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JAN-7201/9201

ECDIS

Instruction Manual

<Function>



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Section 5 Target Tracking and TT/AIS

This section explains Target Tracking (hereinafter, referred to as target tracking or TT) and Automatic Identification System (hereinafter referred to as AIS).



Use the target tracking function as your navigation aid. Final decision on the ship operation must be made by the ship operator himself.

If you depend entirely on the information of the target tracking function for the final decision on ship operation, an accident may occur.

An error may be contained in the vector, target value data and alarm indicated by the target tracking function. Further, the target not detected by radar cannot be captured or tracked.

If you depend entirely on the information of the radar for the final decision on ship operation, such an accident as collision or stranding may result.

5.1 Displaying Symbols

This section describes the symbols that are used for target tracking and AIS.

5.1.1 Displaying/hiding target tracking symbols/AIS target symbols

In the display setting at the time of shipment from the factory, the display of target tracking symbols and of the AIS target symbols is enabled. However, choosing [Options] – [Target] from the View menu can switch between display and hide.

For the details, refer to "14.2.7 Setting up the display of TT/AIS target".

5.1.2 Types and Definitions of Target Tracking Symbols

Symbol	Definition	Remarks
	Initial acquisition target	This symbol is displayed until the vector is displayed after target acquisition.
Θ	Tracked target	This means a tracked target.
O ₁₂	Dangerous target	The alarm sounds. The alarm message (CPA/TCPA) turns red and blinks. The symbol is enlarged and displayed in red.
Θ	Numeric displayed target	When the numeric data is displayed, the target symbol is enclosed in a square.
X	Lost target	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol turns red.
	Past position	The past positions of an AIS target are displayed as well as the target tracking symbol.
0 ₁₂	Target track	The track of another ship as an AIS target is displayed as well as the target tracking symbol.

Memo

When a target acquired from RADAR is displayed on the ECDIS screen, the ID is prefixed by "T1-" or "T2-" (such as "T1-12" and "T2-12"). On the RADAR screen, only the ID is displayed, not the symbol.

5.1.3 Types and Definitions of AIS Target Symbols

Symbol	Definition	Remarks
1	Sleeping target	This symbol is displayed when received data is valid. The direction of the triangle's vertex indicates the target's heading or course.
Δ	Target in pause state	When CTW/STW of the target cannot be received, the symbol is displayed in a broken line.
AIS12	Activated target	The heading direction is displayed with a solid line, and the course vector is displayed with a dotted line. The line perpendicular to the heading direction indicates the direction to which the course is to be changed. This line may not be displayed.
AIS12	Activated target	When CTW/STW of the target cannot be received, the symbol is displayed in a broken line.
AIS12	Outline display	The outlines of ships are displayed scaled down.
	Numeric displayed target	When the numeric data is displayed, the target symbol is enclosed in a square.
AIS12	Dangerous target	The alarm sounds. The alarm message (CPA/TCPA) turns red and blinks. The symbol is enlarged and displayed in red.
AIS12	Dangerous target	The alarm sounds. The alarm message (CPA/TCPA) turns red and blinks. The symbol is enlarged and displayed in red.
AIS12	Lost target	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol is displayed by overlaying red x marks.
\otimes	Sleeping AIS-SART target	Displayed by the same color as AIS symbol.
\otimes	Activated AIS-SART target	Displayed target No. nearby the symbol.

	1	
Symbol	Definition	Remarks
AIS12	Numerical display AIS-SART target	When the numeric data is displayed, the target symbol is enclosed in a square.
AIS12	Lost AIS-SART target	Displayed if AIS-SART data is not received for 6 minutes.
, second	Physical AIS AtoN target (Racon)	The target No./AtoN name (xxx) is displayed next to the symbol.
↓ ×××	Physical AIS AtoN target (Emergency wreck mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
Â,xxx	Physical AIS AtoN target (North cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
¢,xxx	Physical AIS AtoN target (East cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
×xxx	Physical AIS AtoN target (South cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
×xxx	Physical AIS AtoN target (West cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
	Physical AIS AtoN target (Port hand mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
Âxxx	Physical AIS AtoN target (Starboard hand mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
8 ×××	Physical AIS AtoN target (Isolated danger)	The target No./AtoN name (xxx) is displayed next to the symbol.
×××	Physical AIS AtoN target (Safe water)	The target No./AtoN name (xxx) is displayed next to the symbol.

Symbol	Definition	Remarks
× xxx	Physical AIS AtoN target (Special mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
	Physical AIS AtoN target (Off position)	The symbol and target No./AtoN name (xxx) nearby the symbol are indicated in yellow.
	Physical AIS AtoN target (Numerical display)	When the numeric data is displayed, the target symbol is enclosed in a square.
×××	Physical AIS AtoN target (Lost display)	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol is displayed by overlaying red x marks.
	Physical AIS AtoN target (Flood light abnormality)	"Unlit" is displayed in yellow at the top of the symbol. The target No./AtoN name (xxx) is displayed nearby the symbol.
Racon err	Physical AIS AtoN target (radar beacon abnormality)	"Racon err" is displayed in yellow at the top of the symbol. The target No./AtoN name (xxx) is displayed nearby the symbol.
< +>xxx	Virtual AIS AtoN target (Emergency wreck mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
	Virtual AIS AtoN target (North cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
¢ +> ××××	Virtual AIS AtoN target (East cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
× + ××××	Virtual AIS AtoN target (South cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
X +> xxx	Virtual AIS AtoN target (West cardinal mark)	The target No./AtoN name (xxx) is displayed next to the symbol.
	Virtual AIS AtoN target (Port hand mark)	The target No./AtoN name (xxx) is displayed next to the symbol.

	1	I		
Symbol	Definition	Remarks		
(+) xxx	Virtual AIS AtoN target (Starboard hand mark)	The target No./AtoN name (xxx) is displayed next to the symbol.		
8 +>***	Virtual AIS AtoN target (Isolated danger)	The target No./AtoN name (xxx) is displayed next to the symbol.		
$\langle + \rangle_{x \times x}$	Virtual AIS AtoN target (Safe water)	The target No./AtoN name (xxx) is displayed next to the symbol.		
< +>	Virtual AIS AtoN target (Special mark)	The target No./AtoN name (xxx) is displayed next to the symbol.		
(+)×××	Virtual AIS AtoN target (Numerical display)	When the numeric data is displayed, the target symbol is enclosed in a square.		
×	Virtual AIS AtoN target (Lost)	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol is displayed by overlaying red x marks.		
Missing	Virtual AIS AtoN target (Intended location of missing AtoN)	"Missing" is displayed in yellow at the top of the symbol. The target No./AtoN name (xxx) is displayed nearby the symbol.		
-∱-	AIS SAR aircraft	Displayed by the same color as AIS symbol.		
	Numerical display AIS SAR aircraft	When the numeric data is displayed, the target symbol is enclosed in a square.		
AIS12	Lost AIS SAR aircraft	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol is displayed by overlaying red x marks.		
& xxx	AIS SAR ship	Displayed by the same color as AIS symbol.		

Symbol	Definition	Remarks
	Numerical display AIS SAR ship	When the numeric data is displayed, the target symbol is enclosed in a square.
Xxxx	Lost numerical display AIS SAR ship	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol is displayed by overlaying red x marks.
H BASE	AIS coastal base station	Displayed by the same color as AIS symbol.
+ BASE	Numerical display AIS coastal base station	When the numeric data is displayed, the target symbol is enclosed in a square.
BASE	Lost AIS coastal base station	The alarm sounds. The alarm message (Lost) turns orange and blinks. The symbol is displayed by overlaying red x marks.

Memo

The AIS-SART target symbol is displayed in red when the target is activated.

5.1.4 About AIS AtoN (Aids to Navigation)

AIS AtoN is a system that displaying aid to navigation like a lighthouse, light buoy or unreal aid to navigation on the display unit on ships using AIS receiver. There are following two kinds of AIS AtoN.

AIS AtoN type	Function	Operation example
Physical AIS	Installs the AIS on real aid to	In low visibility, receiving the Physical AIS
AtoN	navigation, and displays its location	AtoN symbols facilitates identification of
	on the display unit on ships.	the light location and light buoy.
Virtual AIS AtoN	Displays virtual aid to navigation on	In the sea area where installation of the
	the display unit on ships according	light buoy is difficult, the Virtual AIS AtoN
	to the signals transmitted from the	symbols are displayed as virtual light
	AIS station on the land.	buoys that are used as targets for getting
		to the destination.
		This system can also be used as the aid
		substituted for the aid to navigation
		damaged by natural disasters.

5.1.5 About AIS-SART Information

The AIS-SART function enables information about the location of wrecked ship to be displayed on the screen.

For the details, refer to "5.13 Display of AIS-SART".

5.1.6 About Display Priority of AIS Targets

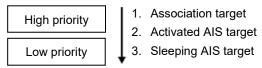
Up to 500^{*1} targets can be displayed in total of activated and sleeping AIS targets. Up to 500 activated AIS targets can be displayed in the total.

When there is an AIS target of 500^{*1} or more, the display is made according to the following priority order.

Ligh priority	1. Numeric displayed target
High priority	2. Target of which CPA/TCPA is lower than the set value
	(Target as a dangerous ship for which an alarm has been generated)
	3. Target in automatic activation zone
	4. Activated AIS target
[]	5. Target inside AIS filter
Low priority	6. Target outside AIS filter

*1: The maximum number of AIS targets displayed can be changed to the option of 1000 targets.

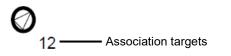
If the number of targets at the same priority level exceeds the allowable maximum, they are displayed in the following priority order:

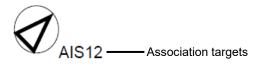


5.1.7 Association Target Symbols

When the tracked target and AIS target are determined to be the same targets, the association symbols are displayed as follows.

Symbol display for high-priority tracked targets





Symbol display for high-priority AIS targets

When the tracked target and AIS target are determined to be the same targets, the tracked target or AIS target that are displayed on a higher priority basis can be set.

- **1 Right-click on the tracked target with association displayed.** The context menu appears.
- 2 Click on [Property] in the context menu. The [TT Target INFO] or [AIS Target INFO] dialog appears.
- **3** Select [AIS] or [TT] from the [Priority] combo box.

TT Target INFO 🛛 🗙	AIS Target INFO 🛛 🗙
Target ID 1	Target ID 1
Name	Name
ship1 🝷	SHIPA
Edit Template	Track No.
Track No.	Off -
Off •	
☑ Reference Target	Priority
Priority	

[AIS]: The AIS target is displayed on a higher priority basis.

[TT]: The tracked target is displayed on a higher priority basis.

5.2 Preparation

5.2.1 Setting the Cursor Mode to AUTO Mode

If the cursor mode is set to the AUTO mode, various TT/AIS functions can be executed quickly.

1 Click on the [AUTO] (cursor mode selection) button on the left toolbar.



The cursor mode changes to the AUTO mode.

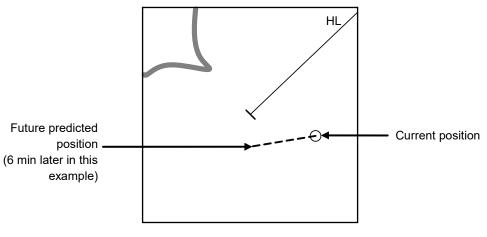
The [AUTO] mode performs operation in accordance with the object at the cursor position when clicked.

For the details, refer to "3.13 Cursor AUTO Mode".

5.2.2 Setting Vector Length

The Vector Length of a target is proportional to its speed, and the vector time can be switched in a range of 1 to 120 minutes.

The following figure shows an example in which the Vector Length is set to 6 min, and the tip of the vector represents the target's position expected to reach 6 minutes later.



Example of Vector Length

The Vector Length is set in min in the range from 1 min to 120 min.

1 Click on the Vector Length input box on the upper right of the screen.



2 Enter the Vector Length.

5.2.3 Setting collision decision criteria

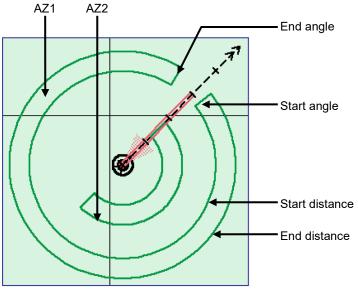
Collision decision criteria are set based on CPA and TCPA.

For an outline of CPA and TCPA, refer to "5.4.1 Danger target alarm (CPA/TCPA)."

For the details of setting the alert based on collision decision criteria, refer to "15.2 Collision Avoidance".

5.2.4 Setting up the automatic activation zone (AZ)

Auto activation zone has the shape of sector set up according to the angle and distance as shown in the following figure.



Example of automatic/activation zone (AZ)

Automatic activation zone (AZ) is set up using the following three methods.

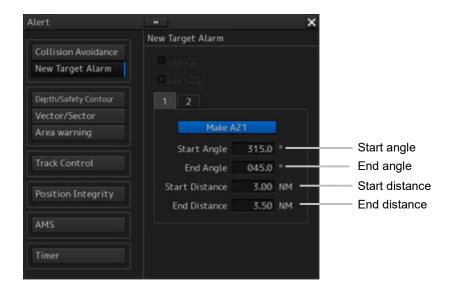
- (1) Use the [New Target Warning] dialog in the [Alert] menu.
- (2) Use the cursor.
- (3) Use the EBL/VRM dial.

5.2.4.1 Using [New Target Warning] dialog in the [Alert] menu

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click [Alert] [New Target Alarm] on the menu. The [New Target Alarm] dialog is displayed.
- **3** To set up AZ1, select the [Use AZ1] check box. To set up AZ2, select the [Use AZ2] check box.

Alert			×
	New Target Alarm		
Collision Avoidance	Use AZ1		
New Target Alarm	Use AZ2		
Depth/Safety Contour	1 2		
Vector/Sector			
Area warning	Make A	Z1	
	Start Angle	315.0	
Track Control	End Angle	045.0	
Position Integrity	Start Distance	3.00	NM
	End Distance	3.50	NM
AMS			
Timer			

- **4** To set up [Use AZ1], click on the [1] tab. To set up [Use AZ2], click on the [2] tab. Their respective setting items are displayed.
- 5 Enter the start angle, end angle, start distance and end distance of AZ.



5.2.4.2 Using the cursor

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click [Alert] [New Target Alarm] on the menu. The [New Target Alarm] dialog is displayed.
- **3** Select AZ ([Use AZ1] or [Use AZ2]) to be set.

Alert	10		
	New Target Alarm		
Collision Avoidance	Use AZ1		
New Target Alarm	Use AZ2		
Depth/Safety Contour	1 2		
Vector/Sector			
Area warning	Make A	Z1	
	Start Angle	315.0	
Track Control	End Angle	045.0	
Position Integrity	Start Distance	3.00	NM
	End Distance	3.50	NM
AMS			
Timer			

- 4 Click at the start angle position. The start angle is set.
- 5 Move the cursor and click at the end angle position. The line connecting the start angle and end angle appears.
- **6** Move the cursor and click at the start distance position. An arc appears at the start distance position.
- 7 Move the cursor and click at the end distance position. Auto acquisition/activation zone (AZ) with the shape of sector enclosed by start angle, end angle, start distance and end distance is created.

5.2.4.3 Using the EBL/VRM dial for the setting

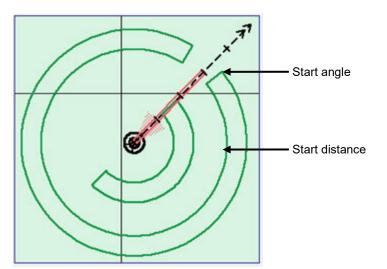
- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click [Alert] [New Target Alarm] on the menu. The [New Target Alarm] dialog is displayed.
- **3** Select AZ ([Use AZ1] or [Use AZ2]) to be set.

Alert			×
	New Target Alarm		
Collision Avoidance	Use AZ1		
New Target Alarm	Use AZ2		
Depth/Safety Contour	1 2		
Vector/Sector			
Area warning	Make A	Z1	
	Start Angle	315.0	
Track Control	End Angle	045.0	
Position Integrity	Start Distance	3.00	NM
	End Distance	3.50	NM
AMS			
Timer			

4 Click on the [Make AZ1] button or [Make AZ2] button. The cursor enters the AZ creation mode.

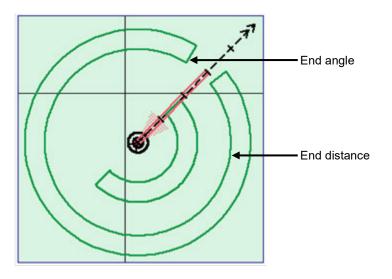
Make AZ1

- 5 Turn the EBL dial to set [Start Angle].
- 6 Turn the VRM dial to set [Start Distance]



- 7 Press the EBL dial and the VRM dial.
- 8 Turn the EBL dial to set [End Angle].

9 Turn the VRM dial to set [End Distance].



10 Press the EBL dial.

5.2.5 Tracked target information display

- **1** Set the cursor mode to the AUTO mode.
- 2 Click on the target of tracking whose numerical value is to be displayed. Numeric data for the specified target is displayed in the information monitoring window.

TT IĐ	4	1	
BRG	153.8	041.0	
Range	8.84	8.48	NM
COG	012.3	028.7	
Sõg	8.7	10.1	kn
CPA	8.10	8.46	NM
тсра	67.28	-Över	min
BCR		8.70	NM
BCT		+Över	min

The symbol display is changed to "[o]". The target data will remain on the radar display until the target is lost and its vector disappears, or until another target is designated. If a target with the mark "[o]" is designated, only its true bearing and range appear until its vector appears.

Cancellation of numeric data display

- **1** Set the cursor mode to the AUTO mode.
- **2** Place the cursor on the tracked target to cancel numeric value display and then click on.

The numeric value disappears.

Details on tracked target information

Item	Explanation
TT ID	ID No. of tracked target being displayed
BRG	True bearing
Range	Distance
CTW (Course Through the Water stabilization mode)/ COG (Course Over the Ground stabilization mode) STW (Speed Through the Water stabilization mode) / SOG (Speed Over the Ground stabilization mode)	Course Speed
СРА	Closest approach distance
ТСРА	Time up to closest approach distance
BCR	Bow crossing distance
BCT	Bow crossing time

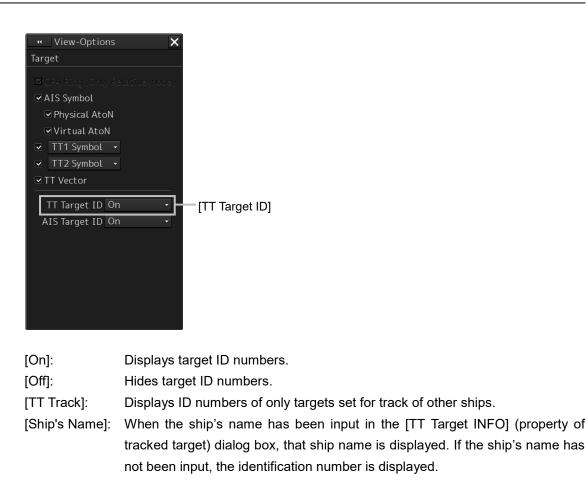
5.2.6 Displaying Target ID No.

A target ID number is a value displayed beside the acquisition symbol when a target is acquired. A target ID number 1 to 100 is assigned to each target in acquisition order. Once a target ID number is assigned, it identifies the target until the target is lost or the target acquisition is canceled.

Memo

The ID number is always displayed for only targets with which numeric data is displayed.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [View] [Options] [Target]. The [Target] dialog is displayed.
- **3** Select the method for displaying ID No. from the [TT Target ID] list.

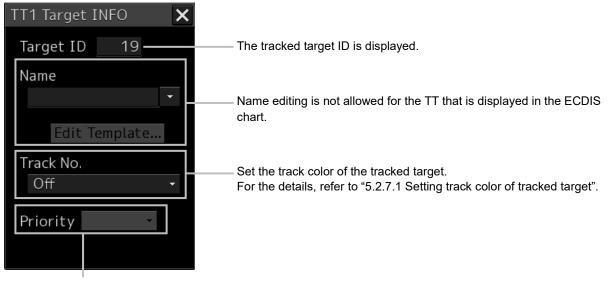


Memo

If there are many tracking targets and their symbol display is confusing, set Target Number Display to off to view the radar display easily.

5.2.7 Editing tracked target properties

The properties of the individual tracked targets that were acquired can be edited freely. The [TT Target INFO] dialog is used for editing.



When the tracked target and the AIS target are determined to be the same, it is possible to set display priority from the tracked target and AIS target. For the details, refer to "5.1.7 Association Target Symbols"

5.2.7.1 Setting track color of tracked target

The track color of tracked target is set.

- **1** Right-click on the cursor at the tracked target.
- 2 Click on the [Property] on the context menu.

The [TT Target INFO] dialog box appears.

TT1 Target INFO	×
Target ID 19	
Name	
	•
Edit Template	
Track No.	
Off	-
Priority	

3 Select track color from the [Track Color] list.

The selection items are as follows.

Off, No.1-Color, No.2-Color, No.3-Color, No.4-Color, No.5-Color, No.6-Color, No.7-Color, No.8-Color, No.9-Color, No.10-Color, and No.11 to 20-Color

* In "Color," the track color name set by clicking [View] - [Options] - [Target Track] - [Plot] appears. For details, refer to "142.8 Setting up the Display of Other Ship's Track"

5.3 Setting and Operating AIS 5.3.1 Enabling AIS Function

Note

- When the AIS function is set to Off, the AIS display function is turned off and AIS symbols are no longer displayed.
- Once AIS function is set to Off, even if a dangerous target exists, the function is not automatically switched to On.
- 1 Click on the [AIS] button for other ship information on the upper right of the screen.



The button indication becomes ON and the AIS function becomes enabled.

ON indication:

The received AIS information is displayed on the screen.

5.3.2 Activating AIS targets (Activate AIS)

Activates an AIS target, and displays the target's vector and make a collision decision.

5.3.2.1 Manual activation

Activates an AIS target in manual mode to display the vector and heading line.

- **1** Set the cursor mode to the AUTO mode.
- **2** Place the cursor on the sleeping AIS symbol to be activated and then click on. The selected AIS target is activated.

5.3.2.2 Automatic activation

Activate an AIS target in automatic mode to display the vector and heading line.

When the automatic activation function is used, AIS targets are automatically activated when they go into the automatic activation zone. The automatic activation zone is identical to the automatic acquisition zone (AZ) used for target tracking. For the zone setting, refer to "5.2.4 Setting up the automatic activation zone (AZ)".

Note

When the AIS target's symbol is activated but the vector is not displayed, the following are probable causes of the trouble:

- · COG/SOG is not input yet from the GPS.
- · The selected speed sensor is malfunctioning.

Memo

The bearing or range in the acquisition/activation zone shall be based on the position of the radar antenna.

If there are more AIS targets than the allowable maximum, they are deactivated from the low-priority (Refer to "5.1 Displaying Symbols").

5.3.3 Deactivating AIS targets

Deactivates an AIS target and clear the display of the vector and heading line.

[Deactivating one AIS target]

- **1 Right-click on the AIS target to be deactivated.** The setting items for cursor modes are displayed.
- 2 Click on the [Deactivate] on the Context menu. The selected AIS target is deactivated.

[Deactivating multiple AIS targets]

- **1 Right-click on the AIS target.** The setting items for cursor modes are displayed.
- 2 Click on the [Deactivate mode] on the Context menu. The cursor changes to the selection cursor.
- **3** Click on the AIS target to be deactivated. The selected AIS target is deactivated.

Note

This operation is available only for an activated AIS target.

5.3.4 Displaying AIS information

- **1** Set the cursor mode to the AUTO mode.
- **2** Place the cursor on the AIS target to display the activated AIS target information and then click on.

The information of the selected AIS target is displayed.

🗌 AIS ID	2	
Name: SHI P1		
Call Sign	1234567	
MMSI	377470001	
COG	000.0	
SÓG	10.0	kn
CPA	1.00	NM
T CP A	-8.56	min

-	Note				
	When the numeric data of a target is displayed but the mark "[_]" is not on the radar display, the				
	target is outside the display.				

Canceling AIS target information display

- **1** Set the cursor mode to the AUTO mode.
- 2 Move the cursor to and click on the activated AIS target whose AIS target information is to be cancelled

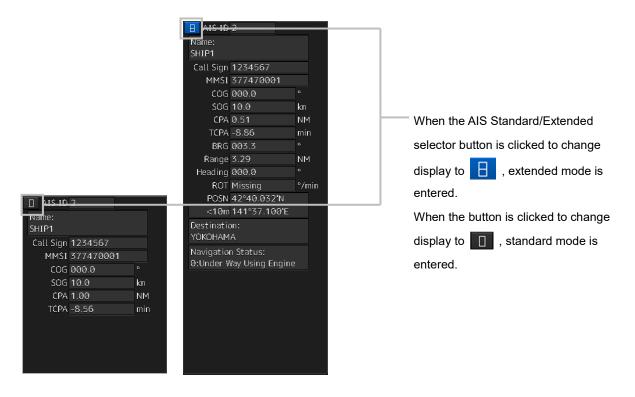
The information display of the selected AIS target is canceled.

Details on AIS target information

Two AIS target information display modes are available, a standard mode, and an extended mode, and the items that are displayed vary depending on the mode.

Use the AIS Standard/Extended switching button for switching between the standard mode and the extended mode.

For verifying more detailed information of the AIS target, refer to "2.3.1.4 AIS Detail INFO".



The display contents vary depending on the types of AIS targets.

[Normal AIS target]

🔒 AIS ID	2		
Name: SHIP1			
Call Sign	1234567		
MMSI	377470001		
CÓG	000.0		
SÓG	10.0	kn	
CPA	0.51	NM	
tć p a	-8.86	min	
BRG	003.3		
Range	3.29	NM	
Heading	000.0		
ŔŎŢ	Missing	°/mir	
POSN	42°40.032'N		
<10m	141°37.100'E		
Destinatio YOKOHAM			
Navigatio Ø:Under V	n Status: Vay Using Engine		

🗌 AIS ID	2		
Name: SHIP1			
Call Sign	1234567		
MMŚI	377470001		
CÓG	000.0	٥	
sog	10.0	kn	
CPA	1.00	NM	
tcpa	-8.56	min	

ltem	Explanation		
AIS ID	ID No. of AIS target		
Name	Ship name of AIS target		
Call Sign	Call sign of AIS target		
MMSI	Maritime Mobile Service Identity		
COG	COG: Course Over the Ground		
SOG	SOG: Speed Over the Ground		
	*If the SOG column shows Over, the speed of other system is 102.2 kn or more.		
CPA	Closest approach distance		
ТСРА	Time up to closest approach distance		
BRG	True direction		
	*In standard mode, this item is not displayed.		
Range	Distance		
	*In standard mode, this item is not displayed.		
Heading	Heading		
	*In standard mode, this item is not displayed.		
ROT	Rate of turn		
	*In standard mode, this item is not displayed.		
	*The display range of ROT is 0.00° /min to 697.50° /min. In the case of Over, the		
	value will be greater. In the case of $\pm 5/30$ s, it indicates that ± 127 is received.		
	At this time, only turning direction indicated on the turn indicator is reliable.		
	The turn indicator is displayed as a straight line normal to the heading direction		
	on the AIS symbol.		
	(Refer to "5.1 Displaying Symbols.")		

Item	Explanation		
POSN	Latitude/longitude		
	*In standard mode, this item is not displayed.		
>10m or <10m	>10m: Low positioning accuracy		
	<10m: High positioning accuracy		
	*In standard mode, this item is not displayed.		
Destination	Destination		
	*In standard mode, this item is not displayed.		
Navigation	The status is displayed by number.		
Status	For the details, refer to "Navigation Status" table.		
	*In standard mode, this item is not displayed.		

Memo

In the extended mode, a display area equivalent to two standard mode areas is used.

Navigation Status

Status
0: Under Way Using Engine
1: at Anchor
2: Not Under Command
3: Restricted Maneuverability
4: Constrained by Her Draught
5: Moored
6: Aground
7: Engaged in Fishing
8: Under Way Sailing
9: Reserved for HSC
10: Reserved for WIG
11-14: Reserved
15: Not Defined

[AIS SARTTarget]

/ 10 0/ 11	Taigot	
AIS ID	1	
Name:		
Missing		
MMSI	970470000	
COG	135.7	۰
SOG	0.1	kn
CPA	1.73	NM
TCPA	11.08	min
BRG	102.7	۰
Range	1.77	NM
Heading	136.0	۰
ROT	000.0	°/mi
POSN	32°34.610'S	
<10m	61°07.234'E	
Navigatio	on Status:	
14:SART		

There is neither the Call Sign nor Destination item. The display of some items of Navigation Status is different. Otherwise, the display contents are the same as those of usual AIS target.

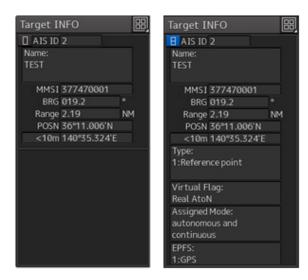
Navigation Status

Display			
0 ~ 13: Same display as for the usual ship			
AIS-SART ACTIVE(14)			
AIS-SART TEST(15)			

Memo

Switching between standard and extended modes is not provided.

[AIS AtoN Target]



Item	Description		
AIS ID	AIS target ID		
Name	Ship name of AIS target		
MMSI	Maritime Mobile Service Identity code		
BRG	True bearing		
Range	Range		
POSN	Latitude/longitude		
>10m or <10m	>10m:Position fixing accuracy low		
	<10m:Position fixing accuracy high		
Туре	Displays the AtoN type.		
	For the details, refer to the "Type" table.		
	*Not displayed in standard mode.		
Virtual Flag	Real AtoN: Real AtoN		
	Virtual AtoN:Virtual AtoN (does not exist)		
	*Not displayed in standard mode.		
Assigned Mode	Autonomous and continuous: Operating in autonomous/continuous		
	mode		
	Assigned: Operating in assignment mode		
	*Not displayed in standard mode.		
EPFS	Displays the EPFS type.		
	For the details, refer to the "EPFS" table.		
	*Not displayed in standard mode.		

5

Туре

1)00
Display
0: Not Available
1: Reference point
2: RACON
3: Fixed structure off shore
4: Spare
5: Light,without sectors
6: Light, with sectors
7: Leading Light Front
8: Leading Light Rear
9: Beacon,Cardinal N
10: Beacon,Cardinal E
11: Beacon,Cardinal S
12: Beacon,Cardinal W
13: Beacon,Port hand
14: Beacon,Starboard hand
15: Beacon,Preferred Channel Port hand
16: Beacon, Preferred Channel Starboard hand
17: Beacon,Isolated danger
18: Beacon,Safe water
19: Beacon,Special mark
20: Cardinal Mark N
21: Cardinal Mark E
22: Cardinal Mark S
23: Cardinal Mark W
24: Port hand Mark
25: Starboard hand Mark
26: Preferred Channel Port hand
27: Preferred Channel Starboard hand
28: Isolated danger
29: Safe Water
30: Special Mark
31: Light Vessel /LANBY/Rigs

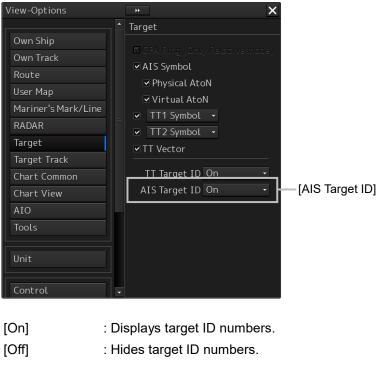
EPSF

Display
0: Undefined
1: GPS
2: GLONASS
3: combined GPS/GLONASS
4: LORAN-C
5: Chayka
6: INS
7: surveyed
8: Galileo
15: internal GNSS
9-14: not used

5.3.5 Displaying Target ID No.

When an AIS target is activated, a target ID number is displayed next to the AIS target symbol. A target ID number 1 to 1000 is assigned to each target in the order of targets being received by MFD. Once a target ID number is assigned, it identifies the AIS target until the AIS target is lost.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [View] [Options] [Target] on the menu. The [Target] dialog is displayed.
- **3** Select the method for displaying ID No. from the [AIS Target ID] combo box.



[AIS Track] : Displays ID numbers of only targets set for track of other ships.

[Ship's Name] : Displays the ship's name.

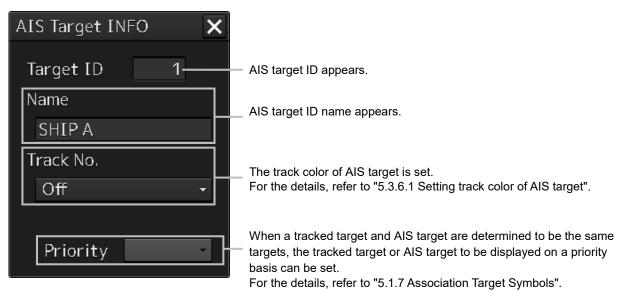
Memo

- ID number or ship's name is always displayed for only targets with which numeric value is displayed.
- If there are many AIS targets and their symbol display is confusing, set Target Number Display to off to view the radar display easily.

5.3.6 Checking and Setting AIS Target Property

The AIS target property such as ID name can be checked for individual acquired AIS targets. The track color of AIS target can also be set.

The [AIS Target INFO] dialog is used for editing.



5.3.6.1 Setting track color of AIS target

The track color of AIS target is set.

1 Right-click on the AIS target.

The context menu is displayed.

2 Click on [Property] on the context menu. The [AIS Target INFO] dialog box appears.

AIS Target INFO	×
Target ID 1	
Name	
SHIP A	
Track No.	
Off -	
Priority -	

3 Select the track color from the [Track No.] combo box.

The selection items are as follows.

Off, No.1-Color, No.2-Color, No.3-Color, No.4-Color, No.5-Color, No.6-Color, No.7-Color, No.8-Color, No.9-Color, No.10-Color, No.11 to 20-Color

* In "Color," the track color name set by clicking [View] - [Options] - [Target Track] - [Plot] is displayed. For the details, refer to "14.2.8 Setting up the display of other ship's track".

5.3.7 Conditions for deciding AIS target to be lost

About an AIS target lost

When the data of a target cannot be received for a specified time, the target is decided to be lost and the target data is deleted. As shown in the table below, the time until target data is deleted varies depending on the class of received data and the target status.

Note

- Since the lost time and that of the AIS indicator are different, this equipment may display lost information earlier than the AIS display depending on the target status (speed, navigation status, etc.).
- The target of lost target is continuously displayed until Lost Warning is approved. Since negligence of approval operation may hinder display of a new AIS target, perform approval operation as soon as possible.

	Time until data is lost		
Target status	SOLAS ship (Class A)	Non-SOLAS ship (Class B)	
		CS (Carrier Sense)	SO (Self Organizing)
Vessel below 3 kn (Class A) or 2 kn (Class B) and it is now at anchor or on the berth	18 min	18 min	
Vessel of 3 kn or more and it is now at anchor or on the berth	60 sec	18 min	
Vessel of 0 to 14 kn (Class B: 2 to 14 knots)	60 sec	180 sec	
Vessel of 0 to 14 kn and it is now changing the course	60 sec	180 sec	
Vessel of 14 to 23 knots	36 sec	180 sec	90 sec
Vessel of 14 to 23 kn and it is now changing the course	36 sec	180 sec	90 sec
Vessel of 23 kn or more	30 sec	180 sec	30 sec
Vessel of 23 kn or more and it is now changing the course	30 sec	180 sec	30 sec
AtoN (Aids to navigation)	18 min	18 min	
SART	6 min	6 min	
AIS-AtoN	6 min	6 min	
AIS SAR aircraft	60 sec	60 sec	
AIS coastal base station 60 sec 60 sec) sec	

Conditions for Deciding Target to be Lost

Note

- When a dangerous target ship is lost, a lost alarm is issued and the symbol changes to a lost symbol. The system calculates the current position from the last-received data and continues displaying the symbol for eternity.
- When the [AIS] button in the target ship information window is turned off, the symbol is canceled.

5.4 Alert Display

Target tracking and AIS system have the following alerts.

Message	Description
AIS ACT 95% Capacity	The number of activated AIS targets reached 95% of tolerance.
AIS 95% Capacity	The number of AIS targets reached 95% of tolerance.
CPA/TCPA(AIS)	CPA/TCPA warning (AIS)
Lost(AIS)	The AIS target was lost.
AIS MAX Target	The number of AIS targets reached the maximum number of targets displayed.
New Target(AIS)	The AIS target was acquired and activated.
TT(95% Capacity)	The number of TT targets reached 95% of tolerance.
TT(CPA/TCPA)	CPA/TCPA warning (TT)
TT(Lost)	Acquired TT was lost.
TT(MAX Target)	The number of tracked targets reached the maximum number of targets.
TT(New Target)	TT was acquired.
TT(Out of Range)	TT went out of 32NM.
TT(Reference Lost)	The TT reference target was lost.

An alert is displayed in the alert notification area (upper right of the screen).



5.4.1 Danger target alarm (CPA/TCPA)



Since these alarms may include some errors depending on the target tracking conditions, the navigation officer himself should make the final decision for ship operations such as collision avoidance. Making the final navigation decision based only on the alarm may cause accidents such as collisions.

In this system, targets are categorized into two types: tracked targets and dangerous targets depending on the danger level. The danger level can easily be recognized on the display at a glance. So, it is easily possible for the ship operator to judge which target is to be cautious about.

The danger target symbol of the tracked target will be displayed until either the tracking is stopped or the conditions no longer apply.

The types of target and alarm are shown below.

Status	Symbol on display	Alert characters	Alarm sound	Conditions
Tracked target Activated AIS target	O /AIS12	(Off)	(Off)	 CPA > CPA Limit 0 > TCPA TCPA > TCPA Limit The symbol is displayed when one or more of the above conditions are met. *In ECDIS, the TT (CPA/TCPA) alert does not occur.
Dangerous target	AIS12 Red blinking	CPA/ TCPA	Beep sound (beep-beep-beep) Alarm acknowledgeable	 CPA≤CPA Limit 0≤TCPA≤ TCPA Limit An alarm is issued when all the conditions are met. The sleeping AIS targets will be activated.

Dangerous Target Alarm

CPA Limit and TCPA Limit: Setting Values

5.4.2 Lost target notification (Lost)

When it is impossible to continue tracking any acquired and tracked target, or the data of AIS target cannot received for a specified time, the [Lost] notification will be issued. The typical causes for notification are shown below:

- The target echo is very weak.
- The target is hidden by a shore or a large ship and its echo is not received.
- The target echo is blurred by sea clutter or rain/snow clutter.

If a target under tracking goes into a range over 32 NM and can no longer be tracked, it is canceled without a lost target notification being issued.

Status	Symbol on display	Alert characters	Alarm sound	Conditions
Lost target	AIS12 Red Blinking	(Off)	(Off)	_

Lost Target Notification

5.4.3 Gyro set notification (Set Gyro)

The GYRO I/F in this system receives signals from a gyro. Even if the power is turned off, the system will follow up the gyro. However, the system stops the follow-up operation when the power of the master gyro is turned off or when any trouble occurs to the line. When the power of the master gyro is recovered, the [Set Gyro] notification will be issued.

When this notification is issued, set the true bearing value of the gyro. For the details, refer to "6.14 True bearing".

Gyro Set Notification

Alert characters	Alarm sound	Conditions
Set Gyro	Beep sound (pi-)	The signals from the gyro are stopped, but the gyro is recovered.

5.5 Setting the Display of Other Ship's Track

This section describes the setting of the tracked target and the tracks of AIS target. This equipment can display the tracks of up to 20 target ships.

5.5.1.1 Setting track color

For details on how to set the track color of tracked target, refer to "5.2.7.1 Setting track color of tracked target"

For details on how to set the track color of AIS target, refer to "5.3.6.1 Setting track color of AIS target"

5.5.1.2 Turning on/off other ship's track function

For the details, refer to "16.7 Setting up Other Ship's Track Function To ON/OFF".

Note

Note that when this function is turned off, all the other ship's track functions are turned off. In this case, the track data of other ships is not saved, so they cannot be traced later.

5.5.1.3 Setting other ship's track colors

You can set either one track color for all targets under tracking, or individual colors for the ships of track numbers from 1st to 10th. The same color is used to display the 11th to 20th ships. For the details, refer to "14.2.8 Setting up the Display of Other Ship's Track".

Note

If the other ship's track function (Target Track Function) is turned off, the track data of other ships is not saved.

5.5.1.4 Turning on/off other ship's track display

The target track display function can be turned on/off. Choices for track display are displaying/hiding the tracks of all ships and Individual (displaying the tracks of individual ships). For the details, refer to "14.2.8 Setting up the Display of Other Ship's Track".

Note

Even when Target Track Display is turned off, the track data of other ships is saved if Track Display Interval is set.

5.5.1.5 Setting up a display interval of other ship's track

A display interval of other ship's track can be set.

For the details, refer to "14.2.8 Setting up the Display of Other Ship's Track".

Note

This function is not available when the Target Track Function is turned off.

5.5.1.6 Clearing other ship's track

The other ship's track can be cleared by setting a color or a track number. For the details, refer to "14.2.8 Setting up the Display of Other Ship's Track".

5.5.1.7 Saving and loading other ship's track data

Other ship's track data can be saved on HDD and load from the HDD. (Data can be saved to HDD until the data volume becomes full.) For the details, refer to "3.20.2 File management".

5.6 Entering Own Ship's AIS Voyage Data

Set the own ship's AIS voyage data.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [TT/AIS] [AIS Voyage Data] on the menu. The [AIS Voyage Data] dialog box appears.

AIS Voyage D	ata	X
Destination	>JP YOK OS	•
ETA(UTC)	05-14 07:22 🏢	
NAV Status	9:Reserved for High Speed Craft	•
Draft	15.0 m	
Cargo Cat.		•
Persons	30 On-board	
	Send	

In the [AIS Voyage Data] dialog box, information collected from AIS is displayed.

3 Enter information manually if not being displayed, or change the information being displayed.

ltem	Setting			
Destination	Enter the destination in the [Destination] input box (maximum 20 characters),			
	or display the history list and click on the destination to enter.			
ETA (UTC)	Click on the calendar icon 👜 to display the date picker, and enter the			
	expected date (and time) of arrival by clicking.			
NAV Status	Select the "Navigation Status" from the combo box.			
	For the details of Navigation Status, refer to "5.3.4 Displaying AIS			
	information".			
Draft	Enter the draft in the [Draft] input box in the range between 0 and 25.5 m.			
	The draft can be entered in increments of 0.1 m. If the draft is more than 25.5			
	m, enter 25.5 m.			
Cargo Cat.	Select the cargo category from the combo box.			
Persons	Enter the number of persons on board in the [Persons on-board] input box in			
On-board	the range between 0 and 8191. If the number of persons on board is more			
	than 8191 persons, enter 8191.			

4 Click on the [Send] button to save the input information.

5.7 Editing and Sending AIS Messages

AIS messages can be edited and sent.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- **2** Click on [TT/AIS] [Edit and Send AIS Message] on the menu. The [Edit and Send AIS Message] dialog box appears.

			1
Edit and Send	AIS Message	• ×	
$_{\!$			
• Addressed			
MMSI	377470001		
Name			
Target ID	****		
O Broadcast			
Category	Safety Mes	sage 🝷	
	LL & Time	View Tray	
Safety Infor	mation		
			Message input area
Save		Send	

3 Specify whether a message will be sent by specifying an MMSI code or distributing a broadcast message.

For the details, refer to "To send a message by specifying an MMSI code:" and "To distribute a broadcast message:".

4 Display the [Message Category] list and select the type of the message to send.

To send a safety related message: Click on [Safety Message].

To send a routine message: Click on [Routine Message].

5 Type a message in the message input area.

To automatically enter own ship's latitude/longitude/UTC:

Click on the [LL&Time] (latitude/longitude/time) button.

To copy an existing message: Click on the [View Tray] button to display the contents of the AIS Message Tray. Select the message to copy to display it, and then copy it. The message can be copied from the beginning up to the maximum number of characters.

Memo

The maximum number of characters that can be input changes depending on the transmission method and the message type.

- Sending a message by specifying the MMSI code
 - Safety message: Up to 156 characters
 - Routine message: Up to 151 characters
- Distributing a broadcast message
 - Safety message: Up to 161 characters
- Routine message: Up to 156 characters

6 Click on the [Send] button to send the message.

The message transmission confirmation dialog box appears.

When sending a message by specifying an MMSI code:

System	
Send message to MN Are you	
ОК	Cancel

When distributing a broadcast message:

System			
		dcast message. You sure?	
	ОК	Cancel	

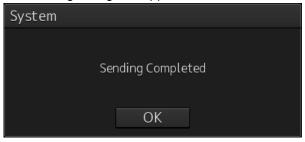
7 Click on the [OK] button to send the message.

To cancel the transmission of the message, click on the [Cancel] button. The following dialog box appears while sending a message.

System		
	Now Sending	
	Cancel	

The transmission of the message currently in progress can be stopped by clicking the [Cancel] button.

The following dialog box appears when the transmission of a message completes.



- 8 Click on the [OK] button to close the dialog box.
- **9** To save an MMSI code and a typed message in the case of MMSI transmission, click on the [Save] button.
- **10** Click on the [x] button to close the dialog box.

To send a message by specifying an MMSI code:

- 1 Click on the [Addressed MMSI] (specified MMSI code) button.
- Type an MMSI code (9 digits) in the [MMSI] input box.
 The name of the ship having the entered MMSI code is displayed in the [Name] box.
 The identification number is displayed in the [Target ID] box.
- Type a message in the message input area.
 In the case of a safety related message: Maximum 156 characters
 In the case of a routine message: Maximum 151 characters

To distribute a broadcast message:

- **1** Click on the [Broadcast] button.
- Type a message in the message input area.
 In the case of a safety related message: Maximum 161 characters
 In the case of a routine message: Maximum 156 characters

5.8 AIS Message Tray

The received, sent and saved AIS messages are displayed in AIS Message Tray in a list form.

Memo

The information reference window such as AIS message tray can be switched to standard window display or extended window display.

In this example, extended window display is used.

For the details of switching between standard window display and extended window display, refer to "2.3.2.1 Switching between a standard window and an extended window".

5.8.1 Displaying the AIS message tray

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [TT/AIS] [AIS Message Tray] on the menu. The "Information Reference" window appears.
- **3** Click on the [AIS MSG Tray] (AIS message tray) button. The AIS Message Tray is displayed.

Memo

The AIS message tray can also be displayed by clicking on the [View Tray] button in the [Edit and Send AIS Message] dialog.

Information Reference	X
AIS MSG Tray Alert Alert AIS	
TX Tray Saved Tray RX Tray	
Message Format : Addressed 🗸	MMSI
Message Category: Safety 🔹	Ship's Name
No. • Date(UTC) MMSI Ship's Name	AIS Message
	Edit Select

Message list

Up to 50 most recent messages are displayed in the message list, from the newest date first. When the 51st message is registered, the message having the oldest date will automatically be deleted. By clicking any item of the title columns, messages can be sorted in ascending or descending order. When a message is clicked in the message list, the detailed information of that message will be displayed in the right area of the list.

5.8.2 Switching message display

Information Reference					×
AIS MSG Active Tray Alert	Alert History	AIS			
TX Tray Saved Tray	RX Tray]			
Message Format: Addres Message Category: Safety			MMSI Ship's Name		
No. → Date(UTC)	MMSI	Ship's Name	AIS Message		
			Edit	Select	

To display transmitted messages:

Click on the [TX Tray] (Transmitted Tray) button.

To display saved messages:

Click on the [Saved Tray] button.

To display received messages:

Click on the [RX Tray] (Received Tray) button. Unread messages are displayed in boldface.

To filter messages by specifying the transmission method:

To display only messages sent/received by specifying an MMSI code: Click on the [Addressed] (address specification) button.

To display only messages distributed through broadcasting:

Click on the [Broadcast] button.

When messages are not filtered by the transmission method:

Click on the [All] (display all) button.

To filter messages by specifying category:

To display only safety related messages:

Click on the [Safety] (safety related) button.

To display only routine messages:

Click on the [Routine] button.

When messages are not filtered by category:

Click on the [All] (display all) button.

5.8.3 Sending a message in the message tray after editing

Information Reference		\mathbf{X}
AIS MSG Active Aler Tray Alert Histo		
TX Tray Saved Tray RX Tra	у	
Message Format : Addressed •	J	MMSI <u>377470000</u>
Message Category: Safety •	J	Ship's Name @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
No Date(UTC) MMSI	Ship's Name	AIS Message
0 2014-06-11 09:32 3774700	00 @@@@@@@@@	
		test message
		Edit Select

1 Click the message to copy in the message list.

2 Click on the [Edit] or [Select] button.

When the AIS Message Tray is displayed by opening the AIS Message Tray submenu: Click the [Edit] button.

The [Edit and Send AIS Message] dialog box appears, and the AIS message will be copied to the [Edit and Send AIS Message] dialog box. When a message is sent by specifying an MMSI code, the MMSI code will also be copied:

When the AIS Message Tray was displayed by clicking the [View Tray] button in the [Edit and Send AIS Message] dialog box: Click the [Select] button.

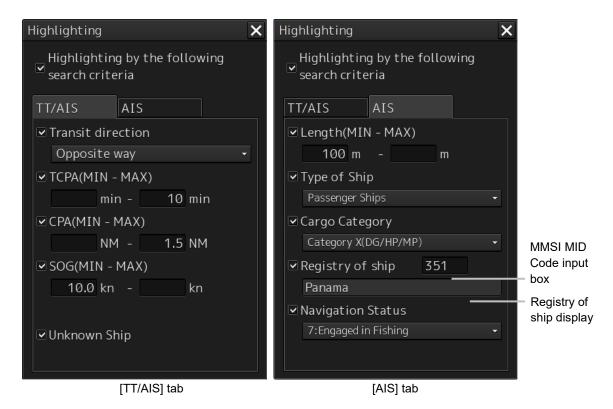
The AIS message will be copied to the [Edit and Send AIS Message] dialog box. The MMSI code is not copied by this method.

5.9 Highlighting TT/AIS Symbols

TT/AIS symbols can be searched by specifying criteria and highlight them.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [TT/AIS] [Highlighting] on the menu.

The [Highlighting] dialog box appears.



3 To include all search criterions as highlight targets, select the [Highlighting by the following search criteria] checkbox.

To exclude all search criterions from highlight targets, clear the [Highlighting by the following search criteria] checkbox.

4 If the [Highlighting by the following search criteria] checkbox is selected in step 3 above, clear the checkboxes of the search criterion to be excluded from highlighting.

5 Of the checked search items, specify the search criteria for highlighting.

[Transit direction]: Select the transit direction from the combo box.

Ν	Sailing North
NE	Sailing North East
E	Sailing East
SE	Sailing South East
S	Sailing South
SW	Sailing South West
W	Sailing West
NW	Sailing North West
Same way	Same way
Opposite way	Opposite way

Item	Setting
ТСРА	Specify the minimum and maximum values in the range between
	1 to 99 min.
СРА	Specify the minimum and maximum values in the range between
	0.1 to 9.9 NM.
SOG	Specify the minimum and maximum values in the range between
	0.0 to 102.2 kn.
Unknown Ship	As a result of conducting association processing using the
	TT/AIS function, targets that were not identified will be
	categorized as unknown ships.
Length	Specify the minimum and maximum values in the range between
	1.0 to 1022.0 m.
Type of ship	Open the list and click on the type of the ship to be highlighted.
Cargo category	Open the list and click on the cargo category to be highlighted.
Registry of ship	Specify the MMSI MID Code in the range between 200 and 800.
	The registry of ship corresponding to the entered code is
	displayed.
Navigation Status	Open the list and select the navigation status to be highlighted.

5.10 Displaying the TT/AIS Target List

The information of targets being monitored with the TT and AIS functions can be displayed in a list on the information monitoring window.

5.10.1 Displaying TT/AIS List

Take the following steps to display the TT list and AIS list.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [TT/AIS] [TT/AIS List] on the menu. The "TT/AIS" list is displayed in the information monitoring window.
- [TT1 List] and [TT2 List] buttons are displayed. Clicking on these buttons display TT1 and TT2 information.
- Clicking on the [AIS List] button displays AIS information.

When [BRG/RNG] is clicked, the Bearing and Range of the target from the own ship are displayed as the other ship's position in the row of the list. When [Lat/Lon] is clicked, Lat and Lon (latitude/longitude) is displayed as the other ship's position in the row of the list.

TT/AIS	List								×
TT1 List	TT2 List	AIS List			Colur	nn ● BRG/RNG ○ LAT/LON]]
ID	CPA[NM]	TCPA[mi •	BCR[NM]	BCT[min]	COG[°]	SOG[kn]	BRG[°]	RNG[NM]	Status

5.10.1.1 Switching between a standard window and an extended window

The TT/AIS list can be switched to a standard window or an extended window.

To switch to an extended window, click on the List extension button.

To switch to a standard window, click on the List Standard button.

TT/AIS Lis	t		×
TT List	AIS List	Column OCTW/STW/Name/Call Sign/MMSI	
		List extension —	List

button

standard button

[Example of Extended window]

TT/AIS TT Lis	AIS				Co		STW/Name/Call BCT/BRG/RNG/I		tus 🚹	
ID	CPA[NM]	TCPA[min] •	BCR[NM]	BCT[min]	BRG[°]	RNG[NM]	HDG[°]	LAT	LON	Status
8	2.12	12.48	2.12	12.6	315.4	2.98	090.0	0°02.121'N	0°02.079'W	SLeeping
7	2.12	12.48			224.6	2.98	090.0	0°02.121'S	0°02.080'W	Sleeping
1	0.00	17.74			270.0	2.98	090.0	0°00.000'N	0°02.957'W	SLeeping
2	3.00	-0.24			000.8	3.00	090.0	0°03.000'N	0°00.041'E	Sleeping
6	3.00	-0.25			179.2	3.00	090.0	0°03.000'S	0°00.042'E	Sleeping
3	2.12	-12.99			045.8	3.04	090.0	0°02.121'N	0°02.164'E	Sleeping
5	2.12	-12.99			134.2	3.04	090.0	0°02.121'S	0°02.164'E	Sleeping
4	0.00	-18.25			090.0	3.06	090.0	0°00.000'N	0°03.042'E	Sleeping
	Show AIS Detail									

[Example of standard window]

AIS List							
Show AIS Detail							
ID	CPA[NM]	TCPA[min] +	CTW[°]	STW[kn]			
8	2.12	12.21	090.0	10.0			
7	2.12	12.21	090.0	10.0			
1	0.00	17.49	090.0	10.0			
2	3.00	-0.51	090.0	10.0			
6	3.00	-0.52	090.0	10.0			
3	2.12	-13.24	090.0	10.0			
5	2.12	-13.24	090.0	10.0			
4	0.00	-18.52	090.0	10.0			
•				<u> </u>			
So	croll bar						

By dragging the scroll bar, the overlapped section can be displayed.

Memo

A standard window is displayed at the initial display.

5

5.10.2 TT List

TT/AIS	List								>
TT1 List	TT2 List	AIS List			Colur	nn ● BRG/RNG ○ LAT/LON]
ID	CPA[NM]	TCPA[mi •	BCR[NM]	BCT[min]	COG[°]	SOG[kn]	BRG[°]	RNG[NM]	Status

Display Example

Item	Description
ID	ID No. of tracked target
CPA	Closest approach distance
ТСРА	Time up to closest approach distance
BCR	Bow crossing distance
BCT	Bow crossing time
COG	COG: Course Over the Ground
SOG	SOG: Speed Over the Ground
BRG	True direction
RNG	Distance
Lat	Latitude
Lon	Longitude
Status	Status
	Initial ACQ: Initial acquisition in progress
	Tracking: Acquisition in progress
	Lost: Lost status
	Danger: Dangerous ship

Memo

When the TT list is displayed initially, the items are sorted in the order of TCPA. When the sequence is changed, the items are displayed in the last sort sequence.

5.10.3 AIS List

When [CTW/STW/Name/Call Sign/MMSI/Source] is clicked, CTW, STW, Name, Call Sign, MMSI, and Source are displayed in the rows of list.

When [BCR/BCT/BRG/RNG/HDG/POSN/Status] is clicked, BCR, BCT, Bearing, Range, Heading, Lat, Lon, and Status are displayed in the row of list.

TT/AI	S List							>
T1 Lis					Column ● COG/SOG/Name/Cal ● BCR/BCT/BRG/RNG]
ID	CPA[NM]	TCPA[min] -	COG[°]	SOG[kn]	Name	Call Sign	MMSI	Source
1	1.81	1.63	000.0	1.0	SHIPNAME-377470000	JRC0001	377470000	Direct
2	0.38	10.42	072.0	1.0	SHIPNAME-377470001	JRC0002	377470001	Direct
3	2.04	-1.84	144.0	1.0	SHIPNAME-377470002	JRC0003	377470002	Direct
5	1.23	-11.34	288.0	1.0	SHIPNAME-377470004	JRC0005	377470004	Direct
4	0.91	-12.68	216.0	1.0	SHIPNAME-377470003	JRC0004	377470003	Direct
					Show AIS Detail			

Display Example

Item	Description
ID	ID No. of AIS
CPA	Closest approach distance
ТСРА	Time up to closest approach distance
COG	COG: Course Over the Ground
SOG	SOG: Speed Over the Ground
Name	Ship name
Call Sign	Call sign
MMSI	Maritime Mobile Service Identity
Source	AIS information source
	- Direct
	- Repeated
	- VTS
BCR	Bow crossing distance
ВСТ	Bow crossing time
BRG	True direction
RNG	Distance
HDG	Heading
Lat	Latitude

Item	Description
Lon	Longitude
Status	Status
	Sleeping: Sleeping in progress
	Activated: Activation in progress
	Lost: Lost status
	Danger: Dangerous ship
[Show AIS Detail]	When one item is selected from the list and this button is clicked, AIS detail
button	information is displayed in the information monitoring window.
	For the details, refer to "2.3.1.4 AIS Detail INFO".

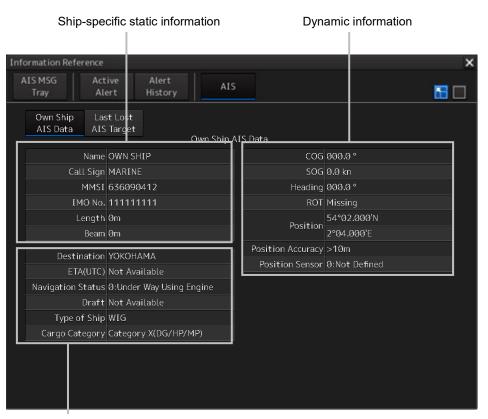
5.11 Confirming Own Ship's AIS Information

Take the following steps to display own ship's AIS information.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [TT/AIS] [Own Ship AIS Data] on the menu. The "Information Reference" (information monitoring window) is displayed.

3 Click on the [Own Ship AIS Data] button.

Own ship's AIS information is displayed in the information monitoring window.



Static information that may change during each navigation

Memo

The Information Reference can be switched to standard window display or extended window display.

In the above example, the extended window is used.

For the details of switching between the standard window and the extended window, refer to "2.3.2.1 Switching between a standard window and an extended window".

5.12 Displaying the Last Lost AIS Target

1 Click on the [Menu] button on the left toolbar.

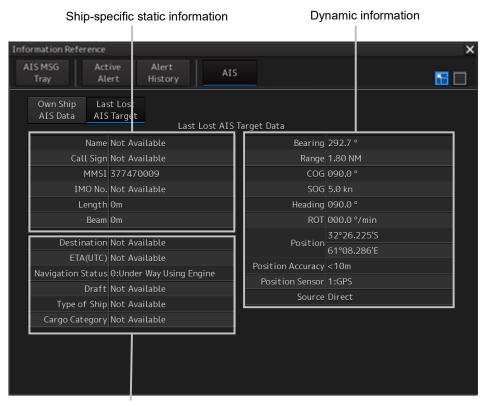
The menu is displayed.

2 Click on [TT/AIS] - [Last Lost AIS Data] on the menu.

The "Information Reference" (information monitoring window) is displayed.

3 Click on the [Last Lost AIS Target] button.

The last lost information about AIS target is displayed in the information monitoring window.



Static information that may change during each navigation

Last Lost AIS Target (last lost information about AIS target)

Displayed information	Explanation
Name	Displays the ship name of an AIS target.
Call Sign	Displays a call sign.
MMSI	Displays a nine-digit identification number for a ship/ground station
	equipped with a DSC communication device.
IMO No.	Displays the 9-digit IMO number.
Length	Displays the length of an AIS target.
Beam	Displays the beam of an AIS target.
Destination	Displays the destination of an AIS target.
ETA or UTC	Displays the expected arrival time of an AIS target.

Displayed information	Explanation
Navigation Status	Displays the navigation conditions of an AIS target.
	0: Under Way Using Engine
	1: At Anchor
	2: Not Under Command
	3: Restricted Maneuverability
	4: Constrained by Her Draft
	5: Moored
	6: Aground
	7: Engaged in Fishing
	8: Under Way Sailing
	9: Reserved for High Speed Craft
	10: Reserved for Wing In Ground
	11: Reserved
	15: Not Defined
Draft	Displays the draft of an AIS target.
Type of Ship	Displays the ship type of an AIS target.
	30: Fishing Vessel
	31: Towing Vessel
	32: Towing Vessel>200MB->25M (Towing and length of the tow exceeds
	200m or breadth exceeds 25m)
	33: Dredge or Underwater OPE (Engaged in dredging or underwater
	operation)
	34: Vessel-Diving OPE (Engaged in diving operation)
	35: Vessel-Military OPE (Engaged in military operation)
	36: Sailing Vessel
	37: Pleasure Craft
	50: Pilot Vessel
	51: Search and Rescue Vessels
	52: Tugs
	53: Port Tenders
	54: With Anti-Pollution Equip(Vessels with anti-pollution facilities or
	equipment)
	55: Law Enforcement Vessels
	58: Medical Transports
	59: Resolution No18:MOB-83(Ships according to Resolution
	No18(Mob-83))
	2X: WIG(Wing-in-Ground Effect Craft)
	4X: High Speed Craft
	6X: Passenger Ships
	7X: Cargo Ships
	8X: Tanker
	9X: Other Type of Ship

5

Displayed information	Explanation
Cargo Category	When the setting of the type of a ship is
	2X, 4X, 6X, 7X, 8X or 9X, the digit shown at the end of the code
	represents the cargo/condition.
	X1 Category X(DG/HP/MP)
	X2 Category Y(DG/HP/MP)
	X3 Category Z(DG/HP/MP)
	X4 Category OS(DG/HP/MP)
	X9 No Additional Information
	X0 All Ships of This Type
Bearing	Displays the bearing of an AIS target.
Range	Displays the distance to an AIS target.
COG or CTW	Displays the course of an AIS target. Displayed as "COG" in the course
	over the ground mode and "CTW" in the course through the water mode.
SOG or STW	Displays the ship speed of an AIS target. Displayed as "SOG" in the
	speed over the ground mode and "STW" in the speed through the water
	mode.
Heading	Displays the heading of an AIS target.
ROT	Displays the turning speed of an AIS target.
Position	Displays the position of an AIS target.
Position Accuracy	When the position-fix accuracy of an AIS target is low, [>10m] is
	displayed.
	When the position-fix accuracy of an AIS target is high, [<10m] is
	displayed.
Position Sensor	Displays the type of the position sensor used by an AIS target.
	0: Not Defined
	1: GPS
	2: GLONASS
	3: Combined GPS/GLONASS
	4: Loran-C
	5: Chayka
	6: Integrated Navigation System
	7: Surveyed
	8: Galileo
	15: Internal GNSS
Source	AIS information source
	- Direct
	- Repeated
	- VTS

Memo

The Information Reference can be switched to standard window display or extended window display.

In the above example, the extended window is used.

For the details of switching between the standard window and the extended window, refer to "2.3.2.1 Switching between a standard window and an extended window".

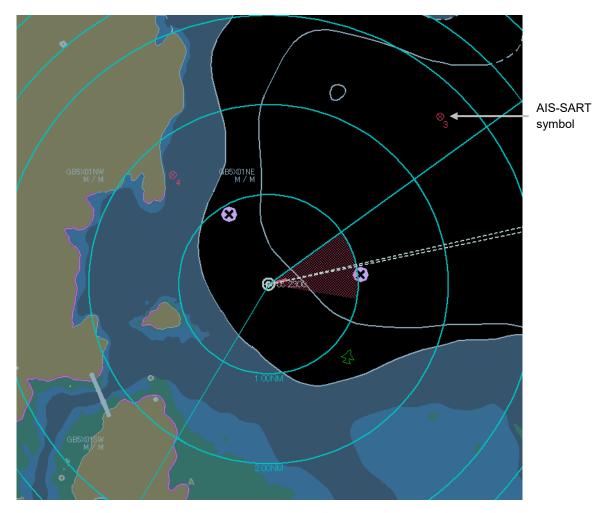
5.13 Display of AIS-SART

AIS-SART is a device to display data relating to the position of the ship in distress on the AIS display unit of the ship station and coast radio station which install the AIS.

When connecting this device with the AIS, AIS-SART symbols can be also displayed on the screen.

5.13.1 Radar screen display example

If receiving AIS-SART signals from its device, an AIS-SART symbol is displayed on the radar screen.



Example of AIS-SART Symbol Display

*For the details of AIS-SART symbols, refer to "5.1.3 Types and Definitions of AIS Target Symbols".

5.13.2 Numeric data display example

When the AIS-SART symbol is clicked on while it is displayed, AIS-SART numeric data is displayed in the Target Info on the information monitoring window.

Target IN	FO	믱
AIS ID	112	
Name:		
AIS-SART	ACT	
MMŠI	970470221	
COG	090.0	0
SOG	10.0	kn
CPA	0.85	NM
tcpa	-29.30	min
BRG	308.5	0
Range	10.77	NM
Heading	090.0	٥
RÓT	Missing	°/min
POSN	28°30.809'N	
<10m	142°33.078'E	
Navigatio	n Status:	
AIS-SART	ACTIVE(14)	

Example of AIS-SART Numeric Data Display

The following are displayed in Navigation Status area according to operating conditions:

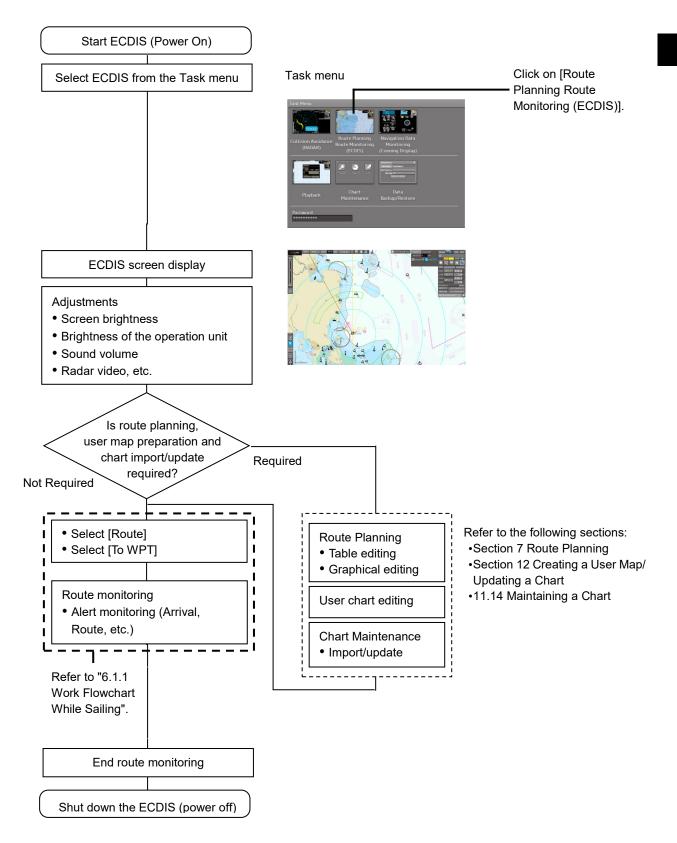
- Normal operation: AIS-SART ACTIVE (14)
- Trial operation: AIS-SART TEST (15)

If displaying "AIS-SART TEST (15)", it indicates that the AIS-SART operation test is performing.

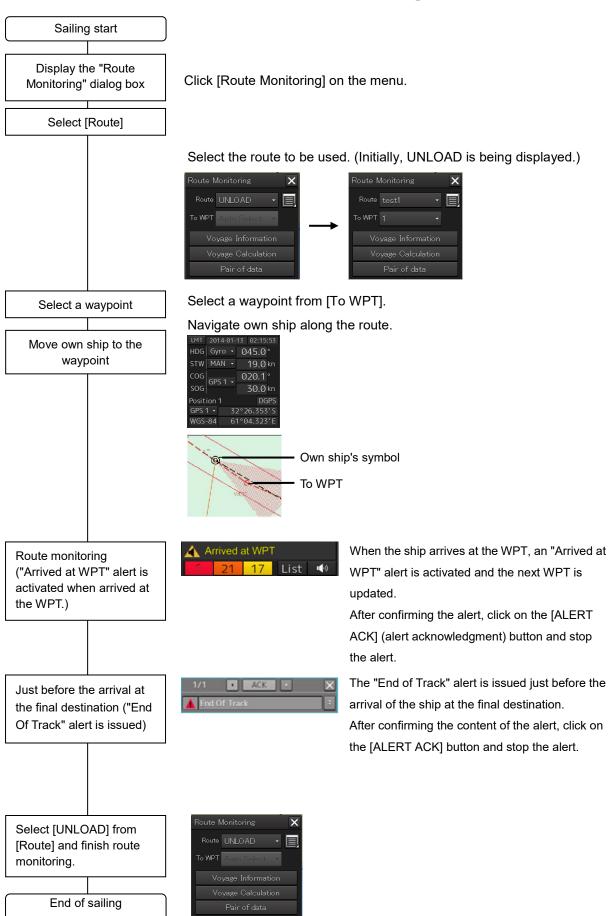
Section 6 Functions of the ECDIS

6.1 General Flowchart

A general flowchart of sailing using the ECDIS is shown.

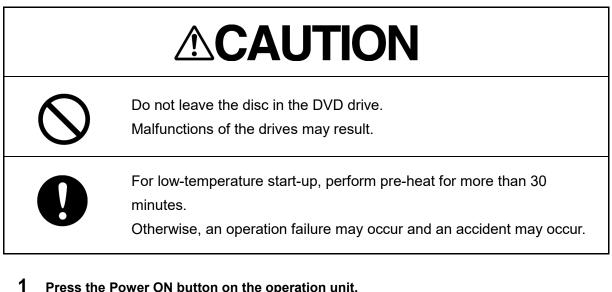


6.1.1 Work Flowchart While Sailing



6.2 Starting and Preparing the ECDIS6.2.1 Powering on and starting

The ECDIS is powered on according to the following procedure.



Press the Power ON button on the operation unit. The Power button illuminates. After a while, the Task menu is displayed.

6.2.2 Starting the ECDIS

6.2.2.1 Starting the ECDIS from the Task Menu

When the ECDIS is started, the Task menu appears on the screen.

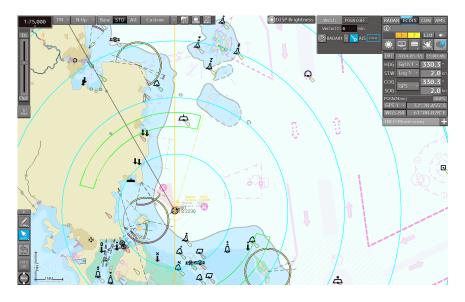
Start the ECDIS from the Task Menu.



1 Click on the [Route Planning Route Monitoring (ECDIS)] button on the Task menu.



The ECDIS screen is displayed.



6.2.2.2 Starting ECDIS from a non-ECDIS task screen

Click on [ECDIS], a task switching button at the top right corner of the screen.



ECDIS

The task is switched to ECDIS.

6.2.3 Entering an ARCS PIN Number (ARCS Only)

When ARCS charts have been imported, the ARCS PIN code input dialog box appears when the ECDIS is started.

Since ARCS is restricted by the ARCS PIN number, ARCS is not displayed unless the correct ARCS PIN number is input.

To use ARCS charts, be sure to perform the following operation.



1 Input a PIN number in [ARCS PIN] of the [ARCS PIN] dialog box

2 Click on the [OK] button.

When the [X] button is clicked on, ECDIS starts without displaying ARCS.

Note

ARCS is not displayed when the contract has expired even if the correct ARCS PIN number is input.

Memo

It is necessary to enter an ARCS PIN code only when the ECDIS screen will be displayed for the first time.

6.3 Moving the Chart

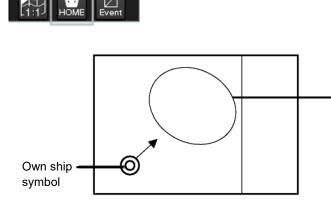
Charts can be moved by the following methods.

- Moving by the [Home] button
- Moving by the cross-hair cursor
- Moving by the hand cursor
- Switching display from the [My Port List] dialog box
- Displaying by entering a position

6.3.1 Moving the chart with the [HOME] button

Display can be moved to a position where the heading direction of own ship can be observed in a panoramic view. Use this feature if own ship is lost from charts.

1 Click on the [Home] button in Chart Information Area.



Display moves to a position where the heading direction of own ship can be observed in a panoramic view.

Screen Display of Home Position

6

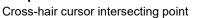
6.3.2 Moving the chart with the cross-hair cursor

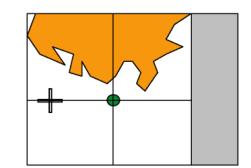
When the cross-hair cursor is moved to an arbitrary position on the chart and then clicked, the chart can be moved. The chart moving position varies with the setting of the motion mode. For information about the motion mode, refer to "6.6 Selecting Motion/Bearing Mode".

[When the motion mode is set to true motion]

The position of the cross-hair cursor becomes the center of the screen.



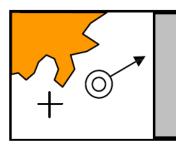


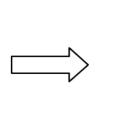


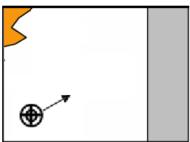
Moving to the Center of the Screen

[When the motion mode is set to relative motion]

The position of the cross-hair cursor becomes own ship's display position.





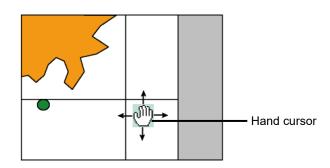


Moving the position of own ship's display

6.3.3 Moving the chart with the hand cursor

The chart can be moved by grabbing it with the hand cursor.

- **1** Move the cursor to the position where you want to grab the chart.
- **2** When the trackball is turned while the button is pressed, the cursor changes to a hand cursor and the chart moves.



Memo

If own ship sails outside of the screen, the motion mode will automatically be set to Free (free motion).

6.3.4 Switching a chart to be displayed by "My Port List"

If port names are registered in My Port List in the [My Port List] dialog box, chart display can be switched to the one having the latitude and longitude of a registered port at the center of the chart.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [Chart] [My Port List] on the menu. The [My Port List] dialog box appears.

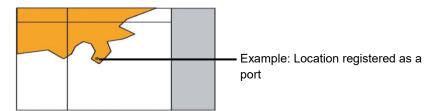
My Port List				×
My Port List			Save	
Name	LAT	LON	Scale	
AAAAA	32°30.384'S	60°58.675'E	1:25,000	
BBBBB	32°28.844'S	60°54.055'E	1:25,000	
ссссс	32°35.250'S	60°49.221'E	1:25,000	
				Port list
			[Port list
L				
Delete	(3/1000))	Jump —	[Jump] button

For how to register and delete ports, refer to "6.7 Registering and Displaying My Port List".

3 Click on a port in the list to select it.

4 Click on the [Jump] button.

The chart is displayed having the latitude and longitude of the selected port at the center of the chart.



6.3.5 Displaying the chart by entering the position

By entering a position, the chart of a desired position can be displayed.

1 Click on the [Menu] button on the left toolbar.

The menu is displayed.

2 Click on [Chart] - [Off Center by Entering Position] on the menu.

The [Off Center by Entering Position] dialog box appears.

Off Center by Entering Position	
Jump to the following position	 [Jump to the following position] button
32°35.250'S 60°49.221'E	— Latitude and longitude input boxes

The latitude and longitude of the center of the current screen is displayed in the latitude and longitude input boxes.

- **3** Click the latitude and longitude input boxes.
- 4 Enter the latitude and longitude of the chart you want to display with the software keyboard.
- 5 Click on the [Jump to the Following Position] button.The chart is displayed having the entered latitude and longitude at the center of the chart.

6.4 Zooming In/Out the Chart

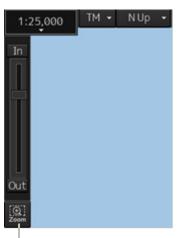
The chart can be enlarged and reduced by the following methods.

Item	Related sections
Enlarging a selected area	6.4.1 Enlarging a Selected Area (S-57/C-MAP Only)
Enlarging/reducing with the [ZOOM IN]/[ZOOM OUT] key on the operation unit (S-57/C-MAP only)	6.4.2.1 Enlarging/reducing with the [ZOOM IN]/[ZOOM OUT] key on the trackball operation unit
Enlarging/reducing with the zoom slider (S-57/C-MAP only)	6.4.2.2 Enlarging/reducing with the zoom slider (S-57/C-MAP only)
Enlarging/reducing with the Large/Small buttons (RNC only)	6.4.2.3 Enlarging/reducing with the [Large]/[Small] buttons (RNC only)

6.4.1 Enlarging a Selected Area (S-57/C-MAP Only)

A selected area can be enlarged to the full chart screen size.

1 Click on the [Zoom Area] button.



[Zoom Area] button

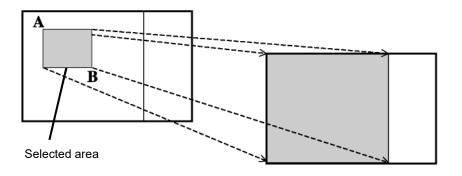
The cross-hair cursor changes to a zoom cursor.



- **2** Using the trackball, move the cursor to "A" located at the upper left of the range you want to enlarge, and then click.
- **3** Using the trackball, move the cursor to "B" located at the lower right of the range you want to enlarge, and then click.

The enlarging range is enclosed with a rubber band and then that range is enlarged to the full screen size.

Once enlarged, the zoom cursor changes back to the cross-hair cursor.



Memo

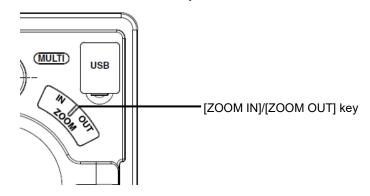
Switching charts

- Generally, multiple charts with different scales are provided for the same area; charts having matching scale values are selected/displayed by enlargement or reduction.
- When a displayable scale range is assigned to an original scale of a chart and the original scale is beyond this range, the chart will not be displayed unless there are other displayable charts.
- This equipment is equipped with a world map background chart as the reference chart and the chart is always displayed in background.

6.4.2 Enlarging/reducing a chart with the Zoom function

6.4.2.1 Enlarging/reducing with the [ZOOM IN]/[ZOOM OUT] key on the trackball operation unit (S-57/C-MAP only)

 Each time the [ZOOM IN] key is pressed, the chart is enlarged according to the range or scale that has been set up.
 Each time the [ZOOM OUT] key is pressed, the chart is reduced according to the range or scale that has been set up.



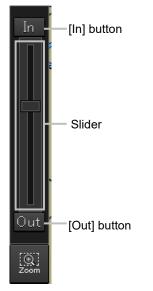
For the details of switching between range and scale, refer to "6.4.3 Switching between scale and range (S-57/C-MAP only)".

6.4.2.2 Enlarging/reducing with the zoom slider (S-57/C-MAP only)

1 When the slider handle is clicked upward, display is enlarged. When it is clicked downward, display is reduced.

Each time the [In] (zoom in) button is clicked on, the chart is enlarged according to the range or scale that has been set up.

Each time the [Out] (zoom out) button is clicked on, the chart is reduced according to the range or scale that has been set up.

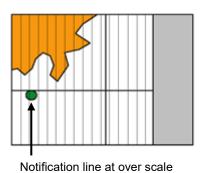


For more information about switching between range and scale, refer to "6.4.3 Switching between scale and range (S-57/C-MAP only)".

Memo

Over scale notification

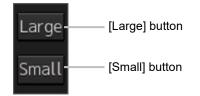
When the ship enters a different chart, an over-scale activated if the displayed chart is more than double in size than the original data. The vertical lines as seen in the figure below will be displayed on the "chart" to notify lower chart accuracy and clarity. The vertical lines will not be displayed if the size has been made larger (double or more) through proper operation.



6.4.2.3 Enlarging/reducing with the [Large]/[Small] buttons (RNC only)

1 Each time the [Large] button is clicked on, the chart is enlarged by one scale level (larger scale charts).

Each time the [Small] button is clicked on, the chart is reduced by one scale level (smaller scale charts).



6

6.4.3 Switching between scale and range (S-57/C-MAP only)

The current scale or range is displayed on the Scale/Range button in Chart Information Area.



The settings of scale and range as well as their switching method are as follows.

1 Click on the Scale/Range button.

The scale and range settings menu appears.

Scale/Range button –	1:25,000	ТМ • NUp • 8	Base STD All	Custom - 👬 🚉
	Scale:			Range:
	1:1,000	1:100,000	1:10,000,000	0.125 NM
	1:1,250	1:125,000	1:12,500,000	0.25 NM
Seele velues	1:1,500	1:150,000	1:15,000,000	0.5 M Range values
Scale values –	1:2,000	1:200,000	1:20,000,000	0.75 NM
	1:2,500	1:250,000	1:25,000,000	1.5 NM
	1:3,000	1:300,000	1:30,000,000	3 NM
	1:4,000	1:400,000	1:40,000,000	6 NM
	1:5,000	1:500,000	1:50,000,000	12 NM
	1:6,000	1:600,000	1:60,000,000	24 NM
	1:7,500	1:750,000	1:75,000,000	48 NM
	1:10,000	1:1,000,000	1:100,000,000	96 NM
	1:12,500	1:1,250,000		
	1:15,000	1:1,500,000		
	1:20,000	1:2,000,000		
	1:25,000	1:2,500,000		
	1:30,000	1:3,000,000		
	1:40,000	1:4,000,000		
	1:50,000	1:5,000,000		
	1:60,000	1:6,000,000		
	1:75,000	1:7,500,000		

2 Select a scale or range value from the menu.

The chart is displayed having the selected scale or range.

Memo

For range display, the half of the screen width becomes the specified range when displayed. For a multi screen (refer to "6.10 Multi View Display and Wide Range View Window Display of Charts"), the half the display screen View1/View2 becomes the specified range when displayed.

6.5 Changing the Object Category (S-57/C-MAP Only)

SENC (System Electronic Navigation Chart) information available for display in the chart is subdivided into three object groups; Base (Base display), STD (Standard Display), and All (All display). You can change the object category using the display panel.

Base (Base Display)

A group of important objects that cannot be deleted from the charts (coastline and safety contour lines)

STD (Standard: Standard display)

A group of objects less important than base display (fixed and floating objects for monitoring)

All (All display)

All objects

Custom (Custom)

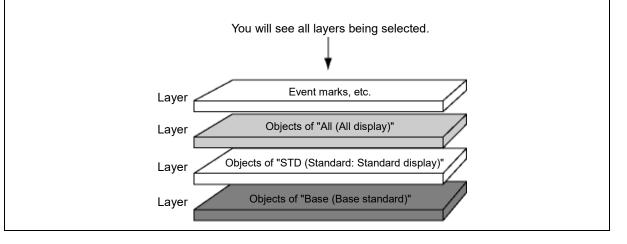
Refer to "6.5.2 Customizing object display"

Memo

About display in the chart

Display in the chart can be considered as the composite of various layers. For example, STD (Standard: Standard display) is the composite of object layers for Base (Base display) and object layers for STD (Standard: Standard display).

In addition to the object layers of the S-57/C-MAP charts themselves, own ship, user charts, event marks, EBL/VRM, radar images, etc. can be combined and then displayed.



Note

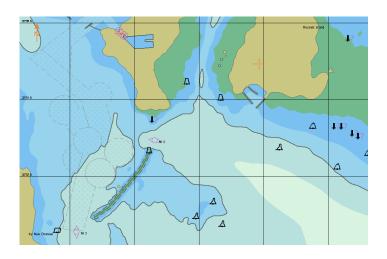
The initial chart screen status is "STD (Standard: Standard display)". For safe sailing, use the "STD (Standard: Standard display)" or "All (All display)", not the "Base (Base display)".

6.5.1 Switching object display

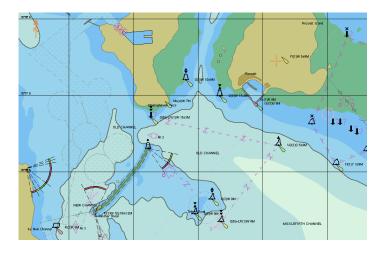
1 Click on one of the buttons of the Chart Information Area display category.



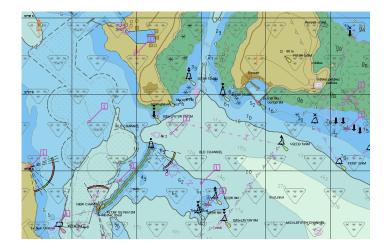
Information displayed on the chart changes.



"Base (Base display)" Example



"STD (Standard: Standard display)" Example



"All (All display)" Example

Note

1

The display will be in gray without displaying a chart when a corresponding chart does not exist in the display area, when a chart exists with only a part of data, or when the display scale does not match the chart scale. In this case, change the scale to check for a chart can be displayed.

6.5.2 Customizing object display

When the [Custom] button of the Chart Information Area is clicked on, the object corresponding to the setting in the [Chart View] dialog is displayed.

Any of the objects that are displayed on the [Chart View] dialog can be set.

Click on	the [Custo	m] menu	display button.	
Base	STD	All	Custom	Custom] button
The disp	lay changes	as follow	/S.	
All	Custor	n 🔻		
(Chart vie	w sett	ing	

2 Click on the [Chart view setting] button.

[Chart View] dialog is displayed.

The edit pane is divided into three dialogs.

To advance to the next dialog: Click on the [Next] button.

To return to the previous dialog: Click on the [Back] button.

<u>"</u> X	<u>"</u>	» X
Chart View Page 1/3	Chart View Page 2/3	Chart View Page 3/3
View1 View2	View1 View2	View1 View2
Chart Type	Layer	Text
S-57 C-MAP3 ARCS	□[S] unknown object	Important text (Vertical
	■[S] Generic Object =	cable, so on)
Chart Load AUTO Fix	[S] Chart scale boundary, overscale data	Name/Number of: buoys,
Text Size	☑[S] Land region, Sea area/named water area	Light description =
Small Large	☑[S] Causeway, Dam, Dyke, Gate	■Note on chart data or nautical ■publication
	[S] Dyke, Slope topline, Airport, ■Building, single, Crane,	☑Nature of seabed
	Landmark, Built-up area	Geographic names
	□[S] Swept area □[S] Sand wave, Tunnel, Cable,	Value of: magnetic variation,
	Submarine	Height of islet or land feature
	These settings are for "Custom" of display category.	
Next	Back Next	Back

3 Set the object to be displayed.

For the setting of the [Chart View] dialog, refer to "14.2.10 Setting up the display of Chart".

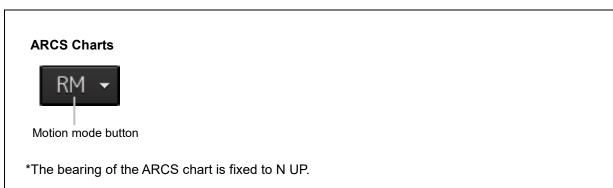
Memo

The [Chart View] dialog can also be displayed by selecting [View] - [Options] - [Chart View] on the menu.

6.6 Selecting Motion/Bearing Mode

Using the Motion/Bearing Mode combo box in Chart Information Area, set up the motion mode and the bearing mode on own ship's chart. The mode that can be selected varies with the chart type.

S-57/C-MAP Ed.3 Charts				
TM ▼ NUp Notion mode button Bearing mo	• de button			
[Selectable com	binations in the	motion mode and	the bearing mode	e]
Bearing mode N UP H UP C UP WPT UP Motion mode <				
ТМ	0	×	0	×
RM	0	0	0	0
Free	0	×	0	×



6.6.1 Setting motion mode

Set a motion mode with the Motion Mode combo box in Chart Information Area.

1 Click on the Motion Mode combo box.

2 Select a motion mode.

Setting item	Description	Display image
[TM]	 True Motion Mode Land and other fixed objects are fixed on the display and only own ship moves on the display. When own ship reaches the predetermined limit, the chart is automatically shifted so that own ship always remains on the screen. 	Fixed Own ship
[RM]	 Relative Motion Mode Own ship is fixed at the center of the screen and the fixed objects such as land move relatively. 	Moves relatively Fixed on ship position
[Free]	 Free You can freely move the chart on the display regardless of the own ship's direction. As the own ship goes, it disappears from the screen. 	Fixed Heading line Own ship

Mode change by the operation:

In the following cases, the motion/bearing mode will be automatically changed from the current mode to another one.

- From [TM] mode to [Free] mode:
 - When the own ship goes exceeding the display limit of the screen by scrolling the chart..
 - When an area outside of the own ship range was displayed by loading charts or clicking the [Jump] button in the [My Port List] dialog box.
- From [RM] mode to [Free] mode:
 - When the own ship goes exceeding the display limit of the screen by scrolling the chart..
 - When an area outside of the own ship range was displayed by loading charts or clicking the [Jump] button in the [My Port List] dialog box.
- From [Free] mode to [TM] mode:
 - When the [Home] button was clicked on, the rotation in the Free mode is retained after changing to the TM mode.

Note

H UP, WPT UP, C UP are valid only the chart scale is not lower than 1:5,000,000.

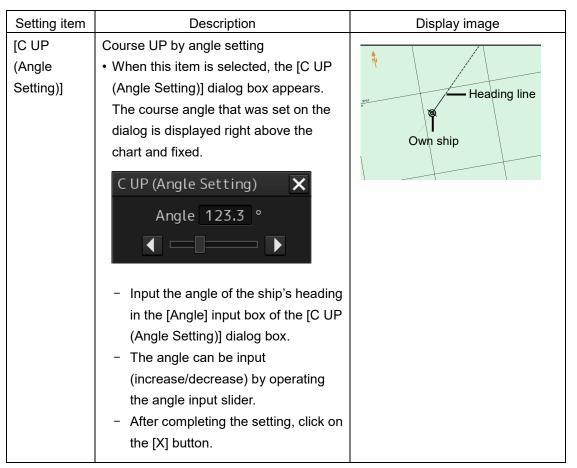
6.6.2 Setting Bearing mode (S-57/C-MAP only)

Set a bearing mode with the Bearing Mode button in Chart Information Area.

1 Click on the Bearing Mode combo box.

2 Select a bearing mode.

Setting item	Description	Display image
[N UP]	 North up The chart is always displayed towards true north. Fixed objects do not flicker and are easily identified on the chart, and the true bearing of the objects can readily be read out. 	Heading line
[H UP]	Head up The chart is displayed by orienting the ship's heading upward. Cannot be selected under TM (true motion).	Heading line The own ship
[C UP]	Course up • At the setting of Course Up, the ship's heading (HDG) is fixed and displayed immediately above the screen.	Heading line Own ship
[WPT UP]	Way point up • The chart rotates automatically so that the screen is always oriented upward until the target WPT.	Target WPT



Display changes according to the selected bearing mode.

6.7 Registering and Displaying My Port List

6.7.1 Registering to My Port List

You can register any position on the chart to the [My Port List] dialog box. After registration, you can directly access to that position by selecting a port name from the My Port List.

1 Set the location to be registered.

S-57/C-MAP

Since the center position and the display scale of the screen that is currently displayed are registered in the port name list, move the location to be registered to the center of the screen in advance.

To display another position, shift the chart area (refer to "6.3 Moving the Chart") or zoom in to/out from the chart. (Refer to "6.4 Zooming In/Out the Chart".

ARCS

Since the center position and the display scale of the screen that is currently displayed are registered in the port name list, move the location to be registered to the center of the screen in advance.

To display another position, please refer to "6.9.1 Selecting charts from all".

2 Click on the [Menu] button on the left toolbar.

The menu is displayed.

3 Click [Chart] - [My Port List] on the menu.

The [My Port List] dialog box appears.

In the [My Port List] dialog, the Name, LAT (latitude), LON (longitude), and display Scale (scale) of the port that is currently registered are displayed.

My Port List My Port List			Save	<
Name AAAAA BBBBB CCCCC	LAT 32°30.384'S 32°28.844'S 32°35.250'S	LON 60°58.675'E 60°49.221'E	Scate 1:25,000 1:25,000 1:25,000	— My port list
Delete	(3/1000)	Jump	

4 Enter the registration name of the port in the [My Port List] (port name) input box.

5 Click on the [Save] button.

The coordinates (latitude and longitude) of the center of the chart display and the display scale according to the registration name designated in the step 4 are registered in the list as the port.

6.7.2 Deleting a port

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click [Chart] [My Port List] on the menu. The [My Port List] dialog box appears.
- **3** Click on the port to be deleted from the My Port List. The port is selected.
- 4 Click on the [Delete] button. The selected port is deleted from the My Port List.

6.8 Selecting a S-57 chart

Because the chart of own ship's position is automatically called up after power on, generally route monitoring can be performed instantly.

If you want to display charts other than the chart automatically called up, select a chart from those that are displayed by selecting [Chart] - [Select S-57 Chart] on the menu.

For the details, refer to "11.2 Displaying/Searching an S-57 Chart [Select S-57 Chart]".

6.9 Selecting an ARCS chart

This section describes chart selection and the functions on the display, which are available on the ARCS chart.

6.9.1 Selecting charts from all

You can select desired charts from all the charts stored in this system.

1 Click on the [Select] button in Chart Information Area.



The [Select Chart] dialog box appears.

Select Chart		X	
Q Enter ch	art name.		
Name	Scale	^	
1312	1:800,000		
2100	1:75,000		
2403	1:200,000		
2414	1:1,500,000		
3480	1:1,200,000		
3482	1:1,500,000		
3488	1:1,500,000		
3833	1:75,000	-	
	1		
	Reset Picked Cha	art	
	ОК —		– [OK] butt

2 Select the desired chart in the list by clicking it and then click on the [OK] button. The selected chart is displayed on the screen.

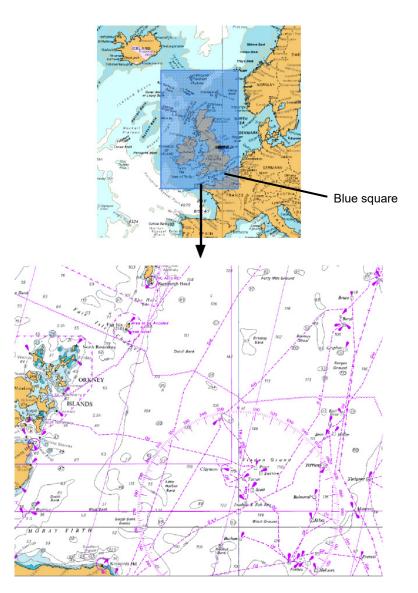
6.9.2 Changing active panels (ARCS only)

The active panel on the chart can be changed.

1 Right-click on the chart

The context menu is displayed.

- **2** On the Context menu, click on the [Change Active Panel]. The selectable active panel painted in blue is displayed.
- **3** Click on in the blue panel. The corresponding chart is then displayed.



Selected chart

6.9.3 Changing a low resolution chart (ARCS only)

1 Right-click on the chart

The context menu is displayed.

2 On the Context menu, click on the [Load Low Resolution].

The low resolution chart is displayed on the screen.

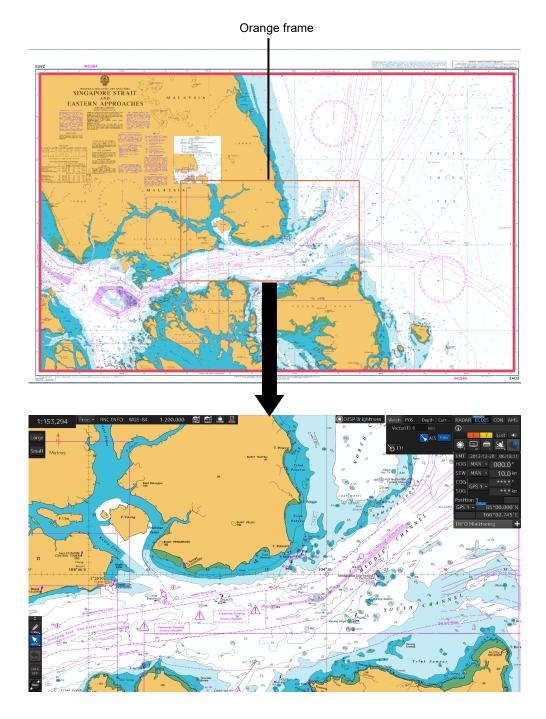
6.9.4 Changing a high resolution chart (ARCS only)

1 Right-click on the chart

The context menu is displayed.

- 2 On the Context menu, click on the [High Resolution Area]. The cursor changes to the zoom cursor and an orange frame appears on the chart.
- **3** Move the cursor to the area to be expanded (the frame moves together with the cursor) and click the mouse button.

The high-resolution chart in the area within the frame is displayed on the screen.



High resolution chart

6.9.5 Displaying the note and diagram (ARCS only)

You can display the note and diagram list defined by the current chart.

1 Right-click on the chart

The context menu is displayed.

2 On the Context menu, click on the [Note and Diagram].

The [Note and Diagram] dialog box appears.

Note and Diagram	×
Note and Diagram	
Tidal Streams Note	
Vertical Datums	
IALA Region	
Dredged Areas	
Fishing Installations	
Tidal Levels	
Other Charts	
Other Charts	
Navaids	
Routeing	
Traffic Separation	
Radio Reporting	
Charts and Publications	•

3 Click on the item you want to display. The note or diagram on the corresponding chart is displayed.

Clicking the [X] buttons, the dialog box is closed and the chart display returns to the original display position.

6.10 Multi View Display and Wide Range View Window Display of Charts

The multi view display function divides the chart window into two windows and displays the same chart or different charts separately in these two windows.

Note

ARCS and C-MAP Ed.3 cannot display charts of other models simultaneously.



Example of Multi Window Display (Top-Bottom)



Example of Multi Window Display (Picture in Picture)

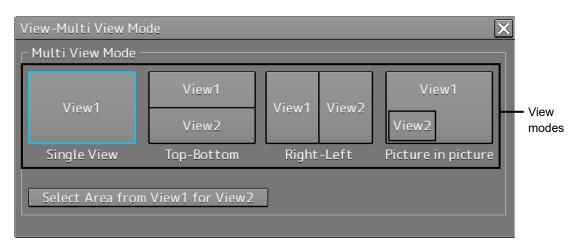
6.10.1 Display of multi view

6.10.1.1 Displaying multi view

1 Click on the [Menu] button on the left toolbar. The menu is displayed.

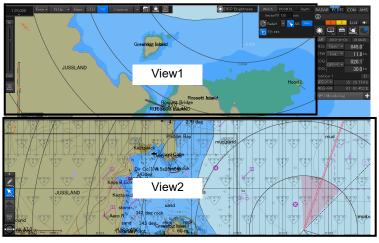
2 Select [View] - [Multi View Mode] on the menu.

The [Multi View Mode] dialog box appears.

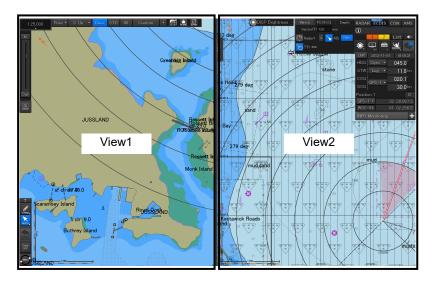


3 Click on a multi view mode to select it.

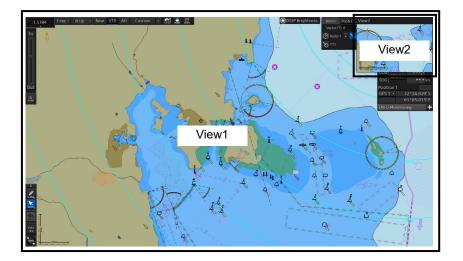
The selected multi view mode takes effect.



Top-Bottom



Right-Left



Picture in picture

6.10.1.2 Multi view operation procedure

[Operation When Manipulating Multi View]

- The same view is displayed in View1 and View2.
- Except for the items that can be set up separately in View2, View1 and View2 are displayed by linking.
- Rubber bands during create or edit operation (such as Route Planning) can only be displayed in active view.
- EBL/VRM and EBL maneuvers are shared between View1 and View2 and the same contents are displayed (however, the contents may differ depending on the setting of the measurement reference point).

The bearing mode of View2 always operates by interlocking with the bearing mode of View1.

[Specifying an area to be displayed in View2]

In View1, you can specify an area you want to display in View2.

1 Click on the [Select Area from View1 for View2] button in the [Multi View Mode] dialog.

Multi View Mode View1 View1 View2 View2	1		
View1 View2	1		
Single View Top-Bottom Right-Left Picture in p	picture		
Select Area from View1 for View2			

The button is displayed in reverse video.

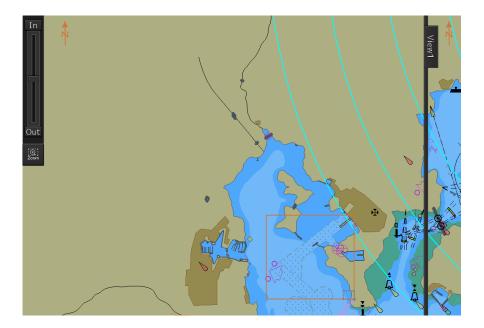
Note

2 Move the cursor to View1.

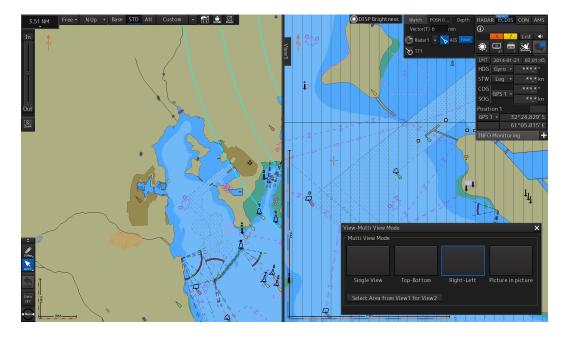
The cursor changes to the range selection cursor.



3 Drag the cursor and specify an area you want to display in View2.



4 Click on.



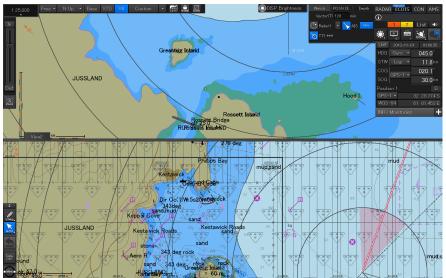
The specified range is displayed in View2.

The [Select Area from View1 for View2] button is displayed in normal video.

[Selecting a View]

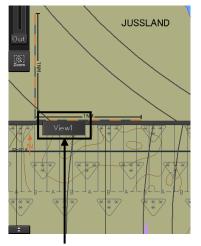
Various operations can be performed in the selected view.

1 Click on the view you want to make active.

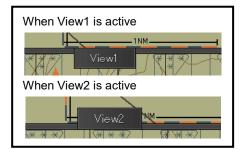


The clicked view becomes the active view.

Which view is active can be checked in active information display.



Active information display area



[Moving the Boundary Line of View]

When the view mode is either Top-Bottom or Right-Left, the boundary line of view can be moved.

- **1** To move the boundary line of view, click on the boundary line.
- 2 When the cursor changes to the arrow shape shown below, move the boundary by dragging the cursor to the arrow directions.



[Moving View2]

When the view mode is Picture in picture, the position of View2 can be moved.

- **1** Click on the title bar of View2
- **2** When the cursor changes to the arrow shape shown below, move View2 by dragging the cursor to the arrow directions.



6.11 Verifying Object Information (Pick Report Function)

Each of the objects on the chart has its own attributes (e.g. lighthouse, buoy, depth contour, land and river).

For example, if an object is a lighthouse, attributes such as lighting color and frequency can be read out. If the object is depth contour, the water depth can be read out.

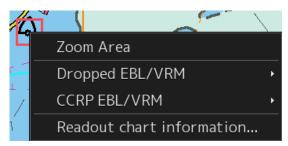
Attribute information of these objects can be read and verified by using the pick report function. The pick report displays the following information.

- S-57 chart
- C-MAP chart
- ARCS chart
- AIO
- Manual update

6.11.1 Pick Report of the S-57 chart

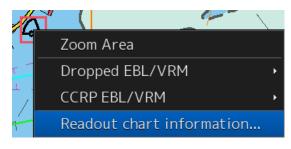
6.11.1.1 Displaying a Pick Report of the S-57 chart

1 Click the right button on the chart.

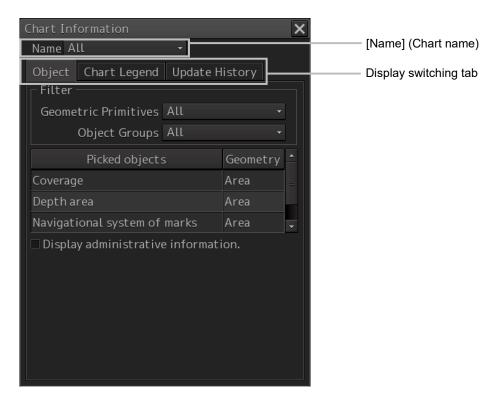


A pick mark and the context menu are displayed.

2 Click on [Readout chart information] on the context menu.



[Chart Information] dialog box appears.



[Name] (Chart name display)

When multiple charts exist at the chart position that was clicked on and a chart is selected from the list, the information on the chart is displayed. When [All] is selected from the list, the information on all the charts is displayed.

Memo

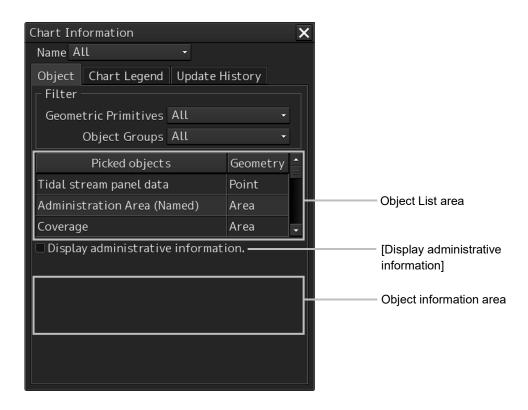
When Chart Legend or Update History is selected, the entire information is displayed regardless of the selection from the list.

Display switching tab

This tab switches the information that is displayed. When the [Object] (Object Information) tab is clicked on, object information is displayed. When the [Chart Legend] tab is clicked on, chart information is displayed. When the [Update History] tab is clicked on, chart update history is displayed.

6.11.1.2 Verifying Object Information

When the [Object] tab on the display switching tab is clicked on, object information is displayed.



Object list area

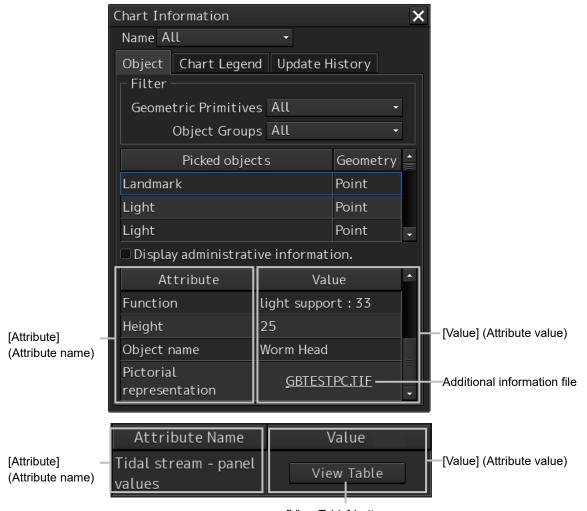
The object within the pick cursor and its geometry are displayed in the object information area. When an object is selected in the object list area, the selected object is displayed on the map in highlight mode in the case of the S-57 chart.

[Display administrative information]

When this item is selected, the attributes of the administrative information and the contents are displayed.

Object information area

Information (attributes) of the object that was selected from the object list is displayed.



[View Table] button

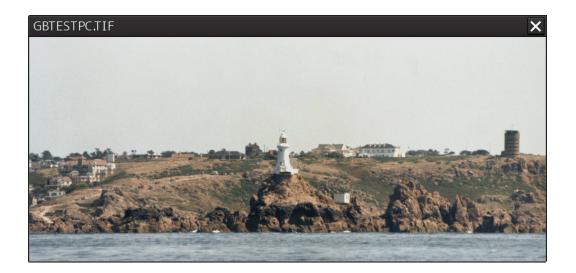
Displaying an additional information file

The additional information file on the object that was selected from the object list is displayed in [Value] in hyperlink format.

Additional information files include text files (extension.TXT) and image files (extension.TIF).



When Hyperlink is clicked on, the additional information file is displayed in a separate dialog box.



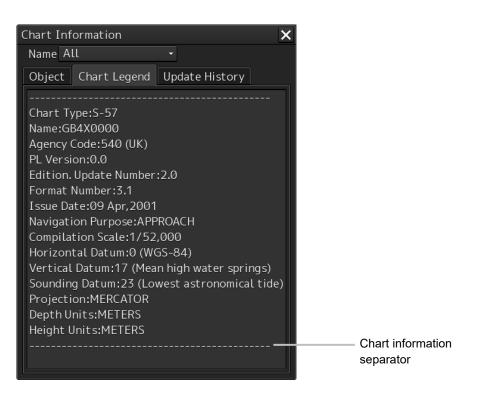
[View Table] button

When the [View Table] button of [Value] is clicked on, the data is displayed in a separate dialog box in the format that is specified as the attribute.

View Table				
Ø, Lookinghaven, HW				
Hours		Set [deg]	Drift [kn]	
Before High Water	-6	255	1.0	
	-5	278	1.2	
	-4	279	1.7	
	-3	293	1.1	
	-2	299	1.1	
	-1	300	0.6	
High Water	0	75	0.7	
After High Water	+1	102	1.0	
	+2	105	1.1	
	+3	100	1.3	
	+4	98	1.1	
	+5	97	0.4	
	+6	212	0.6	

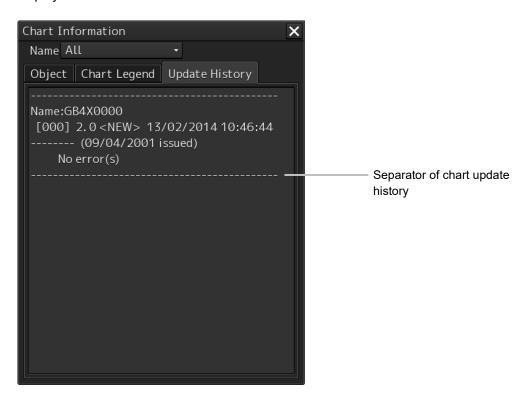
6.11.1.3 Verifying Chart Information

When the [Chart Legend] tab of the display switching tab is clicked on, chart information is displayed.



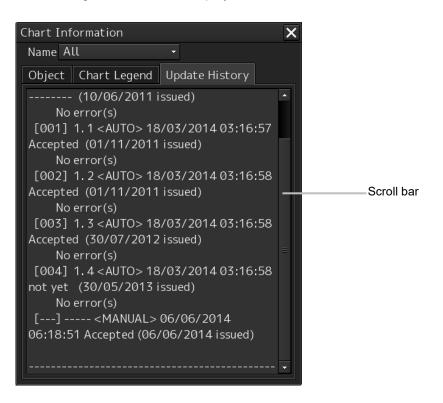
6.11.1.4 Verifying Chart Update History

When the [Update History] tab of the display switching tab is clicked on, chart update history is displayed.



6

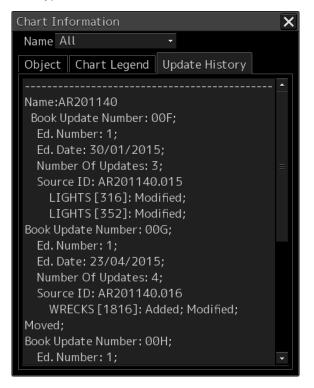
If the chart update history consists of multiple pages and cannot be displayed on one page of the screen, drag the scroll bar to display the rest.



6.11.2 Pick report of the C-MAP chart

The display procedure is the same as that of S-57.

In the case of C-MAP, the following contents are displayed from the [Update History] (chart update history) tab.



6.11.3 Pick report of the ARCS chart

The display method is the same as that of S-57.

In the case of ARCS, only the chart information area is displayed.



6.11.4 Manual Update Pick Report

6.11.4.1 Displaying a Manual Update Pick Report

- 1 Click the right button on the object that was created by manual update. A pick mark and the context menu are displayed.
- 2 Click on [Readout Manual Update Information] on the context menu. The [Manual Update Information] dialog box appears.

Manual Update Infor	mation	×
		_
 Manual Update		<u> </u>
Affected Chart Update Informatio Object Information	n:[] <manual> 28 Oct,2010 ′</manual>	=
MIN Scale	:1/100,000,000	
MAX Scale Comment	:1/1,000 :	•
•	×	

6.12 Marking the Position of Own Ship with an Event Mark

While sailing, you can mark the position of own ship on the chart with an event mark.

1 Click on the [Event] button in Chart Information Area.



An event mark is marked to the position of own ship and the [Property] dialog box of event marks appears.



The display position, ID, and date and time of creation of the event mark are displayed in the [Property] dialog box.

Enter any desired comment in the [Comment] input box.

[Deleting the Event Mark]

The event mark can be deleted by either of the following methods.

- Right-click on the event mark and click on [Delete this object] on the Context menu that appears.
- Click on the event mark when in the Delete mode.

6.13 Displaying Radar Images on a Chart by Overlaying (Option)

Radar images can be displayed by overlaying on the chart.

Note

• To perform overlay display of radar images, the radar function must be installed and radar images must be received from the radar system.

*The radar function is installed as standard on the ECDIS. It is an optional function for machines dedicated to the ECDIS.

- If the radar system displays a short-range image and a long-range image on the ECDIS at the same time, the radar image on the ECDIS may be distorted.
- While the radar image is displayed, the display range can be changed in 11 steps (0.125/0.25/0.5/0.75/1.5/3/6/12/24/48/96 NM).
- In the case of ARCS charts, the display range varies with the chart to be displayed. If a range over 120 NM is selected, radar image display automatically turns off.
- The screen display color will automatically change to [Day3] when RADAR Overlay is turned on. (When the screen display color is Dusk/Night, automatic switching does not occur.)
- When Multi-view is used, images cannot be displayed on View2.

6.13.1 Turning On/Off overlay display

1 Click on the [Menu] button on the left toolbar. The menu is displayed.

View-Options		*
	^	RADAR
Own Ship		RADAR Overlay
Own Track		□ RADAR1 ▼
Route	Transparency of Echo/Tra	
User Map		┌ Transparency of Echo/Trails┐
Mariner's Mark/Line		
RADAR		Opaque Transparent
Target		
Target Track		
Chart Common		
Chart View		
AIO		
Tools		
Unit		
Control	-	

2 Select [View] - [Options] - [RADAR] on the menu.

3 Select [RADAR Overlay].

Radar overlay display is set to On.

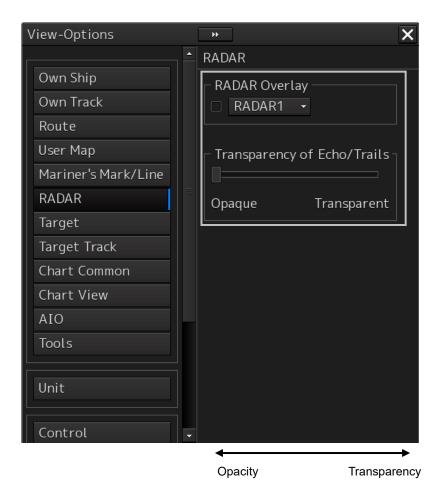
4 Select a radar system to be used from the pull-down menu.

Memo

- When multiple radar systems are available, click the [RADAR Overlay] combo box and then select the radar image to be used from the pull-down menu that appears. (Radar images can be selected from the maximum of 8 systems, [RADAR1] to [RADAR8].)
- Even if the connection between this equipment and the radar system is not set or the connection setting is cancelled, reconnection is set automatically. As a result, the overlay display of the radar image is continued.

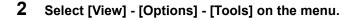
[Transparency Setting of Echo/Trails]

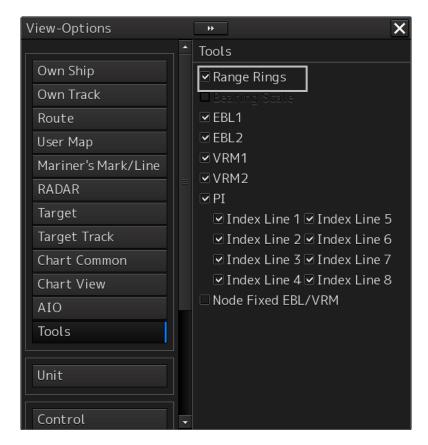
Transparency can be set up by clicking the [Transparency of Echo/Trails] slider handle to right and left.



6.13.2 Turning On/Off range ring display

1 Click on the [Menu] button on the left toolbar. The menu is displayed.

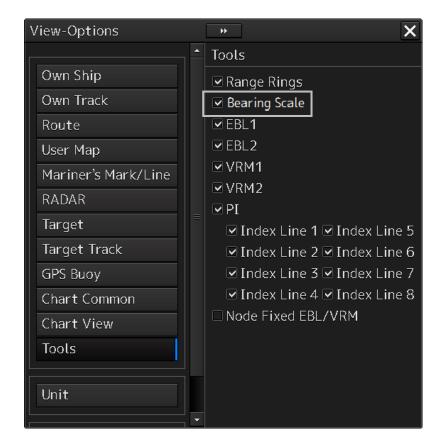




3 To show range rings, select [Range Rings]. To hide range rings, clear it.

6.13.3 Turning On/Off bearing scale

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Select [View] [Options] [Tools] on the menu.



3 To show a bearing scale, check [Bearing Scale]. To hide a bearing scale, clear it.

6.13.4 Radar image adjustment

Radar images can be adjusted using the [RAIN], [SEA] and [GAIN] dials on the keyboard operation unit.



[RAIN] dial: Suppressing rain and snow clutter

The [RAIN] dial suppresses clutter caused by rain and snow. Turning the [RAIN] dial to the right enhances the contours of targets that are hidden in images of rain and snow. Take care not to over-adjust this dial. Otherwise, you may miss small targets. This dial also reduces sea clutter. So, using both the [RAIN] and [SEA] dials is more effective. Normally, keep this dial turned as far as possible to the left.

[SEA] dial: Suppressing sea clutter

The [SEA] dial lowers the gain at a short range to reduce sea clutter. Turning the [SEA] dial to the right increases the effect of suppressing sea clutter. Take care not to over-adjust this dial. Otherwise, you may miss small targets like buoys and small boats.

[GAIN] dial: Adjusting sensitivity

The [GAIN] dial adjusts the gain of RADAR echo. Turning the [GAIN] dial to the right increases the gain and widens the range in which RADAR echo can be observed.

Take care not to over-adjust this dial, as reception noise on screen increases. This worsens the contrast and makes it more difficult to tell the difference between targets and RADAR echo. Alternatively, turning the [GAIN] dial to the left to view at a short range or screens containing closely packed targets, decreases the gain making targets easier to view. Take care not to over-adjust this dial. Otherwise, you may miss small targets.

Memo

If the keyboard operation unit is not available, the radar image can be adjusted using [Rain], [Sea] or [Gain] slider in the setting dialog of [Settings]- [Signal Process (Basic)] on the menu.

The [Signal Process (Basic)] setting dialog can also be displayed by operating the [RAIN], [SEA], or [GAIN] dials on the keyboard operation unit.

When one of the dials is held down (for 2 seconds or more) at operation termination, the setting dialog is closed.

For the details of the [Signal Process(Basic)] setting dialog, refer to "16.2 Basic setting of radar signal processing".

6.14 Setting a true bearing

When a gyro signal is input by using GYRO I/F, sometimes the true bearing value indicated by the master gyro and the true bearing value indicated by this equipment do not match.

In this case, set the true bearing value of this equipment to the value of the master gyro by using the following procedure.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [Settings] [General] on the menu. The [General] dialog is displayed.
- **3** Click on the [Gyro Setting] input box.



4 Enter the master gyro value through the software keyboard.

6.15 Setting an own ship's speed6.15.1 Switching an own ship's speed sensor

1 Click on the STW Source combo box of the own ship's information



2 Select a sensor source in the [STW] combo box. Any of the following sensor sources can be selected.

MAN

Logx ("x" indicates the equipment number)

When [Menu] is selected, the [Sensor Selection/Status] dialog is displayed.

When [MAN] (Manual) is selected, a speed through water can be input in the [Sensor Selection/Status] dialog.

• When using 1-axis log, heading speed component can be detected, but transverse speed component cannot be detected. Then leeway effect (component drifted by wind) cannot be detected.



- When using 2-axes log, its accuracy in shallow waters may be deteriorated, and its speed in deep sea areas may be unable to be detected.
- When using a GPS, COG accuracy is less than ±3° at speed: from 1kn to 17kn, and is less than ±1° at speed: more than 17kn.

6.15.2 Entering the ship's heading/own ship's speed manually

When the device (example: LOG) that is connected to this equipment fails to function, the target tracking device and true motion display can be used by entering the ship's heading/own ship's speed manually by using the following procedure.



1 Select [Menu] from the corresponding combo box.

The [Sensor Selection/Status] dialog box appears.

- 2 To enter the ship's heading manually, select [Manual] from the [Heading] combo box. To enter the ship's own speed manually, select [Manual] from the [STW] combo box.
- **3** Click on the input combo box.

Sensor Selection/Status	" ×
Sensor Selection Position Status	Sensor Selection Sensor Source POSN(Main) GPS 1 • POSN(Sub) None • Heading Gyro 1 • 000.0° STW Log 1 • 0.0 kn COG/SOG GPS • Time GPS • Depth FWD •

4 Enter numeric values through the software keyboard.

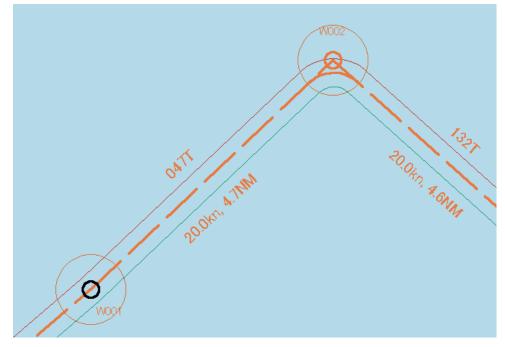
6

Section 7 Route Planning



Edit the navigation route according to the world geodetic system (WGS-84). If you use the navigation route edited by a geodetic system other than the world geodetic system, an accident may occur.

The Route Planning function creates and edits a route of a ship in advance. A route comprises WPTs (waypoints) from the starting point to the arrival point and the straight lines (legs) that connect the WPTs.



Route Planning Example

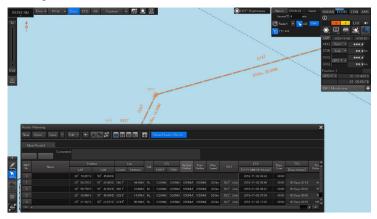
7.1 Overview of the Route Planning Function

Table editing function

This function enables creation of a route in table format by using the [Route Planning] dialog box.

A route is created by entering each WPT into the WPT list.

For the details of route planning with table editing, refer to "7.6 Planning a Route by Using Table Editing".



Graphic editing function

This function enables creating a route on a chart.

A route plan is created by adding a WPT on a chart.

For the details of route planning with graphic editing, refer to "7.7 Planning a New Route by Graphic Editing".

Route planning safety checking function

This function checks the safety of the planned route.

For the details, refer to "7.9.1 Checking a route based on the safety standards".

Route planning limit checking function

This function checks whether the planned route does not violate the pre-defined limit. For the details, refer to "7.9.2 Checking a route based on the limits".

Navigation calculating function

This function supports the calculation of distance and bearing that are required for navigation. For the details, refer to "7.10 Navigation Calculation Function".

Import/Export function

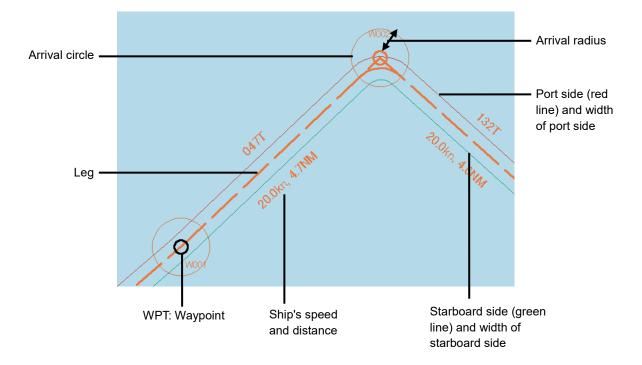
This function imports/exports a route file. For the details, refer to "7.11 Importing/Exporting a Route File".

Note

- When a route is created exceeding the limit value, an error message is displayed and Route planning operation stops.
- If the distance between WPTs exceeds 150° in longitude, the route cannot be created.

7.2 Setting Route Display

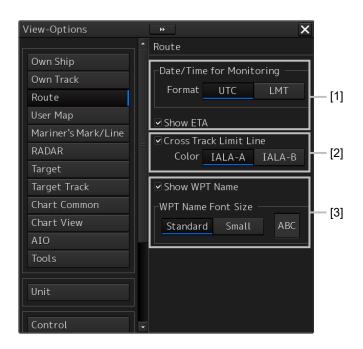
Before creating a route, set route display (display/hide of the route information to be displayed on the screen) at route setting.



Use the following two dialogs for the setting.

7.2.1 Setting [Route] after selecting [View] -[Options] on the menu

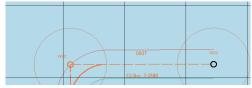
- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [View] [Options] [Route] on the menu. The "Route" setting screen is displayed.



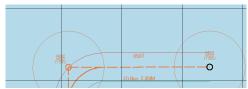
[1] [Show ETA]

By selecting the [ETA] check box, the display of the ETA (estimated time of arrival to WPT) becomes effective at route monitoring.

When [UTC] from [Format] is clicked, UTC is displayed and when [LMT] is clicked, LMT is displayed.



Not selecting the [ETA] check box



Selecting the [Show ETA] check box, and clicking [UTC] as the arrival time display format



Selecting the [Show ETA] check box, and clicking [LMT] as the arrival time display format

[2] [Cross Track Limit Line]

When this item is selected, a cross track limit line is displayed.

When this item is selected, the line color can be set.

When [IALA-A] is clicked on, the starboard side is displayed in green and the port side is displayed in red.

When [IALA-B] is clicked on, the starboard side is displayed in red and the port side is displayed in green.

[3] [Show WPT Name] (Show comment)

When this item is selected, a comment is displayed near the WPT.

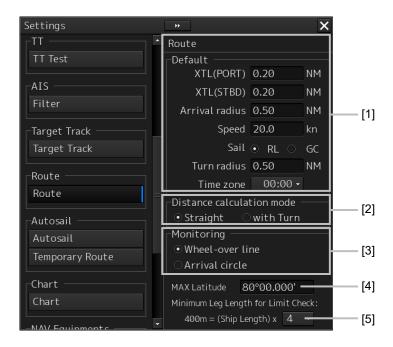
When this item is selected, the character size of the comment can be set.

When [Standard] is clicked on, the comment is displayed in the standard character size.

When [Small] is clicked on, the comment is displayed in the character size smaller than the standard size.

7.2.2 Setting [Settings] - [Route] on the menu

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Settings] [Route] on the menu. The [Route] dialog is displayed.



[1] [Default] (Factory settings)

Set factory settings of the route display that is created at route planning.

[XTL(PORT)]:

Set a port side cross track limit.

[XTL(STBD)]:

Set a starboard side cross track limit.

[Arrival radius]:

Set an arrival radius of WPT.

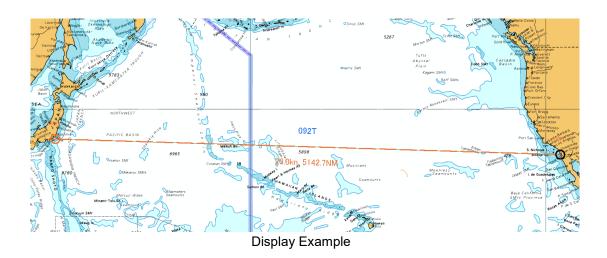
[Speed]:

Set a planned ship's speed.

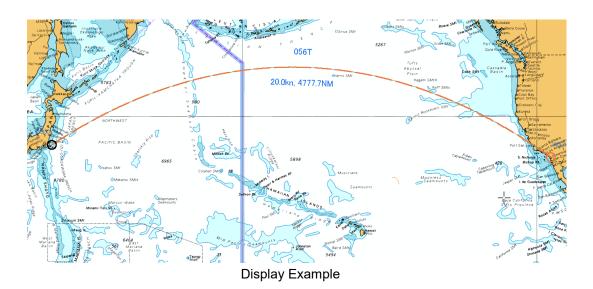
[Sail]:

Select sailing mode.

• When [RL] is selected, the mode is set to Rhumb Line.



• When [GC] is selected, the mode is set to Great Circle.



[Turn radius]: Set a turning radius. [Time zone] combo box: Set a time zone.

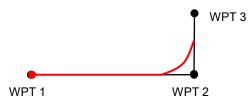
[2] [Distance calculation mode]

Set a method for calculating a distance between WPTs.

When [Straight] is selected, a distance between WPTs is calculated with a straight line



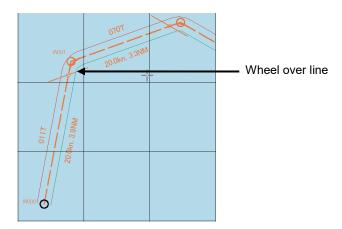
When [with Turn] is selected, a distance between WPTs is calculated based on the expected route.



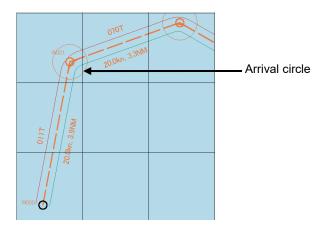
[3] [Monitoring]

Set a route monitoring method.

When [Wheel-over line] (steering line) is selected, monitoring is performed by using Wheel-over line (WOL) along each WPT.



When [Arrival circle] is selected, monitoring is performed by using the arrival circle along each WPT.



[4] [MAX Latitude]

Set maximum latitude.

A WPT can no longer be entered in a latitude higher than the latitude that has been set up.

If sailing is [GC], it is possible to create a route by automatically adding WPTs so as not to exceed the maximum latitude in the case of a route in which part of the leg passes a latitude higher than the maximum latitude.

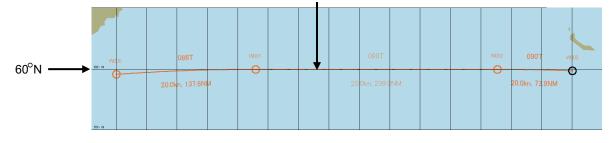
If the maximum latitude is 60° or higher, a route can be created even if the GC leg exceeds 60°.



If the GC leg exceeds 60° when the maximum latitude is 60° , WPTs are automatically added and the route is adjusted so as not to exceed 60° .

WPTs (W001 and W002) in this example are added so as not to exceed the maximum latitude (60°) .

The segment between W001 and W002 becomes an RL leg.



Note:

• A route cannot be created with a leg of 150° or higher in the longitudinal direction.

• Create a user map at latitude 84° or lower.

[5] [Minimum Leg Length for Limit Check] combo box

Select a multiplier for determining the "minimum leg length" that is used for limit check from 1, 2, 4, 6, or 8.

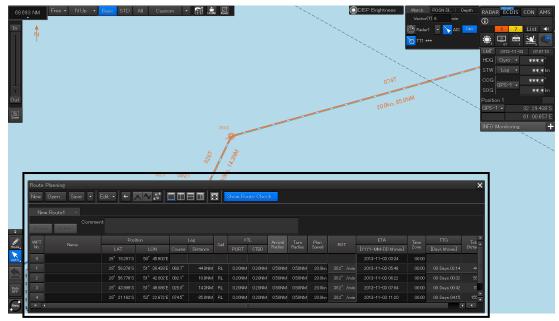
Calculation expression: Minimum leg length = (Hull length) x multiplier

7.3 Starting and Ending the [Route Planning] Dialog Box

Plan a route on the [Route Planning] dialog box. The procedures for starting and ending the [Route Planning] dialog box are as follows.

7.3.1 Starting the [Route Planning] dialog box

- **1** Click on the [Menu] button on the left toolbar. The top menu is displayed.
- 2 Click on the [Route Planning] button on the top menu. The [Route Planning] dialog box appears on the screen.



Display Example

The width of the dialog box varies according to the screen size.

7.3.2 Ending the [Route Planning] dialog box

1 Click on the [X] button on the dialog box.

7.4 Name and Function of Each Section of the [Route Planning] dialog Box

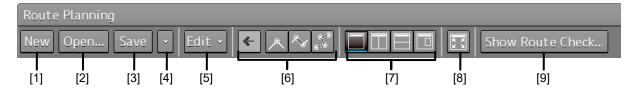
The [Route Planning] dialog box comprises as below.

Title barRoute Planning RouteNew Open Save ·Edit · · · · · · · · · · · · · · · · · · ·														×	
bar	re	route01 ×													
	Inser	Commen t Delete	t												
	WPT	Name	Posit	ion		Leg	Sail	X	TL	Arrival	Turn	Plan	ROT	ETA	=
	No.	nome	LAT	LON	Course	Distance	Suit	PORT	STBD	Radius	Radius	Speed	nor	[YYYY-MM-DD hh:mm]	
Route	0		32°15.000'S	61°10.000'E										2014-05-13 03:39	
	1		32°12.000'S	61°11.000'E	015.8°	3.1NM		0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-13 03:49	
planning tab	2		32°11.000'S	61°18.000'E	080.5°	6.0NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-13 04:07	
เลม	3		32°10.000'S	61°21.000'E	068.6°	2.7NM		0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-13 04:15	
	4		32°09.000'S	61°25.000'E	073.6°	3.5NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-13 04:26	×
	ĸ) H	1

Name	Function
Title bar	Displays the menu title, "Route Planning".
Route Planning bar	Route planning tools are assigned (Refer to "7.4.1 Route Planning bar".).
Route planning tab	Displays the file name and route data of the route file that is being created
	(Refer to "7.4.2 Route planning tab".).

7.4.1 Route Planning bar

The Route Planning bar comprises the following tools.



[1] [New] button

When this button is clicked on, a new route planning tab is added to the dialog box, enabling creation of a new route file.

Note

Up to four route files can be opened concurrently. If four files have already been opened, the [New] button is disabled. To create a new route file, close one or more of the files that are opened and click on the [New] button.

[2] [Open...] button

When this button is clicked on, the [File Operations] (Open a file) dialog box appears and a required file can be selected and opened from the route list of the files that have been saved.

Note

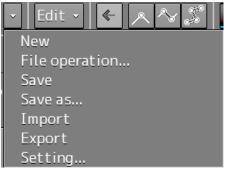
Up to four route files can be opened concurrently. If four files have already been opened, the [Open] button is disabled. To open from the saving list, close one or more of the files that are opened and click on the [Open] button.

[3] [Save] button

When the [Save] button is clicked on, the route file is saved. For the details, refer to "7.5 Saving a Route".

[4] Route planning menu button

When this button is clicked on, the route planning menu is displayed.

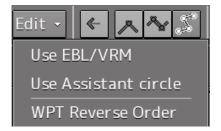


The following operations can be performed by using the route planning menu.

Menu button name	Function	Related section
[New]	Creates a new route file.	7.6.2 Creating a new route file by
		table editing
		7.7.2 Creating a new route file by
		graphic editing
[File operation]	Displays the [File operation] dialog	7.6.4 Editing a route by table editing
	box.	
[Save] (overwrite save)	Saves a route file by overwriting.	7.5 Saving a Route
[Save as…]	Saves a route file by naming the	7.5 Saving a Route
	file.	
[Import]	Displays the [Import] dialog box.	7.11.1 Importing a route file
[Export]	Displays the [Export] dialog box.	7.11.2 Exporting a route file
[Setting]	Displays the [Route] dialog box for	7.2.2 Setting [Settings] - [Route] on
	setting initial values of the route at	the menu
	route planning.	

[5] [Edit] button

When this button is clicked on, the Edit menu is displayed.

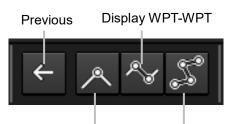


The following operations can be performed by using the Edit menu.

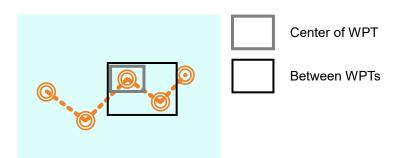
Menu button name	Function	Related section
[Use EBL/VRM]	When this item is selected by clicking on the item, the	7.7.2.1 Creating
	EBL/VRM mode that enables creation of a route by using	a route by using
	EBL and VRM becomes available. When the item is	EBL/VRM
	clicked on again, the check mark is cleared and	
	EBL/VRM mode is cancelled.	
[Use Assistant circle]	When this item is selected by clicking on the item, the	7.7.2.2 Creating
	Use Assistant circle mode that enables creation of a	a route by using
	route by using an assistant circle (supplementary line)	the assistant
	becomes available. When the item is clicked on again,	circle function
	the check mark is cleared and the Use Assistance circle	
	mode is cancelled.	
[WPT Reverse Order]	When this item is selected by clicking on the item, the	-
	order of the WPT that is currently selected can be	
	reversed.	

[6] Display area switching button

Chart display can be changed to the display area/scale suitable for the editing.



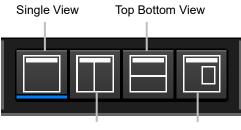
Display centered WPT Display entire route



Button name	Function
[Previous]	Switches the chart display to the display area/scale before the chart
	display was switched.
[Display centered WPT]	Displays the WPT that is currently being edited at the center of the chart.
[Display WPT-WPT]	Displays on the chart the WPT that is currently being edited and the
	previous WPT.
[Display entire route]	Displays the entire route that is being edited on the chart.

[7] Multi view switching button

A method of splitting a chart can be selected.



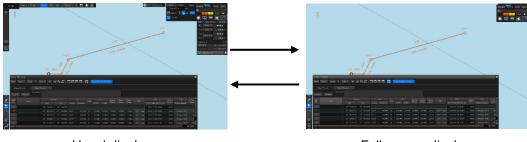
Right Left View

Floating View

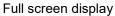
Button name	Function	Display image
[Single View]	Displays a chart on a single screen.	
[Right Left View]	Displays a chart by splitting it into 2 screens of left and right.	
[Top Bottom View]	Displays a chart by splitting it into top and bottom.	
[Picture in Picture] (Dialog view)	Displays a dialog box of another chart inside of the chart screen.	

[8] [Display full] (Full screen display) button

A chart can be displayed in full screen mode by clicking on this button that clears the operation section and display section other than the [Route Planning] dialog box. When this button is clicked on again, the operation section and the display section are re-displayed.



Usual display



[9] [Show Route Check...] (Route check screen display) button

When this button is clicked on, the [Check Route] dialog appears. When an error is detected, the error count is displayed with a badge.



For the details of the [Check Route] dialog, refer to "7.9 Checking Route Data".

7.4.2 Route planning tab

When a route file is opened, a route plan tab comprising a file name display section and route data is displayed. Up to four route planning tabs can be displayed concurrently.

File name display section

The file names that are currently opened are displayed in the tabs. When the display of the file name is clicked on, the route file can be switched.

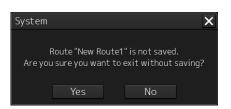


"*" is attached to the top of the name of the file you are editing.

A badge is displayed on the name of the file that is being monitored or under automatic sailing.



When the [X] button on the file name display section is clicked on, the tab is closed. If an attempt is made to close the tab that has not been saved, a save confirmation message dialog box appears.



To close the tab by saving the route file by overwriting, click on the [Yes] button. When not saving the route file by overwriting, click on the [No] button. When the [X] button is clicked on, the file returns to the state prior to the clicking on the [X] button on the file name display section.

Route data

WPTs that form the route and the WPT data are displayed in a list.

[1]	[2] [3] [4								[4]			
Ne	New Route × *New Route1 ×											
Insert Delete												
WPT	Name	Position		Leg		Sail	X	٢L	Arrival	Turn	Plan	ROT 🔺
No.	Name	LAT	LON	Course	Distance	San	PORT	STBD	Radius	Radius	Speed	KOT =
2		32°15.000'N	120°00.000'E	000.0°	5.0NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min
3		32°15.000'N	120°20.000'E	090.0°	17.0NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min
4		32°15.000'N	120°30.000'E	090.0°	8.5NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min ⁼
5		32°30.000'N	120°30.000'E	000.0°	15.0NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min
6												· - ⊻

Route Data

[1] [Insert] button

A new WPT is inserted in the selected WPT.

[2] [Delete] button

The selected WPT is deleted.

[3] [Comment] field

The comment of the route file is displayed.

[4] WPT list

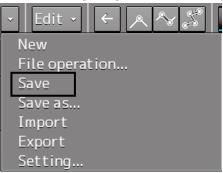
Data of each WPT is displayed.

7.5 Saving a Route

1 Click on the [Save] button on the Route Planning bar.

Route Planning			
New Open Save 🔻	Edit - 🗲 🔊 🖏		Show Route Check

Or select the [Save] button that is displayed by clicking on the Route Planning menu button



At creation of a new route, a [Save as Route File] dialog box appears.

Perform Steps 2 to 4 in the [Save as Route File] dialog.

When the existing route file is saved, the [Save as Route File] dialog box does not appear since the file is overwritten.

Save as Rou Name		Comment	Date(UTC)	Read only						
0421t	test		2013-05-03 02:07							
1010	14		2013-05-03 02:07							
1234	45		2013-07-04 02:10							
6-9-2	-b3		2013-05-03 02:07							
6-9-2	-b4		2013-05-03 02:07	— — —						
Name	New Ro	ute1								
Comment										
	Read only Save									

2 Enter [Name] and a comment in [Comment] as required.

Note

Although up to 64 characters are allowed for a route name, only 8 characters are output when the information is transmitted to another equipment as the route information (RTE sentence).

Memo

When all the files that have been saved are opened, all the file names may not necessarily be displayed. Files can be distinguished easily by entering comments.

- **3** Click on the [Save] button. The file is saved.
- 4 The file name that is displayed on the Route Planning tab changes to the name that is specified in the [Name] box.

For the details of the Route Planning tab, refer to "7.4.2 Route planning tab".

When a route of the same file name already exists

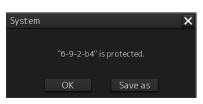
1 When file saving operation is performed, a dialog box message appears confirming whether the file is to be overwritten.



2 When overwriting the file, save the file by clicking on the [Yes] button. When not overwriting the file, close the dialog box by clicking on the [No] button and change the file name on the [Save as Route File] dialog box.

Memo

• The following message is displayed when an attempt is made to overwrite a protected file.



To cancel the save operation, close the dialog box by clicking on the [OK] button or the [X] button. When saving the file by changing the file name, click on the [Save as...] button. The dialog box is closed and the [Save as Route File] dialog box appears.

• The following message is displayed when an attempt is made to overwrite the route file that is currently being monitored.



To cancel the save operation, click on the [No] button or [X] button. To continue the monitoring of the updated route by saving the route file by overwriting, click on the [Yes] button. When saving the file by changing the file name, click on the [Save as...] button. The dialog box is closed and the [Save as Route File] dialog box appears.

• The following message is displayed when an attempt is made to overwrite the file of the route under automatic sailing.



To cancel the save operation, close the dialog box by clicking on the [OK] button or the [X] button. When saving the file by changing the file name, click on the [Save as...] button. The dialog box is closed and the [Save as Route File] dialog box appears.

The monitored route does not change by the save operation. Automatic sailing continues based on the pre-saved route.

Saving a route file by naming the file

Click on [Save as...] of the route planning menu button on the Route Planning bar. When the [Save as Route File] dialog box appears, save the file by entering a new file name.

Setting a route file to a Read Only mode (disabling editing)

Check Read only for the file that is to be set to [Read only] (disabling editing) mode. To cancel Read Only (disabling editing) specification, clear the check.

Operations		D		
Name 🔺	Comment	Date(UTC)	Read only	
0421test		2013-05-03 02:07		
101014		2014-01-22 10:36		
12345		2013-07-04 02:10		
6-9-2-b3		2013-05-03 02:07		
6-9-2-b4		2013-05-03 02:07		
6-9-2-b5		2013-05-03 02:07		
6-9-2-b7		2013-05-03 02:07		-
	Oper		Delete	

7

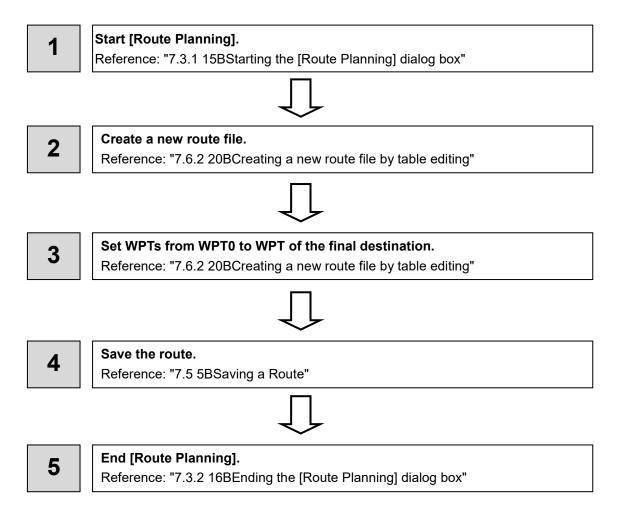
7.6 Planning a Route by Using Table Editing



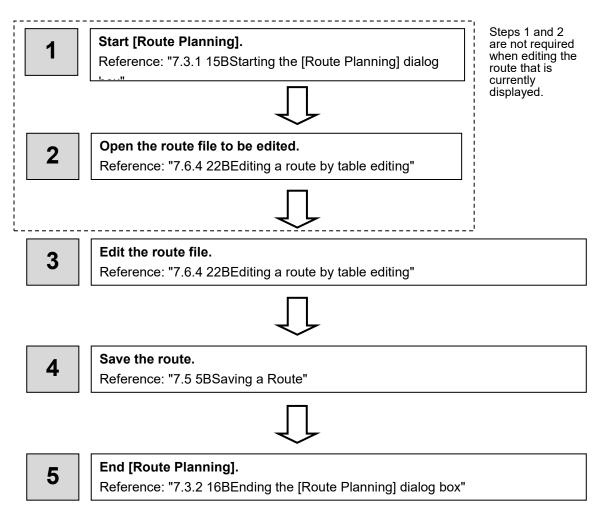
Edit the navigation route according to the world geodetic system (WGS-84). If you use the navigation route edited by a geodetic system other than the world geodetic system, an accident may occur.

7.6.1 Table editing operation flow

7.6.1.1 Creating a new route file



7.6.1.2 Editing a route

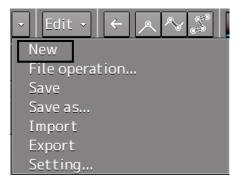


7.6.2 Creating a new route file by table editing

1 Click on the [New] button on the Route Planning bar

Route Planning			
New Open Save -	Edit - 🗲 🔺 🎜 🗖 🗖 🗖	🔲 🔝 Show Route Check	G

Or select the [New] button that is displayed by clicking on the Route Planning menu button.



A new tab is added.

*Ne	*New Route ×												
Inse	Insert Delete												
WPT	Nome	Posi	tion	Leg		Coll	XTL		Arrival	Turn			
No.	Name	LAT	LON	Course	Distance	Sail	PORT	STBD	Radius	Radius			
WPT No.		******	****** ***'*										

2 Enter the latitude and the longitude of WPT0 (waypoint 0)

Enter the latitude by clicking on [LAT] of [Position].

Enter the longitude by clicking on [LON] of [Position].

Use the software keyboard for entering the latitude and longitude.

MAX:	80°0(• •			MAX:	180°0	000' 00.000		• •
MIN:	0°00	.000'			Range of the va	alues	MIN:	0°00	.000'		\bigcirc
1	2	3	CLR	×	that can be ent		1	2	3	CLR	×
4	5	6	Car	ncel			4	5	6	Car	ncel
7	8	9	Ν	ENT			7	8	9	Е	
~	0	\rightarrow	S	ENT			<i>←</i>	0	÷	W	ENT

Latitude software keyboard

Longitude software keyboard

3 Set the following items as required.

*Some items are for display only and cannot be set.

Item	Description
[Name]	Set a name of WPT.
[Leg Course]	This is the bearing from the previous WPT and is not set in
	WPT0. The specifiable range is from 0.0° to 359.9°.
	Editing is disabled when [GC] is selected in [Sail].
[Leg Distance]	This is the distance from the previous WPT and is not set in
	WPT0. The specifiable range is from 0.0 to 9999.9 NM.
	Editing is disabled when [GC] is selected in [Sail].
[Sail]	[RL] or [GC] can be selected from the list.
[XTL PORT] (Port side cross	Set a port side cross track limit. The specifiable range is from
track limit)	0.01 to 9.99 NM.
[XTL STBD] (Starboard side	Set a starboard side cross track limit. The specifiable range is
cross track limit)	from 0.01 to 9.99 NM.
[Arrival Radius]	Sets the arrival radius. (0.01 to 9.99 NM)
[Turn Radius] (Turning radius)	Sets the turning radius. (0.00 to 9.99 NM)
[Plan Speed] (Planned speed)	Sets the planned ship's speed. (1.0 to 99.9kn)
[ROT]	ROT is automatically calculated from the planned speed and
	turning radius.
[ETA]	ETA is automatically calculated from the position of WPT,
	planned speed, and time zone.
[Time Zone]	The time difference of the time of arrival can be input within
	the range from -13.30 to +13.30.
[TTG]	TTG can be automatically calculated from the position of WPT
	and planned speed.
[Total Distance]	This is the total distance between WPT0 and the final WPT.

Memo

The values that are set by selecting [Settings] – [Route] on the menu is reflected in [Sail], [XTL PORT], [XTL STBD], [Arrival radius], [Turn Radius], [Plan Speed], and [Time Zone]. For the details, refer to "16.8 Setting up Parameter Values at Route Planning Creation".

4 Add the next WPT by clicking on the next WPT No. or the [Insert] button after entering the latitude and longitude.

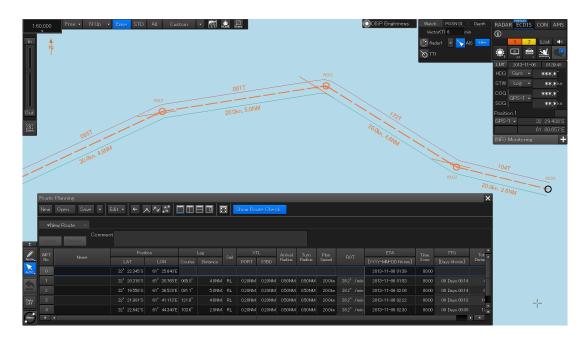
6-9-2-b4 × *New Route ×							
Inse	rt Dele	Commer te	nt				
WPT		Jame	Posi	tion	Leg		
No.		ame	LAT	LON	Course	Distance	
Ø			32°00.000'N	120°00.000'E			
1							

WPT1 is added.

5 Set the item as indicated in Step 3.

6 Enter data up to the last WPT with the same procedure.

The route based on the input data is displayed each time.



7 After completing the creation, save the route file. For the saving procedure, refer to "7.5 Saving a Route".

7.6.3 Deleting WPT data

1 Select WPT data to be deleted and click on the [Delete] button.

7.6.4 Editing a route by table editing

Memo

Steps 1 and 2 are not required when editing the route that is currently displayed.

1 Click on the [Open] button on the Route Planning bar

Route Planning
New Open... Save

Edit

Edit

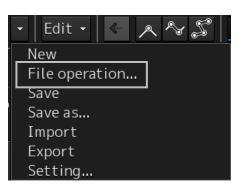
Comparison

Edit

Comparison

Co

Or select the [File operation...] button that is displayed by clicking on the Route Planning menu button.



The [File operation] dialog box appears.

	Name 🔸	Comment	Date(UTC)	Read only
	6-9-2-b4		2013-05-03 02:07	
	6-9-2-b5		2013-05-03 02:07	
	6-9-2-b7		2013-05-03 02:07	
┓	6-9-2-b8		2013-05-03 02:07	
	6-9-2-b9		2013-05-03 02:07	
	6-9-2b10		2013-05-03 02:07	
	6-9-2b11		2013-05-03 02:07	

2 Select the route file to be edited and click on the [Open] button.

Memo

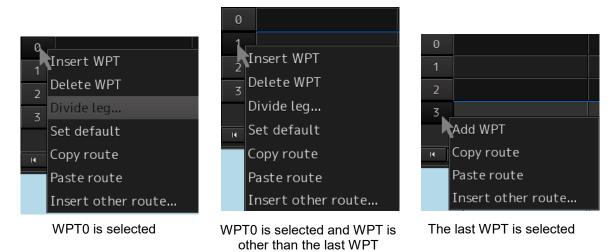
If [Read only] is selected, the file overwrite function is disabled. To overwrite the existing file, clear the item before opening the file.

The route file is displayed on the [Route Planning] dialog box.

Route	e Planning											×
New	New Open Save 🔹 Edit • 🤄 🦰 🎜 💭 💭 🗔 🔲 🗔 🕢 🔂 Show Route Check											
1	101014 ×											
Inse	Commen rt Delete	t										
WPT	Name	Posi	tion		Leg	Sail	X	ΓL	Arrival	Turn	Plan	ROT
No.	Name	LAT	LON	Course	Distance	San	PORT	STBD	Radius	Radius	Speed	
0		38°50.560'N	141°40.000'E									
1		38°50.400'N	141°40.500'E	112.3°	0.4NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	30.0°/min
2		38°50.400'N	141°41.500'E	090.0°	0.8NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	30.0°/min
3												
K	4											► H

For the details of the Route Planning tab, refer to "7.4.2 Route planning tab".

3 Select WPT No. of WPT to be changed and click the right mouse button. The context menu is displayed.



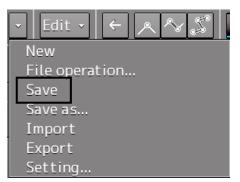
A route can be edited by selecting the "Edit" mode from the context menu. The procedures for editing are as follows.

Menu button	Function	Related section
name		
Insert WPT	Adds WPT.	7.6.4.1 Route Planning bar
Delete WPT	Deletes WPT.	7.6.4.2 Deleting WPT
Divide leg	Displays a leg division dialog box.	7.6.4.3 Dividing a leg
	Divides the leg in the dialog box.	
Set default	Reflects the initial value of the route plan	_
	setting in the specified WPT.	
Copy route	Copies the entire route.	7.6.4.4 Copying the entire
		route
Paste route	Pastes the copied course to the last WPT	7.6.4.5 Pasting the copied
	of the course.	route
Insert other	Displays the insertion dialog of some other	7.6.4.6 Inserting the other
route	route.	route
	Inserts some other dialog in the route that	
	is being edited on the dialog.	
Add WPT	Inserts the WPT of the same value as the	7.6.4.7 Insert the same
	last WPT.	WPT as the last WPT

4 After completing the editing, click on the [Save] button on the Route Planning bar.

Route Planning			
New Open Save	- Edit -		Show Route Check

Or select the [Save] button that is displayed by clicking on the Route Planning menu button



For the details of save operation, refer to "7.5 Saving a Route ".

7.6.4.1 Inserting WPT

Insert the WPT of the same value as the selected WPT.

- **1** Click the right mouse button on the WPT No. of the WPT to be inserted. The context menu is displayed.
- 2 Click on [Insert WPT] of the context menu. WPT is inserted following the selected WPT.

7.6.4.2 Deleting WPT

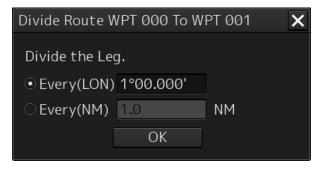
Delete the selected WPT.

- 1 Click the right mouse button on the WPT No. of the WPT to be deleted. The context menu is displayed.
- 2 Click on [Delete WPT] on the context menu. The selected WPT is deleted.

7.6.4.3 Dividing a leg

A leg can be divided by setting a longitude or a nautical mile.

- 1 Click the right button on the WPT No. to be divided. The context menu is displayed.
- 2 Click on [Divide leg...] of the context menu. The [Divide Route] dialog box appears.



3 Enter a division interval.

[Every (LON)] (Longitude division)

- 1) Click on "Every(LON)".
- 2) Enter a longitude interval for division.

[Every(NM)] (Nautical mile division)

- 1) Click on "Every(NM)".
- 2) Enter a nautical mile interval for division.

4 Click on the [OK] button.

The leg that is selected in Step 1 is divided in the unit that is specified in Step 3.

Note

When the total number of WPTs exceeds the maximum value of 511 as a result of leg division, leg division is executed within the range of 511 in the entire route.

7.6.4.4 Copying the entire route

Copy the entire route that is selected.

- **1** Click the right mouse button on the WPT No. other than the last WPT. The context menu is displayed.
- 2 Click on [Copy route] on the context menu.

The entire route is copied.

7.6.4.5 Pasting the copied route

The route that was copied to the last WPT of the route is pasted.

1 Click the right mouse button on the WPT No. of the WPT on which the route is to be pasted.

The context menu is displayed.

2 Click on [Paste route] in the context menu. The routes are pasted(inserted).

Note

After pasting the copied route, when a route planning error occurs as a result of recalculation of the Course, Distance, Total Distance, ROT, TTG, and ETA, an error message is displayed and the route will not be pasted.

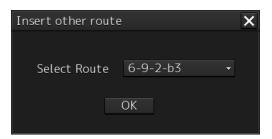
Memo

The same operation is performed also when the next No. button of the last WPT is clicked.

7.6.4.6 Inserting the other route

Insert the route of some other file into the final WPT of the route.

- 1 Click the right button on WPT No. A context menu is displayed.
- 2 Click on [Insert other route] in the context menu. The [Insert other route] dialog is displayed.



- **3** Select a route file to be inserted from the [Select Route] combo box.
- 4 Click on the [OK] button.

The route file is inserted.

Note

If the range can be inserted is exceeded, an error message is displayed and the route will not be inserted.

7.6.4.7 Insert the same WPT as the last WPT

Insert the same WPT as the last WPT following the last WPT.

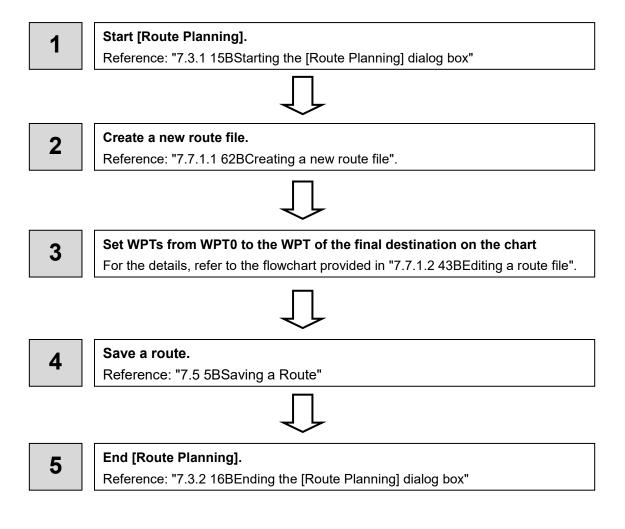
- 1 Click the right mouse button on the WPT No. of the last WPT. The context menu is displayed.
- 2 Click on [Add WPT] on the context menu. WPT is added following the last WPT.

7.7 Planning a New Route by Graphic Editing

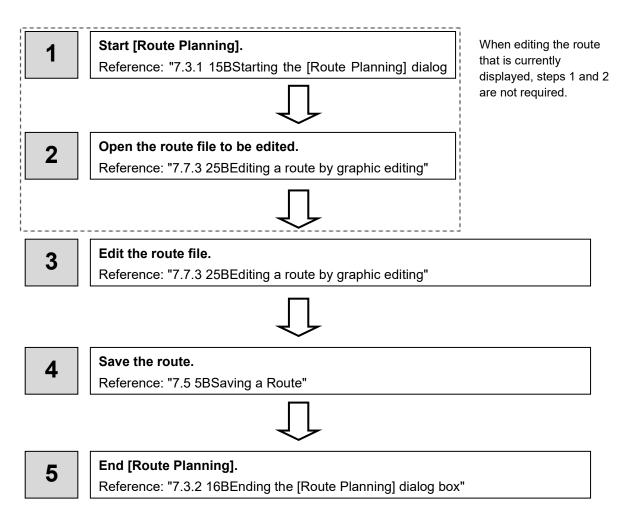
Edit the navigation route according to the world geodetic system (WGS-84). If you use the navigation route edited by a geodetic system other than the world geodetic system, an accident may occur.

7.7.1 Graphic editing operation flow

7.7.1.1 Creating a new route file



7.7.1.2 Editing a route file

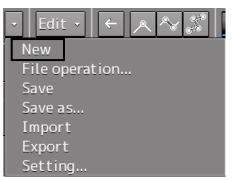


7.7.2 Creating a new route file by graphic editing

1 Click on the [New] button on the Route Planning bar.

Route Planning		
New Open Save 🔹 Edit 🔹 🗲 🛧 🔧 🍣	K X	Show Route Check

Or select the [New] button on the menu that is displayed by clicking on the Route Planning menu button.



2 Placing the cursor on the WPT0 position.

The latitude and the longitude of the WPT are displayed near the cursor.

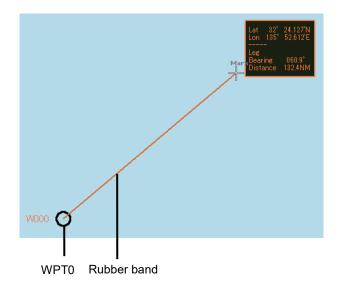


3 Click the mouse button.

WPT0 is added.

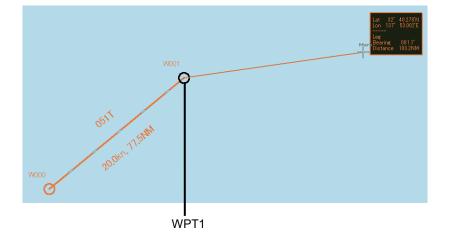


4 Move the cursor.



5 Click the mouse button.

WPT1 is added at the cursor position.



- 6 Add as many WPTs as required in the same way.
- 7 After creating the last WPT, double-click the left button or click the right button. The Route planning is terminated.

Note

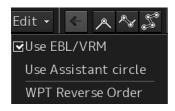
In the case of ARCS, when a WPT is specified at a position other than the active chart and another panel exists at the position, the panel display is switched automatically.

8 Save the route file that was created.

For the details of how to save the file, refer to "7.5 Saving a Route".

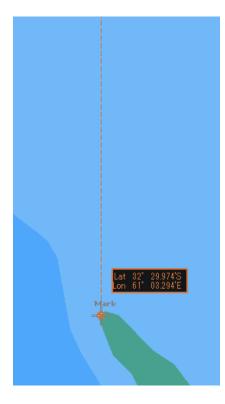
7.7.2.1 Creating a route by using EBL/VRM

1 Click on [Use EBL/VRM] on the [Edit] button to select it.



The cursor changes to EBL/VRM.

2 Move the cursor to the position used as the mark (example: headland) and click on the position.



3 Move the cursor and determine the WPT position while checking the bearing from the position used as the mark.



The latitude/longitude is displayed next to the cursor.

4 Click the mouse button.



WPT0 is created.

5 Add as many WPTs as required in the same way.

Memo

When EBL/VRM is not used for creation of the next WPT, clear the item by clicking on [Use EBL/VRM].

6 After creating the last WPT, double click the left button or click the right button. The Route planning is terminated.

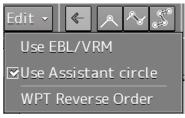
7.7.2.2 Creating a route by using the assistant circle function

A route can be created by using an assistant circle (supplementary line).

The assistant circle function adds WPT at the position where the mark such as headland and the leg intersects at right angles.

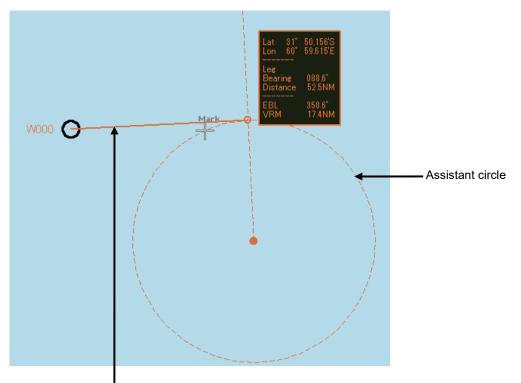
When the position that is used as the mark is determined and the cursor is moved to the position, WPT is added at the position where the leg and the position intersect at right angles.

1 Select the [Use Assistant circle] check box of the [Edit] button.



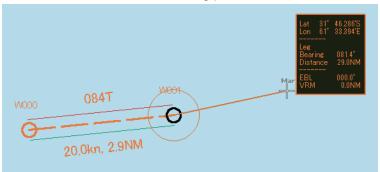
- **2** Move the cursor to any position and click the left button. WPT0 is created.
- **3** Move the cursor to the position as the mark (example, headland) and click the button.

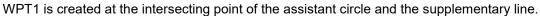


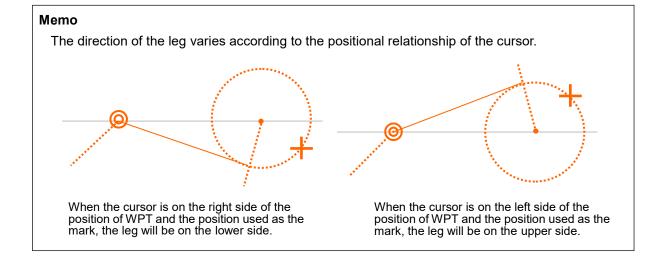


4 Move the cursor and click the button while checking the leg bearing.

Supplementary line







5 Add as many WPTs as required in the same way.

Memo

When Use Assistant circle is not used for creation of the next WPT, clear the item by clicking on [Use Assistant circle].

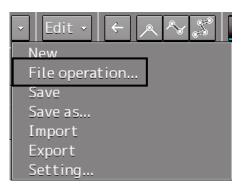
6 After creating the last WPT, double click the left button or click the right button. The Route planning is terminated.

7.7.3 Editing a route by graphic editing

1 Click on the [Open] button on the Route Planning bar.

Route Plannir	ıg				
New Open	Save 👻	Edit 🗸	< ∧ ^ S		Show Route Check

Or select the [File operation...] button that is displayed by clicking on the Route Planning menu button.



The [File operation] dialog box appears.

2 Select the route file to be edited and click on the [Open] button.

File	Operations			×
	Name 🔺	Comment	Date(UTC)	Read only 🔺
	6-9-2-b4		2013-05-03 02:07	
	6-9-2-b5		2013-05-03 02:07	
	6-9-2-b7		2013-05-03 02:07	
	6-9-2-b8		2013-05-03 02:07	
	6-9-2-b9		2013-05-03 02:07	
	6-9-2b10		2013-05-03 02:07	
	6-9-2b11		2013-05-03 02:07	· · ·
		Open		Delete

Memo

If [Read only] is selected, the file overwrite function is disabled. To overwrite the existing file, clear the item before opening the file.

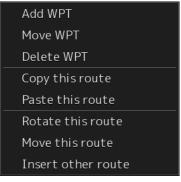
3 Edit the route with graphic editing.

Refer to the following for the editing methods.

Editing operations that are allowed by clicking on WPT or a leg of the route

Editing function	Related section
Inserting WPT between WPTs	7.7.3.1 Inserting a WPT between WPTs
Moving WPT	7.7.3.2 Moving a WPT
Changing XTL (cross track limit)	7.7.3.3 Changing XTL (cross track limit)

Operations that are allowed on the context menu that is displayed by clicking the right mouse button on WPT or a leg of the route



WPT0 or the last WPT is selected

Move WPT
Delete WPT
Copy this route
Paste this route
Rotate this route
Move this route
Insert other route

WPT other than WPT0 and the last WPT is selected

Change XTL

XTL is selected

Insert WPT	
Divide leg	
Copy this route	
Paste this route	
A leg is selected	

Section 7 Route Planning

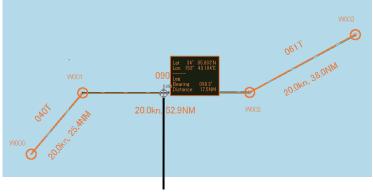
Menu	Function	Related section
Add WPT	Adds WPT.	7.7.3.4 Adding WPT on the context
		menu
Move WPT	Moves WPT.	7.7.3.5 Moving WPT on the context
		menu
Delete WPT	Deletes WPT.	7.7.3.6 Deleting WPT on the context
		menu
Copy this route	Copies the entire route.	7.7.3.7 Copying and pasting a route
Paste this route	Pastes the copied route on to	on the context menu
	another route file.	
Rotate this route	Rotates the route.	7.7.3.8 Rotating a route on the
		context menu
Move this route	Moves the route.	7.7.3.9 Moving a route on the context
		menu
Insert other route	Inserts another dialog into the route	7.7.3.10 Inserting other route on the
	that is being edited.	context menu
Insert WPT	Inserts WPT between WPTs.	7.7.3.11 Inserting WPT between
		WPTs on the context menu
Divide leg	Displays a leg division dialog.	7.7.3.12 Dividing a leg on the context
	Divides the leg in the dialog.	menu
Change XTL	Changes the XTL (cross track limit).	7.7.3.13 Changing XTL (cross track
		limit) on the context menu

4 After completing editing, save the route file.

For the details of how to save the file, refer to "7.5 Saving a Route".

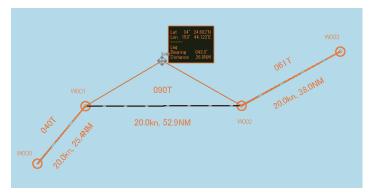
7.7.3.1 Inserting a WPT between WPTs

1 Click the left button on the leg between the WPTs in which a WPT is to be inserted. The leg is set to a selected state.



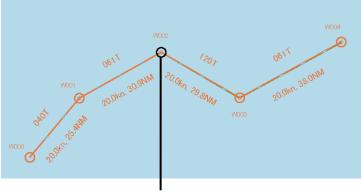
2 Determine the WPT insertion position by moving the cursor.

A rubber band is displayed.



3 Click the mouse button.

A WPT is added.



WPT that was added

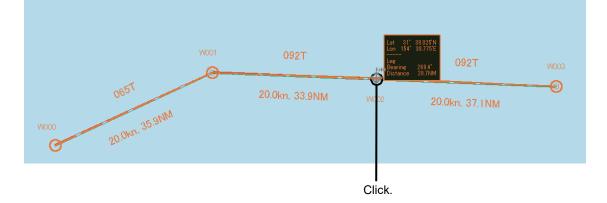
Cancelling the operation

The addition operation can be cancelled by clicking the right button instead of clicking at Step 3.

7.7.3.2 Moving a WPT

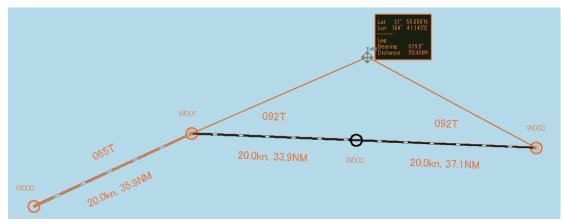
1 Click on the WPT to be moved.

The WPT is set to a selected state.



2 Move the WPT to any position.

A rubber band covering from the WPTs at the front and back to the cursor is displayed. *In the case of WPT0 or the last WPT, a rubber band is displayed from one side.



3 Click the mouse button.

The move is determined.

Cancelling the operation

The move operation can be cancelled by clicking the right button instead of clicking at Step 3.

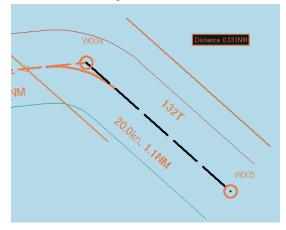
7.7.3.3 Changing XTL (cross track limit)

1 Click on the XTL.

The cursor is changed to the XTL change mode.

2 Move the cursor and change the XTL.

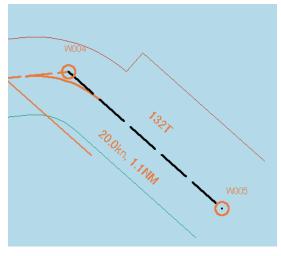
Use the information (XTL distance) that is displayed near the cursor and the line that is linked to the cursor as the guideline.



Note

The line cannot be moved exceeding the limit of XTL (9.99 NM).

3 Click the mouse button.



The width of the XTL is changed.

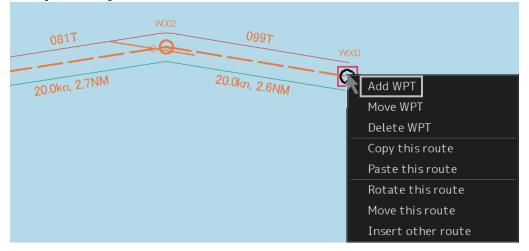
Cancelling the operation

The change operation can be cancelled by clicking the right button instead of clicking at Step 3.

7.7.3.4 Adding WPT on the context menu

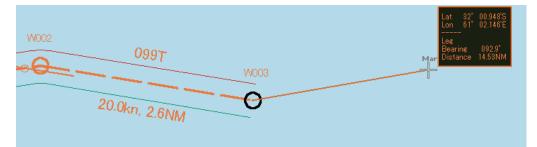
Add a WPT to WPT0 or the last WPT.

- 1 Click the right mouse button on WPT0 or the last WPT. The context menu is displayed.
- 2 Click [Add WPT] on the context menu.

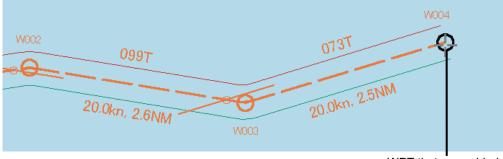


The cursor changes to the WPT addition mode.

3 Move the cursor on the position of the WPT to be added.



4 Click the mouse button.



WPT that was added

WPT is added.

Note

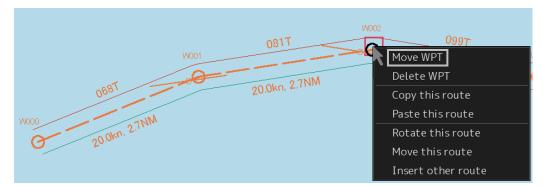
In the case of ARCS, when WPT is specified at a position other than the active chart and another panel exists at the positon, the panel display changes automatically.

Cancelling the operation

The addition operation can be cancelled by clicking the right button instead of clicking at Step 4.

7.7.3.5 Moving WPT on the context menu

- 1 Click the right button on the WPT to be moved. The context menu is displayed.
- 2 Click [Move WPT] on the context menu.

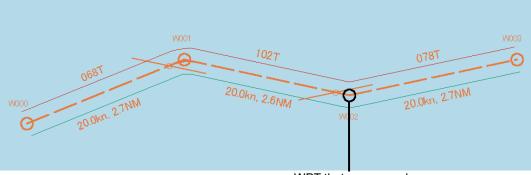


The cursor mode changes to the WPT move mode.

3 Move the cursor to the required position.



4 Click the mouse button.



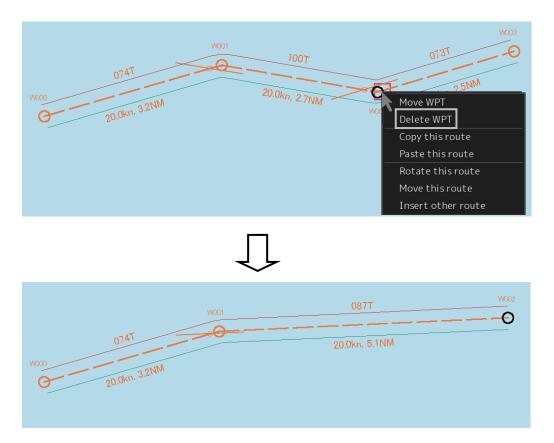
WPT that was moved.

Cancelling the operation

The addition operation can be cancelled by clicking the right button instead of clicking at Step 4.

7.7.3.6 Deleting WPT on the context menu

- 1 Click the right button on the WPT to be deleted. The context menu is displayed.
- 2 Click [Delete WPT] on the context menu.

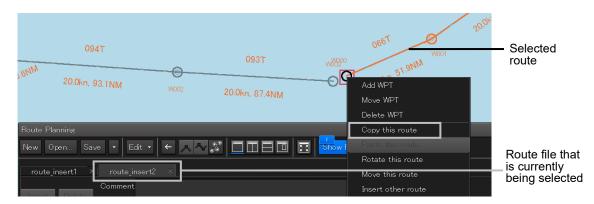


The WPT is deleted.

7.7.3.7 Copying and pasting a route on the context menu

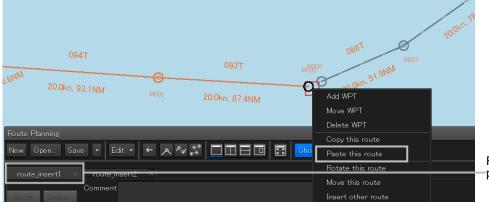
A route can be copied and pasted on to another route file.

- 1 Click the right button on a WPT of the route to be copied. The context menu is displayed.
- 2 Select [Copy this route] on the context menu.



The route is copied.

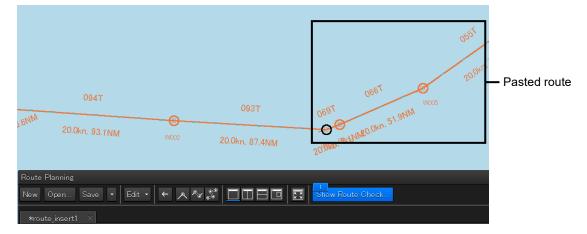
- **3** Open the route file of the paste destination by switching the tab.
- 4 Select the route to be pasted and click the right button.



Route file at the paste destination

5 Click on [Paste this route] in the context menu.

The copied route is pasted to the selected route.

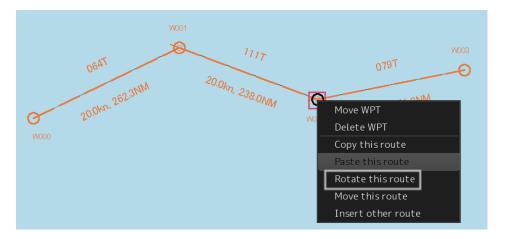


Note

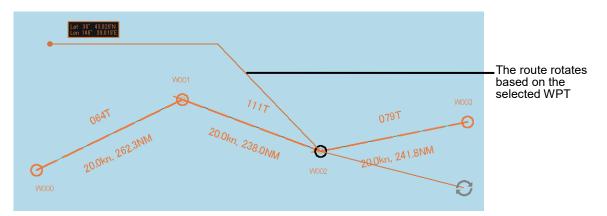
At pasting, Course, Distance, Total Distance, ROT, TTG, and ETA are recalculated. When a Route planning error occurs as a result, an error message is displayed and insertion and pasting are not performed. For the error messages that are displayed, refer to "7.12 Error Messages that are Displayed when a Route is Created".

7.7.3.8 Rotating a route on the context menu

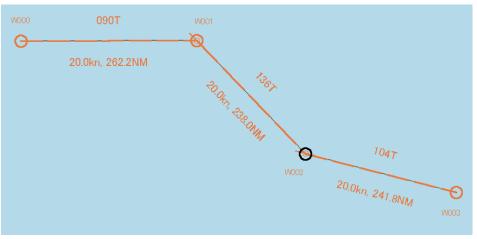
- **1** Click the right mouse button on the WPT No. that is used as the reference of rotation. The context menu is displayed.
- 2 Click [Rotate this route] on the context menu.



3 Rotate the route.



4 Click the mouse button.



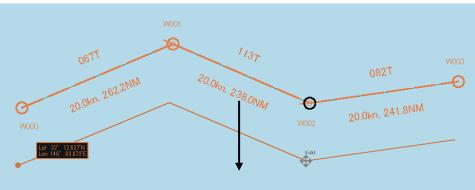
Cancelling the operation

The addition operation can be cancelled by clicking the right button instead of clicking at Step 4.

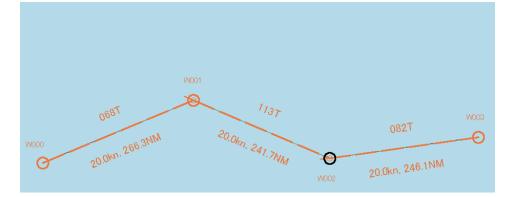
7.7.3.9 Moving a route on the context menu

- **1** Click the right mouse button on the WPT of any of the routes to be moved. The context menu is displayed.
 - W001 06TT 20,0km, 262,2NM 20,0km, 238,0NM W00 Move WPT Delete WPT Copy this route Paste this route Rotate this route Move this route Insert other route
- 2 Click [Move this route] on the context menu.

3 Move the route.



4 After positioning the route, click the mouse button.



Cancelling the operation

The addition operation can be cancelled by clicking the right button instead of clicking at Step 4.

7.7.3.10 Inserting other route on the context menu

Insert the route of another file into the last WPT of the route.

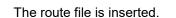
- 1 Click the right mouse button on WPT No. The context menu is displayed.
- 2 Click on [Insert other route] in the context menu.

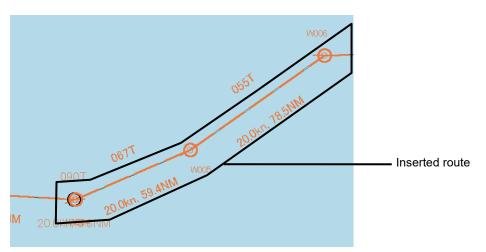
	093т	woos
W002	20.0kn, 87.4NM	Add WPT
	and an install	Move WPT
		Delete WPT
		Copy this route
		Paste this route
		Rotate this route
		Move this route
		Insert other route

The [Inset other route] dialog is displayed.

- 3 Click on the route file to be inserted from the [Select Route] combo box.
 - × Select Route 6-9-2-b4 093T Θ 20.0kn, 87.4NM

Click on the [OK] button.





Note

4

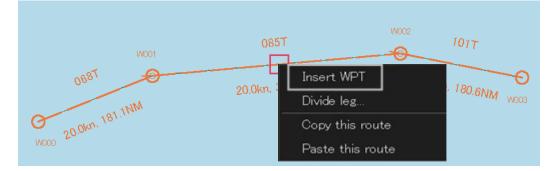
When the range exceeded the insertion allowed range, an error message is displayed and the route will not be inserted.

7.7.3.11 Inserting WPT between WPTs on the context menu

1 Click the right mouse button on the leg between the WPTs within which WPT is to be inserted.

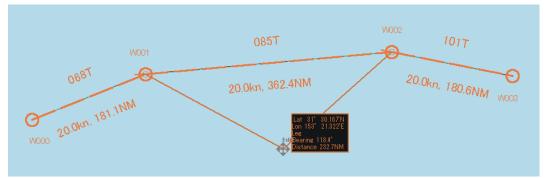
The context menu is displayed.

2 Click [Insert WPT] on the context menu.

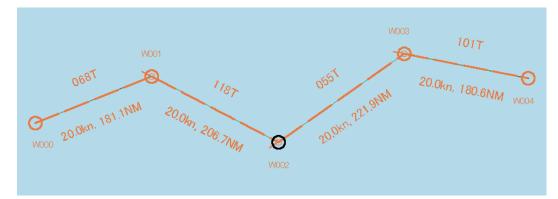


The cursor mode changes to the WPT insertion mode.

3 Move the cursor to the position in which WPT is to be inserted.



4 Click the mouse button.



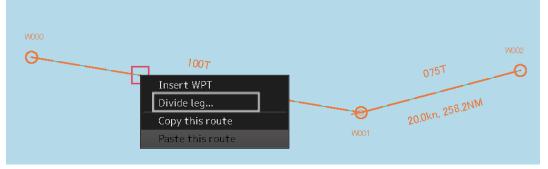
WPT is inserted.

Cancelling the operation

The insertion operation can be cancelled by clicking the right button instead of clicking at Step 4.

7.7.3.12 Dividing a leg on the context menu

- 1 Click the right mouse button on the leg of the route to be divided. The context menu is displayed.
- 2 Click [Divide leg...] on the context menu.



The [Divide Route] dialog box appears.

Divide Route WP	T 000 To WI	PT 001	×
Divide the Leg.			
• Every(LON) 1	°00.000'		
OEvery(NM) 1	.0	NM	
	OK		

3 Input a division interval.

[Every(LON)] (longitude division)

- 1) Click on "Every(LON)".
- 2) Enter a longitude division interval.

[Every(NM)] (nautical mile division)

- 1) Click on "Every(NM)".
- 2) Enter a nautical mile division interval.

4 Click on the [OK] button.

The leg that was selected in Step 1 is divided in the unit specified in Step 3.

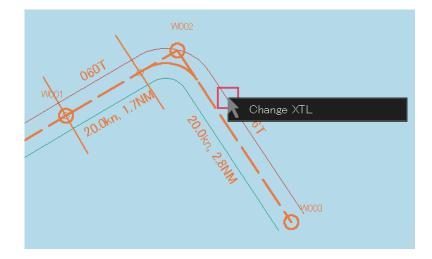
075T 20.0kn, 120.0NM20.0kn, 120.0NM200.0NM20.0NM200.0NM2000NM20.0NM2000NM20.0NM2000NM200NM2	06
--	----

Note

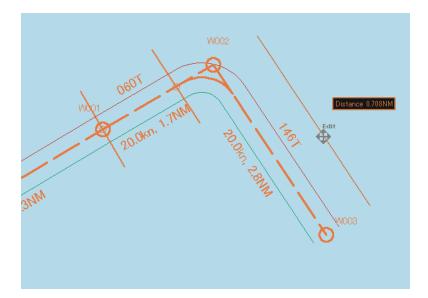
When the total number of WPTs exceeds the maximum value of 511 as a result of leg division, leg division is executed within the range of 511 in the entire route.

7.7.3.13 Changing XTL (cross track limit) on the context menu

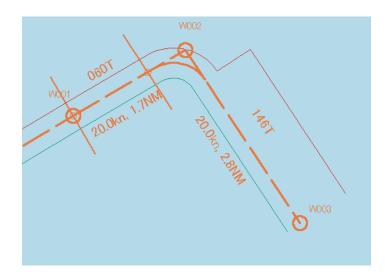
- 1 Click the right mouse button on XTL. The context menu is displayed.
- **2** Click [Change XTL] on the context menu.



3 Change the width of XTL by moving the cursor.



4 Click the mouse button.



The XTL width is changed.

Cancelling the operation

The operation can be cancelled by clicking the right button instead of clicking at Step 4.

7.8 Creating an Alternate Route

An alternate route can be created by referencing the route that is currently displayed on the screen during sailing. An alternate route can be written over the existing route that is being monitored or can be saved by assigning a new name.

The following two charts indicate the original route and the modified alternate route. The diagram shows that an alternate route is created while the original route is displayed.

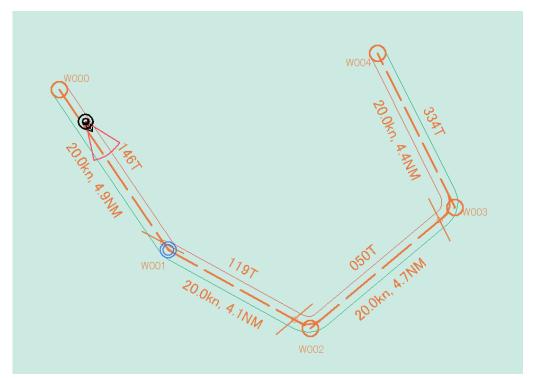
In the example below, the following WPTs are changed.

- W001 Position (shift)
- W002 (Insertion. As a result, the subsequent WPT numbers are incremented by 1.)
- W006 (1 WPT is added to the last WPT.)

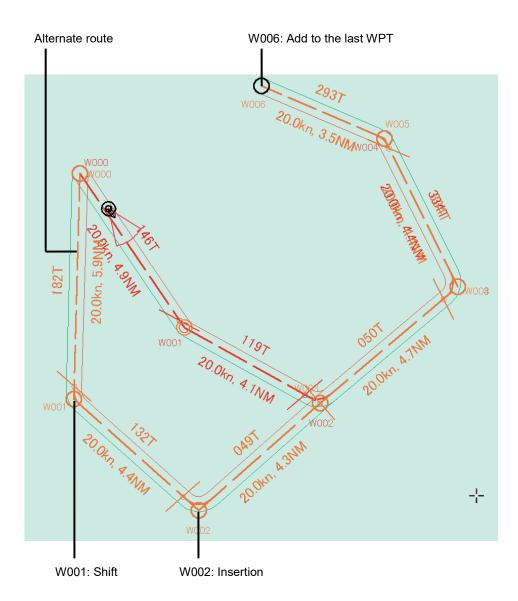
Memo

The original route is displayed in red to distinguish it from the alternate route.

Original route

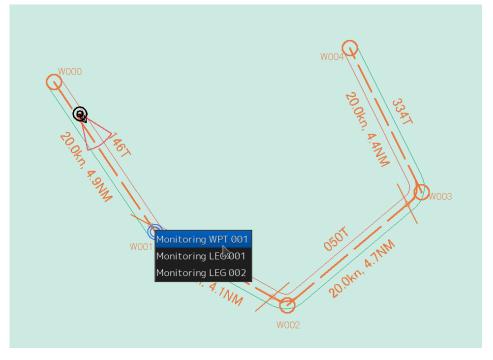


Original route and alternate route



7.8.1 Creating an alternate route

- **1** Click the right button on the WPT of the route or leg that is being monitored. The context menu is displayed.
- 2 Click on [Monitoring WPT xxx] or [Monitoring LEG xxx] in the context menu.



The context menu is displayed.



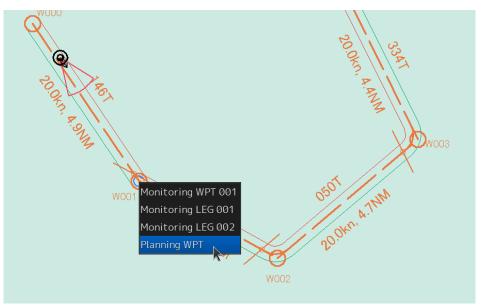
3 Click on [Edit this route] in the context menu.

The [Route Planning] dialog is displayed.

- **4** For table editing, edit the route by using the same procedure as that from Step 3 in "7.6.4 Editing a Route in Table Editing".
- **5** For graphic editing, click the right button on the WPT of the route or leg that is being monitored.

The context menu is displayed.

6 Click on [Planning WPT] or [Planning LEG] in the context menu.



The context menu for editing WPT or leg is displayed.

7 Edit the route by using the same procedure as that from Step 3 in "7.7.3 Editing a route in graphic editing".

7.8.2 Saving an alternate route

7.8.2.1 Overwriting without changing a file name

- **1** Click on the [Save] button. A confirmation dialog is displayed.
- 2 Click on the [YES] button.

System		×
	Route" is monito you overwrite i	-
Yes	No	Save as

The alternate route is displayed and used instead of the original route.

Note

In this case, the name of the route that is being monitored remains unchanged. The origianl route file is cleared since it is overwritten.

7.8.2.2 Saving by assigning a name

- 1 Click on [Save as] of the route plan menu button on the route plan bar. The [Save as Route File] dialog is displayed.
- 2 Enter a new file name and click on the [Save] button. An alternate route is displayed and used instead of the original route.

Note

In this case, the name of the route that is being monitored changes to the file name that was input. The original route file remains.

7.9 Checking Route Data

Route data is constantly checked based on the safety standards and limits.

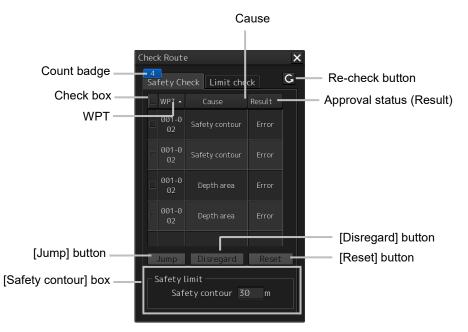
These items are checked on the [Check Route] dialog box.

The [Check Route] dialog box appears by clicking on the [Show Route Check] button on the Route Planning bar.

Route Planning		
New Open Save 🗸 Edit 🗸	Show F	oute Check

7.9.1 Checking a route based on the safety standards

The result of safety check is displayed on the "Safety check" tab.



When safety errors are detected, the number of errors is displayed on the count badge. When the error count exceeds 999, "More" is displayed instead of the count.

The list of Cause and Result of the errors that were detected is displayed for each WPT prior to and following the error occurrence point.

The following causes are displayed.

Cause						
Traffic separation zone.						
Traffic crossing.						
Traffic roundabout.						
Traffic precautionary.						
Two way traffic.						
Deeper water route.						

Cause
Recommended traffic lane.
Inshore traffic zone.
Fairway.
Restricted area.
Caution area.
Offshore production area.
Military practice area.
Seaplane landing area.
Submarine transit area.
lce area.
Channel.
Fishing ground.
Fishing prohibited.
Pipeline area.
Cable area.
Anchorage area.
Anchorage prohibited.
Dumping ground.
Dredge area.
Cargo transshipment area.
Incineration area.
Specially protected area.
Safety contour
Coast line
Obstruction
Under water rock
Wreck
Spoil ground.
Sensitive sea area.
Archipelagic sea lane.
Marine farm/aquaculture.
Approaching buoy/light.
Dangerous symbol.
Dangerous line.
Dangerous area.
Depth area
Sounding
PSSA (Particularly Sensitive Sea Area)
Areas to be avoided

7

Updating an error list

By clicking on the Re-check button, the latest error information is displayed by rechecking the information.

Sorting error display

By clicking on any of the items on the title line, error display can be sorted based on the item. A sort mark (or) is displayed on the title of the selected item.

Whenever an item is clicked on, the error display is sorted based on the ascending (\square) or the descending (\square) order.

Selecting an error to be processed

Select the check box of the error to be processed. To select all the errors, select the check box on the title line.

When the [Jump] button is clicked on, control jumps to the occurrence point of the error that was selected on the error list.

Ignoring an error

Click on the [Disregard] button. To restore the error that was once ignored, click on the [Reset] button.

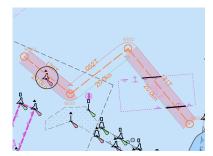
Checking an error target on the list

When an error is detected, the WPT under which the error occurred is highlighted in red.

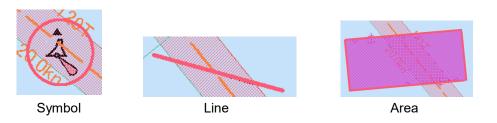
	e Planning															×
New	New Open Save 🔹 Edit 🔹 🖌 🖓 💭 🔲 🗖 🔲 📰 📰 📰 📰															
Insei	Commen rt Delete	t														
WPT	News	Posi			Leg	0-11	X		Arrival	Turn	Plan	DOT	ETA	Time	TTG	To =
No.	Name	LAT	LON	Course	Distance	Sail	PORT	STBD	Radius	Radius	Speed	ROT	[YYYY-MM-DD hh:mm]	Zone	[Days hh:mm] 👻	Dist
Q		32°26.803'S	61°15.462'E										2014-05-26 04:13	00:00		
1		32º20 507'S	61º00 148'E	242.49	6.0NM	RI	0.20NM	а замм	0.50NM	a sanm	20.0kp	38.2°/min	2014 05 26 04-32	60:00	00 Days 00:18	
2		32°31.010'S	61°10.239'E	146.8°	1.7NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-26 04:37	00:00	00 Days 00:05	
3		32°30.171'5	01°11.945'E	059.8°	1.7NM	KL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-20 04:42	00:00	00 Days 00:05	
4		32°29.267'S	61°13.625'E	057.6°	1.7NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-05-26 04:47	00:00	00 Days 00:05	1 👻
K 4																

Checking an error target on the route

When an error is detected, the error target WPT and the leg are highlighted as follows.

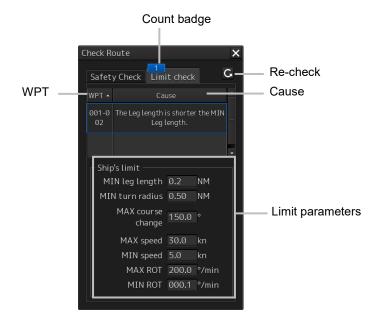


When error display is clicked on the error list, the symbol, line, and area of the error target are highlighted.



7.9.2 Checking a route based on the limits

The result of limit check is displayed on the [Limit check] tab.



When limit errors are detected, the error count is displayed on the count badge. When the error count exceeds 999, "More" is displayed instead of the count.

The cause of the error that was detected is displayed for each of WPTs prior to and following the error occurrence point.

The following causes are displayed.

Causa
Cause
The planned radius is beyond the MAX turn radius.
The planned radius is under the MIN turn radius.
The course angle of leg is beyond the MAX course angle.
The planned speed is beyond the MAX planned speed.
The planned speed is under the MIN planned speed.
The planned ROT is beyond the MAX ROT.
The planned ROT is under the MIN ROT.
The Leg length is shorter the MIN Leg length.
The straight route cannot be created.

Updating error display

By clicking on the re-check button, the latest error information is displayed by rechecking the information.

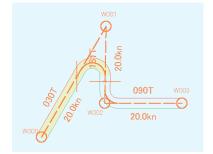
Sorting error display

By clicking on any of the items on the title line, error display can be sorted based on the item. A sort mark (or) is displayed on the title of the selected item.

Whenever an item is clicked on, the error display is sorted based on the ascending (\square) or the descending (\square) order.

Checking an error target on the route

When an error is detected, the WPT of the error target and the leg are highlighted as follows.



7.10 Navigation Calculation Function

This section describes the function that supports the distance and bearing calculation that are required for navigation.

70	70	100	175	65	125	95
Turn Radius	Plan Speed	ROT	ETA [MMM dd,yyyy hh:mm]	Time Zone	TTG [Days hh:mm] •	Total Distance
			01 JAN,2013 23:59	+00:00		
99.9NM	99.9kn	9999.9°/min	01 JAN,2013 23:59	+00:00	99days 23:59	99999.9NM
99.9NM	99.9kn	9999.9°/min	01 JAN,2013 23:59	+00:00	99days 23:59	99999.9NM
99.9NM	99.9kn	9999.9°/min	01 JAN,2013 23:59	+00:00	99days 23:59	99999.9NM
99.9NM	99.9kn	9999.9°/min	01 JAN,2013 23:59	+00:00	99days 23:59	99999.9NM

7.10.1 ROT (Rate of Turn)

ROT is automatically calculated from the planned ship's speed and the turn radius and displayed on [ROT].

7.10.2 ETA (Estimated Time of Arrival)

ETA is automatically calculated from the WPT position, planned ship's speed, and time zone and is displayed on [ETA].

7.10.3 TTG (Time to Go)

TTG is automatically calculated from the WPT position and planned ship's speed and displayed on [TTG].

A display format can be selected from the list that is displayed by clicking on the TTG title.

[Days hh:mm]

01Days 23:59

[hhhh:mm]

9999:59

7.11 Importing/Exporting a Route File

By using the [Import] or [Export] dialog box, the route file that was created can be imported/exported. The dialog box can be displayed as follows.

- **1** Click on the Route Planning menu button.
- 2 Select [Import] or [Export] from the list that is displayed. The [Import] or [Export] dialog box appears.

7.11.1 Importing a route file

1 Specify the "Drive", the "Folder", the "File name", and the "File Type" that stores the file to be imported.

2 Click on the [OK] button.

The route file that is selected can be imported. Press the [X] button to cancel the importing of a file.

Import								
Drive I-O DATAUSB Flash Disk (F:)								
🝷 🖿 I-O DATAUSB Flas	Name	- Modified						
01	= 0210a.rtm	2015-02-10 00:13						
02	0210b.rtm	2015-02-10 05:05						
■ 03 ■ 04	0210c.rtm	2015-02-10 05:28						
05								
06								
■ 07								
08								
0 9								
File Name								
File Type Rout	te File(*.rtm)	~						
ОК								

Note

The file type of the file to be imported can be selected in the [File Type] combo box. The file types that can be imported are as follows.

.rtn: Displays a route file (normal).

This file is used for ECDIS (JAN-701B/901B) and Chart Radar (JMA-900B)

.rta: Displays a route file (TCS route).

This file is used for ECDIS (JAN-701B/901B) and Chart Radar (JMA-900B)

.rtm: Displays a route file used in this equipment.

.csv: Displayes a route file in CSV format.

*(Wildcard): Displays all the files that can be imported.

7.11.2 Exporting a route file

1 Specify the "Drive", the "Folder", the "File name", and the "File Type" that stores the file to be exported.

2 Click on the [OK] button.

The route file that is currently opened is exported. Press the [X] button to cancel the exporting of a file.

Export		×						
Drive AI-O DATAUSB Flash Disk (F:)								
🔹 🖿 I-O DATAUSB Flas	≜ Name	- Modified						
	≡ 0210a.rtm	2015-02-10 00:13						
02	0210b.rtm	2015-02-10 05:05						
03	0210c.rtm	2015-02-10 05:28						
05								
06								
0 7								
0 8								
09	×							
	_							
File Name								
File Type Rout	e File(*.rtm)	~						
	ОК							

7

7.12 Error Messages that are Displayed when a Route is Created

When a route is created, the following error messages may be displayed, disabling execution of the specified operation.

Error message	Status	
System X Exceeded MAX WPT(511). Please set below MAX WPT. OK	The total number of WPTs exceeded the upper limit (511).	
System Exceeded MAX leg length(LON:150°). Please set below MAX leg length. OK	The leg length exceeded the maximum value (longitude 150°).	
System X Exceeded MAX LAT(60°00.000'). Please set below MAX LAT. OK	The latitude exceeded the latitude upper limit.	

Section 8 Route Monitoring

8.1 Route Monitoring

The route monitoring function enables monitoring of the position of own ship, heading, and ship speed, and calculation of an expected time of arrival using the route created in route planning.

Memo

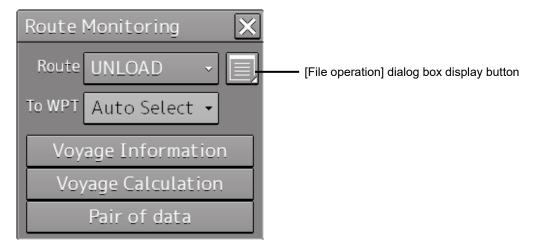
For moitoring a route, it is necessary to create a route file or copy a route file in route planning in advance.

For the details of route planning, refer to "Section 7 Route Planning".

8.1.1 Starting route monitoring

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Route Monitoring] button on the menu.

The [Route Monitoring] dialog box appears.



- **3** Select a required route file. [Selecting from the [Route] combo box]
 - 1) Click on the [Route] combo box.
 - 2) Select a required route.

[Selecting from a route file list]

- 1) Click on the [File operation] dialog box display button.
- 2) Select a required file from the list of the [File operation] dialog box.

About the [File operation] dialog box, refer to "8.2 Selecting and Deleting Route Files"

3) Click on the [Open] button.

8

4 Select a WPT to which the ship is to travel. A WPT can be selected automatically or manually.

[Automatic selection]

The nearest WPT from the own ship's position is selected automatically.

- 1) Open the next WPT list by clicking on the [To WPT] combo box.
- 2) Select [AUTO Select].

[Manual selection]

Select a WPT manually.

- 1) Open the next WPT list by clicking on the [To WPT] combo box.
- 2) Click on a required WPT .

8.1.2 Ending route monitoring

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Route Monitoring] button on the menu. The [Route Monitoring] dialog box appears.
- **3** Click on the [Route] combo box.
- 4 Click on [UNLOAD].

8.2 Selecting and Deleting Route Files

Selection of the route to be displayed and deletion of obsolete route files are enabled on the [File operation] dialog box.

Use the following procedure to open the [File operation] dialog box.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Route Monitoring] button on the menu. The [Route Monitoring] dialog box appears.
- **3** Click on the [File operation] dialog box display button. The [File operation] dialog box appears.

Selection	check File n	ame Com	ment	File cre	eation date	
File	Operations					X
	Name 🔺	Comment	Date(UTC)	Read only	^
	6-9-2-b4		2013-05-03	02:07		
	6-9-2-b5		2013-05-03	02:07		
	6-9-2-b7		2013-05-03	02:07		
	6-9-2-b8		2013-05-03	02:07		
	6-9-2-b9		2013-05-03	02:07		
	6-9-2b10		2013-05-03	02:07		
	6-9-2b11		2013-05-03	02:07		•
		O	oen		Delete	

8.2.1 Selecting a route to be displayed

1 Select the selection check box of the route file to be displayed.

When [Name] is clicked on, 🔽 is displayed. Whenever 🔽 is clicked on, the file display sequence changes to the ascending/descending sequence based on the names.

2 Click on the [Open] button.

8

8.2.2 Deleting a route file

- **1** Click the selection check of the route file to be deleted.
- 2 Click on the [Delete] button.

A message dialog box is displayed as to whether the deletion is to be executed.

3 When executing deletion, click on the [Yes] button. To cancel deletion, click on the [No] button.

Note

The file of the route that is currently monitored or the route that is used for automatic sailing cannot be deleted.

The following message dialog box appears.

System
6-9-2-b3 is RouteMonitoring. If you want to delete, please exit RouteMonitoring.
ОК
Close the dialog box by clicking on the [OK] button.

8.3 [Voyage Information] (Voyage Monitoring Information) Dialog Box

The [Voyage Information] (voyage monitoring information) dialog box is used to monitor voyage statuses.

In addition to voyage monitoring, execution of course change and termination of automatic navigation can also be performed.

Use the following procedure to open the [Voyage Information] dialog box.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Route Monitoring] button on the menu. The [Route Monitoring] dialog box appears.
- **3** Click on the [Voyage Information] button.

The [Voyage Information] dialog box appears.



[1] Route name display

A file name of the route that is being monitored is displayed.

[2] To WPT information

The To WPT information that was selected in the [Route Monitoring] dialog box is displayed.

	To WPT	001		—[a]
	Course	180.3	° —	—[b]
	DTG	4.0	NM—	-[c]
TTG	39h59m39s		ļ	—[d]
ETA	2013-01	-04 18:03	UTC -	-[e]
XTD	STBD	0.01	NM	
	[f]	[g]	[h]	

[a] [To WPT] (To WPT number)

Displays a To WPT number.

[b] [Course] (Angle of own ship - To WPT)Displays a bearing between the WPTs (To WPT bearing from the previous To WPT).

[c] [DTG] (Distance of own ship - To WPT) Displays the distance between own ship and To WPT.

[d] [TTG] (Expected traveling time)

Displays an expected traveling time to reach the position indicated by To WPT.

[e] [ETA] (Expected time of arrival)

Displays the expected time of arrival at the position indicated by To WPT.

[f] Cross track direction

Displays a cross track direction of the own ship.

When the own ship is cross-tracked on the right side, [STBD] is displayed and when the own ship is cross-tracked on the left side, [PORT] is displayed.

[g] Cross track distance

Displays a cross track distance of the own ship.

[h] Cross track distance unit switching button

Switches the display unit of a cross track distance. Whenever the button is clicked on, the unit is switched to "m" or "NM".

[3] Next WPT information



[a] [Next WPT] (Next WPT number)

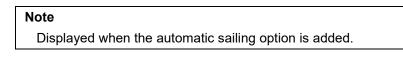
Displays a Next WPT number.

[b] [Next Course] (Leg bearing of Next WPT)

Displays a leg bearing of the Next WPT.

[4] Automatic sailing information

This section displays the status of Auto Pilot that is installed.





[a] Automatic sailing mode

Displays an automatic sailing mode.

Display	Status	
No display	A/P (Auto Pilot) non-connection setting or automatic sailing alert is	
	occurring	
Track Control	The A/P steering mode is set to Track Control.	
Heading Control	The A/P steering mode is set to Heading Control.	
Manual	The A/P steering mode is set to Manual.	
Override	Ship avoiding operation in progress	

Memo

The display contents vary depending on the auto pilot that is installed. For the details, refer to the Auto Pilot Instruction Manual.

[b] Control mode

Displays a control mode of automatic sailing.

Display	Status
No display	Automatic sailing inactive
KEEP	Automatic sailing/maintaining the course
DIRECT	Auto sailing/Direct to Waypoint selected
TURN	Automatic sailing/turning (TCS category C)
AVOID	Auto sailing/ Ship avoiding operation in progress
Assisted Turn	Automatic sailing/turning (TCS category B)

[c] Turning mode

Displays a turning mode of automatic sailing.

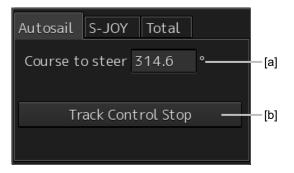
Display	Status	
No display	Automatic sailing inactive	
MAN	Manual course change mode	
AUTO	Automatic turning mode	

(5) Switching tab

When this tab is clicked on, the contents of the following dialog are switched.

[Clicking on the [Autosail] tab]

The dialog is switched to [Autosail] (automatic ailing) dialog.

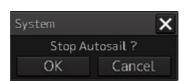


(a) Course to steer

Displays the course to steer to be transmitted to auto pilot.

(b) [Track Control Stop] (stop automatic sailing) button

To stop automatic sailing, click on this button. The following message dialog is displayed.



When the [OK] button is clicked on, automatic sailing terminates.

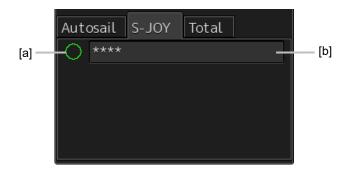
Memo

When a message dialog box indicating the switching of the Auto Pilot mode to the Manual mode is displayed, switch the Auto Pilot steering mode to the Manual mode.

System X Change autopilot steering mode to the Manual.

[Clicking on the [S-JOY] tab]

The dialog is switched to [S-JOY] dialog and information on S-JOY is displayed.



(a) Steering right

Displays the steering right of S-JOY.

When the steering right is available, the circle is filled.

(b) Mode

Displays the S-JOY mode.

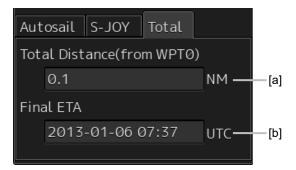
The contents that are displayed in the dialog vary as follows.

S-JOY mode	Contents that are displayed in the dialog
Track	ACT Rudder
Heading	Set HDG、Rudder Limit、ACT Rudder
Radius	Set HDG、Set Radius、ACT Radius、ACT Rudder
Planned Turn	Set HDG、Set Radius、ACT Radius、ACT Rudder
Rudder	Set Rudder、ACT Rudder、ROT

8

[Clicking on the [Total] tab]

The dialog is switched to the [Total] dialog.



(a) [Total Distance (from WPT0)]

Displays the total distance from WPT0 to own ship.

(b) [Final ETA]

Displays the expected time of arrival to the final WPT that is calculated based on the current ship's speed.

8.4 [Voyage Calculation] Dialog Box

The [Voyage calculation] dialog box is used to calculate the expected WPT arrival time, the time required, and required ship speed

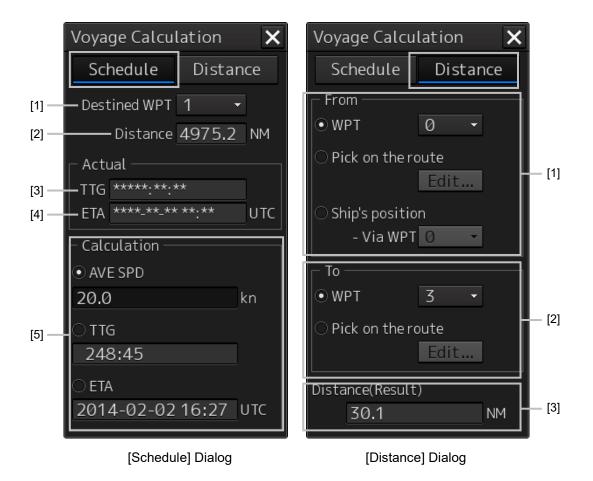
It is also possible to calculate a distance between two points such as between WPTs, from the own ship's position to WPT, or any position on the route to WPT.

Use the following procedure to open the [Voyage calculation] dialog box.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Route Monitoring] button on the menu. The [Route Monitoring] dialog box appears.
- **3** Click on the [Voyage calculation] button. The [Voyage calculation] dialog box appears.

When the [Schedule] (schedule calculation) button is clicked on, a schedule calculation dialog is displayed.

When the [Distance] (distance calculation) button is clicked on, a distance calculation dialog is displayed.



[Schedule] Dialog [1] [Destined WPT] combo box

Select a destined WPT.

[2] [Distance] (Distance up to the destined WPT)

Displays a distance from the own ship's position to the selected WPT.

[3] [TTG] (Expected traveling time)

Displays a traveling time required based on the position from the current SOG value to the destined WPT.

[4] [ETA] (Expeced time of arrival)

Displays a time at arrival of the destined WPT from the current SOG value.

[5] [Calculation] (Calculation)

Selects a calculation method and enters the values.

[Distance] Dialog

[1] [From]

Selects a starting point calculation method and enters the values.

[2] [To]

Selects an ending point calculation method and enters the values.

[3] [Distance (Result)] (Distance calculation result)

Displays distance from the starting point and ending point that were obtained from the setting.

8.4.1 Calculating a schedule

Voyage Calcu	lation	×
Schedule	Distar	nce
Destined WPT	1 -	
Distance	4239.6	NM
– Actual ———		
TTG 2119:47:	37	
ETA 2014-05-	02 20:51	UTC
Calculation —		
• Average Spee	d	
20.0		kn 📗
O T TG		
211:58		
O ETA		
2014-02-12	09:02	UTC

- **1** Click on the [Schedule] button.
- 2 Click on the [Destined WPT] combo box.

3 Click on the WPT number whose schedule is to be calculated.

The measured distance from the own ship to the selected WPT, the estimated required time calculated based on the SOG (Speed Over the Ground), and the estimated time of arrival are displayed.

8

4 Select a calculation method and enter a value.

When [Average Speed] (calculated ship's speed), [TTG] (calculated traveling time), or [ETA] (calculated time of arrival) is selected and a value is entered, the calculation result of the ship's speed, expected traveling time, and expected time of arrival are displayed. These three items are displayed by linking.

[Average Speed]:	Enter a ship's speed.
[TTG]:	Enter a calculated traveling time.
[ETA]:	Enter a calculated time of arrival by using a calendar/time picker.

8.4.2 Calculating a distance

Voyage Calcu	lation 🗙
Schedule	Distance
From	
• WPT	1 •
• Pick on the ro	oute
	Edit
• Ship's positio	n
- Via WPT	0 •
_ То ———	
• WPT	2 •
• Pick on the ro	oute
	Edit
Distance(Result)
2.8	NM

1 Click on the [Distance] button.

2 Select starting point calculation method and enter a value.

Set a starting point for distance calculation by selecting [WPT] (selection of starting WPT), [Pick on the route] (selecting any position on the starting route), or [Ship's position] (selection of the own ship's position).

[WPT]: Click on a WPT used as the starting point from the combo box.

[Pick on the route]: Any position on the routes set in the starting WPT and the end WPT is used as the starting point.
When the [Edit] (editing any position) button is clicked, the color of the selectable route changes to green. When any position is clicked, that position becomes the starting point.

[Ship's position]: The own ship's position is used as the starting point. Click on the WPT to be passed through from the [Via WPT] combo box.

3 Select an ending point calculation method and enter a value.

Set an ending point for distance calculation by selecting [WPT] (selection of ending WPT) or [Pick on the route] (selecting any position on the ending route).

[WPT]: Click on a WPT used as the ending point from the combo box.

[Pick on the route]: Any position on the routes set in the starting WPT and the end WPT is used as the end point.

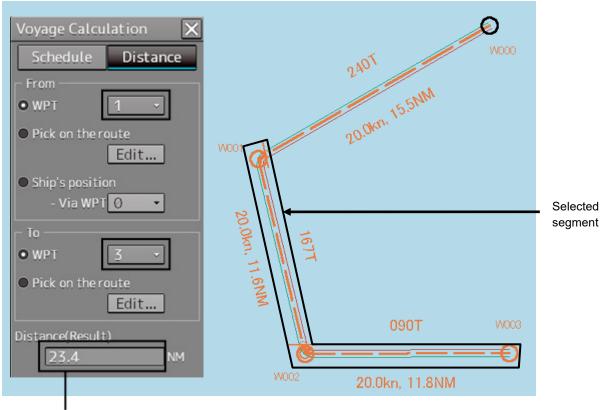
When the [Edit] (editing any position) button is clicked, the color of the selectable route changes to green. When any position is clicked, that position becomes the end point.

stem	
Please click the reference position on the route	
Cancel	

8

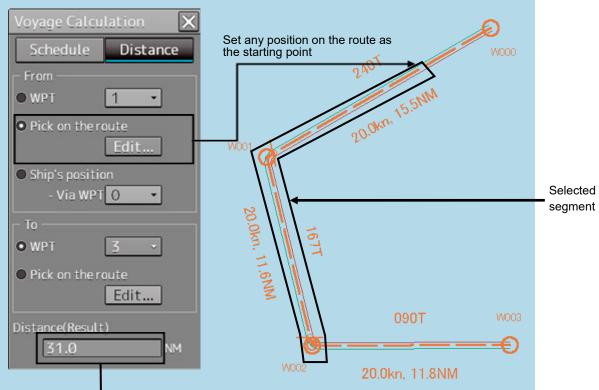
8.4.3 Example of distance calculation

Calculating with [WPT]

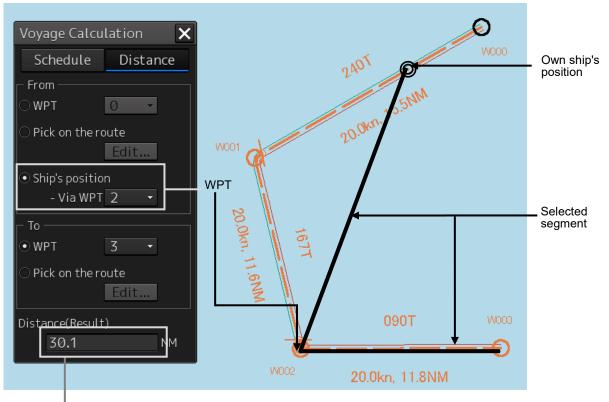


Route distance between selected WPTs

Selecting [Pick on the route] (Selecting any starting point on the route) as the starting point:



Route distance between selected WPTs



Selecting [Ship's position] (Selecting the own ship's starting position):

Route distance between selected WPTs

8

8.5 Comparing the Data between the Planned Route and the Actual Route

The [Pair of data] dialog box enables comparison of data between the planned route and the actual route.

Use the following procedure as below to open the [Pair of data] dialog box.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Route Monitoring] button on the menu. The [Route Monitoring] dialog box appears.

3 Click on the [Pair of data] button.

The [Pair of data] dialog box appears.

	Pair of	data	×	
		Plan	Actual	
[1]	HDG	000.0°	***.* °	— [5]
[2]	SPD	20.0 kn	0.0 kn —	— [6]
[3] —	RAD	0.50 NM	0.50 NM-	— [7]
[4] —	ETA (UTC)	2014-01- -22 08:40	****_**_**	— [8]

Planned data is displayed in [Plan] (route plan) and the actual route data is displayed in [Actual] (actual route) in the dialog.

[1] Planned course

Displays a planned course.

[2] Planned ship's speed

Displays a planned ship's speed.

[3] Planned turn radius

Displays a planned turn radius.

[4] Planned ETA

Displays a planned expected time of arrival.

[5] Actual ship's heading

Displays an actual ship's heading.

[6] Actual speed

Displays an actual ship's speed.

[7] Actual turn radius

Displays an actual turn radius.

[8] Actual ETA

Displays an expected time of arrival (ETA) that is calculated from the actual ship's speed.

8.6 Verifying Detail Information of WPT

Detail information of each WPT on the route can be verified. Use the following procedure to display the detail information of WPT.

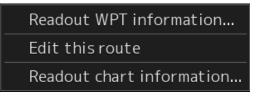
1 Right-click on [WPT].

The context menu is displayed.

Monitoring WPT 000 Monitoring LEG 001

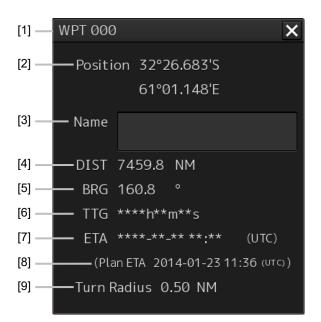
2 Click on the WPT to be verified from the context menu.

The context menu is displayed.



3 Click on [Readout WPT information...].

The detail information dialog of the WPT is displayed.



[1] WPT number

Displays a WPT number.

[2] [Position] (WPT position)

Displays the latitude/longitude of WPT.

[3] [Name] (WPT name)

Displays a WPT name.

[4] [DIST] (Distance between own ship and WPT)

Displays a distance from the own ship's position to WPT.

[5] [BRG] (Bearing between own ship and WPT)

Displays a bearing from the own ship to WPT.

[6] [TTG] (Expected time required to reach WTP)

Displays a time required to reach WPT based on the own ship's speed (SOG) and the distance.

[7] [ETA] (Expected time of arrival at WPT)

Displays an expected time of arrival at WPT based on the own ship's speed (SOG) and the distance.

[8] [Plan ETA] (Expected time of arrival at WPT)

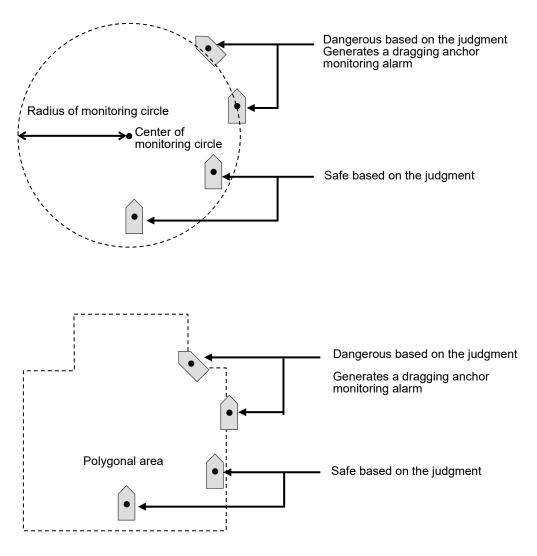
Displays an expected time of arrival based on route planning.

[9] [Turn Radius] (Turn radius)

Displays a WPT turn radius.

Section 9 Monitoring a Dragging Anchor

Anchor Watch is a function that sets a circular or polygonal dragging anchor monitoring area around the own ship and realizes safe voyage by generating an anchor alarm when a part of the outline of the own ship exceeded the monitoring area.



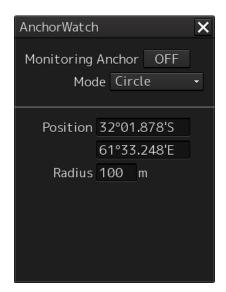
Dragging Anchor Monitoring Area

9.1 Setting a Dragging Anchor Monitoring Area

This section describes the setting of a dragging anchor monitoring area. The setting varies depending on whether the shape of the dragging anchor area is a circle or a polygon.

9.1.1 Setting a dragging anchor monitoring circle

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Anchor Watch] button on the menu. The [Anchor Watch] dialog box appears.
- **3** Select [Circle] from the [Mode] (dragging anchor monitoring mode selection) combo box.

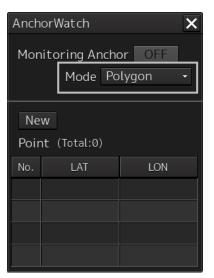


Enter the center position and size of the dragging anchor monitoring area.
 [Position] (Input of the center position of the dragging anchor monitoring circle)
 [Radius] (Radius of the dragging anchor monitoring circle)
 Input range

10 to 1500 m

Setting a dragging anchor monitoring polygon 9.1.2

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Anchor Watch] button on the menu. The [Anchor Watch] dialog box appears.
- 3 Select [Polygon] from the [Mode] (dragging anchor monitoring mode selection) combo box.



4 Click on the [New] button.

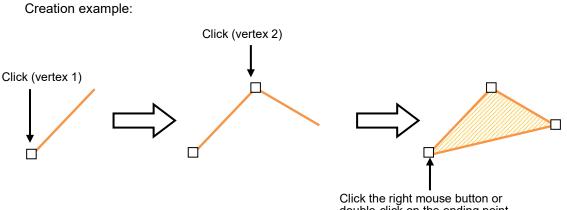
The data of the [Point] (vertex) list is cleared.

5 Place the cursor on the chart.

6 Create a polygon by dragging the cursor on the chart.

By inputting position coordinates (longitude and latitude) of the vertex positions of the polygon in the [Point] list, the vertex position can be changed.

When the polygon is created, the number of vertices is displayed in [(Total:)]. Up to 360 vertices can be set.



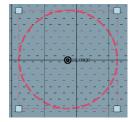
9.2 Starting and Ending Dragging Anchor Monitoring

9.2.1 Starting dragging anchor monitoring

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Anchor Watch] button on the menu. The [Anchor Watch] dialog box appears.

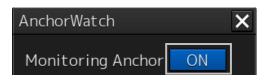
AnchorWatch	١	X
	Anchor OFF le Circle	•
Position	32°01.878'S 61°33.248'E	
Radius	100 m	

The preview of dragging anchor monitoring area that was set is displayed (broken line).



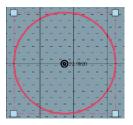
When the dialog is displayed, the own ship's position is placed at the center of the circle.

3 Set dragging anchor monitoring to ON by clicking on the [Monitoring Anchor] button.



Dragging anchor monitoring starts based on the setting.

The dragging anchor monitoring area on the chart is changed to a solid line.



When own ship exits from the dragging anchor monitoring area, the "Dragging anchor" alarm is displayed.

9.2.2 Ending dragging anchor monitoring

Set the button display to [OFF] by clicking on the [Monitoring Anchor] button. Alternatively, use the following procedure.

- 1 Click the dragging anchor monitoring circle. A context menu is displayed.
- 2 Click [Finish Monitoring Anchor] on the context menu.

The [Monitoring Anchor] button display is changed to [OFF] and the display of the dragging anchor monitoring area on the chart is changed to the broken line display.

9.3 Moving/Editing/Deleting a Dragging Anchor Monitoring Area on the Chart

A dragging anchor monitoring area can be moved to any position or the size or shape can be changed or deleted on the chart.

These operations are also available on the context menu.

These operations can be performed either before or after starting dragging anchor monitoring.

9.3.1 Moving a dragging anchor monitoring circle on the chart

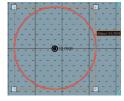
A square enclosing the dragging anchor monitoring circle is displayed.

Click on the dragging anchor monitoring circle.



1

2 Click on the dragging anchor monitoring circle. The cursor is set to the Edit cursor.



3 Move the cursor to any position and click the mouse button. The dragging anchor monitoring circle is moved.

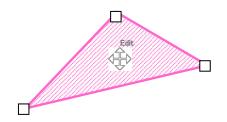
9.3.2 Moving a dragging anchor monitoring circle on the context menu

The moving of a dragging anchor monitoring circle can also be executed from the context menu.

- Click on the dragging anchor monitoring cirlce.
 A square enclosing the dragging anchor monitoring circle is displayed.
- 2 Click the right mouse button on the dragging anchor monitoring circle. The context menu is displayed.
- **3** Click on [Move this object] on the context menu. The cursor is set to the Edit cursor.
- **4** Move the cursor to any position and click the mouse button. The dragging anchor monitoring circle is moved.

9.3.3 Moving a dragging anchor monitoring polygon on the chart

- **1** Click the mouse button inside of the dragging anchor monitoring polygon. The [Anchor Watch] (dragging anchor monitoring) dialog box appears.
- **2** Click the mouse button inside of the dragging anchor monitoring polygon. The cursor is set to the Edit cursor.



3 Move the cursor to any position and click the mouse button. The dragging anchor monitoring polygon is moved.

9.3.4 Moving a dragging anchor monitoring ploygon on the context menu

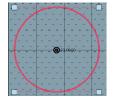
The moving of a dragging anchor monitoring polygon can also be executed from the context menu.

- **1** Click the right mouse button on a line of the dragging anchor monitoring polygon. A context menu is displayed.
- 2 Click on [Move this object] on the context menu. The cursor is set to the Edit cursor.
- **3** Move the cursor to any position and click the mouse button. The dragging anchor monitoring polygon is moved.

9.3.5 Changing a size of a dragging anchor monitoring circle on the chart

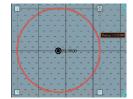
1 Click on the dragging anchor monitoring circle.

A square enclosing the dragging anchor monitoring circle is displayed.

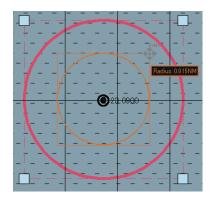


2 Click on any of the vertices of the square enclosing the dragging anchor monitoring circle.

The cursor changes to the arrow cursor.



3 Move the cursor until the dragging anchor monitoring circle becomes a required size and click the mouse button.



The size of the dragging anchor monitoring cicle is changed.

9.3.6 Changing a size of a dragging anchor monitoring circle on the context menu

Change of a dragging anchor monitoring circle can also be executed from the context menu.

- Click on the dragging anchor monitoring circle.
 A square enclosing the dragging anchor monitoring circle is displayed.
- **2** Click on any of the vertexes of the square enclosing the dragging anchor monitoring circle.

A context menu is displayed.

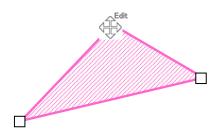
- **3** Click on [Change radius] on the context menu. The cursor is set to the Arrow cursor.
- **4** Move the cursor until the dragging anchor monitoring circle becomes a required size and click the mouse button.

The size of the dragging anchor monitoring circle is changed.

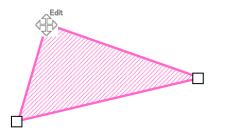
9.3.7 Changing a shape of a dragging anchor monitoring polygon on the chart

Changing a vertex

1 Click on the vertex of the dragging anchor monitoring polygon to be changed. The cursor is set to the Edit cursor.



2 Move the cursor to the required vertex position of the dragging anchor monitoring polygon and click the mouse button.

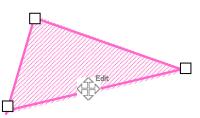


The position of the vertex is changed.

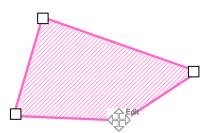
Adding a vertex

1 Click the mouse button on the position where a vertex to be added.

The cursor is set to the Edit cursor.



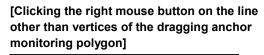
2 Move the cursor to the position where a vertex is to be set and click the mouse button.



A new vertex is added.

9.3.8 Changing a shape of a dragging anchor monitoring polygon on the context menu

The following operation can be performed on the context menu that is displayed by clicking the right mouse button on the dragging anchor monitoring polygon.



Insert vertex

Move this object.

Delete this object.

Readout chart information...

[Clicking the right mouse button on a vertex of a dragging anchor monitoring polygon]

Delete vertex Move this object. Delete this object. Readout chart information...

Each function is as follows.

[Insert vertex] (Addition of a vertex)

Adds a vertex at the position where the mouse button is clicked on.

[Delete vetex] (Deletion of a vertex)

Deletes the selected vertex.

[Move this object] (Moving an object)

Moves the selected dragging anchor monitoring polygon to any position.

[Delete this object] (Deletion of an object)

Deletes a selected dragging anchor monitoring polygon.

Note

When deletion of a dragging anchor monitoring polygon is attempted during execution of dragging anchor monitoring, the following message dialog box is displayed.



To execute deletion, click on the [Yes] button. The monitoring area is deleted and dragging anchor monitoring is terminated.

Section 10 Automatic Sailing (Option)



When automatic sailing is performed, the operator must confirm the safety of the route and the safety at crossing of a safety contour line. Otherwise, an accident may occur.

When Auto Pilot is connected to this equipment, it is possible to calculate the course to steer from the planned route and the own ship's position and guide the ship automatically according to the planned route by outputting the course to steer to Auto Pilot.

Note

- The ECDIS screen cannot be terminated during automatic sailing.
- When MAG (Magnetic Compass) is selected as the sensor source of Heading (ship's heading), automatic sailing cannot be started.

Memo

For the details of the principle and setting of automatic sailing, refer to "16.9 Setting up Parameter Values for Automatic Sailing".

For the details of the Auto Pilot operation, refer to the Auto Pilot Instruction Manual.

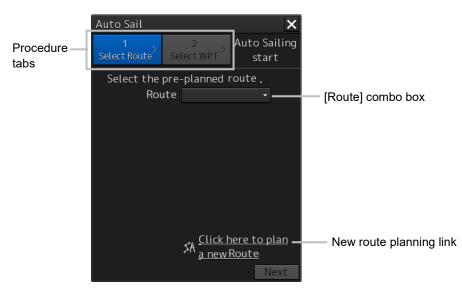
10.1 Flow of Starting Automatic Sailing

1 Click on the [Menu] button on the left toolbar.

The menu is displayed.

2 Click on the [Auto Sail] - [Start] on the menu.

The automatic sailing starting wizard ([Auto Sail] dialog box) appears.



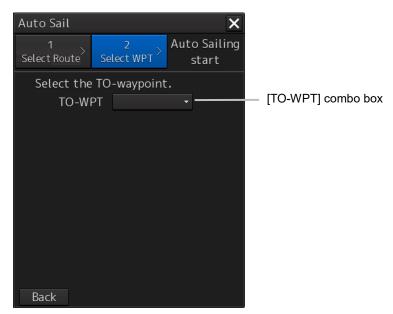
3 Click a planned route file to be used from the [Route] combo box of Procedure tab 1.



4 After checking a track, click on the [Next] button.



The dialog of Procedure tab 2 is displayed.

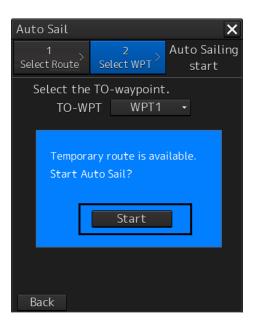


5 Click on the waypoint from which Autosail is to start from the [TO-WPT] (waypoint) combo box.

Au	to Sail	×
Se	1 2 Alect Route Select WPT A	uto Sailing start
	Select the TO-waypoint. TO-WPT WPT1	•
	Back	

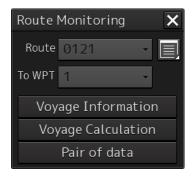
10

6 Start automatic sailing by clicking on the [Start] button.



During route monitoring

During route monitoring, the name of the planned route that is currently used is displayed in the [Route] combo box.



To use another planned route for automatic sailing, re-select a planned route.

Occurrence of an error

The following message dialog box appears.



When the above error occurs, automatic sailing cannot be started. Cancel the alert by closing the dialog box by clicking on the [X] (Close) button. For the details of the alerts that are displayed during automatic sailing, refer to "10.6 Alerts at Automatic Sailing".

Creating a new route

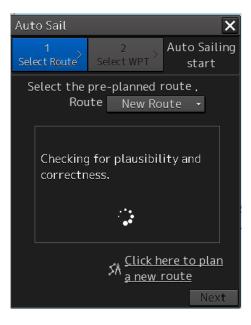
 Click on the [Click here to plan a new route] link. The [Route Planning] dialog box appears. For the details, refer to "10.2.2 Creating a new route".

10.2 Selecting a Route

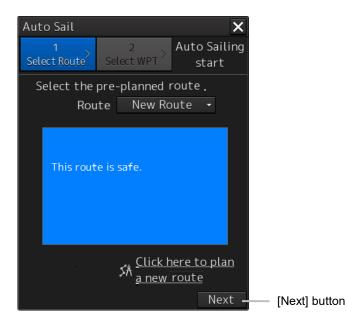
10.2.1 Using the existing planned route

1 To use the existing planned track for automatic sailing, select the planned route file to be used from the [Route] combo box.

Checking of the selected route starts.



If there is no problem in the route, a route safety confirmation message is displayed and the [Next] button is enabled.



Detecting an error

When an error is detected as a result of checking the route, an error message is displayed.



Change the route file or modify the selected route.

Use the following procedure for modifying a route.

1 Click on the [Click here to confirm and modify the route] (confirmation and modification of route) link.

The [Route Planning] dialog box is opened.

Route	e Planning															X
New	Open Save 🔹	Edit 🗸 🗲	<u></u>				19 Show Ro	oute Che								
Ne	w Route × 6-9	-2-b3 ×														
Inse	Commen rt Delete	ıt														
WPT	Name				Leg							ROT				Tot -
No.	Name								Radius	Radius			[YYYY-MM-DD hh:mm]		[Days hh:mm]	Dista
Ø		32°25.350'S	60°59.122'E										2014-02-07 02:12	00:00		
1		32°24.113'S	60°59.804'E	025.0°	1.4NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:16	00:00	00 Days 00:04	1
2		32°23.955'S	61°00.440'E	073.8°	0.6NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:18	00:00		1
3		32°23.918'S	61°02.255'E	088.6°	1.5NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:22	00:00	00 Days 00:04	3
4		32°23.447'S	61°03.099'E	056.7°	0.9NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:25	00:00	00 Days 00:02	4 👻
H	•															> H

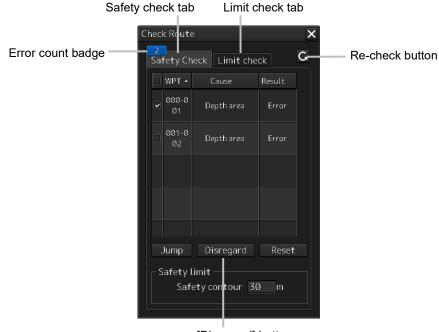
When an error occurred in the planned route, a badge indicating the number of errors is displayed on the [Show Route Check...] (route checking screen display) button.



10

2 Click on the [Show Route Check...] button.

The [Check Route] dialog box that displays the result of the route checking appears.



[Disregard] button

3 Modify the route, save the file by overwriting, and close the [Route Planning] dialog box.

The route safety confirmation message is displayed.

For the details of the route planning operation, refer to "Section 7 Route Planning"

10.2.2 Creating a new route

A new planned route to be used for automatic sailing can be created.

1 Click on the [Click here to plan a new route] link. The [Route Planning] dialog box is opened. 2 Create and save a new planned route and close the [Route Planning] dialog box.

Route Pl New O	lanning ipen Save 👻	Edit 🔹 <	.~ <i>\$</i> [3	Show Ro	ute Che	ck							
6-9-	-2-b3 ×															
insert	Comm Delete	ent														
VPT	No				Leg						Plan	ROT				
	Name	LAT					PORT					ROI				
		32°14.789'S	61°29.028'E										2014-02-07 02:17	00:00		
		32°14.368'S	61°32.295'E	081.4°	2.8NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:25	00:00		
		32°14.783'S	61°33.781'E	108.2°	1.3NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:29	00:00	00 Days 00:03	
		32°15.612'S	61°35.333'E	122.2°	1.6NM		0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:34	00:00		
		32°16.498'S	61°36.789'E	125.6°	1.5NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:39	00:00	00 Days 00:04	
4 4																F FI

Route editing tab

For the details of "Route Planning", refer to "Section 7 Route Planning".

3 Use the newly created planned route by referring to "10.2.1 Using the existing planned route".

When the four route files have been opened

If four route files are already opened, no new edit tab can be opened unless the route edit tab that is already open is deleted once.

10.3 Selecting a Waypoint at which Automatic Sailing Starts

Select a WPT (waypoint) at which automatic sailing starts.

1 Click on Procedure tab 2.

When selecting Procedure tab 1, click on the [Next] button.

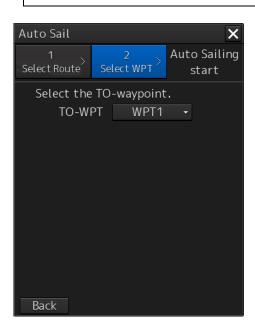


When the [Back] button is clicked on, control returns to the route selection screen, enabling re-selection of a route.

2 Click on the waypoint at which automatic sailing starts from the [TO-WPT] combo box.

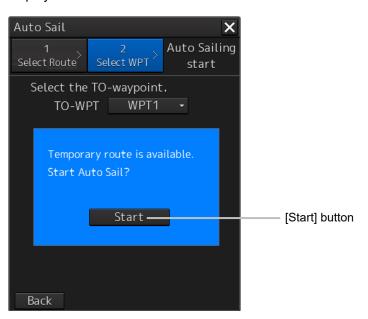
Note

When the [Auto Sail] dialog box is activated during route monitoring, WPT that has been passed through cannot be selected.



Creation of the temporary route to the selected WPT starts.

When the temporary route is created, a completion message and the [Start] button are displayed.



When a temporary route cannot be created, the following error message is displayed.

Error message	Cause	Measures
Cannot create the temporary route	The temporary route	Approximate the ship's
because the course is inappropriate.	could not be created due	heading to the planned
Turn the course toward the planned	to the inappropriate	route.
course.	course.	
Cannot create the temporary route	Since XTD is too large,	Approximate own ship to
because the XTD exceed XTD MAX.	the temporary route	the planned route.
Move own ship toward the planned	could not be created.	
route.		
Cannot create the temporary route	Since own ship may	Re-select TO-WPT.
because own ship may pass through	pass through the WOL,	
the WOL. Select the TO-Waypoint	the temporary route	
again.	could not be created.	
Cannot create the temporary route	Since own ship may	Re-select TO-WPT.
because own ship may pass through	pass through the	
the planned route leg. Select the	planned route, the	
TO-Waypoint again.	temporary route could	
	not be created.	

Memo

Even if the predicted route creation starting condition processing fails, the predicted route is drawn.

10.4 Starting Automatic Sailing

If your ship has reached a veering circle during the automatic navigation, make sure that the safety check and veering operation are made by the ship operator himself.

If veering operation is not made, regression bearing will be maintained without veering. This may cause an accident.



Input the ship's parameter accurately according to the specification of the ship.

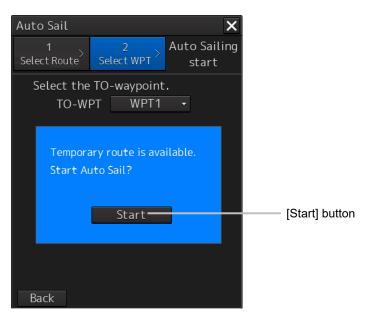
Otherwise, accidents may result.



Do not neglect confirmation of the position and the bearing of own ship during sailing regardless of whether automatic sailing is set to ON or OFF.

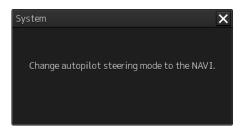
Otherwise, an accident may occur.

1 Click on the [Start] button of Procedure tab 2.



The [Auto Sail] dialog box is closed and the Autopilot steering mode switching message is displayed.

Switch the Autopilot steering mode to the NAVI mode.



The selected planned route is displayed on the chart and the [Voyage Information] dialog is displayed.

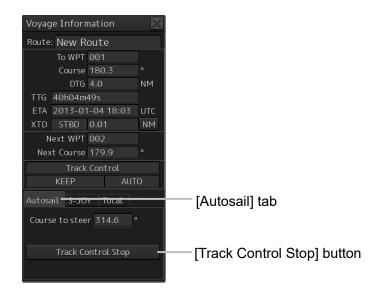
When the [Route Planning] dialog box is opened during automatic sailing, the [Auto Sailing] (during automatic sailing) indicator is displayed on the tab of the planned route that is currently used.

	lanning Open Save 🝷	Edit 🔹 <	<u>.</u>		301	3	Show Ra	oute Che	ck							
ito Sailini D-9																
nært	Comme Delete	ent														
Р					Leg				Arrival		Plan					
ło	Name								Radius	Radius						
2		32°14.789'S	61°29.028'E										2014-02-07 02:17	00:00		
		32°14.368'S	61°32.295'E	081.4°	2.8NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:25	00:00		
2		32°14.783'S	61°33.781'E	108.2°	1.3NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:29	00:00	00 Days 00:03	
		32°15.612'S	61°35.333'E	122.2°	1.6NM		0.20NM	0.20NM	0.50NM	0.50NM	20.0kn		2014-02-07 02:34	00:00		
		32°16.498'S	61°36.789'E	125.6°	1.5NM	RL	0.20NM	0.20NM	0.50NM	0.50NM	20.0kn	38.2°/min	2014-02-07 02:39	00:00	00 Days 00:04	
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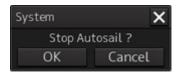
[Auto Sailing] indicator

10.5 Stopping Automatic Sailing

1 Click on the [Autosail] tab of the [Voyage Information] dialog and click on the [Track Control Stop] button.



The automatic sailing stopping confirmation dialog box appears.



2 Click on the [OK] button.

Automatic sailing stops.

By the auto pilot that is installed, the auto pilot steering mode switching confirmation dialog is displayed or the mode is automatically changed to another steering mode. For the details, refer to the Auto Pilot Instruction Manual.

10.6 Alerts at Automatic Sailing

The following sailing monitoring alerts may occur during automatic sailing.

Туре	Occurring condition	Automatic sailing	Countermeasure
Course difference(heading deviates from track course)	The difference between the ship's heading and the leg bearing during sailing exceeded the limit value.	Can be continued	-
Cross Track	Own ship exceeded the set route width.	Can be continued	-
Heading(Sensor Failure)	An error occurred in the gyro compass.	Stops	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous steering angle is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
POSN1(Sensor Failure)	An error occurred in the primary position.	Performs dead reckoning for 10 minutes and stops automatic navigation	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details,
Speed(Sensor Failure)	An error occurred in the ship speed through water sensor.	Stops after performing automatic navigation for 10 minutes	refer to the Autopilot Instruction Manual.)
Position Monitor	The system position jumped exceeding the limit value.	Can be continued	-
ACCA	30 seconds prior to the arrival at WOL	Can be continued	-
End Of Track	1 to 5 minutes prior to the arrival at the destination while sailing the final leg	Stops automatic navigation after passing the final destination	After passing the final destination, change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
Low Speed	The ship speed through water dropped below the set value.	Can be continued	-

Туре	Occurring condition	Automatic sailing	Countermeasure
Autopilot(Unavaila ble) Autopilot(Commun ication Failed, Main LAN)	A communication error occurred between Autopilot and ECDIS.	Stops	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
	An Autopilot error occurred.		Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous steering angel is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
Track Control Stopped	After continuing 10 minutes of DR sailing following POSN1 (Sensor Failure)	Performs dead reckoning for 10 minutes and stops automatic navigation	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details,
	Speed (Sensor Failure) occurred.	Stops after performing automatic navigation for 10 minutes	refer to the Autopilot Instruction Manual.)
	Heading (Sensor Failure) occurred.	Stops	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous steering angle is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
	A communication error occurred between Autopilot and ECDIS and Autopilot(Unavailable), Autopilot(Communication Failed, Main LAN) occurred.	Stops	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
	An Autopilot failure occurred and Autopilot(Unavailable), Autopilot(Communication Failed, Main LAN) occurred.	Stops	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous steering angle is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)

Туре	Occurring condition	Automatic sailing	Countermeasure
ACCA(Back-up Navigator Call)	An ACC alarm was not acknowledged for 30 seconds.	Can be continued	-
End Of Track (Back-up Navigator Call)	An End of Track alarm was not acknowledged for 30 seconds.	Stops automatic navigation after passing the final destination	After passing the final destination, change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
Track Control Stopped(Back-up Navigator Call)	A Track Control Stopped alarm was not acknowledged for 30 seconds.	Stops	Varies depending on the occurrence condition. Refer to Track Control Stopped.
Heading(Sensor Failure, Back-up Navigator Call)	A Heading(Sensor Failure) alarm was not acknowledged for 30 seconds.	Stops	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous steering angle is retained for Autopilot. (For the details, refer to the Autopilot Instruction Manual.)
POSN1(Sensor Failure, Back-up Navigator Call)	A POSN1(Sensor Failure) alarm was not acknowledged for 30 seconds.	Performs dead reckoning for 10 minutes and stops automatic navigation.	Change the steering mode of Autopilot to AUTO or HAND. If no change is made, the previous course is retained for Autopilot. (For the details,
Speed(Sensor Failure, Back-up Navigator Call)	A Speed(Sensor Failure) alarm was not acknowledged for 30 seconds.	Stops after performing automatic navigation for 10 minutes.	refer to the Autopilot Instruction Manual.)
Position was outside of expected area even after time limit.	The position of GPS was outside of the expected area even after the time limit.	Stop	Change the auto pilot steering mode to Manual.
Track Control stopped. Change autopilot steering mode to the Manual.			

Section 11 Operating a Chart

Use the [Chart] menu for chart operations.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed
- 2 Click on the [Chart] button on the menu.



The submenu is displayed.

	Menu > Chart	>		1/1 🗙
^	🛱 Manual Update	的 My Port List	🛱 Select S-57 Chart	的 Cff Center by Entering Position
-	🛱 Accept S-57 Updates	的 Date-dependent View	🛱 Chart Boundary	的 Chart Abbreviation

It is possible using the page switching buttons to switch to the first page and the second page of the submenu screen.

Click each button of the submenu screen to display the relevant function dialog.

Button name	Function	Related section
	First p	age
Manual Update	Updates a chart manually	11.1 Updating a Chart Manually
My Port List	Operates a port name list	6.7 My Port List
Select S-57 Chart	Selects an S-57 chart	11.2 Displaying/Searching an S-57 Chart [Select S-57 Chart]
Off Center by Entering Position	Moves the display center	11.3 Displaying a Chart by Inputting a Position
Accept S-57 Updates	Accepts the updated S-57 chart	11.4 Confirming/Accepting an S-57 Updated Chart
Date-dependent View	Displays a date-dependent object	11.5 Displaying a Date-dependent Object
Chart Boundary	Displays a chart boundary	11.6 Displaying a Chart Boundary
Chart Abbreviation	Chart abbreviation	11.9 Displaying a Chart Abbreviation List

Button name	Function	Related section
	Second	page
T & P (ARCS)	Enables verification of temporary/preliminary information of the ARCS chart	11.7 Confirming Temporary/Preliminary Information of an ARCS Chart (ARCS Only)
Datum Offset (ARCS)	Offsets ARCS chart data	11.8 Adjusting an ARCS Chart Position (ARCS Only)
Datum Transformation (ARCS)	Transforms any position of the ARCS chart and geodetic datum of the own ship's position to those of the WGS-84	11.8.2 Transforming a geodetic datum of an ARCS chart to WGS-84
Check Applied	Displays update data	11.10 Displaying update data of the
C-MAP Updates	of the C-MAP chart.	C-MAP chart
Show C-MAP	Displays C-MAP	11.11 Displaying license information of
Licence Information	license information.	C-MAP

11.1 Updating a Chart Manually

The chart can be updated manually by selecting [Chart] - [Manual Update] (chart manual update) on the menu.

For the details of manual update of a chart, refer to "12.3 Updating a Chart Manually".

11.2 Displaying/Searching an S-57 Chart [Select S-57 Chart]

11.2.1 Displaying a chart

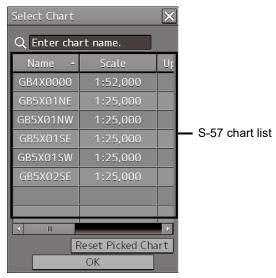
Select S-57 Chart enables selection and display of any chart.

1 Click on the [Menu] button on the left toolbar.

The menu is displayed

2 Click on the [Chart] - [Select S-57 Chart] on the menu.

The [Select Chart] dialog box appears.



An S-57 chart list contains chart names (Name), original scales (Scale), Updating numbers (Up No.), issuing dates (Issue date), last update dates (Last Update), and update acceptance statuses (Accepted, Yes: Accepted/No: Not accepted).

3 Click on the line of the chart to be displayed from the S-57 chart list. The chart is selected.

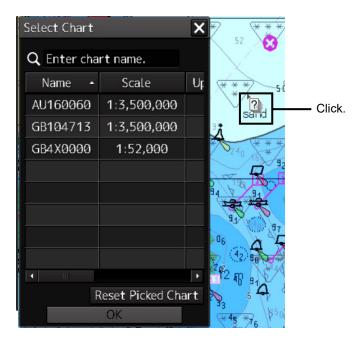
4 Click on the [OK] button.

The selected chart is displayed on the screen.

11.2.2 Search a chart

11.2.2.1 Searching the position that is clicked on by the cursor

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed
- 2 Click on the [Chart] [Select S-57 Chart] on the menu. The [Select Chart] dialog box appears.
- 3 Move the cursor to the position to be searched and click the mouse button. The chart that is set at the position specified by clicking the mouse button is displayed in the S-57 chart list.



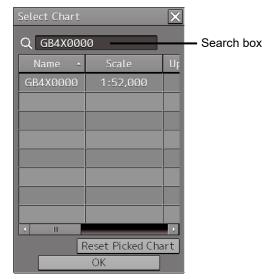
Clearing search results

Click on the [Reset Picked Chart] (chart selection reset) button.

11.2.2.2 Searching by using a chart name

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed
- 2 Click on the [Chart] [Select S-57 Chart] on the menu. The [Select Chart] dialog box appears.

3 Enter a chart name in the search box



The chart is displayed.

Clearing search results

Clear by using the [DEL] key on the software keyboard.

11.3 Displaying a Chart by Inputting a Position

By inputting a position, the chart of the position that was input can be displayed.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed
- **2** Click on the [Chart] [Off Center by Entering Position] on the menu. The [Off Center by Entering Position] dialog box appears.



- **3** Enter a position of the chart to be displayed in the latitude/longitude input box.
- 4 Click on the [Jump to the following position] button. The chart of the specified position is displayed.

11.4 Confirming/Accepting an S-57 Updated Chart

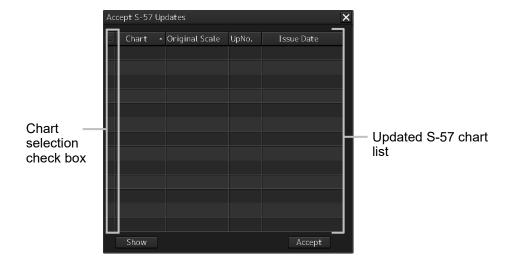
The update contents of an S-57 updated chart can be confirmed.

By accepting an updated chart, the updated chart can be integrated into the original chart.

Note

Check that the display category of the chart is [Standard] or [All]. When the display category is set to [Base], the updated chart may not be displayed.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Chart] [Accept S-57 Updates] on the menu.



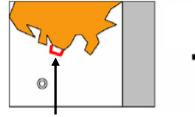
The [Accept S-57 Updates] dialog box appears.

3 To confirm the update contents of the updated chart, select the check box of the chart and click on the [Show] (display) button.

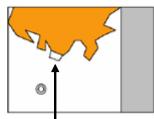
The selected updated chart is displayed. The updated chart is displayed on the original chart in red.

4 Click on the [Accept] button to accept the updated chart.

The updated chart is integrated into the original chart.



Clicking on the [Show] button: The updated chart that overlaps the original chart is displayed in red.



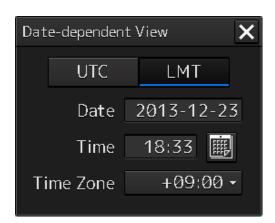
Clicking on the [Accept] button: The object is approved and is displayed in the same color as for the original chart.

11.5 Displaying a Date-dependent Object

A chart object of the specified date and time can be displayed.

For instance, it is possible to display a date-dependent chart such as displaying a chart at the arrival time of the arrival schedule at the navigation planning.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed
- 2 Click on the [Chart] [Date-dependent View] on the menu. The [Date-dependent View] dialog box appears.



- **3** Set the [UTC] (Universal Time Coordinated) button or [LMT] (Local Mean Time) button to On by clicking on the button.
- 4 Enter a date in the [Date] input box within the range from 1980-01-01 to 2099-12-31.
- 5 Enter a time (24-hour system) in the [Time] input box.
- **6** When [LMT] is set to On in Step 3, enter a time difference in [Time Zone] box within the range from -13:30 to +13:30.

The object displayed on the chart is updated when information is input in any of the steps from Step 4 to Step 6.

7 Close the [Date-dependent View] dialog box. The current time is displayed on the chart again.

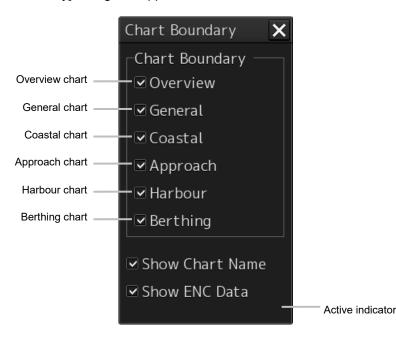
11.6 Displaying a Chart Boundary

The boundary of the chart on the position on which the button was clicked is displayed.

11.6.1 Setting a boundary to be displayed on the chart

A chart boundary can be displayed.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Chart] [Chart Boundary] on the menu. The [Chart Boundary] dialog box appears.



- **3** Select the chart whose boundary is to be displayed among the [Chart Boundary] check boxes.
- 4 To display the chart name in addition to the boundary, select [Show Chart Name].
- **5** To display ordinary chart information in addition to the boundary, select [Show ENC Data] (displaying chart information).

When this item is not selected, the background chart is displayed.

Memo

While C-MAP is displayed, [Show ENC Data] is not displayed.

Active indicator (

Although the operation of each check box is enabled while the active indicator is displayed, a chart boundary line is not displayed.

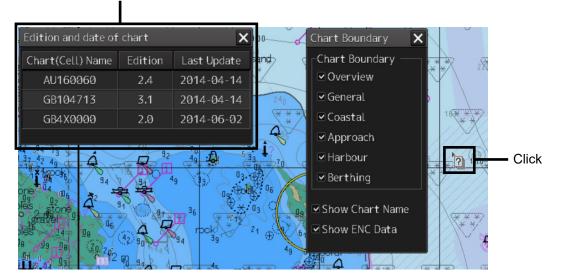
When the active indicator is hidden, a boundary line is displayed.

11.6.2 Displaying chart information

When the chart is clicked on while the [Chart Boundary] dialog box is displayed, the chart information on the location that was clicked on is displayed in "Edition and date of chart".

Memo

"Edition and date of chart" is not displayed while the active indicator is displayed in the [Chart Boundary] dialog box even if the chart is clicked on.



Information of the chart of the location that was clicked on

11.7 Confirming Temporary/Preliminary Information of an ARCS Chart (ARCS Only)

Temporary/preliminary information (T&P: Temporary and Preliminary Notices) of an ARCS chart can be confirmed.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Chart] [T&P] on the menu. The [T&P] dialog box appears.

T&P	 ×
Number	

3 Click on the number whose contents are to be confirmed on the [Number] list. The temporary/preliminary information of the chart of the specified number is displayed on the right side.

T&P		×
Number 14_00075 14_00899	75(T)/2014 NORTH ATLANTIC OCEAN - SOUTH ATLANTIC OCEAN - INDIAN OCEAN - NORTH PACIFIC OCEAN - Data buoys. Source: NOAA	
	1. The National Oceanic and Atmospheric Administration (NOAA) maintains an array of buoys called Autonomous Temperature Line Acquisition System (ATLAS) in the operatorial series of the Atlantic Ocean	×

The list can be sorted by clicking on any item of the title column.

Note

Temporary/preliminary information is included in the ARCS chart itself. Since the information may not be included depending on the chart, the information may not be displayed.

11.8 Adjusting an ARCS Chart Position (ARCS Only)

Note

Adjust the offet only when the geodetic datum of the chart is a local geodetic datum and the display position is not adjusted correctly.

11.8.1 Offsetting an ARCS chart

Move the chart by entering offset values (latitude and longitude) or using the cursor.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Chart] [Datum Offset] (geodetic offset) on the menu. The [Datum Offset] (geodetic offset) dialog box appears.

Datum Offset	×
Offset by Cursor	
Clear Offset	
Offset 0°00.000'	N
0°00.000'	E

When the previous setting values are displayed in the [Off set] box, the values can be cleared by clicking on the [Clear Offset] button.

To set offset of a chart, use the cursor or enter offset values.

Offsetting a chart with the cursor

1 Click on the [Offset by Cursor] button.

The button display changes to On and the offset function is enabled.

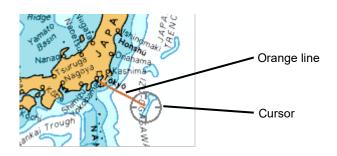
Offset by Cursor

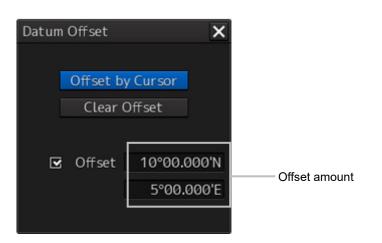
2 Set the cursor to the reference point and click the mouse button.

To clear the offset values, set the button to Off by clicking on the [Offset by Cursor] button.

3 Place the cursor on the offset position and click the mouse button.

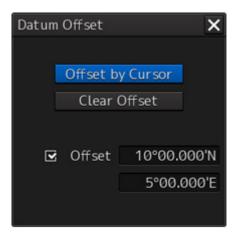
The reference point moves to the offset position. A check mark (🕑) is displayed on the [Offset] display (start of offset).





Offsetting a chart by entering an offset value

1 Enter offset values (latitude/longitude) in the [Offset] box.



The chart is offset.

11.8.2 Transforming a geodetic datum of an ARCS chart to WGS-84

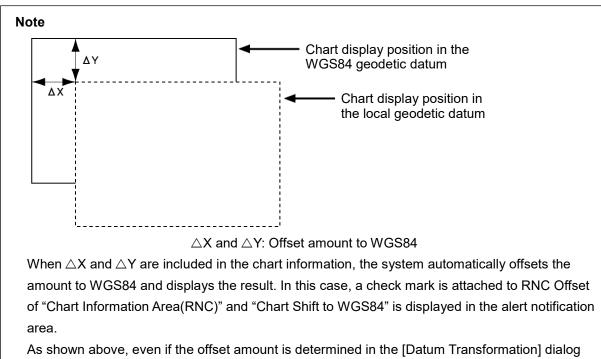
A geodetic datum of an ARCS chart can be transformed to WGS-84 based on any position and the own ship's position.

1 Click on the [Menu] button on the left toolbar. The menu is displayed.

2 Click on the [Chart] - [Datum Transformation] (geodetic datum transformation) on the menu.

The [Datum Transformation] (geodetic datum transformation) dialog box appears.

Datum Transformation	×
Geodetic Datum	
From 🔹	
To WGS84	
Reference Position	
Position 0°00.000'N	
0°00.000'E	
Ship Position by Cursor	
Chart Shift	
Reference Position	
Position 0°00.000'N	
0°00.000'E	
Shifted Position	
Position 0°00.000'N	
0°00.000'E	



box for the chart that is displayed under WGS-84 and the [OK] button is clicked on, this function is disabled and the message, "The Datum is already WGS-84", is displayed.

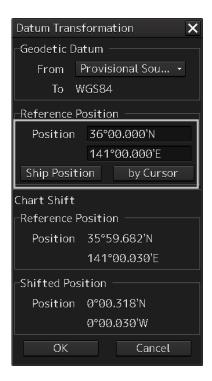
3 Select a geodetic system from the [From] combo box of [Geodetic Datum].

Datum Transformation		
Geodetic Datum		
From	Provis	ional Sou 🝷
To WGS84		
Reference Position		
Position	0°00	.000'N
	0°00	.000'E
Ship Position by Cursor		
Chart Shift		
Reference P	ositio	n
Position	0°00	.204'S
	0°00	.094'E
Shifted Pos	ition	
Position	0°00	.204'N
	0°00	.094'W
ОК		Cancel

Memo

For the geodetic datum that is displayed in the [From] combo box, refer to "D.3 Geodetic datum abbreviations". However, "No Use" in No.9, No.10, No.48 and No.49 is not displayed.

4 Enter a latitude and a longitude in the [Position] input boxes of [Reference Position].



I

11

When the [Ship Position] button is clicked on, the latitude and the longitude of the own ship's position is displayed in the [Position] input boxes.

When the [by Cursor] button is clicked on, the cursor changes to the offset cursor. When the mouse button is clicked on the chart, the latitude and longitude of the point on which the mouse button was clicked is displayed in the input boxes.

Information after transformation is displayed on [Chart Shift].

Datum Transformation		
-Geodetic D	atum ————	
From	Provisional Sou 🝷	
То	WGS84	
Reference	Position	
Position	53°36.916'N	
	130°40.572'E	
Ship Posi	tion by Cursor	
Chart Shift	:	
Reference	Position ———	
Position	53°36.610'N	
	130°40.667'E	
-Shifted Pa		
	sition —	

The position shifted after geodetic datum transformation is displayed in [Reference]. The offset amount after geodetic datum transformation is displayed in [Shifted Position].

5 Click on the [OK] button.

The transformation is determined.

11.9 Displaying a Chart Abbreviation List

A list describing chart abbreviations can be displayed.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Chart] [Chart Abbreviation] on the menu. The [Chart Abbreviation] dialog box appears.

Chart Abbre	eviation		×
+ + IP Light			
┙	Light Fixed Occulting Isophase Flashing Long-flashing Quick Interrupted quick Very quick Interrupted very quick Ultra quick Interrupted ultra quick Morse Code Alternationg White Red Green Blue Violet Yellow/Orange/Amber	IP 1 IP 10.1 IP 10.2 IP 10.3 IP 10.4 IP 10.5 IP 10.6 IP 10.6 IP 10.7 IP 10.7 IP 10.8 IP 10.8 IP 10.9 IP 10.9 IP 10.9 IP 10.9 IP 11.1 IP 11.1 IP 11.2 IP 11.3 IP 11.4 IP 11.5 IP 11.6–11.8	

11

11.10 Displaying update data of the C-MAP chart

Update data of the C-MAP chart can be displayed.

- 1 Click on the [Menu] button on the Left Tool Bar. A menu is displayed.
- 2 Click on [Chart]-[Check Applied C-MAP Updates](C-MAP update confirmation) on the menu.

The [Check Applied C-MAP Updates] (C-MAP update confirmation) dialog is displayed.

Check Applied	C-MAP Updates		>	<
Chart 🔺	Original Scale	UpNo.	Issue Date	
AR201140	1:350,000	18	2015-08-31 00:00	
AR202100	1:350,000	9	2015-06-24 00:00	
AR203100	1:350,000	12	2015-09-01 00:00	
AR203170	1:350,000	3	2015-09-01 00:00	
AR204130	1:350,000	1	2015-09-01 00:00	
AR204160	1:350,000	13	2015-09-01 00:00	C-MAP chart list
AR301150	1:90,000	6	2015-06-24 00:00	
AR302120	1:90,000	2	2015-06-24 00:00	
AR302170	1:90,000	2	2015-06-24 00:00	
AR302180	1:90,000	5	2015-09-01 00:00	
AR304240	1:90,000	12	2015-09-01 00:00	
AR304250	1:90,000	6	2015-09-01 00:00	
AR401560	1:22,000	3	2015-03-02 00:00	•
Show			••• •	—— Active indicator

[Show] button

The C-MAP chart list includes Chart (chart name), Original Scale, Up No. (update number), Issue Date, Last Update (chart update date), and Accepted (update approval status).

For the Last Update, the same date as the Issue Date is displayed and Accepted is fixed to [Yes] display.

Memo

The C-MAP chart list is not displayed while the active indicator is displayed. Only the moving of the [Check Applied C-MAP Updates] dialog and Close operation are enabled. When the C-MAP chart list is displayed, the active indicator is hidden.

3 Click on the row of the chart to be displayed from the C-MAP chart list. The chart is selected.

4 Click on the [Show] button.

The selected chart is displayed at the center of the screen and a red line is displayed at the cell boundary.

The updated object is displayed in highlight mode.

5 Close the [Check Applied C-MAP Updates] dialog.

The red line at the cell boundary is cleared and the highlighted display of the updated object also terminates.

11.11 Displaying license information of C-MAP

C-MAP license information can be displayed on a popup window of the RADAR and ECDIS screens.

11.11.1 Setting license information display to ON

- 1 Click on the [Menu] button of the Left Tool Bar. A menu is displayed.
- 2 Click on [Chart]-[Show C-MAP License Information] (C-MAP license information display) on the menu.

A license information display turned on and a popup window indicating C-MAP license information of C-MAP is displayed.

For the details, refer to "11.11.2 C-MAP license information".

11.11.2 C-MAP license information

11.11.2.1 License information display timing

When license information display is set to ON, the C-MAP license status is checked at the following timing and related information is displayed on a popup window of the RADAR or ECDIS screen.

Timing	Operation
[Chart]-[Show C-MAP License	Always a popup window is displayed.
Information] are selected on the	The static license is displayed.
menu.	The dynamic license is displayed if it has been
	activated.
The RADAR/ECDIS task is	When Chart Type of [View1] or [Vew2] is set to
started.	C-MAP3 on the [View Options] dialog that is displayed
	by selecting [View]-[Options]-[Chart View] on the
	menu, a popup window is displayed if the condition is satisfied.
	Although the static license is displayed, it is not
	displayed if there is ample time until the expiration of
	the static license.
	The dynamic license is displayed if it has been
	activated.
The date of the UTC time is	When Chart Type of [View1] or [Vew2] is set to
changed while the	C-MAP3 on the [View Options] dialog that is displayed
RADAR/ECDIS task is active.	by selecting [View]-[Options]-[Chart View]on the
	menu, a popup window is displayed if the condition is
	satisfied.
	Although the static license is displayed, it is not
	displayed if there is ample time until the expiration of
	the static license.
	The dynamic license is displayed if it has been
	activated.
The Chart Type setting of	When Chart Type is changed to C-MAP3 from any
[View1] or [View2] is changed in	other types, a popup window is displayed when the
the [View-Options] dialog by	condition is satisfied.
selecting [View]-[Options]-[Chart	Although the static license is displayed, it is not
View] in the menu	displayed if there is ample time until the expiration of
	the static license.
	The dynamic license is not displayed.

How to read the popup display

See below for an example of a popup window that indicates C-MAP license information and how to read the information.

System 🗙	[6]
Licence : Static Licencing DatabaseName : Professional+ Information : One or more licences will expire at 2016-04-01.	[1] [2] [3]
Licence : Dynamic Licencing DatabaseName : ENC,JeppesenPRIMER Information : The period of next reporting chart usage to Jeppesen Marine is	[4]
2014-03-27 Please update charts for reporting chart usage before the period. The remaining credit is 1000.	[+]
Close	

[1] License format

Static Licensing:Static licenseDynamic Licensing:Dynamic license

[2] Database name

[3] License information

Refer to "11.11.2.2 License information".

[4] Reporting expiration date

[5] Remaining number of credits

[6] [×](Close) button

Click on this button to close the popup window.

11.11.2.2 License information

The following information is displayed in a popup window of the C-MAP license information.

License status	Information that is displayed
The dynamic license has	The period of next reporting chart usage to Jeppesen Marine is
been activated.	[Reporting expiration date].
	Please update charts for reporting chart usage before the period.
	The remaining credit is [Remaining number of credits].
The dynamic license	The period of next reporting chart usage to Jeppesen Marine has
usage reporting has	expired.
expired.	You cannot access to new charts and non-reported charts.
	Please update charts for reporting chart usage.
	The remaining credit is [Remaining number of credits].
There is ample time until	One or more licences will expire at [Date].
the expiration of the static	
license.	
The static license will	One or more licences will expire at [Date].
expire within less than 2	Please contact your Jeppesen Marine agent for a licence
months.	renewal.
The static license has	One or more licences expired.
expired.	Please contact your Jeppesen Marine agent for a licence
	renewal.
The license has not been	No licence installed.
imported.	

11.12 Displaying differences at chart update

11.12.1 Displaying differences at S-57 chart update

When the S-57 chart is updated, only the latest object of the last Update No. is displayed in highlight mode.

Until the update is approved, the chart of the previous Update No. is displayed in the usual color and the updated object of the last Update No. is displayed by overlaying in highlight mode. When the update is approved, the highlighted display is cancelled.

Post-approval Pre-approval drawing pattern Update content drawing pattern Addition When highlighted display of update is set to • Only the added ON, the shape of the object that is added is object is drawn. drawn in red only. When the highlighted display of update is set to • OFF, the object is not drawn since an object does not exist before the update. Deletion • When highlighted display of update is set to Deleted objects are ON, the shape of the object prior to deletion is not drawn. drawn in red only. When highlighted display of update is set to OFF, only the object prior to deletion is drawn in the same position. Change • When highlighted display of update is set to Only the object after ON, the shape of the object after the change is the change is drawn in red only. drawn. When highlighted display of update is set to OFF, only the object prior to the change is drawn.

The following table shows the drawing patterns of pre-approval and post-approval for each update content.

11.12.2 Displaying differences at C-MAP chart update

When the C-MAP chart is updated, only the updated object of the last Update No. is displayed in highlight mode.

Since update approval operation is not available for the C-MAP chart, the update object of the last Update No. is displayed in the usual color immediately after the update.

However, when the [Check Applied C-MAP Updates] dialog is displayed, a highlighted display mark is displayed overlaying the updated object only for the cell that is selected on the screen.

The following table shows the drawing patterns at the usual state and the drawing patterns of the chart that is selected in the [Check Applied C-MAP Updates] dialog for each update content.

Update content	Drawing patterns at usual state	Drawing patterns of the chart that is selected in [Check Applied C-MAP Updates] dialog
Addition	Only the added object is	The added object is drawn and highlighted
	drawn.	display is overlaid on the object.
Deletion	The deleted object is not	The deleted object is not drawn and only
	drawn.	highlighted display is drawn at the position of
		the object.
Change	Only the changed object	The changed object is drawn and highlighted
	is drawn.	display is drawn over the object.

11.13 Chart pick report

For the S-57 chart, when an object is clicked on, the pick cursor is displayed on the clicked position and the [Chart Information] dialog is displayed.

Memo

The pick cursor is a square frame that is displayed at the spot where the chart information is read and the information on the chart object that exists in the frame is displayed in the [Chart Information] dialog.

When the object is a symbol or a spot depth, the object itself is not displayed in highlight mode.

For a C-MAP chart, a pick cursor is not displayed.

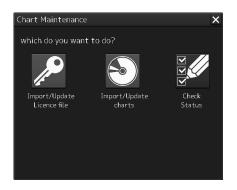
11.14 Maintaining a Chart

Use the Chart Maintenance menu for management of chart data.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- **2** Change over to the second page using the page switching button, and click the [Chart Maintenance] button.



The [Chart Maintenance] dialog box appears.



Three icons are assigned in the [Chart Maintenance] dialog box. Only the Check Status icon can be clicked.

Click on the Check Status icon when checking the status of the chart.

Memo

Operate "Import/Update Licence file" and "Import/Update charts" dialogs by clicking from the [Chart Maintenance] dialog box started in the task menu.

Icon	Operation
Import/Update Licence file	Imports/updates the Licence file for importing a chart.
Import/Update charts	Imports/updates chart data.
Check Status	Checks chart status.

For the operation of the Chart Maintenance menu, refer to a separate manual, "Additional Instruction Manual for Introducing Chart".

Section 12 Creating a User Map/ **Updating a Chart Manually**

This section describes the procedures for creating a user map and updating a chart manually.

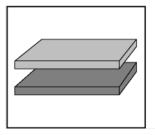
User map

A user specific map can be created by drawing various objects (symbol, line, area, and text) that are not displayed on the existing chart. The created user map can also be updated by editing.

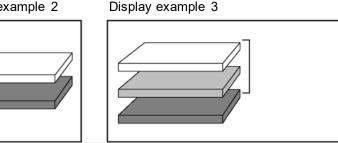
A user map can be displayed by overlapping on a chart. A user map can be created by merging two user maps.

The following diagrams show how to use user maps.

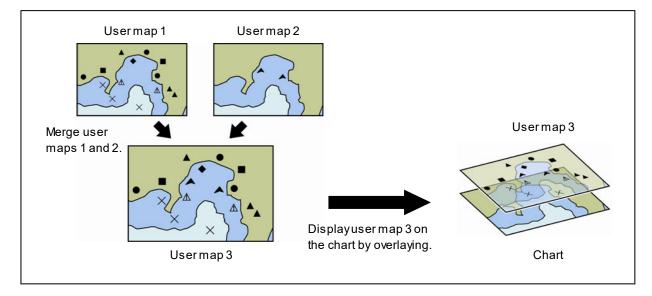
Display example 1



Display example 2



Example: User maps 1 and 2 are merged and displayed on a chart by overlaying.



Manual Update

A chart can be updated manually by creating objects (symbols, lines, areas, and texts) on the specifying chart.

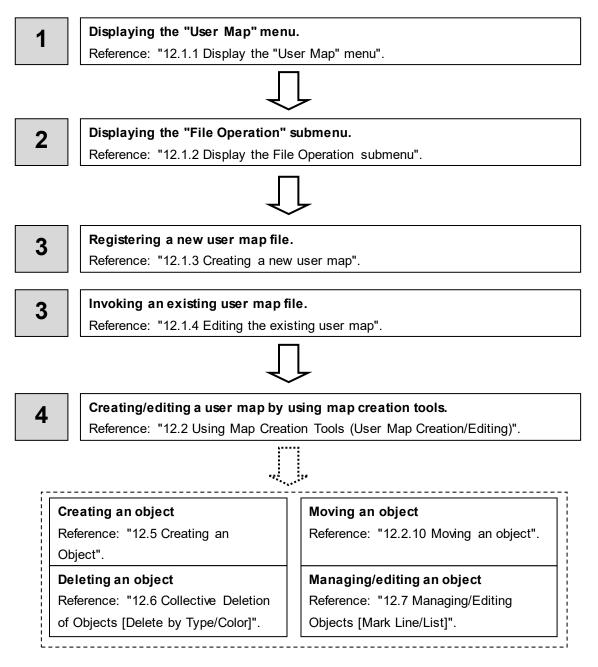
In the manually updated chart, objects are linked to the chart itself, unlike user maps. Therefore,

although the manually updated objects can be hidden, they cannot be deleted easily.

For the details of hiding objects, refer to "12.4.1 Deleting or hiding an object".

12.1 Creating/Editing a User Map

Use the following procedure to create/edit a user map.



12.1.1 Display the "User Map" menu

When creating/editing a user map, use the "User Map" menu.

1 Click on the [Menu] button on the left toolbar.

The menu is displayed.

2 Click on the [User Map] button on the menu.

The submenu is displayed.

Menu > User Map) >		1/1 🗙
► Z File Operation	Σ⋬ Mark/Line List	∑ € Delete by Type/Color	

The User Map menu comprises the following submenus.

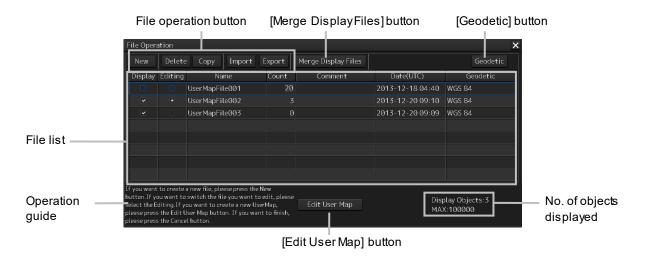
Submenu	Function
File Operation	 Managing user map files (new creation, loading, copying, deletion, import/export, geodetic conversion) Displaying/editing a user map Merging user map files Refer to "12.1.6 Operating a user map file".
Delete by Type/Color	Deleting objects collectively Refer to "12.6 Collective Deletion of Objects [Delete by Type/Color]".
Mark Line/List	Managing/editing objects Refer to "12.7 Managing/Editing Objects [Mark Line/List]".

12.1.2 Display the File Operation submenu

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [User Map] button on the menu.
- **3** Click on the [File Operation] button on the submenu. The [File Operation] operation dialog box appears.

12.1.2.1 [File Operation] dialog box

Manage the file at user map creation and display and edit the user map on the [File Operation] dialog box.



The user map files that are currently saved are displayed in the file list.

The number of objects that are displayed is indicated at the bottom right corner of the dialog.

File list

Up to 500 user map files (.uchm) can be registered in a file list. The following information is displayed for the user map files that are currently saved.

ltem	Information
[Name]	Indicates the name of the user map file (up to 64 characters). The name can be changed by clicking on the name in the list.
[Count]	Indicates the total number of objects that are registered in the user map file.
[Comment]	Indicates the comment on the user map file (up to 64 characters). The comment can be changed by clicking on the comment in the list.
[Date]	Last update date of the user map file
[Geodetic]	Displays the geodetic datum of the user map file. To change the geodetic datum, refer to "12.1.6.6 Performing geodetic datum conversion".
[Display]	The [Display] check box is checked for the user map file that is displayed. For the method of using the [Display] check box, refer to "12.1.5 Displaying a user map".
[Editing]	The [Editing] button is set to ON for the user map file that is being created or edited. For the method of using the [Editing] button, refer to "12.1.4 Editing the existing user map".

File operation buttons

Button name	Function
[New]	Creates a new user map file. For the details, refer to "12.1.3 Creating a new user map".
[Delete]	Deletes a user map file. For the details, refer to "12.1.6.1 Deleting a user map file".
[Copy]	Copies a user map file For the details, refer to "12.1.6.2 Copying a user map file".
[Import]	Imports a user map file from an external medium. For the details, refer to "12.1.6.3 Importing a user map file".
[Export]	Exports the user map that was created to an external medium. For the details, refer to "12.1.6.4 Exporting a user map file".

[Merge Display Files] button

This button merges the selected user map files.

For the details, refer to "12.1.6.5 Merging multiple user map files".

[Geodetic] button

This button selects the geodetic datum of the user map file. For the details, refer to "12.1.6.6 Performing geodetic datum conversion".

[Edit User Map] button

This button edits the existing user map file. For the details, refer to "12.1.4 Editing the existing user map".

12.1.3 Creating a new user map

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [User Map] button on the menu.
- **3** Click on the [File Operation] button on the submenu. The [File Operation] operation dialog box appears.

[New] button

Ne₩	Delete	Сору	Import	Export	Merge Display Files		Geodetic
Display	Editing	Na	me	Count	Comment	Date(UTC)	Geodetic
		UserMapFil	le001			2013-12-18 04:40	WGS 84
		UserMapFil	le002			2013-12-20 09:10	₩GS 84
		UserMapFil	le003			2013-12-20 09:09	₩GS 84
, tton.If yo .ect the E ase press	ou want to diting.If yo	switch the fil ou want to cre ser Map butti	ase press the l e you want to eate a new Use on. If you wan	edit, please rMap,	Edit User Map		alay Objects:3 {:100000

[Edit User Map] button

4 Click on the [New] button.

The new user map file is registered in the file list.

The file name can be changed by clicking on the file name that is displayed in the [Name] column in the file list.

5 Click on the [Edit User Map] button in the [File Operation] dialog box.

The map creation tool is displayed.

Create or edit the user map by using the map creation tool. (Refer to "12.2 Using Map Creation Tools (User Map Creation/Editing)".)

12.1.4 Editing the existing user map

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [User Map] button on the menu.
- **3** Click on the [File Operation] button on the submenu.

The [File Operation] operation dialog box appears.

						File	list	
ile Opera	ation							
	Delete	Сору	Import	Export	Merge Display Files			Geodetic
Display	Editing	Na	me	Count	Comment		Date(UTC)	Geodetic
	0	UserMapFi	le001			201	3-12-18 04:40	WGS 84
~	•	UserMapFi	le002			201	3-12-20 09:10	WGS 84
•	0	UserMapFi	le003			201	3-12-20 09:09	WGS 84
utton. If yo elect the E lease press	ou want to: diting.If ye	ou want to cri ser Map butt	.e you want t eate a new U	:o edit, please serMap,	Edit User Map			olay Objects:3 X:100000

[Editing] button

[Edit User Map] button

4 Click on the [Editing] button of the user map file to be edited in the file list on the [File Operation] dialog.

The user map file to be edited is displayed.

5 Click on the [Edit User Map] button on the [File Operation] dialog box.

The map creation tools (drawing toolbar and the user map information bar) are displayed and the cursor changes from the cross-hair cursor to the mark cursor.

Edit the user map by using the map creation tools. (Refer to "12.2 Using Map Creation Tools (User Map Creation/Editing)".)

12.1.4.1 Editing the user map that is currently displayed

- **1** Display a user map. (Refer to "12.1.5 Displaying a user map".)
- 2 Click on the Write tool button on the left toolbar. Map creation tools (drawing toolbar and user map information bar) are displayed and the cursor changes to the mark cursor from the cross-hairs cursor.
- **3** Edit the user map by using the map creation tools. (Refer to "12.2 Using Map Creation Tools (User Map Creation/Editing)".)

4 To edit another user map, click on the [File Operation] dialog display button on the user map information bar. (Refer to "12.2 Using Map Creation Tools (User Map Creation/Editing)".)

The [File Operation] dialog box appears.

	File list								
File Opera	ation							×	
New	Delete	e Copy Import	Export	Merge Display Files			Geodetic		
Display	Editing	Name	Count	Comment		Date(UTC)	Geodetic		
	0	UserMapFile001	20		201	3-12-18 04:40	WGS 84		
	•	UserMapFile002			201	3-12-20 09:10	WGS 84		
	0	UserMapFile003			201	3-12-20 09:09	WGS 84		
	┯								
If you want	to create	a new file, please press the N	lew						
		switch the file you want to ou want to create a new Use		Edit User Map		Disp	olay Objects:3		
please press	the I dit l	Jser Map button. If you want				MAX	(:100000		
please press	s the Cance	el button.							
r= .1:	1 1 1 - 1	L 44		 4					
[Eai	[Editing] button [Edit User Map] button								

- . ..
- 5 Click on the [Editing] button of the user map file to be edited in the file list on the [File Operation] dialog box.

The selected user map is displayed.

12.1.5 Displaying a user map

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [User Map] button on the menu.
- **3** Click on the [File Operation] button on the submenu. The [File Operation] dialog box appears.

						File	list	
File Opera	tion							×
New	Delete	Сору	Import	Export	Merge Display Files			Geodetic
Display	Editing	Na	me	Count	Comment		Date(UTC)	Geodetic
		UserMapFil	le001			2013	3-12-18 04:40	WGS 84
		UserMapFil	le002			2013	3-12-20 09:10	WGS 84
		UserMapFil	le003			2013	3-12-20 09:09	WGS 84
╟┯┙								
button If yo select the E	ou want to diting.If yo the Edit U	switch the fil ou want to cre ser Map butto	ase press the l e you want to eate a new Use on. If you wan	edit, please erMap,	Edit User Map			olay Objects:3 K:100000

[Display] check box

4 Select the [Display] check box of the user map file to be displayed in the file list on the [File Operation] dialog box.

The selected user map is displayed.

12.1.6 Operating a user map file

Manage the file at user map creation, merge user maps, or select a geodetic datum on the [File Operation] dialog box.

12.1.6.1 Deleting a user map file

- 1 Click on the user map file to be deleted in the file list. The user map file is selected.
- 2 Click on the [Delete] button.

The selected user map file is deleted.

12.1.6.2 Copying a user map file

- 1 Click on the file to be copied in the file list. The user map file is selected.
- 2 Click on the [Copy] button.

The selected user map file is copied.

The copied file is named under "Copy of (copy source file name)".

Note

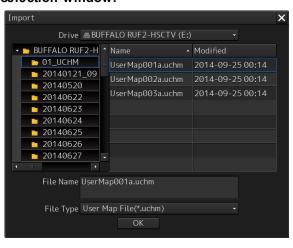
If the file name exceeds 64 characters including "Copy of", the file cannot be copied.

12.1.6.3 Importing a user map file

1 Click on the [Import] button.

A file selection window is displayed.

2 Select and import a user map file that is saved in the external medium on the file selection window.



Note

When sufficient free storage space is not available in the import destination, a message dialog box is displayed.

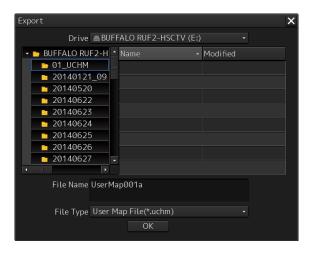
Change the import destination or import a file after securing sufficient free space.

12.1.6.4 Exporting a user map file

- 1 Click on the file to be exported from the file list.
- 2 Click on the [Export] button.

A file selection window is displayed.

3 Specify an export destination and export the selected file.



When the export destination contains a file of the same name, a message dialog box is displayed, prompting the verification of whether the existing file is to be overwritten. When exporting the file by overwriting the existing one, click on the [OK] button.

Note

When sufficient free storage space is not available in the export destination, a message dialog box is displayed.

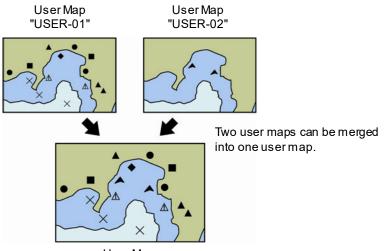
Change the export destination or import a file after securing sufficient free space.

12.1.6.5 Merging multiple user map files

1 Select the [Display] check boxes of the files to be merged in the file list. The user map files to be merged are displayed.

2 Click on the [Merge Display Files] button.

A user map file is created by merging the user maps that are being displayed. The user map file is named under "Merged User Map Filexxx" (xxx: serial number starting from 001).



User Map

12.1.6.6 Performing geodetic datum conversion

It is possible to use the preset datum or convert the datum by entering an offset value.

1 Click on the user map file whose geodetic datum is to be converted on the file list. The user map file is selected.

2 Click on the [Geodetic] button.

The [Geodetic Conversion] dialog box appears.

Geodetic
WGS 84
WGS 72
Tokyo
North American 1927(USA)
North American 1927(Cana 🖕

3 To use the preset geodetic datum, click on the [Select Geodetic] button and click on the geodetic datum on the list.

When entering an offset value, click on the [Enter Offset] button and enter a numeric value.

Note

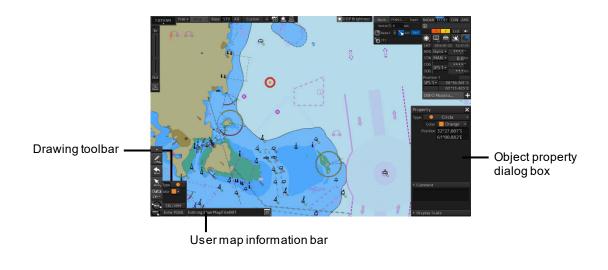
When [No Use] is selected on the [Select Geodetic] list, geodetic datum conversion is not performed.

4 Click on the [OK] button.

Geodetic datum conversion is executed based on the setting in Step 3.

12.2 Using Map Creation Tools (User Map Creation/Editing)

Use the map creation tools to create/edit a user map or update a chart manually. The following tools can be used for user map creation.



Note

The map creation tool configuration and functions vary depending on whether a chart is edited manually or a user map is created.

For the details, refer to "12.4 How to Use the Map Creation Tools (for Manual Update)"

12.2.1 User map information bar

The user map information bar is located at the bottom right corner of the screen and displays the user map name that is currently being created/edited.

The [File Operation] dialog box can be displayed by clicking on the [File Operation] dialog box display button.



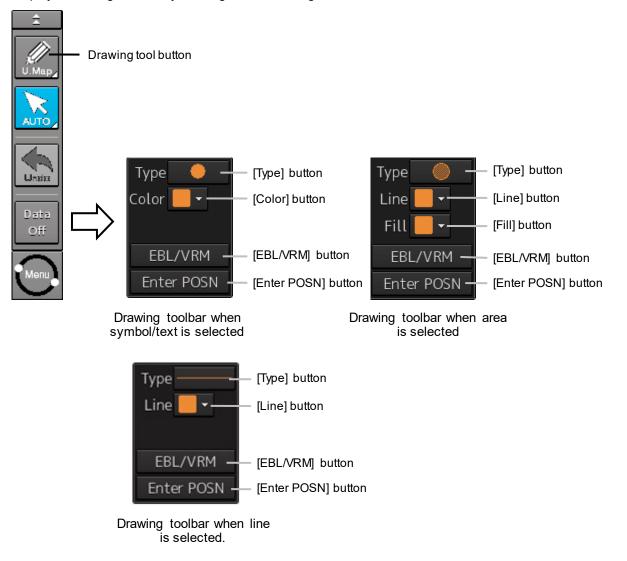
12.2.1.1 Displaying a user map information bar

- 1 Select [User Map] [File Operation] on the menu.
- 2 Click on the [Edit User Map] button on the [File Operation] dialog box that is displayed.

The user map information bar can also be displayed by clicking on the write tool button on the left toolbar.

12.2.2 Drawing toolbar

Display a drawing toolbar by clicking on the drawing tool button on the left toolbar.



At creation of a user map, "U.Map" is displayed on the drawing tool button.

Note

At user map creation, the azimuth mode is fixed to the [N UP] mode.

The drawing toolbar comprises the following tool buttons. The buttons that are assigned vary according to the object type (Symbol/Line/Area/Text) that is currently selected.

Tool button	Function
[Type] button	Displays an icon list. (Refer to "12.2.3 Selecting an object type".)
[Color] button (Symbol/text selection)	Select the color of the symbol/text. (Refer to "12.2.4 Selecting a color of an object".)
[Line] button	Enables selection of a color of the line that forms the object. (Refer to "12.2.4 Selecting a color of an object".)
[Fill] button (at area selection only)	Enables selection of a color of the area that forms the object. (Refer to "12.2.4 Selecting a color of an object".)
[EBL/VRM] button	Switches the cursor mode of the user map creation function to the EBL/VRM mode. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
[Enter POSN] ([Enter Position] dialog display) button	Displays the [Enter Position] dialog (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)

12.2.3 Selecting an object type

By displaying an icon list, the type of the Mariner's Mark/Line object or the user map object ([Symbol], [Line], [Area], and [Text]) can be selected.

1 Click on the [Type] button on the drawing toolbar. An icon list is displayed.

2 Select a type of the object by clicking on the icon in the icon list.

The icon list can be switched to thumbnail display or list display by clicking on the thumbnail/list display switching button.



User map menu

Icon list (thumbnail display)

Icon list (list display)

For the icons that can be selected from the icon list, refer to "Appendix B.5 lcon Button List for User Map".

12.2.3.1 Using a user map object

Select a type of the object (symbol/line/area/text) to be displayed in the icon list by clicking on a user map menu button.

The following objects are displayed.

Button	lcons displayed
[Symbol] button	Circle
	Triangle
	Square
	Diamond
	Multiple Mark
	Warning symbol
[Line] button	Simple line(solid line)
	Simple line(dotted line)
	Simple line(dashed line)
	Circle(solid line)
	Circle(dotted line)
	Circle(dashed line)
	Ellipse(solid line)
	Ellipse(dotted line)
	Ellipse(dashed line)
	Arc(solid line)
	Arc(dotted line)
	Arc(dashed line)
	Warning line
	Arrow(Start To End/Small)
	Arrow(Start To End/Medium)
	Arrow(Start To End/Large)
	Arrow(End To Start/Small)
	Arrow(End To Start/Medium)
	Arrow(End To Start/Large)
	Arrow(Both Direct/Small)
	Arrow(Both Direct/Medium)
	Arrow(Both Direct/Large)
[Area] button	Polygon(solid line)
	Polygon(dotted line)
	Polygon(dashed line)
	Circle(solid line)
	Circle(dotted line)
	Circle(dashed line)
	Ellipse(solid line)
	Ellipse(dotted line)
	Ellipse(dashed line)
	Fan(solid line)
	Fan(dotted line)
	Fan(dashed line)
	Warning area(solid line)
	Warning area(dotted line)
	Warning area(dashed line)
[Text] button	Text
freedoments and the second sec	

12.2.4 Selecting a color of an object

1 When selecting a color of the symbol/text object on the drawing toolbar, click on the [Color] button.

To select a line color of an area object, click on the [Line] button.

To select a color for filling an area object, click on the [Fill] button.

- 2 Select and click on the required color on the list that is displayed. The following 10 colors are available.
 - White/Black

(The color changes to White/Black under the following conditions.

RADAR screen: Always White

ECDIS screen: Day1/Day2: Black, Day3/Dusk/Night: White)

- Gray
- Amber
- Magenta
- Blue
- Cyan
- Green
- Yellow
- Orange
- Dark Red

12.2.5 Creating an object in the EBL/VRM mode

1 Click on the [EBL/VRM] button on the drawing toolbar.

The user map creation function mode is switched from the cursor mode to the EBL/VRM mode. When the mode is switched to the EBL/VRM mode, the cursor changes to the following state.

EBL/VRM base point cursor

The EBL/VRM mode is switched to cursor mode when the right mouse button is clicked on the chart or the [Enter POSN] button on the drawing toolbar is clicked on

12.2.6 Creating an object by specifying latitude and longitude

Using the [Enter Position] dialog box, it is possible to create an object at the specified latitude and longitude.

Displaying the [Enter Position] dialog box

1 Click on the [Enter POSN] button on the drawing toolbar.

000.0

0.0000

[Enter Position] dialog box

Bearing

Distance

New

Note		
An object cann	ot be created with the cursor mode and EBL/VRM mode while this dialog	
box is displaye	d.	
Enter Positi	on 🗙	
Position	0°00.000'N	
	0°00.000'E	

12.2.6.1 Creating an object of symbol/circle/ellipse/arc/arrow/text

NΜ

Enter

Enter latitude and longitude values of the object in the [Position] box and click on the [Enter] button. The [Bearing] box, [Distance] box, and the [New] button are disabled.

12.2.6.2 Creating an object of simple line/polygon/highlight

Use the following procedure to create an object with vertices such as a simple line, polygon, and highlight.

1 Enter latitude and longitude values of a vertex of the object in the [Position] box and click on the [Enter] button.

The position of one of the vertices of the object is determined. The [Bearing] box and the [Distance] box are enabled.

- 2 Enter latitude and longitude values of the next vertex in the [Position] box. Alternatively, in the [Bearing] box and the [Distance] box, enter the bearing and distance from the previous vertex that was determined.
- **3** Click on the [Enter] button.
- 4 Repeat Steps 2 and 3.

A simple line can be determined by two or more vertices and a polygon/highlight can be determined by three or more vertices.

5 To create a next object continuously, click on the [New] button.

12.2.7 Deleting an object

1 Click on the eraser tool button on the left toolbar. The cursor changes to the eraser cursor.



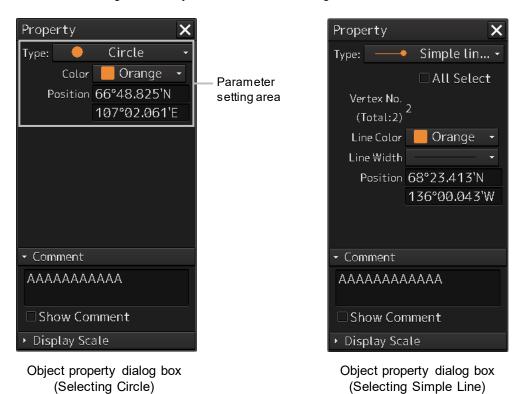
2 Place the cursor on the eraser cursor and click the mouse button.

When the right button is clicked on any position with the eraser cursor, the cursor mode is reset to the cross-hairs cursor.

Objects of the same shape or color can be deleted collectively. For the details, refer to "12.6 Collective Deletion of Objects [Delete by Type/Color]".

12.2.8 Object property dialog box

An object property dialog box displays the properties of the object that is currently selected. Parameter settings of the object can be verified/changed.



12.2.8.1 Selecting an object

1 Click on the object to be selected with the cross-hairs cursor. The object is selected and the object property dialog box appears.



12.2.8.2 Setting a comment

In the object property dialog box, a comment for the object can be entered. When the [Show Comment] check box is selected, a comment can be displayed on the user map.

Property	×	
Type: 🛛 🛶	🕨 Simple lin -	
	🗆 All Select	
Vertex No.	2	
(Total:2)	2	
Line Color	📒 Orange 🕞	
Line Width		
Position	68°23.413'N	
	136°00.043'W	
- Comment		
АААААААААА		
	_	[Comment]text box
Show Comment		— [Show Comment] check box
▸ Display Scale		

- 1 Enter a comment in the [Comment] box (up to 64 characters).
- **2** To display the comment that is input on the user map, select the [Show Comment] check box.

12.2.9 Changing an object display scale range

An object display scale range (1:1 to 1:100,000,000) can be changed on the object property dialog box.

Property	×	
Туре: —	🗕 Simple lin 🝷	
	🗆 All Select	
Vertex N	lo.	
(Total:	2) 2	
Line Col	.or 📕 Orange 🕞	
Line Wid	th 🛛 🗸	
Positi	on 68°23.413'N	
	136°00.043'W	
• Commen	t	
⋆ Display Scale		[DisplayScale] setting section
MIN scale	1:100,000,000 -	
MAX scale	1:1,000 -	

- **1** Select a minimum scale on the [MIN scale] combo box.
- 2 Select a maximum scale on the [MAX scale] combo box.

12.2.10 Moving an object

To move an object, use the context menu that is displayed by clicking the right button on the object.

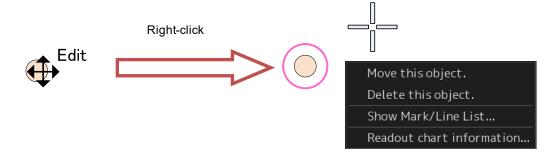
1 When the object to be moved is in the selected state, unselect the object.

To unselect the object, click on a section without display or another object.



2 Click the right button on the object.

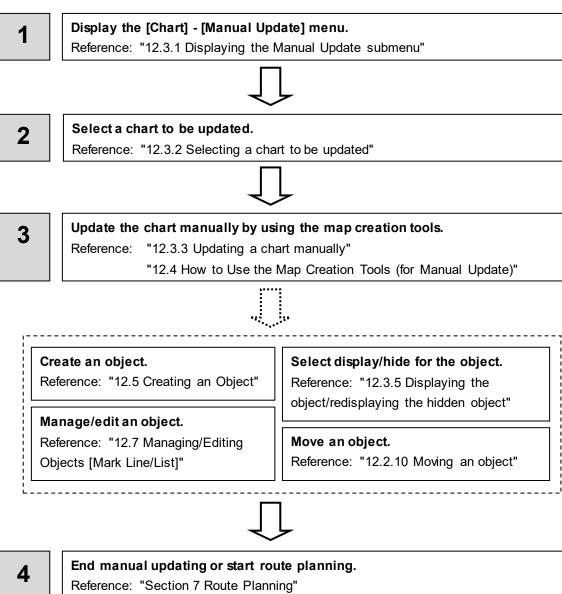
The object is selected and the context menu is displayed.



- **3** Click on [Move this object].
- 4 Click on the position to which the object is to be moved. The selected object moves to the position on which the button was clicked.

12.3 Updating a Chart Manually

Use the following procedure to update a chart.



12.3.1 Displaying the Manual Update submenu

By selecting [Menu] - [Chart] - [Manual Update], the selected chart can be updated manually.

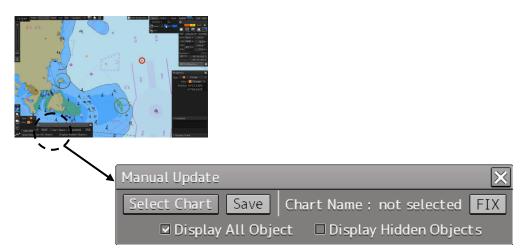
Restrictions

Multi-screen display is disabled at manual update of a chart. Even if multi-screen display is attempted prior to the commencement of manual update, the mode is switched to Single View if manual update is commenced.

Note

Since a dialog box requesting a Notice to Mariners issuing date is displayed when the updated chart is saved, enter the issuing date.

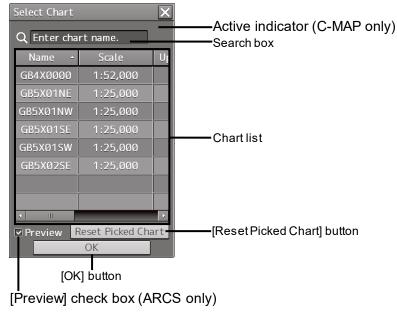
- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Chart] button on the menu.
- **3** Click on the [Manual Update] button on the submenu. The "Manual Update" toolbar is displayed.



"Manual Update" toolbar

12.3.2 Selecting a chart to be updated

1 Click on the [Select Chart] button on the Manual Update toolbar. The [Select Chart] dialog box appears.

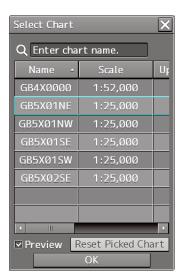


[Select Chart] dialog box

When the target of manual update is a C-MAP chart, an active indicator () may be displayed. While the active indicator is displayed, the chart list is not displayed. Only the moving of the [Select Chart] dialog and Close operations are available.

When a chart list is displayed, the active indicator is hidden.

2 Select a chart file to be updated manually on the [Select Chart] dialog box.



3 Click on the [OK] button in the [Select Chart] dialog box. A chart is selected.

Memo

The information that is displayed in the chart list varies depending on the chart type. The following information (columns of chart list) varies depending on the chart type.

		O: Displayed ×: Not display			
Information (Columns of chart list)		Chart type			
	S-57	C-MAP	ARCS		
Service	×	×	0		
Issue Date	0	0	×		
Ed. Date	×	×	0		
Expiry	×	×	0		
Last Update	0	O*1	0		
Accepted	0	O*2	×		

12.3.2.1 Displaying a chart list for the C-MAP chart

When a C-MAP chart is to be updated manually, the following charts are displayed in the chart list.

- Only the databases of C-MAP Ed.3 Database that are selected in the [View-Options] dialog that is displayed by selecting [View]-[Options]-[Chart Common] in the menu are displayed in the list.
- When no database is selected in the [View-Options] dialog that is displayed by selecting [View]-[Options]-[Chart Common] in the menu and a search condition is specified, all the C-MAP charts are displayed in the list.
- When a chart is clicked on, only the chart that is displayed in View is displayed in the list.

12.3.2.2 Searching the position that is clicked on with the cursor

- **1** Move the cursor to the position where manual update is to be performed and click the button.
 - S-57:

All the charts that are overlaid on the position that was clicked on are displayed in the chart list. C-MAP:

The chart that is drawn at the position that is selected by clicking is displayed in the chart list.

Memo

To clear the search result, click on the [Reset picked chart] (chart selection reset) button on the [Select Chart] dialog box. For C-MAP, all the charts in the database are displayed in the chart list.

12.3.2.3 Searching a chart with the chart name

1 Enter a chart name in the search box on the [Select Chart] dialog box.

The applicable chart is displayed.

```
Memo
```

To clear the search result, clear the input in the search box.

12.3.2.4 Displaying the chart screen that is selected from the list (ARCS only)

When the target of manual update is an ARCS chart, the chart file to be updated can be displayed on the screen for verification before starting the update.

When the [Preview] check box is checked, the chart that is selected in the list is displayed at the center of the screen.

When the check box is unchecked, the display is cleared.

12.3.2.5 Absence/expiration of the C-MAP chart license

When C-MAP is targeted for manual update and the C-MAP that is selected from the chart list does not have any license or the license has expired, the chart is not selected and the following dialog is displayed.

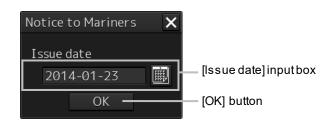


Close the dialog by clicking on the [OK] button or the $[\times]$ button and select another chart.

12.3.3 Updating a chart manually

- **1** By using map creation tools, create/edit an object on a chart. (Refer to "12.2 Using Map Creation Tools (User Map Creation/Editing)".)
- 2 Delete an object or change the properties as required. (Refer to "12.6 Collective Deletion of Objects [Delete by Type/Color]".)
- **3** Click on the [Save] button.

The [Notice to Mariners] dialog box appears.



- 4 Enter a notice to mariners issuing date in the [Issue date] input box on [Notice to Mariners] dialog by using a software keyboard.
- 5 Click on the [OK] button in the [Notice to Mariners] dialog box. The manually updated object is saved in the chart.

12.3.4 Displaying selected chart only

- **1** Select a chart to be displayed according to the procedure described in "12.3.2 Selecting a chart to be updated".
- 2 Set the [FIX] button on the Manual Update toolbar to ON.



Memo

For the C-MAP chart or the ARCS chart, the [FIX] button cannot be set to ON.

12.3.5 Displaying the object/redisplaying the hidden object

To display all the objects that were created by chart manual update, select the [Display All Object] check box on the Manual Update toolbar.

To redisplay the hidden objects, select the [Display Hidden Objects] check box on the Manual Update toolbar.

12.4 How to Use the Map Creation Tools (for Manual Update)

At chart manual update also, use the same map creation tools in the same way as that of user map creation. (Refer to "12.2 Using Map Creation Tools (User Map Creation/Editing)".) However, there are the following differences in the map creation tools

- The user map information bar is not displayed.
- The object that is saved cannot be deleted by the eraser tool (can be hidden).
- A Mariner's Mark/Line drawing object cannot be selected with the drawing tool.
- More icon types can be selected in the drawing tool.

When the chart is updated manually, "Update" is displayed on the Write tool button.

Note

At chart manual update, the bearing reference mode is fixed to [N UP] mode.

12.4.1 Deleting or hiding an object

1 Click on the eraser tool button.

The cursor changes to the eraser cursor.



2 Place the eraser cursor on the object and click the button.

At manual update, only pre-saved objects can be deleted by the eraser tool.

If the saved object is clicked on with the eraser tool, the object is hidden. All the property screens of the object that has been set to hide are displayed as disable and cannot be edited.

The object that is created and saved by manual update can be redisplayed unless deleted even if it is hidden.

If the chart that uses the hidden object is updated, the expiration date of the object is set (90 days from the date on which the object is c).

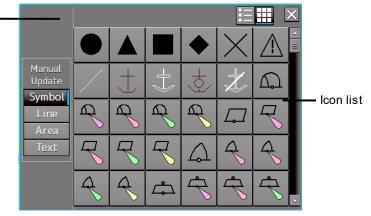
The object will be deleted after the expiration date.

Also, the object property dialog box setting can be changed by using the Mark/Line List submenu. For the details, refer to "12.7.4 Displaying a manual update list (ECDIS screen only)".

12.4.2 Selecting an object type

- **1** Click on the [Type] button on the drawing toolbar. An icon list dialog is displayed.
- **2** Select an object type by clicking on the icon on the icon list. At manual update, the following icon list is displayed.

Category display _



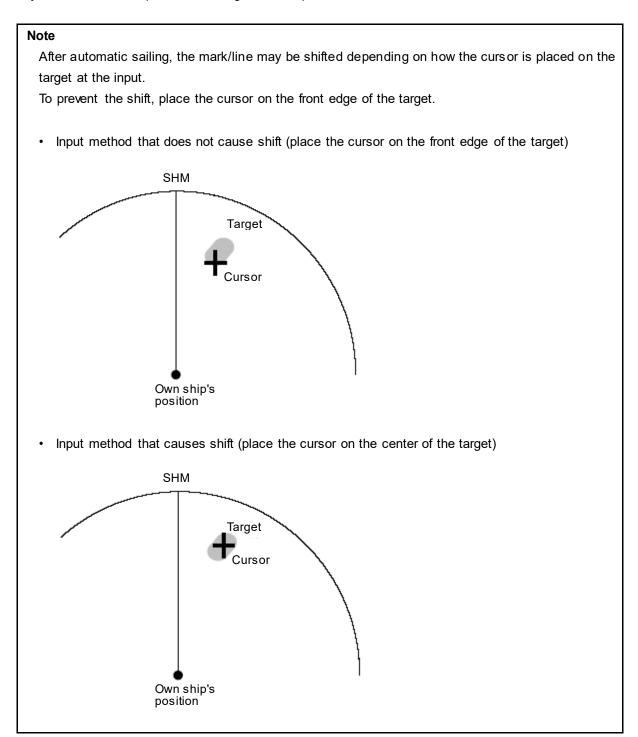
Icon list at manual update

The [Mariner's Mark/Line] button is not displayed on the icon list at manual update.

For the details of icons that can be selected from the icon list, refer to "Appendix B.6 Icon Button List for Manual Update ".

12.5 Creating an Object

This section describes the procedures for changing the parameters of the object after creating the object on the user map or chart during manual update.



12.5.1 Creating a symbol object (Symbol)

A symbol or a Warning symbol can be created by specifying the creation position with the cursor.

1 Click on the [Type] button on the drawing toolbar.

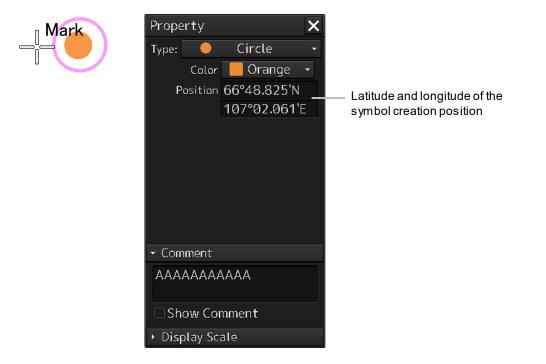
An icon list is opened.

Select a symbol or an icon of the Warning symbol. (Refer to "12.2.3 Selecting an object type".)

2 Click on the position on which the symbol is to be created with the cursor.



The symbol is displayed on the position on which the button is clicked and the parameters of the symbol that was created are displayed on the object property dialog box.



- **3** Adjust the parameters on the object property dialog box.
- 4 To create an object on another position continuously, repeat Steps 2 and 3.

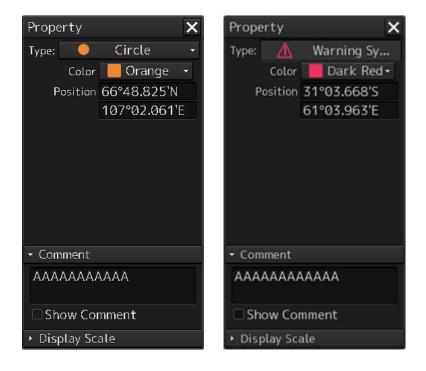
12.5.1.1 Creating an object by specifying the latitude and longitude

1 Click on the [Enter POSN] button on the drawing toolbar.

The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude).

2 Enter the latitude and longitude of the position on which an object is to be created and click on the [Enter] button.

An object is created on the specified latitude and longitude and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



3 Adjust the parameters on the object property dialog box.

4 To create an object on another position continuously, repeat Steps 2 and 3.

At user map creation, the symbol size can be changed by selecting [Option] - [User Map] on the View menu.

For the details, refer to "14.2.4 Setting up the Display of User Map".

12.5.1.2 Creating an object with EBL/VRM operation

- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- 2 Click on the position of the reference point of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Place the EBL/VRM marker on the position on which the object is to be created and click the button.

An object is created on the position on which the button was clicked and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

- 4 Adjust the parameters on the object property dialog box.
- 5 To create an object on another position continuously, repeat Steps 2 to 4.

12.5.2 Creating a simple line and a Warning line (Line object)

A simple line and a Warning line are created by using one vertex as an object. A Warning line is a line object that is detected as the warning target (danger line) of own ship.

Note

The color and width of a Warning line cannot be changed.

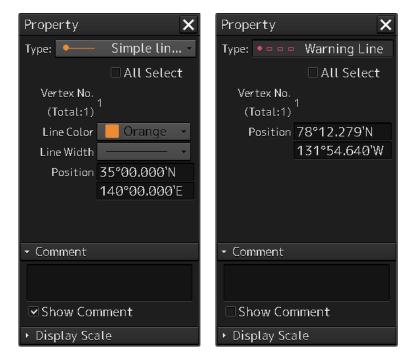
1 Click on the [Type] button on the drawing toolbar.

An icon list is opened.

Select an icon of a simple line or a Warning line. (Refer to "12.2.3 Selecting an object type".)

2 Click on the starting point with the cursor.

A vertex is created and the property information of the vertex is displayed on the object property dialog box.



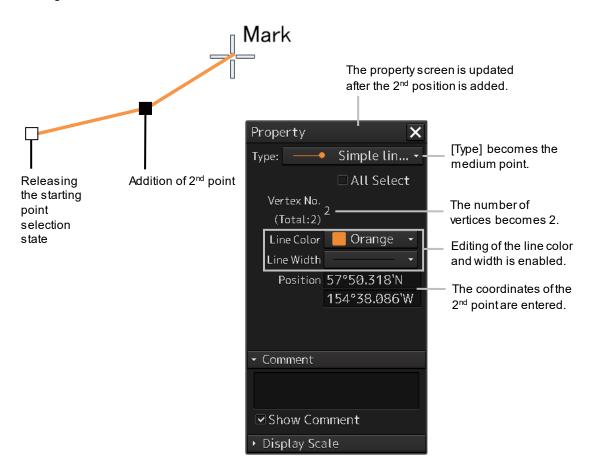
3 Move the cursor to the next vertex.

The latitude and longitude of the cursor are displayed near the cursor.

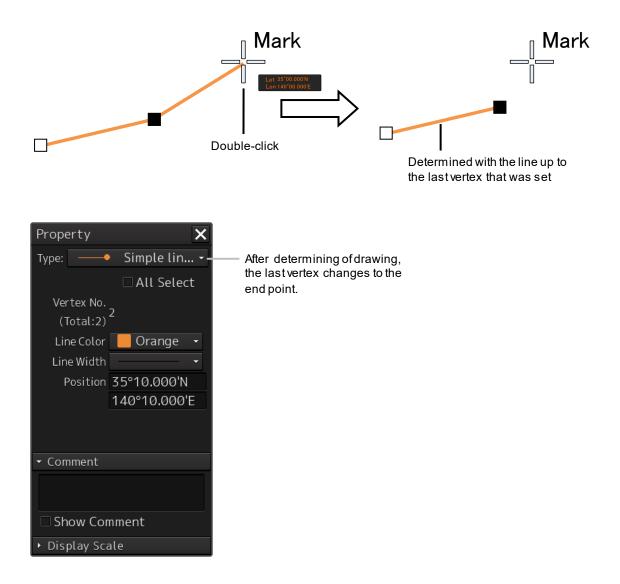


4 Click on the position on which the 2nd vertex is to be created.

A vertex is created and the parameters of the 2^{nd} vertex are displayed on the object property dialog box.



5 Determine the line by double-click on the button or click the right button.



- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object on another position continuously, repeat Steps 2 to 6.

Memo

The property screen for the vertex that was created can be edited in AUTO mode. For the details of AUTO mode, refer to "3.13 Cursor AUTO Mode".

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12.5.2.1 Creating a vertex by entering the position

- 1 Click on the [Enter POSN] button on the drawing toolbar. The [Enter Position] dialog box appears.
- 2 Enter the latitude and longitude of the vertex of the object in the [Position] box and click on the [Enter] button.

The position of the vertex of the object is determined. The [Bearing] box and the [Distance] box are enabled.

- **3** Enter the values of the latitude and the longitude of the next vertex in the [Position] box. Alternatively, enter the bearing from the vertex that was determined immediately previously in the [Bearing] box and the [Distance] input box.
- 4 Click on the [Enter] button.
- **5** Determine the positions of 3 or more vertices by repeating Steps 2 and 3.
- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object in another position continuously, click on the [New] button of the [Enter Position] dialog and repeat Steps from 2 to 6.

12.5.2.2 Creating an object with EBL/VRM operation

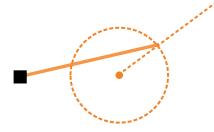
- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- **2** Click on the position of the reference point of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Place the EBL/VRM marker on the starting point and click the button.

A vertex is created on the position on which the button was clicked and the information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



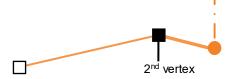
4 Click on the position of the reference point.

The EBL/VRM marker that determines the 2nd point is displayed.



5 Place the EBL/VRM marker on the 2nd vertex and click the button.

A vertex is created on the position on which the button was clicked and the information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



The EBL/VRM marker is reset to the EBL/VRM reference point cursor.

- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object on another position continuously, repeat Steps 2 to 6.

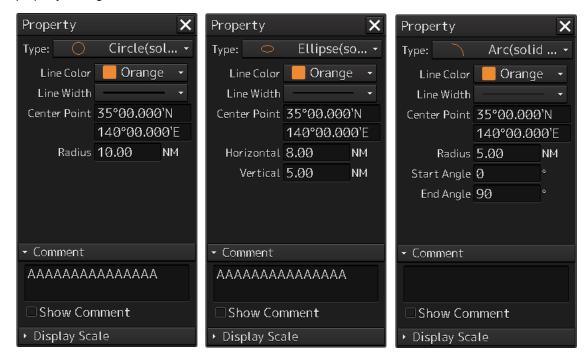
12.5.3 Creating a circle, ellipse, and an arc (Line object)

A circle, an ellipse, and arc can be drawn with the cursor by specifying the center.

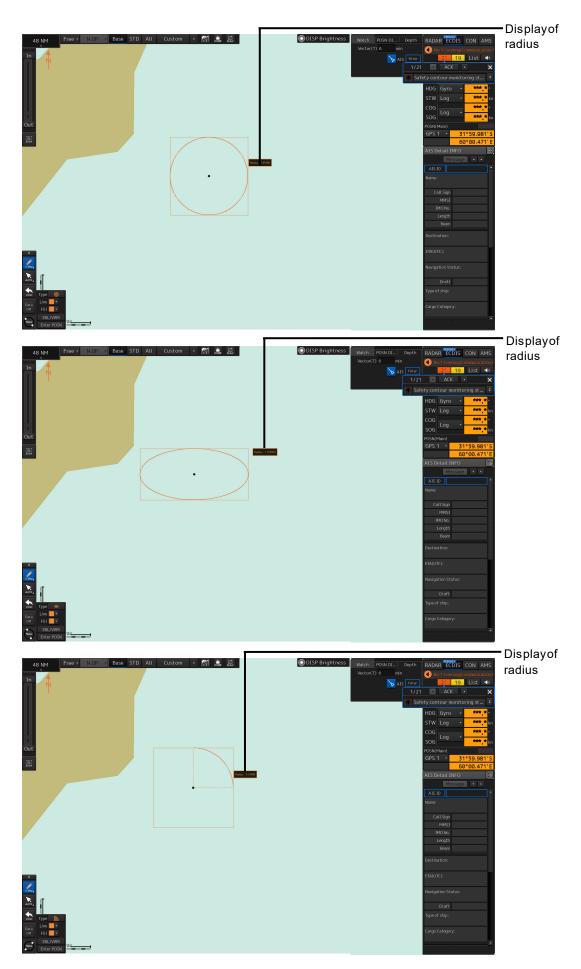
- **1** Click on the [Type] button on the drawing toolbar. An icon list is opened.
- 2 Select an icon of a circle, an ellipse, or an arc. (Refer to "12.2.3 Selecting an object type".)

3 Click on the position for the center with the cursor.

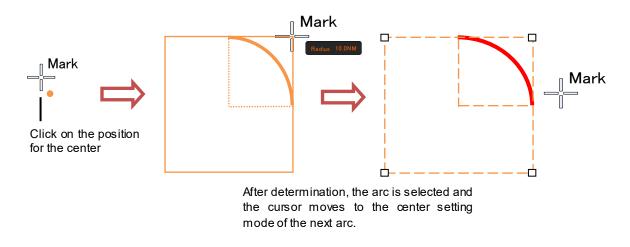
The center is created and the property information on the vertex is displayed on the object property dialog box.



4 Draw a circle, an ellipse, or an arc.



At creation of an arc, the starting angle and the ending angle of the arc to be created are the previous values or the initial values (starting angle: 0°, ending angle: 90°). To change the starting angle and the ending angle, change the values in [Start Angle] and [End Angle] on the object property dialog box.



- 5 Determine the object by clicking the button again.
- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object on another position continuously, repeat Steps 3 to 6.

12.5.3.1 Creating an object by specifying a position for the center and size of the object

1 Click on the [Enter POSN] button on the drawing toolbar.

The [Enter Position] dialog box appears. (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)

2 Enter the coordinate of the center of the circle, ellipse, or arc and click on the [Enter] button of the [Enter Position] dialog box.

The center is created at the position of the specified coordinate and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

- **3** Set the parameters in the object property dialog box as indicated below.
 - · Circle: Enter a value of [Radius].
 - \cdot Ellipse: Enter values of [Horizontal] and [Vertical].
 - · Arc: Enter values of [Radius], [Start Angle], and [End Angle].
- 4 To create an object on another position continuously as required, repeat Steps 2 and 3.

12.5.4 Creating a polygon and a Warning area (Area object)

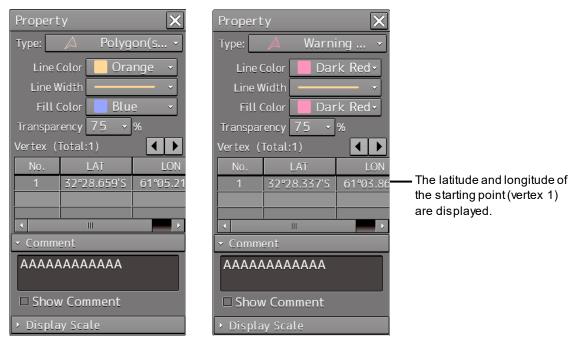
Create a polygon using all the vertices (3 or more) as one object. A Warning area is an area object that is detected as a warning target (danger area).

A polygon and a Warning area can be created in the same way as for simple line and Warning line

 Click on the [Type] button on the drawing toolbar. An icon list is opened. Select an icon of a polygon or a Warning area. (Refer to "12.2.3 Selecting an object type".)

2 Click on the starting point position with the cursor.

The starting point is created and the property information of vertex 1 is displayed on the object property dialog box.



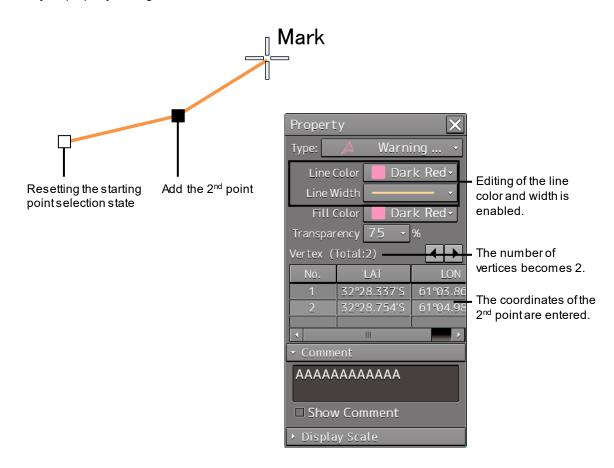
3 Move the cursor to the next vertex.

The latitude and longitude of the cursor are displayed near the cursor.



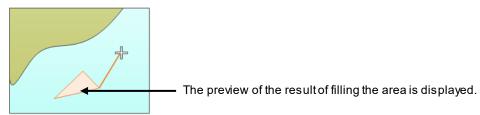
4 Click on the position on which the 2nd vertex is to be created.

A vertex is created and the latitude and the longitude of the 2nd vertex are displayed on the object property dialog box



5 Click on the position on which the 3rd vertex is to be created.

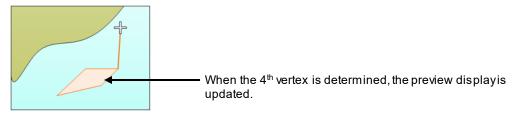
A triangle is created by connecting the three vertices. A preview screen is displayed, enabling the checking of the fill statuses of the polygon and the Warning area.



The latitude and longitude of the 3rd vertex are displayed on the object property dialog box.

Property 🗙	
Type: 🔺 Warning 🔸	
Line Color 📕 Dark Red+	
Line Width 🛛 🛶 👻	
Fill Color 📕 Dark Red -	 The editing of the line color, line width, fill color, and transparency is enabled.
Transparency 75 🗸 %	
Vertex (Total:3)	 The number of vertices becomes 3.
No. LAT LC 🔺	
1 32°28.337'S 61°03 =	
2 32°28.754'S 61°04 3 32°27.611'S 61°04	 The coordinates of the 3rd vertex are entered.
S 137 77.0113 + 01 04 < Ⅲ	
✓ Comment	
ΑΑΑΑΑΑΑΑΑΑ	
□ Show Comment	
▸ Display Scale	

6 To add another vertex continuously, click on the position on which the vertex is to be created.



When not adding any further vertices, determine the polygon or the Warning area by double-clicking the button or clicking the right button.

- 7 Adjust the parameters on the object property dialog box.
- 8 To create an object on another position continuously, repeat Steps 2 to 7.

12.5.4.1 Creating a vertex by entering the position

- 1 Click on the [Enter POSN] button on the drawing toolbar. The [Enter Position] dialog box appears.
- 2 Enter the latitude and longitude of the vertex of the object in the [Position] box and click on the [Enter] button.

The position of one vertex of the object is determined. The [Bearing] box and the [Distance] box are enabled.

- **3** Enter the values of the latitude and the longitude of the next vertex in the [Position] box. Alternatively, enter the bearing from the vertex that was determined immediately previously in the [Bearing] box and the [Distance] input box.
- 4 Click on the [Enter] button.
- **5** Determine 3 or more vertices by repeating Steps 2 to 4.

- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object on another position continuously, repeat Steps 2 to 6.

12.5.4.2 Creating an object with EBL/VRM operation

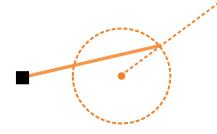
- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- 2 Click on the position of the reference point of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Place the EBL/VRM marker on the starting position and click the mouse button.

A vertex is created on the position on which the button was clicked and the parameter information is reflected on the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



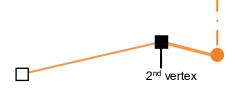
4 Click on the position of the reference point.

The EBL/VRM marker that determines the 2nd vertex is displayed.



5 Place the EBL/VRM marker on the 2nd vertex position and click the button.

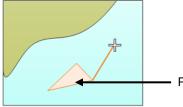
A vertex is created on the position on which the button was clicked and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



The EBL/VRM marker is reset to the EBL/VRM reference point cursor.

6 Place the EBL/VRM marker on the position of the 3rd vertex and click the button.

A triangle is created by connecting the three vertices. The preview screen is displayed, enabling the checking of the fill state of the polygon and Warning area.



Preview of the area fill result is displayed.

- 7 Adjust the parameters on the object property dialog box.
- 8 To create an object on another position continuously, repeat Steps 1 to 7.

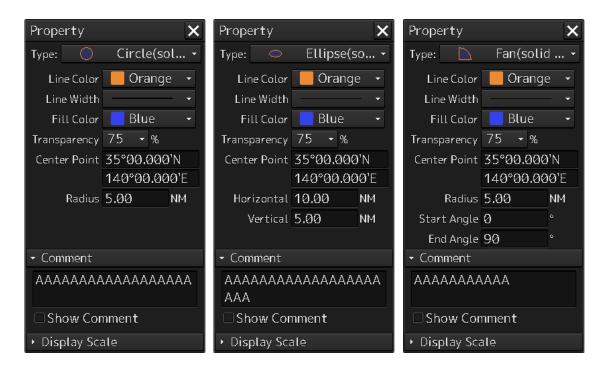
12.5.5 Creating circle, ellipse, and fan areas (Area object)

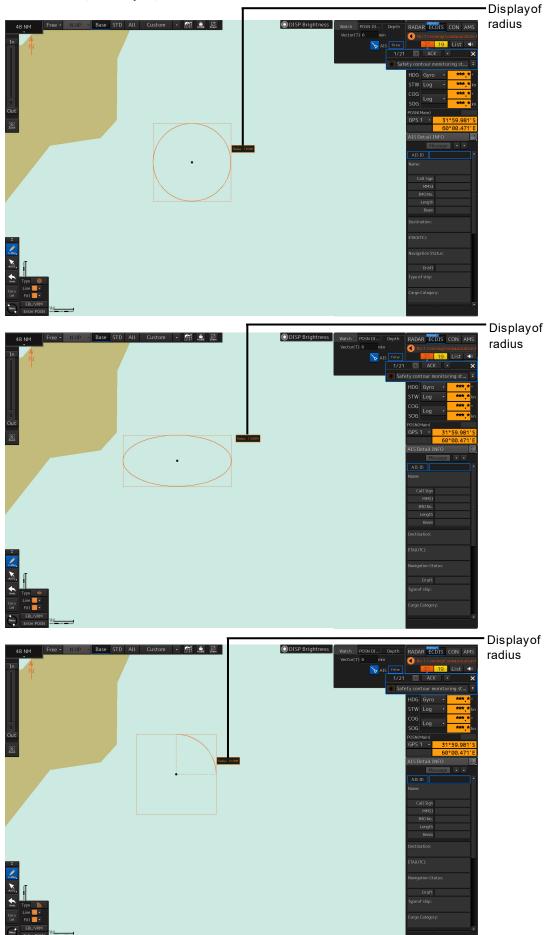
Circle, ellipse, and fan areas can be created in the same way as for creating a circle, an ellipse, or an arc of the Line object.

- **1** Click on the [Type] button on the drawing toolbar. An icon list is opened.
- 2 Select an icon of circle, ellipse, or arc. (Refer to "12.2.3 Selecting an object type".)

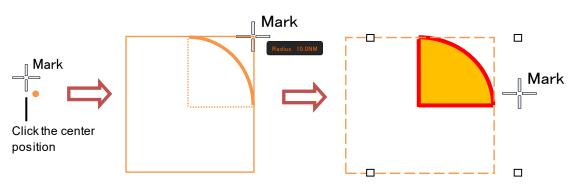
3 Click on the position to be the center with the cursor.

A center is created and the vertex property information is displayed on the object property dialog box.





At creation of an arc, the starting angle and the ending angle of the arc to be created are the previous values or the initial values (starting angle: 0°, ending angle: 90°). To change the starting angle and the ending angle, change the values in [Start Angle] and [End Angle] on the object property dialog box.



After determination, the arc is selected and the cursor moves to the center setting mode for the next arc.

- 5 Determine the object by clicking the button again.
- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object on another position continuously, repeat Steps 3 to 6.

12.5.5.1 Creating an object by specifying the center position and the object size

1 Click on the [Enter POSN] button on the drawing toolbar.

The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)

2 Enter the coordinates of the center of the circle, ellipse, or arc and click on the [Enter] button on the [Enter Position] dialog box.

A center point is created on the position of the specified coordinates and the property information is reflected in the object property dialog box (Refer to "12.2.8 Object property dialog box".)

- **3** Set the following parameters on the object property dialog box.
 - Circle: Enter a value of [Radius].
 - Ellipse: Enter values of [Horizontal] and [Vertical].
 - Arc: Enter values of [Radius], [Start Angle], and [End Angle].
- 4 To create an object on another position continuously as required, repeat Steps 2 and 3.

12.5.6 Creating a text (Text object)

Any character information can be displayed on the user map.

1 Click on the [Type] button on the drawing toolbar.

An icon list is opened.

Select a text (Txt) icon. (Refer to "12.2.3 Selecting an object type".)

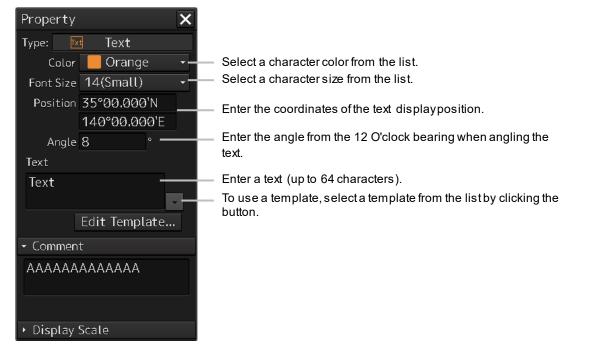
2 With the cursor, click on the position on which an object is to be created.



A text box is created at the position on which the button was clicked and a text is displayed.

Text

The parameters of the text that was created are displayed on the object property dialog box.



3 Adjust the parameters on the object property dialog box.

For the text input method, refer to "12.5.6.3 Editing a text", for the template usage method, refer to "12.5.6.4 Editing a template", and for the text angling method, refer to "12.5.6.5 Changing a text angle".

4 To create an object on another position continuously, repeat Steps 2 and 3.

12.5.6.1 Creating a text by specifying the latitude and longitude

1 Click on the [Enter POSN] button on the drawing toolbar.

The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)

2 Enter the latitude and longitude of the object to be created and click on the [Enter] button.

An object is created on the specified latitude and longitude and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

3 Adjust the parameters on the object property dialog box.

For the text input method, refer to "12.5.6.3 Editing a text", for the template usage method, refer to "12.5.6.4 Editing a template", and for the text angling method, refer to "12.5.6.5 Changing a text angle".

4 To create an object on another position continuously, repeat steps 2 and 3.

12.5.6.2 Creating a text with EBL/VRM operation

1 Click on the [EBL/VRM] button on the drawing toolbar.

The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)

- **2** Click on the position of the reference point position of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Place the EBL/VRM marker on the position on which an object is to be created and click the button.

An object is created on the position on which the button was clicked and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

4 Adjust the parameters on the object property dialog box.

For the text input method, refer to "12.5.6.3 Editing a text", for the template usage method, refer to "12.5.6.4 Editing a template", and for the text angling method, refer to "12.5.6.5 Changing a text angle".

5 To create an object on another position continuously, repeat Steps 2 to 4.

12.5.6.3 Editing a text

1 Click on the [Text] input box

A character input full keyboard is displayed.

Text											
MAX:64 cha	iracte	rs							÷	\rightarrow	DEL
abc		2	3	4	5	6	8	9		CLR	×
ABC		w								Car	ncel
!"#										En	ter
Align								Space			tei

2 Create a text.

For the method of using the character input full keyboard, refer to "3.16.2 Name and function of each section of the keyboard".

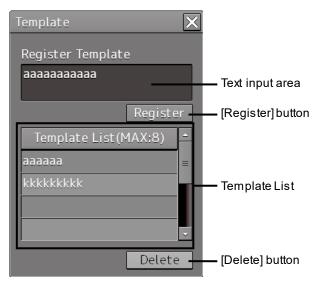
- **3** Close the character input full keyboard by clicking on the [Enter] key.
- 4 To change a character color, select a required character color from the [Color] combo box.
- **5** To change a character size, select a required character size from the [Font size] combo box.

12.5.6.4 Editing a template

By registering a frequently used text as a template, the template can be used at text creation.

1 Click on the [Edit Template] button.

The [Template] dialog box appears.



2 Click on a text input area.

A character input full keyboard is displayed.

MAX:64 cha	aracte	rs								÷	\rightarrow	DEL
abc	1	2	3	4	5	6	7	8	9	0	CLR	×
ABC	q	w			t	у			0	р	Car	ncel
!"#			d	f	g	h		k			En	ter
Align					b			Space			Lei	

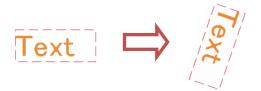
3 Create a text.

For the method of using the character input full keyboard, refer to "3.16.2 Name and function of each section of the keyboard".

- 4 Close the character input full keyboard by clicking on the [Enter] key.
- 5 Click on the [Register] button.
- 6 Close the [Template] dialog and click on [▼] on the right side of the text input area of the object properties dialog. [Template List] is displayed.
- 7 Select any template.
- 8 To delete unnecessary templates, select the unnecessary templates in the [Template List] and click on the [Delete] button.

12.5.6.5 Changing a text angle

Under the factory setting, a text is oriented horizontally. The text can be angled or inverted according to the text creation position.



1 Click on the [Angle] input box.

A numeric value input keyboard is displayed.

090 · ·									
	MAX: 359° MIN: 0°								
	0		<u> </u>						
1	2	3	CLR 🗙						
4	5	6	Cancel						
7	8	9	Enter						
÷	Ø	→	Enter						

2 Enter an angle.

Specify an angle in clockwise based on the direction of the 12 O'clock as 0°. Under the factory setting, the angle is set to 90° (horizontal).

For the method of using the numeric value input keyboard, refer to "3.16.2 Name and function of each section of the keyboard".

12.5.7 Creating an arrow (Line object)

An arrow can be displayed on the user map or chart.

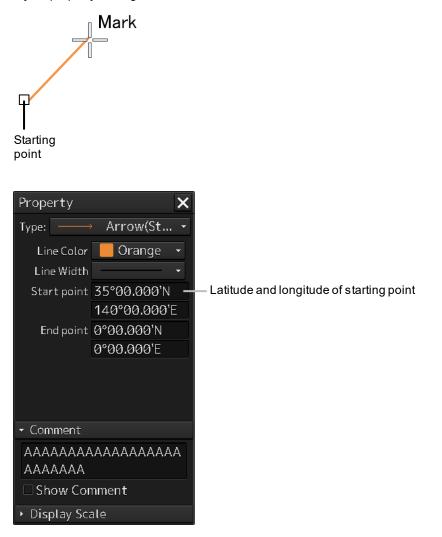
1 Click on the [Type] button on the drawing toolbar.

An icon list is displayed.

2 Select the arrow icon. (Refer to "12.2.3 Selecting an object type".)

3 Click on the starting position with the cursor.

A starting point is created and the property information of the starting point is displayed on the object property dialog box.

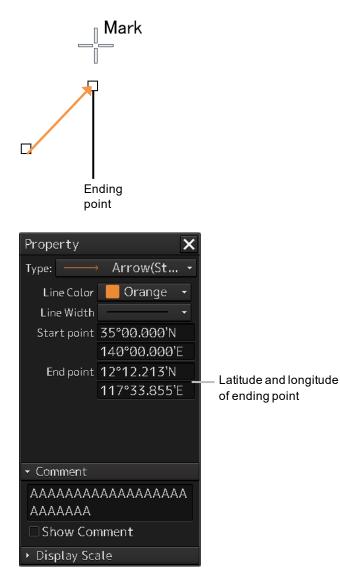


Note

The color, line type, and line width of a starting point cannot be changed.

4 Click on the position of the ending point with the cursor.

An ending point is created and the property information of the ending point is displayed on the object property dialog box.



- 5 Adjust the parameters on the object property dialog box.
- 6 To create an object on another position continuously, repeat Steps to 3 to 5.

12.5.7.1 Creating an object by specifying the starting point/ending point position coordinates

1 Click on the [Enter POSN] button on the drawing toolbar.

The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)

2 Enter the coordinates of the starting point and click on the [Enter] button.

A starting point of the arrow is created on the position of the specified coordinates and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

12

3 Enter the coordinates of the ending point and click on the [Enter] button.

An ending point of the arrow is created on the position of the specified coordinates and the property information is reflected in the object property dialog box.

4 To create an object on another position continuously, repeat Steps 1 to 3.

12.5.7.2 Drawing an object with EBL/VRM operation

- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- **2** Click on the position of the reference point of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Place the EBL/VRM marker on the position of the starting point and click the button.

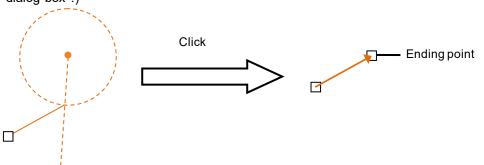
4 Click on the reference position of the EBL/VRM marker.

A starting point is created on the position on which the button was clicked and the property information is displayed on the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

Starting point .

5 Place the EBL/VRM marker on the position of the ending point and click the button.

An ending point is created on the position on which the button was clicked and the property information is displayed on the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



6 To create an object on another position continuously, repeat Steps 2 to 5.

12.5.8 Creating Mariner's Mark/Line drawing objects

At user map creation, the following Mariner's Mark/Line drawing objects can be created.

- Information Mark
- Clearing Line
- Tidal Stream mark
- Highlight mark
 - **1** Click on the [Type] button on the drawing toolbar. An icon list is displayed.
 - 2 Click on the [Mariner's Mark/Line] button on the icon list. Mariner's Mark/Line drawing objects are displayed on the icon list.
 - **3** Select an object to be created and specify a creation position.

12.5.8.1 Information mark

An information mark can be created on any position of the chart. An information mark is used for comments and so on.



1 Click on the [Type] button on the drawing toolbar.

An icon list is opened.

Select the icon of information mark. (Refer to "12.2.3 Selecting an object type".)

2 Click on the position on which the information mark is to be created with the cursor.



The information mark is displayed on the position on which the button was clicked and the parameters of the information mark are displayed on the object property dialog box.

Property	×	
Туре: 🚺	Information	
Positi	on 35°00.000'N 140°00.000'E	Latitude and longitude of the information mark creation position
- Commen	t	
ΑΑΑΑΑΑ	AA	
▶ Display !	Scale	

- **3** Adjust the parameters on the object property dialog box.
- **4** To create an object on another position continuously, repeat Steps 2 and 3.

Creating an object by specifying the latitude and longitude

- 1 Click on the [Enter POSN] button on the drawing toolbar. The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)
- 2 Enter the latitude and longitude of the position on which an object is to be created and click on the [Enter] button.

An object is created on the position of the specified latitude and longitude and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

- **3** Adjust the parameters on the object property dialog box.
- 4 To create an object on another position continuously, repeat Steps 2 and 3.

Creating an object with EBL/VRM operation

1 Click on the [EBL/VRM] button on the drawing toolbar.

The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)

2 Click on the position of the reference point of the EBL/VRM marker.

The EBL/VRM marker is displayed.

3 Place the EBL/VRM marker on the position on which an object is to be created and click the button.

An object is created on the position on which the button was clicked and the property information reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

- 4 Adjust the parameters on the object property dialog box.
- 5 To create an object on another position continuously, repeat Steps 2 to 4.

12.5.8.2 Clearing line

A clearing line can be created on a chart. It is possible to select an angle and either Not Less Than (NLT) or Not More Than (NMT) for a clearing line on the object property dialog box.

Angle of the clearing line (either NLT or NMT can be selected)

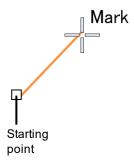
Clearing line

1 Click on the [Type] button on the drawing toolbar.

Open the icon list and select an icon of clearing line. (Refer to "12.2.3 Selecting an object type".)

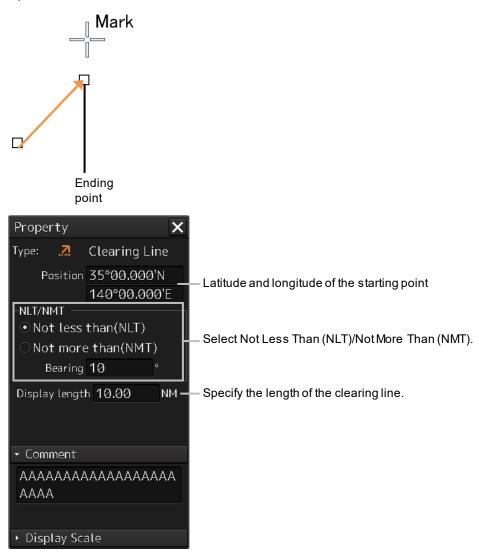
2 Click on the position of a starting point with the cursor.

A starting point is created and the property information of the clearing line is displayed on the object property dialog box.



3 Click on the position of the ending point with the cursor.

An ending point is created and the property information in the object property dialog box is updated.



4 Adjust the parameters on the object property dialog box.

- **Specifying an angle of a clearing line:** Display a numeric value input keyboard by clicking on the [Bearing] input box and enter an angle (0 to 359°).
- **Specifying a length of a clearing line:** Display a numeric value input keyboard by clicking on the [Display length] input box and enter a length (0 to 999.99).
- Selecting Not Less Than (NLT)/Not More Than (NMT): Set Not Less Than (NLT) or Not More Than (NMT) to On by clicking on the button.

When Not Less Than (NLT) is selected, "NLT xx" is displayed for the clearing line, indicating that the line must not be below "xx". When Not More Than (NMT) is selected, "NMT xx" is displayed for the clearing line, indicating that the line must not exceed "xx".

For the method of using the numeric value input keyboard, refer to "3.16.2 Name and function of each section of the keyboard".

5 To create an object on another position continuously, repeat Steps 2 to 4.

Creating position coordinates of the starting point

1 Click on the [Enter POSN] button on the drawing toolbar.

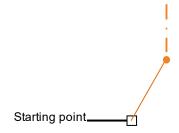
The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)

- 2 Enter the coordinates of a starting point and click on the [Enter] button.
- **3** To create an object on another position continuously, repeat Steps 1 and 2.

Drawing an object with EBL/VRM operation

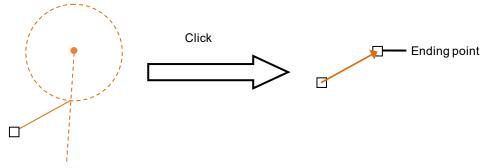
- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- **2** Click on the position of the reference point of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Place the EBL/VRM marker on the starting point position and click the button.

A starting point is created on the position on which the button was clicked and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



4 Place the EBL/VRM marker on the ending point position and click the button.

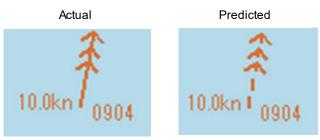
An ending point is created on the position on which the button was clicked and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



5 To create an object on another position continuously, repeat Steps 2 to 4.

12.5.8.3 Tidal Stream mark

A current drift and a bearing can be input for a tidal stream mark. Edit the current drift (Drift) and the bearing (Set) after creating a tidal stream mark on the object property dialog box.



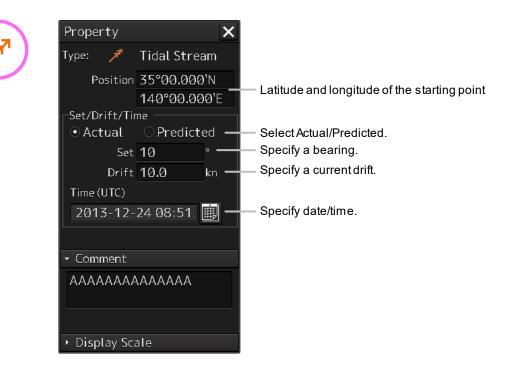
1 Click on the [Type] button on the drawing toolbar.

An icon list is opened. Select the icon of a tidal stream mark. (Refer to "12.2.3 Selecting an object type".)

2 Click on the position on which a tidal drift mark is to be created with the cursor.



A tidal stream mark is displayed on the position on which the button was clicked and the parameters of the tidal channel mark that was created are displayed on the object property dialog box.



- **3** Adjust the parameters on the object property dialog box.
 - **Specifying a bearing:** Display a numeric value input keyboard by clicking on the [Set] input box and enter a bearing (0 to 359°).
 - **Specifying a current drift:** Display a numeric value input keyboard by clicking on the [Drift] input box and enter a current drift (0 to 99.9).
 - **Selecting Actual/Predicted:** Select the check box of either Actual or Predicted. When Actual is selected, a tidal stream mark of a solid line is displayed. When Predicted is selected, a tidal mark of a broken line is displayed.
 - **Specifying date/time:** Display a calendar + time picker by clicking on the calendar button and enter a date and a time in the [Time(UTC)] input box.

For the method of using a numeric value input keyboard, refer to "3.16.2 Name and function of each section of the keyboard" and for the method of using a calendar + time picker, refer to "3.17 Setting a Date and a Time (Calendar Operation)".

4 To create an object on another position continuously, repeat Steps 2 and 3.

Moving a tidal stream mark

- 1 Click the right mouse button on the tidal stream mark that is set. The menu is displayed.
- 2 Click on [Move this object].
- **3** Click on the required destination position.

Creating an object by specifying the latitude and longitude

- 1 Click on the [Enter POSN] button on the drawing toolbar. The [Enter Position] dialog box appears (Refer to "12.2.6 Creating an object by specifying latitude and longitude".)
- 2 Enter the latitude and longitude of the position on which an object is to be created and click on the [Enter] button.

An object is created on the position of the specified latitude and longitude and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

- **3** Adjust the parameters on the object property dialog box.
- **4** To create an object on another position continuously, repeat Steps 2 and 3.

Creating an object with EBL/VRM operation

- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- 2 Click on the position of the reference point of the EBL/VRM marker.

The EBL/VRM marker is displayed.

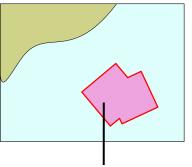
3 Place the EBL/VRM marker on the position on which an object is to be created and click the button.

An object is created on the position on which the button was clicked and the property information reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

- 4 Adjust the parameters on the object property dialog box.
- 5 To create an object on another position continuously, repeat Steps 2 to 4.

12.5.8.4 Highlighted display

Highlighted display can be set by creating an area of a polygon on a chart. Use highlighted display for attaching a comment on the chart or so on.



Highlighted display

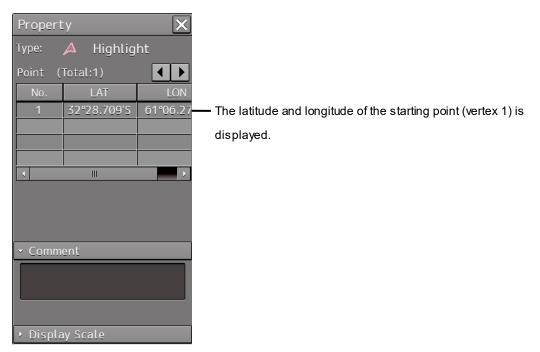
1 Click on the [Type] button on the drawing toolbar.

An icon list is opened.

Select an icon of highlighted display. (Refer to "12.2.3 Selecting an object type".)

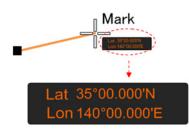
2 Click on the position of a starting point with the cursor.

A starting point is created and the property information of vertex 1 is displayed on the object property dialog box.



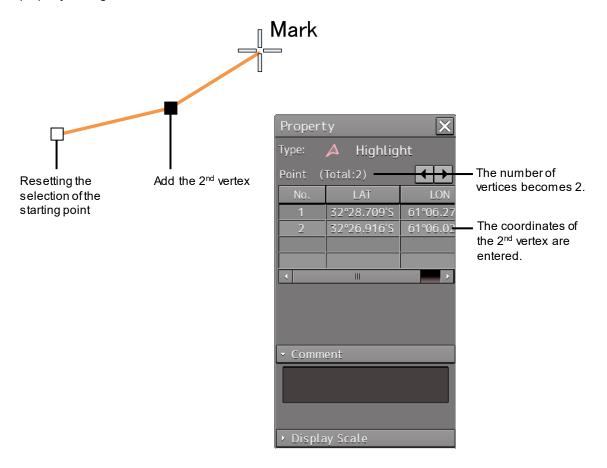
3 Move the cursor to the next vertex.

The latitude and longitude of the cursor are displayed near the cursor.



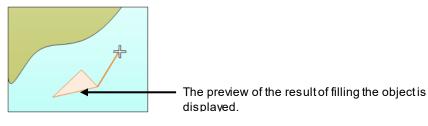
4 Click on the position on which the 2nd vertex is to be created.

A vertex is created and the latitude and longitude of the 2nd vertex are displayed on the object property dialog box.

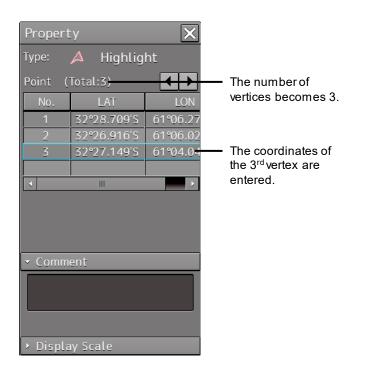


5 Click on the position on which the 3rd vertex is to be created.

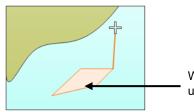
A triangle is created by connecting three vertices. The preview screen is displayed, enabling the object fill status.



The latitude and longitude of the 3rd vertex are displayed on the object property dialog box.



6 To add another vertex continuously, click on the position on which the vertex is to be created.



When the $4^{\ensuremath{\text{th}}}$ vertex is determined, the preview displayis updated.

When not adding another vertex, determine the object by double-clicking or clicking the right button on the object.

- 7 Adjust the parameters on the object property dialog box.
- 8 To create an object on another position continuously, click on the [New] button in the [Enter Position] dialog and repeat Steps from 2 to 7.

Creating a vertex by entering the position

- **1** Click on the [Enter POSN] button on the drawing toolbar. The [Enter Position] dialog box appears.
- 2 Enter the values of latitude and longitude of the vertex of the object in the [Position] box and click on the [Enter] button.
 The position of one vertex of the object is determined.

The [Bearing] box and the [Distance] box are enabled.

- **3** Enter the values of latitude and longitude of the next vertex of the object in the [Position] box. Alternatively, enter the bearing from the vertex that was determined immediately previously in the [Bearing] box and the [Distance] input box.
- 4 Click on the [Enter] button.
- 5 Determine the positions of 3 or more vertices by repeating Steps 2 to 4.
- 6 Adjust the parameters on the object property dialog box.
- 7 To create an object on another position continuously, repeat Steps 2 to 6.

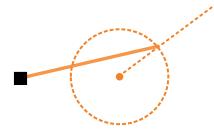
Creating an object with EBL/VRM operation

- 1 Click on the [EBL/VRM] button on the drawing toolbar. The cursor changes to the EBL/VRM reference point cursor. (Refer to "12.2.5 Creating an object in the EBL/VRM mode".)
- 2 Click on the position of the reference point of the EBL/VRM marker. The EBL/VRM marker is displayed.
- **3** Placing the EBL/VRM marker on the position of the starting point and click the button. A vertex is created on the position on which the button was clicked, and the property information is displayed on the object property dialog box. (Refer to "12.2.8 Object property dialog box".)



4 Click on the reference point.

The EBL/VRM marker is displayed to determine the 2nd vertex.



5 Place the EBL/VRM marker on the position of the 2nd vertex and click the button.

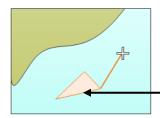
A vertex is created on the position on which the button was clicked and the property information is reflected in the object property dialog box. (Refer to "12.2.8 Object property dialog box".)

2nd vertex

The EBL/VRM marker is reset to the EBL/VRM reference point cursor.

6 Place the EBL/VRM marker on the position of the 3rd vertex and click the button.

A triangle is created by connecting the three vertices. A preview screen is displayed, enabling the checking of the fill status of the polygon and the Warning area.



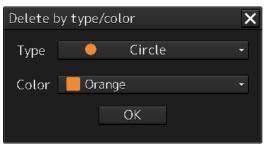
The preview of the result of filling the area is displayed.

- 7 Adjust the parameters on the object property dialog box.
- 8 To create an object on another position continuously, repeat Steps 1 to 7.

12.6 Collective Deletion of Objects [Delete by Type/Color]

Objects of the same shape and color can be deleted collectively by "Delete by Type/Color".

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [User Map] button on the menu.
- **3** Click on the [Delete by Type/Color] (Collective deletion) on the submenu. The [Delete by type/color] dialog box appears.



[Delete by type/color] dialog box

4 Elect the common parameters for the objects to be deleted from the lists of the [Type] combo box and the [Color] box.

When [All] is selected, all the objects are deleted.

5 Click the [OK] button.

Note

- If the color that is specified in the [Color] box matches any of the point color, line color and area color of the object, the object is targeted for deletion.
- When a Warning line is selected in the [Type] combo box, the [Color] box is displayed as Disabled.

12.7 Managing/Editing Objects [Mark Line/List]

User maps and manually updated objects can be managed/edited through [Mark/Line List].

12.7.1 Displaying the [Mark/Line List] dialog box

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [User Map] button on the menu.
- **3** Click on the [Mark/Line List] (Object list) on the submenu. The [Mark/Line List] dialog box appears.

Category button	Tab c	lisplay	Operation but section	ton Object list	e Page switch	ning sectio
Mark/Line I dariner's N			Uladata			×
Symbol	Line Ari	UserMap Manua na Text D	elete			
No	Туре	Color	LAT	LON	Comment	
2	Δ	Dark Red •	32°26.513'S	61°02.850'E	ΑΑΑΑΑΑΑΑ	Jump
1		Orange •	32°29.084'5	60°58.551'E	ААААААААААА	Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump

[Mark/Line List] dialog box (Display example of [User Map] tab)

12.7.2 Displaying a user map list

The [User Map] tab displays a list of the user maps that are currently displayed.

The display of each category can be switched by clicking on the [Symbol] button/[Line] button/[Area] button/[Text] button.

Mark/Line L	lark/Line List 🛛 🗙					
Mariner's №	Mariner's Mark/Line UserMap Manual Update					
Symbol Line Area Text Delete						
No	Туре	Color	LAT	LON	Comment	
2	⚠	📕 Dark Red 👻	32°26.513'S	61°02.850'E	ΑΑΑΑΑΑΑΑ	Jump
1		Orange 👻	32°29.084'S	60°58.551'E	ΑΑΑΑΑΑΑΑΑΑΑ	Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
•						>

[User Map] tab (example at selection of [Symbol])

The tabs in the [Mark/Line List] dialog box consist of the following.

- [User Map] tab
 - Symbol
 - Line
 - Area
 - Text

[Mariner's Mark/Line] tab (only the ECDIS screen and at creation of user map only)

- Event Mark
- Information Mark
- Tidal Stream
- Highlight (highlighted display)
- Clearing Line

(Refer to "12.7.3 Displaying a Mariner's Mark/Line List".)

- [Manual Update] tab (ECDIS screen only)
 - Symbol
 - Line
 - Area
 - Text

12.7.2.1 Displaying an object on a chart

Click on the [Jump] button on the row of the object to be displayed on the chart.

12.7.2.2 Deleting an object

Select the row of the object to be deleted and click on the [Delete] button.

Note

As soon as the [Delete] button is clicked on, the object is deleted. Re-check whether the object can be deleted before clicking on the [Delete] button.

12.7.3 Displaying a Mariner's Mark/Line List

A Mariner's Mark/Line can be displayed by using the [Mariner's Mark/Line] tab.

Display of each category can be switched by clicking on the [Event Mark] button/[Information Mark]button/[Tidal Stream] button/[Highlight] button/[Clearing Line] button.

Jump
Jump

[Mariner's Mark/Line] tab (example at selection of [Information Mark]

12.7.3.1 Displaying an object on a chart

Click on the [Jump] button on the row of the object to be displayed on the chart.

12.7.3.2 Deleting an object

Select a line of the object to be deleted and click on the [Delete] button.

Note

As soon as the [Delete] button is clicked on, the object is deleted. Re-check whether the object can be deleted before clicking on the [Delete] button.

12.7.3.3 Deleting objects collectively from an object list

1 Click on the [All Delete] button.

A message dialog box for confirming deletion appears.



2 To execute deletion, click on the [OK] button. To cancel deletion, click on the [X] button.

12.7.4 Displaying a manual update list (ECDIS screen only)

A manual update list can be displayed by using the [Manual Update] tab.

Display of each category can be switched by clicking on the [Symbol] button/[Line] button/[Area] button/[Text] button.

Mark/Line L	Aark/Line List					
Mariner's M	Mariner's Mark/Line UserMap Manual Update					
Symbol	Symbol Line Area Text Hide Restore Chart Type S-57					
No -	Туре	Color	LAT	LON	Comment	
1	•	📒 Orange	32°26.969'S	61°04.494'E		Jump
2	\triangle	📕 Dark Red	32°27.389'S	61°05.314'E		Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						Jump
						>

[Manual Update] tab (Selecting [Symbol] example)

12.7.4.1 Displaying an object on a chart

1 Click on the [Jump] button on the row of the object to be displayed on the chart.

12.7.4.2 Hiding an object

1 Select a line of the object to be hidden and click on the [Hide] button. The [Status] of the object to be hidden changes from [Normal] to [Hidden].

When the chart that uses the object that is set to Hide is updated, the expiration date (90 days after the date when the object is created) of the object is displayed as [Expiration Date]. When the expiration date is reached, the object is deleted.

12.7.4.3 Redisplaying an object

Select a line of the object that has been set to Hide and click on the [Restore] button. The [Status] of the object that is re-displayed changes from [Hidden] to [Normal]. The date of [Expiration Date] of the object is deleted.

12.7.4.4 Specifying a chart type

Only the list of manual update relating to the charts of the specified type is displayed.

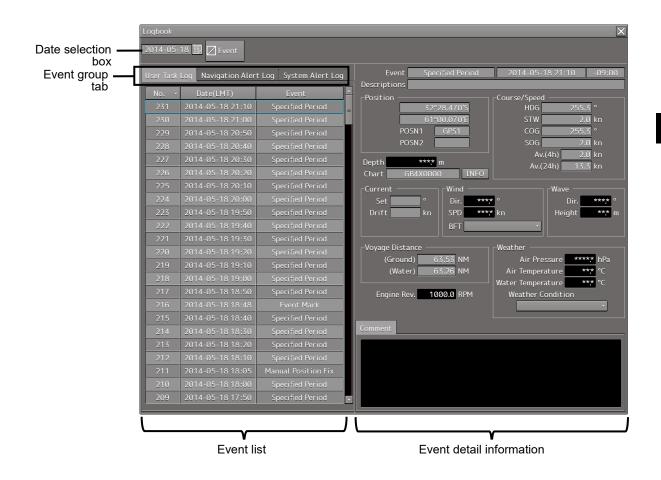
- **1** Select a chart type in the [Chart Type] combo box. Select*1 one of [S-57], [C-MAP3], and [ARCS].
- *1 Only the types of the selectable charts as Chart Type can be selected in the [View-Options] dialog that is displayed by selecting [View]-[Options]-[Chart View] in the menu.

Section 13 Logbook

Various types of information (events) during the voyage can be recorded/displayed in a logbook.

13.1 Browsing a Logbook

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [Logbook] on the menu. The [Logbook] dialog box appears.



Memo

Events that are recorded/displayed in a logbook can be changed by using the [Settings] menu. For the details, refer to "16.12 Setting up Logbook ".

The following events are recorded in a logbook.

- At Noon: Recorded at 12:00 (LMT) every day.
- Specified Period: Recorded at any time interval.
- Event Mark: Recorded at marking an event mark.
- Manual Position Fix: Recorded at fixing a position manually.
- Chart Manual Updating: Recorded at updating a chart manually.
- System Start: Recorded at the start of the system.
- System Exit: Recorded at the termination of the system.
- Route Alert: Recorded at the occurrence of a Route-related alert.
- Chart Alert: Recorded at the occurrence of a Chart-related alert.
- Autosail Alert: Recorded at the occurrence of an automatic sailing related-alert and sensor alarm
- System Alert: Recorded at the occurrence of an alert that does not belong to the types that are indicated above
- MOB Start: Recorded when MOB starts.
- MOB Stop: Recorded when MOB stops.

Searching an event based on the date

Enter a date and time in the date selection box.

The events of the date and time that were input are searched. The event list is scrolled and the line of the first event is highlighted in blue.

Sorting events

When turning on the power, events are registered in the event list starting from the event of the latest date.

When any of the items of the title line in the event list is clicked on, the events can be sorted based on the item. Whenever the item is clicked on, the events are sorted in the ascending order or descending order.

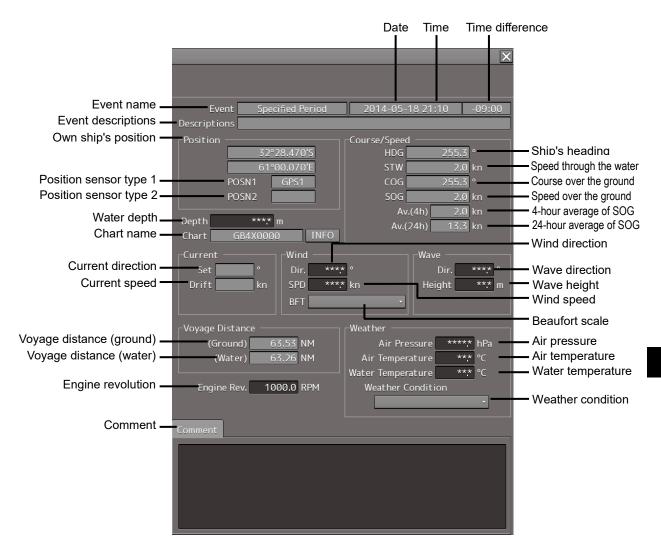
Switching the event groups

Events are classified into the following three event groups. When any of these tabs is clicked, the associated evens are displayed.

- [User Task Log] tab: Displays the events relating to user operations.
- [Navigation Alert Log] tab: Displays the events relating to navigation alerts.
- [System Alert Log] tab: Displays the events relating to system alerts.

13.1.1 Event detail information

Navigation record data is displayed as event detail information.



Detail information that can be edited

The information below can be edited during browsing.

[Depth] (Water depth):	Enter a value within the range from 0 to 999.9 m.
[Engine Rev.] (Engine revolution):	Enter a value within the range from -9999.9 to 9999.9 rpm.
[Wind Dir.] (Wind direction):	Enter a value within the range from 0 to 359.9°.
[Wind SPD] (Wind speed):	Enter a value within the range from 0 to 200.0 kn.
[Wave Dir.] (Wave direction):	Enter a value within the range from 0 to 359.9°.
[Wave Height] (Wave height):	Enter a value within the range from 0 to 50.0 m.
[Air Press.] (Air pressure):	Enter a value within the range from 0 to 2000.0 hPa.
[Air Temp.] (Air temperature):	Enter a value within the range from -50.0 to 99.9°C.
[Water Temp.] (Water temperature):	Enter a value within the range from -10.0 to 50.0°C.

The information below can be input manually. The setting can be selected from the list.

[Beaufort scale]

- 0: Calm
- 1: Light air
- 2: Light breeze
- 3: Gentle breeze
- 4: Moderate breeze
- 5: Fresh breeze
- 6: Strong breeze
- 7: Near gale
- 8: Gale
- 9: Strong gale
- 10: Storm
- 11: Violent storm
- 12: Hurricane

[Weather condition]

- b: Blue sky
- bc: Fine but cloudy
- c: Cloudy
- o: Overcast
- r: Rainy
- q: Squalls
- s: Snow
- f: Foggy

A comment can be input in the [Comment] box by using up to 1000 characters.

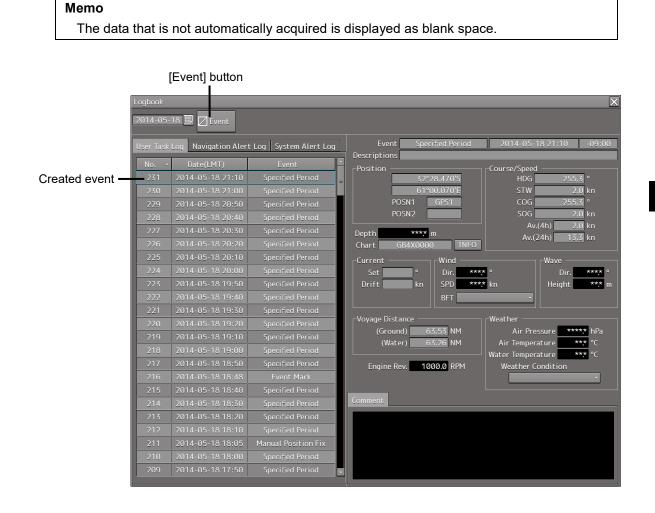
13.2 Editing a Logbook

13.2.1 Adding an event

1 Click on the [Event] button.

An event mark is plotted at the own ship's position. An event called "Event Mark" is created with the current time and is registered in the top line of the event list.

The navigation data that has been acquired automatically is displayed as event detail information.



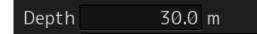
Deleting an event mark

For deletion of event marks, refer to "6.12 Marking the Position of Own Ship with an Event Mark".

13.2.2 Editing event detail information

Use the procedure that is shown below to edit the event detail information that can be edited. For the detail information that can be edited, refer to "Detail information that can be edited" in "13.1.1 Event detail information".

1 Click on the box of the data that can be edited.



- 2 Edit the information by using the software keyboard.
- **3** Click on the [Enter] key.

The editing is determined and the data is stored.

13.3 Outputting Event Data

By selecting an event, the detail information can be output as a file.

13.3.1 Outputting a logbook as a file

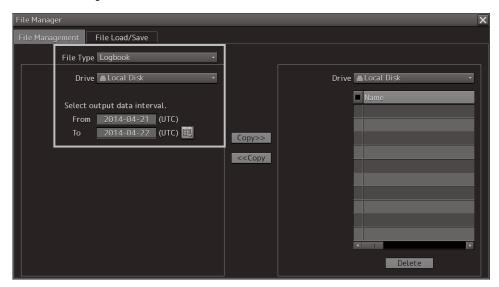
A logbook data can be output with "File Manager".

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Tools] [File Manager] on the menu. The [File Manager] dialog box appears.
- **3** Click on the [File Management] tab.

File Manager		×
File Management File Load/Save		
File Type Logbook -		
Drive Local Disk •		Drive Local Disk *
Select output data interval.		Name
From UTC) To UTC)	Copy>>	
	< <copy< td=""><td></td></copy<>	
		Delete

- **4** Select the [Logbook] from the [File Type] combo box.
- **5** Select the drive containing logbook data from the [Drive] combo box.

6 Input the period of the logbook data to be output in [From] and [To] of [Select output data interval.].

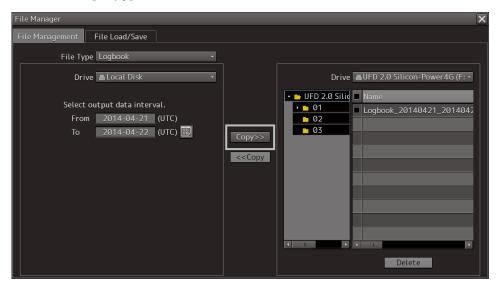


The [Copy] button is enabled.

7 Select the storage destination of the logbook data from the [Drive] combo box of the output destination.

File Manager		
File Management File Load/Save		
File Type Logbook 🔹		
Drive ALocal Disk •		Drive BUFD 2.0 Silicon-Power4G (F: •
Select output data interval. From 2014-04-21 (UTC) To 2014-04-22 (UTC)	Copy>>	UFD 2.0 Sili¢ Name O1 O2 O3 O3 O

8 Click on the [Copy] button.



Section 14 Setting up Screen View

Screen display detail is set through the [View] menu.

The display procedure of the View setup dialog box is as follows.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [View] button on the menu.

The submenu is displayed.

	Menu > View	>	1/1	×
	💽 Multi View Mode	Options		
•				

When submenu buttons are clicked, their respective setup dialog boxes are displayed.

Button	Dialog box	Reference
Multi View Mode	View-Multi View Mode Multi View Mode View1 View1 View1 View2 Single View Top-Bottom Right-Left Picture in picture Select Area from View1 for View2	14.1 Setting Chart Display Mode (Multi View Mode)
Options	View-Options > Own Ship Page 1/2 Own Ship Type Simplified Symbol * Own Track Heading and Beam Line Vector Ground stabilised vector User Map Ground stabilised vector Mariner's Mark/Line Sea stabilised vector Target Time Target Track Vector Time Mark Chart Common Interval 1min Chart View AIO Tools Next	14.2 Setting Screen Display Options

14.1 Setting Chart Display Mode (Multi View Mode)

In the [View-Multi View Mode] dialog box, chart display modes can be set.

14.1.1 Setting Multi-Screen

For details about how to use the multi-screen, refer to "6.10.1 Displaying multi view".

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on [View] [Multi View Mode] on the menu.

The [View-Multi View Mode] dialog box appears.

View-Multi View Mode					
Multi View Mode					
View4	View1	View1	View2	View1	
View1	View2	View1	viewz	View2	
Single View	Top-Bottom	Right	-Left	Picture in picture	
Select Area from View1 for View2					

You can select a chart display mode from the following four modes.

View 2.

- [Single View Mode]: Displays a chart in full screen.
 [Top-Bottom Mode]: Divides the screen into top and bottom sections; the same or different charts can be displayed in two views of View 1 and View 2.
 [Right-Left] Mode: Divides the screen into left and right sections; the same or different charts can be displayed in two views of View 1 and
- [Picture in picture] Mode: Displays the chart in View 2 on top of the chart in View 1 as a child dialog box.
- Click on the icon of the chart display mode to be used.
 A selection frame appears on the icon of the selected mode.
- 2 Click on the [Select Area from View1 for View2] button. The button is highlighted.
- **3** On the chart in View 1, select an area you want to display in View 2. The selected area is displayed in View 2.

14.2 Setting Screen Display Options

In the [View-Options] dialog box, the screen display options can be set.

Take the following steps to display the [View-Options] dialog box.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [View] [Options] on the menu. The [View-Options] dialog box appears.

Γ	Disc	closure button	
View-Options		**	×
Own ShipOwn TrackRouteUser MapMariner's Mark/LineRADARTargetTarget TrackChart CommonChart ViewAIOToolsUnitControl		Stabilisation indicato ■ Vector Time Mark Interval 1min	ne ctor min
Classification pane	;	Edit pane	

The [View-Options] dialog box consists of the classification pane and edit pane.

Click on the Disclosure button to hide the classification pane.

1 Click on the screen view of which you want to set up the options in the classification pane.

The Option setup dialog box for the screen view you have selected appears in the edit pane.

2 Set up in the edit pane.

Screen display set in the [View-Options] dialog box

The following table shows the classification panes and the related sections.

	Deleted continu
Classification pane	Related section
Own Ship	14.2.1 Setting up the display of Own Ship symbol
Own Track	14.2.2 Setting up the display own ship's track
Route	14.2.3 Setting up the display of Route Monitoring
User Map	14.2.4 Setting up the display of User Map
Mariner's Mark/Line	14.2.5 Setting up the display of Mariner's Mark Line
RADAR	14.2.6 Setting up Radar Overlay and Transparency of Echo/Trails
Target	14.2.7 Setting up the display of TT/AIS Target
Target Track	14.2.8 Setting up the display of Other Ship's Track
GPS Buoy	-
Chart Common	14.2.9 Setting up the display of Chart Common
Chart View	14.2.10 Setting up the display of Chart
AIO	14.2.11 Setting up AIO display
Tools	14.2.12 Setting up the display of Range/Bearing Measurement Function
Unit	14.2.13 Setting up the display of Unit of Setting Value
Control	14.2.14 Setting up display of Own Ship Track Control, display format of Own Ship/Cursor Position and display of Sub-Information dialog

14.2.1 Setting up the display of Own Ship symbol

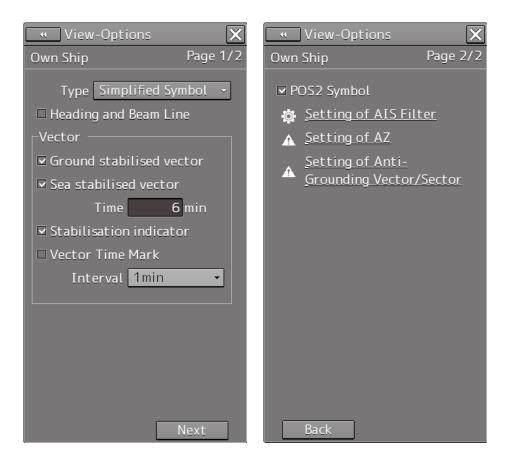
When you select [Own Ship] in the classification pane, the [Own Ship] dialog is displayed in the edit pane.

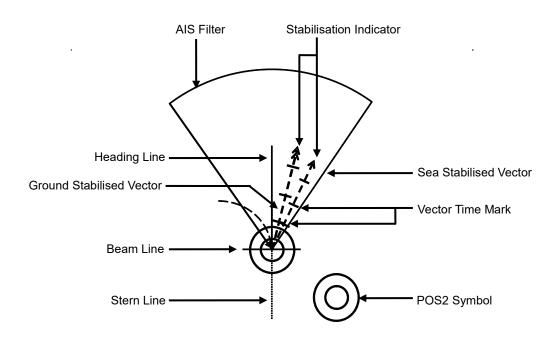
Configure the setting for own ship symbols.

The edit pane is divided into two dialogs.

To advance to the next dialog: Click on the [Next] button.

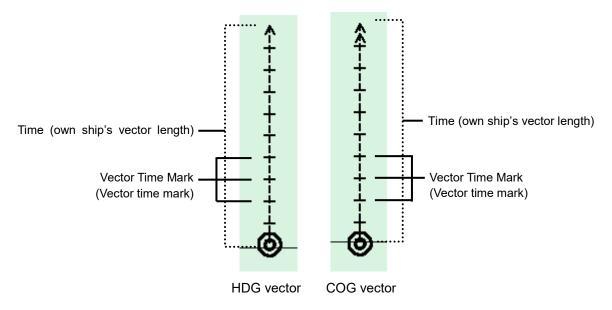
To return to the previous dialog: Click on the [Back] button.





Vector display at primary position

In the own ship symbol, COG (Course Over the Ground) vector, HDG (Heading) vector, and heading line can be displayed. The COG or HDG vector can also be displayed by the length proportionate to the current ship speed in minute by the setting. For example, when the vector length is set to 10 minutes, the vector tip is at the predicted position after 10 minutes if the ship is assumed to navigate at the current speed.



- To display the COG (Course Over the Ground) vector, check [Ground Stabilised Vector] in [Vector].
- To display the HDG (Heading) vector, check [Sea Stabilised Vector] in [Vector].
- To display the heading line, check [Heading and Beam Line].

For details on the setting of type and length of the vector to be displayed, refer to the following table.

The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
Туре	Select an own ship symbol from the combo box (symbols of other ships are also linked). Simplified Symbol C : Outline	Simplified Symbol, Outline
Heading and Beam Line (Heading line/beam line display)	Selecting this enables to display heading lines and beam lines.	To enable: Select. To disable: Clear.
Ground Stabilised Vector	Selecting this enables to display a ground stabilised vector.	To enable: Select. To disable: Clear.
Sea Stabilised Vector	Selecting this enables to display a sea stabilised vector.	To enable: Select. To disable: Clear.
Time (Length of own ship's vector)	Enter the own ship's vector length in the box.	0 to 120
Stabilization Indicator	Selecting this enables to display the stabilization indicator. Note When both the Ground Stabilised Vector and the Sea Stabilised Vector are effective, this automatically takes effect.	To enable: Select. To disable: Clear.
Vector Time Mark	Selecting this enables the interval of the vector time mark.	To enable: Select. To disable: Clear.
Interval (vector time mark interval)	Select a vector time mark interval from the pull-down menu when Vector Time Mark is valid.	1 to 6 min
POS2 Symbol	Selecting this enables to display the POS2 symbol. Note This item may not be displayed depending on the equipment setting.	To enable: Select. To disable: Clear.

Shortcuts

Click on any of available shortcuts to display the related dialog box.

Shortcut	Setup Dialog	
Setting of AIS Filter	[AIS Filter Setting] dialog box	
Settings of AZ	[AZ Setting] dialog box	
Settings of Anti-Grounding Vector/Sector	[Anti-Grounding Vector/Sector Setting] dialog box	

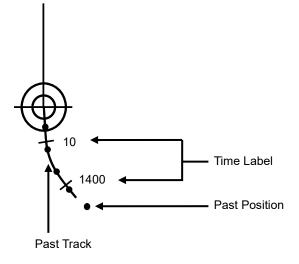
14.2.2 Setting up the display own ship's track

When you select [Own Track] in the classification pane, the [Own Track] dialog is displayed in the edit pane.

Configure the settings for own tracks.

Information of own tracks is recorded in the SSD at every second. Information of a maximum of 24 hours is displayed on a chart as own tracks.

*	×
Own Track	
☑ Past Track	
Plot Color 📕 Black 👻	
Track Period 1h 🛛 🗸	
☑ Time Label	
Interval 30min 👻	
□ Past Position	
Interval 1min 👻	



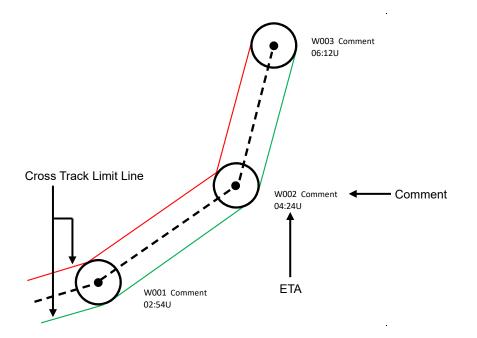
Setting Item	Description of Setting	Setting Value
Past Track	Selecting this enables to display the past track.	To enable: Select. To disable: Clear.
Plot Color (plot color of track)	When Past Track is enabled, select a plot color of the track from the list (preview not supported).	White (Black), Gray, Pink, Magenta, Blue, Cyan, Green, Yellow, Orange, Dark Red Note
		When the background of the screen is being set to Day1 or Day2, Black can be selected instead of White.
Track Period	When Past Track is enabled, select a track period from the list (preview not supported).	1, 2, 4, 6, 8, 12, 16, 24 h
Time Label	Selecting this enables to display the time label interval.	To enable: Select. To disable: Clear.
Interval (time label interval)	When Time Label is enabled, select a time label interval from the list (preview not supported).	1, 3, 5, 10, 30, 60 min
Past Position	Selecting this enables to display the past position.	To enable: Select. To disable: Clear.
Interval (past position interval)	When Past Position is enabled, select an interval of track points from the list (preview not supported).	0.5 min, 1 min, 2 min, 4 min, 0.1 NM, 0.2 NM, 0.5 NM, 1 NM

The descriptions of settings are shown in the table below.

14.2.3 Setting up the display of Route Monitoring

When you select [Route] in the classification pane, the [Route] dialog is displayed in the edit pane. Configure the settings for route monitoring.

» X
Route
□ □ Date/Time for Monitoring
Format UTC LMT
Show ETA
☑ Cross Track Limit Line
Color IALA-A IALA-B
✓ Show WPT Name
WPT Name Font Size
Standard Small ABC



The descriptions of settings are shown in the table below.

Setting Item	Description of Setting Setting V		
Show ETA	Selecting this enables to display the ETA (estimated time of arrival at WPT) while route monitoring.	To enable: Select. To disable: Clear.	
Format	When ETA is enabled, select a display format of the ETA while route monitoring by clicking on the corresponding button. 04:24U : UTC 13:24L : LMT	UTC/LMT	
Cross Track Limit Line	Selecting this enables to display cross track limit lines.	To enable: Select. To disable: Clear.	
Color	 When Cross Track Limit Line is enabled, select a display color of cross track limit lines by clicking on the corresponding button. IALA-A: Starboard - green, port - red IALA-B: Starboard - red, port - green 	IALA-A, IALA-B	
Show WPT Name (Comment display)	Selecting this enables to display a comment on the vicinity of the target.	To enable: Select. To disable: Clear.	
WPT Name Font Size (Comment font size)	When Show WPT Name is enabled, select a font size of comments by clicking on the corresponding button (preview not supported).	Standard, Small	

14.2.4 Setting up the display of User Map

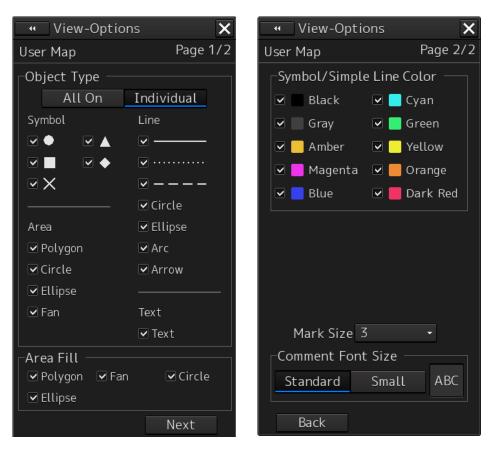
When you select [User Map] in the classification pane, the [User Map] dialog is displayed in the edit pane.

Set up the display of User Map.

The edit pane is divided into two dialogs.

To advance to the next dialog: Click on the [Next] button.

To return to the previous dialog: Click on the [Back] button.



The descriptions of settings are shown in the table below.

Area	Description of Setting	Setting Value
Object Type	Click on the button to specify	All On/Individual
(Object display condition)	whether to display or hide the object mark, and select the mark to be displayed. All On: Displays all marks. Individual: Displays selected marks.	Types of selectable marks Symbol: $\bigcirc, \triangle, \Box, \diamondsuit, \times$ Area: Polygon, Circle, Ellipse, Fan Line: Solid Line, Dotted Line, Dashed Line, Circle, Ellipse, Arc, Arrow Text: Text
Area Fill	Set the fill color display to	Off/On
(Fill)	On/Off. Check the mark to be	
	set to On.	
Symbol/Simple Line Color	Set to On/Off the display of the	Off/On
(Symbol and simple line	color that targets the symbol	
color)	and simple line. Check the color	
	to be set to On.	
Mark Size	Set the mark display size.	1 (Minimum) /2/3/4/5 (Maximum)
(Mark size)		
Comment Font Size	Set the font size of the	Standard/Small
(Comment font size)	comment.	

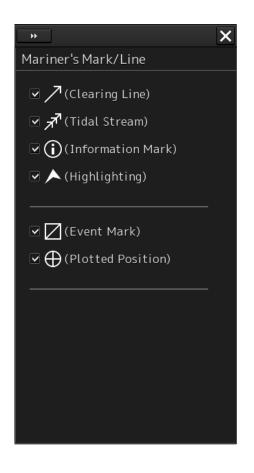
14.2.5 Setting up the display of Mariner's Mark Line

When you select [Mariner's Mark/Line] in the classification pane, the [Mariner's Mark/Line] dialog is displayed in the edit pane.

Select mariner's marks and lines you want to display on the user map by selecting the corresponding check boxes.

You can select the following marks and lines.

- Clearing Line
- Tidal Stream
- Information Mark
- Highlighting
- Event Mark
- Plotted Position



14.2.6 Setting up Radar Overlay and Transparency of Echo/Trails

When you select [RADAR] in the classification pane, the [RADAR] dialog is displayed in the edit pane.

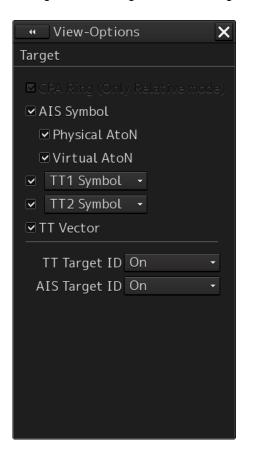
*	×
RADAR	
RADAR Overlay □ RADAR1 →	
Transparency of Echo/Trails	
Opaque Transparent	

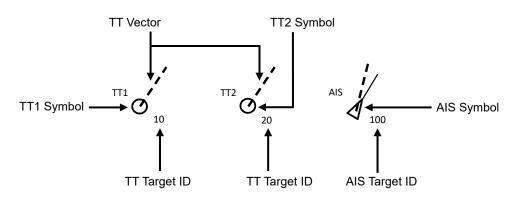
The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
RADAR Overlay	 The radar overlay display turns ON by selecting the [RADAR Overlay] Select the required radar system from the pull-down menu. Note When this item is turned OFF, even the alerts related to the radar will not be displayed. This item is displayed on the ECDIS screen if RADAR interface is available. 	Without interswitch setting RADAR1/RADAR2 With interswitch setting RADAR1 to 8
Transparency of Echo/Trails	Click on the control on the slider and set up the transparency of echoes/trails.	0 to 15 0 = Opaque (Nontransparent) 15 = Transparent (Completely transparent)

14.2.7 Setting up the display of TT/AIS Target

When you select [Target] in the classification pane, the [Target] dialog is displayed in the edit pane. Configure the settings for TT/AIS targets.





The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value		
AIS Symbol	Selecting this enables to display the AIS symbol.	To enable: Select. To disable: Clear.		
Physical AtoN	Selecting this enables to display the Physical AIS AtoN when the AIS Symbol is selected.To enable: Select. To disable: Clear.			
Virtual AtoN	Selecting this enables to display the Virtual AIS AtoN when the AIS Symbol is selected.	To enable: Select. To disable: Clear.		
TT1 Symbol (TT1 Symbol) TT2 Symbol (TT2 Symbol)	Select this item to enable the TT symbol. Select the TT Symbol to be used from the combo box. TT1 Symbol indicates the tracked target information that is received from RADAR1 and the TT Target ID is displayed as "T1-***" (*** indicates the target number or ship name). TT2 Symbol indicates the tracked target information that is received from RADAR2 and the TT Target ID is displayed as "T2-***" (*** indicates the target number or ship name).	To enable: Select. To disable: Clear.		
TT Vector	Selecting this enables to display the TT vector.	To enable: Select. To disable: Clear.		
TT Target ID (Tracked target ID)	Select a display mode of the tracked target ID from the combo box. Off: Hide On: Show TT Track: Displays only the target that shows other ship's track. Display Ship's Name: When the ship's name has been input in the [TT Target INFO] (property of tracked target) dialog, that ship name is displayed. If the ship's name has not been input, the identification number is displayed. Display O : Off O_{10} : On O_{10} : TT Track O_{Name} : Ship's Name	Off, On, TT Track		

Setting Item	Description of Setting	Setting Value
AIS Target ID	Select a display mode of the AIS target ID from the combo box. Off: Hide	Off, On, AIS Track, Ship's Name
	On: Show	
	AIS Track: Displays only the target that shows other ship's track (target track).	
	Ship's Name: When a ship's name is input in the [AIS Target INFO] (property of AIS target) dialog, the ship's name is displayed. When no ship's name is input, the ID is displayed.	
	Display	
	: Off	
	i On	
	10 : TT Track	
	Name : Ship's Name	

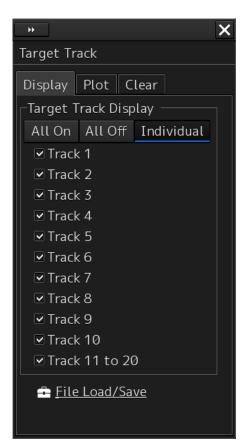
14.2.8 Setting up the display of other ship's track

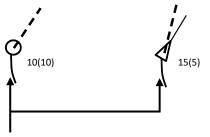
When you select [Target Track] in the classification pane, the [Target Track] dialog is displayed in the edit pane.

The [Target Track] dialog consists of the [Display], [Plot] and [Clear] tabs.

[Display] tab

On the [Display] tab, set up the display of other ship's tracks.





Target Track

The descriptions of settings are shown in the table below.

Setting Item	Description of Setting		Setting Value
Target Track Display (display of other ship's tracks)	Select to show/hide target tracks by clicking on the corresponding buttons and then specify the target tracks you want to display by checking them. All On: Shows all of target tracks. All Off: Hides all of target tracks. Individual: Shows selected target tracks.		All On, All Off When Individual is selected: Select from Tracks 1 to 10 and from Tracks 11 to 20.

Shortcut

Click on any of available shortcuts to display the related dialog box.

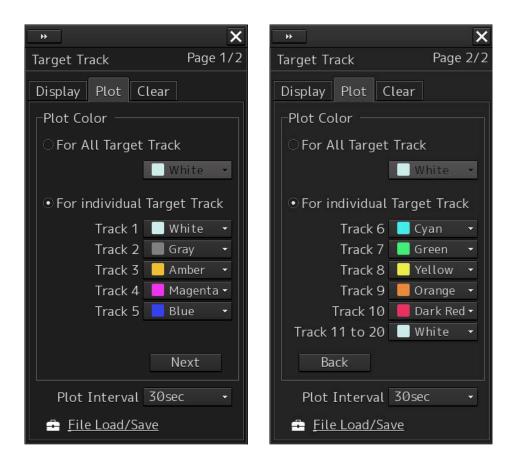
Shortcut	Setup Dialog Box
File Load/Save	[File Load/Save] dialog box in File Manager

[Plot] tab

The edit pane of the [Plot] tab is divided into two dialogs.

To advance to the next dialog: Click on the [Next] button.

To return to the previous dialog: Click on the [Back] button.



The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
For All Target Track	Click on the check box and select a plot color of target tracks from the list.	White (Black), Gray, Amber, Magenta, Blue, Cyan, Green, Yellow, Orange and Dark Red
For Individual Target Track	Click on the check box and select plot colors of individual target tracks (Tracks 1 to 10 and Tracks 11 to 20) from the list.	White (Black), Gray, Amber, Magenta, Blue, Cyan, Green, Yellow, Orange and Dark Red
Plot Interval	Select a plot interval of target tracks from the combo box.	Off, 3s, 5s, 10s, 30s, 1 min, 3 min, 5 min, 10 min, 30 min, 60 min, 1 NM, 3 NM, 5 NM, 10 NM, 0.1 NM, 0.2 NM, 0.3 NM, 0.5 NM

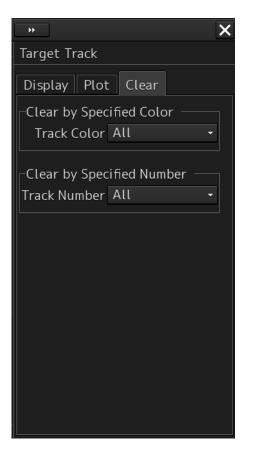
* White/Black interchanges under the following conditions. Black at Day1/Day2 (or Day), white at Day3/Dusk/Night

Shortcut

Click on any of available shortcuts to display the related dialog box.

Shortcut	Setup Dialog Box
File Load/Save	[File Load/Save] dialog box in File Manager

[Clear] tab



To erase tracks by specifying a color

1 Select the color of other ship's track to be erased from the [Track Color] combo box. You can select from All, White, Gray, Amber, Magenta, Blue, Cyan, Green, Yellow, Orange and Dark Red.

* White/Black interchanges under the following conditions. Black at Day1/Day2 (or Day), white at Day3/Dusk/Night

A message dialog box prompting you to confirm erasing appears.

System	<
System Clear <mark> Gray</mark> Are you sure ?	Color you selected
OK Cancel	

2 To execute erasing, click on the [OK] button. To cancel erasing, click on the [Cancel] button or the [X] button.

To erase tracks by specifying a number

1 Select the number of other ship's track to be erased from the [Track Number] combo box.

You can select from All, Track 1, Track 2, Track 3, Track 4, Track 5, Track 6, Track 7, Track 8, Track 9, Track 10 and Track 11 - 20.

An erase confirmation message dialog is displayed

System			×
		lear <mark>Track 1.</mark> ou sure ?	——— Selected track number
	OK	Cancel	

2 To execute erasing, click on the [OK] button. To cancel erasing, click on the [Cancel] button or the [X] button.

14.2.9 Setting up the display of Chart Common

When you select [Chart Common] in the classification pane, the [Chart Common] dialog is displayed in the edit pane.

The edit pane is divided into two dialogs.

To advance to the next dialog: Click on the [Next] button.

To return to the previous dialog: Click on the [Back] button.

» X	*	<
Chart Common Page 1/2	Chart Common Page 2/	2
Area Boundary	Depth	
Plane Symbolized	Shallow Contour 5 m	
	Safety Depth 10 m	
Chart Symbol	Safety Contour 30 m	
Paper Chart Simplified	Deep Contour 30 m	
	🗆 Two Color Depth	
🗆 Full Light Line	□ Shallow Pattern	
🗆 Consider Scale Minimum	Show Isolated Danger	
	In Shallow Water	
	C-MAP Ed.3 Database	
Next	Back	

Setting Item	Description of Setting	Setting Value
Area Boundary	Select a display method of area boundary by clicking on the corresponding button. Plane: Displays a plane boundary (an area boundary is indicated by dotted lines).	Plane, Symbolized
	Area boundary	
	Symbolized: Displays a symbol boundary (an area boundary is indicated by symbol lines).	
	Area boundary	
Chart Symbol	Select a type of chart symbols you want to use on the chart by clicking on the corresponding button. Paper Chart: The same symbols on paper charts are used as symbols for lighthouses, etc.	Paper Chart, Simplified
	Simplified: Colored symbols are displayed.	

Setting Item	Description of Setting	Setting Value
Full Light Line	Description of Setting When selected, display of maximum length of full light line is enabled. When [Full Light Line] is enabled When [Full Light Line] is enabled	Setting Value To enable: Select. To disable: Clear.
	Light range of lighthouse When [Full Light Line] is disabled.	
Consider Scale	When selected, scale display smaller than the minimum	To enable: Select.
Minimum	scale setting value is disabled.	To disable: Clear.
	Minimum]is enabled Minimum] is disabled	

Setting Item	Description of Setting	Setting Value
Depth	Refer to "Depth."	
C-MAP Ed.3 Database	 Select this to show a chart database chart. *Only the imported chart databases can be selected. During manual updating of a chart, the C-MAP database list cannot be changed. Therefore, the following restrictions are imposed while the Manual Update tool bar is displayed by selecting [Chart] - [Manual Update] in the menu. Chart Type of [View1] / [View2] cannot be changed in the [View-Options] dialog. The C-MAP Ed.3 Database check box cannot be changed. The Manual Update tool bar is closed, the restrictions are released. 	Shown: Selected Hidden: Clear

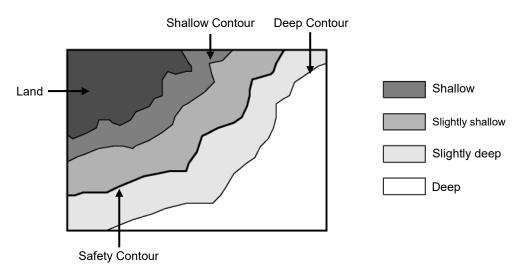
Depth

Use [Depth] items to set up the depth.

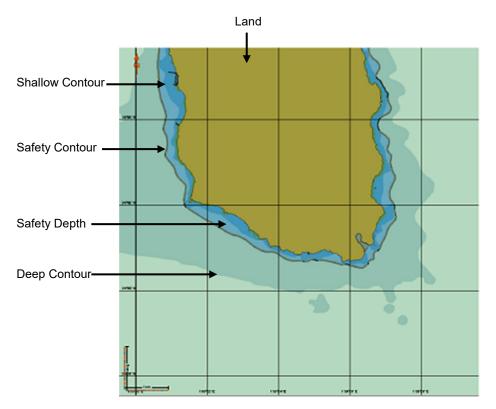
Setting Item	Description of Setting	Setting Value
Shallow Contour	The shallow contour displayed on the chart is displayed at	0 to 200
	the set depth.	
	For the display example, refer to "(1) Example of displaying	
	Shallow Contour/Safety Contour/Deep Contour."	
Safety Depth	The spot depth that is lower than the set value is highlighted	0 to 200
	for display.	
Safety Contour	The set depth value on the chart (or depth that is lower than	0 to 200
	the set value) is highlighted for display.	
	In the sea area that is shallower than the set value, an alarm	
	occurs.	
	*If the safety contour appropriate to the set depth is not	
	provided on the chart, the safety contour that is deeper than	
	the set value is displayed.	
	For the display example, refer to "(1) Example of displaying	
	Shallow Contour/Safety Contour/Deep Contour."	
Deep Contour	The deep contour displayed on the chart is displayed at the	0 to 200
	set depth.	
	For the display example, refer to "(1) Example of displaying	
	Shallow Contour/Safety Contour/Deep Contour."	
Two Color Depth	Normally, the sea is displayed on the chart by four colors at	To enable: Select.
	each depth. When [Two Color Depth] is enabled, the sea is	To disable: Clear.
	displayed by two colors with [Safety Contour] as a boundary.	
	This item is set to clearly separate the sea into the safe area	
	and the area where navigation requires caution.	
	For the display example, refer to "(2) Example of Displaying	
	Two Color Depth."	

Setting Item	Description of Setting	Setting Value
Shallow Pattern	Of depth that can be set at 4 levels, a lattice-like line is	To enable: Select.
	added to the shallow sea set in [Shallow Contour] and	To disable: Clear.
	[Safety Contour].	
	This item is set to display the area where navigation	
	requires caution conspicuously.	
	For the display example, refer to "(3) Example of Displaying	
	Shallow Pattern."	
Show Isolated	A dangerous route obstacle existing in the sea area that is	To enable: Select.
Danger In	shallower than safety contour is displayed by 🔇 mark.	To disable: Clear.
Shallow Water	For the display example, refer to "(4) Example of displaying	
	Isolated Danger In Shallow Water."	

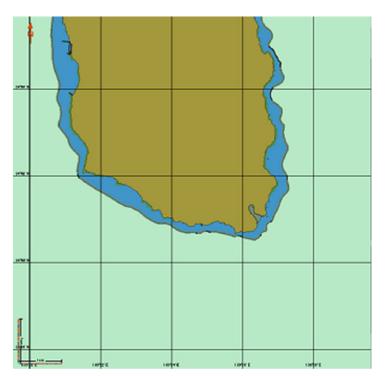
(1) Example of displaying Shallow Contour/Safety Contour/Deep Contour



(2) Example of displaying Two Color Depth



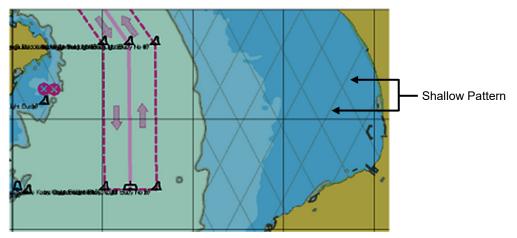
When [Two Color Depth] is disabled (the sea area is displayed by four colors.)



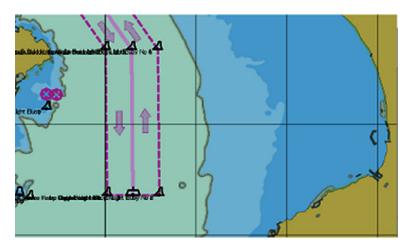
When [Two Color Depth] is enabled (the sea area is displayed by two colors.)

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(3) Example of displaying Shallow Pattern

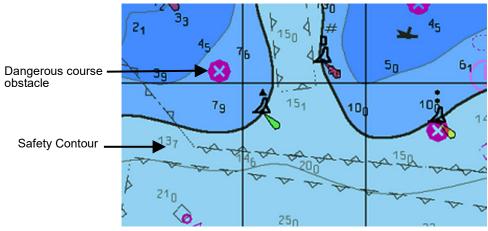


When [Shallow Pattern] is enabled (the shallow pattern is displayed)

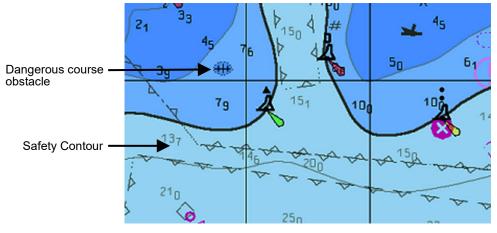


When [Shallow Pattern] is disabled (the shallow pattern is not displayed)

(4) Example of displaying Isolated Danger In Shallow Water



When Isolated Danger In Shallow Water is enabled



When Isolated Danger In Shallow Water is disabled

Restrictions on [Safety Contour] and [Deep Contour]

1) When entering in [Shallow Contour]

If "Safety Contour < Shallow Contour ≤ Deep Contour", the Safety Contour value is corrected to the Shallow Contour value.

If "Safety Depth < Shallow Contour \leq Deep Contour", the Safety Contour is corrected to the Shallow Contour value.

If Safety Contour, Safety Depth \leq Deep Contour < Shallow Contour", the Safety Contour, Safety Depth, and Deep Contour values are corrected to the Shallow Contour value.

 When entering in [Deep Contour] If "Shallow Contour ≤ Deep Contour < Safety Contour", the Safety Contour value is corrected to the Deep Contour value.

If "Shallow Contour ≤ Deep Contour < Safety Depth", the Safety Depth value is corrected to the Deep Contour value.

If "Deep Contour < Shallow Contour ≤ Safety Contour, Safety Depth", the Safety Contour, Safety Depth, and Shallow Contour values are corrected to the Deep Contour values.

3) When entering in [Safety Contour]

If "Shallow Contour ≤ Deep Contour < Safety Contour", the Deep Contour value is corrected to the Safety Contour value.

If "Safety Contour < Shallow Contour ≤ Deep Contour", the Shallow Contour value is corrected to the Safety Contour value.

4) When entering [Safety Depth]

If "Shallow Contour \leq Deep Contour < Safety Depth", the Deep Contour value is corrected to the Safety Depth value.

If "Safety Depth < Shallow Contour \leq Deep Contour", the Shallow Contour value is corrected to the Safety Depth value.

The compensated setting values are flashed temporarily.

14.2.10 Setting up the display of Chart

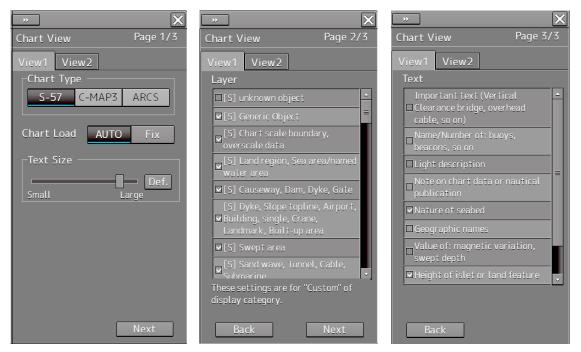
When you select [Chart View] in the classification pane, the [Chart View] dialog is displayed in the edit pane.

The edit pane is divided into three dialogs.

To advance to the next dialog: Click on the [Next] button.

To return to the previous dialog: Click on the [Back] button.

You can set up the same values on both the [View1] and [View2] tabs.



The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
Chart Type	Select a type of charts to be displayed by clicking on the corresponding button.	S-57, C-Map 3, ARCS
	S-57: Shows S-57 charts.	
	C-Map 3: Shows C-Map Ed3 charts.	
	ARCS: Shows ARCS charts.	
Text Size	Drag the control on the slider and set up the text size (7 levels).	0 to 6
	Clicking on the [Def.] (Factory settings) button resets the text size to the factory preset value.	
	For the details of the examples of changing text size, refer to "Example of changing text size".	
Chart Load	Select a display switching mode for the S-57 chart by clicking on the button.	AUTO, Fix
	[AUTO]: Automatically switches and shows charts.	
	[Fix]: Fixes and shows the chart being currently displayed.	
Layer	When showing S-57/C-MAP charts, select the objects you want to display by selecting the check boxes of desired objects.	Refer to "Contents to be displayed as layers".
Text	When showing S-57/C-MAP charts, select the texts you want to display by selecting the check boxes of desired texts.	Refer to "Contents to be displayed as texts".

Example of changing text size

Standard

Udone Shima			
Small Large			
Udone Shima		-	Lucer 2000
↓ Small ↓ Large		↓Large	Small
Udone Shima		-	eore thima
↓ Small ↓ Large		↓ Large	Small
Udone Shima	Large		idole Silma

Contents to be displayed as layers

Set up the items to be displayed when the chart display category is [Custom].

There are three types of layers: [-], [S] and [A].

- [-]: Items whose display categories are none of [BASE], [STD(Standard)] nor [All].
- [S]: Items to be displayed when the display category is [STD].
- [A]: Items to be displayed when the display category is [All].

Туре	ENC layer
[S]	unknown object
	Generic Object
	Chart scale boundary, overscale data
	Land region, Sea area/named water area
	Causeway, Dam, Dyke, Gate
	Dyke, Slope topline, Airport, Building, single, Crane, Landmark, Built-up area
	Swept area
	Sand wave, Tunnel, Cable, Submarine
	Navigation line
	Recommended track
	Ferry route
	Radar range, Radar line, Radio calling in point
	Restricted area
	Ferry route, Military practice area, Offshore production area
	Caution area, Fairway
	Fishing ground, Marine farm/ aquaculture
	Anchorage area, Anchor berth
	Cable area, Pipeline area
	Dumping ground, Cargo transshipment area, Incineration area
	Archipelagic sea lane
	Buoy, Beacon, Light float, Mooring buoy, Light Vessel
	Daymark
	Navigational system mark
	topmarks
	light
	Fog signal, Retro-reflector, Radar transponder beacon, Radar reflector
	Pilot boarding place, Signal station, Traffic, Signal station, Warning

Туре	ENC layer
[A]	Quality of data, Low accuracy data
	Nautical publication information
	Coverage, Compilation scale of data
	Local magnetic anomaly, Magnetic variation
	Sloping ground, Land elevation, Slope topline
	Vegetation, Lake, Rapids, River, Water fall, Tideway
	Building, Fortified structure, Land mark, Silo/Tank, Airport, Road, Railway
	Check point, Harbor facility
	Distance mark
	Berth, Crane, Drydock, Mooring/Warping facility, Gate
	Sounding
	Depth area, Depth counter, Label for contour
	Water turbulence, Tide, Current-non-gravitational
	Seabed area, Weed/Kelp, Spring
	Fishing-facility
	Obstruction, Wreck, Underwater/Awash rock
	Cable, Submarine, Pipeline, Submarine/on land
	Continental shelf area
	Custom zone, Free port area, Harbor area
	Fishery zone
	Administration area, Contiguous zone, Exclusive economic zone
	Radar station, Radio station, Coastguard station, Rescue station
	ENC edition date
	most recent chart update number
	graticule
[-]	Updated Objects

Туре	C-MAP Ed.3 Layer
[S]	Generic Object
	Chart scale boundary, overscale data
	Land region, Sea area/named water area
	Causeway, Dam, Dyke, Gate
	Dyke, Slope topline, Airport, Building, single, Crane, Landmark, Built-up area
	Swept area
	Sand wave, Tunnel, Cable, Submarine
	Navigation line
	Recommended track
	Ferry route
	Radar range, Radar line, Radio calling in point
	Restricted area
	Ferry route, Military practice area, Offshore production area
	Caution area, Fairway
	Fishing ground, Marine farm/aquaculture
	Anchorage area, Anchor berth
	Cable area, Pipeline area
	Dumping ground, Cargo transshipment area, Incineration area
	Archipelagic sea lane
	Buoy, Beacon, Light float, Mooring buoy, Light Vessel
	Daymark
	Navigational system mark
	Fog signal, Retro-reflector, Radar transponder beacon, Radar reflector
	Pilot boarding place, Signal station, Traffic, Signal station, Warning

Туре	C-MAP Ed.3 Layer
[A]	Quality of data, Low accuracy data
	Nautical publication information
	Coverage, Compilation scale of data
	Local magnetic anomaly, Magnetic variation
	Sloping ground, Land elevation, Slope topline
	Vegetation, Lake, Rapids, River, Water fall, Tideway
	Building, Fortified structure, Land mark, Silo/Tank, Airport, Road, Railway
	Check point, Harbor facility
	Distance mark
	Berth, Crane, Drydock, Mooring/Warping facility, Gate
	Sounding
	Depth area, Depth counter, Label for contour
	Water turbulence, Tide, Current-non-gravitational
	Seabed area, Weed/Kelp, Spring
	Fishing-facility
	Obstruction, Wreck, Underwater/Awash rock
	Cable, Submarine, Pipeline, Submarine/on land
	Continental shelf area
	Custom zone, Free port area, Harbor area
	Fishery zone
	Administration area, Contiguous zone, Exclusive economic zone
	Radar station, Radio station, Coastguard station, Rescue station
	graticule

Contents to be displayed as texts

ENC Text
Important text (Vertical Clearance bridge, overhead cable, so on)
Name/Number of: Buoys, beacons, so on
Light description
Note on chart data or nautical publication
Nature of seabed
Geographic names
Value of: magnetic variation, swept depth
Height of islet or land feature
Berth number
National language

C-MAP Ed.3 Text
Important text(Vertical Clearance bridge, overhead cable, so on)
Other text (Name of building so on)
Light description
Note on chart data or nautical publication
Geographic names
National language

14.2.11 Setting up AIO display

When you select [AIO] in the classification pane, the [AIO] dialog box appears in the edit pane.

* X
AIO
☑ All AIO Objects
✓ Temporary Notice(T)
✓ Preliminary Notice(P)
ENC Preliminary Notice(EP)
☑ No Information Objects

The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value	
All AIO Objects	Select and enable the display of all AIO objects.	To enable: Select. To disable: Clear.	
Temporary Notice (T)	Select and enable the display associated with Temporary Notice (T).	To enable: Select. To disable: Clear.	
Preliminary Notice (P)	Select and enable the display associated with Preliminary Notice (P).	To enable: Select. To disable: Clear.	
ENC Preliminary Notice (EP)	Select and enable the display associated with ENC Preliminary Notice (EP).	To enable: Select. To disable: Clear.	
No Information Objects	Select and enable the display associated with No Information Objects.	To enable: Select. To disable: Clear.	

14.2.12 Setting up the display of Range/Bearing Measurement Function

When you select [Tools] in the classification pane, the [Tools] dialog is displayed in the edit pane.

* X
Tools
✓ Range Rings
Bearing Scale
🗹 EBL1
I EBL2
☑ VRM1
✓ VRM2
I PI
🗹 Index Line 1 🗹 Index Line 5
🗹 Index Line 2 🗹 Index Line 6
🗹 Index Line 3 🗹 Index Line 7
🗹 Index Line 4 🗹 Index Line 8
Node Fixed EBL/VRM

The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
Range Rings	Selecting this enables to display range rings.	To enable: Select. To disable: Clear.
Bearing Scale	Selecting this enables to display the bearing scale.	To enable: Select. To disable: Clear.
	Note	
	This item is displayed on the ECDIS	
	screen only. This item is enabled only	
	when overlay is set to On.	
EBL1/EBL2	Selecting this enables to display the EBL1/EBL2 markers.	To enable: Select. To disable: Clear.
VRM1/VRM2	Selecting this enables to display the VRM1/VRM2 markers.	To enable: Select. To disable: Clear.
PI (parallel line cursor)	Select this to enable to display the PI cursors, and then select the PI cursors you want to display by selecting them.	To enable: Select. To disable: Clear.
		PI cursor selections Index Line 1 to Index Line 8
Node Fixed EBL/VRM	Selecting this enables to display the node fixed EBL/VRM.	To enable: Select. To disable: Clear.

14.2.13 Setting up the display of unit of setting value

Note

Some items may not be displayed depending on the installation setting.

When you select [Unit] in the classification pane, the [Unit] dialog is displayed in the edit pane.

View-Options	×
Unit	
Depth (Included Depth in Chart) Current Speed	
Wind Speed	kn -
Propeller Revolution	rpm -
Propeller Pitch Angle	% ~
Thruster Revolution	rpm -
Thruster Pitch Angle	% ~
Air TEMP	°C ~
Water TEMP	°C ~
Air Pressure	hPa -
Wind Direction(True)	16points -

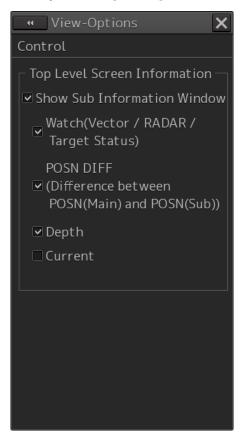
14

The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
Depth (water depth)	Select a unit of water depth from the combo box.	m, ft, fm
Ship Speed	Select a unit of the ship speed from the combo box.	kn, m/s, km/h
Current Speed	Select a unit of the current speed from the combo box.	kn, m/s, km/h
Wind Speed	Select a unit of the wind speed from the combo box.	kn, m/s, km/h
Propeller Revolution	Select a unit of the propeller's revolution per minute from the combo box.	rpm, min ⁻¹
Propeller Pitch Angle	Select a unit of the propeller's pitch angle from the combo box.	°, %
Thruster Revolution	Select the unit of thruster revolution from the combo box.	rpm, min-1
Thruster Pitch Angle	Select a unit of the thruster's pitch angle from the combo box.	°, %, NOTCH
Air TEMP	Select a unit of the air temperature from the combo box.	°C, °F
Water TEMP	Select a unit of the water temperature from the combo box.	°C, °F
Air Pressure	Select a unit of the air pressure from the combo box.	hPa, mbar
Wind Direction(True)	Select a wind direction (true) display method from the combo box.	16 points, Degree

14.2.14 Setting up display of Own Ship Track Control, display format of Own Ship/Cursor Position and display of Sub-Information dialog

When you select [Control] in the classification pane, the [Control] dialog is displayed in the edit pane.



The descriptions of settings are shown in the table below.

Setting Item	Description of Setting	Setting Value
Show Sub Information Window (sub information dialog box display)	Select this to enable to display the sub information dialog box, and then select the tab(s) you want to display.	To enable: Select. To disable: Clear.
	 Note The [Depth] tab can only be selected when equipped with a water depth sensor. The [Current] tab can only be selected when equipped with a GPS, a gyro and a log sensor. 	Tab selections Watch(Vector / Radar / Target status), POSN DIFF(Difference between POSN(Main) and POSN(Sub)), Depth, Current

14.2.15 Setting up the Water Depth display

When [Depth Graph] is selected on the classification pain, the [Depth Graph] dialog is shown on the Edit pain.

••	View-Opti	ions		×
Dept	th Graph			
_ De	pth Trend (Graph ——		1
Dep	pth Range([Oocking)		
		AUTO	-	
Dep	pth Range(\	/oyage)		
		AUTO		
	Time Range	10min		
	Reference	AUTO		
				1

The following table shows the setting details:

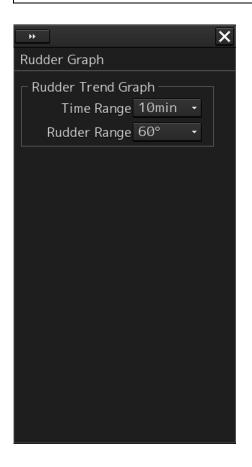
Setting item	Description	Setting values
Depth Range(Docking)	Select a depth range for the docking depth graph from the combo box.	AUTO, 10 m, 25 m, 50 m
Depth Range(Voyage)	Select a depth range for the route depth graph from the combo box.	AUTO, 50 m, 100 m, 250 m
Time Range	Select a time range for the depth graph from the combo box.	10 min, 15 min, 30 min, 60 min, 12 hours
Reference	Select a reference for depth display from the combo box.	AUTO, Keel

14.2.16 Setting up the Rudder graph

When [Rudder Graph] is selected on the classification pain, the [Rudder Graph] dialog is displayed on the edit pain.

Note

This dialog may not be displayed depending on the equipment setting.



The following table shows the setting details:

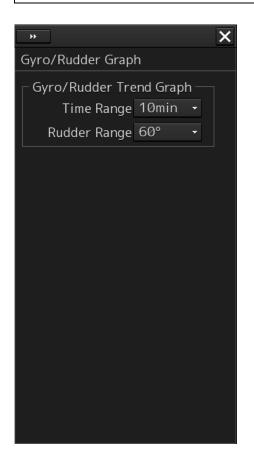
Setting item	Setting	Setting value
Time Range	Select a time range for the Rudder graph from the combo box.	5 min, 10 min, 15 min, 30 min
Rudder Range	Select a rudder angle for the Rudder graph from the combo box.	30°, 40°, 50°, 60°, 70°, 80°

14.2.17 Setting up the Gyro/Rudder graph

When [Gyro/Rudder Graph] is selected on the classification pain, the [Gyro/Rudder Graph] dialog is displayed on the edit pain.

Note

This dialog may not be displayed depending on the equipment setting.



The following table shows the setting details:

Setting item	Setting	Setting value
Time Range	Select a time range for the Gyro/Rudder graph from the combo box.	5 min, 10 min, 15 min, 30 min
Rudder Range	Select a rudder angle for the Gyro/Rudder graph from the combo box.	30°, 40°, 50°, 60°, 70°, 80°

14.2.18 Setting up the Engine Graph

When [Engine Graph] is selected on the classification pain, the [Engine Graph] dialog is displayed on the edit pain.

Note

This dialog may not be displayed depending on the equipment setting.



The following table shows the setting details:

Setting item	Setting	Setting value
Time Range	Select a time range for the engine speed graph form the combo box.	10 min, 15 min, 30 min, 60 min
Maximum rpm	Select an engine speed on the Ahead side form the combo box.	AH100, AH200, AH300, AH500, AH1000
Minimum rpm	Select an engine speed on the Astern side form the combo box.	0, AS50, AS100

14

14.2.19 Setting up the graph range of the ROT slide bar

When [ROT] is selected on the classification pain, the [ROT] dialog is displayed on the edit pain.

••]	×
ROT		
_ RO	т ———	1
	ROT Scale 90-0-90 🔹	

Setting item	Setting	Setting value
ROT Scale	Select a graph range for the ROT slide bar from the combo box.	30-0-30, 60-0-60, 90-0-90, 120-0-120, 150-0-150, 300-0-300

Section 15 Setting up Alerts

By setting this equipment to generate an alert when the own ship's position or the condition meets the specific condition or any other ship or obstacle approaches to a specific range, preliminary measures can be taken, avoiding collisions, grounding, and deviation from the route can be avoided. This section explains the method of setting conditions (threshold values) for generating alerts, alert processing operations, and alert timer setting using the [Alert] menu.

15.1 Selecting Setting Items

When the [Alert] menu is opened, the [Alert] dialog box appears.

By selecting a setting item in the [Alert] dialog box, the setting dialog of the selected item can be displayed.

15.1.1 Displaying the [Alert] dialog box

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Alert] button on the menu. The [Alert] dialog box appears.

Disc	losure button
Alert	* X
Collision Avoidance New Target Alarm	Collision Avoidance CPA/TCPA Alarm CPA Limit 2.0 NM
Depth/Safety Contour Vector/Sector Area warning	TCPA Limit 12 min Alarm Detection Alarm
Track Control	ACT&Danger - AIS CPA/TCPA Alarm
Position Integrity	ACT&Sleep -
AMS	
Timer	
Y Classification pane	∀ Edit pane

The [Alert] dialog box consists of the classification pane and the edit pane. By clicking the Disclosure button (), you can hide the classification pane. To show the classification pane again, click the Disclosure button ().

15.1.2 Selecting a setting item

- 1 Click the alert classification you want to set up in the classification pane. The setting dialog of the selected item is displayed in the edit pane.
- **2** Set up in the edit pane.

The following items can be set in the [Alert] dialog box.

Setting item	Setting contents
Collision Avoidance	Set the following conditions to generate a collision avoidance alert.
	CPA/TCPA limit value
	 Status of the AIS target to be targeted for a lost alarm
	Refer to "15.2 Collision Avoidance Alert Generation Conditions".
New Target Alarm	Set the following conditions to generate an automatic activation target
	alarm.
	 Area (AZ) for tracked target automatic activation
	Enable/disable AZ
	Refer to "15.3 New Target Alarm Generation Conditions".
Depth/Safety Contour	Set the following conditions to generate a grounding avoidance alert.
	Below keel water depth alarm
	Safety contour line approach alarm
	Refer to "15.4 Depth/Safety Contour Alert Generation Conditions".
Vector/Sector	Set a danger detection vector/sector.
(Danger detection	Refer to "15.5 Setting up Vector/Sector".
vector/sector)	
Area warning	Set the conditions for generating a warning by detecting a danger
	detection vector.
	Refer to "15.6 Area Warning Generation Conditions".
Track Control	Set the conditions for generating an automatic route retention alert.
	Refer to "15.7 Track Control Alert Generation Conditions".
Position Integrity	Set the conditions for generating a position monitor warning and a
(Position sensor	HDOP limit caution.
integrity)	Refer to "15.8 Position Integrity Alert Generation Conditions".
AMS	Set the actions to be taken at the next stage for an unacknowledged
(Alert Management System)	alert.
	Refer to "15.9 Setting up Alert Processing".
Timer	Set a time for generating the alert.
	Refer to "15.10 Setting up the Alert Timer".

15.2 Collision Avoidance Alert Generation Conditions

When you select [Collision Avoidance] in the classification pane, the [Collision Avoidance] dialog is displayed in the edit pane.

In this dialog, the collision detection condition (CPA/TCPA limit) and the AIS target status, which is the target of alert detection, can be set.

Note

As for the values of collision detection conditions, please specify the optimal values according to the ship type, sea area, weather and marine conditions.

44				X
Collision A	voidar	nce		
_ CPA/TCP	A Alar	m ———		
CPA	Limit	2.0	NM	
TCPA	Limit	12	min	
Alarm De				
	ACT&	Danger	•	
AIS CPA	/TCPA	Alarm		
	ACT&	Sleep	-	

15.2.1 Setting the CPA/TCPA limit values

- 1 Enter the value of [CPA Limit] in a range from 0.1 NM to 9.9 NM.
- 2 Enter the value of [TCPA Limit] in a range from 1 min to 99 min.

15.2.2 Setting the status of the AIS target that is targeted for lost warning

1 Select a target for detecting a lost warning of the AIS target from the [AIS Lost Alarm] combo box.

ACT&Danger&Select:	Activated AIS targets, danger targets and numeric value display
	targets are included.
Danger:	Danger targets are included.
Off:	Lost warnings are not generated.

Note

Lost warnings for sleeping AIS targets will not be generated.

Memo

If Off is being set, the following message is displayed in the alert status area. AIS Lost Alarm is Disabled

2 Select a target for detecting a CPA/TCPA alarm of the AIS target from the [AIS CPA/TCPA Alarm] combo list.

ACT & Sleep: Activated AIS targets and sleeping AIS targets are included.ACT: Activated AIS targets are included.

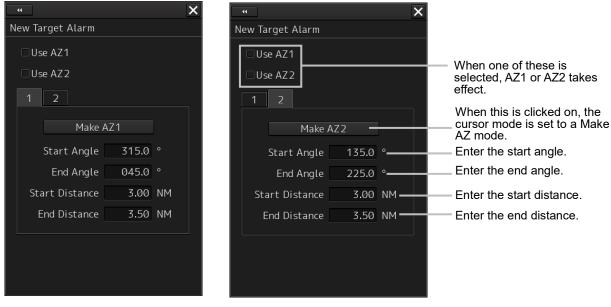
Off: CPA/TCPA alarms are not generated.

15.3 New Target Alarm Generation Conditions

When you select [New Target Alarm] in the classification pane, the [New Target Alarm] dialog is displayed in the edit pane.

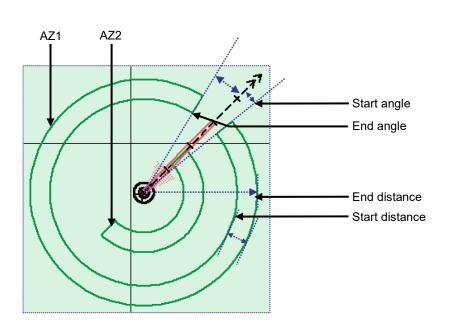
In this dialog, it is possible to set the AZ (automatic/activation zone) and switch the AZ to enable/disable.

For the details of the setting of the AZ, refer to "5.2.4 Setting up the automatic/activation zone (AZ)".



Settings of AZ1 (Automatic/Activation Area 1)

Settings of AZ2 (Automatic/Activation Area 2)



15.3.1 Switching AZ1/AZ2 to enable/disable

15.3.1.1 Enabling AZ1 or AZ2

Select the [Use AZ1] or [Use AZ2] check box.

The AIS target in the AZ will be automatically activated and become a target of collision detection. The vector is displayed after the AIS target's activation.

15.3.1.2 Disabling AZ1 or AZ2

Clear the [Use AZ1] or [Use AZ2] check box.

The activation area disappears from the screen. However, the AIS target is still activated.

15.4 Depth/Safety Contour Alert Generation Conditions

When [Depth/Safety Contour] is selected in the classification pane, the [Depth/Safety Contour] dialog is displayed in the edit pane.

In this dialog, the threshold values for generating "Depth below keel alarm" and "Crossing safety contour alarm" can be set up.

	• Alert			×	
Depth/Safety Contour					
	Depth Below Keel Alarm				
	Depth Below Keel	30	m		
	Crossing Safety Contour Alarm				
	Shallow Contour	5	m		
	Safety Depth	10	m		
	Safety Contour	30	m		
	Deep Contour	30	m		
View Settings for Chart Common					
View Settings for Chart Common					

Each threshold value can be set in a range between 0 and 200 m.

In the [Shallow contour], [Safety depth] and [Deep contour] input boxes, the values set in [Options] - [Chart Common] of the View menu are displayed.

When [View Settings for Chart Common] is clicked, the [Chart Common] dialog box of the View menu appears.

For the details of each setting item, refer to "14.2.9 Setting up the Display of Chart Common".

- Shallow Contour
- Safety Depth
- Safety Contour
- Deep Contour

Automatic compensation of entered values

The threshold values must satisfy the following conditions.

- Shallow Contour \leq Safety Contour \leq Deep Contour
- Shallow Contour \leq Safety Depth \leq Deep Contour

Safety Contour and Safety Depth are not related.

If there is any contradiction in the entered values, the following automatic compensations will be performed.

Condition	Compensation	
Safety contour value (or Safety Depth value) < Shallow contour value	Replace the Shallow contour value with the Safety contour value (or Safety Depth value)	
Deep contour value < Safety contour value (or Safety Depth value)	Replace the Deep contour value with the Safety contour value (or Safety Depth value)	

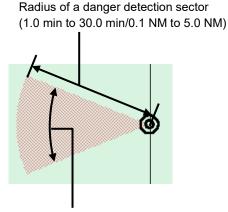
15.5 Setting up Vector/Sector

When [Vector/Sector] is selected in the classification pane, the [Vector/Sector] dialog is displayed in the edit pane.

In this dialog, the selection of the sizes of both a danger detection vector/sector and the switching to enable/disable of them are possible.

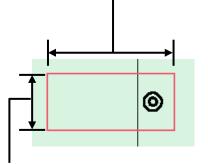
	×
Vector/Sector	
Vector ☑Use Vector	
Vector Length 1.0 NM	
Vector Width 30.0 m	
Sector ☑Use Sector	
Sector Radius 30.0 min	
Sector Width 45.0 °	

This unit can monitor when own ship tries to cross over the preset safety contour or danger area, or when dangerous objects enter the sector specified around own ship. For this monitoring, danger detection vectors and sectors can be displayed. As for danger detection vectors, detection ranges for crossover of safety contours and danger areas can be specified in units of minutes or nautical miles, and notches on vectors and tips of vectors indicate predicted positions if navigated at the current speed. Also, the radius of a sector can be set up in units of miles or minutes.



Angle of a danger detection sector (0.1 degrees to 360.0 degrees)

Length of a dangerous detection vector (1.0 min to 30.0 min/0.1 NM to 5.0 NM)



Width of a dangerous detection vector (Width of own ship to 25.0 m)

Dangerous Detection Vector and Sector

15.5.1 Switching to enable/disable a danger detection vector/sector

To enable a danger detection vector/sector, select [Use Vector] and/or [Use Sector] check box. A danger detection vector and a danger detection sector appear on the chart.

To disable a danger detection vector/sector, clear [Use Vector] and/or [Use Sector] check box. A danger detection vector and a danger detection sector disappear from the chart.

15.5.2 Setting up the size of a danger detection vector

1 Enter a value in [Vector Length].

Specify it in a range between 1.0 and 30.0 min or between 0.1 and 5.0 NM. The unit of the vector length can be switched between min and NM by clicking on the Change Unit button,

2 Enter a value in [Vector Width].

Specify the vector width in a range between own ship's beam and 250.0 m.

15.5.3 Setting up the size of a danger detection sector

1 Enter a value in [Sector Radius].

Specify it in a range between 1 and 30 min or between 0.1 and 5.0 NM. The unit of the sector radius can be switched between min and NM by clicking on the Change

Unit button,

2 Enter a value in [Sector Width].

Specify the sector width in a range between 0.1 and 360.0°.

15.6 Area Warning Generation Conditions

When [Area Warning] is selected in the classification pane, the [Area Warning] dialog is displayed. In this dialog, set an area for generating a warning when the symbol on the chart touches the danger detection vector.

*	< • ×
Area Warning	Area Warning
Checked Area Objects detects warning at safety check of route planning and at route monitoring.	Checked Area Objects detects warning at safety check of route planning and at route monitoring.
■Traffic separation zone	■Caution area
■Traffic crossing	☑Offshore production area
⊡Traffic roundabout	✓Military practice area
■Traffic precautionary	✓Seaplane landing area
⊡Two way traffic	Submarine transit area ≡
■Deeper water route	v Ice area
☑Recommended traffic lane	⊡Channel
■Inshore traffic zone	✓Fishing ground
⊡Fairway	✓Fishing prohibited
■Restricted area	✓Pipeline area

44	×	
Area Warning		
Checked Area Objects detects warning at safety check of route planning and at route monitoring.		
⊡Cable area	^	
■Anchorage area		
☑Anchorage prohibited		
⊡ Spoil ground		
☑Dumping ground		
⊡Dredge area		
⊡Cargo transshipment area		
Incineration area		
☑Specially protected area		
⊻ Sensitive sea area	•	

	X
Area Warning	
Checked Area Objects detects warning at safety check of route planning and at route monitoring.	
⊡Spoil ground	*
⊡Dumping ground	
⊡Dredge area	
⊡Cargo transshipment area	
Incineration area	
☑Specially protected area	
⊡Sensitive sea area	
⊡Archipelagic sea lane	
⊡Marine farm/aquaculture	
⊡Depth area	-

Select the check box of the area that is targeted for the alarm. Clear the check box of the area not to be targeted for the alarm.

15.7 Track Control Alert Generation Conditions

When [Track Control] is selected in the classification pane, the [Track Control] dialog is displayed. In this dialog, the conditions for generating warnings regarding Course Difference Limit, End of Track Limit, and ECC Limit can be set up.

••		×
Trac	k Control	
	urse difference warning Course difference limit45.0 °	
En	d of track warning	
	End of track limit <u>5.0</u> min	
Ea	rly course change warning	
	ECC limit <u>5.0</u> min	

Enter a threshold value for generating each warning.

Course difference limit:

Specify the difference between the planned course and own ship's bearing in angle, within a range between 0.5 and 45.0°.

End of track limit:

Specify the time remaining to reach the destination so as to generate a warning for approaching to the proximity of the final destination in a range between 1.0 and 5.0 min.

ECC limit:

Specify the time remaining to reach the wheel over point so as to generate an early course change warning in a range between 1.0 and 5.0 min.

15.8 Position Integrity Alert Generation Conditions

When [Position Integrity] is selected in the classification pane, the [Position] dialog is displayed. In this dialog, the generation condition of the Position monitor warning and the HDOP limit can be set up.

••	×			
Position				
Position monitor warning ———				
Position Difference Limit 1.000 NM				
Radius Limit (GPS) 30 m				
Radius Limit (DGPS) 10 m				
Time Limit 10 sec				
HDOP exceeded caution				
HDOP Limit 4 -				

15.8.1 Setting up the generation condition of the Position monitor warning

Enter the following threshold values for generating the position monitor warning.

Position Difference Limit:

The difference in distances when two GPS positions are compared at every second is used as a threshold value. Specify the difference in a range between 0.010 and 9.990 NM.

Note

Position Difference Limit takes effect when two GPSs are installed.

Radius Limit (GPS):

The radius of a monitoring circle having the predicted position of a GPS 1 sec later at the center is used as a threshold value. If the position actually measured is not within the time monitoring circle specified in [Time Limit], it will be subjected to an alert. Specify the radius limit in a range between 10 and 100 m.

Radius Limit (DGPS):

The radius of a monitoring circle having the predicted position of DGPS 1 sec later at the center is used as a threshold value. If the position actually measured is not within the time monitoring circle specified in [Time Limit], it will be subjected to an alert. Specify the radius limit in a range between 10 and 100 m.

Time Limit:

The time during which the position actually measured by a GPS/DGPS deviates from the monitoring circle is used as a threshold value. The time limit can be specified in a range between 1 and 29s.

15.8.2 Setting up the HDOP exceeded caution generation condition

In the [HDOP Limit] combo box, select a threshold limit of HDOP (Horizontal Dilution of Precision). Select either one of [4], [10] and [20].

15.9 Setting up Alert Processing

When [AMS] is selected in the classification pane, the [AMS] dialog is displayed on the edit pane. In this dialog, the time to activate the action at the next stage when acknowledge is not performed for an alert can be set up.

	••	×		
A	MS			
	Reactivation of Silenced Alert			
	Time Limit 30 sec			
	-Transfer to BNWAS			
	Time Limit 30 sec			
	-Repetition of UNACK Warning			
	Time Limit 60 sec			

Enter the wait time until an alert at the next stage is generated in [Time Limit].

Reactivation of Silenced Alert:

Set, within the range from 0 to 60s, the time required to reactivate the alert sound that was silenced temporarily.

Transfer to BNWAS:

When a BNWAS (Bridge Navigational Watch Alarm System) is connected, specify the time to transfer an unacknowledged alert to the BNWAS in a range between 0 and 60s.

Repetition of UNACK Warning:

Specify the time to regenerate an unacknowledged alert as an audible warning in a range between 0 and 300s. A warning will be generated repeatedly until it is acknowledged.

Note

• This is not applicable to the ECCW (Early Course Change Warning).

15.10 Setting up the Alert Timer

When [Timer] is selected in the classification pane, the [Timer] dialog is displayed on the edit pane. In this dialog, the time to generate an alarm can be set up.

Timer	
Timer	
□ (LMT) 06:40	

15.10.1 Setting up the timer

To turn on the timer, select the [(LMT)] check box. To turn off the timer, clear the [(LMT)] check box.

15.10.2 Setting up the time

When you click on the [Timer (LMT)] input box, the numeric value input keyboard appears. Specify the time at which to generate an alarm in a range between 00:00 and 23:59.

For the use of the numeric value input keyboard, refer to "3.16.2 Name and function of each section of the keyboard".

Section 16 Setting up the Operation Mode

16.1 Basic Operation of the [Settings] Dialog Box

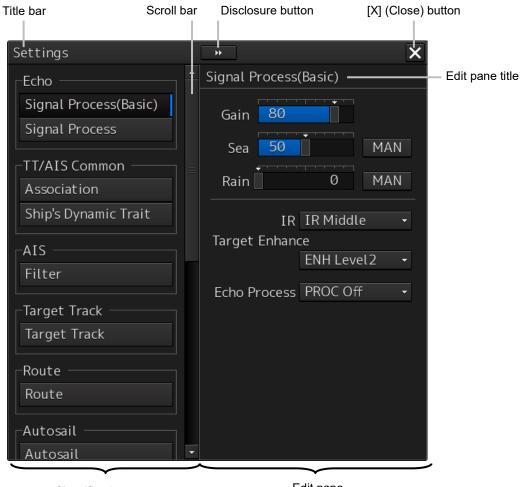
You can set up the operation mode in the [Settings] dialog box.

- 1 Click on the [Menu] button on the left toolbar. The menu is displayed.
- 2 Click on the [Settings] button.

The [Settings] dialog box appears.

The [Settings] dialog box consists of the classification pane and the Edit pane.

Click on the Disclosure button (>>) to hide the classification pane. To show the classification pane again, click on the Disclosure button (<<).

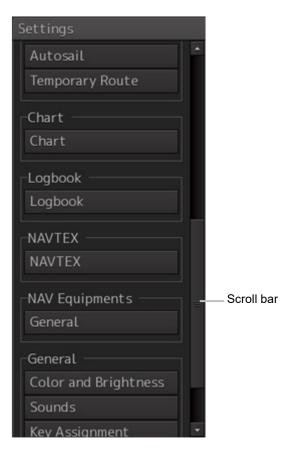


Classification pane

Edit pane

Display Example for the ECDIS

3 When all the classification panes are not displayed, drag the scroll bar upwards and downwards.



- 4 Click on the item you want to set up in the classification pane. The setup dialog of the item you selected is displayed.
- 5 Set up in the Edit pane.

Classification pane display targets

The table below provides the descriptions of the classification panes that are displayed by RADAR and ECDIS and the related sections.

Classification pane	Related section	
Signal Process(Basic)*1	16.2 Basic Settings for Radar Signal Processing	
Signal Process *1	16.3 Settings of radar signal processing	
Association	16.4 Setting up Association	
Ship's Dynamic Trait	16.5 Setting up Own Ship's Dynamic Trait	
Filter	16.6 Setting up an AIS Filter	
Target Track	16.7 Setting up Other Ship's Track Function to ON/OFF	
Route	16.8 Setting up Parameter Values at Route Planning Creation	
Autosail *2	16.9 Setting up Parameter Values for Automatic Sailing	
Temporary Route	16.10 Setting up Parameter Values for Predicted Route	
Chart	16.11 Setting Chart Operation	
Logbook	16.12 Setting up Logbook	
NAVTEX	16.13 Setting NAVTEX	
General	16.14 Setting up Navigation Equipment	
Color and Brightness	16.15 Setting up Color and Brightness	
Sounds	16.16 Setting Sounds	
Key Assignment	16.17 Setting up Key Assignment	
Preferences	16.18 Setting Preferences Information	
Screen capture	16.19 Setting up Screen Capture	

*1 Displayed when the radar display option is attached.

*2 Displayed when the automatic sailing option is attached.

16.2 Basic Settings for Radar Signal Processing

Note

Displayed when the radar display option is attached.

Select [Signal Process(Basic)] in the classification pane.

Set a basic processing method of radar signals in the setting dialog of the edit pane.

		×
Signal Process	(Basic)	
Gain 75		
Sea 50		MAN
Rain	0	MAN
IR Target Enhand	IR Midd	le -
gee Liniario	ENH Lev	rel 2 🗸
Echo Process	PROC Of	ff 🔻

Setting Item	Description of Setting	Setting Value
Gain	Rotate the dial to set the mode to the receiving sensitivity adjustment mode.	0 to 100
Sea (sea clutter adjustment)	Rotate the dial to set the mode to the sea clutter adjustment mode. By clicking on the dial in adjustment mode or clicking on the button next to the slider, the mode can be switched between manual (MAN) and automatic (AUTO).	0 to 100 MAN: Manually removes sea clutters. AUTO: Automatically removes sea clutters.

Setting Item	Description of Setting	Setting Value
Rain (rain/snow clutter adjustment)	Rotate the dial to set the mode to the rain/snow clutter adjustment mode. By clicking on the dial in adjustment mode or clicking on the button next to the slider, the mode can be switched between manual (MAN) and automatic (AUTO).	0 to 100 MAN: Manually removes rain/snow clutters. AUTO: Automatically removes rain/snow clutters.
IR	Set up the IR (Interference Removal) function.	Off IR Low IR Middle IR High
Target Enhance	Set up the Target Enhance function.	ENH Off ENH Level1 ENH Level2 ENH Level3
Echo Process	Set up the Echo Process function. If the ship's heading cannot be acquired, [PROC Off] is set.	PROC Off 3 Scan CORREL 4 Scan CORREL 5 Scan CORREL Remain Peak Hold

16.3 Settings of radar signal processing

Note

Displayed when the radar display option is attached.

Select [Signal Process] in the classification pane.

Set various processing methods of radar signals in the setting dialog of the edit pane.

*		×
Signal Process		
Video Latitude	Wide -	
Video Noise Rej	ection	
	Level1(Low) 🝷	
🗹 Auto Dynamic	: Range Control	
┌ Process Switc	h	
Process Switch	ı	
	Range Fix 🛛 👻	
2nd Process Mo	ode	
35	can COREL 🕞	
Process Switch	n Range	
	3.0 NM	
□ Fast Target D	etection	

Setting Item	Description of Setting	Setting Value
Video Latitude	Set up the gradation of the radar video.	Narrow Normal Wide Super Wide
Video Noise Rejection	Set up to remove noise and signals which are considered to be clutters of radar video.	Off Level1(Low) Level2(High)
Auto Dynamic Range Control	When this is selected, the dynamic range is automatically adjusted.	To enable: Select. To disable: Clear.
Process Switch	Specify a particular area and set up a mode for performing video processing on the inside and outside of the particular area.	Off Range Fix AUTO
2nd Process Mode	Set up a processing mode used in the outside of the particular area. This is enabled when other than [Off] is being selected in the Process Switch combo box.	PROC Off 3Scan CORREL 4Scan CORREL 5Scan CORREL Remain Peak Hold
Process Switch Range	Set up the boundary range of a particular area. Enabled when [Range Fix] is selected in the Process Switch combo box.	0.1 to 25.5 NM
Fast Target Detection	When this item is enabled, high-speed moving targets that are suppressed by the scan correlation processing can be detected more easily.	To enable: Select. To disable: Clear.

16.4 Setting up Association

Select [Association] in the classification pane.

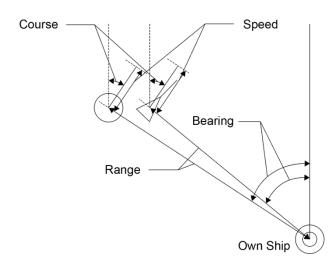
Set up TT/AIS in the setup dialog of the edit pane.

Make judgement on whether the AIS target and the tracked target are the same (identical target judgement); if they are deemed the same target, an association symbol is displayed on them. At this time, the symbol on the AIS target is automatically activated.

Note

If you don't want to perform an identical target judgement, or if you want to display hidden symbols, turn the association setting to Off.

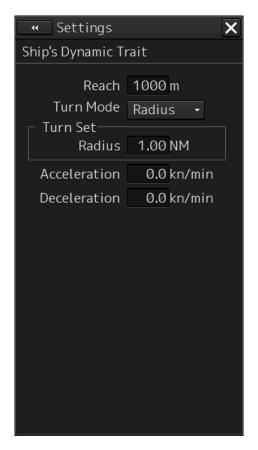
		×
Association		
🗹 Associati	on	
Priority	AIS	
_ Threshold		
Bearing	1.0	
Range	100	m
Course	30	
Speed	10	kn
Applicable	AIS Target	
	ACT	-



Setting Item	Description of Setting	Setting Value
Association	Turn On/Off the association setting.	To enable: Select. To disable: Clear.
Priority	Select a priority of association target display.	AIS TT
Bearing	Set up the bearing difference of the association target.	0.0 to 9.9°
Range	Set up the range difference of the association target.	0 to 999 m
Course	Set up the course difference of the association target.	0 to 99°
Speed	Set up the speed difference of the association target.	0 to 99 kn
Applicable AIS Target	Select a state of the AIS which will be an association target. Only the AIS target you specified will be an association target.	ACT ACT&Sleep

16.5 Setting up Own Ship's Dynamic Trait

Select [Ship's Dynamic Trait] in the classification pane. Set up own ship's dynamic trait in the setting dialog of the edit pane.



Setting Item	Description of Setting	Setting Value
Reach	Set up the distance to reach the turn.	0 to 2000 m
Turn Mode	Set up the Turn mode.	Radius Rate
Radius	Enter the radius of the turn rate. This is displayed when [Radius] is selected in the [Turn Mode] box.	0.10 to 2.00 NM
Rate	Enter the speed of the turn rate. This is displayed when [Rate] is selected in the [Turn Mode] box.	20 to 720°/min
Acceleration	Enter the rate of change of speed (acceleration) of own ship's dynamic trait.	0.0 to 100.0 kn/mir
Deceleration	Enter the rate of change of speed (deceleration) of own ship's dynamic trait.	0.0 to 100.0 kn/mir

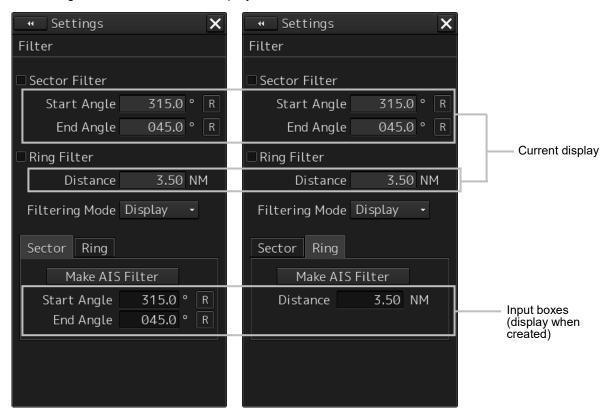
16

16.6 Setting up an AIS Filter

Select [Filter] in the classification pane.

Set up AIS filter in the setting dialog of the edit pane.

When an AIS filter is specified, the AIS targets in that area can be displayed with highest priority or only the AIS targets in that area can be displayed.



Setting Item	Description of Setting	Setting Value
Sector Filter	When this is selected, the Sector Filter is displayed on the screen and filtering is performed in the operation mode being selected in Filtering mode.	To enable: Select. To disable: Clear.
Start Angle	Set up the starting angle of the Sector Filter. The angle value indicates the relative bearing based on the ship's heading as the reference. When entry is confirmed, the entered value takes effect immediately.	0.0 to 359.9°
End Angle	Set up the end angle of the Sector Filter. The angle value indicates the relative bearing based on the ship's heading as the reference. When entry is confirmed, the entered value takes effect immediately.	0.0 to 359.9°
Ring Filter	When this is selected, the Ring Filter is displayed on the dialog box and filtering is performed in the operation mode being selected in Filtering mode.	To enable: Select. To disable: Clear.
Distance	Set up the distance of the Ring Filter. When entry is confirmed, the entered value takes effect immediately.	0.0 to 120.0 NM

Setting Item	Description of Setting	Setting Value
Filtering Mode	Select an operation mode of the AIS filter.	Display
	Display: AIS targets cannot be displayed outside of the AIS filter range.	Priority
	Priority: Priority is determined within the range of the AIS filter and AIS targets are displayed based on the priority.	

Creating a filter in the dialog

Creating a Sector Filter

- **1** Click on the [Sector] tab.
- 2 Click on [Make AIS Filter]. The button is highlighted and the cursor mode is set to the Make AIS Filter mode.
- **3** Move the cursor, place it on the starting angle of the Sector filter you want to set up, and then click on it.
- 4 Move the cursor, place it on the end angle of the Sector filter you want to set up, and then click on it.

Creating a Ring Filter

- **1** Click on the [Ring] tab.
- 2 Click on [Make AIS Filter]. The button is highlighted and the cursor mode is set to the Make AIS Filter mode.
- **3** Move the cursor, place it on the distance of the Ring filter you want to set up, and then click on it.

Note

When the AZ function is ON, a distance smaller than the outer arc of AZ cannot be set for the Ring filter.

Memo

<Priority setting>

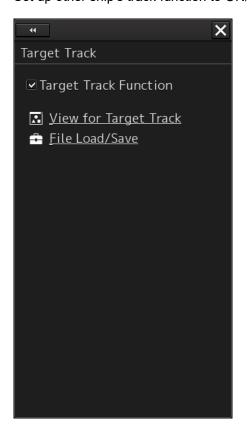
• The sleeping AIS in the AIS filter has a higher priority than the sleeping AIS outside of the AIS filter (preferentially displayed).

<AIS Filter OFF>

• The sleeping AIS in the AIS filter has the same prioirty as the sleeping AIS outside of the filter.

16.7 Setting up Other Ship's Track Function to ON/OFF

Select [Target Track] in the classification pane. Set up other ship's track function to ON/OFF in the setting dialog of the edit pane.



Setting Item	Description of Setting	Setting Value
Target Track Function	Turn On/Off the target track function.	To enable: Select. To disable: Clear.

Shortcuts

Click on any of the following shortcuts to display the related dialog box.

Shortcut	Settings Dialog Box	
View for Target Track	[Target Track] dialog box	
File Load/Save	[File Manager] dialog box	

16.8 Setting up Parameter Values at Route Planning Creation

Select [Route] in the classification pane.

Set up various settings at route planning creation in the setting dialog of the edit pane.

••		×
Route		
-Default		
XTL(PORT)	0.20	NM
XTL(STBD)	0.20	NM
Arrival radius	0.50	NM
Speed	20.0	kn
Sail	• RL 0 0	SC
Turn radius	0.50	NM
Time zone	00:00 -	
Distance calcula	tion mode -	
● Straight C	withTurn	
_Monitoring		
• Wheel-over li	ne	
○ Arrival circle		
MAX Latitude 80°00.000'		
Minimum Leg Length for Limit Check:		
400m = (Ship Le	ngth) x 4	•

Set up the default values for routes to be created during route planning.

Setting Item	Description of Setting	Setting Value
XTL(PORT)	Set up the cross track limit of the port side.	0.01 to 9.99 NM
XTL(STBD)	Set up the cross track limit of the starboard side.	0.01 to 9.99 NM
Arrival radius	Set up the radius of the WPT (waypoint) arrival circle.	0.01 to 9.99 NM
Speed	Set up the planned speed.	1.0 to 99.9 kn
Sail	Set up sailing (RL (Rhumb Line) or GC (Great Circle)).	RL GC
Turn Radius	Set up the turn radius.	0.10 to 9.99 NM
Time Zone	Set up the time zone.	-13:30 to +13:30

Setting Item	Description of Setting	Setting Value
Distance Calculation Mode	Set up the calculation method of the distance between WPTs.	Straight with Turn
	Straight: Calculates the distance between WPTs linearly (red line).	
	WPT 3	
	WPT 1 WPT 2	
	With Turn: Calculates the distance between WPTs using a predicted route (red line).	
	• WPT 3	
	WPT 1 WPT 2	
Monitoring	Set up the route monitoring method. Wheel-over Line: monitored by using Wheel-over line (WOL) along each WPT. Arrival Circle: monitored by using the arrival circle along each WPT.	Wheel-over Line, Arrival Circle
	The setting will be changed according to the type of auto pilot during automatic sailing.	
MAX Latitude	Because a WPT cannot be entered at a latitude higher than the latitude you set up when planning a route, this threshold is used to check the latitude of the destination during active route reception. If the threshold value is abnormal, an active route will not be loaded even if it is received.	30°00.000' to 80°00.000'
	When creating a GC leg, if a leg is positioned over the latitude you set up, the composite sailing will take effect automatically and the leg will be divided into three segments. (GC-RL-GC)	
Minimum Leg Length for Limit Check	Select a multiplier for determining the "Minimum Leg Length" which will be used for limit check.	1, 2, 4, 6, 8
	Minimum leg length = (Ship length) × Multiplier (τ multiplier)	

16.9 Setting up Parameter Values for Automatic Sailing

Select [Autosail] in the classification pane.

Set up various settings of automatic sailing in the setting dialog of the edit pane.

Note

- Displayed when the automatic sailing option is attached.
- When PT900 is installed as auto pilot, [Autosail] is not displayed.



Example of screen display under the following conditions:

- Tokyo Keiki TCS Category C
- Tokyo Keiki TCS Category B (new system)



Example of screen display under the following conditions:

- Tokyo Keiki TCS Category B (old system)
- YDK TCS Category C

Setting Item	Description of Setting	Setting Value
Tracking Gain	Set up the tracking gain. This can be set up even during automatic sailing.	Low Middle
	The tracking gain value specifies how quickly the ship will return to the original course when it has deviated from the course.	High
	You can select from three tracking gain settings of [High], [Middle] and [Low].	
	For example, assume that the target gain value is being set to "16 deg./NM" and the own ship is positioned at 1 NM right of the tracking gain.	
	In this case, specify the distance for the own ship to approach the target at an angle of 16°.	
	If the distance between the own ship and the target course is shortened, this angle will also be reduced.	
	When the own ship has reached the target course, the angle will be the same as WP1 viewed from 0 of a WPT, and the more the LD will be, the larger this angle will get.	
	Note that you may lose the control of the helm depending on the tracking gain value, so be careful with the setting.	
Drift Correction	Set up the drift correction. This can be set up even during automatic sailing. When this is set to On (High/Middle/Low), control is performed considering the tide if the own ship's speed is 5 knots or faster.	None High Middle Low
	Commanded bearing Expected actual route	
	 None: Off (Drift correction will not be performed.) High: Drift correction will be performed. The drift correction value is equivalent to the tidal vector (100%). 	
	Middle: Drift correction will be performed. The drift correction value is 2/3 of the tidal vector.	
	Low: Drift correction will be performed. The drift correction value is 1/3 of the tidal vector.	

Setting Item	Description of Setting	Setting Value
Dead Band (On/Off)	Set up On/Off of the dead band. This can be set up even during automatic sailing. To prevent yawing while navigation, it is necessary to provide dead bands at both sides of the current course. If the own ship is positioned within the dead band course, the course will be fixed at [Track Course]. For more details, see the following drawing. Next WPT Dead bands Previous WPT Set heading (parallel to the route)	To enable: Select. To disable: Clear.
Dead Band (setting value)	Specify the dead band value. This can be set up even during automatic sailing.	0.001 to 0.999 NM
Turning Gain Display when the TCS is • Tokyo Keiki TCS Category C • Tokyo Keiki TCS Category B (new system)	 Set up the turning gain. This can be set up even during automatic sailing. The turning gain represents how much the turning radius will be changed according to the XTD when changing the course. You can select the turning gain in a range from 0 to 4. O: Changes the course using the planned radius without depending on the XTD during course change. 1 to 4: Changes the turning radius according to the XTD during course change. (1 is the weakest gain and 4 is the strongest gain.) 	0 to 4

Shortcut

Click on the following shortcut to display the related dialog box.

Shortcut	Settings Dialog Box
Alert for Track Control	[Track Control] dialog box

16.10 Setting up Parameter Values for Predicted Route

Select [Temporary Route] in the classification pane. Set up various settings of predicted route in the setting dialog of the edit pane.

		×
Temporary Route		
Pre Run Speed	10.0	kn
Pre Run Time	5.0	min
Pre Run Distance	0.50	NM
Enter Angle	030.0	
Turn radius	0.50	NM
XTD MAX	1.0	NM
Course Difference	e Limit	
	10.0	

Before starting automatic sailing, move own ship along the leg.

Setting Item	Description of Setting	Setting Value
Pre Run Speed	Set a planned ship speed of the temporary route to calculate the minimum leg length.	0.0 to 99.9 kn
Pre Run Time	Set a planned time of the temporary route to calculate the minimum leg length.	1.0 to 30.0 min
Pre Run Distance	Set a planned distance of the temporary route.	0.10 to 9.99 NM
Enter Angle	Set an entrance angle of the temporary route.	30.0 to 90.0°
Turn radius	Set an initial turn radius of the temporary route.	0.10 to 1.00 NM
XTD MAX	Set the maximum XTD of the temporary route.	0.0 to 1.0 NM
Course Difference Limit	Set the difference of the leg bearing of the predicted course and ship's heading.	0.5 ~ 45.0°

Memo

The minimum leg length is expressed in the following formula.

Minimum leg length = (planned ship speed of the temporary route \times planned time of the temporary

route) + planned distance of the temporary route + reach

16.11 Setting Chart Operation

Select [Chart] in the classification pane.

Set chart operation in the setting dialog of the edit pane.

• Settings		į	×
Chart			
Redraw			
Border Range	80	%	
Margin(Chart	Rotati	ion)	
	10		
 Updated Char Deletion Mode(Ch Only S-63 Ce S-63 Cell Per 	art Mai Il Perr	nit	

		,
Setting Item	Description of Setting	Setting Value
Border Range	 Set up the range for the own ship in order to move the chart. This is displayed only on the ECDIS screen. When the own ship is sailing in the direction of the arrow in the figure below. 	30 to 80 %
	• If the border range you set up is 50%, the screen display switches when the own ship reaches a 50% area from an edge of the screen.	
	If the border range you set up is 70%, the screen display switches when own ship reaches the border range.	
Margin (Chart Rotation)	When head-up, if own ship turns at the angle specified here, the chart will also turn. For example, if the margin is set to 10°, the chart will turn when own ship turns 10° or more.	0 to 90°
AUTO Accepting S-57 Updated Chart	Set whether the chart is accepted automatically at completion of chart import.	Accepted automatically: Check Not accepted automatically: Not check
Deletion Mode(Chart Maintenance)	Set the operation mode of the Delete button on the status screen in Chart Maintenance. Only S-63 Cell Permit: When the Delete button is pressed, only the license is deleted. S-63 Cell Permit and Chart: When the Delete button is pressed, the licence or chart is deleted.	Only S-63 Cell Permit S-63 Cell Permit and Chart

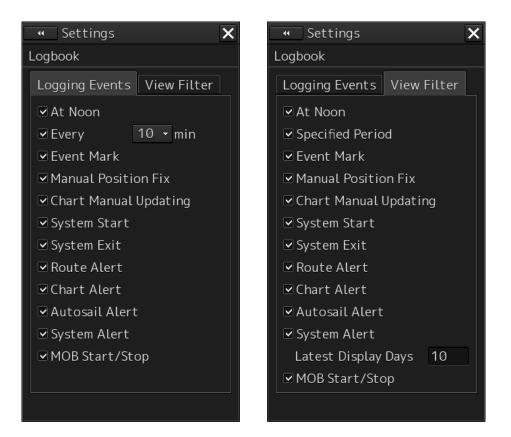
Memo

The setting of Deletion Mode(Chart Maintenance) is valid only under S-63 (ENC that requires Permit). Under S-57 (ENC that does not require Permit), the chart is also deleted regardless of this setting.

16.12 Setting up Logbook

Select [Logbook] in the classification pane.

Set up various settings of logbook in the setting dialog of the edit pane.



[Logging Events] tab

Setting Item	Description of Setting	Setting Value
At Noon	When this is selected, log data is saved at 12:00 (LMT).	To enable: Select. To disable: Clear.
Every ([Logging Events] tab)	When this is selected, log data is saved at the interval specified in the combo box.	<check box=""> To enable: Select. To disable: Clear. <selections box="" combo="" in="" the=""> 1/3/5/10/15/30/60 min</selections></check>
Event Mark	When this is selected, log data is saved when the EVENT button is pressed.	To enable: Select. To disable: Clear.
Manual Position Fix	When this is selected, the time, bearing, position, objects used during manual position fixing in cross bearing or running fix are saved.	To enable: Select. To disable: Clear.

Sotting Itom	Description of Sotting	Sotting Value
Setting Item	Description of Setting	Setting Value
Chart Manual Updating	When this is selected, log data is	To enable: Select.
	saved when the chart is manually updated.	To disable: Clear.
Reference Point	When this is selected, log data is	To enable: Select.
	saved when a reference point is set up.	To disable: Clear.
System Start	When this is selected, log data is	To enable: Select.
	saved when the system is started.	To disable: Clear.
System Exit	When this is selected, log data is	To enable: Select.
	saved when the system is shut down.	To disable: Clear.
Route Alert	When this is selected, log data is	To enable: Select.
	saved when a route-related alert is generated.	To disable: Clear.
Chart Alert	When this is selected, log data is	To enable: Select.
	saved when a chart-related alert is generated.	To disable: Clear.
AUTO Sail Alert	When this is selected, log data is	To enable: Select.
	saved when an auto sail-related alert is generated.	To disable: Clear.
System Alert	When this is selected, log data is	To enable: Select.
	saved when a system-related alert is generated.	To disable: Clear.
MOB Start/Stop	When this item is enabled, MOB	Enable: Check.
	start and MOB stop are recorded.	Disable: Uncheck.

[View Filter] tab

Setting Item	Description of Setting	Setting Value
At noon	When this is selected, the events saved at 12:00 (LMT) are displayed in the list.	To enable: Select. To disable: Clear.
Specified Period	When this is selected, the events saved at the interval specified in [Logging] are displayed in the list.	To enable: Select. To disable: Clear.
Event Mark	When this is selected, the events saved when the EVENT button was pressed are displayed in the list.	To enable: Select. To disable: Clear.
Manual Position Fix	When this is selected, the events saved during manual position fixing in cross bearing or running fix are displayed in the list.	To enable: Select. To disable: Clear.
Chart Manual Updating	When this is selected, the events saved when the chart was manually updated are displayed in the list.	To enable: Select. To disable: Clear.
System Start	When this is selected, the events saved when the system was started are displayed in the list.	To enable: Select. To disable: Clear.

Setting Item	Description of Setting	Setting Value
System Exit	When this is selected, the events saved when the system was shut down are displayed in the list.	To enable: Select. To disable: Clear.
Route Alert	When this is selected, the events saved when a route-related alert was generated are displayed in the list.	To enable: Select. To disable: Clear.
Chart Alert	When this is selected, the events saved when a chart-related alert was generated are displayed in the list.	To enable: Select. To disable: Clear.
AUTO Sail Alert	When this is selected, the events saved when an auto sail-related alert was generated are displayed in the list.	To enable: Select. To disable: Clear.
System Alert	When this is selected, the events saved when a system-related alert was generated are displayed in the list.	To enable: Select. To disable: Clear.
Latest Display Days	The days on which the items saved in the Other event were specified are displayed in a range between 1 and 90.	1 to 90
MOB Start/Stop	When this item is enabled, MOB start and MOB stop are displayed.	Enable: Check. Disable: Uncheck.

16.13 Setting NAVTEX

Select [NAVTEX] in the classification pane.

Set the display method for the NATVEX message that is displayed by clicking on the [NAVTEX] button on the information reference window in the editing pane setting dialog.



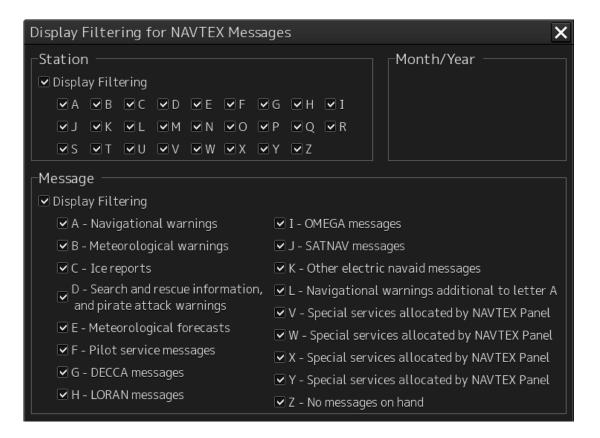
Setting item	Setting contents	Setting value
Navigational Alarm	Set highlighted display of the navigation alarm. When the item is enabled, the message is displayed with black characters on the yellow background.	Enable: Check Disable: Uncheck
Weather Alarm	Set highlighted display of the weather alarm. When the item is enabled, the message is displayed with black characters on the yellow background.	Enable: Check Disable: Uncheck
Ice Warning	Set highlighted display of the Ice Warning. When the item is enabled, the message is displayed with black characters on the yellow background.	Enable: Check Disable: Uncheck
Search and Rescue Information	Set highlighted display of the search and rescue information. When the item is enabled, the message is displayed with black characters on the yellow background.	Enable: Check Disable: Uncheck

Setting item	Setting contents	Setting value
Extended Navigational Information	Set highlighted display of the navigation alarm supplementary information.	Enable: Check Disable: Uncheck
	When the item is enabled, the message is displayed with black characters on the yellow background.	
[Display Filtering for NAVTEX Messages] button	When this button is clicked on, the [Display Filtering for NAVTEX Messages] dialog is opened.	-
	For details, refer to "Displaying only the NAVTEX messages that satisfy a specific condition".	

Displaying only the NAVTEX messages that satisfy a specific condition

When the [Display Filtering for NAVTEX Messages] button is clicked on, the [Display Filtering for NAVTEX Messages] dialog is displayed.

In this dialog, NAVTEX messages to be displayed can be filtered.



Setting item	Setting contents	Setting value
Station – Display Filtering	Select a base station from which messages are to be displayed.	Enable: Check Disable: Uncheck
	By checking the Display Filtering check box, the check box of each base station can be checked.	
	Select a required base station by checking the check box.	
Month/Year	Only the messages that are received on the selected month/year are displayed.	Enable: Check Disable: Uncheck
	Select a required month/year by checking the check box.	
Message – Display Filtering	Select a type of the messages to be displayed. By checking the Display Filtering check box, the check boxes of	Enable: Check Disable: Uncheck
	message types can be checked. Select a required message type by checking the check box.	

16.14 Setting up Navigation Equipment

Select [General] in the classification pane.

Set up various settings of navigation equipment in the setting dialog of the edit pane.

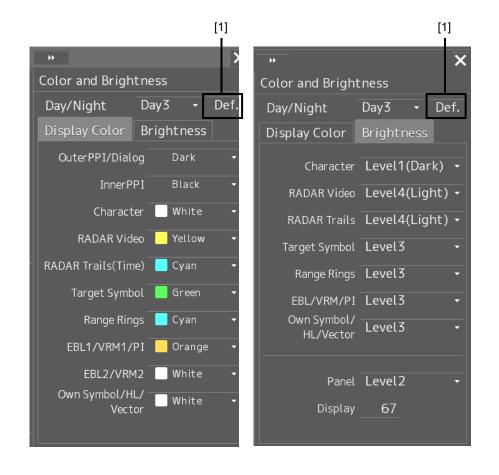
* X
General
GYRO I/F
GYRO Setting 0.0 °

Setting Item	Description of Setting	Setting Value
GYRO Setting	Enter the initial value of the gyro.	0.0 to 359.9°

16.15 Setting up Color and Brightness

Select [Color and Brightness] in the classification pane.

Set the color and the brightness of the display contents in the setting dialog of the edit pane.



[1] [Def.] (default value) button

When this button is clicked on, all the setting items of the mode that is selected on the [Day/Night] combo box are reset to the default values.

Setting Item	Description of Setting	Setting Value
Day/Night	Set up the color of the dialog box itself. Select the chart display colors from the three types of Day1, Day3 and Night when the ARCS is used.	Day1 [default] Day2 Day3
[Display Color] tab		Dusk Night
Dialog	Set up the color of the dialog.	Dark [default] Black
Character	Set up the text color.	White [default] Green

Setting Item	Description of Setting	Setting Value
[Display Color] tab		
RADAR Video	Set up the color of radar video. Displays the color of radar video only if it has a RADAR display function.	Yellow [default] Green Orange Purple Dark Red
Target Symbol	Set up the color of the target symbol.	White/Black ^{*1} Cyan Green [default] Orange
Range Rings	Set up the color of range rings.	White/Black ^{*1} Cyan [default] Green Orange
EBL1/VRM1/PI	Set up the color of EBL1, VRM1 and parallel index lines.	White/Gray ^{*1} Cyan Green Orange [default]
EBL2/VRM2	Set up the color of EBL2 and VRM2.	White/Gray ^{*1} [default] Cyan Green Orange
Own Symbol/HL/Vector	Set up the color of own ship symbol, heading line and vector.	White/Black ^{*1} [default] Cyan Green Orange
[Brightness] tab		
Character	Set up the text brilliance.	Level1(Dark) [default of Day 3] Level2 [default of Day 2, Dusk] Level3 [default of Day 1] Level4(Light) [default of Night]
RADAR Video	Set up the brilliance of radar video.	Level1(Dark) Level2 Level3 Level4(Light) [default]

Setting Item	Description of Setting	Setting Value
[Brightness] tab		
Target Symbol	Set up the brilliance of the target symbol.	Level0(Dark) Level1 Level2 Level3 [default of DAY3/Dusk/Night] Level4(Light) [default of Day1/2]
Range Rings	Set up the brilliance of range rings.	Level1(Dark) Level2 [default of Night] Level3 [default of DAY3/Dusk] Level4(Light) [default of Day1/2]
EBL/VRM/PI	Set up the brilliance of EBL, VRM and parallel index lines.	Level1(Dark) Level2 Level3 [default of DAY3/Dusk/Night] Level4(Light) [default of Day1/2]
Own Symbol/HL/Vector	Set up the brilliance of own ship symbol, heading line and vector.	Level1(Dark) Level2 Level3 [default of DAY3/Dusk/Night] Level4(Light) [default of Day1/2]
Panel	Set the brightness of the operation unit.	Off Level1(Dark) [Default value of Dusk/Night] Level2 [Default value of Day3] Level3 [Default value of Day2] Level4(Light) [Default value of Day1]
Display	Set the value that is input in the box for the brightness of the display unit.	0 to 100*2

*1: Under either of the following conditions, Black or Gray can be selected instead of White.

- ENC is displayed while [Day/Night] is set to Day1 or Day2.

- ARCS is displayed while [Day/Night] is set to Day.

*2: The brightness default values are as follows

26inch screen	19inch screen
Day1/Day2/Day3: 67	Day1/Day2/Day3: 42
Dusk: 60	Dusk: 20
Night: 11	Night: 4

16.16 Setting Sounds

Select [Sounds] in the classification pane.

Set up the volumes of the operation sounds and error sounds and alarm melody in the setting dialog of the edit pane.

When the volume or melody is to be changed, the volume can be set while listening to the sound since the selected volume or melody is played back.

✓ Settings	×	•	Sett	tings		×
Sounds		So	unds			
Volume Meloo	dy	V	olume	Meloo	dy	
Key ACK Misoperation Response/ Notification Message Notification	Level3 • Level3 • Level3 • Level3 •		Navig Navig	ation 1 Alarm ation 2 Alarm ation 3 Alarm	Sound2 Sound2 Sound2	•
Alert Setting Reminder Navigation 1 Alarm	Level3 • Level4(Loud) •			A/TCPA Alarm Varning	Sound2 Sound2	•
Navigation 2 Alarm Navigation 3 Alarm CPA/TCPA Alarm Warning	Level4(Loud) • Level4(Loud) • Level4(Loud) • Level4(Loud) •					
Emergency Alarm	Level4(Loud) 🗸					

Setting item	Setting contents	Setting value
[Volume] tab		·
Кеу АСК	Set the volume of the sound emitted when the key is pressed.	Off Level1(Soft) Level2 Level3 [Default] Level4(Loud)
Misoperation	Set the volume of the operation error sound.	Off Level1(Soft) Level2 Level3 [Default] Level4(Loud)
Response/Notification	Set the volume of the control response sound to external equipment and control completion notification sound (including the interswitch control) from external equipment.	Off Level1(Soft) Level2 Level3 [Default] Level4(Loud)
Message Notification	Set the volume of the message notification sound.	Off Level1(Soft) Level2 Level3 [Default] Level4(Loud)
Alert Setting Reminder	Set the volume of the sound notifying that the alarm condition has not been set.	Off Level1(Soft) Level2 Level3 [Default] Level4(Loud)
Navigation 1 Alarm	Set the volume of the navigation alarm	Level1(Soft)
Navigation 2 Alarm ^{*1}	sound.*2	Level2
Navigation 3 Alarm ^{*1}		Level3 Level4(Loud) [Default]
CPA/TCPA Alarm	Set the volume of the CPA/TCPA alarm sound. ^{*2}	Level1(Soft) Level2 Level3 Level4(Loud) [Default]
Warning	Set the volume of the system alarm sound.*2	Off Level1(Soft) Level2 Level3 Level4(Loud) [Default]
Emergency Alarm	Set the volume of the Emergency Alarm sound.* ²	Level1(Soft) Level2 Level3 Level4(Loud) [Default]

Setting item	Setting contents	Setting value
[Melody] tab		
Navigation 1 Alarm	Set the melody of the Navigation 1 alarm.	Sound1
		Sound2[Default]
		Sound3
		Sound4
Navigation 2 Alarm ^{*1}	Set the melody of the Navigation 2 alarm.	Sound1
		Sound2[Default]
		Sound3
		Sound4
Navigation 3 Alarm ^{*1}	Set the melody of the Navigation 3 alarm.	Sound1
		Sound2[Default]
		Sound3
		Sound4
CPA/TCPA Alarm	Set the melody of the CPA/TCPA alarm.	Sound1
		Sound2[Default]
		Sound3
		Sound4
Warning	Set up the melody of Warning.	Sound1
		Sound2[Default]
		Sound3
		Sound4

*1 Navigation 2 Alarm and Navigation 3 Alarm are not practically used.

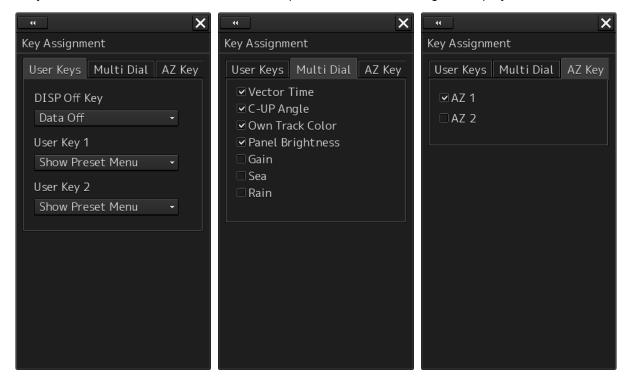
*2 For these volumes, only Level 4 (Loud) may be able to be selected depending on the setting.

16.17 Setting up Key Assignment

Select [Key Assignment] in the classification pane.

Set the keys in the operation unit and the function assigned to the [MULTI] dial in the setting dialog of the edit pane.

Only those items of the functions that can be specified in the task dialog are displayed.



The [User Keys] and [AZ Key] tabs are displayed only when the optional operation unit is installed.

Setting Item	Description of Setting	Setting Value
[User Keys] tab		
DISP Off Key	Select a function to assign to the DISP Off key on the operation unit. [DISP Off Key] is displayed only when the optional operation unit is installed. It will be not displayed on the AMS screen.	-
User Key 1	Select a function to assign to the USER1 key on the operation unit. [User Key 1] is displayed only when the optional operation unit is installed.	Show Preset Menu Capture Screen
User Key 2	Select a function to assign to the USER2 key on the operation unit. [User Key 2] is displayed only when the optional operation unit is installed.	Show Preset Menu Capture Screen

Setting Item	Description of Setting	Setting Value
[Multi Dial] tab		
Vector Time	When this is selected, the vector length setup function will be manipulated with the [MULTI] control.	To enable: Select. To disable: Clear.
C UP Angle	When this is selected, the course adjustment function in the course-up mode will be manipulated with the [MULTI] control.	To enable: Select. To disable: Clear.
Own Track Color	When this is selected, the own ship track color switch function will be manipulated with the [MULTI] control.	To enable: Select. To disable: Clear.
Display Brightness	When this is selected, the display brightness adjustment function will be manipulated with the [MULTI] control. It cannot be changed since power is always on.	Always enabled.
Panel Brightness	When this is selected, the operation unit brightness adjustment function will be manipulated with the [MULTI] control. This item is always displayed.	To enable: Select. To disable: Clear.
Gain	When this is selected, the gain adjustment function will be manipulated with the [MULTI] control When the RADAR function can be used, the item will be displayed.	To enable: Select. To disable: Clear.
Sea	When this is selected, the sea adjustment function will be manipulated with the [MULTI] control When the RADAR function can be used, the item will be displayed.	To enable: Select. To disable: Clear.
Rain	When this is selected, the rain adjustment function will be manipulated with the [MULTI] control When the RADAR function can be used, the item will be displayed.	To enable: Select. To disable: Clear.
[AZ Key] tab	•	
AZ 1	When this is selected, AZ1 can be turned On/Off by pressing the AZ key. All checked items can be turned On/Off at once by pressing the AZ key.	To enable: Select. To disable: Clear.
AZ 2	When this is selected, AZ2 can be turned On/Off by pressing the AZ key. All checked items can be turned On/Off at once by pressing the AZ key.	To enable: Select. To disable: Clear.

16.18 Setting Preferences Information

Select [Preferences] in the classification pane.

The main operation/setting information relating to each task of RADAR and ECDIS can be stored and called collectively.

	« Settings 🗙	
	Preferences	
	Name	
	aaa ————	Preferences Name list
Mark to show loaded preferences	bbbbb	
procession of the second se		
		Load the selected preferences.
Save the current preferences.	Save Load Delete	— Delete button
	Default display configurations	Reset the displayed preferences to the default values.

A maximum of 10 preferences names are displayed in the Preferences Name list. If all the file name characters do not fit in the display area, the remaining file name characters will be displayed with an abbreviation symbol (...).

To save a preferences

1 Click on the [Save] button.

The confirmation dialog box appears.

System	ı		×
Prefe	erences Name		
aaa			
	ou save this Pi e name?	references as the	
	OK	Cancel	

2 Enter a preferences name, and then click on the [OK] button.

The current preferences are saved.

A maximum of 64 characters can be entered for a file name. If all the file name characters do not fit in the display area, the remaining file name characters will be displayed with an abbreviation symbol (...).

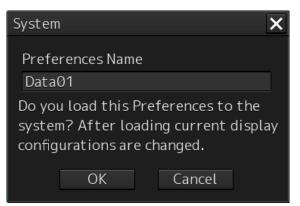
To cancel saving, click on the [Cancel] button.

When saving is completed, an item is added to a blank line in the Preferences Name list.

To load preferences

1 Select the name of the preferences you want to load, and then click on the [Load] button.

The confirmation dialog box appears.



2 Click on the [OK] button.

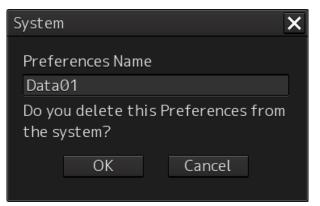
The selected preferences are loaded.

A maximum of 64 characters can be entered for a file name. If all the file name characters do not fit in the display area, the remaining file name characters will be displayed with an abbreviation symbol (...).

To cancel loading, click on the [Cancel] button.

To delete preferences

1 Select the name of the preferences you want to delete, and then click on the [Delete] button.



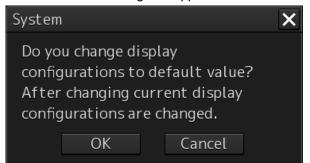
The confirmation dialog box appears. A maximum of 64 characters can be entered for a file name. If all the file name characters do not fit in the display area, the remaining file name characters will be displayed with an abbreviation symbol (...).

2 Click on the [OK] button.

The selected preferences are deleted. To cancel deleting, click on the [Cancel] button.

To set up default display

1 Click on the [Default display configurations] button. The confirmation dialog box appears.



2 Click on the [OK] button.

The display configurations are changed to the default values. To cancel changing, click on the [Cancel] button.

Items of preferences and default display configurations

The items of preferences and default display configurations are shown in the tables below.

	Preferences	Preferences save target		
Item saved	Location	Item	when Default display configurations button is pressed	
Display category	Chart Information Area	Display category	Standard Display	
Range	Chart Information Area	Either selection scale or selection range	Range 3 NM	
Orientation	ECDIS screen	Motion mode	True motion	
	- Chart Information Area	Bearing mode	North-up TM reset value	
position sensor	Common screen - Own Ship Information or Maintenance screen - Sensor Selection	Position source	GPS *1	
Past track	View - Options - Own Track	Past Track display On/Off Plot Color Track Period Time Label display On/Off Time Label Interval Past Position display On/Off Past Position Interval	Past Track display On/Off: On Plot Color: White (Black) * ² Track Period: 1h Time Label display On/Off: On Time Label Interval: 30min Past Position display On/Off: Off Past Position Interval: 0.5min	
Look-ahead time	Alert - Vector/Sector	Vector function On/Off Vector Length value Vector Length unit Vector Width value Sector function On/Off Sector Radius value Sector Radius unit Sector Width value	Vector function On/Off: On Vector Length value: 6min Vector Length unit: min Vector Width value: 30m Sector function On/Off: On Sector Radius value: 1.0NM Sector Radius unit: NM Sector Width value: 45.0°	
Area Boundary	View - Options - Chart Common	Area boundary	Symbolized	

Task "Route monitoring"

Item saved	Preferences save target		Factory setting value, value
	Location	Item	when Default display configurations button is pressed
Depth	View - Options - Chart Common	 Shallow Contour 	 Shallow Contour: 5
		 Safety Depth 	 Safety Depth: 10
		 Safety Contour 	 Safety Contour: 30
		Deep Contour	Deep Contour: 30
		 Two Color Depth 	 Two Color Depth: Off
		 Shallow Pattern 	 Shallow Pattern: Off
		 Show Isolated Danger 	 Show Isolated Danger In
		In Shallow Water	Shallow Water: Off
Chart	View - Options - Chart Common	Chart Symbol	Chart Symbol: Paper
Symbol		 Full Light Line 	Chart
		 Consider Scale 	 Full Light Line: Off
		Minimum	• Consider Scale Minimum: Off
Display of	View	View1	View1
charts	- Options - Chart View (ECDIS)	 Chart Type Text Size Layer (Each item) Text (Each item) View2 Chart Type Text Size Layer (Each item) Text (Each item) 	 Chart Type: S-57 Text Size: 5 Layer: All On except [S]unknown object and [A]Nautical publication information Text: All Off except Nature of seabed and Height of islet or land feature View2 Chart Type: S-57 Text Size: 5 Layer: All On except [S]unknown object and [A]Nautical publication information
			• Text: All On
AIS Lost	Alert - Collision Avoidance	AIS Lost Alarm	Off
Alarm	- AIS Lost Alarm	 AIS Lost Alarm detection target setting On/Off 	

*1 GPS when there is only one GPS

*2 White/Black interchanges under the following conditions.

In Day1/Day2 (or Day), Black, in Day3/Dusk/Night, White

	Preferences save target		Factory setting value, value	
Item saved	Location	Item	when Default display configurations button is pressed	
Automatic radar target acquisition	Alert - New Target Alarm	 AZ1 function On/Off AZ1 Start Angle value AZ1 End Angle value AZ1 Start Distance value AZ1 End Distance value AZ2 function On/Off AZ2 function On/Off AZ2 Start Angle value AZ2 End Angle value AZ2 Start Distance value AZ2 End Distance value AZ2 End Distance value 	 AZ1 function On/Off: Off AZ1 Start Angle value: 315.0° AZ1 End Angle value: 045.0° AZ1 Start Distance value: 3.00NM AZ1 End Distance value: 3.50NM AZ2 function On/Off: Off AZ2 function On/Off: Off AZ2 Start Angle value: 135.0° AZ2 End Angle value: 225.0° AZ2 Start Distance value: 3.00NM AZ2 End Distance value: 3.00NM AZ2 End Distance value: 3.50NM 	
Graphical AIS reported target display	View - Options - Target	 AIS Symbol display On/Off 	• AIS Symbol display On/Off: On	
Radar and AIS Target fusion	Settings - TT/AIS - Association	Association function On/Off	On	

Task "Collision avoidance"

16.19 Setting up Screen Capture

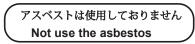
Select [Screen Capture] in the classification pane.

Set up the various settings of the screen captures in the setting dialog of the edit pane.

••		×
Screen Capture		
AUTO Capture Interval	9	min
🗆 AUTO File Erase		
📮 <u>File Management</u>		

Setting Item	Description of Setting	Setting Value
AUTO Capture Interval	Set up the interval at which the Screen Capture dialog box is automatically saved. If this is set to 0, the Screen Capture dialog box will not automatically be saved.	0 to 999 min
AUTO File Erase	Specify whether or not to delete the screen shot file automatically.	To enable: Select. To disable: Clear.

Shortcut	Settings Dialog Box	
File Management	[File Management] dialog box	



For further information, contact:



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