

6. DATA TRANSFER

Note: If the memory card was not inserted correctly, the message “FAILED TO FORMAT MEMORY CARD.” appears.

6.1.2 Saving data to a memory card

1. Insert a formatted memory card into the slot.
2. Press the **MENU** key followed by the SYSTEM CONFIGURATION, DATA TRANSFER, UPLOAD/DOWNLOAD DATA and SAVE DATA TO MEMORY CARD soft keys to show the SAVE DATA menu.
3. Use the **Cursor pad** to select item to save.
4. Press the EDIT soft key.
5. Use the **Cursor pad** to select ON.
6. Press the ENTER soft key.
7. Repeat steps 3 to 6 to choose other data to save if desired.
8. Press the SAVE soft key, then press the **ENTER** knob. The message “NOW SAVING DATA TO MEMORY CARD. DO NOT TURN OFF DISPLAY UNIT UNTIL COMPLETED.” appears.

When saving is completed, “COMPLETED SAVING DATA. PUSH ENTER KNOB TO CONTINUE.” appears. Push the **ENTER** knob to continue.

Memory card messages

Various memory card messages appear to alert you to memory card-related error. These are tabulated below.

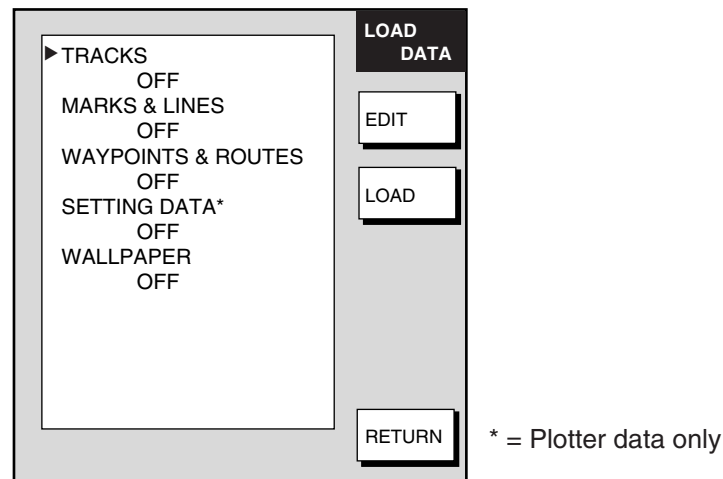
Memory card messages

Message	Reason	Remedy
Memory card is not inserted. Please insert memory card. Push ENTER knob to continue.	Memory card not inserted.	Push the ENTER knob to return to the SAVE DATA display and then insert card.
Overwrite data? (Track) (Mark) (WPT) (Config)	Data type to be recorded exists on memory card. (Two or more of same type of data cannot be recorded.)	Push the ENTER knob to overwrite same data type on the card, or press the CLEAR key to escape.
Failed to save data. Push ENTER knob to continue.	Could not save data.	Push the ENTER knob to continue.

6.1.3 Playing back data from a memory card

Data (track, marks, lines, waypoints, routes and setting data) can be loaded from a memory card and displayed on the screen. This feature is useful for observing past data and setting up the equipment for a specific purpose with “setting data.”

1. Press the **MENU** key followed by the SYSTEM CONFIGURATION and DATA TRANSFER soft keys.
2. Press the UPLOAD/DOWNLOAD DATA soft key.
3. Press the LOAD DATA FROM MEMORY CARD soft key to show the LOAD DATA menu.



Load data menu

4. Use the **cursor pad** to select item to load.
5. Press the EDIT soft key. (The EDIT soft key is inoperative when no memory card is inserted or there is no data in the memory card.)
6. Use the **cursor pad** to select ON. (Select OFF not to load selected data.) Press the ENTER soft key. If the memory card does not contain the item selected, the unit beeps and ON cannot be selected.
7. After selecting all items desired, press the LOAD soft key, then press the **ENTER** knob. The message “NOW LOADING FROM MEMORY CARD.” appears.
8. After loading is completed, the message “COMPLETED LOADING DATA. PUSH ENTER KNOB TO CONTINUE.” appears. Push the **ENTER** knob to continue.

Notes on loading data

Tracks: Since loaded track data is added to internal track, oldest track will be erased when the track memory capacity is exceeded.

Waypoints & routes: The loaded data replaces like stored data.

Marks & lines: The loaded data is added to internal data. When the mark/line memory becomes full no marks may be entered.

Setting data: The loaded data replaces current configuration settings. If the memory card contents could not be loaded, push the **ENTER** knob to restart with default settings. Note that track memory capacity is not saved or loaded. To use loaded setting data, turn the power off and on again.

Wallpaper: Load desired wallpaper.

6.2 Uploading, Downloading Data

You can upload/download waypoints, routes, marks and lines from/to a PC, through the DATA 4 port at the rear of the display unit. Note that radar and sounder data cannot be uploaded or downloaded.

6.2.1 Setting communication software on the PC

The communication format (RS-232C) with the PC is as follows:

Baud Rate: 4800 bps
 Character Length: 8 bits
 Stop bit: 1 bit
 Parity: None
 X Control: XON/XOFF (fixed)

The following data can be downloaded/uploaded between a PC and this equipment:

Waypoint data (In alphanumeric order)

Route data (In order of route number)

End of sentence

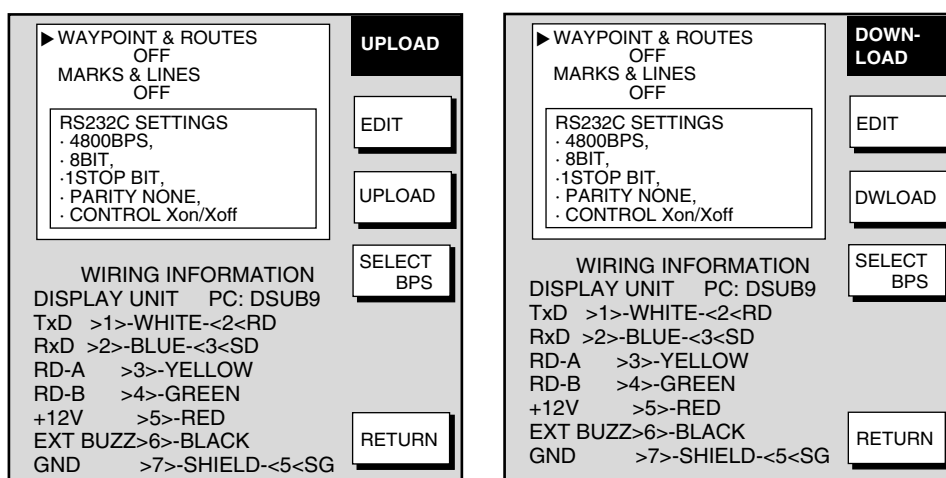
Note 1: There are two kinds of data for route data: route data and route comment data.

Note 2: DGPS position fix is not available when uploading or downloading data.

Note 3: Wiring information appears on the UPLOAD or DOWNLOAD menu.

6.2.2 Uploading or downloading data

1. Connect the PC to the equipment.
2. Press the **MENU** key to show the main menu.
3. Press the SYSTEM CONFIGURATION soft key.
4. Press the DATA TRANSFER soft key.
5. Press the UPLOAD/DOWNLOAD DATA soft key.
6. Press the DOWNLOAD WPT/ROUTE TO PC or UPLOAD WPT/ROUTE FROM PC soft key.



Upload and download menus

7. To change the baud rate, press the SELECT BPS soft key.

BAUD RATE	
▲	
⊙	4800 bps
○	9600 bps
○	19200 bps
▼	

Baud rate window

8. Select baud rate, then press the ENTER soft key.
9. Press the DWLOAD or UPLOAD soft key. You are asked if you are ready to download or upload waypoints and routes.
10. Push the **ENTER** knob to download (upload).

Waypoint data format

PFEC, GPwpl, <u>lll.llll</u> , <u>a, yyyyy.yyy</u> , <u>a</u> , <u>c----c</u> , <u>c</u> , <u>c----c</u> , <u>a</u> <CR><LF>							
1	2	3	4	5	6	7	8

Waypoint data format

- 1: Waypoint latitude
- 2: N/S
- 3: Waypoint longitude
- 4: E/W
- 5: Waypoint name (Number of characters is fixed to 6 and space code is placed when the number of characters are less than 6.)
- 6: Waypoint color
- 7: Waypoint comment (1 byte for mark code + 13 characters of comment.)
 1st byte of mark code: Fixed to “@”.
 2nd byte of mark code: Internal mark code. See Note 1.
8. Information of marking waypoint. Always set to “A”.
 “A”: Displayed
 “V”: Not displayed

Note 1: The following characters can be used for comments:

_ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789&'#			
● =9	■ =:	◆ =;	🐟 =<
			🐟 ==
🐬 =>	🦎 =?	🦀 =@	🦋 =A
🍴 =B	🏠 =C	⚓ =D	! =E
🔊 =F	◀ =G	💀 =H	

Characters available for comment

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Route data menu

\$GPRTE,	<u>x</u> ,	<u>x</u> ,	<u>a</u> ,	<u>ccc</u> ,	<u>c----</u> c,	<u>c----</u> c,	...	<u>c----</u> c	<CR><LF>
	1	2	3	4	5	6		12	

Route data format

- 1: Number of sentences required for one complete route data (1 to 4). See Note 2.
- 2: Number of sentences currently used (1 to 4)
- 3: Message mode (Always set to C)
- 4: Route No. (001 to 300, 3 digits required)
- 5 through 12: Waypoint name (Max. 8 names, length of each waypoint name is fixed to 7 byte)

Note : A route can may contain 35 waypoints, and the GPRTE sentence for one route data may exceed 80 byte limitation. In this case, route data is divided into several GPRTE sentences (Max. 4 sentences). This value shows the number of sentences the route data has been divided.

Route comment data format

\$PFEC,	GPrtc,	<u>xx</u> ,	<u>c----</u> c	<CR><LF>
		1	2	

Route comment format

- 1: Route No. (01 to 200, 3 digits required)
- 2: Route comment (Max. 16 characters, variable length)

The same characters of the comment for waypoint comment can be used.

End of sentence

\$PFEC,	GPxfr,	CTL,	E	<CR><LF>
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End of sentence

Mark data menu

\$PFEC, GPmrk, <u>xxxxxxx</u> , <u>xxxxxxx</u> , <u>xxxxxxx</u> , <u>x</u> , <u>x</u> , <u>x</u> , <u>xxxxxxx</u> , <u>c----c<CR><LF></u>							
1	2	3	4	5	6	7	8

Mark data format

- 1: Geodetic latitude (Latitude in minutes, hexadecimal)
- 2: Longitude (longitude in minutes, hexadecimal)
- 3: Mercator latitude (latitude in minutes, hexadecimal)
- 4: Mark code
- 5: Color (0: black, 1: red, 2: yellow, 3: green, 4: light-blue, 5: purple, 6: blue, 7: white)
- 6: Status (hexadecimal number)
 (b0: (0/1)=mark/line), b1: (0/1)=(memory/replay)
 b2: reserve
 b3: External event (0/1)=(no/YES), b4: Line connection (=1: connect to the previous)
 b [5, 6]: Line type
- 7: Time entered (Hexadecimal number, total seconds from 1986/1/1 00:00:00 as reference)
- 8: Comment (Max. 15 characters, including the code not required for NMEA)

6.3 Loading Waypoint Data from Yeoman

Waypoint data can be loaded from a Yeoman to this equipment. Connect the Yeoman to a DATA port on this equipment and then follow the procedure below.

1. Press the **MENU** key.
2. Press the SYSTEM CONFIGURATION key.
3. Press the DATA TRANSFER soft key.
4. Press the RECEIVE YEOMAN DATA soft key.
5. You are asked if you are sure to receive waypoint data from Yeoman equipment. Push the **ENTER** knob to receive the data. The message "NOW RECEIVING YEOMAN DATA. PUSH SOFT KEY 'STOP' TO STOP RECEIVING." Is displayed. If waypoint capacity is reached the message "WAYPOINTS FULL. NO MORE WAYPOINT CAN BE RECEIVED. PUSH ANY KEY TO STOP." appears. To stop receiving, press the STOP soft key.

After waypoints have been received, press the **MENU** key.