 500ms	Selects the DTMF transfer speed.

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

Function — In this item, set other options.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Power Save	OFF, **Auto (Short)**, Auto (Middle) or Auto (Long)	Selects the Power Save options to reduce current drain and conserve battery power.
Monitor	**Push** or Hold	Selects the [SQL] monitor function method.
Dial Speed-UP	OFF or **ON**	Turns the dial speed acceleration ON or OFF.
Auto Repeater	OFF or **ON (DUP)**, ON (DUP,TONE)	Turns the Auto Repeater function ON or OFF.
MIC Simple Mode	Simple, **Normal-1** or Normal-2	Selects the Microphone simple mode options.
Key Lock	**Normal**, No SQL, No VOL or ALL	Selects the key lock type when the Key Lock function is turned ON.
PTT Lock	**OFF** or ON	Turns the PTT Lock function ON or OFF.
Busy Lockout	**OFF** or ON	Turns the Busy Lockout function ON or OFF.
Time-Out Timer	OFF, 1min, 3min, **5min**, 10min, 15min or 30min	Selects the Time-Out Timer time options.
MIC Gain (Internal)	1~**3**~4	Sets the internal microphone sensitivity to suit your preference.
MIC Gain (External)	1~**2**~4	Sets the external microphone sensitivity to suit your preference.
Data Speed	4800bps or **9600bps**	Selects the data transmission speed for low-speed communication, or between the [DATA] jack and external modules like a GPS receiver, and so on.
VOX		
— VOX	**OFF** or ON	Turns the VOX function ON or OFF.
— VOX Level	1~**5**~10 or OFF	Sets the VOX gain level.
— VOX Delay	**0.5sec**, 1.0sec, 1.5sec, 2.0sec, 2.5sec or 3.0sec	Sets the VOX Delay time.
— VOX Time-Out Timer	OFF, 1min, 2min, **3min**, 4min, 5min, 10min or 15min	Sets the VOX Time-Out Timer to prevent an accidental prolonged transmission.
— Headset Select	HS-95 or **Other**	Selects the headset type to be used for the VOX function to limit the maximum audio output level to protect the headset speaker.

(Continued on the next page.)

10 MENU SCREEN OPERATION

■ Menu items and Default settings (Continued)

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

Function (Continued) — In this item, set other options.

		RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
CI-V	CI-V Address	01~**84**~DF	Sets the transceiver's unique CI-V hexadecimal address code.
	CI-V Baud Rate	300, 1200, 4800, 9600, 19200 or **Auto**	Sets the CI-V code transfer speed.
	CI-V Transceive	**OFF** or ON	Turns the CI-V Transceive function ON or OFF.

Display — In this item, set the Display options.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Backlight	OFF, ON, Auto or **Auto (DC IN:ON)**	Selects the transceiver backlight option.
Backlight Timer	**5sec** or 10sec	Selects the backlight ON time period.
LCD Dimmer	**Bright** or Dark	Selects the LCD backlight brightness level
LCD Contrast	1~**8**~16	Sets the contrast level of the LCD.
Busy LED	OFF or **ON**	Turns the TX/RX indicator ON or OFF.
RX Call Sign	OFF, **Auto** or Auto (RX Hold)	Selects the call sign display option when receiving a call.
RX Message	OFF or **Auto**	Selects to display and scroll a received message when receiving a call.
DV RX Backlight	OFF or **ON**	Turns the DV RX Backlight function ON or OFF.
TX Call Sign	OFF, **Your Call Sign** or My Call Sign	Selects whether or not to display My or Your call sign while transmitting.
Scroll Speed	Slow or **Fast**	Selects the scrolling speed of the message, call sign, or other text.
Opening Message	OFF or **ON**	Selects whether or not to display the opening message at power ON.
Voltage Indication	OFF or **ON**	Selects whether or not to display the voltage of the battery or external DC power source at power ON.
Display Language	**English** or Japanese	Selects the display language in the DR mode or Menu mode. When "English" is selected in System Language, this setting will disappear.
System Language	**English** or Japanese	Selects English or Japanese as the system language of the transceiver.

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.

Sounds — In this item, set the Sound options.

	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Beep Level	0~**3**~9	Sets the beep output level.
Beep/Vol Level Link	**OFF** or ON	Selects whether or not the beep output level can be adjusted by the [VOL] control.
Key-Touch Beep	OFF or **ON**	Turns the confirmation beep tones when key is pushed, ON or OFF.
Scan Stop Beep	**OFF** or ON	Turns the scan stop beep ON or OFF.
Standby Beep	OFF, **ON** or ON (to me:High Tone)	Turns the standby beep function in the DV mode ON or OFF.
Scope AF Output	OFF or **ON**	Selects the audio output capability during a sweep by the Band Scope function.

Time Set — In this item, set the Time options.

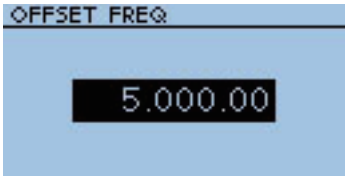
	RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Date/Time		Sets the current date and time.
GPS Time Correct	OFF or **Auto**	Selects if the time data is automatically corrected by a received GPS sentence.
UTC Offset	–14:00~**±0:00**~+14:00	Enters the time difference between UTC and the local time.
Auto Power OFF	**OFF**, 30min, 60min, 90min or 120min	Turns the Auto power OFF function ON or OFF.

SD Card*2 — In this item, set the microSD card options.

		RANGE OR VALUE (Default is shown in bold)	DESCRIPTIONS
Setting Load	File selection	ALL, Except My Station, Repeater List Only	Loads the settings file to the transceiver.
Setting Save	<<New File>>		Saves the settings as a new file.
	File selection		Overwrites the settings to an existing file.
SD Card Info			Displays the free space and remaining recording time of the card.
Format			Formats the card.
Unmount			Unmounts the card.

*2 Be sure to insert the microSD card into the transceiver before selecting these items.

■ DUP/TONE items



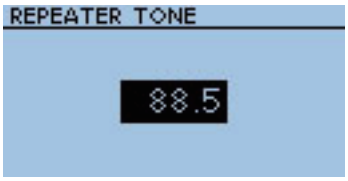
Offset frequency (Default: 5.000.00*)

DUP/TONE... > Offset Freq(OFFSET FREQ)

Sets the offset frequency for duplex (repeater) operation to between 0 and 59.99500 MHz.

- The selected tuning step in the VFO mode is used when setting the offset frequency.
- Push [V/MHz] (V/MHz CLR LOW) to select 1 MHz or 10 MHz steps.
- The duplex shift direction (DUP-/DUP+) is set in the Quick Menu screen. (p. 1-5)

*The default setting is differ, depending on the version.



Repeater Tone (Default: 88.5)

DUP/TONE... > Repeater Tone(REPEATER TONE)

Selects subaudible tone frequencies, for repeater access and other functions. 50 tone frequencies (67.0–254.1 Hz) are selectable.

TSQL Freq (Default: 88.5)

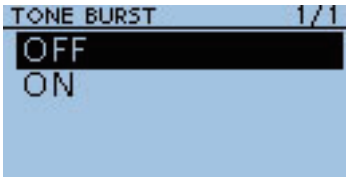
DUP/TONE... > TSQL Freq(TSQL TONE)

Selects the tone frequency for the tone squelch or pocket beep. 50 frequencies (67.0–254.1 Hz) are selectable.

• Available repeater tone/tone squelch frequencies (Unit: Hz)

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

The transceiver has 50 tone frequencies and consequently their spacing is narrow compared with units having 38 tones. Therefore, some tone frequencies may receive interference from adjacent tone frequencies.



Tone Burst (Default: OFF)

DUP/TONE... > Tone Burst(TONE BURST)

Turn the Tone Burst function for the FM mode ON or OFF.

- OFF : When you transmit a signal that superimposes the CTCSS tone or subaudible tone, a short burst of noise may be heard on the from the receiver, just after you stop transmitting.
- ON : When you transmit a signal that superimposes the CTCSS tone or subaudible tone, the noise is suppressed in the receiver.

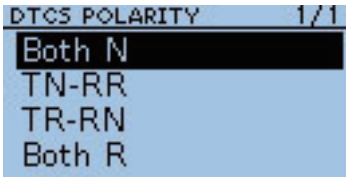
DTCS Code (Default: 023)

DUP/TONE... > DTCS Code(DTCS CODE)

Selects a DTCS (both encoder/decoder) code for the DTCS squelch. A total of 104 codes (023–754) are selectable.

• Available DTCS codes

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



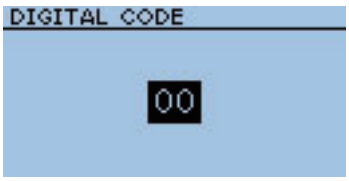
DTCS Polarity (Default: Both N)

DUP/TONE... > DTCS Polarity(DTCS POLARITY)

Select the DTCS polarity to use for transmitting and receiving.

- Both N : Normal polarity is used for both TX and RX.
- TN-RR : Normal polarity is used for TX; Reverse polarity for RX.
- TR-RN : Reverse polarity is used for TX; Normal polarity for RX.
- Both R : Reverse polarity is used for both TX and RX.

DTCS code's polarity for transmitting or receiving can be independently set with this item.

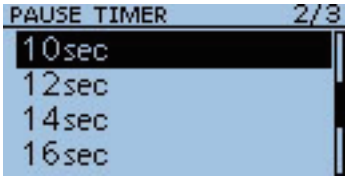


Digital Code (Default: 00)

DUP/TONE... > Digital Code(DIGITAL CODE)

Sets the desired digital code for digital code squelch.
A total of 100 codes (00–99) are selectable.

■ Scan items

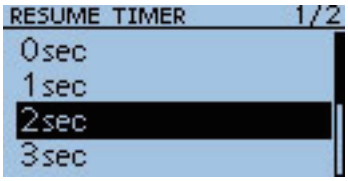


Pause Timer (Default: 10sec)

Scan > Pause Timer(PAUSE TIMER)

Selects the scan Pause time. When receiving a signal, the scan pauses according to the scan Pause timer.

- 2–20sec : When a signal is received, the scan pauses for 2 to 20 seconds (set in 2 seconds steps).
- HOLD : When receiving a signal, the scan pauses until it disappears.



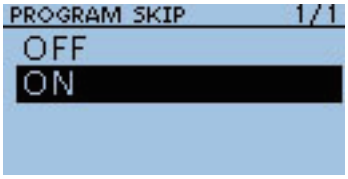
Resume Timer (Default: 2sec)

Scan > Resume Timer(RESUME TIMER)

Select the scan Resume Timer.
When a received signal disappears, the scan resumes according to the scan Resume Timer.

- 0sec : The scan resumes immediately after the signal disappears.
- 1 to 5sec : The scan resumes 1 to 5 seconds after the signal disappears.
- HOLD : The scan remains paused according to the Pause Timer, 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.

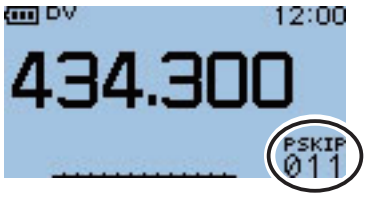


Program Skip (Default: ON)

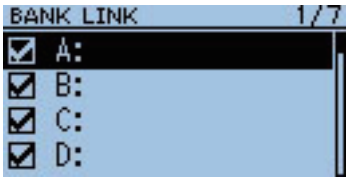
Scan > Program Skip(PROGRAM SKIP)

Turn the Program Skip Scan function ON or OFF for a VFO mode scan.
This function enables the transceiver to skip the unwanted frequencies or channels that inconveniently stop scanning.
The unwanted frequencies or channels should be set to “PSKIP” in the Memory Channel screen.

- OFF : The transceiver scans all frequencies without skipping.
- ON : The transceiver does not scan frequencies set as “PSKIP” frequencies.



When the skip setting is ON “PSKIP” appears on the channel number.



Bank Link

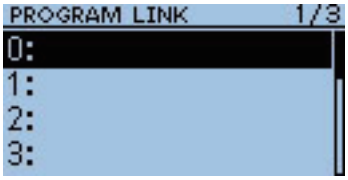
(Default: A:☑ – Z:☑)

Scan > Bank Link(BANK LINK)

Select banks to be scanned during a Bank Link Scan.
The Bank Link function provides a continuous Bank Scan, which scans all channels in the selected banks.
Select the desired bank, A to Z, and then push D-pad(Ent) to turn the link function ON or OFF.

Set Bank-A to OFF.

■ Scan items (Continued)

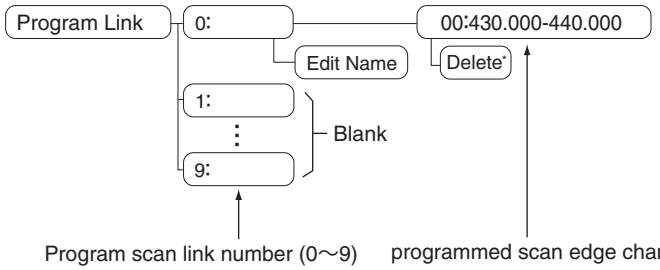


Program Link (Default: Refer to the diagram below)

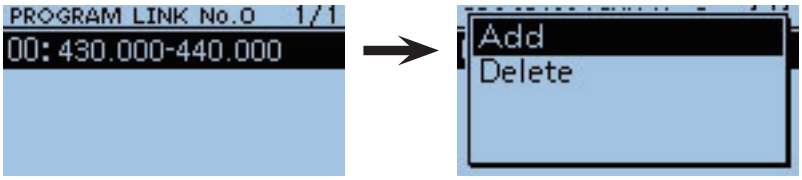
Scan > Program Link(PROGRAM LINK)

The Program Scan Link sets the link function for program scans programmed in the program scan edge channels.
The selected programmed scan number also shows the frequency range.
The link function scans all frequencies in the scan range.

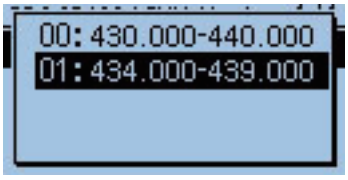
Default program link composition



The program scan edge channel “00” is set in “Program link No.0” as the Default.
*A link setting can be added when more than two pairs of program scan edge channels are programmed.(p. 7-4)

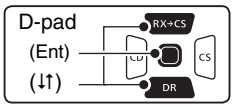


NOTE: The “Add” item will not be displayed when only one pair of programmed scan edge channels are programmed, or no programmed scan channel (00 to 24) is left to add to the selected link channel.

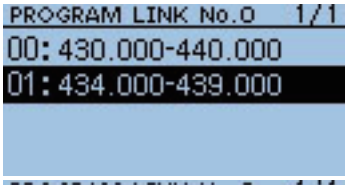


Adding a program scan link

① Push D-pad(↓↑) to select a program scan link number between 0 and 9, where you wish to assign a scan edge channel, and then push D-pad(Ent).

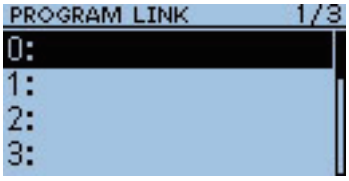


② Push [QUICK MENU].
③ Push D-pad(↓↑) to select “Add,” and then push D-pad(Ent).
④ Push D-pad(↓↑) to select a programmed scan number you wish to assign to the selected link channel, and then push D-pad(Ent).
(For example: 01:434.000-439.000)
⑤ Push [MENU] [MENU] to exit the [MENU] screen.



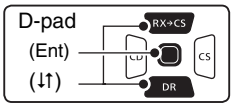
Deleting the link channel

① Push D-pad(↓↑) to select the programmed scan link number that the channel you wish to delete is assigned to, and then push D-pad(Ent).
② Push D-pad(↓↑) to select programmed scan number you wish to delete.
(For example: 01:434.000-439.000)
③ Push [QUICK MENU].
④ Push D-pad(↓↑) to select “Delete,” and then push D-pad(Ent).
• The channel is deleted.
⑤ Push [MENU] [MENU] to exit the Menu screen.

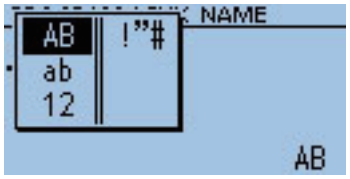


Program scan link name programming

① Push D-pad(↓↑) to select a program scan link number between 0 and 9.



② Push [QUICK MENU].
③ Push D-pad(Ent) to enter the name edit mode.
④ Rotate [DIAL] to select the first character of the name you wish to program. (For example: A)
- The selected digit blinks.
- Push D-pad(⇆) to move the cursor right or left.
- While selecting a character, push [QUICK MENU] to change the character to a upper case or lower case letter.
- While selecting a digit, push [QUICK MENU] to open the input mode selection window.



- A space can be selected for any input mode selected.
- Push [CLR] [V/MHz CLR LOW] to erase the selected character, or hold down [CLR] [V/MHz CLR LOW] to continuously erase the characters after the cursor.
- See page 4-2 for programming details.

⑤ Push D-pad(→) to move the cursor to the second digit.
⑥ Repeat steps ④ and ⑤ to enter a name of up to 16 characters, including spaces. (For example: Area 5 D-Star)
⑦ After entering the name, push D-pad(Ent) one or more times.
⑧ Push [MENU] [MENU] to exit the [MENU] screen.

■ Voice Memo items

<<REC Start>>

Voice Memo > QSO Recorder > <<REC Start>>

Push D-pad(↓↑) to select "<<REC Start>>," and then push D-pad(Ent).
• "Recording started. "appears and voice recording starts.
"<<REC Stop>>" item is displayed while recording.

• Be sure to insert a microSD card into the transceiver before selecting these items.
• Once recording has started, the recording will continue, even the transceiver is rebooted.
To stop the recording, select "<<REC Stop>> " and then push D-pad(Ent).

Play Files

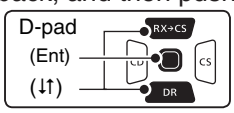
Voice Memo > QSO Recorder > Play Files(PLAY FILES)

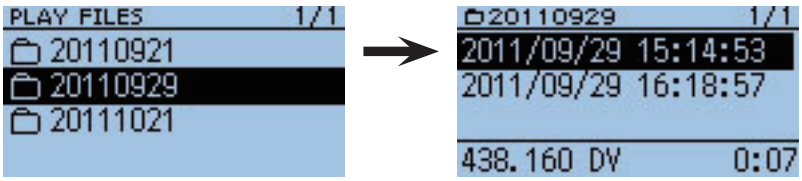
Performs the following steps to play back the recorded audio onto the microSD card.
Push D-pad(Ent), and folders on the microSD card are displayed.
• These folders contain the stored files.

Be sure to insert a microSD card into the transceiver before selecting these items.

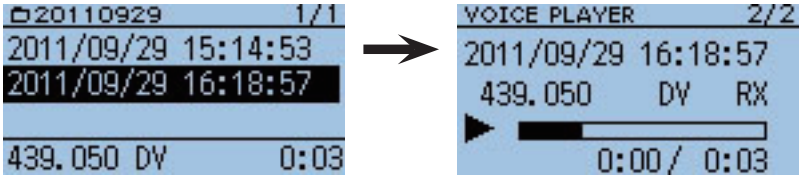
Playing back

① Push D-pad(↓↑) to select the folder that includes the desired file to play back, and then push D-pad(Ent).





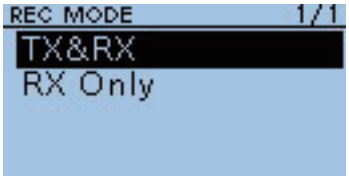
② Push D-pad(↓↑) to select the file to play back, and then push D-pad(Ent).



• The VOICE PLAYER screen is displayed and the selected file is played back.
• See "Operation while playing back" for forwording or rewinding. (p. 6-5)

③ Push [MENU] (MENU) or [CLR] (V/MHz CLR LOW) to stop the playback.
• Return to the file list screen.

NOTE:
- The folder name is automatically created, as shown in the example below; Recording date : 2011/9/1
  Folder name : 20110901
- The file name is automatically created, as shown in the example below; Recording date : 2011/9/1 15:30:00
  Folder name : 20110901_153000
- The voice audio is recorded onto a microSD card, and saved in the "wav" format.
  The recorded voice audio can also be played back with a PC.
  The extension, "wav," is not displayed on the transceiver's screen.



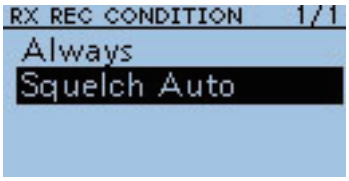
REC Mode (Default: TX&RX)

Voice Memo > QSO Recorder > Recorder Set > REC Mode(REC MODE)

Records both the transmitted and received audio as the default setting.
- TX&RX : Records both the transmitted and received voice audio.
- RX Only: Records only the received voice audio.

When transmitted while recording

When "OFF" is selected in File Split, the recording is paused. After finishing the transmission, the recording resumes.
When "ON" is selected in File Split, a new file is automatically created, and the transmitted voice audio is recorded into the new one.



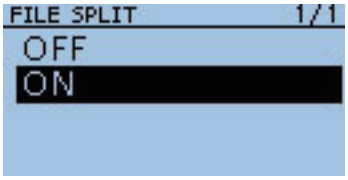
RX REC Condition (Default: Squelch Auto)

Voice Memo > QSO Recorder > Recorder Set > RX REC Condition(RX REC CONDITION)

Select whether or not the squelch status affects the RX voice audio recording.
- Always : The transceiver always records the RX voice audio regardless of the squelch status.
- Squelch Auto : The transceiver records the RX voice audio only when a signal is received (the squelch is opened).
  When the squelch closes while recording, the recording will continue for 2 seconds, and then pause.

When "ON" is selected in File Split, and if the squelch either opens or closes while recording, a new file is automatically created.

■ Voice Memo items (Continued)

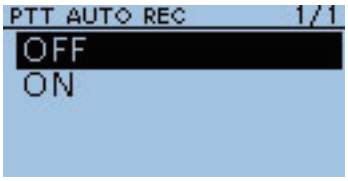


File Split (Default: ON)

Voice Memo > QSO Recorder > Recorder Set > File Split(FILE SPLIT)

Turn the File Split function ON or OFF.

- OFF : When the recording starts, a new file is automatically created in the folder of the microSD card. The voice audio is continuously recorded into the file, even if transmission and reception, or the squelch status (open and close) is switched.
  If the file size exceeds 2 GB, a new file is automatically created in the same folder, and the voice audio is recorded there.
- ON : When the recording starts, a new file is automatically created in the folder of the microSD card. During recording, and if transmission and reception, or squelch status (open and close) is switched, a new file is automatically created in the same folder, and the voice signal is saved into the new one.

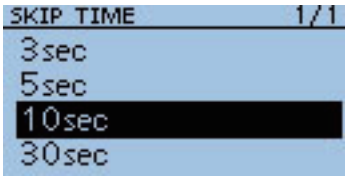


PTT Auto REC (Default: OFF)

Voice Memo > QSO Recorder > Recorder Set > PTT Auto REC(PTT AUTO REC)

Turn the PTT Automatic Recording function ON or OFF.
The transmission from the external speaker microphone, VOX function and CI-V command also starts recording.

- OFF : Turns the function OFF.
- ON : The recording automatically starts when [PTT] is pushed.
  The recording will stop when;
  - No signal is transmitted for 10 seconds after releasing [PTT].
  - No signal is received for 10 seconds after releasing [PTT].
  - Frequency or operating mode is changed after releasing [PTT].

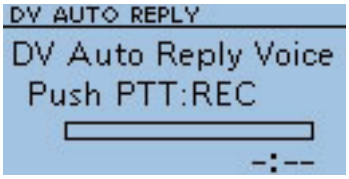


Skip Time (Default: 10sec)

Voice Memo > QSO Recorder > Player Set > Skip Time(SKIP TIME)

Select the SkipTimer to 3, 5, 10 or 30 seconds to rewind or forward the recorded voice signal for this set period when you push the fast-rewind or fast-forward key during playing.

• See “Operation while playing back” for forwording or rewinding operation. (p. 6-5)



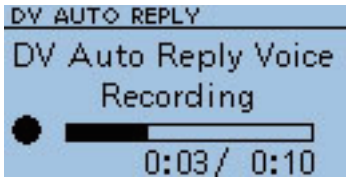
DV Auto Reply

Voice Memo > DV Auto Reply(DV AUTO REPLY)

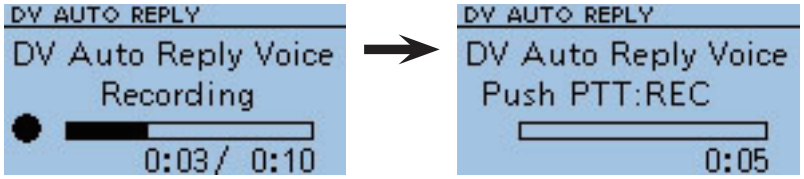
Up to 10 seconds of audio can be recorded for the automatic reply function (p. 4-10).

Be sure to insert a microSD card into the transceiver before selecting this item.

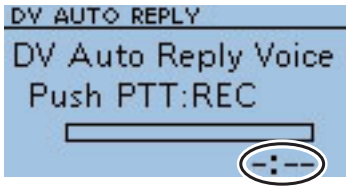
① While pushing and holding [PTT], speak into the microphone at a normal voice level.
- **DO NOT** hold the transceiver too close to your mouth or speak too loudly. This may distort your speech.



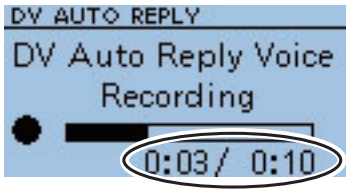
② The recording stops after 10 second or when [PTT] is released.



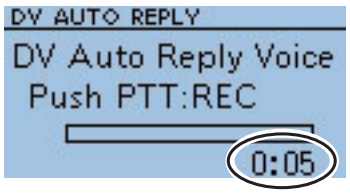
NOTE: The time display is different, depending on the status.



No message has recorded (No message file is saved.)

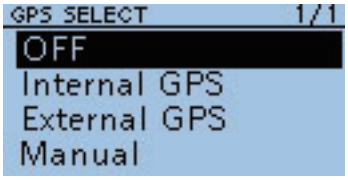


During record (Recording time/ Recordable time)



Recorded time (Recording stop)

■ GPS items



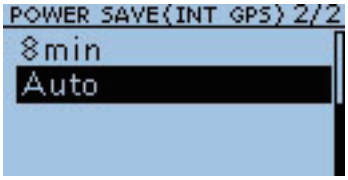
GPS Select (Default: OFF)

GPS > GPS Set > GPS Select(GPS SELECT)

Select either an internal or external GPS receiver that the transceiver receives its position data from.

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

Slow-speed data communication is disabled when “External GPS” is selected. (p. 4-12)

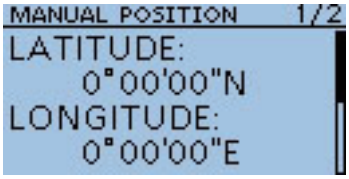


Power Save (Internal GPS) (Default: Auto)

GPS > GPS Set > Power Save (Internal GPS)(POWER SAVE (INT GPS))

Select whether or not to use the internal GPS receiver power save function.
The power save function disconnects power to the GPS receiver to conserve battery power.
When this function is ON, and if the GPS receiver cannot receive signal from a satellite for 5 minutes, the power save function will turn OFF the GPS receiver for this set period of time.

- OFF : The receiver is continuously ON.
- 1, 2, 4, 8 min : When the receiver cannot receive any signal from a satellite for 5 minutes, the GPS receiver power is turned OFF for the selected periods (1, 2, 4 or 8 minutes). After this period, the receiver resumes receiving.
- Auto : When the receiver cannot receive any signal from a satellite for 5 minutes, the GPS receiver power 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 signal for another 5 minutes, respectively.
  Once the GPS receiver receives initial position data, the power save interval is set back to 1 minute, if it receives no signal for 5 minutes.

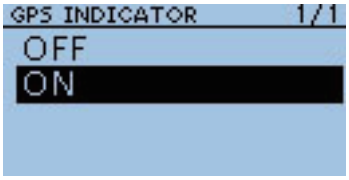


Manual Position (Default: LATITUDE : 0°00'00"N LONGITUDE : 0°00'00"E ALTITUDE : ------m)

GPS > GPS Set > Manual Position(MANUAL POSITION)

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

The received position data can be captured by selecting "Capture From GPS" when position data is received from either the internal or an external GPS. (p. 5-2)



GPS Indicator (Default: ON)

GPS > GPS Set > GPS Indicator(GPS INDICATOR)

Select whether or not to display the GPS icon( ).

- OFF : The GPS icon is not displayed.
- ON : The GPS icon appears* when valid position data is received, and blinks when no position data is received.

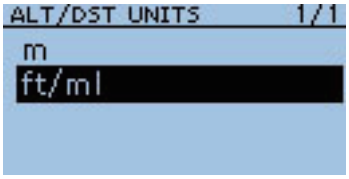
Selected GPS receiver	Not connected	Connected/ Searching	Connected/ Received
Internal GPS	–	Blinks	Appears
External GPS	Not displayed	Blinks	Appears

*No icon appears when "Manual" is selected in the GPS select item.

Position Format (Default: ddd°mm.mm')

GPS > GPS Set > Position Format(POSITION FORMAT)

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

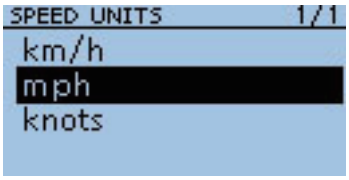


Altitude/Distance Units (Default: ft/ml*)

GPS > GPS Set > Altitude/Distance Units(ALT/DST UNITS)

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

*The default setting is differ, depending on the version.



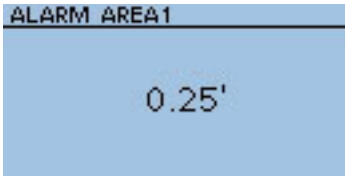
Speed Units (Default: mph*)

GPS > GPS Set > Speed Units(SPEED UNITS)

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

*The default setting is differ, depending on the version.

■ GPS items (Continued)



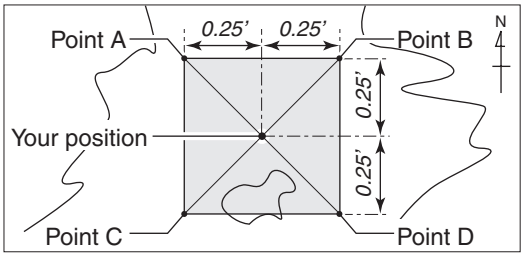
Alarm Area1 (Default: 0.25')

GPS > GPS Set > Alarm Area1(ALARM AREA1)

When the GPS Alarm function is set to “ALL” or one of the memory banks, set the GPS alarm active range.
The programmable values depend on the setting in Position Format.

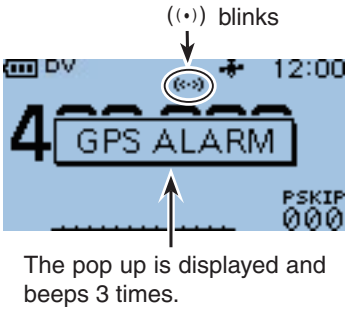
- Position Format = dddmm.mm' 00.08' to 59.99' (0.01' steps)
- Position Format = dddmm'ss'' 00'05'' to 59'59'' (0’01" steps)

Example: Your position : 35°N/135°E
Alarm Area1 setting : 0.25'

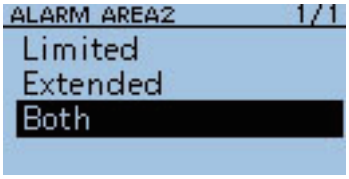


- Position of point A : 35°00.25' N/134°59.75' E
- Position of point B : 35°00.25' N/135°00.25' E
- Position of point C : 34°59.75' N/134°59.75' E
- Position of point D : 34°59.75' N/135°00.25' E

When a target enters the alarm area, the GPS alarm sounds and the GPS alarm icon blinks.



The pop up is displayed and beeps 3 times.



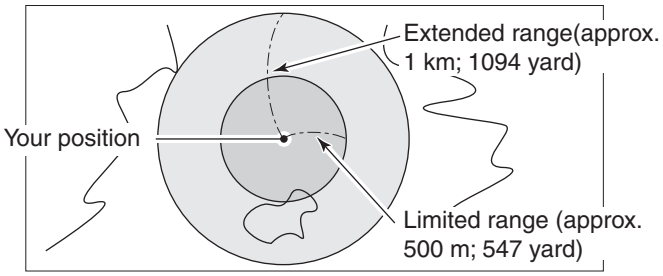
Alarm Area2 (Default: Both)

GPS > GPS Set > Alarm Area2(ALARM AREA2)

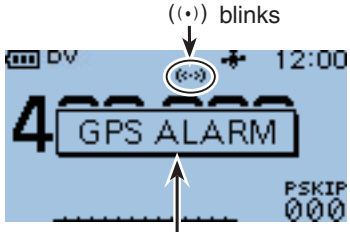
Select the GPS alarm active range.
When the GPS Alarm function is set in a memory channel or "RX," set the GPS alarm active range to "Both," "Extended" or "Limited".

- Limited : The transceiver sounds 3 beeps and the GPS alarm icon blinks when the target is in the 500 meter range.
- Extended : The transceiver sounds 3 beeps and the GPS alarm icon blinks when the target is in the 1 kilometer range.
- Both : The transceiver sounds a beep and the GPS alarm icon blinks when the target is in the 1 kilometer range, and sounds 3 beeps and the icon blinks when it is in 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.

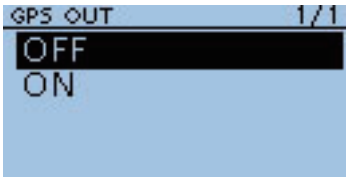
Example:



When a target comes into the alarm area, the GPS alarm sounds and the GPS alarm icon blinks.



Beeps sound, depending on the setting of the alarm area.



GPS Out (Default: OFF)

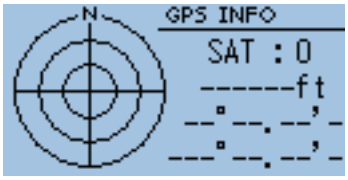
GPS > GPS Set > GPS Out(GPS OUT)

Select whether or not GPS information from either the internal or external GPS receiver is output at the [DATA] jack.

✓ For your information

No data is output when "OFF" or "Manual" is selected in the GPS Select item.
Select "OFF" when you want to operate slow-speed data communication.

■ GPS items (Continued)

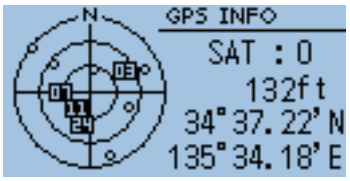


GPS Information

GPS > GPS Information(GPS INFO)

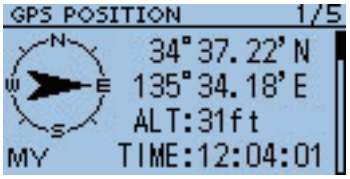
Displays the GPS satellite direction, elevation, satellite number and receiving status.

NOTE: The default settings, shown below, are for the USA version. The default settings may differ, depending on the version.



Example: tracking 4 satellites

○	Non tracking satellites
Regular characters (Example: 01)	Tracking satellites (weak signal)
Reversed characters (Example: 01)	Tracking satellites (strong signal)
SAT	Number of tracking satellite (between 0 and 12)
Altitude	------ft (Non-positioning / 2D (Tracking three satellite) / Positioning results (4 or more satellite tracking)
Latitude	--°--.--'-(Non-positioning)/Positioning results
Longitude	---°--.--'-(Non-positioning)/Positioning results

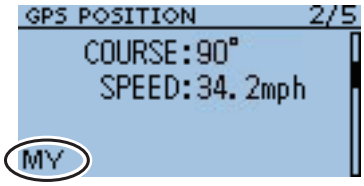


GPS Position

GPS > GPS Position(GPS POSITION)

Your current position, received position or GPS memory alarm position information is displayed. (p. 5-3)
Push D-pad(⇃↾) to select the screen to see the “MY,” “RX” and “MEM” screens.

NOTE: The default settings, shown below, are for the USA version.
The default settings may differ, depending on the version.



[MY] screen

[MY] screen (MY Position)

Compass*	Your direction
Latitude	Your latitude
Longitude	Your longitude
ALT*	Your own altitude
GL*	Shows the grid locator based on the latitude and longitude of your position.
TIME	Current time received from the GPS
COURSE	Your direction heading
SPEED	Your speed over ground

When “Manual” is selected in the GPS Select item, the screen shows only latitude, longitude, altitude, GL (Grid locator), and time (internal clock).

[RX] screen (Received position of the other station)

Compass*	The caller’s direction from your position
Call sign	The caller’s call sign
Latitude	The caller’s latitude
Longitude	The caller’s longitude
DST*	The caller’s distance from your position
GL*	Shows the grid locator based on the latitude and longitude of the caller’s position.
SSID	The caller’s SSID (GPS-A only)
COURSE	The caller’s direction over ground
SPEED	The caller’s speed
ALT	The caller’s altitude
GPS-A Symbol	The caller’s GPS-A Symbol

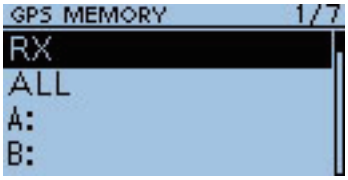
Nothing is displayed when No position data is received on your transceiver.

[MEM] screen (GPS memory alarm position)

Compass*	GPS Memory channel’s direction from your position
Latitude	GPS Memory channel’s latitude
Longitude	GPS Memory channel’s longitude
DST*	GPS Memory channel’s distance from your position
GL*	Shows the grid locator based on the latitude and longitude of GPS Memory channel’s.
GPS memory name	Programmed into the GPS memory name

*The item can be selected in the QUICK MENU screen.

■ GPS items (Continued)



GPS Memory

GPS > GPS Memory(GPS MEMORY)

The transceiver has 100 GPS memory channels to store the received position data, or often-used position data, along with an alphanumeric channel name.

The display of the GPS memory

RX	The last position data received from any station is stored in a temporary memory.
ALL	All GPS memories stored in the transceiver.
A to Z : Bank Name	GPS memories assigned to the selected bank.

The GPS alert setting can be ON or OFF in the QUICK MENU screen. (p. 5-14)

GPS memory banks (A-Z)

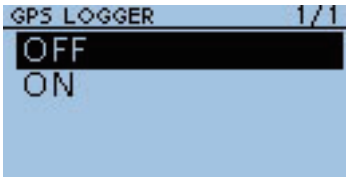
BANK NAME	The name of a GPS memory bank Enter a name of up to 16 alphanumeric characters for each GPS bank.

The GPS memory bank name can be edited in the QUICK MENU screen. (p. 5-12)

GPS memory channels (00 to 99)

NAME	The name of a GPS memory channel Enter a name of up to 16 alphanumeric characters for each GPS memory channel.
DATE	Stored date
TIME	Stored time
LATITUDE	Stored location (latitude)
LONGITUDE	Stored location (longitude)
BANK	The bank letter and the name of the bank

When the received position data is stored using the “GPS Positon” screen, the received station’s call sign is used as using the GPS memory name.
GPS memory contents, such as GPS memory name, can be edited in the QUICK MENU screen. (pp. 5-8 to 5-11)



GPS Logger (Default: OFF)

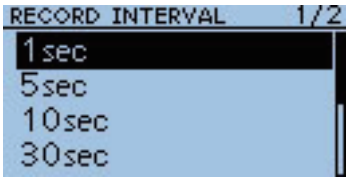
GPS > GPS Logger > GPS Logger(GPS LOGGER)

Turn the GPS Logger function ON or OFF.
This function logs the position, altitude, course, speed and number of satellites being used.

- OFF : Turns the function OFF.
- ON : The transceiver automatically logs GPS data.
  Once this function is turned ON, the GPS data will be continuously logged until turning it OFF, even if the transceiver power is turned OFF, then ON again.

To use this function:
1. You must first insert a microSD card into the transceiver.
2. You must select either Internal GPS or External GPS in GPS select.

NOTE:
The log data will be saved on the microSD card.
The file name is automatically created, as shown below;
Log date: 2011/9/1 15:30:00
File name: 20110901_153000

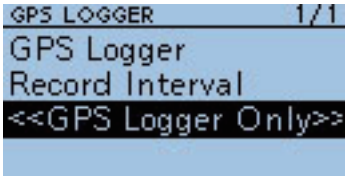


Record Interval (Default: 1sec)

GPS > GPS Logger > Record Interval(RECORD INTERVAL)

Select the GPS Logger function record interval of 1, 5, 10, 30 or 60 seconds.

■ GPS items (Continued)



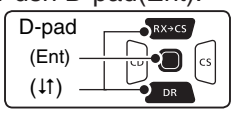
<<GPS Logger Only>>

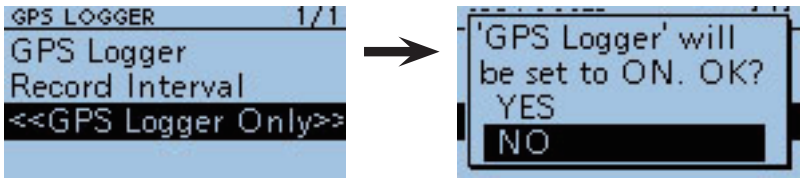
GPS > GPS Logger > <<GPS Logger Only>>

The transceiver switches into an exclusive GPS logger mode where only the logger is functioning.

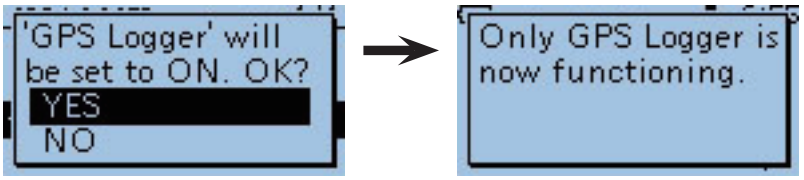
- Select “Internal GPS” or “External GPS” in GPS Select screen and insert a microSD card.
- During the exclusive GPS logger mode, the transceiver's transmission and reception are disabled.
  To cancel the exclusive GPS logger mode, reboot the transceiver.

① Push D-pad(Ent).

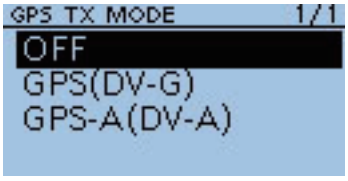




② Push D-pad(↓↑)) to select “YES,” and then push D-pad(Ent).



- When the GPS logger function is set to “ON,” the GPS logger mode is started immediately after pushing D-pad(Ent).



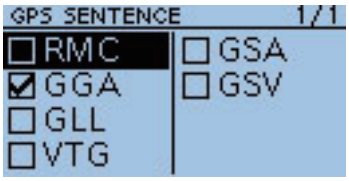
GPS TX Mode (Default: OFF)

GPS > GPS TX Mode(GPS TX MODE)

Select a GPS transmission mode to send position data received from a GPS receiver while in the DV mode.

- OFF : Position data is not transmitted.
- GPS (DV-G) : Transmits position data in NMEA format. (the TX GPS mode is “GPS”)
- GPS-A (DV-A) : Transmits position data in the format corresponding to D-PRS. (the TX GPS mode is “GPS-A”)
  In the GPS-A mode, the normal GPS-A codes are transmitted to the PC connected to the ID-31A/E.
  GPS-A code is based on APRS® code. (APRS® : Automatic Packet Reporting System)

When “GPS” or “GPS-A” is selected, the slow-speed data communication is disabled. (p. 4-12)



GPS Sentence (Default: GGA)

GPS > GPS TX Mode > GPS(DV-G) > GPS Sentence(GPS SENTENCE)

Select sentences to be transmitted in the GPS mode to transmit position data.

- Select up to 4 of the 6 GPS sentences to transmit at the same time. RMC, GGA, GLL, VTG, GSA and GSV sentences are selectable.
  Even if the GPS Auto TX Timer is set to "5 sec.," when 4 sentences are selected in this setting, the time the GPS Auto TX Timer will automatically be changed to "10 sec."
- "VTG," "GSA" and "GSV" sentences will not be transmitted when your position has been set manually.
  This GPS Sentence item will be hidden when "GPS-A(DV-A)" or "OFF" is selected in "GPS TX Mode."

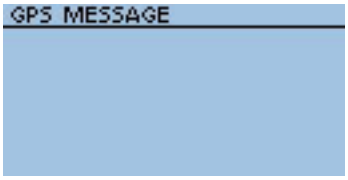
NOTE:
Set the GSV sentence to OFF when sending the GPS message to conventional digital transceivers (IC-2820H, IC-E2820, ID-800H, IC-91AD, IC-E91, IC-V82, IC-U82, IC-2200H, ID-1).
The GSV sentence is incompatible with them. Those transceivers will not display GPS messages properly if sent as a GSV sentence from the ID-31A/E.

• Contents of GPS sentence

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

Sentence	Others
RMC	Mode Indicator
GGA	Number of satellites in use, HDOP, Geoidal separation, Age of Differential GPS data
GLL	Mode Indicator
VTG	COG (Magnetic north), SOG (km/h), Mode Indicator
GSA	ID numbers of satellites used in solution, PDOP, HDOP, VDOP
GSV	Total number of sentences, Sentence number, Total number of satellites in view, Satellite information (ID, Elevation, Azimuth, S/N)

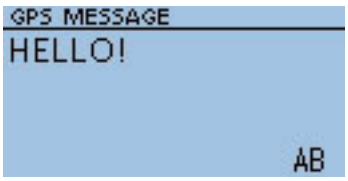
■ GPS items (Continued)



GPS Message

GPS > GPS TX Mode > GPS(DV-G) > GPS Message(GPS MESSAGE)

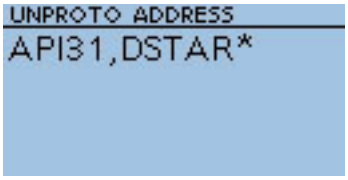
Enter a GPS message of up to 20 alphanumeric characters. (p. 5-17)



GPS Message edit screen

This GPS Message item will be hidden when “GPS-A(DV-A)” or “OFF” is selected in “GPS TX Mode.”

NOTE: When no message transmission is desired, delete the programmed message in the QUICK MENU screen.



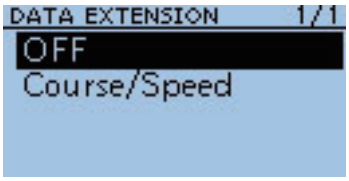
Unproto Address **(Default: API31,DSTAR*)**

GPS > GPS TX Mode > GPS-A(DV-A) > Unproto Address(UNPROTO ADDRESS

Enter an unproto address of up to 56 alphanumeric characters.

Unproto address edit screen

This Unproto Address item will be hidden when “GPS(DV-G)” or “OFF” is selected in “GPS TX Mode.”



Data Extension (Default: OFF)

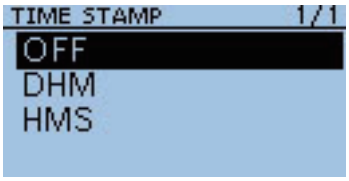
GPS > GPS TX Mode > GPS-A(DV-A) > Data Extension(DATA EXTENSION)

Select whether or not to transmit the course and speed data in addition to the position data.

- OFF : Transmits only the position data.
- Course/Speed: Transmits the course and speed data in addition to the position data.

The course and speed data will not be transmitted even if "Course/Speed" is selected, when your position is set manually.
This Data Extension item will be hidden when "GPS(DV-G)" or "OFF" is selected in "GPS TX Mode."

NOTE:
When "Course/Speed" is selected, the number of Comment characters is limited to 36.
When "Course/Speed" is selected, and Altitude option is set to "ON," the number of Comment characters is limited to 28.



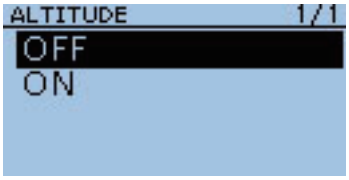
Time Stamp (Default: OFF)

GPS > GPS TX Mode > GPS-A(DV-A) > Time Stamp(TIME STAMP)

Sets the transmitting time stamp type to DHM, HMS or OFF. The time stamp is transmitted with the position data in the GPS-A mode, and UTC (Universal Time Coordinated) time is used.

- OFF : No time stamp is transmitted.
- DHM : Transmits the time stamp in the Day, Hour, and Minute format.
- HMS : Transmits the time stamp in the Hour, Minute, and Second format.

When your position is set manually, the time stamp data will not be transmitted, even if "DHM" or "HMS" is selected.
This Time Stamp item will be hidden when "GPS(DV-G)" or "OFF" is selected in "GPS TX Mode."



Altitude (Default: OFF)

GPS > GPS TX Mode > GPS-A(DV-A) > Altitude(ALTITUDE)

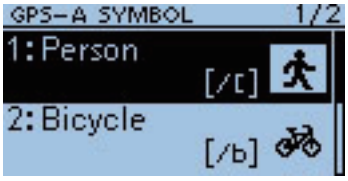
Select whether or not to transmit altitude data, in addition to position data.

- OFF : No altitude data is transmitted.
- ON : Transmits altitude data in addition to position data.

This Altitude item will be hidden when "GPS(DV-G)" or "OFF" is selected in "GPS TX Mode."

NOTE:
When "ON" is selected, and Data Extension option is set to "OFF," the number of Comment characters is limited to 35.
When "ON" is selected, and Data Extension option is set to "Course/Speed," the number of Comment characters is limited to 28.

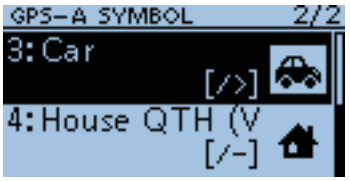
■ GPS items (Continued)



GPS-A Symbol (Default: Person)

GPS > GPS TX Mode > GPS-A(DV-A) > GPS-A Symbol(GPS-A SYMBOL)

The GPS-A symbol is an icon which represents your means of transportation or location.
The stored GPS-A symbol in the selected GPS-A channel (1 to 4) is transmitted with position data while in the GPS-A mode.
To change the GPS-A symbol channel, push D-pad(↓↑) to select, and then push D-pad(Ent) to set.



"Car" is selected

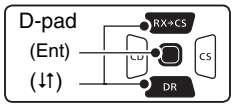
This GPS-A Symbol item will be hidden when "GPS(DV-G)" or "OFF" is selected in "GPS TX Mode."

GPS-A Symbol channel

A GPS-A symbol can be set to GPS symbol channels 1 to 4.
You can select a desired GPS-A symbol different than the preprogrammed one or other symbol by entering a 2 character GPS-A code. (p. 10-35)

Selecting a GPS-A symbol with a 2 character symbol code

① Push D-pad(↓↑) to select a desired GPS-A Symbol channel between 1 and 4.

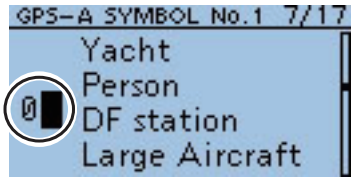


② Push QUICK MENU to select "Edit Symbol," and then push D-pad(Ent).
③ Push QUICK MENU again.
④ Push D-pad(↓↑) to select "Direct Input," and then push D-pad(Ent).
⑤ Rotate [DIAL] to select the first digit.
- Usable characters: /, \, 0 to 9, A to Z

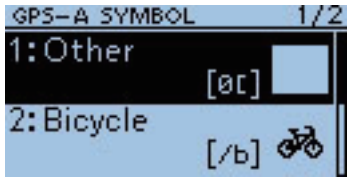
⑥ Push CS to select the second digit.
⑦ Rotate [DIAL] to select the second digit, and then push D-pad(Ent).
- Usable characters: Alphanumeric characters and symbols

⑧ Push D-pad(Ent) to set the GPS-A Symbol into the channel selected in step ①.
- Returns to the GPS-A SYMBOL screen.

⑨ Pushing D-pad(Ent) again to set the GPS-A symbol channel, selected in step ①, which is used for GPS-A operation.



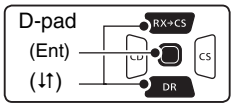
Second digit is selected



Selecting "1: Other"

Selecting a pre-programmed GPS-A symbol

① Push D-pad(↓↑) to select a desired GPS-A Symbol channel between 1 and 4.

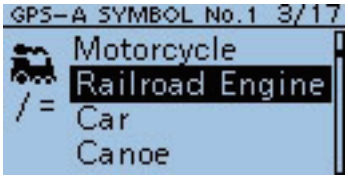


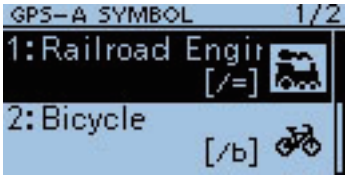
② Push QUICK MENU to select "Edit Symbol," and then push D-pad(Ent).

③ Push D-pad(↓↑) to select a desired GPS-A Symbol.

④ Push D-pad(Ent) to set the GPS-A Symbol into the channel selected in step ①.
- Returns to the GPS-A SYMBOL screen.

⑤ Pushing D-pad(Ent) again to set the GPS-A symbol channel, selected in step ①, which is used for GPS-A operation.





Selecting "1: Railroad Engine"

GPS-A Symbol list

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

■ GPS items (Continued)

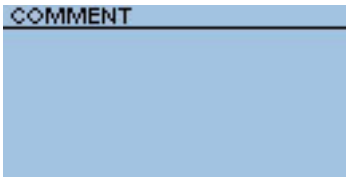
SSID (Default: ---)

GPS > GPS TX Mode > GPS-A(DV-A) > SSID(SSID)

Select an SSID based on APRS® to add to your call sign, to show your operating style to other stations.
The addition methods of the SSID may differ, depending on whether the call sign includes a space or not.

- --- : The space in the call sign is converted to "-."
  Text after the space will be used as the SSID.
  But if no text is programmed after the space, the space will be deleted, and no SSID is added.
  Example: "JA3YUA" ➡ "JA3YUA"
  (no SSID is added)
  "JA3YUA A" ➡ "JA3YUA-A"
  ("A" is changed to "-A", and it is used as the SSID)
- (-0) : No SSID is added.
  If a call sign includes a space, any text or digit after the space will be deleted.
  Example: "JA3YUA" ➡ "JA3YUA"
  (no SSID is added)
  "JA3YUA A" ➡ "JA3YUA"
  (no SSID is added)
- -1 to -15: Adds an SSID of -1 to -15 to the call sign.
  Even if a call sign includes a space and text, it will be automatically changed to this set numeric ID.
  Example(SSID [-9]):
  "JA3YUA" ➡ "JA3YUA-9"
  ("-9" is added, and used as the SSID)
  "JA3YUA A" ➡ "JA3YUA-9"
  ("A" is changed to "-9", and it is used as the SSID)
- -A to -Z : Adds an SSID of -A to -Z to your call sign.
  Even if a call sign includes a space and a text, it will be automatically changed to this set letter ID.
  Example(SSID [-Z]):
  "JA3YUA" ➡ "JA3YUA-Z"
  ("-Z" is added, and used as the SSID)
  "JA3YUA A" ➡ "JA3YUA-Z"
  ("A" is changed to "-Z", and it is used as the SSID)

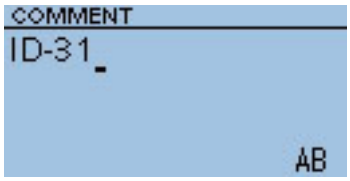
This SSID item will be hidden when "GPS(DV-G)" or "OFF" is selected in "GPS TX Mode."



Comment

GPS > GPS TX Mode > GPS-A(DV-A) > Comment(COMMENT)

Enter a comment of up to 43 characters to transmit with the position data.

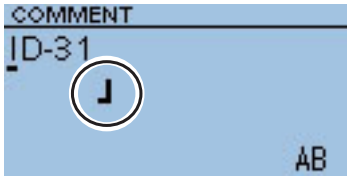


Comment edit screen
(In case of up to 43 characters)

The number of characters to enter will differ, depending on the Data Extension and Altitude settings. (p. 10-33)

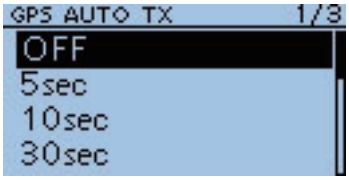
Data Extension	Altitude	The number of characters
OFF	OFF	Up to 43 characters (Default)
OFF	ON	Up to 35 characters
Course/Speed	OFF	Up to 36 characters
Course/Speed	ON	Up to 28 characters

The symbol "⌟" shows the transmittable comment range. Please note that the characters that exceed the range from the symbol will not be transmitted.



Transmittable comment range display
(In case of up to 28 characters)

This comment item will be hidden when "GPS(DV-G)" or "OFF" is selected in "GPS TX Mode."



GPS Auto TX (Default: OFF)

GPS > GPS Auto TX(GPS AUTO TX)

Select an option for the GPS automatic transmission function.
This function automatically transmits the current position data received from a GPS receiver, as well as any programmed GPS message, at the selected interval.

- OFF : Turns the function OFF. However, you can transmit the position data manually by pushing [PTT].
- 5 sec to 30 min : Transmits the current position data at the selected interval (5*, 10, or 30 seconds, or 1, 3, 5, 10, or 30 minutes).
  *When four GPS sentences are selected at the same time in GPS Sentence Mode, "5sec" cannot be selected.

NOTE: When "Manual" is selected in GPS Select, the current position data will not be automatically transmitted.

■ Call sign items

Call Sign

Call Sign(CALL SIGN)

Sets or displays the “UR,” “R1,” “R2” and “MY” call signs to be used for DV operation.
Except for the DR mode, sets the desired call signs to be used for DV operation in this screen.

For Simplex operation (DV mode)
“UR” (p. 3-21) and “MY” (p. 2-5) call signs can be set.

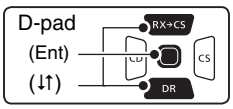
For Duplex (repeater) operation (DV/DR mode)
While in the DR mode, the only “MY” (p. 2-5) call sign can be set.

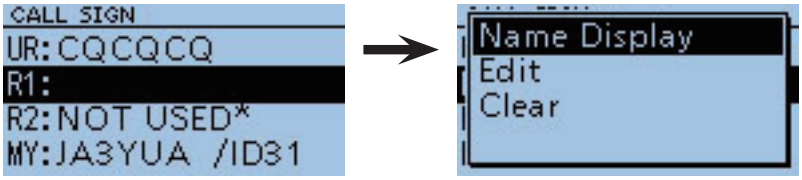
<To set Duplex (repeater) operation>
Example : While in the DV mode, Making a Gateway call
Making a gateway CQ call to Hamacho repeater (JP1YIU B) from the Hirano repeater (JP3YHH B)*, while in the DV mode.
*Before starting to set the call sign, set the frequency of your access repeater or duplex direction. (See pages 23 and 30 on the printed manual.)

NOTE: When the Digital Repeater Setting function is ON, the repeater call sign can be automatically set. (p. 10-46)

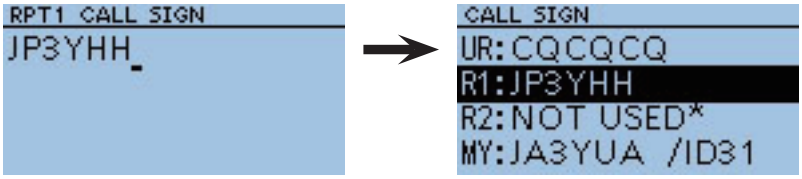
1. Call sign (“R1”) setting

① While in the DV mode, push D-pad(↓↑) to select “R1,” and then push QUICK MENU.





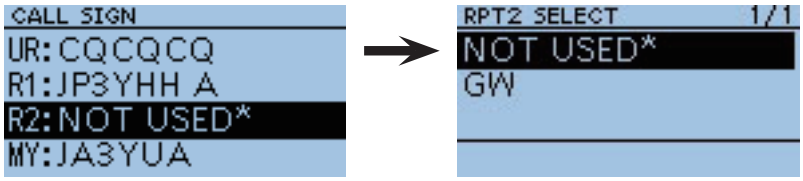
② Push D-pad(↓↑) to select “Edit,” and then push D-pad(Ent).
③ Rotate [DIAL] to select the first character.
• Alphanumeric characters and symbol (“/”) can be entered.
④ Push CD to move the cursor backward, or push to CS move the cursor forward.
⑤ Repeat steps ③ and ④ to enter a name of up to 8 characters, including a spaces.
⑥ After entering, push D-pad(Ent) to set.



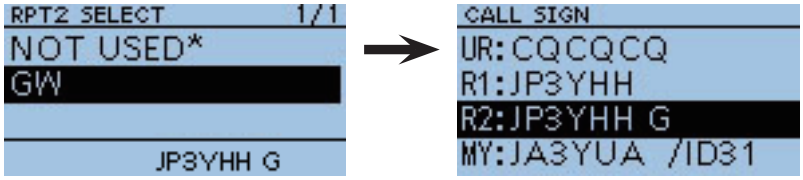
(Continued on the next page.)

2. Gateway ("R2") setting

① Push D-pad(↓↑) to select "R2," and then push D-pad(Ent).



② Push D-pad(↓↑) to select "GW," and then push D-pad(Ent).
• When you manually enter the call sign, push QUICK MENU in step ①.



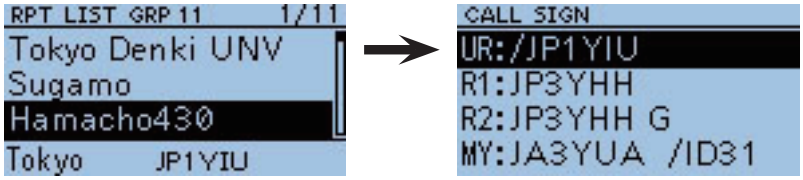
About the RPT2 SELECT screen

NOT USED*	For local area call
GW	To select the gateway call sign from the repeater list.
Repeater name	To select the repeater that has same gateway as the "R1" repeater.

3. Destination ("UR") setting

① Push D-pad(↓↑) to select "UR," and then push D-pad(Ent).

② Push D-pad(↓↑) to select "Gateway CQ," and then push D-pad(Ent).
③ Push D-pad(↓↑) to select "11:Japan"(repeater group where your destination repeater is listed), and then push D-pad(Ent).
④ Push D-pad(↓↑) to select "Hamacho430," and then push D-pad(Ent).
• When you manually enter the call sign, push QUICK MENU in step ①.



About the YOUR SELECT screen

CQCQCQ	To select "CQCQCQ" to make a non-call sign specific call.
Gateway CQ†	To select "Gateway CQ" using the repeater list.
Your Call Sign	To select the destination ("UR") call sign using the Your Call Sign memory.
RX History	To select the destination ("UR") call sign using the RX History.
TX History	To select the destination ("UR") call sign using the TX History.

†Not displayed in the Simplex mode.

■ RX History items

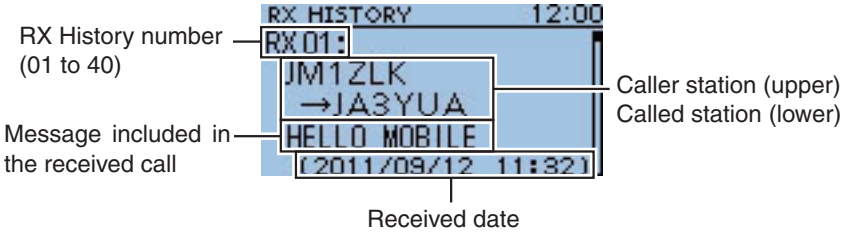
RX History

RX History(RX HISTORY)

When a call is received in the DV mode, the call information such as the caller station call sign, used repeater call sign, and so on, are stored in this screen.
Up to 40 records can be stored.

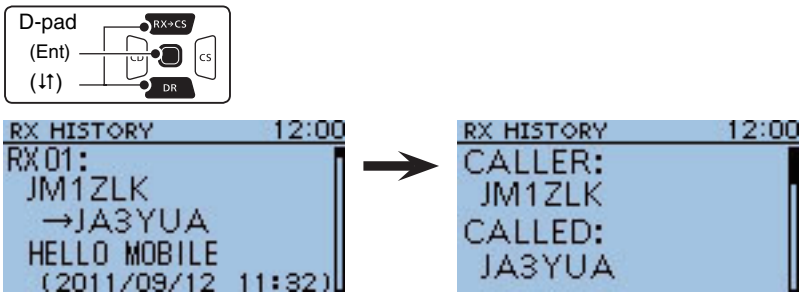
- Even if the transceiver power is turned OFF, the stored records are not deleted.

You can confirm the RX record contents with D-pad(↓↑).



To display the RX record contents

①Push D-pad(↓↑) to select the desired RX History number “RX01” to “RX40,” and then push D-pad(Ent).



②Push D-pad(↓↑) to switch the RX History contents screen.

- When the received call includes GPS position data, it is displayed after RX TIME.
- To register the caller station call sign, GPS information, or repeater call sign, push D-pad(↓↑) to show the desired contents, and then push QUICK MENU.

③Push [MENU] to exit the MENU screen.

Contents of the RX history

CALLER*1	Shows the call sign of the caller station and any note programmed after the call sign.
CALLED*1	Shows the call sign of the called station.
RXRPT1*1	Shows the call sign 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 call sign of your local area repeater.
RXRPT2*1	Shows the call sign of the repeater you received the call from.
MESSAGE	Shows any message included in the received call, if programmed.
RX TIME	Shows the date and time the call was received.
COMPASS*2	Shows the direction from your position to the caller station.
LATITUDE	Shows the Latitude position of the caller station.
LONGITUDE	Shows the Longitude position of the caller station.
GL(Grid Locator)	Shows the latitude and longitude position data in a short string of characters.
DISTANCE*2	Shows the distance between you and the caller station.
GPS-A SYMBOL	Shows a GPS-A symbol of the caller station. (GPS TX mode: GPS-A)
SSID	Shows the APRS® based SSID (Secondary Station Identifier; “-0,” “-1” to“ -15,” “-A" to “ -Z”) when the caller station's GPS TX mode is set to “GPS-A” to assist identifying the caller station.
COURSE	Shows the course of the caller station.
SPEED	Shows the speed the caller station is moving at. The speed unit can be set to the km/h, mph or knots format in the GPS menu.
ALTITUDE	Shows the altitude of the caller station, The altitude unit can be set to either the meter or feet/mile format in the GPS menu.
GPS MESSAGE	Shows the GPS message or GPS-A comment included in the position data of the received call.

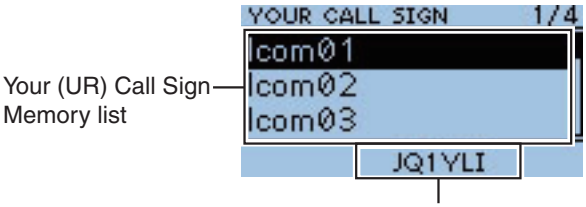
*1 These items can be switched to the Name display.
*2 If you have no positon data, these items are not displayed.

■ DV Memory items

Your Call Sign

DV Memory > Your Call Sign(YOUR CALL SIGN)

The transceiver has a total of 200 memories to store an individual station destination call sign.
The stored call sign and name are displayed on the YOUR CALL SIGN or RX Record screen.

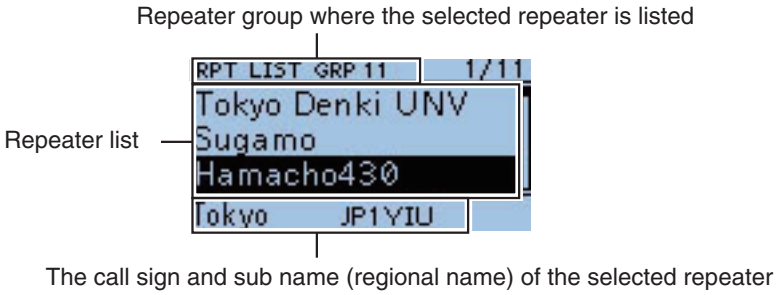


- The Your (UR) Call Sign can be programmed to the memory using the RX History. (p. 3-5)
- See pages 4-35 to 4-38 about how to add, edit or move the Your Call Sign in the memory.

Repeater List

DV Memory > Repeater List(REPEATER GROUP)

You can store repeater information for quick and simple communication when using repeaters.
The transceiver has a total of 700 repeater memory channels, storable in 20 groups (01 to 20).



NOTE:
For easy operation, a repeater list is pre-loaded into your transceiver. However, if the CPU clears all programmed contents (All Reset), the repeater list is also cleared.
We recommend that memory data be backed up externally, or be saved to a PC using the supplied CS-31 cloning software.

About the repeater list:
The repeater list can be downloaded from the Icom website.
http://www.icom.co.jp/world/index.html

Repeater Group (01 to 20)

Group name	Repeater group name of up to 16 alphanumeric characters

The Skip setting can be turned ON or OFF in the QUICK MENU screen.

Repeater List

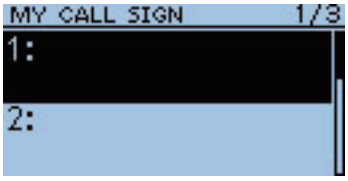
NAME	Repeater name of up to 16 alphanumeric characters
SUB NAME	Repeater sub name of up to 8 alphanumeric characters
CALL SIGN	Repeater call sign
GW CALL SIGN	Gateway call sign
GROUP	Repeater group where the repeater is assigned
USE(FROM)	Select whether or not to use the repeater as an access repeater (FROM) in the DR mode
FREQUENCY*1	Operating frequency of the access repeater
DUP*1	Duplex setting to use the access repeater
OFFSET FREQ*1	Frequency offset to use the access repeater
POSITION	Position data accuracy level (“None,” “Approximate” or “Exact”)
LATITUDE*2	Latitude position of the repeater
LONGITUDE*2	Longitude position of the repeater
UTC OFFSET	Time difference between UTC (Universal Time Coordinated) and the local time

*1 Appears only when USE(FROM) is selected as “YES.”
*2 Appears only when POSITION is selected as “Approximate” or “Exact.”

NOTE: When the repeater is used for a simplex communication, refer to the list below to set the settings.

NAME	Enter the desired name of up to 16 alphanumeric characters
SUB NAME	Enter the desired sub name of up to 8 alphanumeric characters
CALL SIGN	Blank
GW CALL SIGN	–
GROUP	Set the desired repeater group
USE(FROM)	YES
FREQUENCY	Frequency for the Simplex operation
DUP	OFF
OFFSET FREQ	–
POSITION	–
UTC OFFSET	–

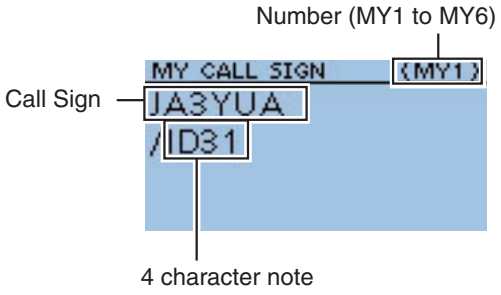
■ My Station items



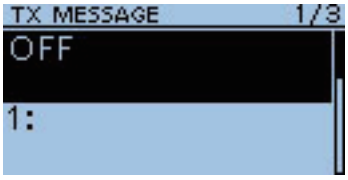
My Call Sign

My Station > My Call Sign(MY CALL SIGN)

The transceiver has a total of 6 memories to store your own call signs.
A call sign of up to 8 digits can be entered.
Also, a note of up to 4 characters, for operating radio type, area, and so on, can be entered.



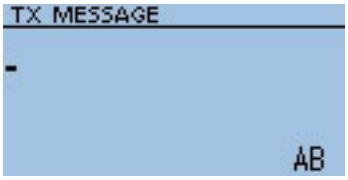
- See page 2-5 for MY call sign programming.
- To select a different My Call Sign, push D-pad(↓↑) to select, and then push D-pad(Ent) to set.



TX Message

My Station > TX Message(TX MESSAGE)

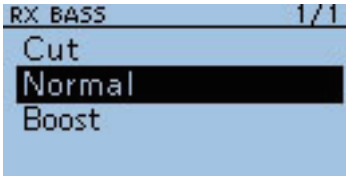
The transceiver has a total of 5 memories to store short messages for simultaneous transmission in the DV mode.
Enter a message of up to 20 alphanumeric characters for each memory.



TX Message edit screen

- See page 4-2 for TX message programming.
- To changing the TX Message, push D-pad(↓↑) to select, and then push D-pad(Ent) to set.
- When no message transmission is necessary, select “OFF.”

■ DV Set items

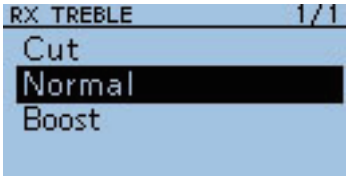


RX Bass (Default: Normal)

DV Set > Tone Control > RX Bass(RX BASS)

Set the DV mode received audio bass filter level to Cut, Normal or Boost.

- Cut : Cuts the bass tone
- Normal : Normal tone level
- Boost : Boosts the bass tone

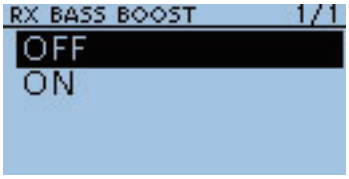


RX Treble (Default: Normal)

DV Set > Tone Control > RX Treble(RX TREBLE)

Set the DV mode received audio treble filter level to Cut, Normal or Boost.

- Cut : Cuts the treble tone
- Normal : Normal tone level
- Boost : Boosts the treble tone

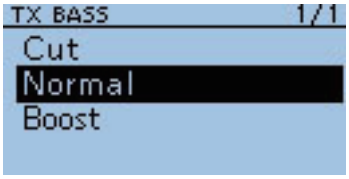


RX Bass Boost (Default: OFF)

DV Set > Tone Control > RX Bass Boost(RX BASS BOOST)

Turn the DV mode received audio Bass Boost function ON or OFF.
This function is separate from the “Boost” setting of the RX Bass.

- OFF : Turns the function OFF.
- ON : This function boosts the received audio bass to output it from a speaker, even if the speaker is small.

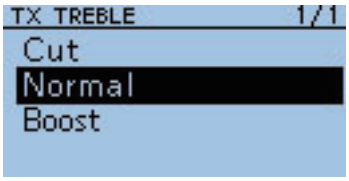


TX Bass (Default: Normal)

DV Set > Tone Control > TX Bass(TX BASS)

Set the DV mode transmit audio bass filter level to Cut, Normal or Boost.

- Cut : Cuts the bass tone
- Normal : Normal tone level
- Boost : Boosts the bass tone



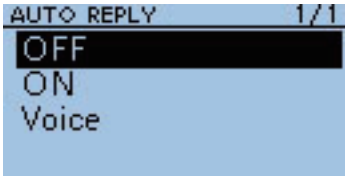
TX Treble (Default: Normal)

DV Set > Tone Control > TX Treble(TX TREBLE)

Set the DV mode transmit audio treble filter level to Cut, Normal or Boost.

- Cut : Cuts the treble tone
- Normal : Normal tone level
- Boost : Boosts the treble tone

■ DV Set items (Continued)



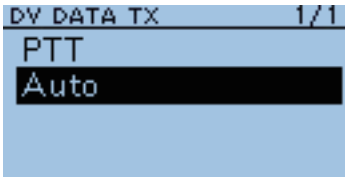
Auto Reply (Default: OFF)

DV Set > Auto Reply(AUTO REPLY)

Set the automatic reply function to ON, OFF or Voice.
This function automatically replies to a call addressed to your own call sign, even if you are away from the transceiver.
The automatic reply function is automatically turned OFF when you push [PTT].

- OFF : Turns the function OFF.
- ON : Replies to the call with your own call sign. (No audio signal is sent)
- Voice : Replies to the call with your own call sign and the recorded Auto Reply voice signal that is saved on the microSD card for this function. (10 second Maximum record period)
  If no microSD card is attached, or no auto reply voice is recorded, the transceiver replies to the call the same as the "ON" option.
  The replying voice audio can be monitored.

NOTE: The Power Save function is disabled when this function is set to "ON" or "Voice."

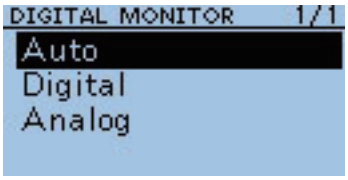


DV Data TX (Default: Auto)

DV Set > DV Data TX(DV DATA TX)

Select whether to manually or automatically transmit slow-speed data.

- PTT : Push [PTT] to manually transmit the input data.
- Auto : When data is input from a PC through the [DATA] jack, the transceiver automatically transmits it.

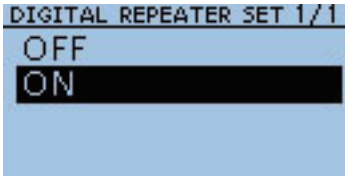


Digital Monitor (Default: Auto)

DV Set > Digital Monitor(DIGITAL MONITOR)

Select the DV mode RX monitoring when [SQL] is held down.

- Auto : Monitors in the DV mode or the FM mode, depending on the received signal.
- Digital : Monitors in the DV mode.
- Analog : Monitors in the FM mode.



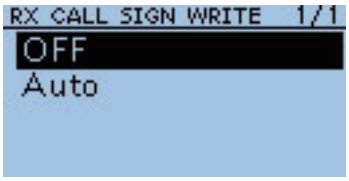
Digital Repeater Set (Default: ON)

DV Set > Digital Repeater Set(DIGITAL REPEATER SET)

Turn the digital repeater setting function ON or OFF.
When accessing a repeater that has a call sign that is different than the transceiver's setting, this function reads the repeater's signal and automatically sets the repeater call sign in R1 and R2.

- OFF : Turns the function OFF.
- ON : Automatically sets the repeater call sign.

NOTE: This function is disabled while in the DR mode.

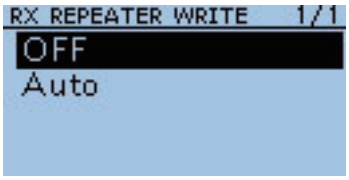


RX Call Sign Write (Default: OFF)

DV Set > RX Call Sign Write(RX CALL SIGN WRITE)

Set the RX call sign automatic write function to Auto or OFF.
When receiving a call addressed to your own call sign in a mode other than the DR mode, this function automatically sets the call sign of the caller station into "UR."

- OFF : Turns the function OFF.
- Auto : Automatically sets the call sign of the caller station into "UR."

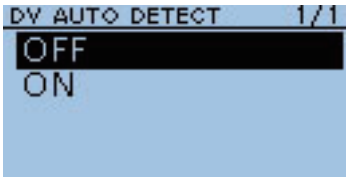


RX Repeater Write (Default: OFF)

DV Set > RX Repeater Write(RX REPEATER WRITE)

Set the repeater call sign automatic write function to Auto or OFF.
When receiving a call addressed to your own call sign through a repeater in a mode other than the DR mode, this function automatically sets the call sign of the repeater into "R1" or "R2."

- OFF : Turns the function OFF.
- Auto : Automatically sets the call sign of the repeater into "R1" and/or "R2."

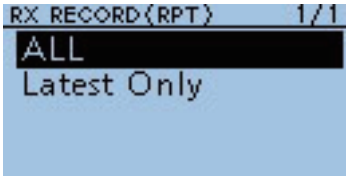


DV Auto Detect (Default: OFF)

DV Set > DV Auto Detect(DV AUTO DETECT)

Turn the DV mode automatic detect function ON or OFF.
If you receive a non-digital signal during DV mode operation, this function automatically switches to the FM mode.

- OFF : Turns the function OFF. The operating mode is fixed to the DV mode.
- ON : Automatically selects the FM mode for temporary operation.



RX Record (RPT) (Default: ALL)

DV Set > RX Record (RPT)(RX RECORD(RPT))

The transceiver can record the data of up to 40 individual calls.
When you receive a call that the destination station did not reply to, or one in which the link repeater was not found, you can record all of them or only the latest one, in the Received Call Record.

- ALL : Records all calls.
- Latest Only : Records only the latest call.

■ DV Set items (Continued)

BK (Default: OFF)

DV Set > BK(BK)

The BK (Break-in) function allows you to break into a conversation, where the two other stations are communicating with call sign squelch enabled.

- OFF : Turns the function OFF.
- ON : Turns the function ON.
  "BK" appears on the display.

NOTE: The BK function is automatically turned OFF when transceiver is turned OFF.

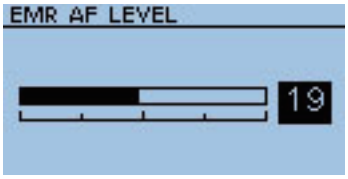
EMR (Default: OFF)

DV Set > EMR(EMR)

The EMR communication mode can be used in the digital mode. In the EMR mode, no call sign setting is necessary.
When an EMR mode signal is received, the audio (voice) will be heard at the specified level even if the volume setting level is set to minimum level, or digital call sign/digital code squelch is in use.

- OFF : Turns the function OFF.
- ON : Turns the function ON.
  "EMR " appears on the display.

NOTE: The EMR function is automatically turned OFF when transceiver is turned OFF.

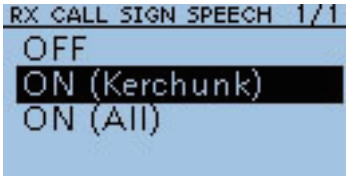


EMR AF Level (Default: 19)

DV Set > EMR AF Level(EMR AF LEVEL)

Set the audio output level to between 0 and 39 for when an EMR communication mode signal is received.
When an EMR signal is received, the audio will be heard at the set level, or the [VOL] control level, whichever is higher.
To disable the setting, set it to "0."

■ SPEECH items

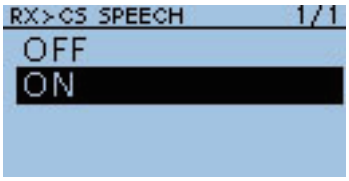


RX Call Sign SPEECH (Default: ON (Kerchunk))

SPEECH > RX Call Sign SPEECH(RX CALL SIGN SPEECH)

Turn the RX call sign speech function ON or OFF.

- OFF : No announcement is made even when a call is received.
- ON (Kerchunk) : The calling station's call sign is announced only when it makes a short transmission.
- ON (All) : The calling station's call sign is always announced.



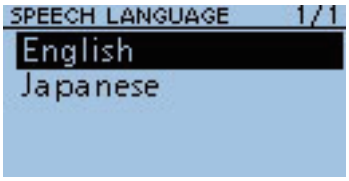
RX>CS SPEECH (Default: ON)

SPEECH > RX>CS SPEECH(RX>CS SPEECH)

Turn the RX>CS Speech function ON or OFF.
The RX>CS Speech function enables the transceiver to announce the station call sign that is selected from a Received Call Record by using [RX→CS] and [DIAL].

- OFF : The station call sign is not announced.
- ON : The station call sign is announced.

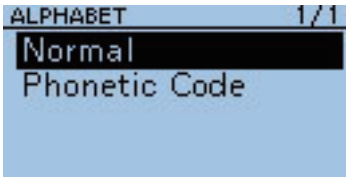
Procedure : While holding down [RX→CS], rotate [DIAL] to select a call sign from a Received Call Record. After selecting, release [RX→CS], and then the selected station call sign is announced.



SPEECH Language (Default: English)

SPEECH > SPEECH Language(SPEECH LANGUAGE)

Set the desired speech pronunciation to English or Japanese.

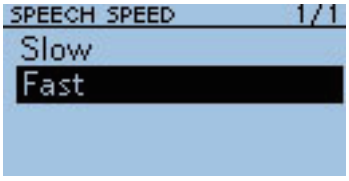


Alphabet (Default: Normal)

SPEECH > Alphabet(ALPHABET)

Select either “Normal” or “Phonetic Code” to announce the alphabet character.

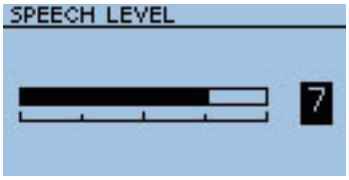
- Normal : Normal code is used. (for example: A as eh, B as bee)
- Phonetic Code : Phonetic code is used. (for example: A as Alfa, B as Bravo)



SPEECH Speed (Default: Fast)

SPEECH > SPEECH Speed(SPEECH SPEED)

Set the speech speed to Low (slow) or High (fast).



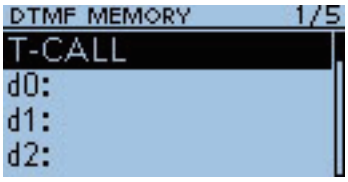
SPEECH Level (Default: 7)

SPEECH > SPEECH Level(SPEECH LEVEL)

Enter a volume level number between 0 (OFF), 1 (minimum) and 9 (maximum) for the voice synthesizer.
The voice synthesizer audio output level from the speaker is linked with [VOL] setting from the minimum audio volume up to the set level.

■ DTMF/T-CALL items

Programs and sets the DTMF tone code and DTMF memory channel for DTMF tone operation.
See pages 11-2 through 11-6 for details.

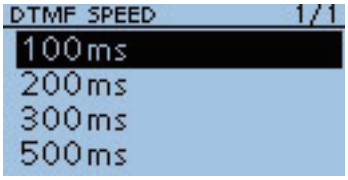


DTMF Memory (Default: d0)

DTMF/T-CALL > DTMF Memory(DTMF MEMORY)

Shows a list of the DTMF memory channels.

- T-CALL : 1750 Hz tone burst signal
- d0 to d# : DTMF memory channel list



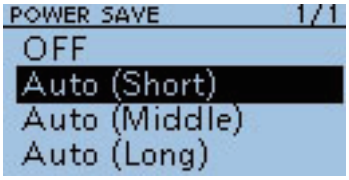
DTMF Speed (Default: 100ms)

DTMF/T-CALL > DTMF Speed(DTMF SPEED)

Select the DTMF transfer speed.

- 100ms : Transfer the DTMF codes at about 100 milliseconds per code. 5 characters per second.
- 200ms : Transfer the DTMF codes at about 200 milliseconds per code. 2.5 characters per second.
- 300ms : Transfer the DTMF codes at about 300 milliseconds per code. 1.6 characters per second.
- 500ms : Transfer the DTMF codes at about 500 milliseconds per code. 1 character per second.

■ Function items



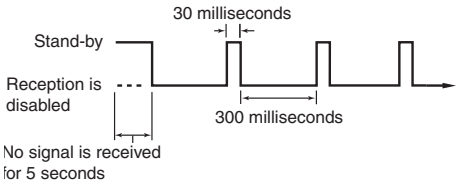
Power Save (Default: Auto (Short))

Function > Power Save(POWER SAVE)

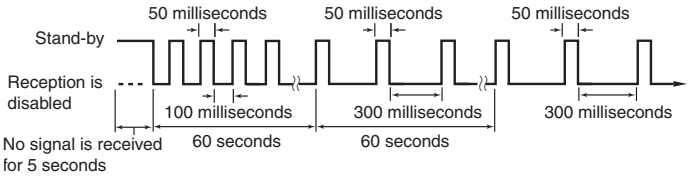
Set the power save function to reduce current drain and conserve battery power.

- OFF : Turns the function OFF.
- Auto (Short) : Sets the Power saving time to “Short”

FM/FM-N mode:

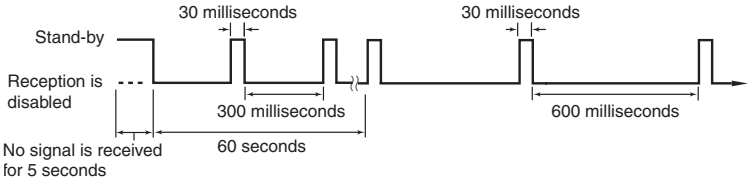


DV mode:

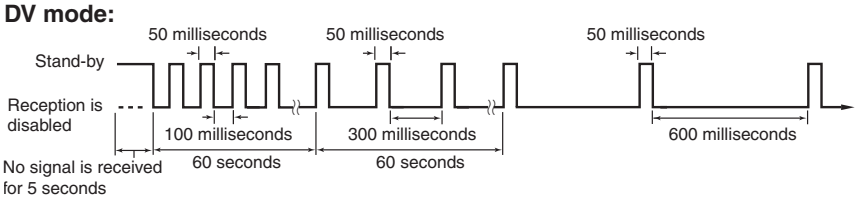


- Auto (Middle) : Sets the Power saving time to “Middle”

FM/FM-N mode:

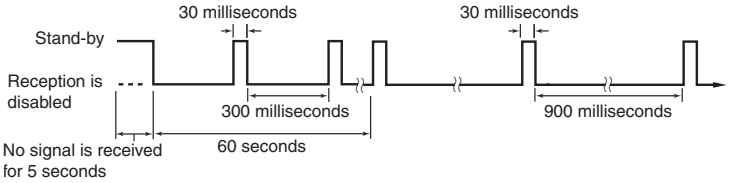


DV mode:

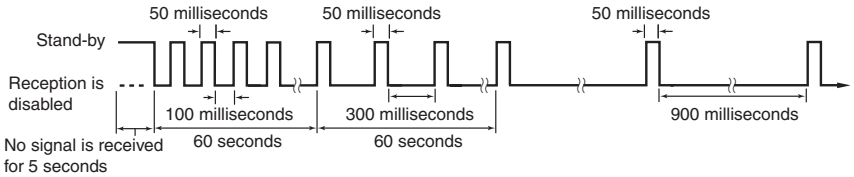


- Auto (Long) : Sets the Power saving time to “Long”

FM/FM-N mode:

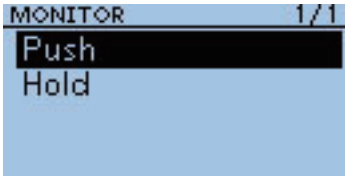


DV mode:



NOTE: The Power Save function is disabled when using an external power supply, or if the Auto Reply function in the DV mode is set to “ON” or “Voice”.

■ Function items (Continued)

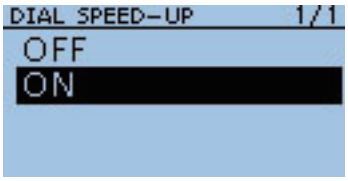


Monitor (Default: Push)

Function > Monitor(MONITOR)

Select the [SQL] monitor function method.

- 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.

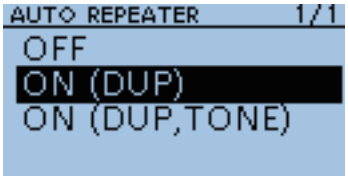


Dial Speed-UP (Default: ON)

Function > Dial Speed-UP(DIAL SPEED-UP)

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

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



Auto Repeater

Function > Auto Repeater(AUTO REPEATER)

Valid condition: Korean, U.S.A. version transceivers
The auto repeater function automatically turns the duplex operation and tone encoder* ON or OFF.
The offset and repeater tone* are not changed by the auto repeater function. Reset these setting values, if necessary.

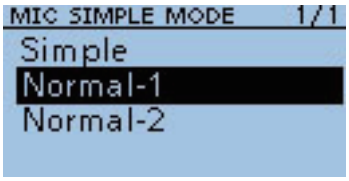
For Korean versions

- OFF : Turns the function OFF.
- ON : Turns ON the duplex operation and tone encoder*. (Default)

For U.S.A. version

- OFF : Turns the function OFF.
- ON (DUP) : Turns ON the duplex operation only. (Default)
- ON (DUP, TONE) : Turns ON the duplex operation and tone encoder*.

*Tone encoder will not be turned ON in the DV mode.



MIC Simple Mode (Default: Normal-1)

Function > MIC Simple Mode(MIC SIMPLE MODE)

Mic simple mode is used to change the function assignments for keys on the optional HM-75LS SPEAKER-MICROPHONE.

• Simple:

[A]	Activates the monitor function
[B]	Selects the Call channel mode
[▲]	Selects memory channel 000 in the memory mode
[▼]	Selects memory channel 001 in the memory mode

• Normal-1:

[A]	Selects the Call channel mode
[B]	Toggles between the VFO mode and memory mode
[▲]	Changes the frequency or memory channel “UP”
[▼]	Changes the frequency or memory channel “DOWN”

• Normal-2:

[A]	Activates the monitor function
[B]	Toggles between the VFO mode and memory mode
[▲]	Changes the frequency or memory channel “UP”
[▼]	Changes the frequency or memory channel “DOWN”

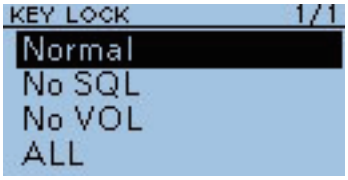
Regardless of the settings listed above, while transmitting or monitoring, the following functions are activated.

[A]	Transmits T-CALL (1750 Hz tone) while pushing [PTT]
[B]	—
[▲]	Volume ‘UP’ while operating the Monitor function
[▼]	Volume ‘DOWN’ while operating the Monitor function

NOTE: Regardless of the settings listed above, in the DR mode, the microphone has the function assignments for the microphone keys listed below.

[A]	Enters UR call sign or link repeater selection (TO)
[B]	Enters Access repeater selection (FROM)
[▲]	Selects ‘UP’ on the displayed items
[▼]	Selects ‘DOWN’ on the displayed items

■ Function items (Continued)



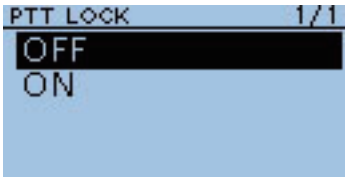
Key Lock (Default: Normal)

Function > Key Lock(KEY LOCK)

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

- 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.

NOTE: Regardless of the setting, the [PWR], [PTT] and [MENU] (lock function only) are still accessible while the lock function is activated.

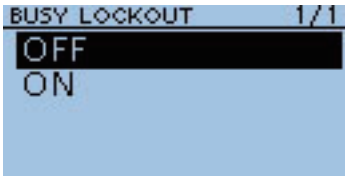


PTT Lock (Default: OFF)

Function > PTT Lock(PTT LOCK)

Turn the PTT lock function ON and OFF.
To prevent accidental transmissions, this function disables [PTT].

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



Busy Lockout (Default: OFF)

Function > Busy Lockout(BUSY LOCKOUT)

Turn the busy lockout function ON or OFF.
This function inhibits transmission while receiving a signal, or when the squelch is open.

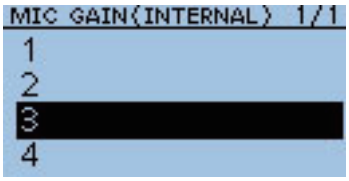
- OFF : Turns the function OFF.
- ON : Turns the function ON.

Time-Out Timer (Default: 5min)

Function > Time-Out Timer(TIME-OUT TIMER)

To prevent accidental prolonged transmission, the transceiver has a time-out timer.
The function inhibits continuous transmissions longer than the set time period.

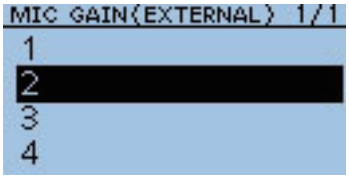
- OFF : Turns the function OFF.
- 1 to 30 min : The transmission is cut OFF after the set time period ends (1, 3, 5, 10, 15 or 30 minutes).



MIC Gain (Internal) (Default: 3)

Function > MIC Gain (Internal)(MIC GAIN(INTERNAL))

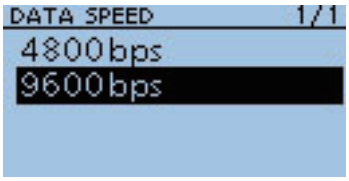
Set the internal microphone sensitivity to between 1 (minimum sensitivity) and 4 (maximum sensitivity), to suit your preference.
Higher values make the microphone more sensitive to your voice.



MIC Gain (External) (Default: 2)

Function > MIC Gain (External)(MIC GAIN (EXTERNAL))

Set the external microphone sensitivity to between 1 (minimum sensitivity) and 4 (maximum sensitivity), to suit your preference.
Higher values make the microphone more sensitive to your voice.
The external microphone is connected to the [MIC/SP] jack.



Data Speed (Default: 9600bps)

Function > Data Speed(DATA SPEED)

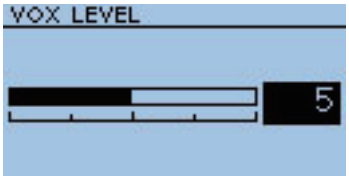
Select the data transmission speed for low-speed data communication, or between the [DATA] jack and external modules like a GPS receiver, and so on, to 4800 bps or 9600 bps.

VOX (Default: OFF)

Function > VOX > VOX(VOX)

Turn the VOX function ON or OFF.
The function automatically switches between receive and transmit during voice operation.

- OFF : Turns the function OFF.
- ON : Automatically switches between receive and transmit during voice operation.

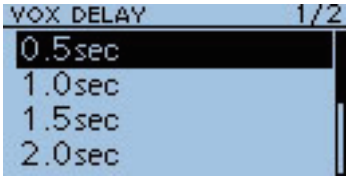


VOX Level (Default: 5)

Function > VOX > VOX Level(VOX LEVEL)

Set the VOX gain level to between 1 and 10 or OFF.
Higher values make the VOX function more sensitive to your voice.
To turn the VOX function OFF, select “OFF.”

- OFF : Turns the VOX function OFF.
- 1 to 10 : 1:The minimum sensitivity.
  10: The maximum sensitivity.

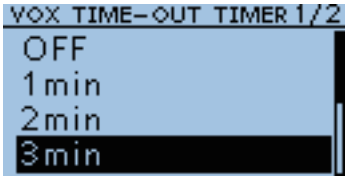


VOX Delay (Default: 0.5sec)

Function > VOX > VOX Delay(VOX DELAY)

Set the VOX Delay to 0.5, 1.0, 1.5, 2.0, 2.5 or 3.0 seconds.
The VOX Delay is the amount of time the transmitter stays ON after you stop speaking before the VOX switches to receive.

■ Function items (Continued)

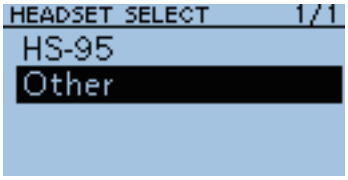


VOX Time-Out Timer (Default: 3min)

Function > VOX > VOX Time-Out Timer(VOX TIME-OUT TIMER)

Set the VOX Time-Out Timer to 1, 2, 3, 4, 5, 10 or 15 minutes to prevent an accidental prolonged transmission.
To disable the function, set it to "OFF."

- OFF : Turns the function OFF.
- 1, 2, 3, 4, 5, 10 or 15 min : If a continuous transmission exceeds the set period, the transmission will be cut off.



Headset Select (Default: Other)

Function > VOX > Headset Select(HEADSET SELECT)

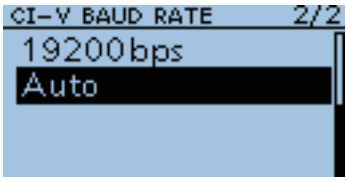
Select the headset type to be connected.

- HS-95 : Select when the HS-95 is connected.
- Other : Select when the HS-94 or HS-97 is connected.

CI-V Address (Default: 84)

Function > CI-V > CI-V Address(CI-V ADDRESS)

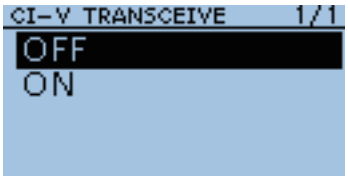
To distinguish equipment, each CI-V transceiver has its own Icom standard address in hexadecimal code.
The ID-31A/E's default address is 84.
When 2 or more ID-31A/Es are controlled through a PC at the same time, set a different address for each device between 01h and DFh (hexadecimal).



CI-V Baud Rate (Default: Auto)

Function > CI-V > CI-V Baud Rate(CI-V BAUD RATE)

Set the CI-V data transfer speed to 300, 1200, 4800, 9600, 19200 bps or Auto.
When "Auto" is selected, the baud rate is automatically set according to the data rate of the controller.



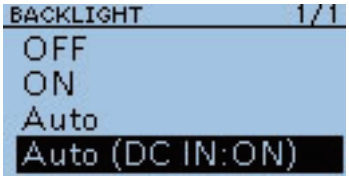
CI-V Transceive (Default: OFF)

Function > CI-V > CI-V Transceive(CI-V TRANSCEIVE)

Turn the CI-V Transceive function ON or OFF.

- OFF : Turns the function OFF.
- ON : When you change a setting on the transceiver, the same change is automatically set on other connected transceivers or receivers, and vice versa.

■ Display items



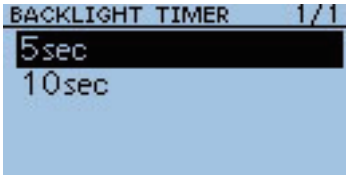
Backlight (Default: Auto (DC IN:ON))

Display > Backlight(BACKLIGHT)

Select the transceiver backlight option.

- OFF : The backlight does not light.
- ON : The backlight lights continuously.
- Auto : The backlight lights when an operation is performed, and goes out after the pre-programmed time periods.
- Auto (DC IN:ON) : The backlight lights when an operation is performed, and goes out after the pre-programmed time periods, but lights continuously while operating with an external DC power source.

NOTE:
Even if “ON” or “Auto (DC IN:ON)” is selected, the transceiver uses the “Auto” setting when the exclusive GPS logger mode.
When [POWER] is pushed, the backlight lights for the set period of time (set in “Backlight Timer”) when “Auto” or “Auto (DC-IN:ON)” is selected.



Backlight Timer (Default: 5sec)

Display > Backlight Timer(BACKLIGHT TIMER)

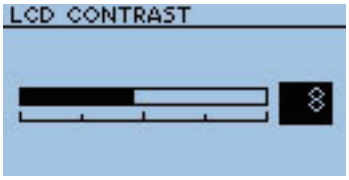
Select the backlight lighting time period to between 5 and 10 seconds.
Depending on the Backlight option, the backlight lights for this set period, and then automatically goes out.

LCD Dimmer (Default: Bright)

Display > LCD Dimmer(LCD DIMMER)

Select the LCD backlight brightness level between Bright and Dark.

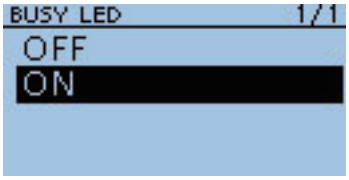
- Bright : The LCD backlight brightness level is bright.
- Dark : The LCD backlight brightness level is dim.



LCD Contrast (Default: 8)

Display > LCD Contrast(LCD CONTRAST)

Set the contrast of the LCD.
Set the level between 1, the lowest contrast, and 16, the highest.



Busy LED (Default: ON)

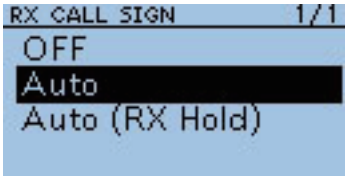
Display > Busy LED(BUSY LED)

The TX/RX indicator lights green while receiving a signal, or the squelch is open. It can be turned OFF to conserve battery power, if desired.

- OFF : The indicator does not light, even if a signal is received.
- ON : The indicator lights green while receiving a signal, or the squelch is open.

NOTE:
The indicator lights red while transmitting, regardless of the setting.

■ Display items (Continued)

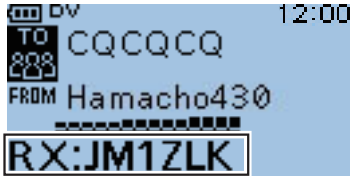


RX Call Sign (Default: Auto)

Display > RX Call Sign(RX CALL SIGN)

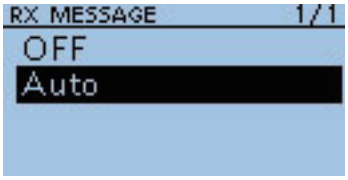
When a call is received, select whether or not to display the call sign of the caller station.

- OFF : Turns the function OFF.
- Auto : Automatically scrolls the caller station's call sign. After scrolling, the call sign disappears.
- Auto (RX Hold) : Automatically scrolls the caller station's call sign. After scrolling, the call sign still remains on the display until their signal disappears. In such case, the call sign is not scrolled.



(Example : When receiving a call from "JM1ZLK")

NOTE: When "Auto" or "Auto (RX Hold)" is selected, and if the call sign and name of the caller station is programmed in Your Call Sign screen, the programmed name is displayed after showing the call sign.

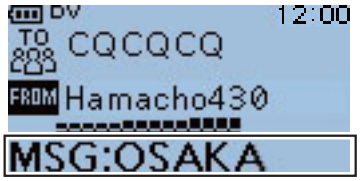


RX Message (Default: Auto)

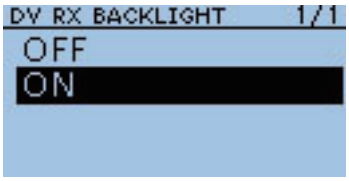
Display > RX Message(RX MESSAGE)

Select whether or not to display and scroll a received message.

- OFF : Does not display the message.
  To check the message, hold down [CD] for 1 second to display the call record.
- Auto : Automatically displays and scrolls the message.
  The message is automatically displayed every 30 seconds until their signal disappears.
  When "Auto" or "Auto (RX Hold)" is selected in RX Call Sign Display, the message is displayed after displaying the caller station's call sign.



(Example : When receiving a message "OSAKA")

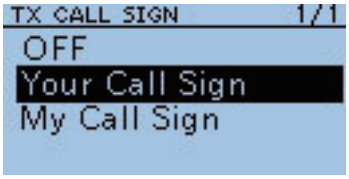


DV RX Backlight (Default: ON)

Display > DV RX Backlight(DV RX BACKLIGHT)

Turn the DV RX Backlight function ON or OFF.
In the DV mode, this function turns ON the LCD backlight while displaying the calling station's call sign or a received message on the LCD.

- OFF : Turns the function OFF.
- ON : The LCD backlight automatically lights while displaying the calling station's call sign or a received message on the LCD. The backlight stays on while the call sign or message is scrolling.

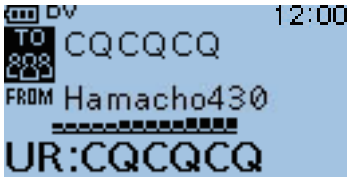


TX Call Sign (Default: Your Call Sign)

Display > TX Call Sign(TX CALL SIGN)

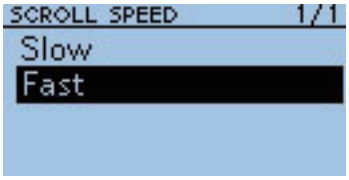
Select whether or not to display your own or the destination station's call sign while transmitting.

- OFF : Turns the function OFF.
- Your Call Sign: Displays and scrolls the destination station's call sign.
- My Call Sign : Displays and scrolls your own call sign.



(Example : Shows the target station's call sign)

NOTE: When "Your Call Sign" is selected, and if the call sign and name of the caller station is programmed in Your Call Sign screen, the programmed name is displayed after showing the call sign in a mode other than the DR mode.

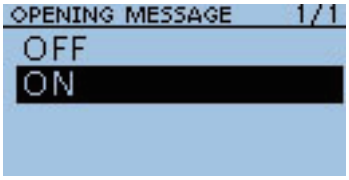


Scroll Speed (Default: Fast)

Display > Scroll Speed(SCROLL SPEED)

This item sets the scrolling speed of the message, call sign, or other text, that is displayed on the transceiver's LCD.

- Slow : The speed is set to slow.
- Fast : The speed is set to fast.



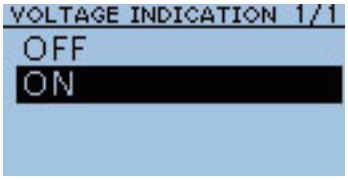
Opening Message (Default: ON)

Display > Opening Message(OPENING MESSAGE)

Select the opening message that is displayed on the LCD at power ON.

- OFF : Opening message display is skipped.
- ON : Icom logo, MY call sign and the product model ("ID-31A" or "ID-31E")* are displayed at power ON.
  *Depending on the version.

■ Display items (Continued)

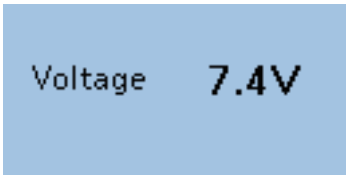


Voltage Indication (Default: ON)

Display > Voltage Indication(VOLTAGE INDICATION)

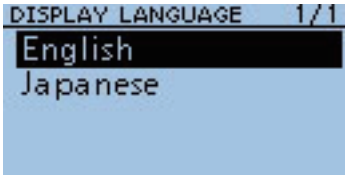
Select whether or not to display the voltage of the battery or external DC power source on the LCD at power ON.

- OFF : Turns the function OFF.
- ON : When the transceiver is turned ON, displays the voltage of the battery or external DC power source, on the LCD.



(Example : When the voltage of 7.4V)

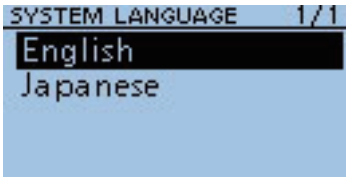
NOTE: When the voltage is above 15.6V external DC power source, “HI Voltage” is displayed.



Display Language (Default: English)

Display > Display Language(DISPLAY LANGUAGE)

Set the screen display language type in the DR mode or Menu mode to English or Japanese.
When “English” is selected in System Language, this setting will be hidden.



System Language (Default: English)

Display > System Language(SYSTEM LANGUAGE)

Set the system language of the transceiver to English or Japanese.

- English : The system language of the transceiver is English.
  - Only alphabetical characters and symbols can be displayed. If Japanese characters (Kanji, Hiragana and Katakana) are included, the LCD shows "=" or "_" instead of that character. In this case, you can only delete "=" or "_" in the transceiver's edit mode.
  - The Display Language item will be hidden.
- Japanese : The system language of the transceiver is Japanese. Kanji, Hiragana and Katakana characters, and the 2-bytes symbols can be displayed on the LCD. To display such characters in the DR mode or Menu mode, Display Language must be set to "Japanese."

Choose your language carefully

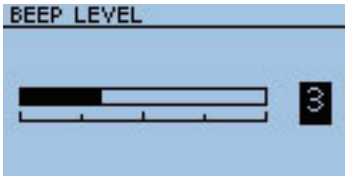
When the system language of the transceiver is set to Japanese, the ID-31A/E has the capability to display both English and Japanese characters. HOWEVER, if you select Japanese, all menu items throughout the ID-31A/E system will be displayed in only Japanese characters. There will be no English item names. Unless you are fluent in reading Japanese characters, use this feature with extreme caution.

If you change the ID-31A/E's language to Japanese, and can't understand the menu system in the new setting, you will have to change the language back to English by doing a partial reset of the ID-31A/E CPU. A partial reset will not clear your call sign databases.

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

1. First, turn OFF the transceiver power.
2. While holding down [V/MHz] (V/MHz CLR LOW), push (⏻) to turn ON the power.
   - The transceiver displays "PARTIAL RESET," then the partial reset is completed.

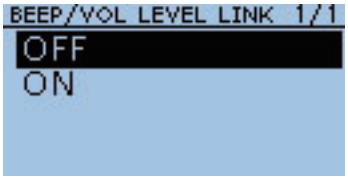
■ Sounds items



Beep Level (Default: 3)

Sounds > Beep Level(BEEP LEVEL)

Select a beep audio output level between 0 (OFF), 1 (minimum) and 9 (maximum).

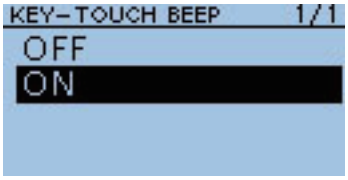


Beep/Vol Level Link (Default: OFF)

Sounds > Beep/Vol Level Link(BEEP/VOL LEVEL LINK)

Select whether or not the beep output level can be adjusted by the [VOL] control.

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



Key-Touch Beep (Default: ON)

Sounds > Key-Touch Beep(KEY-TOUCH BEEP)

Turn the confirmation beep tones ON or OFF.

- OFF : Turns the function OFF for silent operation.
- ON : A beep sounds when a key is pushed.

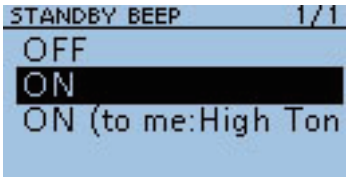
NOTE: The beep tone sounds regardless of this setting when;
- the power is turned ON
- a matched tone signal is received if the pocket beep is activated.
- the transceiver is automatically turned OFF. (The beep sounds before powering OFF.)
- TOT (Time-Out Timer) function is activated. (Approximately 10 seconds before the Time-Out Timer cuts off transmission.)
- the cloning read or write operation starts or finishes.
- a received signal stops the scan. (Scan Stop Beep)
- the communicating station finishes transmitting or the receive signal disappears while in the digital mode operation. (Standby Beep)

Scan Stop Beep (Default: OFF)

Sounds > Scan Stop Beep(SCAN STOP BEEP)

Turn the scan stop beep ON or OFF.

- OFF : No beep sounds.
- ON : A beep sounds when a received signal stops the scan.



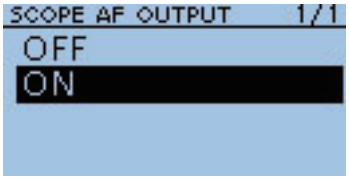
Standby Beep (Default: ON)

Sounds > Standby Beep(STANDY BEEP)

Turn the standby beep function ON or OFF.
This function sounds a beep after a received signal disappears.

- OFF : Turns the function OFF.
- ON : Turns the function ON to sound a beep.
- ON (to me: High Tone) : Turns the function ON to sound a beep. If the signal is addressed to your call sign, a high beep sounds.

- The standby beep sounds even when “OFF” is selected in Key-touch beep.
- The standby beep output level follows the Beep level setting.



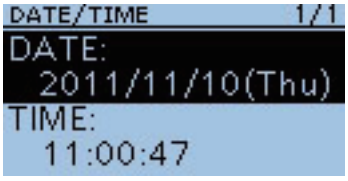
Scope AF Output (Default: ON)

Sounds > Scope AF Output(SCOPE AF OUTPUT)

Select the audio output option during a sweep by the Band Scope function.

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

■ Time set items



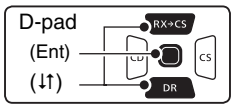
Date/Time

Time Set > Date/Time(DATE/TIME)

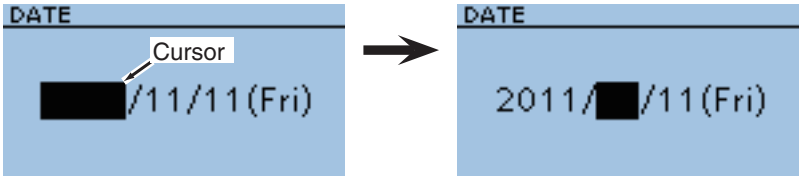
Manually set the date and time that is displayed on the right hand corner of the screen. The time is displayed in the 24 hour format.

Setting the date

① Push D-pad(⇵), and then push D-pad(Ent) to select “DATE”.

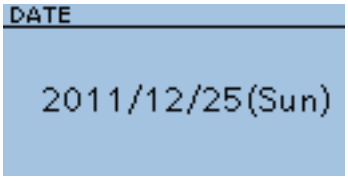


② Push CD and CS to move the cursor, and then select between year, month and day to change.



③ Rotate [DIAL] to select each number.

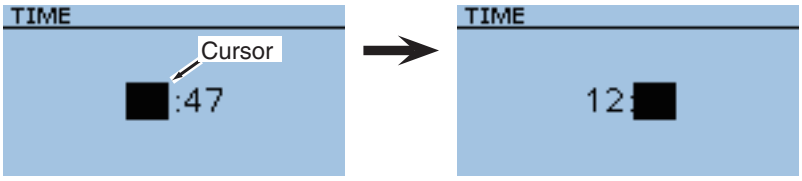
④ Repeat steps ② and ③ to enter the year, month and day, and then push D-pad(Ent).



Setting the time

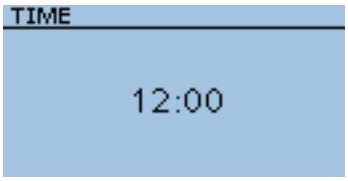
① Push D-pad(⇵), and then push D-pad(Ent) to select “TIME”.

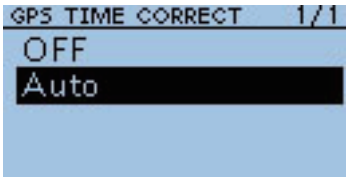
② Push CD and CS to move the cursor, and then select between hour and minute to change.



③ Rotate [DIAL] to select each number.

④ Repeat steps ② and ③ to enter the hour and minute, and then push D-pad(Ent).





GPS time correct (Default: Auto)

Time Set > GPS Time Correct(GPS TIME CORRECT)

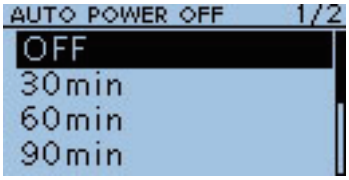
This function can correct its time by using the time information that the GPS sentence contains.
It is corrected by calculating the received UTC (Universal Time of Coordinated) time and the set [UTC Offset].

- OFF : The function is OFF.
- Auto : The function is ON.

UTC Offset (Default: ±0:00)

Time Set > UTC Offset(UTC OFFSET)

Set the time difference between UTC (Universal Time Coordinated) and the local time to between –14:00 and +14:00 in 00:05 steps.



Auto Power OFF (Default: OFF)

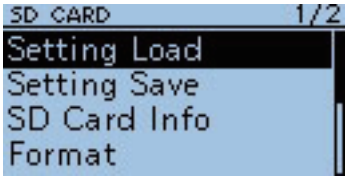
Time Set > Auto Power OFF(AUTO POWER OFF)

This function automatically turns OFF the power after any operation has not been performed for the preprogrammed time.

- OFF : Turns the function OFF.
- 30 – 120 min : Select the desired Auto Power OFF time between 30, 60, 90 and 120 minutes.

■ SD Card items

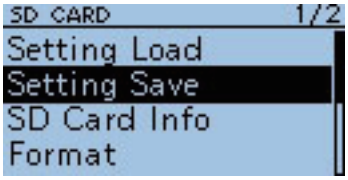
Settings and functions for microSD card.
See Section 12 for details.



Setting Load

SD Card > Setting Load(SETTING LOAD)

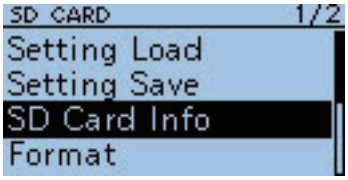
Select from the list when you load the setting file.



Setting save

SD Card > Setting save(SETTING SAVE)

Save the setting file.



SD Card Info

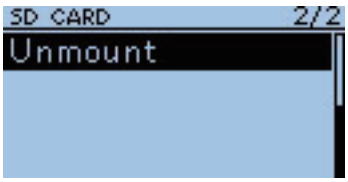
SD Card > SD Card Info

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

Format

SD Card > Format

Formats the microSD care, deleting all data.



Unmount

SD Card > Unmount

Electrically unmounts the microSD card while the power is ON.

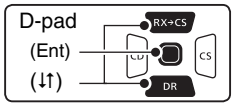
OTHER FUNCTIONS Section 11

■ Using the DTMF memory

The transceiver can stores up to 16 channels of DTMF memory with 24-digit DTMF code.

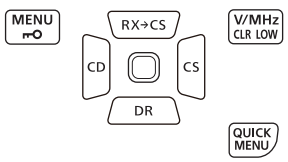
◇ DTMF code programming

① Push [MENU] (MENU) to select the MENU list screen.
② To display the DTMF MEMORY screen, push D-pad(↓↑) to select the root item (DTMF/T-CALL), and then push D-pad(Ent) to go to the next level.
• DTMF memory channel list (d0 to d#) is displayed.

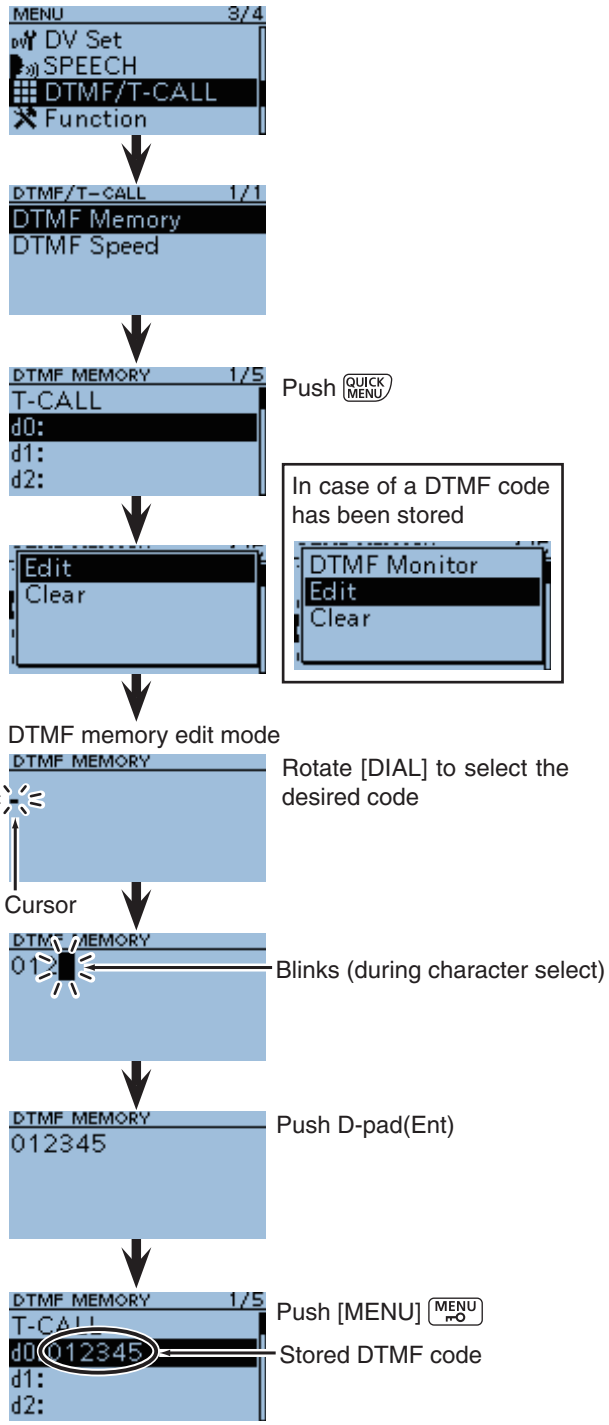


③ Push D-pad(↓↑) to select the desired DTMF memory channel, then push (QUICK MENU).
④ Push D-pad(↓↑) to select "Edit, "then push D-pad(Ent) to enter DTMF memory edit mode.
⑤ Rotate [DIAL] to select the desired code, the push D-pad(Ent) to set the code.
Repeat the above step to enter the desired DTMF codes.
• Push (CD) to move the cursor backward, or push (CS) to move the cursor forward.
*When the cursor is on the 24th digit, the cursor only can be move to backward.
• Push [CLR] (V/MHz CLR LOW) to delete the selected code.
• When the cursor does not select a character, the previous character is deleted.
If [CLR] (V/MHz CLR LOW) is held down, all the characters are deleted.
⑥ When all digits are set, push D-pad(Ent).
• The entered DTMF codes are stored into the DTMF memory channel, and automatically return to DTMF memory screen.
⑦ Push [MENU] (MENU) to return to the operating screen.

[DIAL]



Example: Stores the DTMF code, "012345" into the DTMF memory channel "d0."

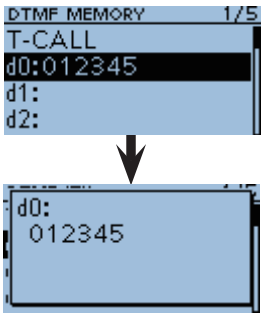


■ Using the DTMF memory
◇ DTMF code programming (Continued)

Monitoring the stored DTMF code

Select the desired DTMF memory channel to be monitored in DTMF memory screen, then push [SQL].
The stored DTMF code sounds.

• DTMF code can also be monitored with the following steps;
Select the desired memory channel to be monitored in DTMF memory screen, then push (QUICK MENU).
Push D-pad(↓↑) to select "DTMF Monitor" then push D-pad(Ent) to monitor the selected DTMF code.



Push [SQL]

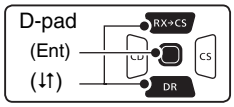
DTMF code sounds

■ Using the DTMF memory (Continued)

◇ DTMF code transmission

①Push [MENU] (MENU) to select the MENU list screen.

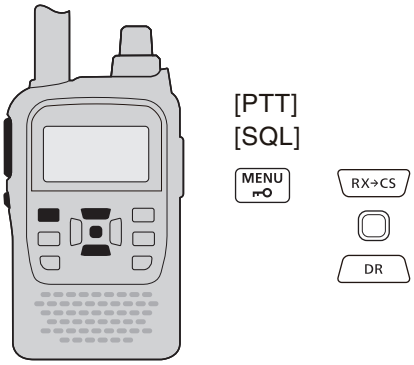
②To display the DTMF MEMORY screen, push D-pad(↓↑) to select the root item (DTMF/T-CALL), and then push D-pad(Ent) to go to the next level.
- DTMF memory channel list (d0 to d#) is displayed.



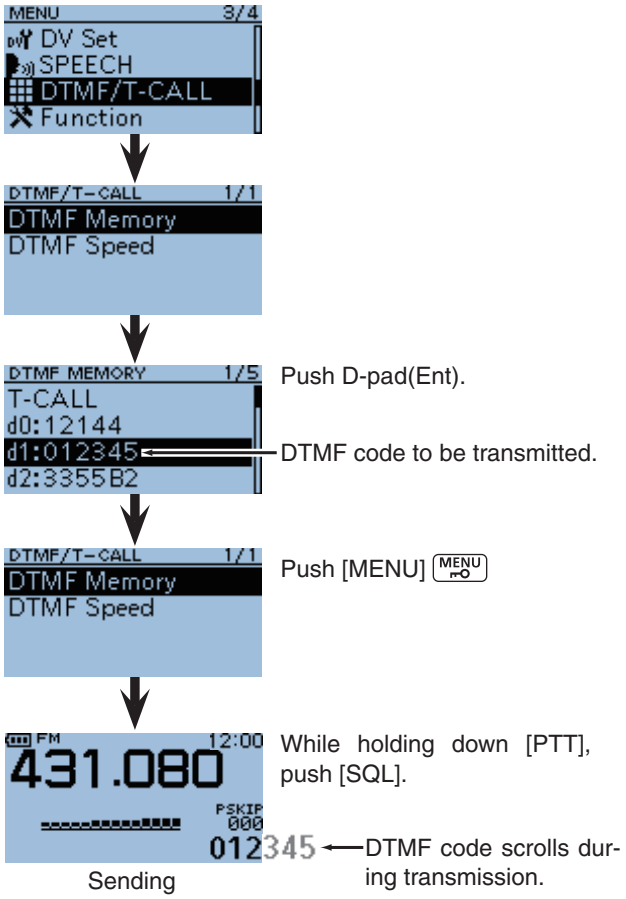
③To display the DTMF MEMORY screen, push D-pad(↓↑) to select the root item (DTMF/T-CALL), and then push D-pad(Ent) to go to the next level.
- Beeps sound, and the selected DTMF channel is set for transmission.

④Push [MENU] (MENU) to return to the operating screen.

⑤While holding down [PTT], push [SQL] to transmit the selected DTMF code.
- The transceiver keeps transmission until the all programmed DTMF code is transmitted even [PTT] is released.



Example: Set the DTMF code "012345" stored in DTMF memory channel "d1" for transmission.



About 1750 Hz tone

When "T-CALL" is selected in the DTMF MEMORY screen, 1750 Hz tone can be transmitted.
- While holding down [PTT], push [SQL] to transmit 1750 Hz tone is transmitted.
  The tone is transmitted while holding down [SQL].
- The 1750 Hz tone can be heard from a speaker.

■ Using the DTMF memory (Continued)

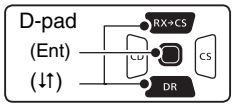
◇ Setting DTMF transfer speed

The DTMF transfer speed can be selected.

① Push [MENU] (MENU) to select the MENU list screen.

② To display the DTMF SPEED screen, push D-pad(↓↑) to select the root item (DTMF/T-CALL), and then push D-pad(Ent) to go to the next level.

- 100ms : Transfer the DTMF tones at about 100 milliseconds per tone.
- 200ms : Transfer the DTMF tones at about 200 milliseconds per tone.
- 300ms : Transfer the DTMF tones at about 300 milliseconds per tone.
- 500ms : Transfer the DTMF tones at about 500 milliseconds per tone.

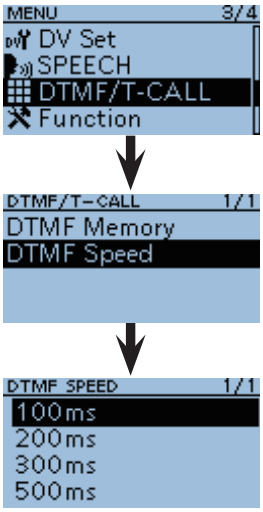


③ Push D-pad(↓↑) to select a desired transfer speed, then push D-pad(Ent)

- Transfer speed is set.

④ Push [MENU] (MENU) to return to the operating screen.

Example: Set the DTMF transfer speed to 300 milliseconds.



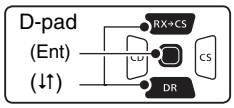
■ Using the DTMF memory (Continued)

◇ Clearing a DTMF memory

An unwanted DTMF memory can be cleared (erased).

① Push [MENU] (MENU) to select the MENU list screen.

② To display the DTMF MEMORY screen, push D-pad(↓↑) to select the root item (DTMF/T-CALL), and then push D-pad(Ent) to go to the next level.
- DTMF memory channel list (d0 to d#) is displayed.



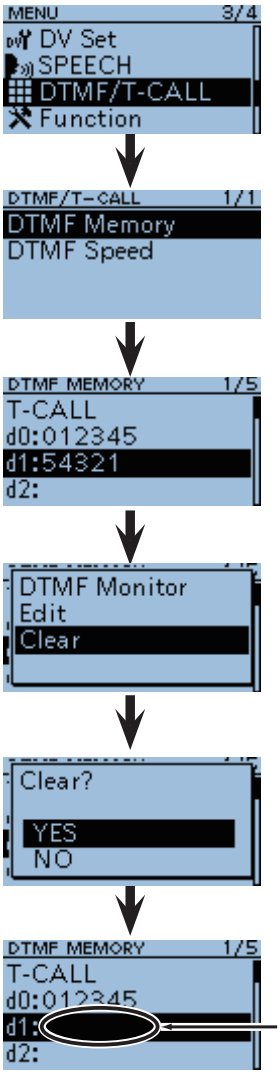
③ Push D-pad(↓↑) to select the desired DTMF memory channel to be cleared, then push (QUICK MENU).

④ Push D-pad(↓↑) to select “Clear,” then push D-pad(Ent).
After pushing D-pad(Ent), “Clear?” appears.

⑤ Push D-pad(↑) to select “YES,” then push D-pad(Ent).
- The selected DTMF memory is cleared.

⑥ Push [MENU] (MENU) to return to the operating screen.

Example: Erasing the DTMF code “54321” stored in the DTMF memory channel “d1.”



Push (QUICK MENU)

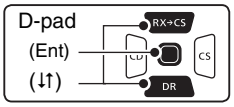
The stored DTMF code is cleared.

■ Tone squelch operation

The tone squelch opens only when you receive a signal containing a matching subaudible tone during FM or FM narrow mode. You can silently wait for calls from others using the same tone.
Also, reversed tone squelch function is ready to mutes the squelch when a signal containing a matched subaudible tone.

◇ Tone squelch frequency setting and operation

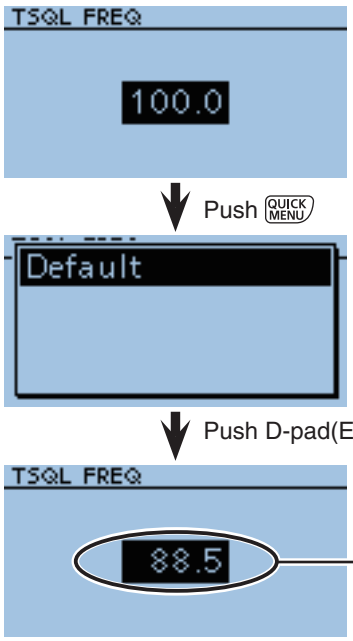
① Push [V/MHz] (V/MHz CLR LOW) once or more times to select the VFO mode.
② Push [FM/DV] (FM/DV SCAN) once or more times to select FM or FM-N (FM narrow) mode.
③ Rotate [DIAL] to select a desired operating frequency.
④ Push [MENU] (MENU) to select the MENU list screen.
• The MENU list screen appears.
⑤ To display the TSQL frequency screen, push D-pad(↓↑) to select the root item (“DUP/TONE…”), and then push D-pad(Ent) to go to the next level.
• The selected tone squelch frequency is displayed.

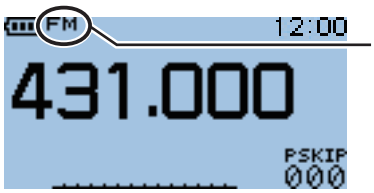


⑥ Rotate [DIAL] to select a desired tone squelch frequency, then push D-pad(Ent). (Example: 100.0 Hz)
• Select a tone squelch frequency within 67.0 to 254.1 Hz.
(Continued to the step ⑦ on the next page…)

For your information: Returning to the default tone squelch frequency

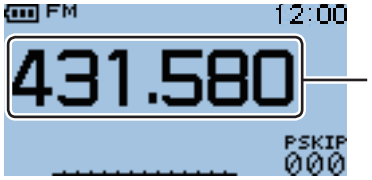
At the step ⑥, push (QUICK MENU) then push D-pad(Ent). Beeps sound and the tone squelch frequency return to the default.





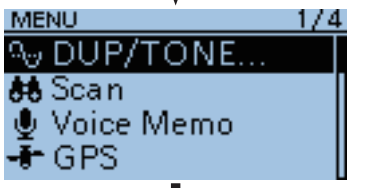
During VFO mode, select FM or FM-N mode. (Example: FM mode)

Rotate [DIAL].



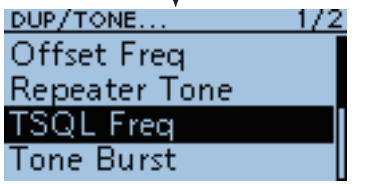
Set a desired operating frequency. (Example: 431.580 MHz)

Push [MENU] (MENU)



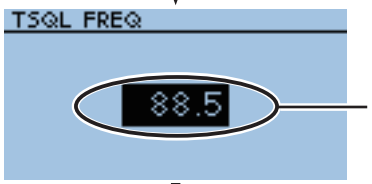
Push D-pad(↓↑) to select “DUP/TONE” item.

Push D-pad(Ent).



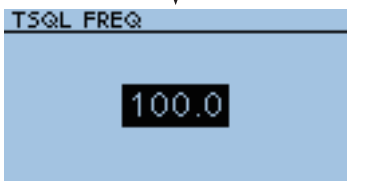
Push D-pad(↓↑) to select “TSQL Frequency” item.

Push D-pad(Ent).



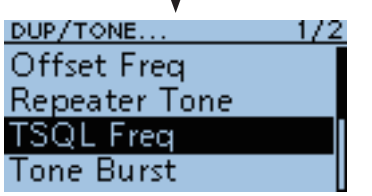
Selected tone squelch frequency.

Rotate [DIAL].



Select a desired tone squelch frequency. (Example: 100.0 Hz)

Push D-pad(Ent).



(Continued to the step ⑦ on the next page…)

11

■ Tone squelch operation

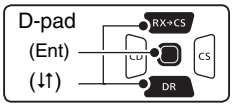
◇ Tone squelch frequency setting and operation (Continued)

⑦ Push [MENU] (MENU) to return to the VFO mode.

⑧ Push (QUICK MENU).

• The QUICK menu list is displayed.

⑨ Push D-pad(↓↑) to select "TONE" item.



⑩ Push D-pad(↓↑) to select either "TSQL((•)) " or "TSQL" option.

• TSQL((•)) : The tone squelch with pocket beep function ON.

• TSQL : The tone squelch function ON.

*Select "TSQL-R" when stands by the reversed tone squelch function.

⑪ Push D-pad(Ent) to set the tone squelch function and return to VFO mode.

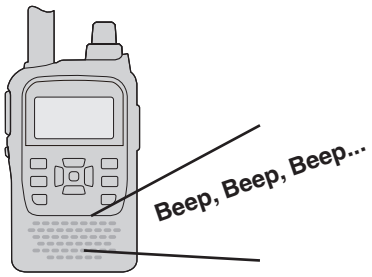
⑫ Holding down [PTT] and call a desired station. Operate as the normal way.

For your information: Sounds beep when a call is received.

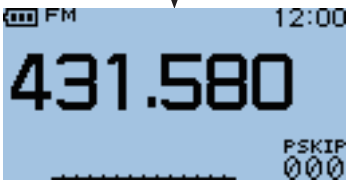
If "TSQL((•))" is selected in step ⑩, beeps sound for 30 seconds and the icon "((•))" blinks when a call with the matched tone signal is received.

➥ After receiving a call, hold down [PTT] within 30 seconds then start conversation, or push D-pad(Ent) to cancel the pocket beep function ("((•))" icon disappears).After that, the transceiver selects regular tone squelch operation.

• When receiving a call with "TSQL((•))"

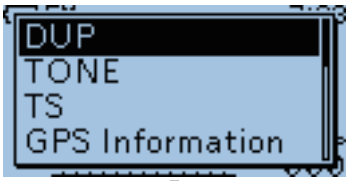


(Continued from step ⑥ on the previous page)

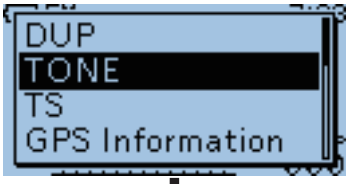


Return to VFO mode screen with FM or FM-N mode selection.
(Example: FM mode)

Push (QUICK MENU)

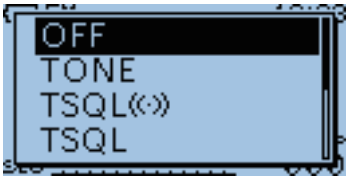


QUICK MENU list screen is displayed.



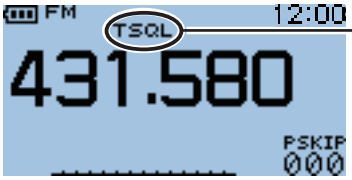
Push D-pad(↓↑) to select "TONE."

Push D-pad(Ent).



Push D-pad(↓↑) to select "TSQL."
(Example: TSQL)

Push D-pad(Ent).



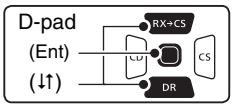
"TSQL" icon appears.
*When reversed tone squelch is selected in step ⑩, "TSQL-R" icon appears.

■ DTCS squelch operation

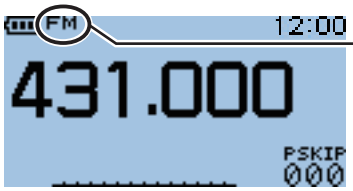
The tone squelch opens only when you receive a signal containing a matching DTCS code during FM or FM narrow mode. You can silently wait for calls from others using the same tone.
Also, reversed tone squelch function is ready to mutes the squelch when a signal containing a matched DTCS code.

◇ DTCS code setting and operation

① Push [V/MHz] (V/MHz CLR LOW) once or more times to select the VFO mode.
② Push [FM/DV] (FM/DV SCAN) once or more times to select FM or FM-N (FM narrow) mode.
③ Rotate [DIAL] to select a desired operating frequency.
④ Push [MENU] (MENU) to select the MENU list screen.
• The MENU list screen appears.
⑤ To display the DTCS code screen, push D-pad(↓↑) to select the root item (DUP/Tone), and then push D-pad(Ent) to go to the next level.
• The selected DTCS code is displayed.

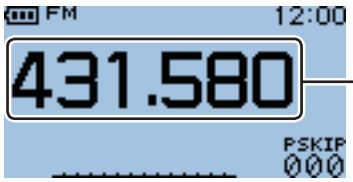


⑥ Rotate [DIAL] to select a desired DTCS code, then push D-pad(Ent). (Example: 125)
• Select a DTCS code within 023 to 754.
(Continued to the step ⑦ on the next page…)



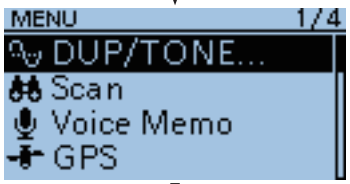
During VFO mode, select FM or FM-N mode. (Example: FM mode)

Rotate [DIAL].



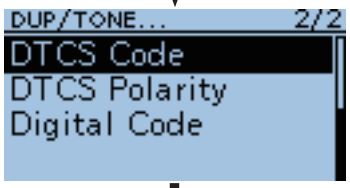
Set a desired operating frequency. (Example: 431.580 MHz)

Push [MENU] (MENU)



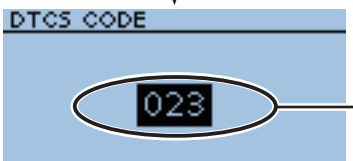
Push D-pad(↓↑) to select "DUP/TONE" item.

Push D-pad(Ent).



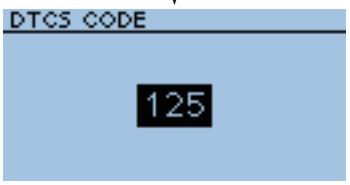
Push D-pad(↓↑) to select "DTCS Code" item.

Push D-pad(Ent).



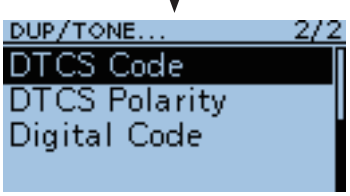
Selected DTCS code.

Rotate [DIAL].



Select a desired DTCS code. (Example: 125)

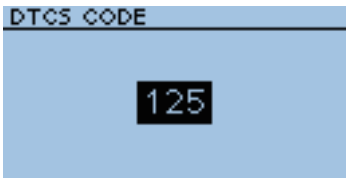
Push D-pad(Ent).



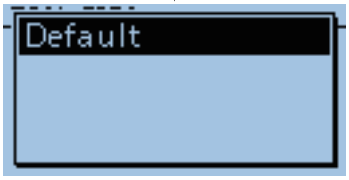
(Continued to the step ⑦ on the next page…)

For your information: Returning to the default DTCS code

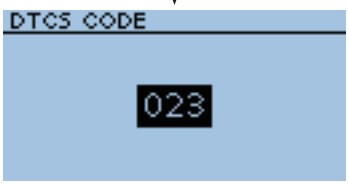
At the step ⑥, push (QUICK MENU) then push D-pad(Ent). Beeps sound and the DTCS code return to the default.



Push (QUICK MENU)



Push D-pad(Ent).



■ DTCS squelch operation

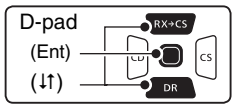
◇ DTCS code setting and operation (Continued)

⑦ Push [MENU] (MENU) to return to the VFO mode.

⑧ Push (QUICK MENU).

• The QUICK menu list is displayed.

⑨ Push D-pad(↓↑) to select “TONE” item.



⑩ Push D-pad(↓↑) to select either “DTCS((•)) ” or “DTCS" option.

• DTCS((•)) : The DTCS squelch with pocket beep function ON.

• DTCS : The DTCS squelch function ON.

*Select “DTCS-R” when stands by the reversed tone squelch function.

⑪ Push D-pad(Ent) to set the DTCS squelch function and return to VFO mode.

⑫ Holding down [PTT] and call a desired station. Operate as the normal way.

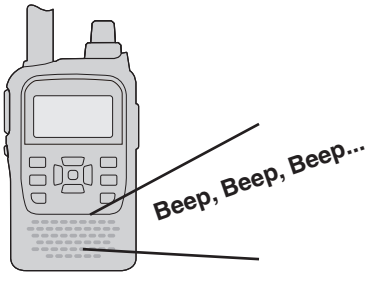
For your information: Sounds beep when a call is received.

If “DTCS((•)) ” is selected in step 10, beeps sound for 30 seconds and the icon “((•)) ” blinks when a call with the matched DTCS code signal is received.

➥ After receiving a call, hold down [PTT] within 30 seconds then start conversation, or push D-pad(Ent) to cancel the pocket beep function (“((•)) ” icon disappears). After that, the transceiver selects regular DTCS squelch operation.

If no operation is performed within 30 seconds, beeps stop sounding and the “((•)) ” icon blinking remained.

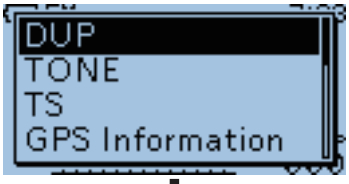
• When receiving a call with “DTCS((•)) ”



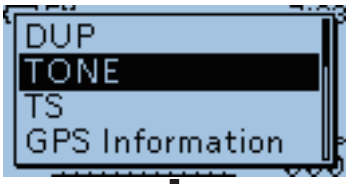
(Continued from step ⑥ on the previous page)

Return to VFO mode screen with FM or FM-N mode selection.
(Example: FM mode)

Push (QUICK MENU)

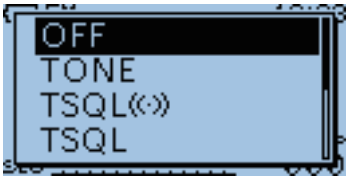


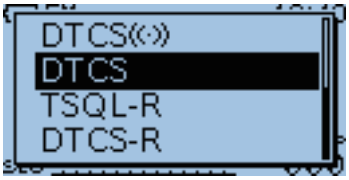
QUICK MENU list screen is displayed.



Push D-pad(↓↑) to select “TONE.”

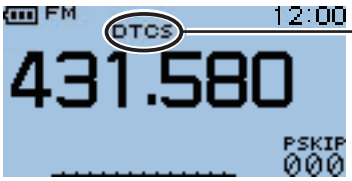
Push D-pad(Ent).





Push D-pad(↓↑) to select “TONE.”
(Example: DTCS)

Push D-pad(Ent).

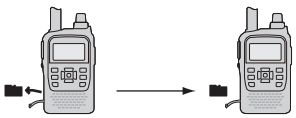


“DTCS” icon appears.
*When reversed tone squelch is selected in step ⑩, “DTCS-R” icon appears.

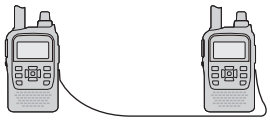
■ Cloning function

The ID-31A/E has data cloning capability. This function is useful when you want to copy all of the programmed contents from one ID-31A/E to another.
And PC cloning is also possible.

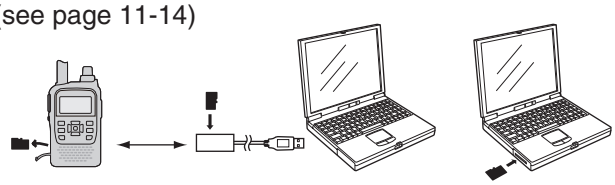
- **Transceiver-to-Transceiver cloning using a microSD card** (described on this page)



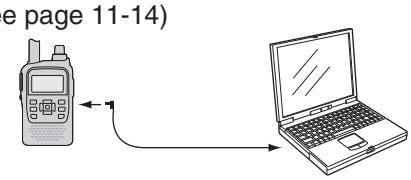
- **Transceiver-to-Transceiver cloning using a cable** (see page 11-15)



- **Cloning from a PC using a microSD card** (see page 11-14)



- **Cloning from a PC using an optional data cable** (see page 11-14)



◇ Transceiver-to-Transceiver cloning using a microSD card

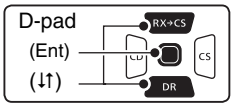
In this caption, describes cloning method using the microSD card. Memory channel contents, MENU item settings and repeater list can be stored onto a microSD card.

Recorded voice memories are not included in the cloning data. To play back the master transceiver's voice memory, attach the microSD card to sub transceiver, or make a copy onto the sub transceiver's microSD card using a PC.

*Describes the case of the microSD card has already been attached.

1. Saving the master transceiver's setting data onto the microSD card.

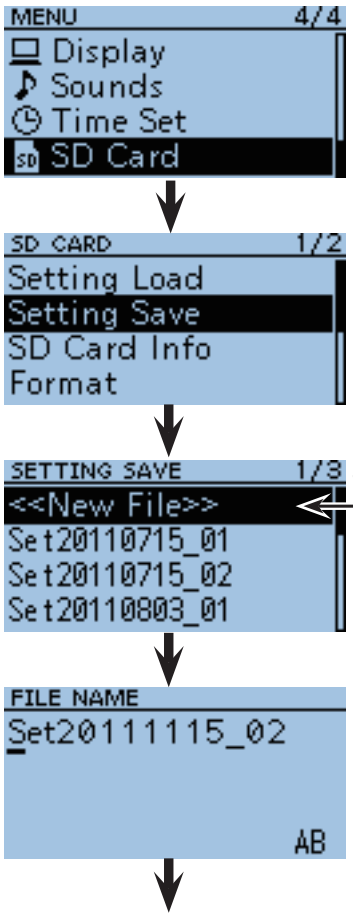
① Push [MENU] (MENU).
② To display the Save setting screen, push D-pad(↓↑) to select the root item (SD card), and then push D-pad(Ent) to go to the next level.
③ Push D-pad(↓↑) to select "<<New File>>," and then push D-pad(Ent).
- The FILE NAME screen is displayed.



④ The file name is automatically named in the following manner;
- Setyyyymmdd_xx (yyyy:Year, mm:month, dd:day, xx: serial number)

Example: When the 2nd file is saved on 1 December, 2011, the file is named "Set20111201_02."

- If you want to change the file name, see "Save with a different file name" (p. 12-7).



SETTING SAVE screen
Select "<<New File>>"

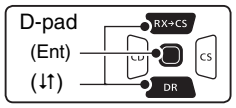
(Continued to the next page…)

■ Cloning function

◇ Transceiver-to-Transceiver cloning using a microSD card (Continued)

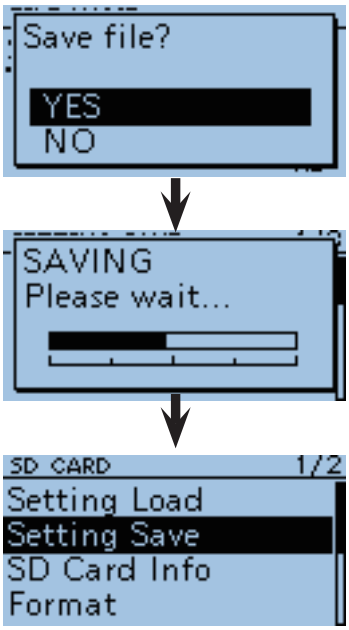
④ Push D-pad(Ent) to fix the file name.
The confirmation screen “Save file?” appears.

⑤ Push D-pad(↑) to select “YES,” then push D-pad(Ent) to save.



• While saving, a progress bar is displayed, then the “SD CARD” screen is displayed after the save is completed.

⑥ Push [MENU] MENU to return to the operating display.



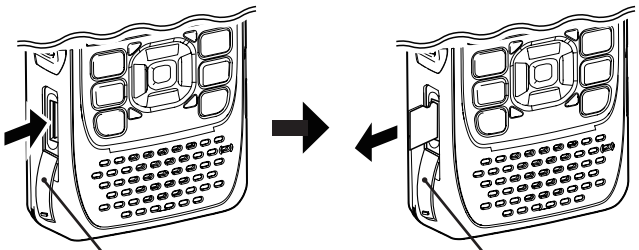
2. Remove the microSD card from the master transceiver, then attach it to the sub transceiver.

⑦ Turn OFF the master transceiver.
• Hold down the master transceiver’s ⏻.

⑧ Remove the microSD card from the master transceiver as shown at right.

⑨ Attach the removed microSD card to the sub transceiver, then turn ON the power.

• Removing the microSD card



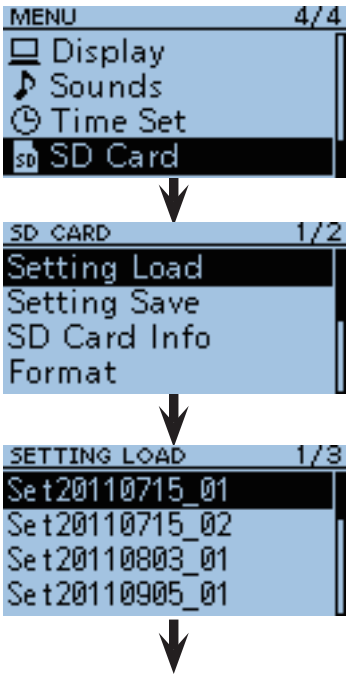
Push in the microSD card until click sounds.

Pull out the microSD card.

3. Loads the setting data into the sub transceiver.

⑩ Push [MENU] MENU.

⑪ To display the SETTING LOAD screen, push D-pad(↓↑) to select the root item (SD card), and then push D-pad(Ent) to go to the next level.

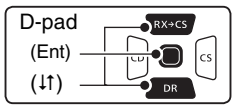


(Continued to the next page…)

■ Cloning function

◇ Transceiver-to-Transceiver cloning using a microSD card (Continued)

⑫ To display the File load screen, push D-pad(↓↑) to select the desired setting file, and then push D-pad(Ent).



⑬ Push D-pad(↓↑) to select the desired loading content, as shown below.

- **ALL:** Loads all memory channels, item settings in the menu list and the repeater list into the transceiver.
- **Except My Station:** Loads all memory channels, item settings in the menu list except MY call signs and the repeater list into the transceiver.
- **Repeater List Only:** Loads only the repeater list into the transceiver.

⑭ Push D-pad(Ent).

- The "Keep 'SKIP' setting in Repeater List?" appears.

⑮ Push D-pad(↓↑) to select "YES" or "No."

- When "Yes" is selected, the skip setting (p. 4-32) of the repeater list is retained.

⑯ Push D-pad(Ent), "Load file?" appears.

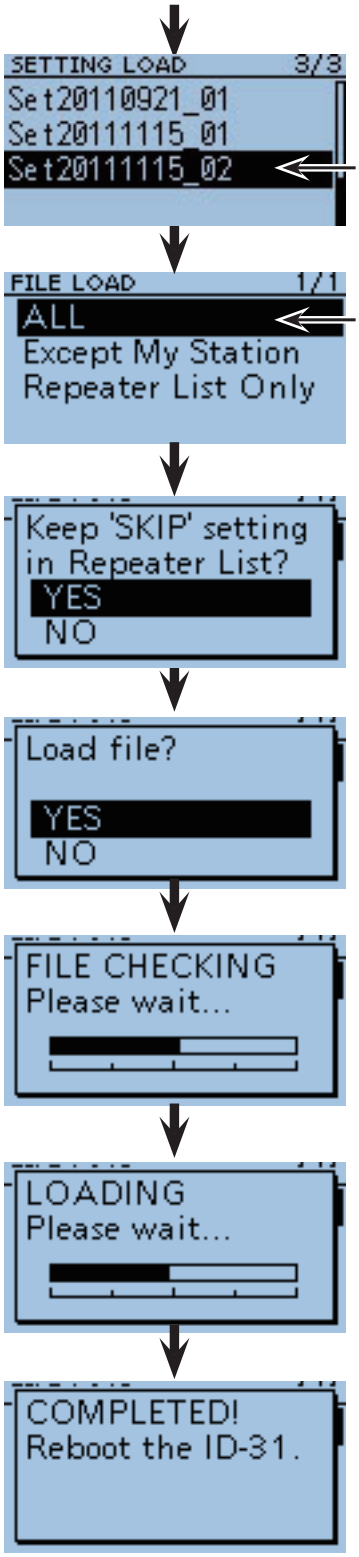
⑰ Push D-pad(↑) to select "Yes," then push D-pad(Ent) to start the file check.

- While checking the file, "FILE CHECKING" and a progress bar are displayed.

⑱ After checking, settings data loading starts.

- While loading, "LOADING" and a progress bar are displayed.

⑲ After loading, "COMPLETED!" appears.
To complete the loaded, reboot the transceiver.



Reboot the transceiver to complete the cloning/data loading.

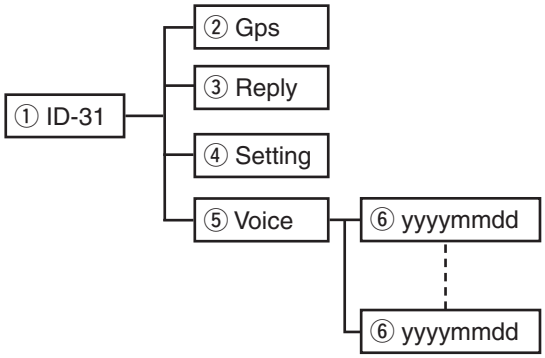
■ Cloning function (Continued)

◇ Cloning from a PC using a microSD card

The cloning can be performed from a PC using a microSD card.

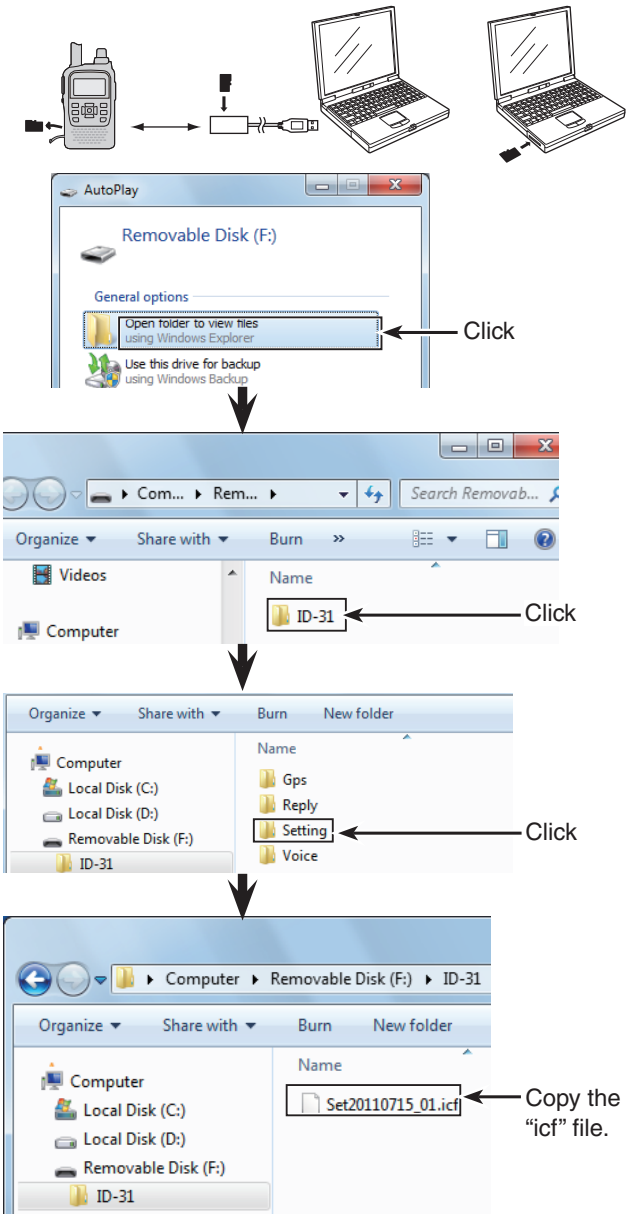
Set a desired memory channels, MENU item settings and repeater list by the CS-31 cloning software (contained in the CD), and save them in an "icf" file format. Copy the "icf" file into the "Setting" folder in the "ID-31" folder of the microSD card.

• microSD card configuration (p. 12-11)



Attach the microSD card that includes the "icf" file, then load it to complete the cloning.

• Connections



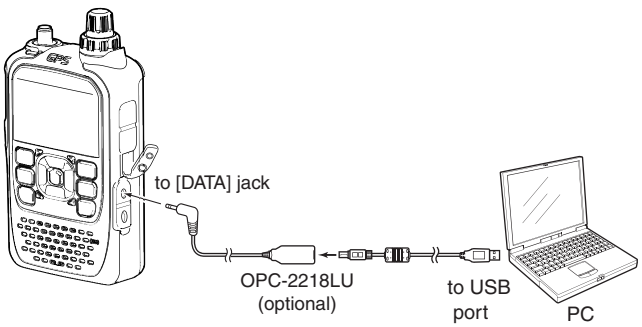
◇ Cloning from a PC using an optional data cable

Cloning can be performed using the CS-31 (contained in the CD) and the optional OPC-2218LU.

See the CS-31 instruction manual (contained in the CD) and the OPC-2218LU instruction manual (downloaded from our WEB site; http://www.icom.co.jp/world/)

NOTE: When using the optional OPC-2218LU
Before cloning, select "PTT" option in DV Data TX item.
If "Auto" is selected, the transceiver may transmit with the cloning data.
(DV Set > ***DV Data TX***)

• Connections



■ Cloning function (Continued)

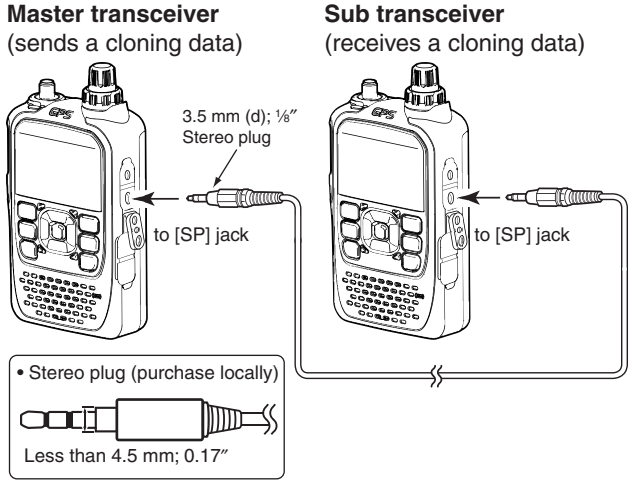
◇ Transceiver-to-Transceiver cloning using a cable

Connects two ID-31A/E (master and sub transceiver) using a stereo audio cable (purchase locally).

Use the stereo audio cable (3.5 (d) mm; 1/8″), purchase locally.
*According to a stereo audio cable may not be used for cloning.

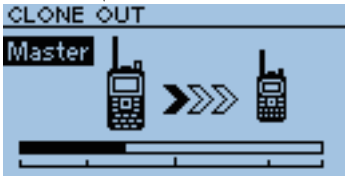
① Turn OFF the both master and sub transceiver.
② Connect a stereo audio cable between master and sub transceiver at right.
③ At the sub transceiver, while holding down both [M/CALL] [M/CALL S.MW] and [FM/DV] [FM/DV SCAN], push [⏻] to select cloning stand-by mode.
  • "CLONE" screen appears.
④ At the master transceiver, while holding down both [M/CALL] [M/CALL S.MW] and [MENU] [MENU], push [⏻] to select cloning master mode.
  • "CLONE Master" screen appears.
⑤ At the master transceiver, push [PTT].
  • At the sub transceiver, "CLONE-IN" screen appears.
  • At the master transceiver, "CLONE-OUT" screen appears.
⑥ When cloning is completed, the master transceiver returns to "CLONE Master" screen.
  • The sub transceiver displays "CLONE End" screen.
  • If you have another ID-31A/E to cloning, replace the sub transceiver and then push [PTT] of the master transceiver.
⑦ Reboot the sub transceiver to enable the cloned setting.

• Connections

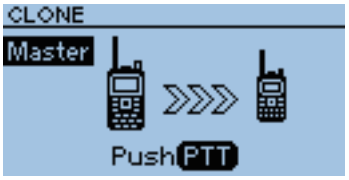


• Screen of the master transceiver

"CLONE" screen



"CLONE-OUT" screen
(While sending data)



Return to the "CLONE" screen

■ CI-V information

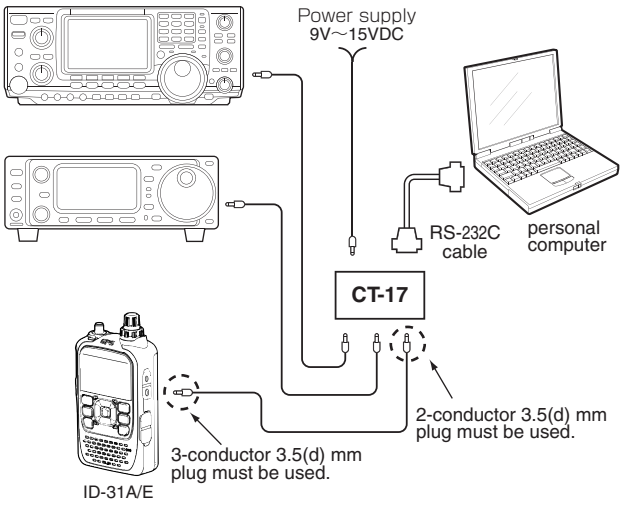
◇ CI-V data setting

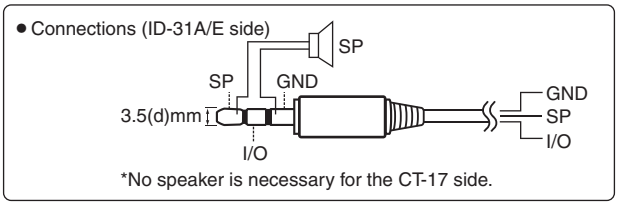
Set the ID-31A/E's address, data transferring speed and transceive function. See page 10-56 for setting the CI-V condition using the MENU list screen.
Function > CI-V

◇ CI-V connection example

The transceiver can be connected through an optional CT-17 CI-V LEVEL CONVERTER to a PC equipped with an RS-232C port.
The Icom Communications Interface-V (CI-V) controls the transceiver.
Up to 4 Icom CI-V transceivers or receivers can be connected to the PC.
See the CT-17 instruction manual for details of remotely control a transceiver or receiver.

*Use the cable described at right. No received audio is heard when the supplied control cable, coming with CT-17, is used for the connection.

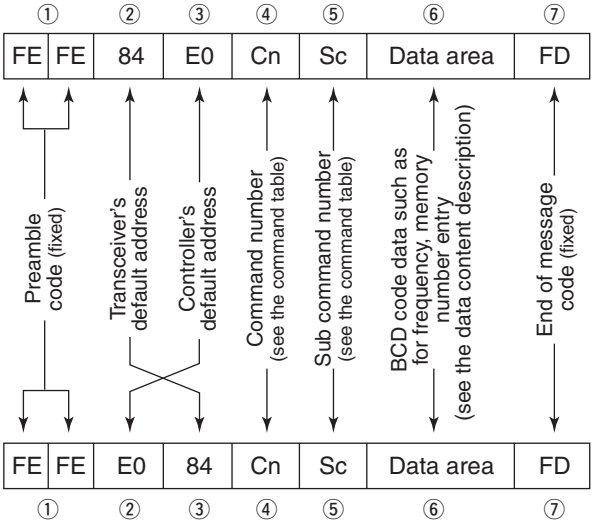




◇ Data format

The CI-V system can be operated using the following data formats. Data formats differ depending on command numbers. A data area or sub command is added to some commands.

Controller to ID-31A/E



ID-31A/E to controller

■ CI-V information (Continued)

◇ Command table

Cmd.	Sub cmd.	Data	Description
00		see p. 11-18	Send operating frequency for transceive
01		see p. 11-18	Send operating mode for transceive
03		see p. 11-18	Read operating frequency
04		see p. 11-18	Read operating mode
05		see p. 11-18	Send operating frequency
06		see p. 11-18	Send operating mode
0C		see p. 11-18	Read offset frequency*1
0D		see p. 11-18	Send offset frequency
0F			Read duplex setting (10=simplex, 11=DUP–, 12=DUP+)
	10		Set simplex operation
	11		Set DUP– operation
	12		Set DUP+ operation
14	01	see p. 11-18	Send/read AF level
	03	see p. 11-18	Send/read squelch level
	0A	see p. 11-18	Send/read RF power setting
	0B	see p. 11-18	Send/read external microphone gain.
	16	see p. 11-18	Send/read VOX gain.
15	01	00	Read squelch status (squelch close)
		01	Read squelch status (squelch open)
	02	0000 to 0255	Read S-meter level (0000=S0, 0170=S9)
	11	0000 to 0255	Read RF power meter (0005=S-LOW, 0026=LOW, 0128=MID, 0255=HIGH)
16	42	00	Send/read Repeater tone OFF
		01	Send/read Repeater tone ON
	43	00	Send/read Tone squelch OFF
		01	Send/read Tone squelch ON
		02	Send/read Reversed Tone squelch ON
	46	00	Send/read VOX function OFF
		01	Send/read VOX function ON
	4B	00	Send/read DTCS OFF
		01	Send/read DTCS ON
		02	Send/read Reversed DTCS ON
	5B	00	Send/read DSQL/CSQL OFF (DV mode only)
		01	Send/read DSQL ON (DV mode only)
		02	Send/read CSQL ON (DV mode only)
18	00		Turning the transceiver power OFF
	01		Turning the transceiver power ON*2
19	00		Read transceiver ID.
1B	00	see p. 11-18	Send/read Repeater tone frequency
	01	see p. 11-18	Send/read Tone squelch frequency
	02	see p. 11-18	Send/read DTCS code and polarity
	07	see p. 11-19	Send/read CSQL code (DV mode)
1C	00	00	Send/read Transceiver's status (RX)
		01	Send/read Transceiver's status (TX)
1F	00	see p. 11-19	Send/read DV MY call sign
	01	see p. 11-19	Send/read DV TX call signs
	02	see p. 11-19	Send/read DV TX message
20 00	00	00*3	Send/read Auto DV RX Call signs output OFF
		01*3	Send/read Auto DV RX Call signs output ON
	01	see p. 11-20	Output DV RX Call signs
	02	see p. 11-20	Read DV RX Call signs
01	00	00*3	Send/read Auto DV RX message output OFF
		01*3	Send/read Auto DV RX message output ON
	01	see p. 11-20	Output DV RX message
	02	see p. 11-20	Read DV RX message
02	00	00*3	Send/read Auto DV RX status output OFF
		01*3	Send/read Auto DV RX status output ON
	01	see p. 11-19	Output DV RX status
	02	see p. 11-19	Read DV RX status

*1: Less than 100 Hz is omitted.

*2: When sending the power ON command, the command "FE" must be sent before the basic format.

- 19200bps : 50
- 9600bps : 26
- 4800bps : 14
- 1200bps : 5
- 300bps : 3

e.g.: When operating with 4800 bps

		①				②		③		④		⑤		⑦	
F	**E**	F	E	F	E	8	4	E	O	1	8	0	1	F	D

×14

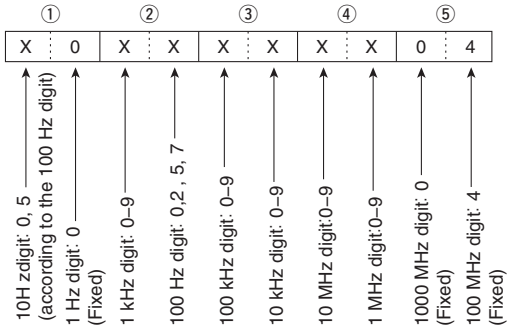
① Preamble code (fixed)
② Transceiver's default address
③ Controller's default address
④ Command number
⑤ Sub command number
⑦ End of message code (fixed)

*3: Output setting is automatically turned OFF after turning the power OFF, then ON.

■ CI-V information (Continued)

• Receive frequency setting

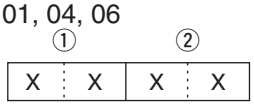
Command: 00, 03, 05



*10 Hz digit is fixed to “5” when 100 Hz digit is either “2” or “7,” and fixed to “0” when 100 Hz digit is other than “2” and “7.”

• Operating mode

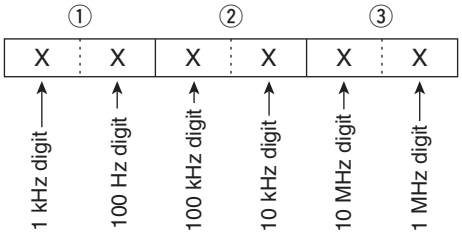
Command:01, 04, 06



Operating mode	① Mode	② Filter setting
FM	05	01
FM-N	05	02
DV	17	01

• Duplex Offset frequency setting

Command: 0C, 0D



• Audio output level setting

Command: 1401

VOL0	VOL1	VOL2	VOL3	VOL4
0000–0005	0006–0012	0013–0018	0019–0025	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

• Squelch level setting

Command: 1403

OPEN	AUTO	LEVEL1	LEVEL2	LEVEL3
0000–0022	0023–0046	0047–0069	0070–0092	0093–0115
LEVEL4	**LEVEL5**	**LEVEL6**	**LEVEL7**	**LEVEL8**
0116–0139	0140–0162	0163–0185	0186–0208	0209–0232
LEVEL9				
0233–0255				

• RF power level setting

Command: 140A

S-LOW	LOW	MID	HIGH
0000–0063	0064–0127	0128–0191	0192–0255

• External microphone gain setting

Command: 140B

1	2	3	4
0000–0063	0064–0127	0128–0191	0192–0255

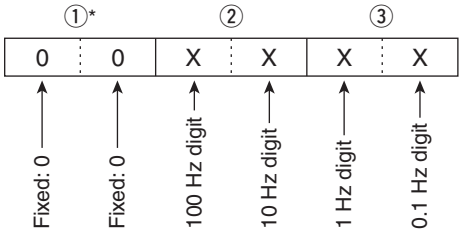
• VOX gain setting

Command: 1416

OFF	1	2	3	4
0000–0022	0023–0046	0047–0069	0070–0092	0093–0115
5	**6**	**7**	**8**	**9**
0116–0139	0140–0162	0163–0185	0186–0208	0209–0232
10				
0233–0255				

• Repeater tone/tone squelch frequency setting

Command: 1B 00, 1B 01

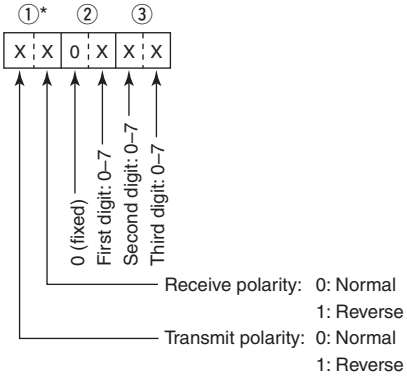


*Not necessary when setting a frequency.

See page 10-11 for tone frequency list.

• DTCS code and polarity setting

Command : 1B 02

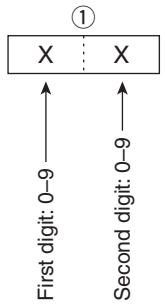


*See page 10-12 for DTCS code list.

■ CI-V information (Continued)

• Digital code squelch setting

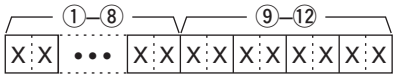
Command : 1B 07



• DV MY call sign setting

Command : 1F 00

Set your own call sign and note of up to 12 characters.

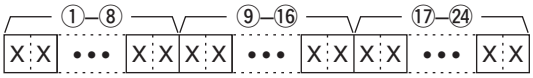


①–⑧ : Your own call sign setting (8 characters)
⑨–⑫ : Note setting (4 characters)

• DV TX call signs setting (24 characters)

Command : 1F 01

Set “UR,” “R1” and “R2” call signs of 8 characters (fixed).



①–⑧: UR (Destination) call sign setting (8 characters)
⑨–⑯: R1 (Access/Area repeater) call sign setting (8 characters)
⑰–㉔: R2 (Link/Gateway repeater) call sign setting (8 characters)

• Character’s code of the call sign

Character	ASCII code
0–9	30–39
A–Z	41–5A
(Space)	20
/	2F

• DV TX message setting

Command : 1F 02

Set the transmit message of up to 20 characters.
“FF” stops sending or reading messages.

Character	ASCII code	Character	ASCII code
A–Z	41–5A	a–z	61–7A
0–9	30–39	Space	20
!	21	#	23
$	24	%	25
&	26	\	5C
?	3F	"	22
’	27	`	60
^	5E	+	2B
–	2D	✱	2A
/	2F	.	2E
,	2C	:	3A
;	3B	=	3D
<	3C	>	3E
(	28	)	29
[	5B	]	5D
{	7B	}	7D
¦	7C	_	5F
¯	7E	@	40

• DV RX Status setting

Command : 20 0201, 20 0202

Data		Function	Description
bit7	0	(Fixed)	—
bit6	0/1	Receiving a voice call	During receiving a digital voice signal, select “1.” (Regardless of DSQL and CSQL setting)
bit5	0/1	Last call finisher	When the last call was finished by you, select “1.”
bit4	0/1	Receiving a signal	When the audio tone can be heard, select “1.”
bit3	0/1	Receiving a BK call	During receiving a BK call, select “1.”
bit2	0/1	Receiving a EMR call	During receiving a EMR call, select “1.”
bit1	0/1	Receiving a signal other than DV	When “DV” and “FM” are blinking, select “1.”
bit0	0/1	Packet loss status	During displaying a packet loss

■ CI-V information (Continued)

• DV RX call sign setting

Command : 20 0001, 20 0002

• 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

• 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

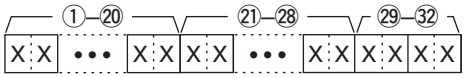
③–⑩: Call sign of the calling station (8 characters; fixed)
⑪–⑭: Note of the calling station (4 characters; fixed)
⑮–㉒: Call sign of the station that was called (8 characters; fixed)
㉓–㉚: Call sign of the access/area repeater (R1) (8 characters; fixed)
㉛–㊳: Call sign of the link/gateway repeater (R2) (8 characters; fixed)

See 'DV TX message setting.' (p. 11-19)

"FF" stands for no call sign receiving after turning ON the transceiver.

• DV RX message

Command: 20 0101, 20 0102



①–⑳: Message (20 characters)
㉑–㉘: Call sign of the calling station (8 characters)
㉙–㉜: Note of the calling station (4 characters)
*FF: When no call sign is received since the transceiver power ON.

USING A MICROSD CARD Section 12

■ About the microSD card

The microSD and microSDHC cards are not available from Icom. Purchase locally.

A microSD card of up to 2 GB or a microSDHC of up to 32 GB, can be used with the ID-31A/E.
Icom has checked the operation with the following microSD and microSDHC cards.

(As of January 2014)

Brand	Type	Memory size
SanDisk®	microSD	2 GB
	microSDHC	4 GB
		8 GB
		16 GB
		32 GB

*Through the rest of this document, the microSD card and a microSDHC card are simply called microSD cards.

*Icom recommends that you format all microSD cards to be used with the ID-31A/E, even preformatted microSD cards for PCs or other uses.

NOTE:
- Read the instructions of the microSD card thoroughly before use.
- **NEVER** remove the microSD card, detach the battery pack/case, or power OFF the transceiver, while reading or writing data to or from the microSD card, or during cloning. It will cause the data to be corrupted or damage the card.
- **NEVER** drop, or apply vibration or impact to the microSD card. This will cause the data to be corrupted or damage the card.
- The microSD card will get warm if used continuously for a long period of time.
- A microSD card has a certain lifetime, so data reading or writing will not be possible when using it over a long time period.
- Icom will not be responsible for any damage caused by data corruption of a microSD card.

■ Saving data onto the microSD card

The following data can be stored onto the card:

- **Data settings of the transceiver**
Memory channel contents, and repeater lists stored in the transceiver

- **Communication contents**
Received communication activity (audio)

- **Automatic answering voice audio for the DV mode**
Voice audio to use with the Auto Reply function in the DV Mode

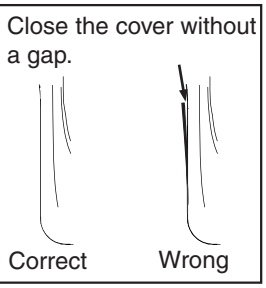
- **Position data from the GPS receiver**
Position and time data from a GPS receiver, that is in a log file as a route

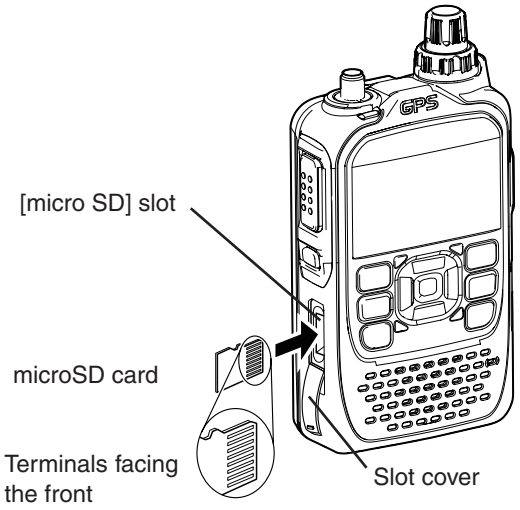
■ microSD card insertion and removal

◇ microSD card insertion

①Turn OFF the transceiver.
②Lift OFF the [micro SD] slot cover on the side panel.
③With the terminals facing the front, insert the card into the slot until it locks in place, and makes a 'click' sound.
DO NOT touch the terminals.
④Firmly close the [micro SD] slot cover.

CAUTION:
After a microSD card is attached, firmly close the [micro SD] slot cover as shown to the right.

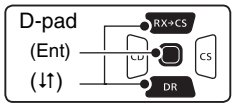




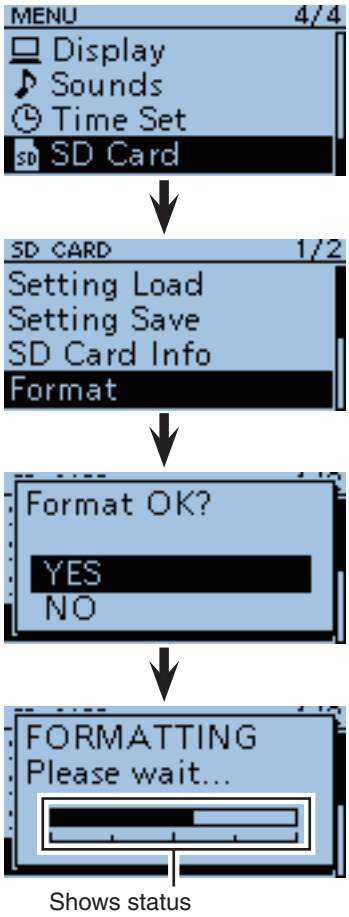
• If you use a brand new microSD card, format the microSD card do the following steps.

• Formatting a card erases all its data. Before formatting any programmed card, make a backup file onto your PC.

①Turn ON the transceiver.
②Push [MENU] (MENU).
③Push D-pad(↓↑) to select the root item ("SD Card"), and then push D-pad (Ent).



④Push D-pad(↓↑) to select "Format," and then push D-pad (Ent).
• The confirmation screen "Format OK?" appears.
⑥Push D-pad(↑) to select "YES," and then push D-pad(Ent) to format.
• The formatting starts and the status is displayed.
⑦After formatting, the display automatically returns to the SD CARD menu.
⑧Push MENU to exit the MENU screen.

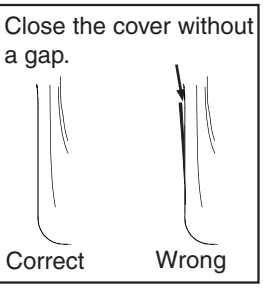


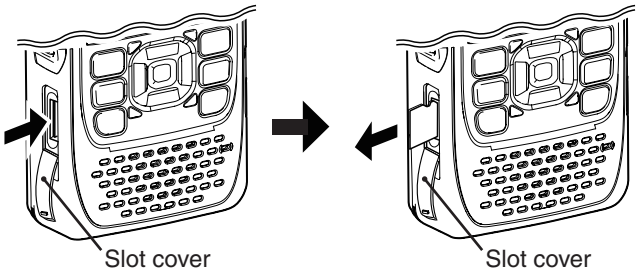
■ microSD card removal

◇ When removing the microSD card

①Turn OFF the power.
②Lift OFF the [micro SD] slot cover on the side panel.
③Push in the microSD card until a click sounds, and then carefully pull it out.
• **DO NOT** touch the terminals.
④Firmly close the [micro SD] slot cover.

CAUTION:
After a microSD card is attached, firmly close the [micro SD] slot cover as shown to the right.



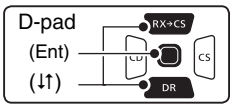


Push in the microSD card until a click sounds.

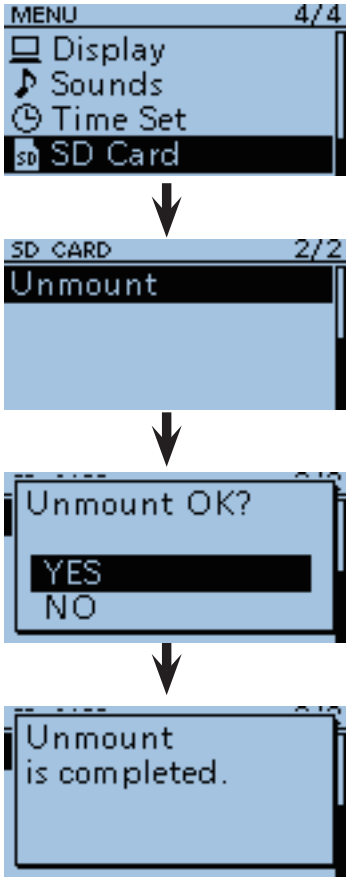
Pull the microSD card out.

If removing the microSD card while the transceiver's power is ON, do the following procedures.

①Push [MENU] (MENU).
②Push D-pad(↓↑) to select the root item ("SD Card"), and then push D-pad (Ent).



③Push D-pad(↓) to select "Unmount," and then push D-pad (Ent).
• The confirmation screen "Unmount OK?" appears.
④Push D-pad(↑) to select "YES," then push D-pad(Ent) to unmount.
⑤When the unmounting is completed, "Unmount is completed." is displayed, then the screen automatically returns to the SD CARD menu.
⑥Push [MENU] (MENU) to exit the MENU screen.
⑦Lift OFF the [micro SD] slot cover on the side panel.
⑧Push in the microSD card until a click sounds, and then carefully pull it out.
• **DO NOT** touch the terminals.
⑨Firmly close the [micro SD] slot cover.



■ Save setting data onto a microSD card

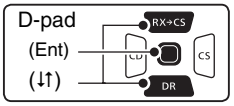
Memory channels, item settings in the menu screen, and repeater lists can be saved on the microSD card. Saving data settings on the microSD card allows you to easily restore the transceiver to its previous settings, even if an all reset is performed.

✓ ***For your information***

Data settings are saved in the "icf" file format that is used in the CS-31 cloning software.
The saved data on the microSD card can be copied on a PC and edited by the cloning software.
Data settings can be saved as a new file or overwrite an older file.

Saved as a new file

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("SD Card"), and then push D-pad (Ent).



③ Push D-pad(↓↑) to select "Setting Save," and then push D-pad (Ent).
④ Push D-pad(↑) to select "<<New File>>," and then push D-pad (Ent).
- The FILE NAME screen is displayed.
- The file name is automatically named in the following manner; Setyyyymmdd_xx (yyyy: Year, mm: month, dd: day, xx: serial number)

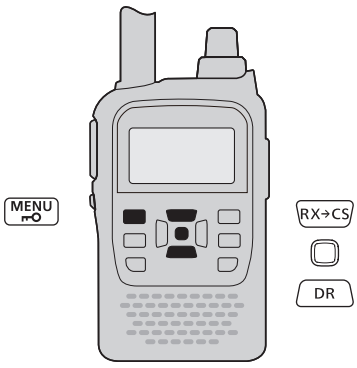
Example: When the 2nd file is saved on December 1, 2011, the file is named"Set20111201_02"

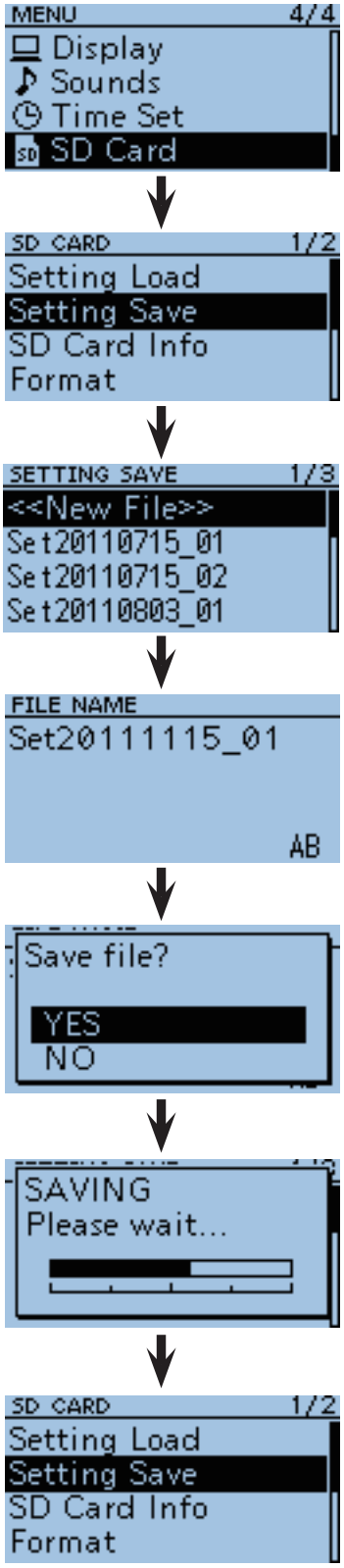
- If you want to change the file name, see "Save with a different file name" (p. 12-7).

⑤ Push D-pad(Ent) to save the file name.
- The confirmation screen "Save file?" appears.

⑥ Push D-pad(↑) to select "YES," then push D-pad(Ent) to save.
- While saving, a progress bar is displayed, then the "SD CARD" screen is displayed after the save is completed.

⑦ Push [MENU] (MENU) to exit the MENU screen.

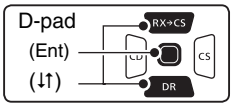




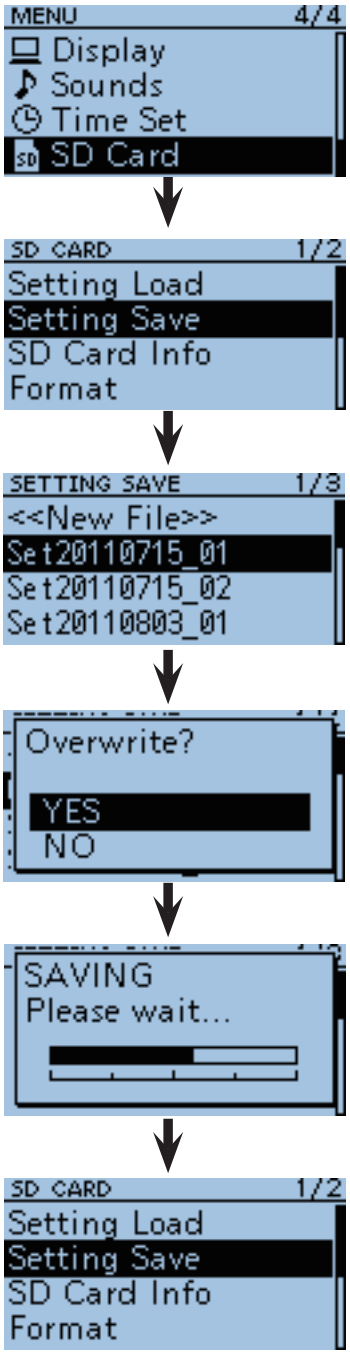
■ Save setting data onto a microSD card (Continued)

Overwriting a file
(**Example:** Overwriting the “Set20110715_01”)

① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“SD Card”), and then push D-pad (Ent).

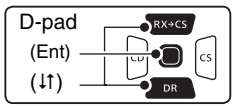


③ Push D-pad(↓↑) to select “Setting Save,” and then push D-pad (Ent).
④ Push D-pad(↓↑) to select the desired file to be overwritten, and then push D-pad (Ent).
(**Example:** Selecting “Set20110715_01”)
• The confirmation screen “Overwrite?” appears.
⑤ Push D-pad(↑) to select “YES,” and then push D-pad(Ent) to overwrite the setting file.
• While saving, a progress bar is displayed, then the “SD CARD” screen is displayed after the save is completed.
⑥ Push [MENU] (MENU) to exit the MENU screen.



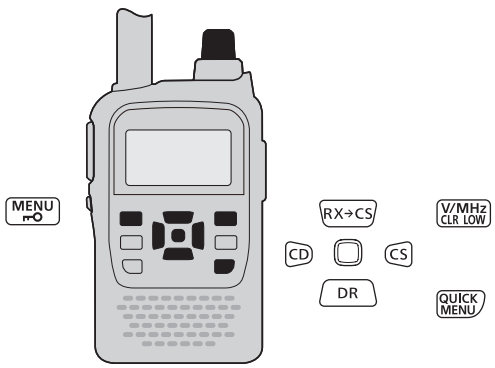
■ Save with a different file name

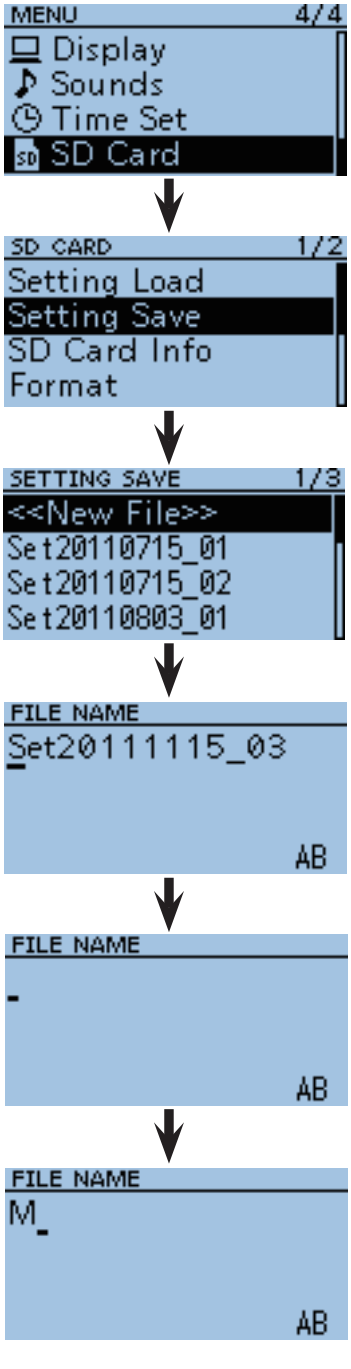
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item (“SD Card”), and then push D-pad (Ent).

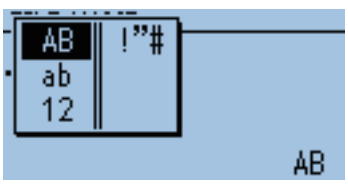


③ Push D-pad(↓↑) to select “Setting Save,” and then push D-pad (Ent).
④ Push D-pad(↑) to select “<<New File>>,” and then push D-pad (Ent).
• The FILE NAME screen is displayed.
⑤ Push [CLR] (V/MHz CLR LOW) to delete the previously programmed character.
• Push [CLR] (V/MHz CLR LOW) to delete the selected character, symbol or number.
When the cursor does not select a character, the previous character is deleted.
If [CLR] (V/MHz CLR LOW) is held down, all the characters are deleted.
⑥ Rotate [DIAL] to select a desired character.
• The selected character blinks.
• Push D-pad(⇆) to move the cursor right or left.
• While selecting a character, push (QUICK MENU) to change the character to a upper case or lower case letter.
• While selecting a digit, push (QUICK MENU) to open the input mode selection window.
• A space can be selected, even for any input mode selected.
• Push [CLR](V/MHz CLR LOW) to erase the selected character, or hold down [CLR](V/MHz CLR LOW) to continuously erase the characters after the cursor.
• See page 4-2 for programming details.

(☞ Continued on the next page)







Character type selection window

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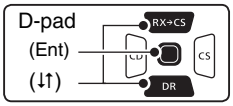
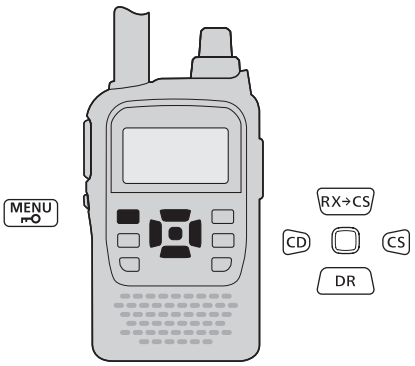
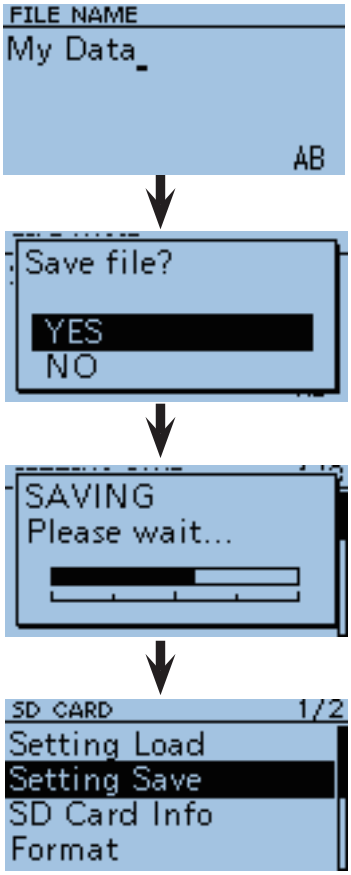
■ Save with a different file name (Continued)

⑥ Push D-pad(→) to move the cursor to the second digit.
⑦ Repeat steps ⑤ and ⑥ to enter a name of up to 14-characters, including spaces.
(**Example:** My Data)
⑧ After entering the name, push D-pad(Ent).
• After pushing D-pad(Ent), “Save file?” appears.
⑨ Push D-pad(↑) to select “YES,” and then push D-pad(Ent) to save the setting file.
• While saving, a progress bar is displayed, then the “SD CARD” screen appears after the save is completed.



⑩ Push [MENU] MENU to exit the MENU screen.





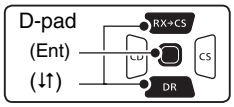
■ Loading the saved data files that are in the microSD card

The saved memory channels, item settings the in menu list and repeater lists can be copied to the transceiver. This function is convenient when copying the saved data, such as memory channels, or repeater lists, to another ID-31A/E and then operating with the same data.

Saving the current data is recommended before loading other data into the transceiver.

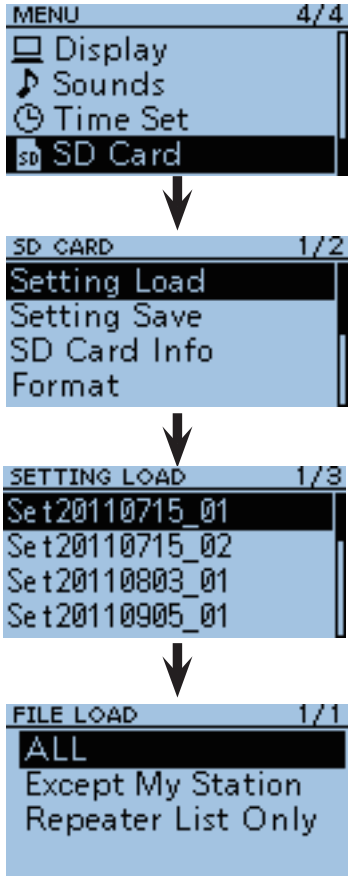
(**Example:** Loading all the data in the "Set20110715_01" file)

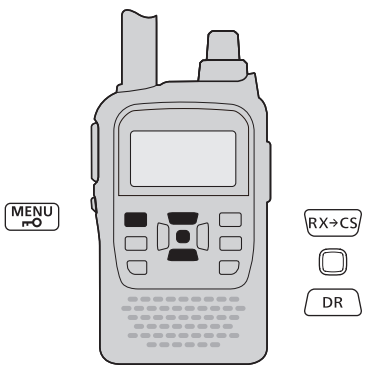
① Push [MENU] (MENU).
② Push D-pad(↓↑) to select the root item ("SD Card"), and then push D-pad (Ent).



③ Push D-pad(↓↑) to select "Setting Load," and then push D-pad (Ent).
④ Push D-pad(↓↑) to select the desired file to be loaded, and then push D-pad (Ent).
(**Example:** Selecting "Set20110715_01")
• The FILE LOAD screen appears.
⑤ Push D-pad(↓↑) to select the desired loading content, as shown below.
• ALL: Loads all memory channels, item settings in the menu list and the repeater list into the transceiver.
• Except My Station:
Loads all memory channels, item settings in the menu list except MY call signs and the repeater list into the transceiver.
• Repeater List Only:
Loads only the repeater list into the transceiver.

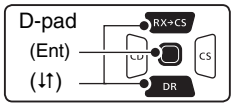
(☞ Continued on the next page)





■ Loading the saved settings file that are in the microSD card (Continued)

⑥ Push D-pad(Ent) to select the file, and then the "Keep 'SKIP' setting in Repeater List?" appears.
⑦ Push D-pad(↓↑) to select "YES" or "NO."

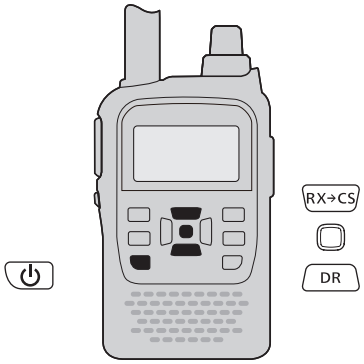


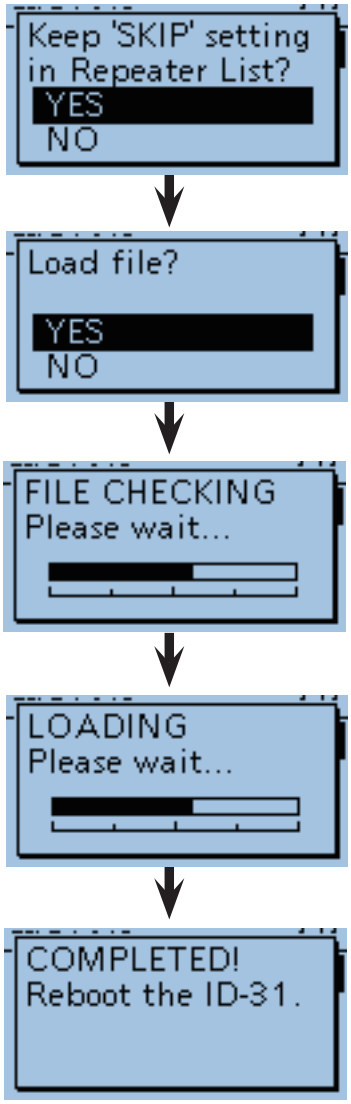
- When "YES" is selected, the skip setting (p. 4-32) of the repeater list is retained.

⑧ Push D-pad(Ent), "Load file?" appears.
⑨ Push D-pad(↑) to select "YES," then push D-pad(Ent) to start the file check.
- While checking the file, "FILE CHECKING" and a progress bar are displayed.

⑩ After checking, settings data loading starts.
- While loading, "LOADING" and a progress bar are displayed.

⑪ After loading, "COMPLETED!" appears.
To complete the loaded, reboot the transceiver.



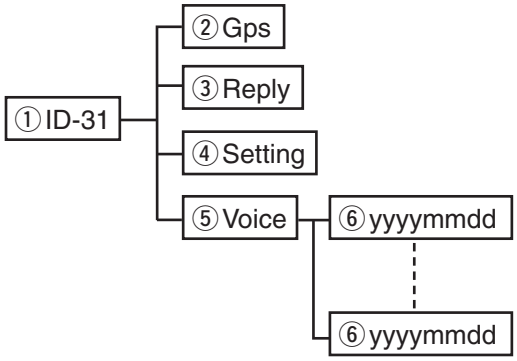


■ Back-up the data stored on the microSD card into a PC

A back-up file allows easy restoring even if the setting data in the microSD card is accidentally deleted.

Depending on your PC, a memory card reader (purchase locally) may be additionally required to read the microSD card.

◇ About the microSD card's folder composition



The folder composition in the microSD card is as follows:

①ID-31 folder
The folders created in the ID-31A/E are composed in this ID-31 folder.

②GPS folder
GPS logging data is stored.

③Reply folder
Automatic reply data is saved.

④Setting folder
The transceiver's setting data (icf file) is stored.

⑤Voice folder
Recorded date folders are created in the Voice folder.

⑥yyyymmdd folder
Recorded audio file is saved.
The folder name is automatically created in the following manner:
yyyymmdd (yyyy:Year, mm:month, dd:day)

(Continued on the next page…)

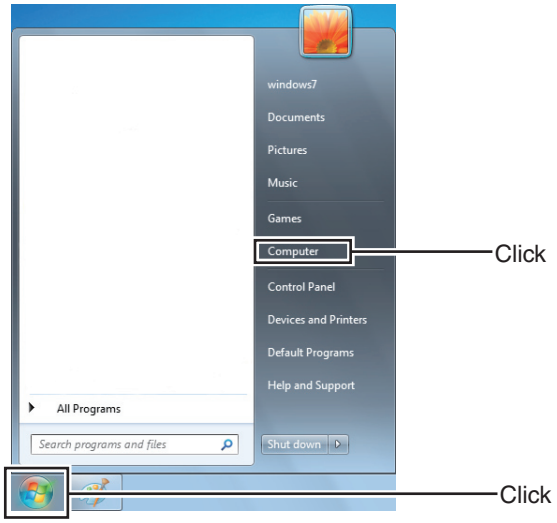
■ Back-up the data stored on the microSD card into a PC (Continued)

◇ Make a back-up file on your PC

Windows 7 is used for these instructions.

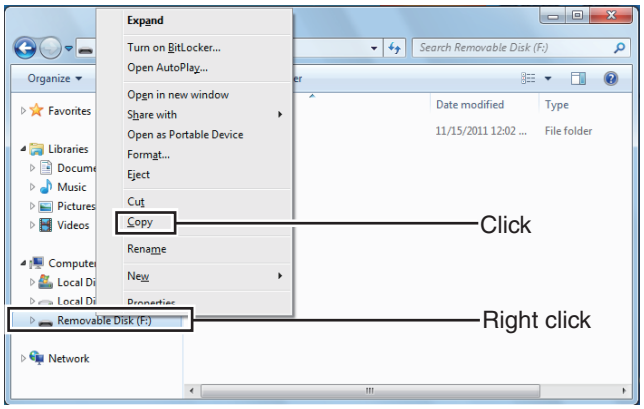
① If the PC has a microSD card drive, insert the microSD card into the drive.
- If no microSD card drive is built-in, connect a memory card reader (purchase locally) and then insert the microSD card into it.

② Click the “Start” button, then click “Computer.”

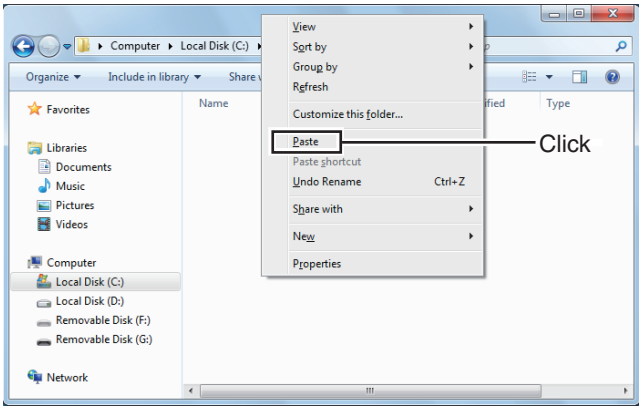


③ Select “Removal disk” and right click.

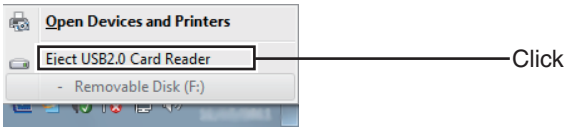
④ Click “Copy.”



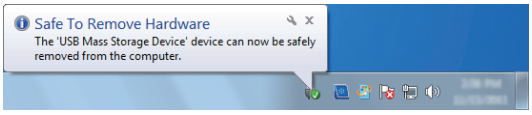
⑤ Open the desired folder to copied to, the right click then click “Paste” to copy the data that is in the microSD card onto the hard disk.
(**Example:** Copying into the “Backup” folder in C drive)



⑥ When removing the microSD card from the PC, click the microSD card icon in the task bar. (“ ” icon in the following screen shot)
- The screen shot shows when a memory card reader is connected.



⑦ Remove the microSD card from the PC when “Safe To Remove Hardware” appears.
- The screen shot shows when a memory card reader is connected.



■ Troubleshooting

The following chart is designed to help you correct problems which are not equipment malfunctions.

If you are unable to locate the cause of a problem or solve it through the use of this chart, contact your nearest Icom Dealer or Service Center.

• While operating D-STAR

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
After your call, the repeater does not transmit a reply.	• The repeater setting is wrong. • The transceiver is out of the repeater range, or your transmission does not reach the repeater.	• Set the correct repeater. • Correct the repeater frequency, frequency offset, or duplex setting. • Try to access another repeater.	p. 3-7 p. 3-22 pp. 3-9, 3-12
After your call, the repeater replies 'UR?' and its call sign.	• The call was successfully sent, but no station's signal was immediately received.	• Wait for a while, and try it again.	p. 3-19
After your call, the repeater replies 'RX' or 'RPT?' and the call sign of its gateway repeater.	• MY call sign has not been set. • Your own call sign has not been registered to the D-STAR Server. Or it's wrong. • Your calling station call sign has not been registered to the D-STAR Server. Or it's wrong.	• Set the MY call sign. • Register your own call sign to the D-STAR Server. Or confirm the registration of your own call sign. • Ask the server's administrator about your calling station's call sign.	p. 2-5 — —
After your call, the repeater replies 'RPT?' and call sign of the called repeater.	• The D-STAR cannot connect to the called repeater, or it's busy.	• Wait for a while, and try it again.	p. 3-19
After your call, the repeater replies 'RPT?' and its call sign.	• The call sign of the called repeater is wrong.	• Correctly set the called repeater call sign.	pp. 3-18, 3-22
Even holding down [DR], the DR mode will not appear.	• The repeater list has been cleared.	• Reprogram the repeater list using the CS-31 cloning software. • Reprogram the repeater list with the transceiver.	pp. 11-11 to 11-15, 12-9 p. 4-19
Even holding down [RX→CS], the received call sign will not set to the operating call sign.	• The call sign has not been correctly received.	• Try it again, after the transceiver has again received its call sign.	—
The repeater does not accept your gateway call.	• Your call sign has not been registered to the D-STAR system.	• Ask your desired repeater's administrator about call sign registration.	—
The simplex operation cannot be made in the DR mode.	• A call sign is programmed in "CALL SIGN" of the Repeater list. • Duplex mode (DUP+, DUP–) is set. • A repeater frequency is programmed.	• Delete the Call sign in "CALL SIGN" setting of the Repeater list. • Select "OFF" in "DUP" setting of the repeater list. • Program a simplex frequency.	p. 4-23 p. 4-23 p. 24 in the Printed manual

• While operating GPS Logger

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
Position data cannot be received.	• “OFF” or “Manual” is selected in the GPS Set item in the Menu screen.	• Select either “Internal GPS” or “External GPS” in the GPS Set item in the Menu screen.	p. 5-2

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Count on us!

A-6986-2EX-①

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