

Chapter 7 Graphic Displays

The RA83/84/85/93/94/95 series has a graphic mode in addition to the normal radar display to assist in navigation. The available graphics are NAVLINE (Navigation Line), MAP (Map) and 10 kinds of marks. The map is constituted by a set of Coastlines.

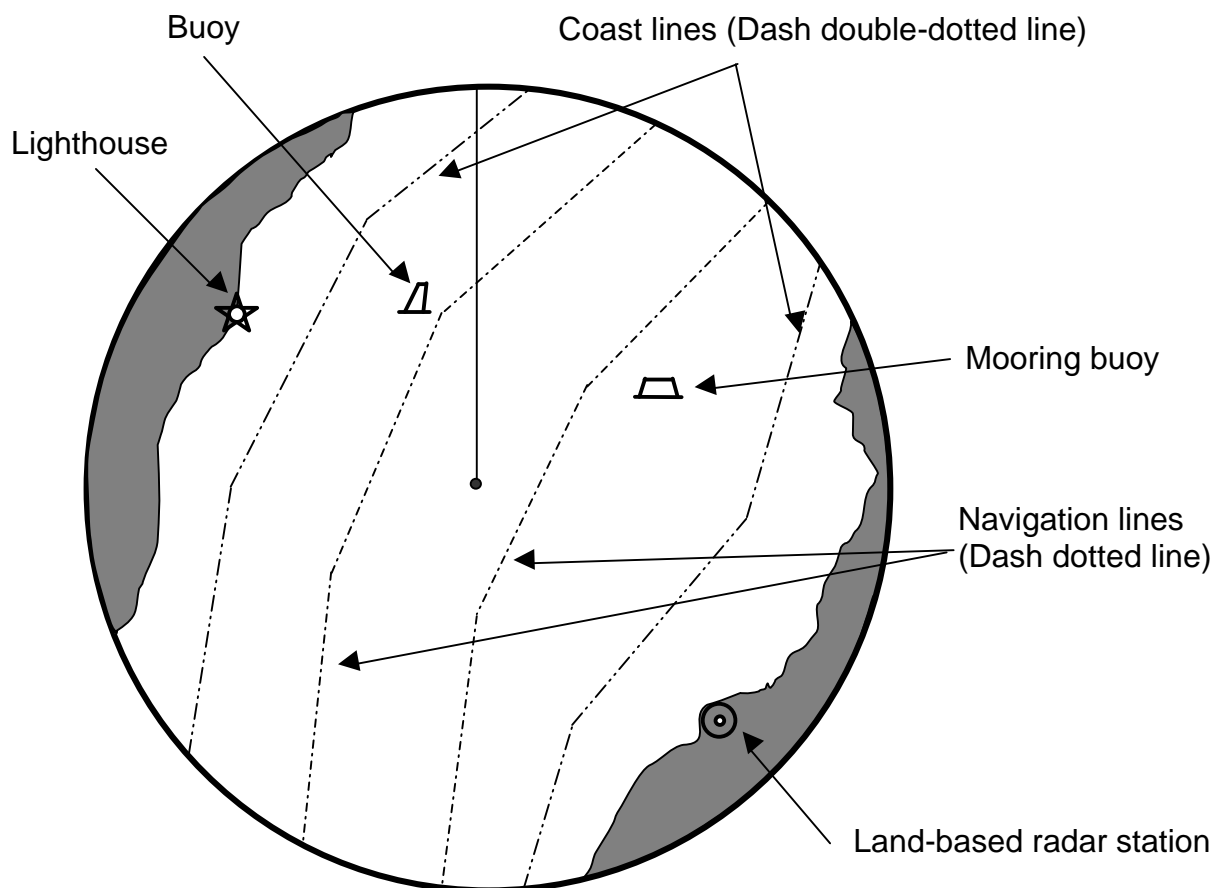


Figure 7.1 An example of the graphic display

Specifying nodes on each graphic in the latitude and longitude creates both navigations lines and coastlines.

7.1 Entering the Graphic Mode

Put the radar to standby mode and press the MENU key. Pressing the MENU key toggles the graphic mode of display in the following order.

- First press: DISPLAY ITEM SELECT MENU
- Second press: NAVLINE DATA INPUT MENU
- Third press: COASTLINE DATA INPUT MENU
- Fourth press: MARK INPUT MENU

NOTE: To use the graphic function, you need to enter the position data from external Electronic Position Fix System (EPFS).

7.2 Selecting the Graphic Display / DISPLAY ITEM SELECT MENU

This menu shows the status of the current settings on all available graphic display items.

Table 7.1 DISPLAY ITEM SELECT MENU


DISPLAY ITEM	NAVLINER NUMBER	0	OFF
		1	OFF
		2	OFF
		3	OFF
		4	OFF
		5	OFF
		6	OFF
		7	OFF
		8	OFF
		9	OFF
MAP NUMBER	0	OFF	
	1	OFF	
COAST LINE NUMBER	0	OFF	
	1	OFF	
	2	OFF	
	3	OFF	
MARK		OFF	

7.2.1 Selecting each item

To select a specific graphic display, carry out the following procedures:

- (1) Move the Joystick to the right highlighting the OFF sign and press the ENT key. The OFF sign will blink accordingly.
- (2) Move the Joystick further to the right to show the blinking ON sign.
- (3) Press the ENT key to fix the selection of the graphic display. The ON sign will become stationary and the selected graphic display will be shown overlaid with a normal radar picture.

The above procedure applies to all DISPLAY ITEMS in the table.

 **WARNING:** In case no positional data is entered in the selected graphic display item, a beep sounds to alarm the operator that the item is not valid.

7.2.2 NAVLINE

- The NAVLINE is a graphic display that shows a course or course separation zone on the radar screen. Up to 10 pairs of data can be registered (Registration number: 0 to 9) For registration of NAVLINE, refer to “7.3.1 Registering or modifying the NAVLINE data”
- One NAVLINE consists of a pair of continuous polygonal lines.
- You can register up to 10 points on each polygonal line (Registration number: A0 to A9 and B0 to B9).
- One NAVLINE alone can be displayed on the screen.
- If your ship contacts or crosses a NAVLINE, the warning display on the screen will appear with highlighted “NAVLINE” sign, which is shown in the lower right corner of the screen.
- Before displaying the NAVLINE, you must enter the position signal from the NAVIGATOR (EPFS)

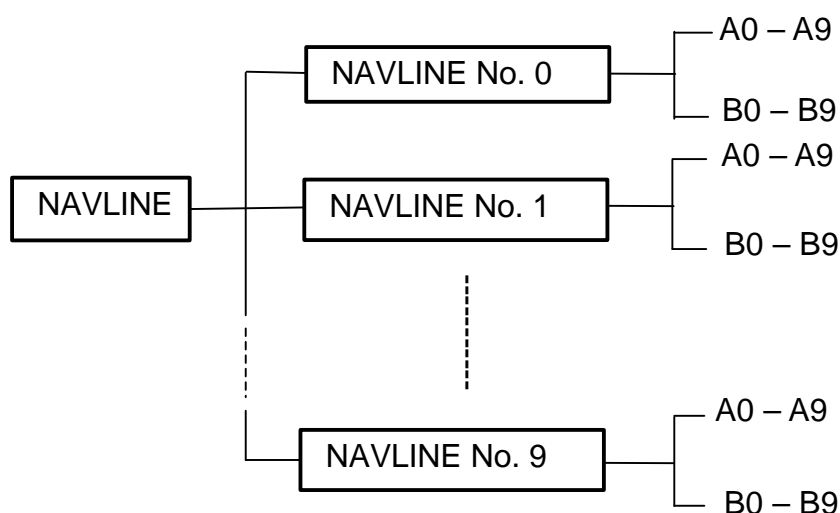


Figure 7.2 Structure of NAVLINE

7.2.3 MAP

- The MAP function is used to make artificial warning zones, warning spots or landmarks for fixed targets including coastlines, buoys, reefs, sunken ships and lighthouses on the radar screen. You can register up to 2 pairs of the maps (Registration number: 0 to 1).
- Up to 4 coastlines (Registration number: 0 to 3) and 20 marks (Registration number: 0 to 19) can be registered to a single map.
- Up to 20 points (Registration number: 0 to 19) can be registered to a single coastline. Polygonal lines connecting the registered points constitute a coastline.
- One map alone can be displayed at a time.

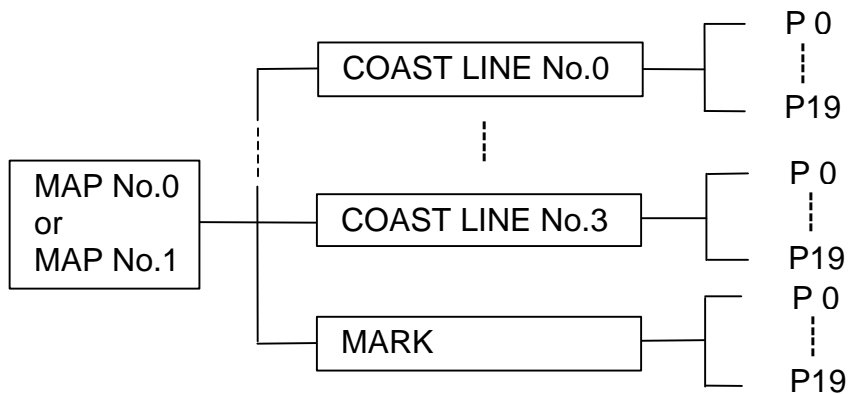


Figure 7.3 Structure of the Map

7.3 Registering or modifying the NAVLINE data/NAV LINE DATA INPUT MENU

To use this function, carry out the following procedures:

- (1) Select the NAVLINE INPUT MENU. The following list will accordingly be shown on the screen.

Table 7.2 NAV LINE INPUT MENU

NAVLINER NUMBER	0			
POSITION NUMBER	LATITUDE	N / S	LONGITUDE	E / W
	12°34.567	N	123°45.678	E
A1				
A2				
A3				
A4				
A5				
A6				
A7				
A8				
A9				
B0				
B1				
B2				
B3				
B4				
B5				
B6				
B7				
B8				
B9				

- (2) Move the Joystick up or down to highlight the number shown right to the words NAVELINE NUMBER and press the ENT key. The number will blink.
- (3) Move the Joystick left or right to select the desired number out of 0 through to 9.

- (4) Press the ENT key to fix the selection. The blinking number will become stationary.
- (5) Move the Joystick up or down to highlight an alphanumeric display (A0 – B9) under the POSITION NUMBER column.
- (6) Press the ENT key to let the selected alphanumeric display blink.
- (7) Use the N/S/E/W and numeric keys (0 - 9) to enter the latitude and longitude coordinates. If a correction is needed, move the Joystick left or right to highlight the part for correction and repeat step (7) and after.
- (8) Press the ENT key to fix the entry. The blinking alphanumeric data will become stationary.
- (9) To continue the registration, repeat the step (5) and after.

7.3.1 Registering or modifying the MAP data/COAST LINE INPUT MENU

- (1) Select the COASTLINE input menu. The following table will be accordingly shown.

Table 7.3 COASTLINE INPUT MENU

MAP NUMBER			0	
COASTLINE NUMBER			0	
POSITION NUMBER	LATITUDE	N / S	LONGITUDE	E / W
	12°34.567	N	123°45.678	E
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

- (2) Move the Joystick up or down to highlight the number shown right to the words MAP NUMBER and press the ENT key. The number will blink.
- (3) Move the Joystick left or right to select the MAP NUMBER, 0 or 1.

- (4) Press the ENT key to fix the selection. The blinking number will become stationary.
- (5) Move the Joystick down to highlight the number shown right to the words COASTLINE NUMBER and press the ENT key.
- (6) Press the Joystick left or right to select the COASTLINE NUMBER from 0 through to 3.
- (7) Press the ENT key to fix the selection. The number display will become stationary.
- (8) Move the Joystick up or down to highlight the number (0 - 19) under the POSITION NUMBER column and press the ENT key to fix the selection.
- (9) Use the N/S/E/W and numeric keys (0 - 9) to enter the latitude and longitude coordinates. If a correction is needed, move the Joystick left or right to highlight the part for correction and enter new data.
- (10) Press the ENT key to fix the entry. The blinking alphanumeric data will become stationary.
- (11) To continue the entry of position data for other position numbers or change the data, repeat the step (8) and after.

7.3.2 Registering or modifying the MARK data/MARK INPUT MENU

- (1) Select the MARK INPUT menu. The following list will be shown, accordingly.







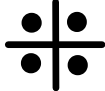

Table 7.4 MARK INPUT MENU



MAP NUMBER				0	
POSITION NUMBER	MARK SELECT	LATITUDE	N / S	LONGITUDE	E / W
	○	12°34.567	N	123°45.678	E
1					
2					
3					
4					
5					
6					
7					
8					
9					

- (2) Move the Joystick up or down to highlight the number shown right to the words MAP NUMBER and press the ENT key. The number will blink.
- (3) Move the Joystick left or right to select the MAP NUMBER, 0 or 1.
- (4) Press the ENT key to fix the selection. The blinking MAP number will become stationary.

- (5) Move the Joystick up or down to highlight the number shown right to the words POSITION NUMBER and press the ENT key. The number will blink.
- (6) Select a desired mark by pressing a numeric key (0 - 9)
- (7) Use the N/S/E/W and numeric keys (0 - 9) to enter the latitude and longitude coordinates. If a correction is needed, move the Joystick left or right to highlight the part for correction and enter new data.
- (8) Press the ENT key to fix the entry. The blinking alphanumeric data will become stationary.
- (9) To continue the entry of position data for other position numbers or change the data, repeat the step (5) and after.

Table 7.5 MARKS USED IN THE MAP

No.	Mark shape	Applicable objects
0		Light
1		Lighthouse, Aeronautical light, Light beacon, etc.
2		Buoy
3		Large mooring buoy
4		Radio and/or radar station
5		Dry rock
6		Awash rock
7		Reef, submerged rock, etc.

8		Surface object, wreck, Hazardous point, etc
9		Rush tidal current, eddy, etc.