YAESU
The radio

C4FM/FM 144/430 MHz
DUAL BAND TRANSCEIVER

FTM-100DR
Instruction Manual (APRS Edition)

Thank you for purchasing this Yaesu product.
This instruction manual explains information related to the "APRS Function".
For information on basic operation of the transceiver, please refer to the enclosed FTM-100DR operating manual.
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Using APRS® functions

Contents

What is APRS®?

APRS (Automatic Packet Reporting System) is a packet communication protocol on amateur radios that is advocated by Bob Bruninga (WB4APR).

The APRS function of this device is a data communication system for messages and position data using the APRS format.

A partner amateur radio station using a GPS receiver can send an APRS message including GPS position information of the partner station. The direction, distance speed etc. of the partner station in relation to your own station will appear on the display of the FTM-400DR transceiver. The position information can be used in the same way by connecting the external GPS antenna unit or entering the position data manually.

APRS Initial Settings

This sets the various information of your own station prior to commencing APRS operation.

Setting the position information of your own station

The position information can be set automatically or manually depending on the situation and the location where the device is used.

Using the GPS function

Data from the in-built GPS antenna unit or an external GPS device connected to the device can be downloaded automatically. The GPS function is recommended to be used when operating mobile.

1 Press ⟮DISP/SETUP⟯ for one second or longer.
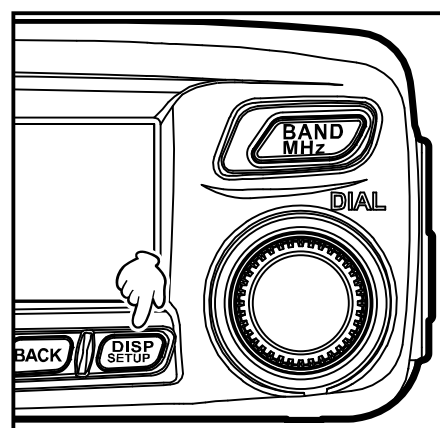
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press ⟮DISP/SETUP⟯.

The menu list will be displayed.

```
     SETUP MENU    (2/3)
 9 DATA          13 RST/CLONE
10▶APRS          14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[19 MY POSITION SET]**, then press ⟮DISP/SETUP⟯.

The screen for selecting the setting method of the position information will be displayed.

```
 SETUP MENU [APRS]         12⌁
17 MESSAGE GROUP
18 MESSAGE REPLY
19▶MY POSITION SET
20 MY POSITION
```

3

4 Turn the DIAL and select **[1 GPS]**.

5 Press BACK.

"1 GPS" will be selected, and the screen will return to the menu list.

```
    MY POSITION SET
1▶GPS
2 MANUAL
```

6 Press DISP/SETUP for one second or longer.

The display will return to the previous screen.
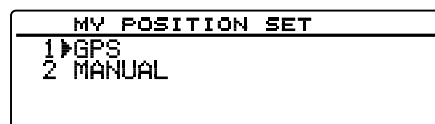
Tip

Using the GPS function, the time data received from a GPS satellite will be automatically used to correct the in-built clock of the main device.

Setting the function manually

The latitude and longitude of your own station can be entered by following the procedure below, when not using the GPS function. This may be necessary when the GPS satellites cannot be acquired or the radio is used in a fixed location.

(1) Matching the time

Please refer to "Adjusting the date and time" (☞ P.46) in the basic operating manual for the details.

(2) Registering position information

1 Press DISP/SETUP for one second or longer.
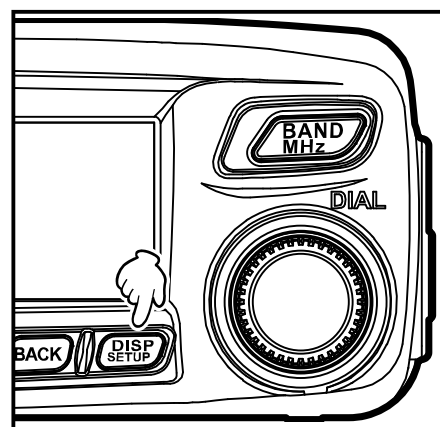
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press DISP/SETUP.

The menu list will be displayed.

```
    SETUP MENU    02/20
 9 DATA          13 RST/CLONE
10▶APRS          14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[19 MY POSITION SET]**, then press DISP/SETUP.

The screen for selecting the setting method of the position information will be displayed.

```
 SETUP MENU [APRS     12S
17 MESSAGE GROUP
18 MESSAGE REPLY
19▶MY POSITION SET
20 MY POSITION
```
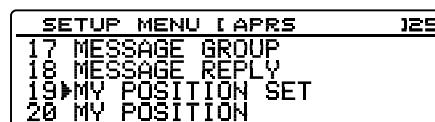
4 Turn the DIAL and select **[2 MANUAL]**.

5 Press BACK.

"2 MANUAL" will be selected, and the screen will return to the menu list.

```
    MY POSITION SET
1 GPS
2▶MANUAL
```

4
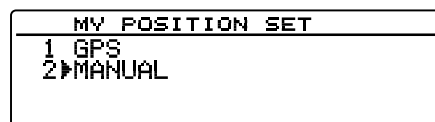
6 Turn the DIAL, select **[20 MY POSITION]**, then press $\overline{\text{DISP}\atop\text{SETUP}}$.

The screen for setting your own station's information will be displayed.

```
SETUP MENU [ APRS     ]25
17 MESSAGE GROUP
18 MESSAGE REPLY
19 MY POSITION SET
20▶MY POSITION
```

7 Press $\overline{\text{DISP}\atop\text{SETUP}}$.

The cursor will shift to the latitude item.

8 Turn the DIAL, select north latitude (N) or south latitude (S), then press **Gм** [➡].

The cursor will shift to the "degrees" setting item.

> **Tip** Press **Dx** [⬅] → The cursor will shift to the left.
> Press **Gм** [➡] → The cursor will shift to the right.
> The cursor will shift to the right (or left) each time **Dx** (or **Gм**) is pressed.

```
      MY POSITION
-MANUAL POSITION DATA-
LAT:[■  35°37.25'('15")]
LON:[E 139°44.98'('59")]
       ⬅  ➡
```

9 Turn the DIAL, input the degrees, then press **Gм** [➡].

The cursor will shift to the "minutes" setting item.

```
      MY POSITION
-MANUAL POSITION DATA-
LAT:[N  ■■°37.25'('15")]
LON:[E 139°44.98'('59")]
       ⬅  ➡
```

10 Turn the DIAL, input the minutes, then press **Gм** [➡].

The cursor will shift to the "1/100 minutes" setting item.

```
      MY POSITION
-MANUAL POSITION DATA-
LAT:[N  35°■■.25'('15")]
LON:[E 139°44.98'('59")]
       ⬅  ➡
```

11 Turn the DIAL, input the 1/100 minutes value, then press **Gм** [➡].

The cursor will shift to the longitude item.

```
      MY POSITION
-MANUAL POSITION DATA-
LAT:[N  35°37.■■'('15")]
LON:[E 139°44.98'('59")]
       ⬅  ➡
```

12 Turn the DIAL, select east longitude (E) or west longitude (W), then press **Gм** [➡].

The cursor will shift to the "degrees" setting item.

```
      MY POSITION
-MANUAL POSITION DATA-
LAT:[N  35°37.25'('15")]
LON:[■ 139°44.98'('59")]
       ⬅  ➡
```

13 In the same way as for steps 9 to 11, input the degrees, minutes and 1/100 minutes.

14 Press $\overline{\text{DISP}\atop\text{SETUP}}$.

The latitude and longitude will be set.

15 Press $\overline{\text{DISP}\atop\text{SETUP}}$ for one second or longer.

The display will return to the previous screen.

Tips

- Please use the map of WGS-84 (world geodetic reference system) to find out the latitude and longitude.
- In this device, the position information is displayed using both second and 1/100th minute formats. Please check and enter the map display method to be used (second÷60×100=1/100 minute).

Setting your own station call sign

Register your own station call sign in order to send and receive messages and to send out beacons in APRS. Enter the call sign like "JA1ZRL-9". The "-9" in the call sign refers to the SSID (Secondary Station Identifier). There are 16 types of SSID signs available including one without SSID. Generally, the SSIDs shown in the table below are used in APRS.

SSID	Explanation	SSID	Explanation
NIL	Fixed stations that can exchange messages	-8	Marine mobile stations, land mobile stations
-1	1200 bps narrow-to-middle band digipeater	-9	Using the FTM-100DR etc. for mobile applications
-2	9600 bps digipeater	-10	I-Gate station, Internet connection station
-3	1200 bps broadband digipeater	-11	Balloons, aircraft, spacecraft, etc.
-4	Digipeater, mobile station, meteorological station, etc.	-12	1-way tracker station (messages cannot be exchanged)
-5	Operation station using mobile devices (smartphones etc.)	-13	Meteorological station (weather station)
-6	Operation station for satellite communications, events, etc.	-14	Tracking mobile stations
-7	Use of FT2DR etc. in handy terminals	-15	Digipeater, mobile station, meteorological station, etc.

Tip

Please refer to http://aprs.org/aprs11/SSIDs.txt for the latest SSID information.
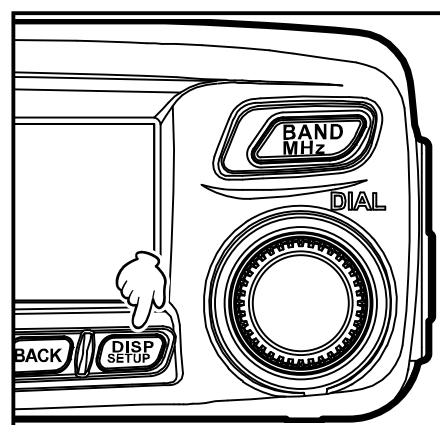
Caution

Use the dedicated call sign in APRS. Please make sure to set the call sign when the device is used for the first time.

1 Press (DISP SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

3 Turn the DIAL, select **[16 MY CALL SIGN (APRS)]**, then press (DISP/SETUP).

The currently set call signwill be displayed.

```
SETUP MENU [APRS    125
13 BEACON STATUS TEXT
14 BEACON TX
15 DIGI PATH SELECT
16▶MY CALLSIGN (APRS)
```

4 Press (DISP/SETUP).

The cursor will shift to the left of the call sign.

```
   MY CALLSIGN (APRS)

      [        -   ]

A/a CLR ⟵━ ━➡ ◀X
```

5 Turn the DIAL and select the character.

Tip Press (TXPO) [A/a] → This switches between letters and numbers.

Press (V/M MW) [CLR] → This deletes all characters to the right of the cursor.

Press [Dx] [⟵━] → This shifts the cursor to the left.

Press [GM] [━➡] → The cursor will shift to the right.

Press (SQL VOICE) [◀X] → This deletes all characters to the left of the cursor.

Please refer to "Input characters" (☞ P.20) in the basic operating manual for details.

```
   MY CALLSIGN (APRS)

      [JA1ZRL-  ]

A/a CLR ⟵━ ━➡ ◀X
```

6 Press [GM] [━➡].

The cursor will shift to the right.

7 Repeat steps 5 and 6 to enter the call sign.

Up to 6 digits can be input for the call sign.

[If not setting the SSID]

To set the SSID, please proceed to Step 10.

8 Press (DISP/SETUP).

The entered call sign will be registered.

```
   MY CALLSIGN (APRS)

      [JA1ZRL   ]
```

9 Press (DISP/SETUP) for one second or longer.

The display will return to the previous screen.

[If setting the SSID]

10 Press [GM] [━➡].

The cursor will shift to the SSID item.

```
   MY CALLSIGN (APRS)

      [JA1ZRL-  ]

A/a CLR ⟵━ ━➡ ◀X
```

11 Turn the DIAL and select the SSID.

```
   MY CALLSIGN (APRS)

      [JA1ZRL-7 ]

A/a CLR ⟵━ ━➡ ◀X
```

12 Press (DISP/SETUP).

The enteredcall signand SSIDwill beregistered.

```
   MY CALLSIGN (APRS)

      [JA1ZRL-7 ]
```

13 Press (DISP/SETUP) for one second or longer.

The display will return to the previous screen.

Setting the symbol of your own station

This sets the symbol of your station when sending data by APRS. One of the 48 types of symbols below can be selected.
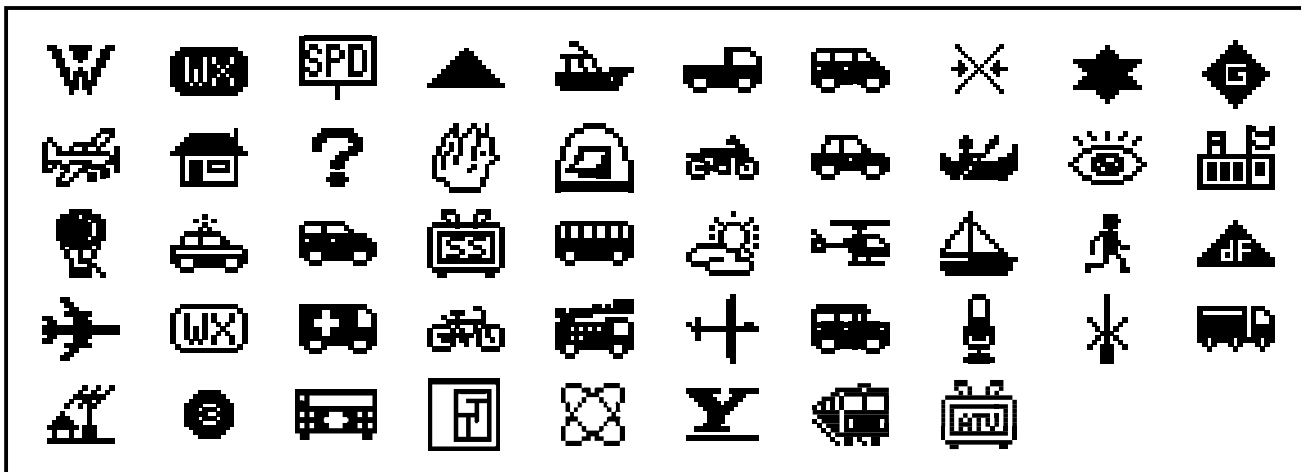
1 Press (DISP/SETUP) for one second or longer.
The set-up menu will be displayed.
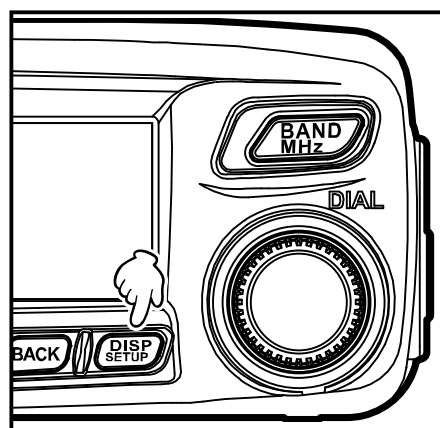
2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).
The menu list will be displayed.

```
       SETUP MENU    (2/3)
 9 DATA          13 RST/CLONE
10▶APRS          14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[21 MY SYMBOL]**, then press (DISP/SETUP).

The screen for selecting the symbol will be displayed.

```
SETUP MENU [APRS     ]25
21▶MY SYMBOL
22 POSITION COMMENT
23 SmartBeaconing
24 SORT FILTER
```

Tip When shipped from the factory, the following combinations are set in the 4 patterns.

Pattern	Code	Symbol and name	
ICON 1	/>		Car
ICON 2	/R		REC. vehicle
ICON 3	/-		House QTH (VHF)
USER	YY		Yaesu Radios

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4 Turn the DIAL, select **[ICON 1]**, then press ⟨DISP SETUP⟩.

The code displayed within the parentheses [ ] will blink.

```
    MY SYMBOL
ICON 1 [ /> ]
  "Car          "    🚗
```
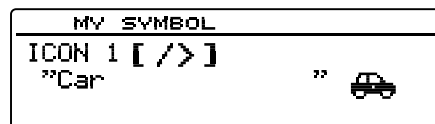
5 Turn the DIAL to display the combination of preferred symbols and codes.

```
    MY SYMBOL
ICON 1 [ /s ]
  "Ship(powerboat) "  ⛴
```

6 Press ⟨DISP SETUP⟩

The symbol will be confirmed.
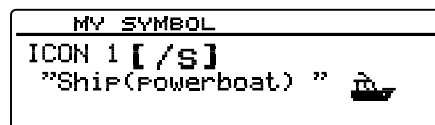
7 Repeat Steps 4 to 6 when setting **[ICON 2]** and **[ICON 3]** as well.

8 Turn the DIAL to select the pattern that you want to use immediately from among **[ICON 1]** to **[ICON 3]**.

9 Press ⟨DISP SETUP⟩ for one second or longer.

The display will return to the previous screen.

Setting preferred symbols

You can change the code and set your own symbol when the symbol that you want is not available.

The two characters of the code refer to the following contents.

• First character: Table ID

This indicates the classification of the symbol. It is a code used for classifying the symbols into basic symbols, substitute symbols and symbols with an overlay.

• Second character: Symbol character

This indicates the symbol pattern. A number and symbol is assigned to each pattern.

1 Press ⟨DISP SETUP⟩ for one second or longer.
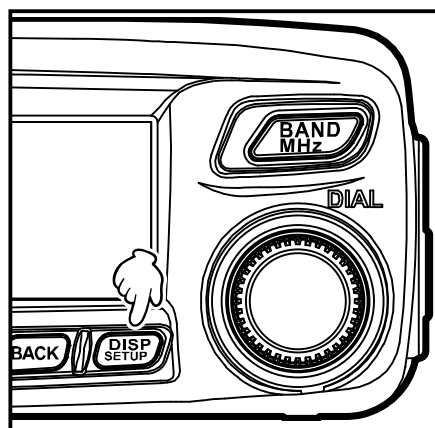
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press ⟨DISP SETUP⟩.

The menu list will be displayed.

```
    SETUP MENU   12/21
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[21 MY SYMBOL]**, then press ⟨DISP SETUP⟩.

The screen for selecting the symbol will be displayed.

```
 SETUP MENU [APRS    12⁵
21▶MY SYMBOL
22 POSITION COMMENT
23 SmartBeaconing
24 SORT FILTER
```

4 Turn the DIAL, select **[USER]**, then press (DISP/SETUP).

The table ID enclosed within the parentheses [ ] will blink.

5 Turn the DIAL to display the target table ID.

6 Press (GM) [━━▶].

The symbol character enclosed within the parentheses [ ] will blink.

7 Turn the DIAL and display the target symbol.

8 Press (DISP/SETUP).

The symbol will be confirmed.

9 Press (DISP/SETUP) for one second or longer.

The display will return to the previous screen.

Tip

Please refer to "http://aprs.org/symbols/symbolsX.txt" and "http://aprs.org/symbols/symbolsnew.txt" for the latest symbol table.

Setting the APRS baud rate

The APRS baud rate (communication speed) can be selected from the following two types.

- 1200 bps: APRS operations. can be carried out using AFSK 1200 bps packets.
- 9600 bps: APRS operations can be carried out using GMSK 9600 bps packets.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.
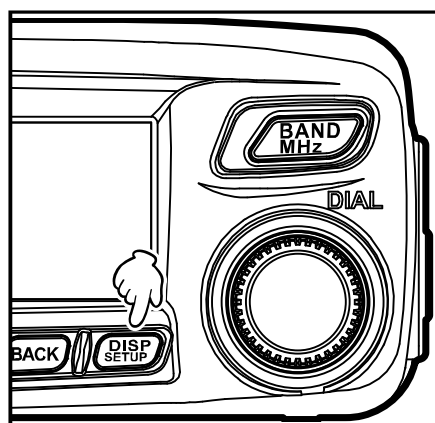
2 Turn the DIAL, select **[9 DATA]**, then press (DISP/SETUP).

The menu list will be displayed.

10

3 Turn the DIAL, select **[2 DATA SPEED]**, then press
(DISP SETUP).

```
SETUP MENU [ DATA      ]
1 COM PORT SETTING
2▶DATA SPEED
3 DATA SQUELCH
```

The screen for selecting the baud rate will be
displayed.

4 Turn the DIAL, select **[APRS]**, then press (DISP SETUP).

```
DATA SPEED
▶APRS:[ 1200 bps ]
 DATA:[ 1200 bps ]
```

The baud rate enclosed within the parentheses [ ]
will blink.

5 Turn the DIAL to select the baud rate.

The baud ratewill switch between "1200 bps" and "9600 bps" when the DIAL is
turned.

Tips • Factory default value: 1,200 bps

• When receiving a message, the baud rate will automatically match the baud rate of the
partner station signal regardless of the value set.

6 Press (DISP SETUP) for one second or longer.

The baud rate will be set and the display will return to the previous screen.

Other settings

Besides these, other settings such as the mute setting for the receive audio sound of the
APRS operating band can also be configured. Please refer to "Using the APRS set-up
menu" (☞ P.57) for the details.

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Starting APRS Operation

Activating the APRS function

During APRS operation, communications are carried out via the built-in APRS modem in the radio. When shipped from the factory, the APRS modem is set to OFF. Before starting APRS operation, set the APRS modem to ON.

1 Press (DISP/SETUP) for one second or longer.
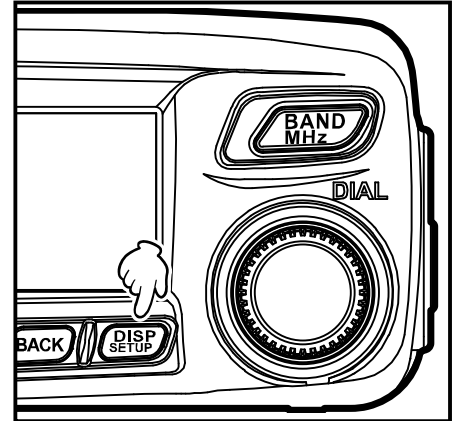
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).
The menu list will be displayed.
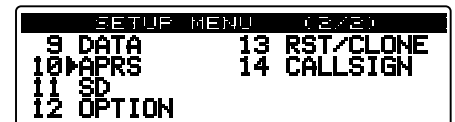
3 Turn the DIAL, select **[5 APRS MODEM]**, then press (DISP/SETUP).
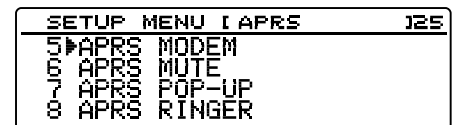
4 Turn the DIAL and select "1 ON".
Tip Factory default value: 2 OFF

5 Press (DISP/SETUP) for one second or longer.

The APRS function will be set to ON and the display will return to the previous screen.
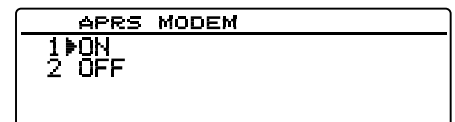
Tip The icon indicating the APRS beacon's transmission method will be displayed.

⬛: Automatic beacon transmission

⬜: Automatic beacon transmission (smart beacon)

⬛: Manual beacon transmission

Matching the frequency

The frequency varies between regions and countries.
The frequency can be matched using the following methods.

1 Turn (BAND/MHz) to select the operating band's frequency band.

2 Turn the DIAL and set the frequency.

Press (BAND/MHz) for one second or longer and then turn it to change the frequency by 1 MHz units.

The frequency value can also be input directly from the included microphone keyboard.

Please refer to "Tuning in to the frequency" (☞ P.37) in the basic operating manual for the details.

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Receiving APRS Beacons

The signal containing the position of the radio station, meteorological information, communication range, etc. that is transmitted in APRS format, is known as a "beacon" while the radio station that transmitted the beacon is called a "station".

The received beacon will be downloaded into the radio memory. Up to a maximum of 100 beacons can be saved in the memory.

To display using the "APRS pop-up" screen

A "ping pong" bell will ring and the "APRS pop-up" screen will be displayed for a fixed period of time when a beacon is received on the frequency display screen.

The contents displayed on the "APRS pop-up" screen and the "STATION LIST" details screen explained below are basically the same.

```
        S           1  JA1ZRL- 7    DISP
 🚗     ╱◎╲      FTM-400D       04/17
      E┤  ├ W  31.5km           16:07
H·UP   ╲ ╱     Speed   :    46km/h
 ⠿      N         T.UP
```

● To display using the "STATION LIST" details screen

The "STATION LIST" screen is displayed when [Gm] is pressed for one second or longer at the frequency display screen, then the DIAL is turned, **[APRS STATION LIST]** is selected and [DISP/SETUP] is pressed.

The screen switches between the "STATION LIST" screen and the "MESSAGE LIST" screen each time [Dx] [MSG] is pressed.

```
◎STATION LIST (   ALL      )
 ▶ 1 E JA1ZRL- 7       16:07
   2 P JA1YOE- 2       04/15
   3 S JQ1YBG- 6       04/14
 ⠿  TOP QSY MSG RPLY B-TX
```

Tips

- You can switch between "2 HEADING UP" for always displaying the direction in which this station is heading at the top and "1 NORTH UP" to always display the north at the top by selecting **[10 APRS]** → **[1 APRS COMPASS]** on the set-up menu.
- The display time of the detailed information can be changed by selecting **[10 APRS]** → **[7 APRS POP-UP]** on the set-up menu. The detailed information can also be set not to appear even when a beacon is received by setting the display time to "OFF".
- The beacons to be downloaded into the main device can be filtered by selecting **[10 APRS]** → **[3 APRS FILTER]** on the set-up menu.
- The reception audio (beacon, voice, etc.) of the APRS operating band can be muted by selecting **[10 APRS]** → **[6 APRS MUTE]** on the set-up menu.
- A notification bell can be rung when an APRS beacon is received by setting "3 RX BEACON" under **[10 APRS]** → **[8 APRS RINGER]** on the set-up menu to "ON". The bell ring when a beacon is received can be muted by setting it to "OFF".

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Explanation of the APRS beacon screen and operation of keys

Explanation of the "STATION LIST" screen and operation of keys

Beacons downloaded into the device can be viewed in a list. A beacon can also be selected from the list to check its contents.

1 Press ⌨ for one second or longer.

The "LOG SELECT" screen will be displayed.

2 Turn the DIAL, select **[APRS STATION LIST]**, then press ⌨.

The "STATION LIST" screen will be displayed.

The stations will be displayed starting from the oldest beacon received to the latest.

Tips
- The list can be displayed in order of time, call sign or distance (☞ P.76).
- The stations displayed on the list can be filtered by the type of beacon (☞ P.58).
- Turn the DIAL to scroll the list.
- When (TXPO) [**TOP**] is pressed, the list returns to the beginning.
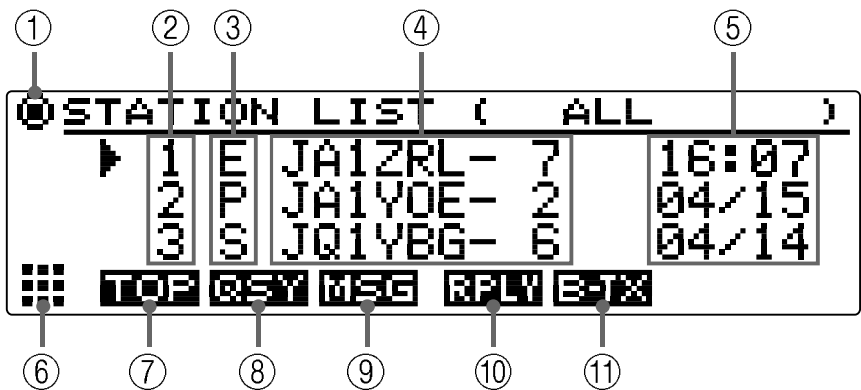
Display explanation		
①	**Automatic/manual beacon transmission icon**	⊙: When automatic transmission is selected ○: When smart beacon is selected ⊗: When manual transmission is selected
②	**Number**	Displayed in order of most recently received beacon (maximum 100 stations).
③	**Character**	Displays the station list's character. Please see the following page for details.
④	**Station name**	Displays the call sign or the object name/item name of the received beacon.
⑤	**Time or date**	Displays the time (HH:MM) or date (MM/DD). After midnight, the time display switches to the date display.
⑥	[**▦**]	The expansion key switches when (A/B DW) is pressed.
	[**TOP**]	The display switches to the top of the station list when (TXPO) is pressed.
⑧	[**QSY**]	When (V/M MW) is pressed, the frequency information embedded in the target station can be set in a band separate from the APRS operating band.
⑨	[**MSG**]	When (Dx) is pressed, the "MESSAGE LIST" screen is displayed.
⑩	[**RPLY**]	When (⌨) is pressed, the message editing screen is displayed.
⑪	[**B-TX**]	When (SQL VOICE) is pressed, the APRS beacon is sent.

3 Turn the DIAL, select the station whose details you want to see, then press ⌨.

The detailed information screen will be displayed.

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Viewing the contents of a beacon

The contents of the beacon will be displayed in the following screen.
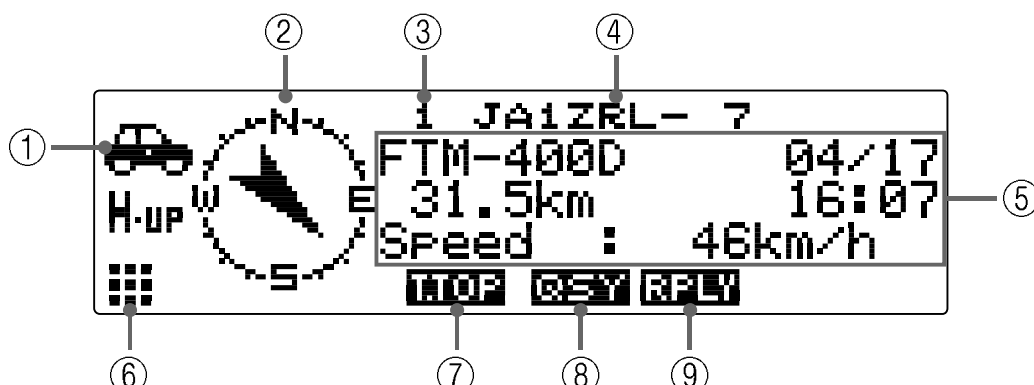
Display explanation		
①	**Symbol**	Symbol of transmitting station For overlay symbols, the characters will be displayed at the top left.
②	**Compass**	Display the direction of the transmitting station as seen from your own station N-UP: North is always displayed at the top. H-UP: The direction in which you are heading is always displayed at the top.
③	**Number**	Entry number in station list
④	**Station name**	Call sign, object name, or item name of a transmitting station
⑤	**Transmitting station information**	Information and comments of transmitting station
⑥	**⊞**	The expansion key switches when (A/B DW) is pressed.
	[TTOP]	When (Dx) is pressed, the display moves to the beginning of the information.
⑧	**[QSY]**	When (GM) is pressed, the frequency information embedded in the target station can be set in a band separate from the APRS operating band.
⑨	**[RPLY]**	When (SQL VOICE) is pressed, the message editing screen is displayed.

Tips
- When the power supply of the main device is switched on, the position and distance will not be displayed if the detailed screen is displayed before the GPS is captured.
- The transmitting station's information and comments can be scrolled one line at a time by turning the DIAL.

Explanation of station list characters

The 14 types of station list characters are classified as shown below.

```
◉STATION LIST (   ALL   )
  ▶ 1 │E│ JA1ZRL- 7   16:07
    2 │P│ JA1YOE- 2   04/15
    3 │S│ JQ1YBG- 6   04/14
  ▦▦  TOP GSY MSG RPLY E-TX
```

Display		Explanation	Page
E	Mic-E	This is displayed when the beacon of a microphone encoder station is received.	17
P	Position	This is displayed when the beacon of a fixed station (FIXED) or moving station (MOVING) is received.	18, 20
p	Position	This is displayed when the beacon of a fixed station (fixed) or moving station (moving) is received (compressed type).	19, 20
W	Weather report	This is displayed when the beacon of a weather station is received.	21
w	Weather report	This is displayed when the beacon of a weather station is received (compressed type).	21
O	Object	This is displayed when the beacon of an object station is received.	22
o	Object	This is displayed when the beacon of an object station is received (compressed type).	22
I	Item	This is displayed when the beacon of an item station is received.	22
i	Item	This is displayed when the beacon of an item station is received (compressed type).	22
K	Killed Object/Item	This is displayed when an object station or item station that has been deleted is received.	22
k	Killed Object/Item	This is displayed when an object station or item station that has been deleted is received (compressed type).	22
S	Status	This is displayed when the beacon of a status station is received.	23
G	Raw NMEA	This is displayed when the beacon of the raw NMEA data (GGA/GLL or GPRMC) station is received.	24
?	Other	This is displayed when a beacon that cannot be deciphered is received.	25
Emg	This is displayed when an emergency signal is received from a Mic-E station.		26

Tip

When the power supply of the main device is switched on, the position and distance will not be displayed if the detailed screen is displayed before the GPS is captured.

Example of a beacon information display for an E (Mic-E) station

```
       N
        1  JQ1VBG- 7
   W   E  FTM-400D        04/17    ②
H·UP      31.5km          16:07    ③
          Speed  :      46km/h     ④
       S          TTOP QSY RPLY
```
①

Turn the DIAL

```
Course :        53°         ⑤
Altitude:       16m         ⑥
Pos.com:In Service          ⑦
LAT  :N  35°37.89'          ⑧
LON  :E 139°46.79'          ⑨
```

Turn the DIAL

```
       1  JQ1VBG- 7
     [BEACON STATUS TEXT]    ⑩
   APRS 144.64MHz ALLJa
   Pan. 438.84MHz
                TTOP QSY RPLY
```

①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Speed**	The movement speed of the partner station will be displayed.
⑤	**Direction**	The movement direction of the partner station will be displayed.
⑥	**Altitude**	The altitude of the partner station will be displayed.
⑦	**Position comment**	The standard message from the partner station will be displayed.
⑧	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑨	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑩	**Comments**	Comments, if any, from a partner station will be displayed.

Example of a beacon information display for a fixed P (Position) station

The following information is displayed when a FIXED station or a fixed station is received, or when the list on the "STATION LIST" screen is selected and (DISP SETUP) is pressed.

Tip

The Position may include detailed information called a PHG code. The data at this time is displayed as shown below.

Turn the DIAL

Turn the DIAL

①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Transmission output**	This displays the partner station's transmission output.
⑤	**Height of antenna from ground**	This displays the height of the antenna from the ground.
⑥	**Antenna gain**	This displays the gain of the partner station's antenna.
⑦	**Antenna orientation**	This displays the orientation of the partner station's antenna.
⑧	**Number of transmissions**	This displays the number of transmissions of the partner station.
⑨	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑩	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑪	**Comments**	Comments, if any, from a partner station will be displayed.

18

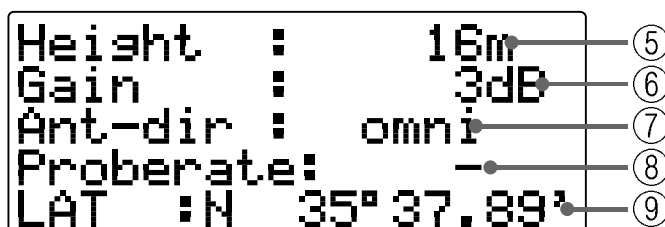### Example of a beacon information display for a fixed P (Position) station

The following information is displayed when a FIXED station or a fixed station (compressed type*) is received, or when the list on the "STATION LIST" screen is selected and (DISP SETUP) is pressed.

```
        ~·N·                1  JQ1VBG          ──①
    W         FIXED              04/17          ──②
H·UP      E  31.5km             16:07           ──③
             Altitude:            16m            ──④
~·S·           TTOP QSY RPLY
```

↓ Turn the DIAL

```
LAT  :N   35° 37.89'   ──⑤
LON  :E  139° 46.79'   ──⑥
```

↓ Turn the DIAL

```
              1  JQ1VBG
       [    COMMENT TEXT    ]   ──⑦
        | | | | | | | | | | | | | | |
        | | | | | | | | | | | | | | |
              TTOP QSY RPLY
```
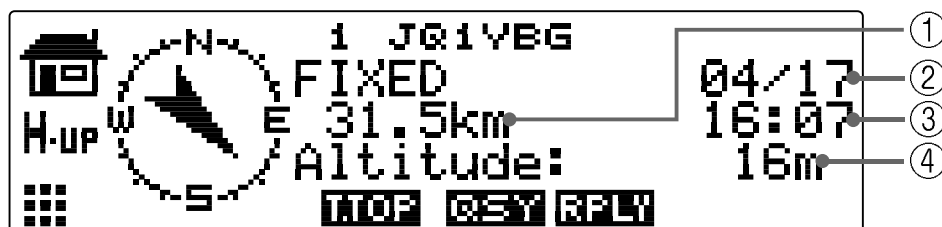
①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Altitude**	The altitude of the partner station will be displayed.
⑤	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑥	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑦	**Comments**	Comments, if any, from a partner station will be displayed.

*: A beacon where part of the information is sent in a compressed format.

Example of a beacon information display for a moving P (Position) station

The following information is displayed when a MOVING station or a moving station (compressed type*) is received, or when the list on the "STATION LIST" screen is selected and (DISP SETUP) is pressed.

```
    ★        ⌃-N-⌃      1 JQ1VBG- 9           ①
            /        \   MOVING        04/17    ②
H·UP  W     E  31.5km               16:07    ③
            \        /   Speed  :  46km/h    ④
    ⠿          ⌄-S-⌄      TTOP QSY RPLY
```

Turn the DIAL

```
Course :        53°         ⑤
Altitude:       16m         ⑥
LAT  :N  35° 37.89'         ⑦
LON  :E 139° 46.79'         ⑧
```

Turn the DIAL

```
    ★            1 JQ1VBG- 9
            [    COMMENT TEXT    ]         ⑨
            ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
            ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
    ⠿                TTOP QSY RPLY
```

①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Speed**	The movement speed of the partner station will be displayed.
⑤	**Direction**	The movement direction of the partner station will be displayed.
⑥	**Altitude**	The altitude of the partner station will be displayed.
⑦	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑧	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑨	**Comments**	Comments, if any, from a partner station will be displayed.

*: A beacon where part of the information is sent in a compressed format.

Example of a beacon information display for a W (Weather report) station

The following information is displayed when a WEATHER station or a weather station (compressed type*) is received, or when the list on the "STATION LIST" screen is selected and (DISP SETUP) is pressed.
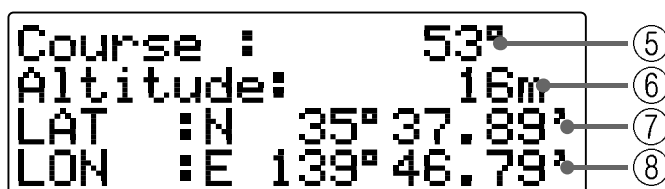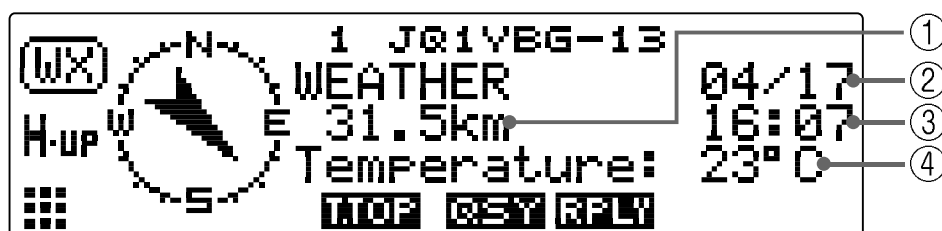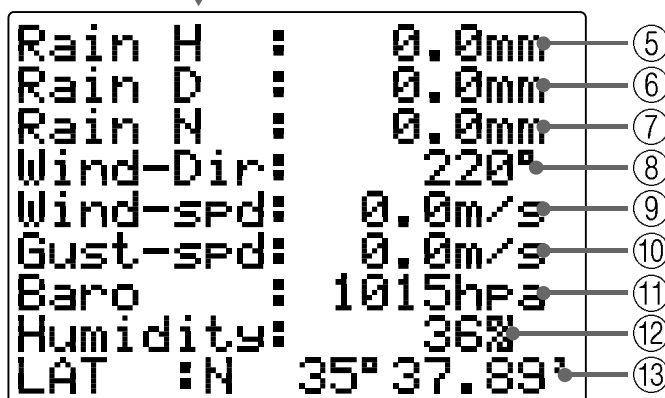
```
 WX        N         1  JQ1YBG-13      —①
      W  ╲  ╳  E  WEATHER         04/17  —②
 H·up       ╳      31.5km         16:07  —③
           S      Temperature:    23°C  —④
 ▦                 TTOP  QSY  RPLY
```

Turn the DIAL

```
Rain H  :     0.0mm  —⑤
Rain D  :     0.0mm  —⑥
Rain N  :     0.0mm  —⑦
Wind-Dir:      220°  —⑧
Wind-spd:    0.0m/s  —⑨
Gust-spd:    0.0m/s  —⑩
Baro    :  1015hPa  —⑪
Humidity:      36%  —⑫
LAT  :N  35°37.89'  —⑬
```

Turn the DIAL

```
 WX           1  JQ1YBG-13
           LON  :E 139°46.79'  —⑭
         [   COMMENT TEXT   ]  —⑮
 ▦      ¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦¦
                 TTOP  QSY  RPLY
```

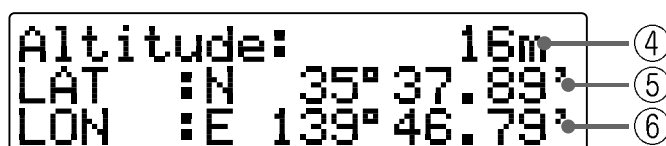|		
①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Temperature**	Information on the temperature will be displayed.
⑤	**Rainfall (hour)**	Information on the rainfall per hour will be displayed.
⑥	**Rainfall (day)**	Information on the rainfall per day will be displayed.
⑦	**Rainfall (night)**	Information on the rainfall from midnight onwards will be displayed.
⑧	**Wind direction**	Information on the wind direction will be displayed.
⑨	**Wind speed**	Information on the wind speed will be displayed.
⑩	**Maximum wind speed**	Information on the maximum wind speed will be displayed.
⑪	**Atmospheric pressure**	Information on the atmospheric pressure will be displayed.
⑫	**Humidity**	Information on the humidity will be displayed.
⑬	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑭	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑮	**Comments**	Comments, if any, from a partner station will be displayed.

*: A beacon where part of the information is sent in a compressed format.

Example of a beacon information display of an O (Object) object station or item station

The following information is displayed when an OBJECT station, object station (compressed type*), ITEM station, item station (compressed type*), KILL OBJ station, kill obj station (compressed type*), KILL ITEM station, or kill item station (compressed type*) is received, or when the list on the "STATION LIST" screen is selected and ⌈DISP SETUP⌋ is pressed.

Turn the DIAL

Turn the DIAL

①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Altitude**	The altitude of the partner station will be displayed.
⑤	**Latitude**	The position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑥	**Longitude**	The position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑦	**Comments**	Comments, if any, from a partner station will be displayed.

*: A beacon where part of the information is sent in a compressed format.

Example of a beacon information display for an S (Status) status station

The following information will be displayed when a status station is received, or when the list on the "STATION LIST" screen is selected and (DISP SETUP) is pressed.

①	**Date**	This displays the date (MM/DD) the beacon was received.
②	**Time**	This displays the time (HH:MM) the beacon was received.
③	**Comments**	Comments, if any, from a partner station will be displayed.

Example of a beacon information display for a G (Raw NMEA) raw NMEA station

The following information will be displayed when a raw NMEA data station (GGA/GLL or GPRMC) is received, or when the list on the "STATION LIST" screen is selected and ⬭DISP SETUP is pressed.

```
          ↑N           1 J@1VBG- 8        ─── ①
     ↖         GPRMC              04/17  ─── ②
H·UP W       E 31.5km            16:07  ─── ③
               Speed   :      46km/h     ─── ④
   ⠿        ↓S       TTOP QSY RPLY
```

Turn the DIAL

```
Course :          53°  ─── ⑤
Altitude:         16m  ─── ⑥
LAT  :N   35°37.89'    ─── ⑦
LON  :E 139°46.79'     ─── ⑧
```

Turn the DIAL

```
          1 J@1VBG- 8
      [    COMMENT TEXT    ]  ─── ⑨
       . . . . . . . . . . . . . . . . . . .
       . . . . . . . . . . . . . . . . . . .
   ⠿          TTOP QSY RPLY
```

①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Speed**	The movement speed of the partner station will be displayed.
⑤	**Direction**	The movement direction of the partner station will be displayed.
⑥	**Altitude**	The altitude of the partner station will be displayed.
⑦	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑧	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑨	**Comments**	Comments, if any, from a partner station will be displayed.

Example of display for ? (Other) non-APRS packet data

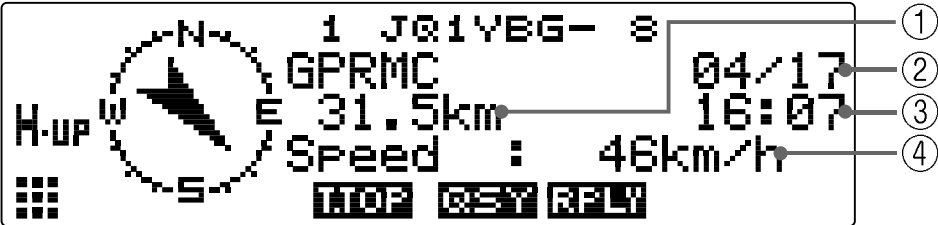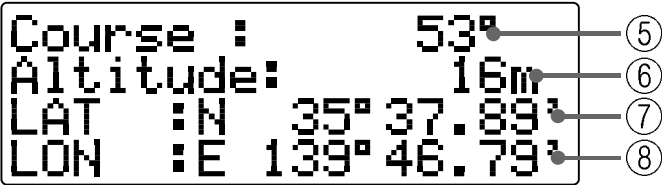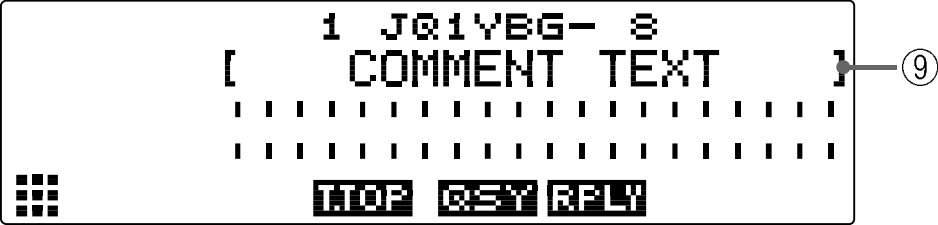The following information will be displayed when an OTHER station is received, or when the list on the "STATION LIST" screen is selected and $\overset{\text{DISP}}{\text{SETUP}}$ is pressed.

```
      1 JQ1VBG-13
  OTHER          04/17 ── ①
                 16:07 ── ②
  [   COMMENT TEXT  ] ── ③
      TOP  QSY RPLY
```
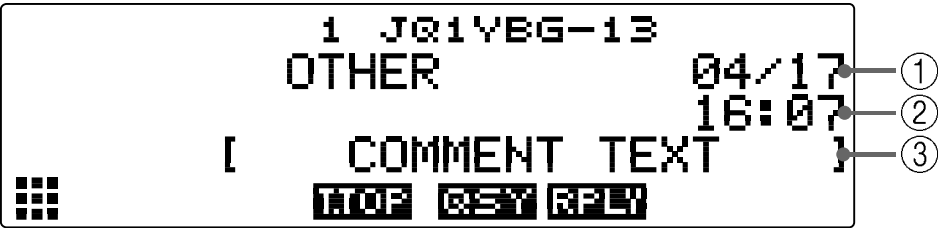
①	**Date**	This displays the date (MM/DD) the beacon was received.
②	**Time**	This displays the time (HH:MM) the beacon was received.
③	**Comments**	Only packet data that cannot be decoded will be displayed as it is.

Tip

Other types of packets will not be displayed on the list unless "7 OTHER" under **[10 APRS]** → **[3 APRS FILTER]** in the set-up menu is set to ON (factory default value: OFF).

Example of an emergency information display from an Emg (Emergency) microphone encoder station

The following information is displayed when emergency information is received from a Mic-E station.

Turn the DIAL

Turn the DIAL

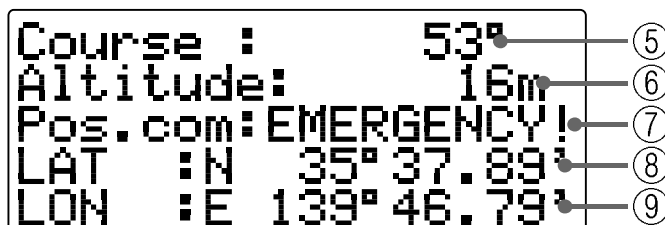| ①	**Distance**	This displays the distance to the partner station.
②	**Date**	This displays the date (MM/DD) the beacon was received.
③	**Time**	This displays the time (HH:MM) the beacon was received.
④	**Speed**	The movement speed of the partner station will be displayed.
⑤	**Direction**	The movement direction of the partner station will be displayed.
⑥	**Altitude**	The altitude of the partner station will be displayed.
⑦	**Position comment**	"EMERGENCY!" will be displayed and a "poo" bell ring will be repeated 12 times.
⑧	**Latitude**	The current position of the partner station will be displayed in N (northern latitude) or S (southern latitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑨	**Longitude**	The current position of the partner station will be displayed in E (eastern longitude) or W (western longitude). (DD degree MM.MM minute or DD degree MM minute SS second)
⑩	**Comments**	Comments, if any, from a partner station will be displayed.

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Viewing the beacon information using packet data (RAW display)

Received beacons can be displayed in packet data form before being decoded.

1 Press 〔G̲ᴍ〕 on the frequency display screen for one second or longer.

The "LOG SELECT" screen will be displayed.
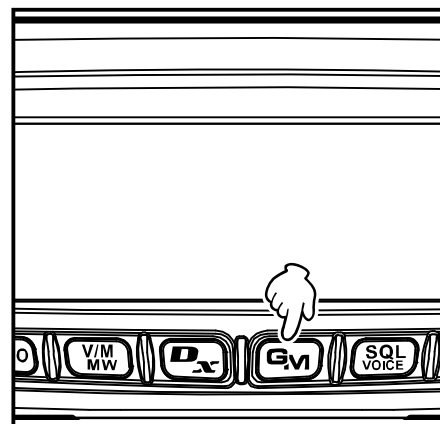
2 Turn the DIAL, select **[APRS STATION LIST]**, then press 〔DISP SETUP〕.

The "STATION LIST" screen is displayed.

3 Turn the DIAL, select the station whose details you want to see, then press 〔DISP SETUP〕.

The detailed information screen will be displayed.
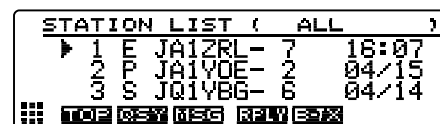
4 Press 〔A/B DW〕 〔⚏〕.

The extension key switches.

5 Press 〔SQL VOICE〕 〔RAW〕.

The information display will change.

> **Tips** • Turn the DIAL to scroll the display.
>
> • When 〔Dx〕 〔TOP〕 is pressed, the display moves to the top of the packet data display.

6 Press 〔BACK〕.

The display will return to the detailed information screen.

Tip

When a 3rd Party Header Beacon (beacon from I-Gate and others) is received, the route information included in the text of the 3rd Party Header Beacon will be displayed instead of the information obtained from the AX.25 packet signal.

27

Convenient functions

A special notification bell can be rung when a beacon from an APRS station or one within a specific range is received.

● **Notification of incoming beacon from a specified station (call sign ringer)**
Register the call sign under **[10 APRS]** → **[9 APRS RINGER (CALL)]**, and set the bell ring ON/OFF under **[8 APRS RINGER]** → **[6 CALL RINGER]**.
By registering the call sign of an APRS station that you want to check, a special bell will ring when a beacon is received from that station.
A maximum of up to 8 stations can be registered.

● **Checking if there are other stations within the specified range (range ringer)**
The range to be checked and the bell ring can be set ON/OFF under **[10 APRS]** → **[8 APRS RINGER]** → **[7 RANGE RINGER]**.
A special bell will ring when an APRS station in the station list enters the set range.
A special bell will also ring when a beacon from an APRS station lying within the set range is received.
The checking range can be set at a radius between 1 km and 100 km from your own station. The range ringer function will be turned off when the range is set at 0 km.

● : Normal bell ring
× : RNG RINGER special bell ring

My station☆

Radius 10 km
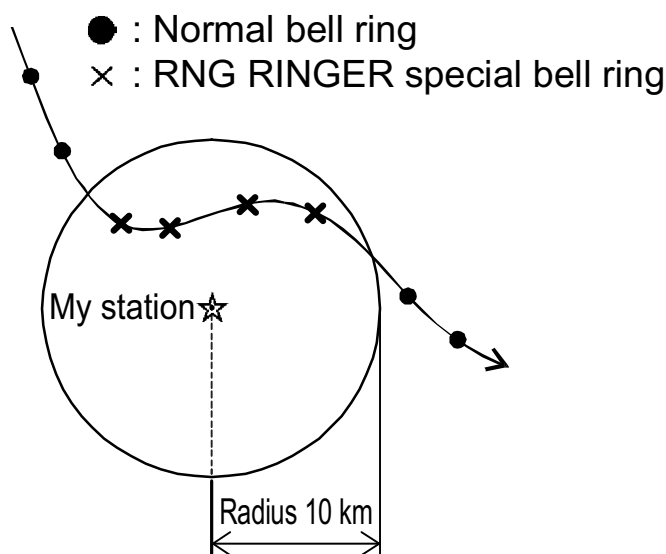
Tip
The call sign ringer bell will ring when the call sign ringer and range ringer functions are in operation at the same time and a partner station that satisfies both conditions is detected (the call sign ringer function takes priority).

Sorting the station list

Sorting a list

The station list can be sorted in different display orders.

Setting sort condition

1 Press (DISP/SETUP) for one second or longer.
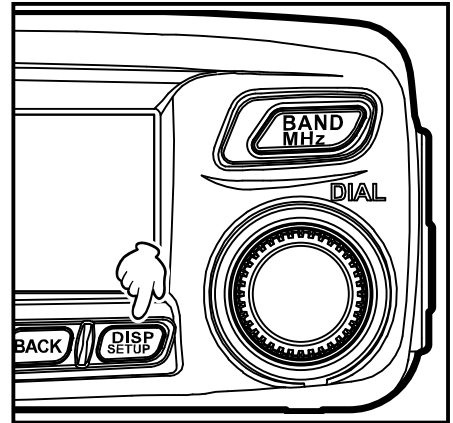
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
SETUP MENU    03/20
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```
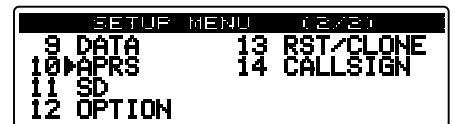
3 Turn the DIAL, select **[24 SORT FILTER]**, then press (DISP/SETUP).

```
SETUP MENU [ APRS      ]25
22 POSITION COMMENT
23 SmartBeaconing
24▶SORT FILTER
25 VOICE ALERT
```
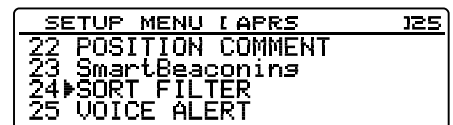
4 Turn the DIAL and select **[1 SORT]**.

5 Press (DISP/SETUP) and select the condition for sorting the list.

```
    SORT FILTER
1▶SORT   : TIME
2 FILTER : ALL
```

The sorting condition will switch between "TIME", "CALL SIGN", and "DISTANCE" each time (DISP/SETUP) is pressed.

"TIME": Sort the list starting from the latest beacon received.

"CALLSIGN": Sort the list in ascending order of the call sign.

"DISTANCE": Sort the list starting from the station nearest to your own station.

Tip Factory default value: TIME

6 Press (DISP/SETUP) for one second or longer.

The sorting conditions are set and the display returns to the previous screen.

Sorting

1 Press 〔G᭗〕 on the frequency display screen for one second or longer.

The "LOG SELECT" screen will be displayed.
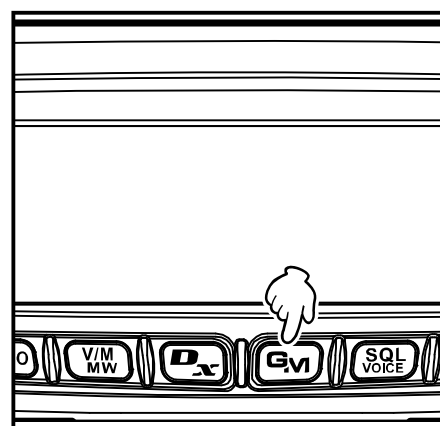
2 Turn the DIAL, select **[APRS STATION LIST]**, then press 〔DISP/SETUP〕.

The "STATION LIST" screen is displayed.

3 Press 〔A/B DW〕 [⊞].

The extension key switches.

4 Press 〔V/M MW〕 [**SORT**].

The display order will changeaccording to the set conditions.

▌ **Filtering the list**

The type of beacon to be displayed in the station list can be selected.

1 Press 〔G᭗〕 on the frequency display screen for one second or longer.

The "LOG SELECT" screen will be displayed.
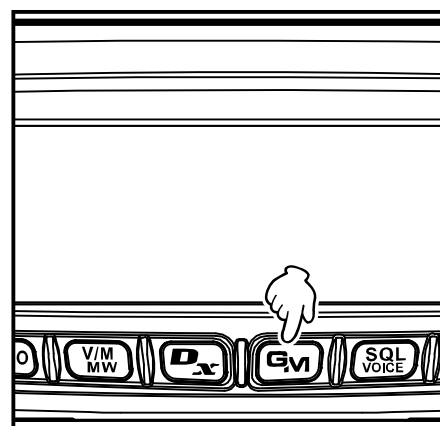
2 Turn the DIAL, select **[APRS STATION LIST]**, then press 〔DISP/SETUP〕.

The "STATION LIST" screen is displayed.

3 Press 〔A/B DW〕 [⊞].

The extension key switches.

4 Press (TXPO) [**SFILT**].

```
STATION LIST (  ALL    )
▶ 1 E JA1ZRL- 7    16:07
  2 P JA1YOE- 2    04/15
  3 S JQ1YBG- 6    04/14
⊞ (SFILT)SORT QRV DEL BCN
```

5 Turn the DIAL and select **[2 FILTER]**.

6 Press (DISP/SETUP) and select the condition for narrowing down the list.

```
  SORT FILTER
1 SORT    : TIME
2▶FILTER  : ALL
```

The condition for narrowing down the list changes each time (DISP/SETUP) is pressed.

The position comment can be select from among the following.

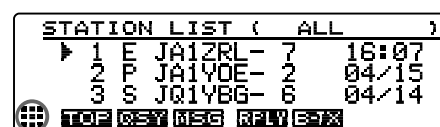| ALL	All the received beacons will be displayed.
MOBILE	Only mobile stations will be displayed.
FREQUENCY	Only stations with frequency information will be displayed.
OBJECT/ITEM	Only object stations/item stations will be displayed.
DIGIPEATER	Only digipeater stations will be displayed.
VoIP	Only VOIP stations such as WIRES stations will be displayed.
WEATHER	Only meteorological stations will be displayed.
YAESU	Only stations using Yaesu wireless transceivers will be displayed.
OTHER PACKET	Only RAW NMEA data station, status station, and packet information that could not be analysed (non-APRS format) will be displayed. Please set "7 OTHER" to ON under **[10 APRS]** → **[3 APRS FILTER]** in the set-up menu to display non-APRS packets that cannot be analyzed.
CALL RINGER	Only stations whose call signs are set using **[10 APRS]** → **[9 APRS RINGER (CALL)]** in the set-up menu are displayed.
RANGE RINGER	Only stations that are close to the distance set using **[10 APRS]** → **[8 APRS RINGER]** in the set-up menu are displayed.
1200 bps	Only stations received using 1200 bps (A12) packets are displayed.
9600 bps	Only stations received using 9600 bps (A96) packets are displayed.

Tip Factory default value: ALL

7 Press (DISP/SETUP) for one second or longer.

The sorting conditions are set and the display returns to the "STATION LIST" screen.

8 Press (V/M MW) [**SORT**].

Only the stations meeting the set conditions are displayed on the list.

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▌ Deleting information from a list

Beacon information that is no longer required can be selected and deleted from a list.

Deleting using the beacon details screen

1 Display the details of the beacon that you want to delete.

2 Press (A/B DW) [▦].

The extension key switches.

3 Press (GM) [DEL].

The delete confirmation screen will be displayed.

4 Turn the DIAL, select **[OK?]**, then press (DISP SETUP).

The display will return to the "STATION LIST" screen when the deletion is completed.

Tip   To interrupt deletion, select **[Cancel]** and press (DISP SETUP).
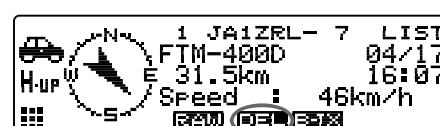
Deleting a beacon on the "STATION LIST" screen

1 Display the "STATION LIST" screen.

2 Turn the DIAL and select the station to be deleted.

3 Press (A/B DW) [▦].

The extension key switches.

4 Press (GM) [DEL].

The delete confirmation screen will be displayed.

5 Turn the DIAL, select **[OK?]**, then press (DISP SETUP).

Once the station is deleted, the list information is updated.

Tip   To interrupt deletion, select **[Cancel]** and press (DISP SETUP).
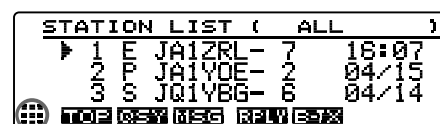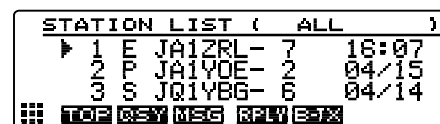
Deleting all information in the station list

All information saved in the memory can be deleted in one batch.

1 Display the "STATION LIST" screen or the beacon details screen.

2 Press $\left(\begin{smallmatrix} A/B \\ DW \end{smallmatrix}\right)$ [▦].

The extension key switches.

3 Press (Gм) [**DEL**] for one second or longer.

The delete confirmation screen will be displayed.

4 Turn the DIAL, select **[OK?]**, then press $\left(\begin{smallmatrix} DISP \\ SETUP \end{smallmatrix}\right)$.

The display will return to the "STATION LIST" screen when the deletion is completed.

> **Tip** To interrupt deletion, select **[Cancel]** and press $\left(\begin{smallmatrix} DISP \\ SETUP \end{smallmatrix}\right)$.

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Transmitting APRS Beacons

Your own station information in the device can be transmitted as a beacon.

Manually transmitting APRS beacons

Beacons can be manually transmitted where required.

Transmitting from the "STATION LIST" screen

1 Display the "STATION LIST" screen.

```
STATION LIST (   ALL   )
▶ 1 E JA1ZRL- 7    16:07
  2 P JA1YOE- 2    04/15
  3 S JQ1YBG- 6    04/14
▦ TOP QSY MSG RPLY B-TX
```

2 Press (SQL/VOICE) [**B-TX**].

The APRS beacon will be transmitted.

```
STATION LIST (   ALL   )
▶ 1 E JA1ZRL- 7    16:07
  2 P JA1YOE- 2    04/15
  3 S JQ1YBG- 6    04/14
▦ TOP QSY MSG RPLY (B-TX)
```

● Transmitting from the beacon details screen

1 Display the beacon details screen.

```
      N   1 JA1ZRL- 7
🚗   ╱   FTM-400D      04/17
H-UP W  E 31.5km       16:07
      S   Speed :   46km/h
▦           TOP QSY RPLY
```

2 Press (A/B DW) [▦].

The extension key switches.

```
      N   1 JA1ZRL- 7
🚗   ╱   FTM-400D      04/17
H-UP W  E 31.5km       16:07
      S   Speed :   46km/h
(▦)         TOP QSY RPLY
```

3 Press (SQL/VOICE) [**B-TX**].

The APRS beacon will be transmitted.

```
      N   1 JA1ZRL- 7   LIST
🚗   ╱   FTM-400D      04/17
H-UP W  E 31.5km       16:07
      S   Speed :   46km/h
▦           RAW DEL (B-TX)
```

> **Tip**
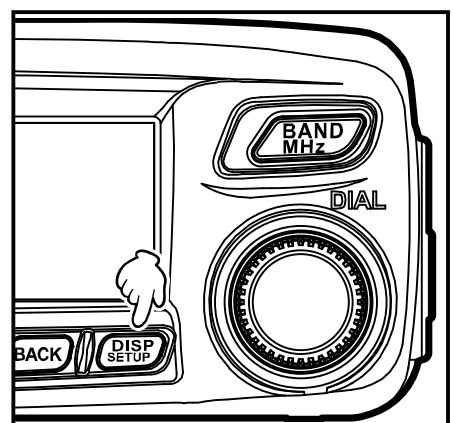>
> A "ding dong dong..." bell ring will sound when a beacon of your own station relayed by the digipeater is received.

Sending an APRS beacon automatically

An APRS beacon can be sent automatically at a fixed interval.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2   Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).
The menu list will be displayed.

```
    SETUP MENU   02/20
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3   Turn the DIAL, select **[14 BEACON TX]**, then press
(DISP SETUP).

```
 SETUP MENU [APRS     ]25
13 BEACON STATUS TEXT
14▶BEACON TX
15 DIGI PATH SELECT
16 MY CALLSIGN (APRS)
```

4   Turn the DIAL and select **[1 AUTO]**.

```
      BEACON TX
1▶AUTO        :[ OFF  ]
2 INTERVAL    :[ 5min ]
3 PROPORTIONAL:[  ON  ]
4 DECAY       :[  ON  ]
```

5   Press (DISP SETUP) and select ON.

>   **Tips**   • Factory shipping value: OFF
>
>   • The sorting condition will switch between ON, OFF,
>   and SMART each time (DISP SETUP) is pressed.

```
      BEACON TX
1▶AUTO        :[  ON  ]
2 INTERVAL    :[ 5min ]
3 PROPORTIONAL:[  ON  ]
4 DECAY       :[  ON  ]
```

6   Press (DISP SETUP) for one second or longer.

The display will return to the previous screen, and
automatic beacon transmission will start.

>   **Tips**   • The "▩" icon indicating the beacon's automatic
>   transmission method will be displayed.
>
>   • The "◇" icon will be displayed when SmartBeaconing™ is in operation.

```
      BEACON TX
1 AUTO        :[  ON  ]
2▶INTERVAL    :[ 5min ]
3 PROPORTIONAL:[  ON  ]
4 DECAY       :[  ON  ]
```

Tips
- A beacon will be sent according to all the settings other than "1 AUTO" under **[10 APRS]** → **[14 BEACON TX]** on the set-up menu.
- The delay time of data transmission can be changed at **[10 APRS]** → **[10 APRS TX DELAY]** on the set-up menu.

Setting the APRS beacon automatic transmission interval

The time interval for automatically sending an APRS beacon can be set.

1   Press (DISP SETUP) for one second or longer.
The set-up menu will be displayed.

2   Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).
The menu list will be displayed.

```
    SETUP MENU   02/20
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[14 BEACON TX]**, then press (DISP SETUP).

```
SETUP MENU [APRS      125
13 BEACON STATUS TEXT
14▶BEACON TX
15 DIGI PATH SELECT
16 MY CALLSIGN (APRS)
```

4 Turn the DIAL, select **[2 INTERVAL]**, then press (DISP SETUP).

The screen for setting the transmission interval will be displayed.

```
BEACON TX
1 AUTO        :[  ON  ]
2▶INTERVAL    :[ 5min ]
3 PROPORTIONAL:[  ON  ]
4 DECAY       :[  ON  ]
```

5 Turn the DIAL and select the transmission interval time.

The transmission interval can be selected from the following times.

30 sec/1 min/2 min/3 min/5 min/10 min/15 min/20 min/30 min/60 min

Tip Factory default value: 5 min

6 Press (DISP SETUP) for one second or longer

Theintervalfor automatic APRS beacon transmission will be setand the display will return to the previous screen.

Caution By default, DECAY (a function for extending the transmission time automatically when stationary) is set to ON. When operating in a stationary state all the time, turn this DECAY setting off if you do not wish to extend the transmission interval. The transmission interval will no longer be affected by the stationary state.

Using SmartBeaconing™

The SmartBeaconing™ function efficiently sends out a beacon with your own station position with information data such as movement speed and direction of advance derived from a GPS antenna unit.

This APRS function supports automatic beacon transmission using SmartBeaconing™. The SmartBeaconing™ function in the radio has three different types settings (TYPE 1 - TYPE 3) from which you can choose to operate.

The SmartBeaconing™ setting assumes that the device is used for mobile operation in town and residential areas. Normally, operation in the TYPE 1 default factory setting when shipped is recommended. However, when using the SmartBeaconing™ function along meandering roads such as mountain paths, many multiple beacons may be transmuted in a short period of time and be the cause of frequency congestion.

When testing operations at a different timing, TYPE 2 and TYPE 3 settings can be selected and adjusted to change the method beacon transmissions according to the situation. In order to ensure that beacons are transmitted in an appropriate manner, adjust the SmartBeaconing™ parameters and DIGI PATH settings to prevent frequency congestion.

Caution

The SmartBeaconing™ function can only be used when **[10 APRS]** **[19 MY POSITION SET]** in the set-up menu is set to "1 GPS".

1 Press (DISP/SETUP) for one second or longer.
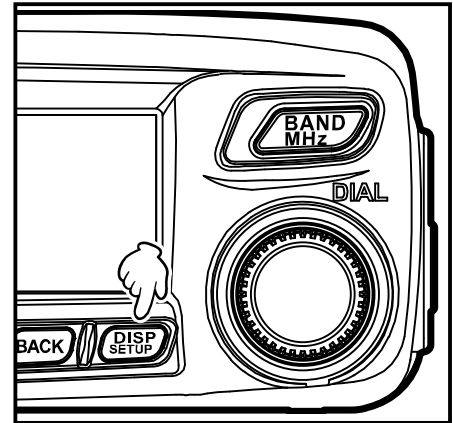
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

3 Turn the DIAL, select **[23 SmartBeaconing]**, then press (DISP/SETUP).

4 Turn the DIAL and select **[1 STATUS]**.

5 Press (DISP/SETUP) and select **[TYPE 1]**.

Each time (DISP/SETUP) is pressed, the setting will switch between OFF, TYPE 1, TYPE 2, and TYPE 3.

> **Tip** When TYPE 1, TYPE 2, or TYPE 3 is selected, the settings from **[2 LOW SPEED]** to **[8 TURN TIME]** are enabled.

6 Press (BACK).

7 Turn the DIAL, select **[14 BEACON TX]**, then press (DISP/SETUP).

8 Turn the DIAL and select **[1 AUTO]**.

9 Press (DISP/SETUP) and select SMART.

The sorting condition will switch between ON, OFF, and SMART each time (DISP/SETUP) is pressed.

10 Press (DISP/SETUP) for one second or longer.

The display will return to the previous screen.

The "⬡" icon will be displayed, and SmartBeaconing™ will be set.

Tips

- The default TYPE 1 - TYPE 3 settings are the same when shipped from the factory. When operating SmartBeaconing™ under a different setting, select "TYPE 2" or "TYPE 3" in Step 4 and then change the setting under **[2 LOW SPEED]** - **[8 TURN TIME]**.
- When SmartBeaconing™ is in operation, all "2 INTERVAL", "3 PROPORTIONAL", "4 DECAY", "5 LOW SPEED" and "6 RATE LIMIT" settings under **[10 APRS]** **[14 BEACON TX]** in the set-up menu will become void.

*SmartBeaconing™ is a function provided by HamHUD Nichetronix.

Attaching status text to a beacon

Pre-registered comments can be appended to your own station beacons as status text. 5 types of text containing a maximum of 60 characters including embedded information can be registered.

Caution

When entering a long text that exceeds 21, 29 or 43 characters, the text may not be displayed in certain model radios. The beacon transmission time will also become longer for each transmission, increasing the frequency occupation time and congestion. Please keep the text as short as possible.

1 Press (DISP SETUP) for one second or longer.
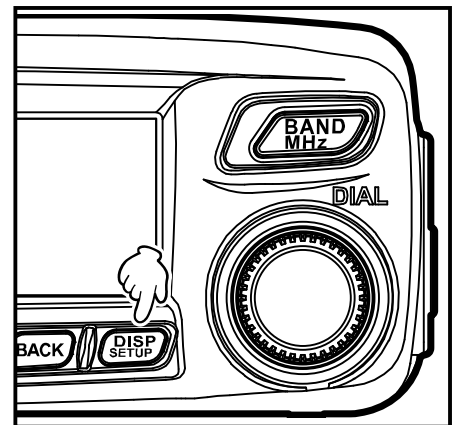
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.
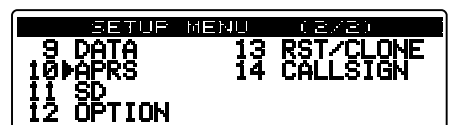
3 Turn the DIAL, select **[13 BEACON STATUS TEXT]**, then press (DISP SETUP).

4 Turn the DIAL, select **[TX RATE]**, then press (DISP SETUP).

With TX RATE, the frequency for sending the status text when sending APRS beacons can be set.
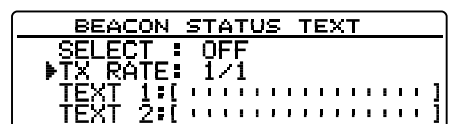
5 Turn the DIAL, select the TX rate, then press (DISP SETUP).

Select the TX rate from among 1/1(every time) to 1/8 (once every 8th time) and1/2 (FREQ)to 1/8 (FREQ).

6 Turn the DIAL, select **[TEXT 1]**, then press (DISP SETUP).

The screen for selecting the embedded information in the status text will be displayed.
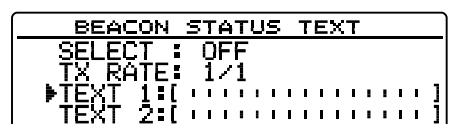
NONE:

Nothing will be embedded in the status text.

FREQUENCY:

The band frequency on the opposite side of the APRS operating band will be automatically embedded in the status text.

FREQ & SQL & SHIFT:

　　The band frequency on the opposite side of the APRS operating band and information such as the tone (squelch), shift, etc., will be automatically embedded in the status text.

7 Select either **[NONE]**, **[FREQUENCY]**, or **[FREQ & SQL & SHIFT]**, then press ⒟ⓘⓢⓟ.

The character input screen will be displayed.

```
BEACON STATUS TEXT
"TEXT 1"
▶NONE
 FREQUENCY
 FREQ & SQL & SHIFT
```

8 Turn the DIAL and input characters.

Tip Numbers and symbols can be entered.

```
BEACON STATUS TEXT 1
```

Press (TXPO) [A/3] → This switches between letters, numbers and symbols.

Press (V/M MW) [CLR] → This deletes all characters to the right of the cursor.

Press [Dx] [←] → This shifts the cursor to the left.

Press [Gm] [→] → The cursor will shift to the right.

Press (SQL VOICE) [◀X] → This deletes all characters to the left of the cursor.

Please refer to "Input characters" (☞ P. 20) in the basic operating manual for details.

9 Press (DISP SETUP).

Tip Repeat Steps 6 to 9 to continue entering TEXT 2 to 5.

10 Turn the DIAL and select **[SELECT]**.

11 Press (DISP SETUP).

The status text number will switch between "OFF" and "TEXT 1" to "TEXT 5" each time (DISP SETUP) is pressed.

```
BEACON STATUS TEXT
▶SELECT : OFF
 TX RATE: 1/1
 TEXT 1:[            ]
 TEXT 2:[            ]
```

Tips • Select "OFF" when you do not wish to append any status text.

• Factory shipping value: OFF

12 Press (DISP SETUP) for one second or longer.

The status text will be registered and the display will return to the previous screen.

Subsequently, the status text will be appended to the beacon and then transmitted.

Tip

The frequency of appending the status text when sending an APRS beacon can be set under **[10 APRS]** → **[13 BEACON STATUS TEXT]** → **[TX RATE]** in the set-up menu.

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Selecting a position comment

A position comment (standard message) can be selected to be included in your own station beacon.

1 Press (DISP SETUP) for one second or longer.
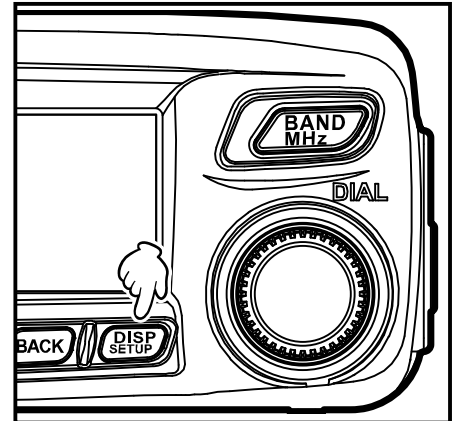
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

```
SETUP MENU   12/20
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[22 POSITION COMMENT]**, then press (DISP SETUP).

The screen for selecting the position comment will be displayed.

```
SETUP MENU [ APRS    J25
21 MY SYMBOL
22▶POSITION COMMENT
23 SmartBeaconing
24 SORT FILTER
```

4 Turn the DIAL and select the position comment.

The position comment can be select from among the following.

```
POSITION COMMENT
1▶Off Duty
2 En Route
3 In Service
4 Returning
```

"1 Off Duty" "2 En Route" "3 In Service"

"4 Returning" "5 Committed" "6 Special" "7 Priority" "8 Custom0" - "14 Custom6"

"15 Emergency!"

Caution The confirmation screen will be displayed when "15 Emergency!" is selected. Select Cancel, then press (DISP SETUP).

5 Press (DISP SETUP) for one second or longer

The position comment will be registeredand the display will return to the previous screen.

⚠ Never select "Emergency!" unless emergency aid is required e.g. accidents and disasters etc.

In the event an emergency message is sent out by mistake, select a position comment other than "Emergency!" and send another packet. Do not turn the radio OFF.

Setting the digipeater route

A digipeater is a station that relays packets such as beacons. The following 2 types of digipeater routes can be selected for use in the device.

Route	Number of relay steps	Address	Format
OFF	0	–	–
WIDE 1-1	1	Configured (settings cannot be changed)	New-Paradigm format*
WIDE 1-1, WIDE 2-1	2	Configured (settings cannot be changed)	New-Paradigm format*

When "WIDE 1-1, WIDE 2-1" is selected, the beacon is initially relayed to the digipeater station at the first location as specified in WIDE 1-1, and then it is relayed to the digipeater at the second location as specified in WIDE 2-1.

As of 2015, digipeater stations used in APRS are recommended to operate in the New-Paradigm format*. As the number of supporting digipeater stations is the largest, the default setting of this radio is therefore set to "WIDE 1-1, WIDE 2-1" when shipped from the factory on the assumption of a digipeater station operating in the New-Paradigm method. It is recommended that you operate the transceiver without changing the setting.

When using other relay methods, select either PATH 1 to PATH 4, FULL 1 or FULL 2, and enter the address of the digipeater used for that route.

* Please refer to the following website for the description of the New-Paradigm format.
  http://aprs.org/fix14439.html

Caution

When too many relay steps are set, multiple transmission beacons from the same station are relayed, resulting in congestion among the channels.

1 Press (DISP SETUP) for one second or longer.
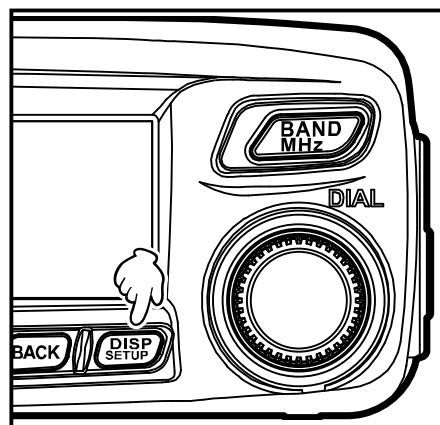
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

3 Turn the DIAL, select **[15 DIGI PATH SELECT]**, then press

The screen for selecting the digipeater route will be displayed.

```
SETUP MENU [APRS]        J25
13 BEACON STATUS TEXT
14 BEACON TX
15▶DIGI PATH SELECT
16 MY CALLSIGN (APRS)
```

4 Turn the DIAL and select the digipeater route.

Tip The packet will not be relayed when "1 OFF" is selected.

```
    DIGI PATH SELECT
 1 OFF
 2▶WIDE1-1
 3 WIDE1-1,WIDE2-1
```

5 Press for one second or longer.

The digipeater route will be setand the display will return to the previous screen.

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Sending and Receiving APRS Messages

Text messages can be sent and received separately from beacons in APRS.
Replies can be sent in response to messages received, and standard messages saved in the memory can also be selected to be sent as replies.
A maximum of up to 100 sent and received messages can be saved in a common list in the memory.

▌Checking messages

Sent and received messages can be viewed in a list. A message can also be selected from the list to check its contents.

1   Press [GM] on the frequency display screen for one second or longer.

    The "LOG SELECT" screen will be displayed.
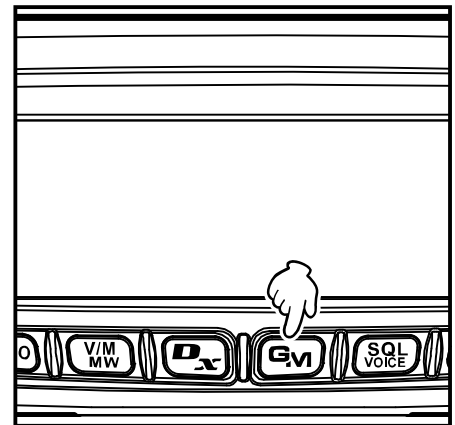
2   Turn the DIAL, select **[APRS MESSAGE LIST]**, then press (DISP SETUP).

    The "MESSAGE LIST" screen will be displayed.

3   Turn the DIAL, select the message you want to see, then press (DISP SETUP).

    The message's detailed information screen will be displayed.

▌ Viewing the message contents

The message contents will be displayed as shown in the following screen.
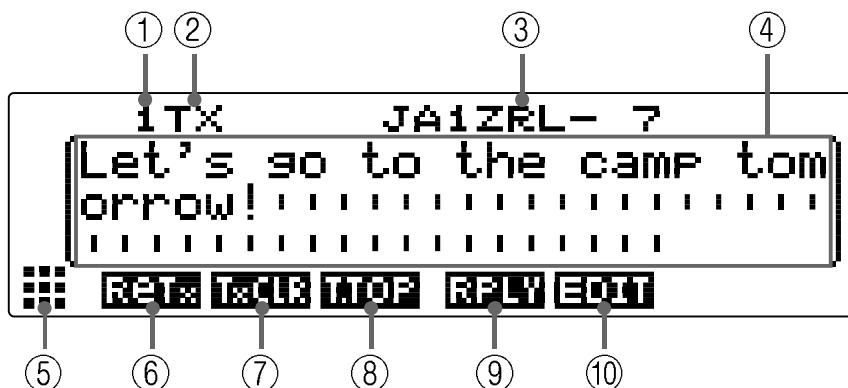
Display explanation		
①	**Number**	Entry number in the message list
②	**Sending and receiving**	Displaying either sent or received messages
③	**Station name**	Call sign, object name, or item name of a transmitting station
④	**Text**	Main text of message
⑤	▦	The expansion key switches when (A/B DW) is pressed.
	[RETx]	When (TXPO) is pressed, the TX OUT messages (those with no ACK receipt) will be resent.
⑦	[TxCLR]	When (V/M MW) is pressed, the message resending operation is canceled (☞ P.47).
⑧	[T.TOP]	When (Dx) is pressed, the display moves to the top of the message.
⑨	[RPLY]	When (GM) is pressed, the screen for creating the reply message will be displayed.
⑩	[EDIT]	When (SQL VOICE) is pressed, the message input screen is displayed.

Tips

- For transmission messages, information on DIGI (First) and DIG (Last) will not be displayed (- will be displayed) as the digipeater information is not saved.
- (DISP SETUP) A different message can be displayed by lighting up "LIST" at the top right of the display then turning the DIAL.

Receiving APRS messages

A bell will ring when an APRS message is received and the details will be displayed for a period of time. The information will continue to be displayed if a key or the touch panel is operated while the information is being displayed.

```
1RX        JA1YOE- 3
Let's go to the camp tom
orrow!
       RETx TxCLR TTOP RPLY EDIT
```
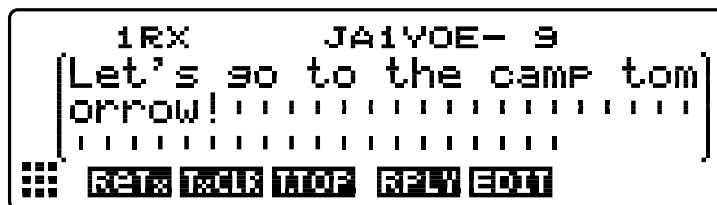
Tips
- The display time of the detailed information can be changed using **[10 APRS]** → **[7 APRS POP-UP]** in the set-up menu. The detailed information can also be set not to appear even when a message is received by setting the display time to "OFF".
- The receive audio (message and voice etc.) of the APRS operating band can be muted using **[10 APRS]** → **[6 APRS MUTE]** in the set-up menu.

▌ Convenient functions

● Listening to audio read out from a message

An audio announce read out of a message can be heard when the optional voice guide unit "FVS-2" is installed in the transceiver. This is convenient while driving, when looking at the screen is not advisable.

- Listening to audio when the "MESSAGE LIST" screen is displayed

  When ⌨(V/M MW) **[VOICE]** is pressed, the message for the selected station is read out. Reading out of the message is canceled when ⌨(V/M MW) **[VOICE]** is pressed while the message is being read out.

  ```
  MESSAGE LIST
  ▶ 1** JA1ZRL- 7    16:07
    2* JA1YOE- 9      04/15
    3* JQ1YBG- 9      04/14
    TOP VOICE S.LST RPLY EDIT
  ```

- Listening to audio when the message details screen is displayed

  When ⌨(BAND MHz) is pressed, the displayed message is read out. Reading out of the message is canceled when ⌨(BAND MHz) is pressed while the message is being read out.

  ```
  1RX        JA1YOE- 9
  Let's go to the camp tom
  orrow!
      RETx TxCLR TTOP RPLY EDIT
  ```
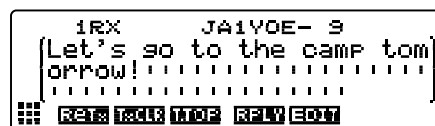
- Listening to audio when the message input screen is displayed

  When ⌨(BAND MHz) **[TEXT]** is pressed for one second or longer, the message currently being input is read out. Reading out of the message is canceled when ⌨(BAND MHz) **[TEXT]** is pressed for one second or longer while the message is being read out.

  ```
  TX MESSAGE EDIT      TEXT
    To: JA1ZRL- 7
  Let's go to the camp tom
  orrow!
     A/a CLR ← → ×       TX
  ```

Tip

When **[8 MSG VOICE]** at **[10 APRS]** **[8 APRS RINGER]** on the set-up menu is set to ON, messages starting with "%" are read out automatically when they are received.

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Sending APRS messages

Text containing a maximum of 67 characters can be sent as an APRS message in this device. Numbers and symbols can be used.

▌Creating and sending a new message

1 Display the "MESSAGE LIST" screen.

2 Press (SQL/VOICE) [**EDIT**].

The screen for inputting the message and call sign time will be displayed.

```
MESSAGE LIST
▶ 1✦* JA1ZRL- 7    16:07
   2✦☐ JA1VOE- 9    04/15
   3✦☐ JQ1YBG- 9    04/14
⠿ TOP VOICE SLST RPLY (EDIT)
```

3 Press (Dx) [**←**].

The cursor moves to the item for inputting the call sign of the partner station to which you want to transmit.

```
TX MESSAGE EDIT        TEXT
   To:  ' ' ' ' ' '
▮ ' ' ' ' ' ' ' ' ' ' ' ' '
⠿ A/a CLR (←) → ✕       TX
```

4 Turn the DIAL and select characters to enter the call sign.

Tip Up to 10 digits can be input, including letters, numbers and the hyphen.

Press (TXPO) [**A/a**] → This switches between letters and numbers.

Press (V/M MW) [**CLR**] → This deletes all characters to the right of the cursor.

Press (Dx) [**←**] → This shifts the cursor to the left.

Press (GM) [**→**] → The cursor will shift to the right.

Press (SQL VOICE) [**✕**] → This deletes all characters to the left of the cursor.

Please refer to "Input characters" (☞ P. 20) in the basic operating manual for details.

5 Press (GM) [**→**].

The cursor moves to the item for inputting the message.

```
TX MESSAGE EDIT        TEXT
   To: JA1ZRL- 7
▮ ' ' ' ' ' ' ' ' ' ' ' ' '
⠿ A/a CLR ← (→) ✕       TX
```

6 Turn the DIAL and select characters to enter the message text.

Tips • Numbers and symbols can be entered.

```
TX MESSAGE EDIT        TEXT
   To: JA1ZRL- 7
▮et's go to the camp tom
orrow!' ' ' ' ' ' ' ' ' '
⠿ A/a CLR ← → ✕       TX
```

• Press (A/B DW) [⠿], (V/M MW) then press [**INS**] to insert a space on the left hand side of the cursor and shift the text after the cursor to the right.

• Press (SQL VOICE) [**✕**] to delete the character to the left of the cursor.

7 Press (DISP SETUP) for one second or longer.

The message will be transmitted.

The transmitted message will be displayed at the top of the list.

Cancelling a message resend

When a message is sent to a specific partner station and an ACK packet to acknowledge receipt of the message is not returned by the partner station one minute after the message is sent, the same message will be resent up to 5 times. The resend may be cancelled by pressing [TxCLR] midway through the process.

Remaining transmission count

```
MESSAGE LIST
▶ 1*3 JA1ZRL- 7    16:07
  2*☑JA1YOE- 9    04/15
  3*🖹JQ1YBG- 9    04/14
▦ TOP VOICE S.LST RPLY EDIT
```

Display after resend is cancelled

```
MESSAGE LIST
▶ 1*. JA1ZRL- 7    16:07
  2*☑JA1YOE- 9    04/15
  3*🖹JQ1YBG- 9    04/14
▦ TOP VOICE S.LST RPLY EDIT
```

Using sent and received messages
A previously edited message can be used to write a new message. This can be used to forward a received message.

1 Display the "MESSAGE LIST" screen.

2 Press (SQL/VOICE) [**EDIT**].

The message input screen will be displayed.

> **Tip** To delete previously created call signs or messages, press (A/B DW) [**▦**] then press (TXPO) [**A.CLR**].

```
MESSAGE LIST
▶ 1** JA1ZRL- 7    16:07
  2*☑JA1YOE- 9    04/15
  3*🖹JQ1YBG- 9    04/14
▦ TOP VOICE S.LST RPLY (EDIT)
```

3 Edit the call sign and text according to Steps 3 to 6 under "Creating and sending a new message" (☞ P.46).

```
TX MESSAGE EDIT        TEXT
   To: JA1ZRL- 7
[Let's go to the camp tom]
orrow!················
▦ A/a CLR ← → ✕        TX
```

Clear the resend timer and resend the message by force
This clears the resend timer when an ACK packet is not returned from the partner station and resends the message by force.

1 Display the "MESSAGE LIST" screen.

2 Select the message tag to be sent by force. or display the message details.

```
MESSAGE LIST
▶ 1*3 JA1ZRL- 7    16:07
  2*☑JA1YOE- 9    04/15
  3*🖹JQ1YBG- 9    04/14
▦ TOP VOICE S.LST RPLY EDIT
```

3 Press (A/B DW) [**▦**].

The extension key switches.

```
MESSAGE LIST
▶ 1*3 JA1ZRL- 7    16:07
  2*☑JA1YOE- 9    04/15
  3*🖹JQ1YBG- 9    04/14
⊞ TOP VOICE S.LST RPLY EDIT
```

4 Press (SQL/VOICE) [**SEND**].

The message will be transmitted by force.

```
MESSAGE LIST
▶ 1*3 JA1ZRL- 7    16:07
  2*☑JA1YOE- 9    04/15
  3*🖹JQ1YBG- 9    04/14
▦ TxCLR POS REPLY DEL (SEND)
```

Using standard text

A pre-registered character string can be appended to the message text. Up to 8 types of text containing a maximum of 16 characters can be registered.

(1) Registering standard text

1 Press (DISP SETUP) for one second or longer.
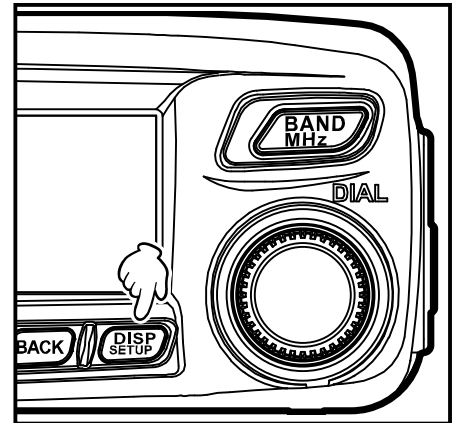
The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

3 Turn the DIAL, select **[4 APRS MESSAGE TEXT]**, then press (DISP SETUP).

The text selection screen will be displayed.

4 Turn the DIAL, select the text number (1 to 8), then press (DISP SETUP).

The cursor moves to the item for inputting text.

5 Turn the DIAL and select characters to enter them.

> **Tip** Numbers and symbols can be entered.
>
> Press (TXPO) [A/E] → This switches between letters, numbers and symbols.
>
> Press (V/M MW) [CLR] → This deletes all characters to the right of the cursor.
>
> Press (Dx) [←] → This shifts the cursor to the left.
>
> Press (GM) [→] → The cursor will shift to the right.
>
> Press (SQL VOICE) [◄X] → This deletes all characters to the left of the cursor.
>
> Please refer to "Input characters" (☞ P. 20) in the basic operating manual for details.

6 Press (DISP SETUP)

The standard text is displayed as a message text.

> **Tip** Repeat Steps 4 to 6 to continue entering other text.

(2) Appending standard text

1 Edit the call sign and text according to Steps1 to 6 under "Creating and sending a new message" (☞ P.46).

2 Press [Dx] [⬅] or [GM] [➡] to move the cursor to the position at which you want to insert the standard text.

3 Press [BAND MHz] [TEXT].

4 Turn the DIAL to display the text number of the standard text you would like to use.

5 Press [DISP SETUP].

The standard text to the right of the cursor will be copied.

> **Tip** Any character string to the right of the cursor will be overwritten.

▌ Replying to a received message

1 Display the "MESSAGE LIST" screen.

2 Select the message tag that you would like to reply to or display the message details.

3 Press [GM] [RPLY].

The screen for inputting the message and call sign time will be displayed.

4 Turn the DIAL and select characters to enter the text.

> **Tip** Numbers and symbols can be entered.
>
> Press [TXPO] [A/a] → This switches between letters, numbers and symbols.
>
> Press [V/M MW] [CLR] → This deletes all characters to the right of the cursor.
>
> Press [Dx] [⬅] → This shifts the cursor to the left.
>
> Press [GM] [➡] → The cursor will shift to the right.
>
> Press [SQL VOICE] [✖] → This deletes all characters to the left of the cursor.
>
> Please refer to "Input characters" (☞ P. 20) in the basic operating manual for details.

5 Press [DISP SETUP] for one second or longer.

The message will be transmitted.

The transmitted message will be displayed at the top of the list.

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Sorting the APRS message list

█ Deleting a message from the list

Messages that are no longer required can be deleted from the list.

Deleting using the message details screen

1 Display the details of the message that you would like to delete.

2 Press ⟨A/B DW⟩ [▦].

The extension key switches.

```
    1TX       JA1ZRL- 7
[Let's go to the camp tom]
[orrow! ' ' ' ' ' ' ' ' ' ' ' ' ' ]
 ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
(⊞) ReTx TxCLR TTOP RPLY EDIT
```

3 Press ⟨GM⟩ [DEL].

The delete confirmation screen will be displayed.

```
    1TX       JA1ZRL- 7   LIST
[Let's go to the camp tom]
[orrow! ' ' ' ' ' ' ' ' ' ' ' ' ' ]
 ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
(▦) RAW POS QERY (DEL) SEND
```

4 Turn the DIAL to select **[OK?]**, then press ⟨DISP SETUP⟩.

> **Tip** To interrupt deletion, select **[Cancel]** and press ⟨DISP SETUP⟩.

The display will return to the function menu screen when the deletion is completed.

The messages in the list will be moved up one at a time.

```
    1TX      ┌DELETE──┐- 7  LIST
[Let's s┌    │▶OK?    │camp tom]
[orrow! '│    │ Cancel │' ' ' ' ']
 ' ' ' '│    └────────┘
(▦) RAW POS QERY DEL SEND
```

Deleting a message using the "MESSAGE LIST" screen

1 Select the message that you would like to delete from the "MESSAGE LIST" screen.

2 Press ⟨A/B DW⟩ [▦].

The extension key switches.

```
MESSAGE LIST
▶ 1◆* JA1ZRL- 7    16:07
  2◆☑ JA1YOE- 9    04/15
  3◆🖹 JQ1YBG- 9    04/14
(⊞) TOP VOICE SLST RPLY EDIT
```

3 Press ⟨GM⟩ [DEL]

The delete confirmation screen will be displayed.

```
MESSAGE LIST
▶ 1◆* JA1ZRL- 7    16:07
  2◆☑ JA1YOE- 9    04/15
  3◆🖹 JQ1YBG- 9    04/14
(▦) TxCLR POS QERY (DEL) SEND
```

4 Turn the DIAL, select **[OK?]**, then press ⟨DISP SETUP⟩.

> **Tip** To interrupt deletion, select **[Cancel]** and press ⟨DISP SETUP⟩.

The display will return to the function menu screen when the deletion is completed.

The messages in the list will be moved up one at a time.

```
MESSAGE LIST
▶ 1◆*┌DELETE──┐   16:07
  2◆☑│▶OK?    │   04/15
  3◆🖹│ Cancel │   04/14
(▦) TxCLR POS QERY DEL SEND
```

Clearing the message resend counter and canceling the resend

When a message is sent to a specific partner station and an ACK packet to acknowledge receipt of the message is not returned by the partner station within one minute after the message is sent, the same message will be resent up to 5 times. However, the resend may be cancelled.

1 Display the "MESSAGE LIST" screen.

2 Select the message that you would like to cancel the resend.

3 Press (A/B DW) [⊞].
   The extension key switches.

```
MESSAGE LIST
▶ 1◆3 JA1ZRL- 7    16:07
   2◆☑ JA1YOE- 9    04/15
   3◆🖹 JQ1YBG- 9    04/14
⊞ TOP VOICE S.LST RPLY EDIT
```

4 Press (TXPO) [TxCLR].
   The resend will be cancelled.

```
MESSAGE LIST
▶ 1◆3 JA1ZRL- 7    16:07
   2◆☑ JA1YOE- 9    04/15
   3◆🖹 JQ1YBG- 9    04/14
⊞ TxCLR POS QERY DEL SEND
```

Deleting all APRS messages

1 Display the "MESSAGE LIST" screen.

2 Press (A/B DW) [⊞].
   The extension key switches.

```
MESSAGE LIST
▶ 1◆* JA1ZRL- 7    16:07
   2◆☑ JA1YOE- 9    04/15
   3◆🖹 JQ1YBG- 9    04/14
⊞ TOP VOICE S.LST RPLY EDIT
```

3 Press (GM) [DEL] for one second or longer.
   The delete confirmation screen will be displayed.

```
MESSAGE LIST
▶ 1◆* JA1ZRL- 7    16:07
   2◆☑ JA1YOE- 9    04/15
   3◆🖹 JQ1YBG- 9    04/14
⊞ TxCLR POS QERY DEL SEND
```

4 Turn the DIAL, select **[OK?]**, then press (DISP SETUP).

   Tip To interrupt deletion, select **[Cancel]** and press (DISP SETUP).

   The display will return to the function menu screen when the deletion is completed.
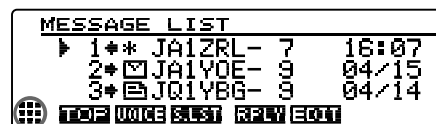
   All the fields in the list will become empty.

```
MESSAGE LIST
▶ 1◆* .┌DELETE──┐ 16:07
   2◆☑ │▶OK?     │ 04/15
   3◆🖹 │ Cancel  │ 04/14
⊞ TxCLR POS QERY DEL SEND
```

Message receipt acknowledgement (ACK)

When a message is sent to a specific partner station, an ACK packet (receipt acknowledgement) will be returned to acknowledge receipt of the message by the partner station. The transmission process ends when an ACK packet is returned by the partner station. When an ACK packet is not returned by the partner station within one minute after the message is sent, the same message will be resent up to 5 times. When an ACK packet is not returned even after 5 times, the transceiver will go into the "TX OUT" state. The remaining transmission count of the message is displayed as shown below. The remaining transmission count can also be checked from the transmission details screen.

Remaining count display

Displaying the remaining transmission count

Displaying the remaining transmission count

```
MESSAGE LIST
▶ 1◀4⟩JA1ZRL- 7    16:07
  2◆☑JA1YOE- 9    04/15
  3◆🗊JQ1YBG- 9    04/14
▦ TOP VOICE SLST RPLY EDIT
```

```
 1TX ⟨4/5⟩ JA1ZRL- 7
[Let's go to the camp tom]
 orrow!::::::::::::::::::
▦ Rets TxCLR MTOP RPLY EDIT
```

"MESSAGE LIST" screen
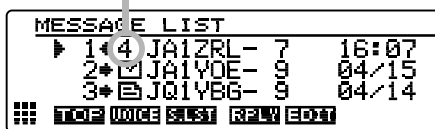
Message details screen

(when the number of transmissions remaining is four)

(when the number of transmissions remaining is four)

" " is displayed when an acknowledgement is received

No display when an acknowledgement is received

"." is displayed during TX OUT

"OUT" is displayed during TX OUT

```
MESSAGE LIST
▶ 1◀∗⟩JA1ZRL- 7    16:07
  2◆☑JA1YOE- 9    04/15
  3◆🗊JQ1YBG- 9    04/14
▦ TOP VOICE SLST RPLY EDIT
```

```
 1TX ⟨OUT⟩ JA1ZRL- 7
[Let's go to the camp tom]
 orrow!::::::::::::::::::
▦ Rets TxCLR MTOP RPLY EDIT
```
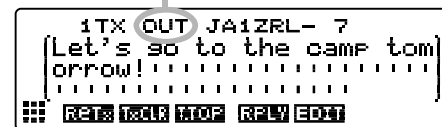
- A maximum of 100 messages can be registered in the message list. However, since this is used for both sent and received messages, the oldest message is automatically deleted when the number of messages exceed 100 (unread messages and sent messages will be deleted).
- When the frequency display screen is displayed, a receipt confirmation sound is heard when an ACK packet is returned from a partner station, and the pop-up screen in the figure on the right will be displayed at the same time (when "2 MESSAGE" under **[10 APRS]** **[7 APRS POP-UP]** in the set-up menu is set to anything except OFF).

APRS Set-up Menu List

Menu / Item	Explanation of function	Available settings (Default values shown in BOLD)
1 APRS COMPASS	APRS compass operation settings	1 NORTH UP / **2 HEADING UP**
2 APRS DESTINATION	Display of model code Cannot be edited	APY∗∗∗ (not editable)
3 APRS FILTER	Filter function setting	1 Mic-E: **ON** / OFF 2 POSITION: **ON** / OFF 3 WEATHER: **ON** / OFF 4 OBJECT: **ON** / OFF 5 ITEM: **ON** / OFF 6 STATUS: **ON** / OFF 7 OTHER: ON / **OFF** 8 RANGE LIMIT: **OFF** / 1 to 3000 9 ALT.NET: ON / **OFF**
4 APRS MESSAGE TEXT	Standard message text input	1 to 8 characters
5 APRS MODEM	Turning the APRS function ON/OFF	1 ON / **2 OFF**
6 APRS MUTE	Switches the AF mute of the APRS ON or OFF	1 ON / **2 OFF**
7 APRS POP-UP	Display time setting for pop-up display beacons and messages	1 BEACON: OFF / 3 sec / 5 sec / **10 sec** / HOLD 2 MESSAGE: OFF / 3 sec / 5 sec / **10 sec** / HOLD 3 MYPACKET: **OFF** / ON
8 APRS RINGER	Bell sound setting at beacon arrival	1 TX BEACON: **ON** / OFF 2 TX MESSAGE: **ON** / OFF 3 RX BEACON: **ON** / OFF 4 RX MESSAGE: **ON** / OFF 5 MY PACKET: **ON** / OFF 6 CALL RINGER: ON / **OFF** 7 RANGE RINGER: 1 to 100 / **OFF** 8 MSG VOICE: ON / **OFF**
9 APRS RINGER (CALL)	Call sign setting for CALL RINGER	1 to 8 stations (∗∗∗∗∗∗-∗∗)
10 APRS TX DELAY	Data transmission delay time setting	1 100 ms / 2 150 ms / 3 200 ms / **4 250 ms** / 5 300 ms / 6 400 ms / 7 500 ms / 8 750 ms / 9 1000 ms
11 APRS UNITS	APRS display unit setting	1 POSITION: **dd°mm.mm'** / dd°mm'ss" 2 DISTANCE: km / **mile** 3 SPEED: km/h / **mph** / knot 4 ALTITUDE: m / **ft** 5 BARO: hPa / **mb** / mmHg / inHg 6 TEMP: °C / **°F** 7 RAIN: mm / **inch** 8 WIND: m/s / **mph** / knot
12 BEACON INFO SELECT	Transmission beacon information setting	1 AMBIGUITY: **OFF** / 1 to 4 digits 2 SPEED/COURSE: **ON** / OFF 3 ALTITUDE: **ON** / OFF

	Menu / Item	Explanation of function	Available settings (Default values shown in BOLD)
13	BEACON STATUS TEXT	Status text input settings	SELECT: TEXT 1 - 5 / **OFF** TX RATE: **1/1** - 1/8 / 1/2 (FREQ) - 1/8(FREQ) TEXT 1 - 5: **NONE** / FREQUENCY / FREQ & SQL & SHIFT
14	BEACON TX	Automatic beacon transmission / Switching of manual transmission	1 AUTO: **OFF** / ON / SMART 2 INTERVAL: 30 sec to 60 min **5 min** 3 PROPORTIONAL: **ON** / OFF 4 DECAY: **ON** / OFF 5 LOW SPEED: 1 to 99 **5** 6 RATE LIMIT: 5 sec to 180 sec **60sec**
15	DIGI PATH SELECT	Digipeater route settings	1 OFF / 2 WIDE 1-1 / **3 WIDE 1-1, WIDE 2-1**
16	MY CALLSIGN (APRS)	My call sign setting	******-**
17	MESSAGE GROUP	Group filter setting for received messages	1 GROUP 1: ALL****** 2 GROUP 2: CQ******* 3 GROUP 3: QST****** 4 GROUP 4: YAESU**** 5 GROUP 5: - 6 GROUP 6: - 7 BULLETIN 1: BLN?***** 8 BULLETIN 2: BLN? 9 BULLETIN 3: BLN?
18	MESSAGE REPLY	Automatic response setting of received messages	1 REPLY: **OFF** / ON 2 CALLSIGN: ******-** 3 REPLY TEXT: -
19	MY POSITION SET	My position setting	**1 GPS** / 2 MANUAL
20	MY POSITION	Manual setting of your own station position	LAT: [N *°**.**' ('**")] LON: [E *°**.**' ('**")]
21	MY SYMBOL	My symbol setting	**ICON 1: [/>]** Car ICON 2: [/R] REC.Vehicle ICON 3: [/-] House QTH (VHF) USER: [YY] Yaesu Radios
22	POSITION COMMENT	Position comment setting	**1 Off Duty** / 2 En Route / 3 In Service / 4 Returning / 5 Committed / 6 Special / 7 Priority / 8 Custom 0 - 14 6 / 15 Emergency!
23	SmartBeaconing	Smart beaconing setting	1 STATUS: **OFF** / TYPE1 / TYPE2 / TYPE3 2 LOW SPEED: 2 to 30 **5** 3 HIGH SPEED: 3 to 90 **70** 4 SLOW RATE: 1 to 100 min **30 min** 5 FAST RATE: 10 to 180 sec **120 sec** 6 TURN ANGLE: 5 to 90° **28°** 7 TURN SLOPE: 1 to 255 **26** 8 TURN TIME: 5 to 180 sec **30 sec**
24	SORT FILTER	Sort function / filter function setting	1 SORT: **TIME** / CALLSIGN / DISTANCE 2 FILTER: **ALL** / MOBILE / FREQUENCY / OBJECT/ ITEM / DIGIPEATER / VoIP / WEATHER / YAESU / OTHER PACKET / CALL RINGER / RANGE RINGER / 1200 bps / 9600 bps

Menu / Item	Explanation of function	Available settings (Default values shown in BOLD)

25 VOICE ALERT	Voice alert function setting	1 V ALERT:
		    NORMAL / TONE SQL / DCS /
		    RX-TSQL / RX-DCS
		2 TONE SQL: 67.0Hz to 254.1Hz **100.0Hz**
		3 DCS: 023 to 754 **023**

APRS set-up menu basic operations

1   Press (DISP SETUP) for one second or longer.

The set-up menu will be displayed.

2   Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

```
SETUP MENU    (2/3)
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3   Turn the DIAL, select the item you would like to configure, then press (DISP SETUP).

```
SETUP MENU [ APRS     ]25
1▶APRS COMPASS
2 APRS DISTINATION
3 APRS FILTER
4 APRS MESSAGE TEXT
```

4   Turn the DIAL to change setting values.

5   Press (DISP SETUP) for one second or longer

The amended set value will be confirmed and the display will return to the previous screen.

```
   APRS COMPASS
1 NORTH UP
2▶HEADING UP
```

> **Tips** • The amended set value can also be confirmed by pressing the microphone PTT or the (Gᴍ) key.
>
> • To continue configuring the other items, press (BACK). The set value will be confirmed and the display will return to the menu list screen.
>
> • Pressing (BACK) on any screen takes you back to the previous screen.

Tip

When you select a previously configured menu item again and the menu list is displayed, the items will be displayed on the screen as they were configured before.

Resetting the APRS settings

The APRS settings can be restored to the default factory settings when shipped.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[13 RST/CLONE]**, then press (DISP/SETUP).

Themenu listwill be displayed.

```
SETUP MENU    12/21
 9 DATA       13▶RST/CLONE
10 APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[6 APRS RESET]**, then press (DISP/SETUP).

```
SETUP MENU [ RST/CLONE ] 8
 3 RECALL PRESET
 4 MEMORY CH RESET
 5 MEMORY CH SORT
 6▶APRS RESET
```

4 Turn the DIAL, select **[OK?]**, then press (DISP/SETUP).

The APRS settings will be reset and restored to the default factory settings.

```
SETUP MENU [ RST/CLONE ] 8
 3 RECA┌APRS RESET┐
 4 MEMO│ ▶OK?     │
 5 MEMO│  Cancel  │
 6▶APRS └RESET────┘
```

Tip   To cancel reset, select **[Cancel]** then press (DISP/SETUP).

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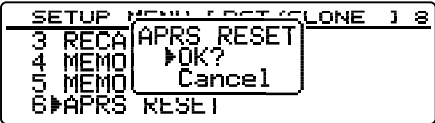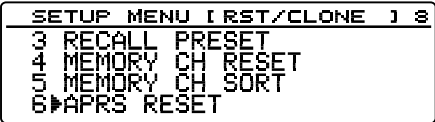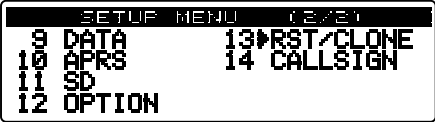
Using the APRS set-up menu

APRS compass setting

This sets the direction of the compass panel on the APRS screen.

1 Press (DISP SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

```
   SETUP MENU    12/20
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[1 APRS COMPASS]**, then press (DISP SETUP).

```
 SETUP MENU [ APRS      ]25
 1▶APRS COMPASS
 2 APRS DISTINATION
 3 APRS FILTER
 4 APRS MESSAGE TEXT
```

4 Turn the DIAL and select the direction of the compass panel.

```
    APRS COMPASS
 1 NORTH UP
 2▶HEADING UP
```

1 NORTH UP: This fixes the north direction of the compass scale at the top of the screen.

2 HEADING UP: This displays the direction of advance of your own station at the top at all times.

Tip Factory default value: 2 HEADING UP

5 Press (DISP SETUP) for one second or longer.

The direction of the compass panel will be set and the display will return to the previous screen.

Model code display

The model code can be checked (but it cannot be changed).

1 Press (DISP SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

```
   SETUP MENU    12/20
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[2 APRS DESTINATION]**, then press (DISP SETUP).

The model code will be displayed.

```
 SETUP MENU [ APRS      ]25
 1 APRS COMPASS
 2▶APRS DISTINATION
 3 APRS FILTER
 4 APRS MESSAGE TEXT
```

4 Press (DISP SETUP) for one second or longer.

The display will return to the previous screen.

```
    APRS DESTINATION

     Destination is
        "APY100"
```

▌ Filter function settings

The sets the filter for the downloading of various types of beacons.

1 Press 🔘(DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press 🔘(DISP/SETUP).

The menu list will be displayed.

```
  SETUP MENU   (2/3)
 9 DATA      13 RST/CLONE
10▶APRS      14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[3 APRS FILTER]**, then press 🔘(DISP/SETUP).

The filter setting screen will be displayed.

If item does not appear on the display, turn the DIAL to scroll the display.

```
 SETUP MENU [APRS     ]25
 1 APRS COMPASS
 2 APRS DISTINATION
 3▶APRS FILTER
 4 APRS MESSAGE TEXT
```

- Mic-E: Download and display the microphone encoder beacon.

- POSITION: Download and display the position beacon and RAW NMEA data.

- WEATHER: Download and display the meteorological station beacon.

- OBJECT: Download and display the object beacon.

- ITEM: Download and display the item beacon.

- STATUS: Download and display the status beacon.

- OTHER: Download and display the non-APRS packets

- RANGE LIMIT: This restricts reception to beacons that lie within a specified range from your own station. There will be no limit on the distance when this is set to OFF. The unit follows the setting under "2 DISTANCE" of "11 APRS UNITS".

- ALT.NET: Download and display the packets specified by the destination address in alternate nets.

4 Turn the DIAL and select **[1 Mic-E]**.

5 Press 🔘(DISP/SETUP) and select ON or OFF.

```
     APRS FILTER
1▶Mic-E      :[   ON   ]
2 POSITION   :[   ON   ]
3 WEATHER    :[   ON   ]
```

Pressing 🔘(DISP/SETUP) turns this function ON and OFF.

ON: Download the beacon.

OFF: Do not download the beacon.

6 Turn the DIAL to **[2 POSITION]**, **[3 WEATHER]**, **[4 OBJECT]**, **[5 ITEM]**, **[6 STATUS]**, or **[7 OTHER]** and select, then press 🔘(DISP/SETUP) to turn the function ON or OFF.

Pressing 🔘(DISP/SETUP) turns this function ON and OFF.

7 Turn the DIAL, select **[8 RANGE LIMIT]**, then press 🔘(DISP/SETUP).

```
     APRS FILTER
7 OTHER      :[   OFF  ]
8▶RENGE LIMIT:[   OFF  ]
9 ALT.NET    :[   OFF  ]
```

Move the cursor over the item for which you would like to enter numbers.

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8 Turn the DIAL and set the far left digit.

You can set the speed to any value between 1 and 3000.

> **Tip** To change the unit of distance, go to **[10 APRS]** **[11 APRS UNITS]**.

```
  APRS FILTER
7 OTHER     :[   OFF  ]
8▶0(OFF)~3000:[■000km]
9 ALT.NET   :[   OFF  ]
        ⬅━━  ━━➡
```

9 Press Ⓖᴹ [━━➡].

The cursor will shift to the right.

> **Tip** Press ᴰₓ [⬅━━] → The cursor will shift to the left.
> Press Ⓖᴹ [━━➡] → The cursor will shift to the right.

```
  APRS FILTER
7 OTHER     :[   OFF  ]
8▶0(OFF)~3000:[0■00km]
9 ALT.NET   :[   OFF  ]
        ⬅━━ ⟨━━➡⟩
```

10 Turn the DIAL and set the next digit.

11 Press (DISP/SETUP).

12 Turn the DIAL, select **[9 ALT.NET]**, press (DISP/SETUP), then select ON or OFF.

Pressing (DISP/SETUP) turns this function ON and OFF.

```
  APRS FILTER
7 OTHER      :[  OFF  ]
8 RENGE LIMIT:[  OFF  ]
9▶ALT.NET    :[  OFF  ]
```

13 Press (DISP/SETUP) for one second or longer.

The filter will be set and the display will return to the previous screen.

> **Tip** Factory default settings: 1 Mic-E: ON
> 2 POSITION: ON
> 3 WEATHER: ON
> 4 OBJECT: ON
> 5 ITEM: ON
> 6 STATUS: ON
> 7 OTHER: OFF
> 8 RANGE LIMIT: OFF
> 9 ALT.NET: OFF

Inputting standard message text

Eight types of standard messages containing a maximum of 16 characters can be created and registered. These can be pasted from the message editing screen and then transmitted.

Please refer to "Using standard text" (☞ P.48) for the details.

Turning the APRS function ON/OFF

This sets the APRS function ON or OFF.

Please refer to "Activating the APRS function" (☞ P.12) for the details.

APRS operating band mute setting

The receive audio (beacon and voice etc.) of the APRS operating band can be muted.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
  SETUP MENU   10/20
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[6 APRS MUTE]**, then press
⌐DISP¬
⌐SETUP⌐.

```
SETUP MENU [APRS    ]25
5 APRS MODEM
6▶APRS MUTE
7 APRS POP-UP
8 APRS RINGER
```

4 Turn the DIAL and select ON or OFF.

1 ON: mutes APRS band audio reception.

2 OFF: Lets you hear the sound being received by
adjusting the APRS band volume settings.

Tip Factory default value:2 OFF

```
 APRS MUTE
1 ON
2▶OFF
```

5 Press ⌐DISP¬⌐SETUP⌐ for one second or longer.

Sets the APRS operating bandmuteand returns to the previous screen.

▌APRS reception pop-up setting

This sets the display time of the pop-up that appears when a APRS beacon and
message is received.

1 Press ⌐DISP¬⌐SETUP⌐ for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press ⌐DISP¬⌐SETUP⌐.
The menu list will be displayed.

```
 SETUP MENU    12/21
9 DATA        13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[7 APRS POP-UP]**, then press
⌐DISP¬⌐SETUP⌐.

The screen for setting the pop-up display time will
be displayed.

```
SETUP MENU [APRS    ]25
5 APRS MODEM
6 APRS MUTE
7▶APRS POP-UP
8 APRS RINGER
```

4 Turn the DIAL and select **[1 BEACON]**.

5 Press ⌐DISP¬⌐SETUP⌐ to select the pop-up time for each time a
beacon is received.

The pop-up time changes in the following order each
time it is pressed.

"OFF", "3 sec", "5 sec", "10 sec", "HOLD"

Tip Factory default value: 10 sec

```
 APRS POP-UP
1▶BEACON   : 10 sec
2 MESSAGE  : 10 sec
3 MY PACKET: OFF
```

6 Turn the DIAL and select **[2 MESSAGE]**.

7 Press ⌐DISP¬⌐SETUP⌐ to select the pop-up time for each time a
message is received.

The pop-up time changes in the following order each
time it is pressed.

"OFF", "3 sec", "5 sec", "10 sec", "HOLD"

Tip Factory default value: 10 sec

```
 APRS POP-UP
1 BEACON   : 10 sec
2▶MESSAGE  : 10 sec
3 MY PACKET: OFF
```

8 Turn the DIAL and select **[3 MY PACKET]**.

9 Press ⟨DISP SETUP⟩ to turn your own station's transmission beacon (relay wave) pop-up ON or OFF.

Pressing ⟨DISP SETUP⟩ turns this function ON and OFF.

Tip Factory shipping value: OFF

```
APRS POP-UP
1 BEACON   : 10 sec
2 MESSAGE  : 10 sec
3▶MY PACKET: OFF
```

10 Press ⟨DISP SETUP⟩ for one second or longer.

The APRS reception pop-up action will be set and the display will return to the previous screen.

## Setting the bell ring when a message or beacon is transmitted/received

This sets the bell ring and the conditions for the bell ring when an APRS beacon is received/sent.

1 Press ⟨DISP SETUP⟩ for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press ⟨DISP SETUP⟩.

The menu list will be displayed.

```
SETUP MENU   (2/3)
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL select **[8 APRS RINGER]**, then press ⟨DISP SETUP⟩.

The screen for setting the bell ring will be displayed.

If item does not appear on the display, turn the DIAL to scroll the display.

```
SETUP MENU [APRS     12S]
 5 APRS MODEM
 6 APRS MUTE
 7 APRS POP-UP
 8▶APRS RINGER
```

• TX BEACON: This sets the bell ring when your own station is sending a beacon. When set to ON, a bell will ring prior to the transmission.

• TX MESSAGE: This sets the bell ring when your own station is sending a message. When set to ON, a bell will ring prior to the transmission.

• RX BEACON: This sets the bell ring when a beacon is received from another station. When set to ON, a bell will ring when a beacon is received.

• RX MESSAGE: This sets the bell ring when a message is received from another station. When set to ON, a bell will ring when a message is received.

• MY PACKET: This sets the bell ring when your own station transmit beacon (relayed signal) is received.

• CALL RINGER: A bell will ring when a beacon from a station whose call sign is set using **[10 APRS]** ▶ **[9 APRS RINGER (CALL)]** in the set-up menu is received.

• RNG RINGER: A special bell will ring when a beacon located close to your own station is received. When distance is selected, a special bell will ring when a beacon from a station closer than the distance set is received. When OFF is selected, the distance will not be determined.

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● : Normal bell ring
✕ : RNG RINGER special bell ring

My station ☆

Radius 10 km
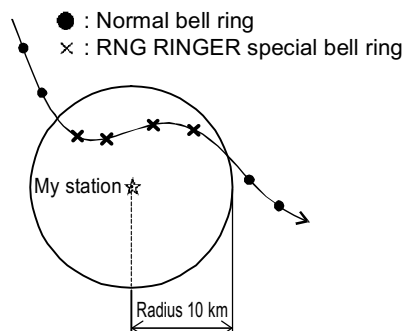
Example: When the distance is set at a radius of 10 km

- MSG VOICE: Reads out messages. When set to ON, this function reads the content (call sign and main text) of all messages starting with "%" at the top ("FVS-2" optional voice guide unit required).

4 Turn the DIAL and select **[1 TX BEACON]**.

5 Press (DISP/SETUP) and select ON or OFF.

Pressing (DISP/SETUP) turns this function ON and OFF.

```
   APRS RINGER
1▶TX BEACON  :[ ON  ]
2 TX MESSAGE :[ ON  ]
3 RX BEACON  :[ ON  ]
```

6 Turn the DIAL to select **[2 TX MESSAGE]**, **[3 RX BEACON]**, **[4 RX MESSAGE]**, **[5 MY PACKET]**, **[6 CALL RINGER]**, **[7 RANGE RINGER]**, or **[8 MSG VOICE]** then select (DISP/SETUP) ON or OFF for each one.

Pressing (DISP/SETUP) turns this function ON and OFF.

7 Press (DISP/SETUP) for one second or longer.

The bell ring will be set and the display will return to the previous screen.

Tip Factory default value: 1 TX BEACON: ON
2 TX MESSAGE: ON
3 RX BEACON: ON
4 RX MESSAGE: ON
5 MY PACKET: ON
6 CALL RINGER: OFF
7 RANGE RINGER: OFF
8 MSG VOICE: OFF

Call sign setting for CALL RINGER

Turn ON "CALL RINGER" under **[10 APRS]** → **[8 APRS RINGER]** in the set-up menu to set the call signs of stations that will ring the special bell. You can set call signs for up to 8 stations.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
   SETUP MENU   12/20
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[9 APRS RINGER (CALL)]**, then press (DISP/SETUP).

The call sign list will be displayed.

```
SETUP MENU [APRS    J25
 9▶APRS RINGER(CALL)
10 APRS TX DELAY
11 APRS UNITS
12 BEACON INFO SELECT
```

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4 Turn the DIAL to select a number in the list that you would like to save a call sign to, then press (DISP SETUP).

The character input screen will be displayed.

```
APRS RINGER(CALL)
1▶ [ ¦ ¦ ¦ ¦ ¦ ¦ — ¦ ¦ ]
2  [ ¦ ¦ ¦ ¦ ¦ ¦ — ¦ ¦ ]
3  [ ¦ ¦ ¦ ¦ ¦ ¦ — ¦ ¦ ]
```

5 Turn the DIAL and select characters to enter the call sign.

Please register the call sign as follows.

> **Tip** For character entry, see "Input characters" in the basic operating manual on (☞ P. 20).

```
APRS RINGER(CALL)
1▶ [ JA1█ ¦ ¦ — ¦ ¦ ]
2  [ ¦ ¦ ¦ ¦ ¦ ¦ — ¦ ¦ ]
3  [ ¦ ¦ ¦ ¦ ¦ ¦ — ¦ ¦ ]
A/a CLR ⟵ ⟶ ⊗
```

∗∗∗∗∗∗-NN

∗: call sign (6 characters maximum)

NN: SSID (a number between 1 and 15 or nil)

6 Press (DISP SETUP).

The screen will return to the list of call signs and the registered call sign will be displayed.

7 Press (DISP SETUP) for one second or longer.

The display will return to the previous screen.

▌ Data transmission delay time setting

The following preamble (data transmission delay time) can be set when sending APRS data.
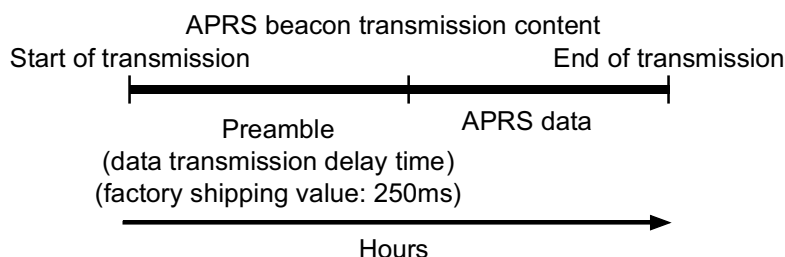
APRS beacon transmission content

Start of transmission   End of transmission

Preamble   APRS data
(data transmission delay time)
(factory shipping value: 250ms)

Hours

1 Press (DISP SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

```
SETUP MENU  (2/3)
9 DATA        13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[10 APRS TX DELAY]**, then press (DISP SETUP).

The screen for setting the data transmission delay time will be displayed.

```
SETUP MENU [APRS    12S
9 APRS RINGER(CALL)
10▶APRS TX DELAY
11 APRS UNITS
12 BEACON INFO SELECT
```

4 Turn the DIAL to select the desired delay time.

The delay time can be selected from the following 9 steps.

```
APRS TX DELAY
3 200 ms
4▶250 ms
5 300 ms
6 400 ms
```

1 100 ms / 2 150 ms / 3 200 ms / 4 250 ms /

5 300 ms / 6 400 ms / 7 500 ms / 8 750 ms / 9 1000 ms

> **Tip** Factory default value: 4 250 ms

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5 Press $\overset{\text{DISP}}{\text{SETUP}}$ for one second or longer.

Data transmission delay timeis set and the display returns to the previous screen.

Setting the display units of the APRS data

This sets the units for the latitude / longitude (POSITION), distance (DISTANCE), speed (SPEED), altitude (ALTITUDE), atmospheric pressure (BARO), temperature (TEMP), rainfall (RAIN) and wind (WIND).

1 Press $\overset{\text{DISP}}{\text{SETUP}}$ for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press $\overset{\text{DISP}}{\text{SETUP}}$.

The menu list will be displayed.

```
 SETUP MENU    02/20
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[11 APRS UNITS]**, then press $\overset{\text{DISP}}{\text{SETUP}}$.

The unit setting screen for the APRS display will be displayed.

```
 SETUP MENU [ APRS      125
 9 APRS RINGER(CALL)
10 APRS TX DELAY
11▶APRS UNITS
12 BEACON INFO SELECT
```

4 Turn the DIAL and select **[1 POSITION]**.

5 Press $\overset{\text{DISP}}{\text{SETUP}}$ and select the unit to be displayed.

The display unit for the latitude / longitude minute and below (DD°MM.MM') can be changed.

Press $\overset{\text{DISP}}{\text{SETUP}}$ to switch between dd°mm.mm' and dd°mm'ss".

dd°mm.mm': displays in 1/100 minute format.

dd°mm'ss": displays in minute and second format.

`Tip` Factory default value: dd°mm.mm'

```
    APRS UNITS
1▶POSITION: dd° mm.mm'
2 DISTANCE:     km
3 SPEED    :    km/h
4 ALTITUDE:     m
```

6 Turn the DIAL and select **[2 DISTANCE]**.

7 Press $\overset{\text{DISP}}{\text{SETUP}}$ and select the unit of distance.

You can change the unit of distance.

Pressing $\overset{\text{DISP}}{\text{SETUP}}$ switches between kilometers and miles.

`Tip` Factory default value: mile

```
    APRS UNITS
1 POSITION: dd° mm.mm'
2▶DISTANCE:     km
3 SPEED    :    km/h
4 ALTITUDE:     m
```

8 Turn the DIAL and select **[3 SPEED]**.

9 Press $\overset{\text{DISP}}{\text{SETUP}}$ and select the unit of speed.

You can change the unit of speed.

Press $\overset{\text{DISP}}{\text{SETUP}}$ to switch between km/h, mph, and knots.

`Tip` Factory default value: mph

```
    APRS UNITS
1 POSITION: dd° mm.mm'
2 DISTANCE:     km
3▶SPEED    :    km/h
4 ALTITUDE:     m
```

10 Turn the DIAL and select **[4 ALTITUDE]**.

11 Press $\overset{\text{DISP}}{\text{SETUP}}$ and select the unit of altitude

You can change the unit of altitude.

Pressing $\overset{\text{DISP}}{\text{SETUP}}$ switches between meters and feet.

`Tip` Factory default value: ft

```
    APRS UNITS
1 POSITION: dd° mm.mm'
2 DISTANCE:     km
3 SPEED    :    km/h
4▶ALTITUDE:     m
```

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12 Turn the DIAL and select **[5 BARO]**.

13 Press (DISP/SETUP) and select the unit of atmospheric pressure.

You can change the unit of atmospheric pressure.

Press (DISP/SETUP) to switch between hPa, mb, mmHg, and inHg.

Tip Factory default value: mb

```
  APRS UNITS
5▸BARO    :   hPa
6 TEMP    :   °C
7 RAIN    :   mm
8 WIND    :   m/s
```

14 Turn the DIAL and select **[6 TEMP]**.

15 Press (DISP/SETUP) and select the unit of temperature.

You can change the unit of temperature.

Pressing (DISP/SETUP) switches between °C and °F.

Tip Factory default value: °F

```
  APRS UNITS
5 BARO    :   hPa
6▸TEMP    :   °C
7 RAIN    :   mm
8 WIND    :   m/s
```

16 Turn the DIAL and select **[7 RAIN]**.

17 Press (DISP/SETUP) and select the unit of precipitation.

You can changetheunit of precipitation.

Pressing (DISP/SETUP) switches between millimeters and inches.

Tip Factory shipping value: inch

```
  APRS UNITS
5 BARO    :   hPa
6 TEMP    :   °C
7▸RAIN    :   mm
8 WIND    :   m/s
```

18 Turn the DIAL and select **[8 WIND]**.

19 Press (DISP/SETUP) and select the unit of wind speed.

You can changetheunit of wind speed.

Press (DISP/SETUP) to switch between m/s, mph, and knots.

Tip Factory default value: mph

```
  APRS UNITS
5 BARO    :   hPa
6 TEMP    :   °C
7 RAIN    :   mm
8▸WIND    :   m/s
```

20 Press (DISP/SETUP) for one second or longer.

The unit of the APRS display will be set and the display will return to the previous screen.

Transmission beacon information setting

The transmission information can be set when transmitting an APRS beacon.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
   SETUP MENU   12/21
 9 DATA       13 RST/CLONE
10▸APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[12 BEACON INFO SELECT]**, then press (DISP/SETUP).

The screen for setting the transmission information will be displayed.

```
 SETUP MENU [APRS    12⁵
 9 APRS RINGER(CALL)
10 APRS TX DELAY
11 APRS UNITS
12▸BEACON INFO SELECT
```

4 Turn the DIAL and select **[1 AMBIGUITY]**.

```
  BEACON INFO SELECT
1▸AMBIGUITY  : OFF
2 SPEED/COURSE: ON
3 ALTITUDE   : ON
```

5 Press (DISP SETUP).

You can change how your own station's position information is displayed.

This function masks the lower digits of the position information (latitude, longitude) when you do not want your own station position information to be known.

Pressing (DISP SETUP) switches between the options in the following order.

"OFF", "1 digit", "2 digits", "3 digits", "4 digits"

OFF: The accurate position information of your own station will be transmitted without being masked.

1 digit: The position information will appear with the lower 1 digit onwards masked from the "OFF" value.

2 digits: The position information will appear with the lower 2 digits onwards masked from the "OFF" value.

3 digits: The position information will appear with the lower 3 digits onwards masked from the "OFF" value.

4 digits: The position information will appear with the lower 4 digits onwards masked from the "OFF" value.

Example: Masking your own station position with a latitude of 35°37.23' and a longitude of 139°45.02'.

OFF	1digit	2digits	3digits	4digits
35°37.23'	35°37.2	35°37.	35°3 .	35° .
139°45.02'	139°45.0	139°45.	139°4 .	139° .

Tip   Factory shipping value: OFF

6 Turn the DIAL and select **[2 SPEED/COURSE]**.

7 Press (DISP SETUP).

```
BEACON INFO SELECT
1 AMBIGUITY   : OFF
2▶SPEED/COURSE: ON
3 ALTITUDE    : ON
```

Pressing (DISP SETUP) turns this function ON and OFF.

ON: Information on the speed and movement direction are transmitted.

OFF: Information on the speed and movement direction are not transmitted.

Tip   Factory default value: ON

8 Turn the DIAL and select **[3 ALTITUDE]**.

9 Press (DISP SETUP).

```
BEACON INFO SELECT
1 AMBIGUITY   : OFF
2 SPEED/COURSE: ON
3▶ALTITUDE    : ON
```

Pressing (DISP SETUP) turns this function ON and OFF.

ON: The altitude information is transmitted.

OFF: The altitude information is not transmitted.

Tip   Factory default value: ON

10 Press (DISP SETUP) for one second or longer.

The transmission information when sending a beacon will be set and the display will return to the previous screen.

Status text input

This sets the status text used when sending an APRS beacon.

5 types of status text containing a maximum of 60 characters can be entered.

Please refer to "Attaching status text to a beacon" (☞ P.38) for the details.

Beacon automatic transmission setting

The interval when automatically sending an APRS beacon can be set.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
SETUP MENU   (2/2)
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[14 BEACON TX]**, then press (DISP/SETUP).

The screen for the various settings when automatically sending a beacon will be displayed.

```
SETUP MENU [APRS    ]2E
13 BEACON STATUS TEXT
14▶BEACON TX
15 DIGI PATH SELECT
16 MY CALLSIGN (APRS)
```

4 Turn the DIAL and select **[1 AUTO]**.

5 Press (DISP/SETUP).

Selecting the beacon automatic transmission method.

```
        BEACON TX
1▶AUTO          :[  OFF  ]
2 INTERVAL      :[  5min ]
3 PROPORTIONAL:[   ON   ]
4 DECAY         :[   ON  ]
```

Pressing (DISP/SETUP) switches between the options in the following order.

"OFF", "ON", "SMART"

OFF: Your own station beacon will not transmit automatically.

ON: Your own station beacon will transmit automatically. Send at a transmission interval set using "INTERVAL". However, when "DECAY" is set to ON, the transmission interval will be gradually extended when your own station is not moving (stationary).

SMART: The SmartBeaconing™ function takes care of automatic transmission. This setting can be selected only when the status setting of **[10 APRS]** **[23 SmartBeaconing]** in the set-up menu is set to TYPE 1 - TYPE 3, and **[19 MY POSITION SET]** is set to GPS.

Tip Factory shipping value: OFF

6 Turn the DIAL, select **[2 INTERVAL]**, then press (DISP/SETUP).

```
        BEACON TX
1 AUTO          :[  OFF  ]
2▶INTERVAL      :[  5min ]
3 PROPORTIONAL:[   ON   ]
4 DECAY         :[   ON  ]
```

7 Turn the DIAL, select the specified value, and press (DISP SETUP).

Selecting the time interval for automatically sending anAPRS beacon.

When AUTO is set to ON (FIX), your own station APRS beacon will be automatically sent at the time interval specified here.

The transmission operation will be retained when the specified time has passed and the squelch is open at the beacon transmission timing. The beacon will be automatically sent when the squelch is closed.

Tip Factory default value: 5 min

8 Turn the DIAL and select **[3 PROPORTIONAL]**.

9 Press (DISP SETUP).

```
BEACON TX
1 AUTO         :[  OFF  ]
2 INTERVAL     :[ 5min  ]
3▶PROPORTIONAL:[   ON   ]
4 DECAY        :[   ON   ]
```

Set the function for automatically changing (thinning out) the specified digipeater address during transmission.

Pressing (DISP SETUP) turns this function ON and OFF.

ON: The address selected under **[10 APRS]** → **[15 DIGI PATH SELECT]** in the set-up menu will be automatically changed (refer to the following example).

OFF: The transmission will be in accordance with the address selected under **[10 APRS]** → **[15 DIGI PATH SELECT]** in the set-up menu.

> (Example) DIGI PATH SELECT = "WIDE 1-1, WIDE 2-1"
>   BEACON TX AUTO=ON (FIX) /
>   INTERVAL = 5 min/
>   When PROPORTIONAL = ON
>   (a) (5 min)   WIDE 1-1, WIDE 2-1
>   (b) (10 min) (none)
>   (c) (15 min) WIDE 1-1
>   (d) (20 min) (none)
>   (e) (25 min) WIDE 1-1, WIDE 2-1
>   Repeat (b) to (e).

When this function is set to ON, packet update will be carried out in detail for close distances while relay steps are spread out to reduce frequency congestion for long distances.

The settings will become void when **[10 APRS]** → **[15 DIGI PATH SELECT]** is set to OFF, FULL 1 and FULL 2.

Tip Factory default value: ON

10 Turn the DIAL and select **[4 DECAY]**.

11 Press (DISP SETUP).

```
BEACON TX
1 AUTO         :[  OFF  ]
2 INTERVAL     :[ 5min  ]
3 PROPORTIONAL:[   ON   ]
4▶DECAY        :[   ON   ]
```

This sets the function for extending the APRS beacon transmission time interval when your own station is stopped.

Pressing (DISP SETUP) turns this function ON and OFF.

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ON: Extends the APRS beacon transmission time interval when your own station is stopped.

When DECAY is set to ON and your own station enters into the stop mode, the "INTERVAL" setting will shift to a higher value one step at a time and the interval will gradually be extended (to a maximum of 30 minutes).

(Example) When stopping with the INTERVAL set at 1 min

The interval will be extended in the following order: 2 min → 3 min → 5 min → 10 min → 15 min → 20 min → 30 min → 30 min…

When movement starts again, a beacon is automatically sent out once, at which point the interval will automatically return to the "INTERVAL" setting.

When the "INTERVAL" setting reaches 30 min / 60 min, the transmission time interval will not be extended further.

OFF: The APRS beacon transmission time interval is not extended.

Tip Factory default value: ON

12 Turn the DIAL, select **[5 LOW SPEED]**, and press (DISP SETUP).

```
     BEACON TX
3 PROPORTIONAL:[  ON  ]
4 DECAY       :[  ON  ]
5▶LOW SPEED   :[ 5km/h]
6 RATE LIMIT  :[ 60sec]
```

Set the cut-off value for determining when the station has stopped for whenb "4 DECAY" is set to ON. When the speed is lower than the value set, the station will be deemed to have stopped.

13 Turn the DIAL, select the cut-off value, then press (DISP SETUP).

A speed between 1 and 99 can be set.

Tips • To change the unit of distance, go to **[10 APRS]** → **[11 APRS UNITS]**.
 • Factory shipping value: 5

14 Turn the DIAL, select **[6 RATE LIMIT]**, then press (DISP SETUP).

```
     BEACON TX
3 PROPORTIONAL:[  ON  ]
4 DECAY       :[  ON  ]
5 LOW SPEED   :[ 5km/h]
6▶RATE LIMIT  :[ 60sec]
```

Set the timer for limiting automatic transmission from the last beacon transmission to a certain period of time.

This prevents the beacon from being sent out twice continuously within a short period of time when "DECAY" is set to ON in the stationary state, and movement is detected immediately after the beacon is automatically transmitted. The beacon will not be automatically transmitted within this period of time. Only when the set time has passed will the beacon be automatically sent out again.

15 Turn the DIAL, select the length of time for the timer, then press (DISP SETUP).

The time can be set between 5 sec and 180 sec.

Tip Factory default value: 60sec

16 Press (DISP SETUP) for one second or longer.

The beacon automatic transmission will be set and the display will return to the previous screen.

Tip

The settings, "2 INTERVAL", "3 PROPORTIONAL", "4 DECAY", "5 LOW SPEED", and "6 RATE LIMIT"are all disabled while SmartBeaconing is operating.

Selecting the digipeater route

This selects the call sign and ALIAS of the digipeater used.
Please refer to "Setting the digipeater route" (P.41) for the details.

My call sign setting

This registers your own station call sign that is required for APRS communications.
APRS data cannot be sent when your own station call sign is not registered. Please make sure to register your own station call sign.
Refer to "Setting your own station call sign" (P.6) for the details.

Filter setting for messages received

The group filter for receiving messages and bulletin messages from specific groups (ALL, CQ, QST, YAESU etc.) can be set.
A maximum of up to 9 characters can be entered.
"1 GROUP 1 ALL", "2 GROUP 2 CQ", "3 GROUP 3 QST", "4 GROUP 4 YAESU", "5 GROUP 5 (any)" and "6 GROUP 6 (any)" can be set for the group code.
For bulletin, "7 BULLETIN 1" to "9 BULLETIN 3" can be set.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
SETUP MENU  08/20
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[17 MESSAGE GROUP]**, then press (DISP/SETUP).

The message group list will be displayed.

```
SETUP MENU [APRS   J25
17▶MESSAGE GROUP
18 MESSAGE REPLY
19 MY POSITION SET
20 MY POSITION
```

4 Turn the DIAL to select a saved group number, then press (DISP/SETUP).

The character input screen will be displayed.

```
  MESSAGE  GROUP
 1▶GROUP 1  :[ ALL****** ]
 2 GROUP 2  :[ CQ******* ]
 3 GROUP 3  :[ QST****** ]
```

5 Turn the DIAL, select characters, then press (DISP/SETUP).

Tip You can enter capital letters, numbers, and a certain symbol (only " " can be used).

Press (TXPO) [A/∃] → This switches between letters, numbers, and ∗.
Press (V/M MW) [CLR] → This deletes all characters to the right of the cursor.
Press (Dx) [←] → This shifts the cursor to the left.
Press (GM) [→] → The cursor will shift to the right.
Press (SQL VOICE) [✕] → This deletes all characters to the left of the cursor.

Please refer to "Input characters" (P. 20) in the basic operating manual for details.

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6 Press (DISP/SETUP).

The screen will return to the list of message groups and the registered group filter will be displayed.

7 Press (DISP/SETUP) for one second or longer.

The group filter will be set and the display will return to the previous screen.

▌ Automatic response setting of received messages

A reply message set up beforehand can be automatically sent out upon receiving a message.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
      SETUP MENU   (3/3)
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[18 MESSAGE REPLY]**, then press (DISP/SETUP).

The automatic reply setting screen will be displayed.

```
 SETUP MENU [ APRS      ]25
17 MESSAGE GROUP
18▶MESSAGE REPLY
19 MY POSITION SET
20 MY POSITION
```

4 Turn the DIAL and select **[1 REPLY]**.

5 Press (DISP/SETUP) and select ON or OFF.

Pressing (DISP/SETUP) turns this function ON and OFF.

ON: A reply message is returned automatically when a message is received.

OFF: A reply message is not returned when a message is received.

```
     MESSAGE REPLY
1▶REPLY     :   OFF
2 CALLSIGN  :[ ******-** ]
3 REPLY TEXT:[ ·········· ]
```

Tip Factory shipping value: OFF

6 Turn the DIAL, select **[2 CALLSIGN]**, then press (DISP/SETUP).

The cursor will shift to the left of the call sign.

```
     MESSAGE REPLY
1 REPLY     :   OFF
2▶CALLSIGN  :[ ******-** ]
3 REPLY TEXT:[ ·········· ]
```

Tip Please set this only when you want to reply to a specific station. Please proceed to Step9if this is not required.

7 Turnthe DIAL and select characters.

Please register the call sign as follows.

******-NN

∗: call sign (6 characters maximum)

NN: SSID (a number between 1 and 15 or nil)

```
     MESSAGE REPLY
1 REPLY     :   OFF
2▶CALLSIGN  :[ ■*****-** ]
3 REPLY TEXT:[ ·········· ]
 A/B CLR ←■  ■→ X
```

Tip You can enter capital letters, numbers, and a certain symbol (only "∗" can be used).

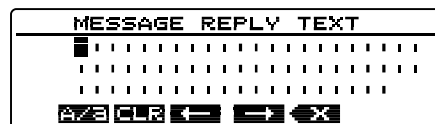Press (TXPO) [**A/B**] → This switches between letters, numbers, and ∗.

Press (V/M MW) [**CLR**] → This deletes all characters to the right of the cursor..

Press (D/x) [**←■**] → The cursor will shift to the left.

Press (Gм) [**■→**] → The cursor will shift to the right.

Press (SQL/VOICE) [**◀■X**] → This deletes all characters to the left of the cursor.

Please refer to "Input characters" (☞ P. 20) in the basic operating manual for details.

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8 Press (DISP/SETUP).

9 Turn the DIAL, select **[3 REPLY TEXT]**, then press (DISP/SETUP).

```
MESSAGE REPLY
1 REPLY     :   OFF
2 CALLSIGN  :[ ******-** ]
3▶REPLY TEXT:[ '''''''''' ]
```

10 Turn the DIAL, select characters, then press (DISP/SETUP).

Enter the automatic reply message.

```
MESSAGE REPLY TEXT
█'''''''''''''''''''''''''''
''''''''''''''''''''''''''''
''''''''''''''''''''''''''''
A/3 CLR ⬅ ➡ ◀X
```

Tip Numbers and symbols can be entered.

Press (TXPO) [A/3] → This switches between letters, numbers, and symbols.

Press (V/M MW) [CLR] → This deletes all characters to the right of the cursor.

Press (Dx) [⬅] → The cursor will shift to the left.

Press (GM) [➡] → The cursor will shift to the right.

Press (SQL/VOICE) [◀X] → This deletes all characters to the left of the cursor.

Please refer to "Input characters" (☞ P. 20) in the basic operating manual for details.

11 Press (DISP/SETUP).

The automatic reply setting screen will be displayed.

12 Press (DISP/SETUP) for one second or longer.

The automatic reply for messages received will be set and the display will return to the previous screen.

▌ My position setting

The position information of your own station can be obtained from the GPS or entered manually.
Refer to "Setting the position information of your own station" (☞ P.3) for the details.

▌ Entering your own station position

This manually sets your own station position.
Refer to "Setting the function manually" (☞ P.4) for the details.

▌ Setting your own station symbol

This sets the transmission symbol of your own station. The symbol can be selected from 67 types of symbols.
Refer to "Setting the symbol of your own station" (☞ P.8) for the details.

▌ Position comment setting

This selects the position comment (standard message to be incorporated into your own station beacon.
Refer to "Selecting a position comment" (☞ P.40) for the details.

Smart beaconing setting

The SmartBeaconing™ function continually transmits beacons with your own station position information, movement speed and direction of advance. using data derived from a GPS antenna unit.

SMART (SmartBeaconing) can be selected using the "AUTO" setting under **[10 APRS] [14 BEACON TX]** in the set-up menu when STATUS is set to TYPE 1 - TYPE 3.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
SETUP MENU   (3/3)
 9 DATA        13 RST/CLONE
10▶APRS        14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[23 SmartBeaconing],** and press (DISP/SETUP).

The screen for setting SmartBeaconing will be displayed.

```
SETUP MENU [APRS    J25
22 POSITION COMMENT
23▶SmartBeaconing
24 SORT FILTER
25 VOICE ALERT
```

4 Turn the DIAL and select **[1 STATUS]**.

5 Press (DISP/SETUP) and select the SmartBeaconing operating method.

```
SmartBeaconing
1▶STATUS    :[   OFF   ]
2 LOW SPEED :[    -    ]
3 HIGH SPEED:[    -    ]
```

Press (DISP/SETUP) to switch between the options in the following order.

"OFF", "TYPE 1", "TYPE 2", "TYPE 3"

OFF: SmartBeaconing™ is not active.

TYPE 1/TYPE 2/TYPE 3:

SmartBeaconing™ is active.

Three different types of setting (TYPE 1 - TYPE 3) can be selected for operation.

Normally, TYPE 1 (where all the parameters remain in their initial values) is recommended.

When testing operations at a different timing, TYPE 2 and TYPE 3 settings can be adjusted and selected to use the parameters differently for different purposes depending on the situation. In order to ensure that a beacon can be transmitted properly, adjust the SmartBeaconing parameters and digipeater route settings so as prevent frequency congestion.

Tip Factory shipping value: OFF

When "TYPE 1", "TYPE 2" and "TYPE 3" is selected, settings from **[2 LOW SPEED]** to **[8 TURN TIME]** are enabled.

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6 Turn the DIAL, select **[2 LOW SPEED]**, and press
$\binom{\text{DISP}}{\text{SETUP}}$.

```
 SmartBeaconing
1 STATUS    :[  TYPE1  ]
2▶LOW SPEED :[   5 km/h]
3 HIGH SPEED:[  70 km/h]
```

Move the cursor over the item for which you would
like to enter numbers.

When the speed drops below the set speed, the beacon is transmitted at the time
interval set under "4 SLOW RATE".

7 Turn the DIAL and set the far left digit.

You can set the speed to between 2 and 30.

```
 SmartBeaconing
1 STATUS    :[  TYPE1  ]
2▶   2~30   :[ ■5 km/h]
3 HIGH SPEED:[  70 km/h]
    [ ⬅ ] [ ➡ ]
```

Tips • To change the unit of distance, go to **[10 APRS]**   **[11
        APRS UNITS]**.

        • Factory shipping value: 5

8 Press $\boxed{\text{Gᴍ}}$ [➡].

```
 SmartBeaconing
1 STATUS    :[  TYPE1  ]
2▶   2~30   :[ 0■ km/h]
3 HIGH SPEED:[  70 km/h]
    [ ⬅ ] (➡)
```

The cursor will shift to the right.

Tip Press $\boxed{\text{Dₓ}}$ [⬅] → The cursor will shift to the left.

      Press $\boxed{\text{Gᴍ}}$ [➡] → The cursor will shift to the right.

9 Turn the DIAL and set thenext digit.

10 Press $\binom{\text{DISP}}{\text{SETUP}}$.

11 Turn the DIAL, select **[3 HIGH SPEED]**, and press
$\binom{\text{DISP}}{\text{SETUP}}$.

```
 SmartBeaconing
1 STATUS    :[  TYPE1  ]
2 LOW SPEED :[   5 km/h]
3▶HIGH SPEED:[  70 km/h]
```

Move the cursor over the item for which you would
like to enter numbers.

When the speed exceeds the speed set, the beacon is sent at a time interval that
has been set under "FAST RATE".

12 Refer to steps 7 - 9 to set the speed, then press
$\binom{\text{DISP}}{\text{SETUP}}$.

```
 SmartBeaconing
1 STATUS    :[  TYPE1  ]
2 LOW SPEED :[   5 km/h]
3▶   3~90   :[ ■0 km/h]
    [ ⬅ ] [ ➡ ]
```

You can set the speed to between 3 and 90.

Tips • To change the unit of distance, go to **[10 APRS]** → **[11
        APRS UNITS]**.

        • Factory shipping value: 70

13 Turn the DIAL, select **[4 SLOW RATE]**, and press
$\binom{\text{DISP}}{\text{SETUP}}$.

```
 SmartBeaconing
4▶SLOW RATE :[  30 min ]
5 FAST RATE :[ 120 sec ]
6 TURN ANGLE:[  28 °   ]
```

Move the cursor over the item for which you would
like to enter numbers.

Set the beacon transmission time interval for when the speed drops below the speed
set under "2 LOW SPEED".

14 Refer to steps7 - 9 to set the time, then press $\binom{\text{DISP}}{\text{SETUP}}$.

A time between 1 min and 100 min can be set.

Tip Factory default value: 30 min

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15 Turn the DIAL, select **[5 FAST RATE]**, and press
(DISP SETUP).

```
       SmartBeaconing
4  SLOW RATE  :[   30 min ]
5▶FAST RATE :[  120 sec ]
6  TURN ANGLE:[   28 °   ]
```

Move the cursor over the item for which you would
like to enter numbers.

Set the beacon transmission time interval for when the speed exceeds the speed set
under "3 HIGH SPEED".

16 Refer to steps7 - 9 to set the time, then press (DISP SETUP).

A time between 10 min and 180 min can be set.

> **Tip** Factory default value: 120 sec

17 Turn the DIAL, select **[6 TURN ANGLE]**, and press
(DISP SETUP).

```
       SmartBeaconing
4  SLOW RATE  :[   30 min ]
5  FAST RATE :[  120 sec ]
6▶TURN ANGLE:[   28 °   ]
```

Move the cursor over the item for which you would
like to enter numbers.

Set the minimum angle for determining whether the direction of advance has
changed.

18 Refer to steps 7 - 9 to set the angle, then press (DISP SETUP).

An angle between 5° and 90° can be set.

> **Tip** Factory default value: 28°

19 Turn the DIAL, select **[7 TURN SLOPE]**, and press
(DISP SETUP).

```
       SmartBeaconing
6  TURN ANGLE:[   28 °   ]
7▶TURN SLOPE:[   26     ]
8  TURN TIME :[   30 sec ]
```

Move the cursor over the item for which you would
like to enter numbers.

Set the coefficient for dynamically changing the angle that is used to determine
changes in the direction of advance depending on the movement speed. The larger
the coefficient value, the larger is the criteria angle at low speeds.

    1 - 255 (X10)°/speed

(the unit for the rotating tilt is set to one-tenth of the real number so as to be
consistent with the unit used in the HamHUD series from HamHUD Nichetronix).

20 Refer to steps 7 - 9 to set the coefficient, then press (DISP SETUP).

A value between 1 and 255 can be set.

> **Tip** Factory default value: 26

21 Turn the DIAL, select **[8 TURN TIME]**, and press
(DISP SETUP).

```
       SmartBeaconing
6  TURN ANGLE:[   28 °   ]
7  TURN SLOPE:[   26     ]
8▶TURN TIME :[   30 sec ]
```

Move the cursor over the item for which you would
like to enter numbers.

Set the time limit until the next beacon can be sent after a beacon has been
transmitted due to a change detected in the time (Variable Rate Beaconing) and
direction of advance (Corner Pedding).

22 Refer to steps 7 - 9 to set the time limit, then press (DISP SETUP).

A time between 5 sec and 180 sec can be set.

> **Tip** Factory default value: 30 sec

23 Press (DISP/SETUP) for one second or longer.

The SmartBeaconing will be set and the display will return to the previous screen.

Tips

- This device is equipped with settings (common TYPE 1 - TYPE 3) for car-mounted mobile use in town and residential areas.
- When using the SmartBeaconing™ function along meandering roads such as mountain paths, frequency congestion may result as multiple beacons are transmitted within a short period of time. In order to ensure that beacons can be transmitted in an appropriate manner, adjust the parameters and digipeater route settings of the SmartBeaconing™ so as to prevent frequency congestion.
- SmartBeaconing™ is a function provided by HamHUD Nichetronix.

Sort function and filter settings

This sets the sorting condition for the display order of the station list and selects the type of beacon to be displayed in the station list.

1 Press (DISP/SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP/SETUP).

The menu list will be displayed.

```
SETUP MENU    13/30
 9 DATA       13 RST/CLONE
10▶APRS       14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[24 SOFT FILTER]**, then press (DISP/SETUP).

The screen for setting the sorting condition and filter will be displayed.

```
SETUP MENU [APRS    J25
22 POSITION COMMENT
23 SmartBeaconing
24▶SORT FILTER
25 VOICE ALERT
```

4 Turn the DIAL and select **[1 SORT]**.

5 Press (DISP/SETUP).

Selecting station list display order criteria.

Press (DISP/SETUP) to switch between the options in the following order.

"TIME", "CALLSIGN", "DISTANCE"

TIME: Sort the station list starting from the latest one received.

CALLSIGN: Sort the station list in ascending order of the call sign.

DISTANCE: Sort the list starting from the station nearest to your own station.

```
   SORT FILTER
1▶SORT   : TIME
2 FILTER : ALL
```

Tip Factory default value: TIME

6 Turn the DIAL, select **[2 FILTER]**, then press (DISP/SETUP).

You can select the type of beacon to be displayed in the station list.

Pressing (DISP/SETUP) lets you switch through the types of beacon in the following order. The beacon type can be selected from the following 13 types of beacons.

```
   SORT FILTER
1 SORT   : TIME
2▶FILTER : ALL
```

"ALL", "MOBILE", "FREQUENCY", "OBJECT/ITEM", "DIGIPEATER", "VoIP", "WEATHER", "YAESU", "OTHER PACKET", "CALL RINGER", "RANGE RINGER", "1200 bps" and "9600 bps"

ALL: All the received beacons will be displayed.

MOBILE: Only the mobile stations will be displayed.

FREQUENCY: Only station with frequency information will be displayed.

OBJECT/ITEM: Only object stations and item stations will be displayed.

DIGIPEATER: Only digipeater stations will be displayed.

VoIP: Only VOIP station such as WIRES will be displayed.

WEATHER: Only meteorological stations will be displayed.

YAESU: Only stations which are using Yaesu wireless transceivers will be displayed.

OTHER PACKET: Only RAW NMEA data stations, status stations and non-APRS packet information that cannot be analyzed are displayed. Set "OTHER" to ON under **[10 APRS]** → **[3 APRS FILTER]** in the set-up menu to display non-APRS packets that cannot be analyzed.

CALL RINGER: Only information of call sign ringer stations set under **[10 APRS]** → **[9 APRS RINGER (CALL)]** in the set-up menu will be displayed.

RANGE RINGER: Only information of stations deemed as nearby stations according to "7 RNG RINGER" settings that are set under **[10 APRS]** → **[8 APRS RINGER]** in the set-up menu will be displayed.

1200 bps: Only stations received using 1200 bps packets will be displayed.

9600 bps: Only stations received using 9600 bps packets will be displayed.

Tip Factory shipping value: ALL

7 Press (DISP SETUP) for one second or longer.

The beacon type and sorting condition for the station list will be set and the display will return to the previous screen.

Tips
- To enable SORT, press (A/B DW) [⬛] on the "STATION LIST" screen, then press (V/M MW) [**SORT**].
- When a new beacon is received after sorting, it will be added to the top of the list without being sorted. The sorting order will be restored to the initial setting when the power supply is cut off. Please carry out sorting one more time after the power supply is turned on.

▌**Voice alert function setting**

This is an audio notification function that will announce the presence of other stations which can communicate via voice communications.

1 Press (DISP SETUP) for one second or longer.

The set-up menu will be displayed.

2 Turn the DIAL, select **[10 APRS]**, then press (DISP SETUP).

The menu list will be displayed.

```
 SETUP MENU  (2/3)
 9 DATA          13 RST/CLONE
10▶APRS          14 CALLSIGN
11 SD
12 OPTION
```

3 Turn the DIAL, select **[25 VOICE ALERT]**, then press (DISP SETUP).

```
SETUP MENU [APRS      ]25
22 POSITION COMMENT
23 SmartBeaconin9
24 SORT FILTER
25▶VOICE ALERT
```

The screen for setting the voice alert function will be displayed.

4 Turn the DIAL and select **[1 VOICE ALERT]**.

```
      VOICE ALERT
1▶VOICE ALERT:[ NORMAL  ]
2 TONE SQL   :[100.0 Hz]
3 DCS        :[  023   ]
```

5 Press (DISP SETUP) to select the voice alert action.

Press (DISP SETUP) to switch through the voice alert action options in the following order.

"NORMAL", "TONE SQL", "DCS", "RX-TSQL", RX-DCS"

NORMAL: The voice alert function will be turned off.

TONE SQL: A tone squelch will be used for sending and receiving voice signals. A tone signal will also be appended when sending APRS data.
After selecting "TONE SQL", the tone frequency to be set next will be used as the squelch target.

DCS: DCS will be used in sending and receiving voice signals. The DCS code will also be appended when sending APRS data.
After selecting "DCS", the DCS code to be set next will be used as the squelch target.

RX-TSQL: Although a tone squelch is used in sending and receiving voice signals, a tone signal is not appended when sending APRS data.
After selecting "RX-TSQL", the tone frequency to be set next will be used as the squelch target.

RX-DCS: Although DCS is used in sending and receiving voice signals, the DCS code is not appended when sending APRS data.
After selecting "RX-DCS", the DCS code to be set next will be used as the squelch target.

Tip Factory default value: NORMAL

6 Turn the DIAL, select **[2 TONE SQL]**, then press (DISP SETUP).

```
      VOICE ALERT
1 VOICE ALERT:[ NORMAL  ]
2▶TONE SQL   :[100.0 Hz]
3 DCS        :[  023   ]
```

7 Turn the DIAL, select tone frequency and press (DISP SETUP).

A frequency between 67.0 Hz and 254.1 Hz can be set.

Tip Factory default value: 100.0 Hz

8 Turn the DIAL, select **[3 DCS]**, then press (DISP SETUP).

```
      VOICE ALERT
1 VOICE ALERT:[ NORMAL  ]
2 TONE SQL   :[100.0 Hz]
3▶DCS        :[  023   ]
```

9 Turn the DIAL and select DCS code.

A value between 023 and 754 can be set.

Tip Factory default value: 023

10 Press (DISP SETUP) for one second or longer.

The voice alert function will be set and the display will return to the previous screen.

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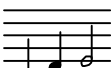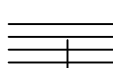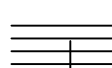
Tips

- APRS data will be received regardless of the voice alert setting.
- When voice alert is in operation, the setting in this menu will be prioritized for the APRS band squelch.
- The voice alert function will not work when APRS data is set to be received and sent in different bands (this will be the same state as the "NORMAL" setting).

List of APRS Bell Rings

List of APRS bell rings

When a beacon is received (APRS filter: ON) (ding dong)	When a self-addressed message is received (ding ding ding dong)
When a beacon is received (APRS filter: OFF) (ding...)	When a message from another station is received (ding...)
When your own station beacon relayed to the digipeater is received (ding ding dong)	When your own station message relayed to the digipeater is received (ding ding dong)
When a beacon is received (RANGE RINGER) (ding ding dong)	When a group/bulletin message is received (ding ding ding ding ding dong)
When a beacon is received (CALLSIGN RINGER) (ding ding dong)	When a message ACK is received (ding...)
When sending a beacon (ding...)	When sending a message (ding...)
When an "EMERGENCY!" message is received × 12 times (dong will sound 12 times)	When a message REJ is received (ding...)
When setting the position comment "EMERGENCY!" × 3 times (dong...dong...dong...)	When replying a message REJ (ding ding ding)
When duplicate beacons are received (ding)	When duplicate messages are received (ding ding)

YAESU

The radio

1506-A0