JAN-7202/9202

Conning Display

Instruction Manual

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PREFACE

Thank you for purchasing JAN-7202/9202.

This equipment meets the performance standards of the IMO (International Maritime Organization) and the IHO (International Hydro graphic Organization), and serves to improve safety, reduce fuel combustion, concentrate voyage information as the main device of the INS (Integrated Navigation System).

- For the best operation, read this manual thoroughly before use.
- Keep this manual in a convenient place for future reference.
 Make use of this manual when experiencing operation difficulties.
- The LCD of this equipment uses thin film transistors (TFT). If some pixels on the screen
 are not clear, the color is different, or the screen is brighter than usual, it is not because of
 defect, instead it is because of inherent characteristic of the TFT display technology.
- The information in this manual is subject to change without notice at any time.

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Cautions for High Voltage

High voltages, ranging from several hundreds to tens of thousands of volts, are used in electronic apparatus, such as radio and radar instruments. These voltages are totally harmless in most operations. However, touching a component inside the unit is very dangerous. (Any person other than authorized service engineers should not maintain, inspect, or adjust the unit.) High voltages on the order of tens of thousand volts are most likely to cause instant deaths from electrical shocks. At times, even voltages on the order of several hundred volts could lead to electrocution. To defend against electrical shock hazards, don't put your hand into the inside of apparatus. When you put in a hand unavoidably in case of urgent, it is strongly suggested to turn off the power switch and allow the capacitors, etc. to discharge with a wire having its one end positively grounded to remove residual charges. Before you put your hand into the inside of apparatus, make sure that internal parts are no longer charged. Extra protection is ensured by wearing dry cotton gloves at this time. Another important precaution to observe is to keep one hand in your pocket at a time, instead of using both hands at the same time.

It is also important to select a secure footing to work on, as the secondary effects of electrical shock hazards can be more serious. In the event of electrical shocks, disinfect the burnt site completely and obtain medical care immediately.

Precautions for Rescue of Victim of Electric Shock

When a victim of electric shock is found, turn off the power source and ground the circuit immediately. If this is impossible, move the victim away from the unit as quick as possible without touching him or her with bare hands. He or she can safely be moved if an insulating material such as dry wood plate or cloth is used.

Breathing may stop if current flows through the respiration center of brain due to electric shock. If the electric shock is not large, breathing can be restored by artificial respiration. A victim of electric shock looks pale and his or her pulse may become very weak or stop, resulting in unconsciousness and rigidity at worst. It is necessary to perform first aid immediately.

Emergency Measures

Method of First-Aid Treatment

☆Precautions for First-Aid Treatments

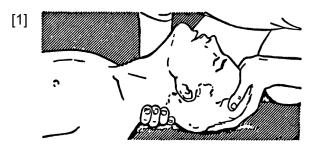
Apply artificial respiration to the person who collapsed, minimizing moving as much as possible avoiding risks. Once started, artificial respiration should be continued rhythmically.

- (1) Refrain from touching the patient carelessly as a result of the accident; the first-aider could suffer from electrical shocks by himself or herself.
- (2) Turn off the power calmly and certainly, and move the patient apart from the cable gently.
- (3) Call or send for a physician or ambulance immediately, or ask someone to call doctor.
- (4) Lay the patient on the back, loosening the necktie, clothes, belts and so on.
- (5) (a) Feel the patient's pulse.
 - (b) Check the heartbeat by bringing your ear close to the patient's heart.
 - (c) Check for respiration by bringing your face or the back of your hand to the patient's face.
 - (d) Check the size of patient's pupils.
- (6) Opening the patient's mouth, remove artificial teeth, cigarettes, chewing gum, etc. if any. With the patient's mouth open, stretch the tongue and insert a towel or the like into the mouth to prevent the tongue from being withdrawn into the throat. (If the patient clenches the teeth so tight that the mouth won't open, use a screwdriver or the like to force the mouth open and then insert a towel or the like into the mouth.)
- (7) Wipe off the mouth to prevent foaming mucus and saliva from accumulating.

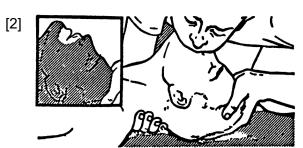
☆ Treatment to Give When the Patient Has a Pulse Beating but Has Ceased to Breathe

- * Performing mouth-to-mouth artificial respiration
- (1) Bend the patient's face backward until it is directed to look back. (A pillow may be placed under the neck.)
- (2) Pull up the lower jaw to open up the airway. (To spread the airway)
- (3) Pinching the patient's nose, breathe deeply and blow your breath into the patient's mouth strongly, with care to close it completely. Then, move your mouth away and take a deep breath, and blow into his or her mouth. Repeat blowing at 10 to 15 times a minute (always with the patient's nostrils closed).
- (4) Continue artificial respiration until natural respiration is restored.
- (5) If the patient's mouth won't open easily, insert a pipe, such as one made of rubber or vinyl, into either nostril. Then, take a deep breath and blow into the nostril through the pipe, with the other nostril and the mouth completely closed.
- (6) The patient may stand up abruptly upon recovering consciousness. Keep the patient lying calmly, giving him or her coffee, tea or any other hot drink (but not alcoholic drink) to keep him or her warm.

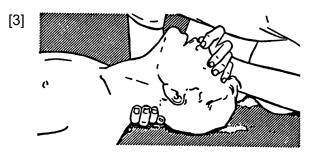
Mouth-to-mouth artificial respiration with the patient's head lifted



(1) Lift the back part of the patient's head. Support the forehead with one of your hand and the neck with the other hand.→ [1]. Many patients will have their airways opened by lifting their head in this way to ease mouth-to-mouth artificial respiration.



(2) Closing the patient's mouth with your mouth, press your cheek against the patient's nose→ [2]. Alternatively, hold the patient's nose with your finger to prevent air leak → [3].



(3) Blowing air into the patient's lungs. Blow air into the patient's lungs until chest is seen to rise. The first 10 breaths must be blown as fast as possible.

Fig. 1 Mouth-to-mouth artificial respiration

Pictorial Indication

Meanings of Pictorial Indication

Various pictorial indications are included in this manual and are shown on this equipment so that you can operate them safely and correctly and prevent any danger to you and / or to other persons and any damage to your property during operation. Such indications and their meanings are as follows.

Please understand them before you read this manual:

<u> </u>	This indication is shown where incorrect equipment operation due to negligence may cause death or serious injuries.
MARNING	This indication is shown where any person is supposed to be in danger of being killed or seriously injured if this indication is neglected and this equipment is not operated correctly.
CAUTION	This indication is shown where any person is supposed to be injured or any property damage is supposed to occur if this indication is neglected and this equipment is not operated correctly.

Examples of Pictorial Indication



Electric Shock

The \triangle mark represents CAUTION (including DANGER and WARNING).

Detailed contents of CAUTION ("Electric Shock" in the example on the left) is shown in the mark.



Disassembling Prohibited



The \odot mark represents prohibition.

Detailed contents of the prohibited action ("Disassembling Prohibited" in the example on the left) is shown in the mark.



Disconnect the power plug



The ● mark represents instruction.

Detailed contents of the instruction ("Disconnect the power plug" in the example on the left) is shown in the mark.

Warning Label

There is a warning label on the top cover of the equipment. Do not try to remove, break or modify the label.

Precautions upon Equipment Operation

⚠ DANGER



Never attempt to check or repair the inside of the equipment.

Checking or repair by an unqualified person may cause a fire or an electric shock.

Contact our head office, or a nearby branch or local office to request servicing.



Never remove the cover of this equipment.

Touching the high-voltage section inside will cause an electric shock.



Do not attempt to disassemble or tamper with this equipment. Otherwise, a fire, an electric shock, or a malfunction may occur.



When conducting maintenance, make sure to turn the main power off. Failure may result in electric shock.



Turn off all the main powers before cleaning the equipment. Especially when an UPS is used, make sure to turn it off since voltage is still outputted from the UPS even after the indicator and the Conning display is turned off. Failure may result in equipment failure, or death or serious injury due to electric shock.

WARNING



Do not hold down the Power button of the operation unit when turning off the power supply.

If the button is held down, the equipment may not be terminated normally, causing a failure.



When conducting maintenance work, make sure to turn off the power so that the power supply to the equipment is completely cut off.

Some equipment components can carry electrical current even after the power switch is turned off, and conducting maintenance work may result in electric shock, equipment failure, or accidents.



When cleaning the screen and Trackball of Operation Unit, do not wipe hard with a dry cloth. Also, do not use glass cleaner, alcohol, gasoline, or thinner to clean the screen. Also avoid wiping with water. It may cause surface damage or equipment failure.



Confirm computer virus does not exist in USB flash memory beforehand when reading and writing of the file by using USB flash memory. Influences other equipment when the display unit is infected with the virus, and it may cause a breakdown.



Do not remove USB flash memory while the access lamp (in USB flash drive) is flashing.

Data may be damaged when the USB flash memory is inserted or removed while accessing it, and it may cause a breakdown.



Do not place a glass or cup containing water, etc., or a small metal object on this equipment.

If water or such object gets inside, a fire, an electric shock, or a malfunction may occur.



In case water or a metal object gets inside the equipment, turn off the power immediately, unplug the power supply cable from an electric outlet, and contact our head office, or a nearby branch or local office to request servicing. Keeping the equipment in operation under such condition may cause a fire, an electric shock or a malfunction.



In case you find smoke, unusual odor or extreme high heat coming from the equipment, turn off the power immediately, unplug the power supply cable from an electric outlet, and contact our head office, or a nearby branch or local office to request servicing.

Keeping the equipment in operation under such condition may cause a fire or an electric shock.



Change of the color of the Day/Night button, particularly the use of the [Night] color, may interfere with the recognition of display information.

ACAUTION



Make sure that two or more staff member work together when replacing the LCD. If only one person attempts to replace the LCD, he/she may drop it and become injured.



Any adjustments must be made by specialized service personnel.

Incorrect settings may result in unstable operation, and this may lead to accidents or equipment failure.



Do not use or leave the equipment under direct sunlight for a long time or in the temperatures above 55°C.

Otherwise, a fire or a malfunction may occur.



Do not block the ventilation opening of the equipment.

Otherwise, heat may accumulate inside to cause a fire or a malfunction.



Do not touch the equipment with hands or gloves wet with water. Otherwise, an electric shock or a malfunction may occur.



- Do not place any object on the operation panel.
 - In particular, if a hot object is placed on the operation panel, it can cause deformation of the surface of the operation panel.
- Do not apply any undue shock on the operation panel, trackball and dials. Otherwise, a malfunction may result.



Make sure that the main power is turned off before inspection or replacement of parts.

Otherwise, an electric shock, a fire, or a malfunction may occur.



• If a fan alarm or CPU temperature rise alarm has occurred, immediately turn off the power.

Keeping the equipment in operation under such condition may cause a fire or a malfunction.

After turning off the power, contact our head office, or a nearby branch or local office to request servicing.

ACAUTION



Do not turn off the power during Backup/Restore. Otherwise, a function may fail, and an accident may occur.



Do not do the backup operation of data while sailing.

The Conning Display application should be ended to begin the data backup. It becomes impossible to observe using the Conning Display and this may lead to accidents.



The backup power supply (DC power supply, etc.) of the equipment must be connected when recovery of the C drive image is performed. If the power supply stops during recovery, an equipment activation fault occurs, causing an accident.



Do not turn off the power supply during recovery of C drive image.

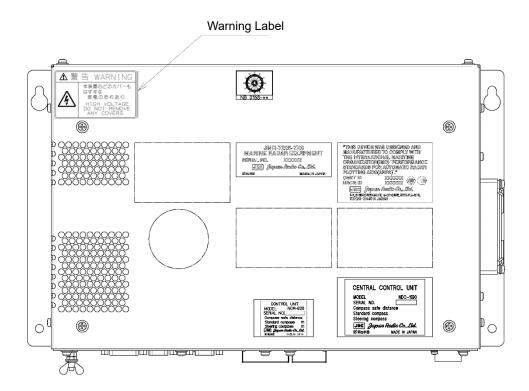
Otherwise, a function fault occurs, causing an accident.



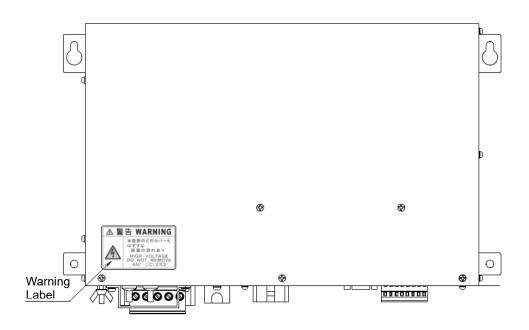
In the case of turning on the power under the condition of low temperature, do pre-heat more than 30 minutes.

Otherwise, an operation failure may occur and an accident may occur.

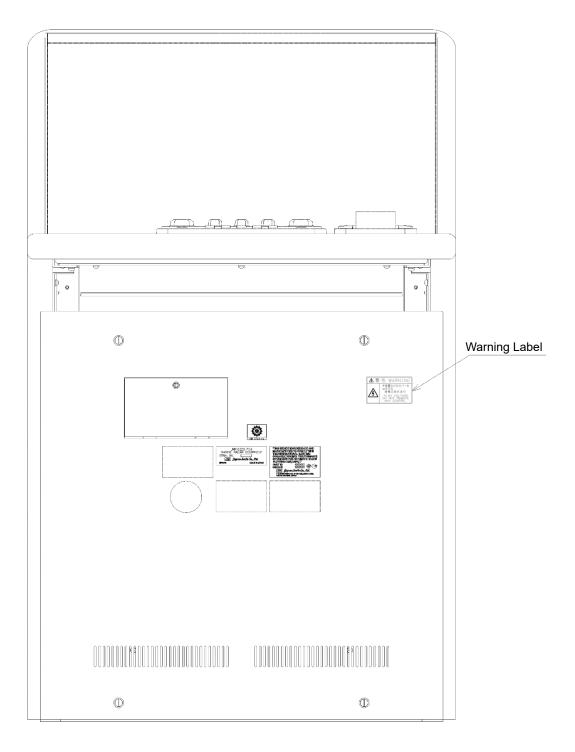
The Mounting Point of the Warning Label



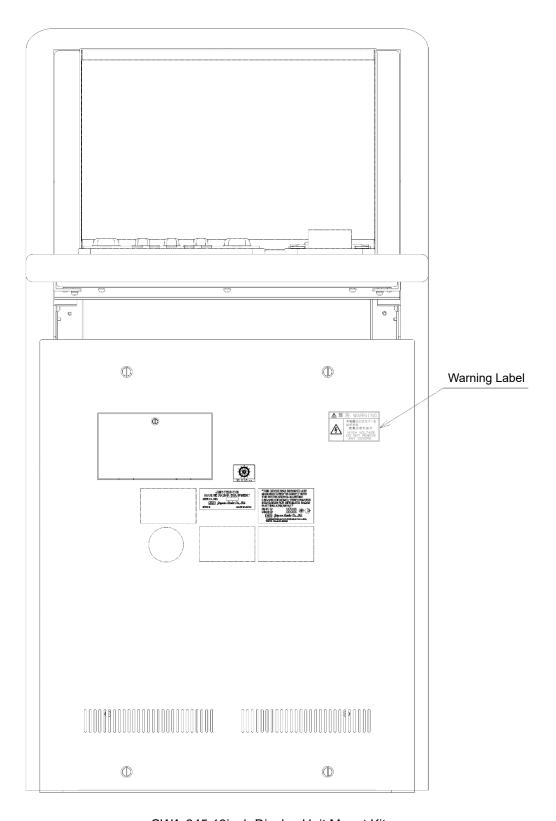
NDC-1590/A Central Control Unit



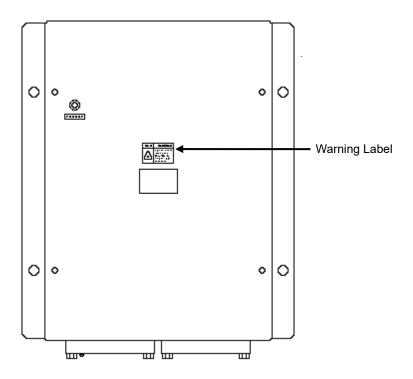
NBD-913 Power Supply Unit



CWA-246 26inch Display Unit Mount Kit



CWA-245 19inch Display Unit Mount Kit



NQE-3141-4A/8A Interswitch Unit

EQUIPMENT APPEARANCE



CWA-245 Display Unit



CWA-246 Display Unit with tray



CWA-246 Display Unit without tray



NCE-5605 Trackball Operation Unit



NCE-5625 Keyboard Operation Unit (Option)



NDC-1590/A Central Control Unit



NBD-913 Power Supply Unit



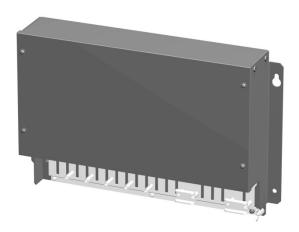
NWZ-207/214 19inch Display



NWZ-208 26inch Display



NWZ-233 27inch Display



NQE-1143 Junction box (Option)

How to Use This Manual

Structure of this manual

This manual is structured as shown below. Read the necessary section according to the purpose.

Item	Contents
Preface	Describes the purposes of using this equipment.
Safety Cautions Emergency Measures	Describes the cautions for a high voltage, precautions for rescue of victims of an electric shock, and the method of First-Aid treatment.
Pictorial Indication Precautions upon Equipment Operation	Describes the safety precautions and warning on this equipment.
The Mounting Point of the Warning Label	Describes the warning label attachment position on this equipment.
Equipment Appearance	Describes the appearance of this equipment.
How to use this manual	This page
Section 1 Overview	Provides the overview of this equipment.
Section 2 Name and Function of Each Unit	Describes the name and function of each unit of this equipment.
Section 3 Basic Operations	Describes the basic operations of Conning Display.
Section 4 Each Block of Conning Display	Describes how to view the blocks that are displayed on the Conning Display screen and how to operate the screen.
Section 5 Setting Up Screen View	Describes the detail setting of screen display.
Section 6 Setting Up Alerts	Describes the alert detail setting for avoiding dangers.
Section 7 Setting Up the Operation Mode	Describes the detail setting of the operation modes of this equipment.
Section 8 Adjusting and Setting Up Equipment (for Services)	Describes the adjustment and setup of this equipment by specialized service personnel.
Section 9 Maintenance & Inspection	Describes the maintenance and inspection of this equipment.
Section 10 Failures and After-Sale Services	Describes the failure handling measures and after-sale services of this equipment.
Section 11 About Disposal	Describes the cautions on disposing of this equipment.
Section 12 Specifications	Describes the specifications of this equipment.
Appendix A Alert List	Contains a listing of alerts.
Appendix B Menu List and Materials	Describes the materials such as the menu list.

Notations

Operation notations

Trackball operations on the operation panel are expressed as follows.

Operation	Notation
Click the left button.	Click Example: Click on the object.
Double-click the left button.	Double-click Example: Determine the drawing by double-click.

The buttons and dialog boxes on the screen are expressed as follows.

Button type	Notation
Button with button name indicated	Example: ACK → [ACK] (Acknowledgment) button
Button with an indication	Shown as follows.
other than the button name such as an icon	Example: → Day/Night button

A series menu selection operation is expressed as follows.

Click on [Settings] - [General] - [Color and Brightness] on the menu.

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Contents (8)

Section 1 Overview

△WARNING



Do not put any container with water or small metallic object on this equipment.

Water may spill or metal may enter the equipment, causing fire, electric shock or other troubles.



Should water or metal have entered the equipment, turn off the circuit breaker and contact our sales division, branch office, service center or representative located nearest to you.

If you continue to use the equipment without taking required action, fire, electric shock or other troubles may occur.



Should you find out smoke, offensive smell or extreme heat on the equipment, turn off the switch and circuit breaker immediately. Then contact our sales division, branch office, service center or representative located nearest to you.

If you continue to use the equipment without taking required action, fire or electric shock may occur.

ACAUTION



Do not use or leave the equipment where there is a direct sunshine and high humidity or the temperature exceeds 55°C.

Otherwise, fire or other troubles may occur.



Do not block the ventilation port of the equipment.

Otherwise, fire or other troubles may be caused by heat accumulation.



Do not touch the equipment when your hands or gloves are wet with fresh water or seawater.

Otherwise, electric shock or other troubles may occur.



- Do not place any object on the operation panel.
 - In particular, if a hot object is placed on the operation panel, it can cause deformation of the surface of the operation panel.
- Do not apply any undue shock on the operation panel, trackball and dials.
 Otherwise, a malfunction may result.



- If a fan alarm or CPU temperature rise alarm has occurred, immediately turn off the power
 - Keeping the equipment in operation under such condition may cause a fire or a malfunction.
 - After turning off the power, contact our head office, or a nearby branch or local office to request servicing.

1.1 Functions

Conning Display (referred to as "this equipment" henceforth), which enables quick understanding of the condition of own ship by intensively displaying on the screen the navigation information and progress information that are necessary for sailing and maneuvering the ship, supports the improvement of the safe transportation and work efficiency.

This equipment has the following functions:

- Display of information including ship's heading, speed, course, water depth, wind bearing/wind speed, current set/current drift, propeller/engine revolution speed, rudder angle, thruster, waypoint
- Sensor information graph display and numeric value display
- · Switching between H UP and N UP of wind bearing/wind speed display
- · Switching of data source
- · Switching of display data unit
- Option alert management information(AMS license is required)
 Warning: Warning information/history display from the connection device
- Day/Night function
- Self-diagnosis function

1.2 Features

This equipment has the following features:

- Displays the relationships among the ship's heading, course, wind bearing/wind speed, and current set/current drift of own ship in large graphic presentation, enabling the grasping of the relationships easily.
- Displays the relationships among the ship's heading, course, set heading, and planned course in
 3D view combining with the view from the bridge, enabling the grasping of the relationships easily*1
- Displays the speed in the unit of cm/s at the docking at the shore
- · Displays many side thruster/azimuth thruster information items at docking at the shore
- Supports customization of display layout and label text according to the number of engines/wheels (supported at factory delivery)
- · Menu selection by icon
- Applies 19-inch or 26/27-inch color LCD

^{*1:} The 3D view display may not be available depending on the Conning Display you use.

1.3 Components

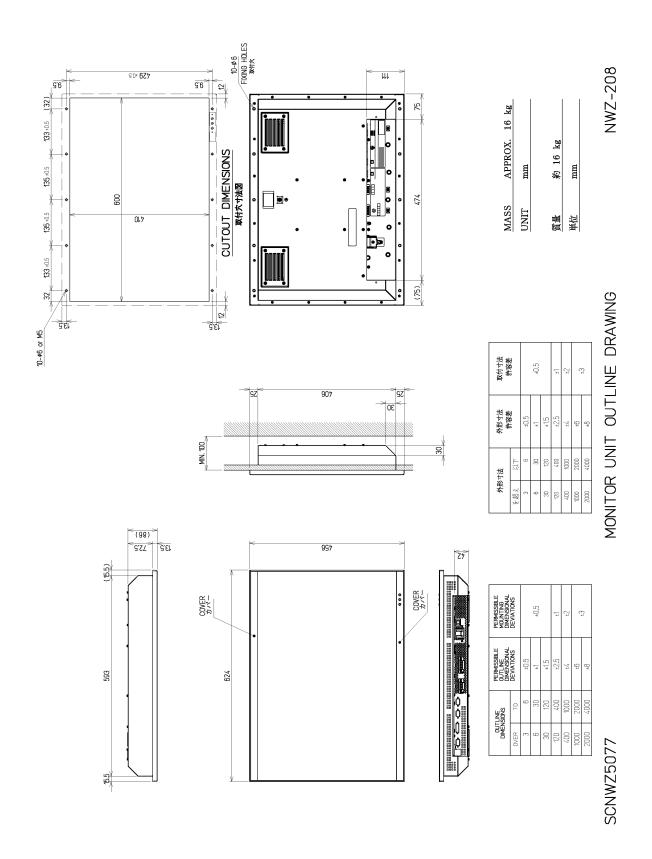
A list of components and optional accessories is shown below.

Components of the Display Unit

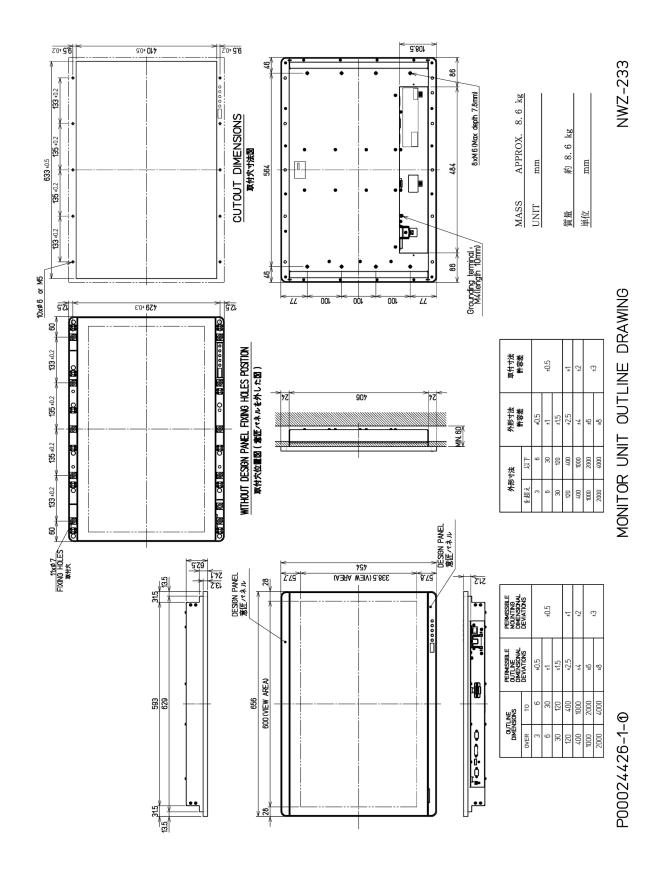
	Name	Model	Q'ty	Remarks
Display unit				Main unit
Display	(JMR-72XX/JAN-72XX)	NWZ-207 or NWZ-214	1	Included in the main unit.
	(JMR-92XX/JAN-92XX)	NWZ-208 or NWZ-233		
Trackbal	l operation unit	NCE-5605	1	Included in the main unit.
Keyboard	d operation unit	NCE-5625	1	Option
Large tra	у	CWB-1593	1	Used only for a stand-alone display unit
UPS			1	
Central c	control unit	NDC-1590/A	1	Included in the main unit.
Power su	apply unit	NBD-913	1	Included in the main unit.
Junction	box	NQE-1143	1	Option
	Serial LAN Interface circuit	CMH-2370	1	Option
	Analog Option circuit	CMJ-560	1	Option
	Gyro Interface circuit	CMJ-554	1	Option
Sensor L	AN switch unit	NQA-2443/A	1	Option
26/27inch crad	dle frame	CWA-246	1	Option
19inch cradle	frame	CWA-245	1	Option
26/27inch des	ktop frame	CWB-1595	1	Option
26/27inch des	ktop frame	CWB-1660	1	Option
19inch deskto	p frame	CWB-1594	1	Option
19inch deskto	p frame	CWB-1659	1	Option
Operation unit	desktop frame	CWB-1596	1	Option
Instruction Ma	nual (Japanese)		1	
Instruction Ma	nual (English)		1	
Installation Ma	nual (Japanese)		1	Option
Installation Ma	nual (English)		1	Option
Canvas cover			1	Option
Hood	(JMR-72XX/JAN-72XX)		1	Option
11000	(JMR-92XX/JAN-92XX)			
Accessory	CD cleaner		1	Packing in 1 box
Spare parts fo	r the main unit		1	Packing in 1 box
Spare parts fo	r the junction box		1	Option

1.4 Structure

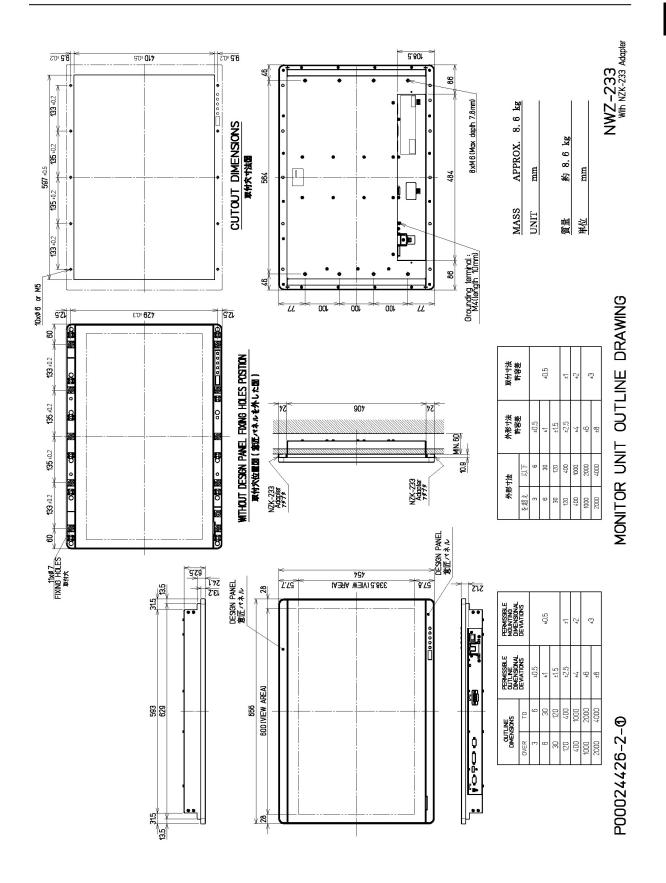
The outline of this equipment is as follows.



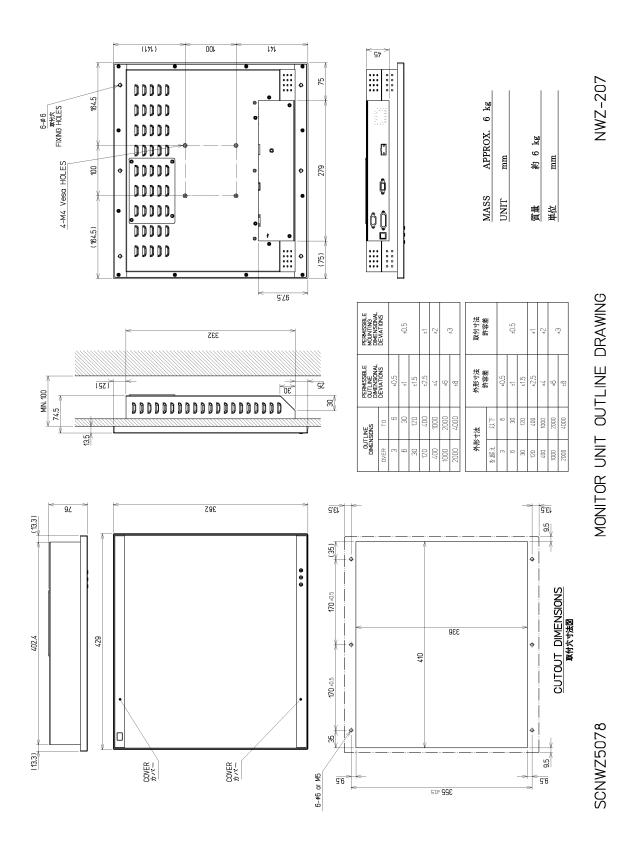
Outline drawing of 26inch Display (NWZ-208)



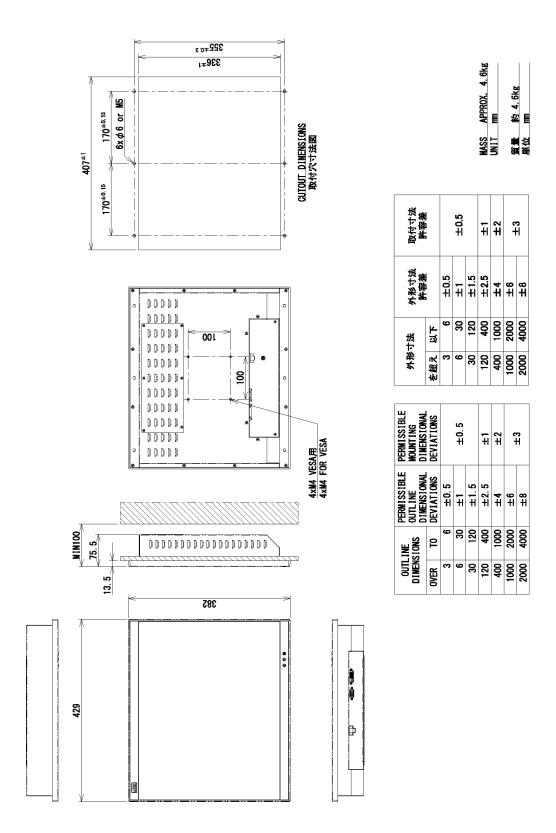
Outline drawing of 27inch Display (NWZ-233)



Outline drawing of 27inch Display (NWZ-233) with NZK-233 Adapter



Outline drawing of 19inch Display (NWZ-207)

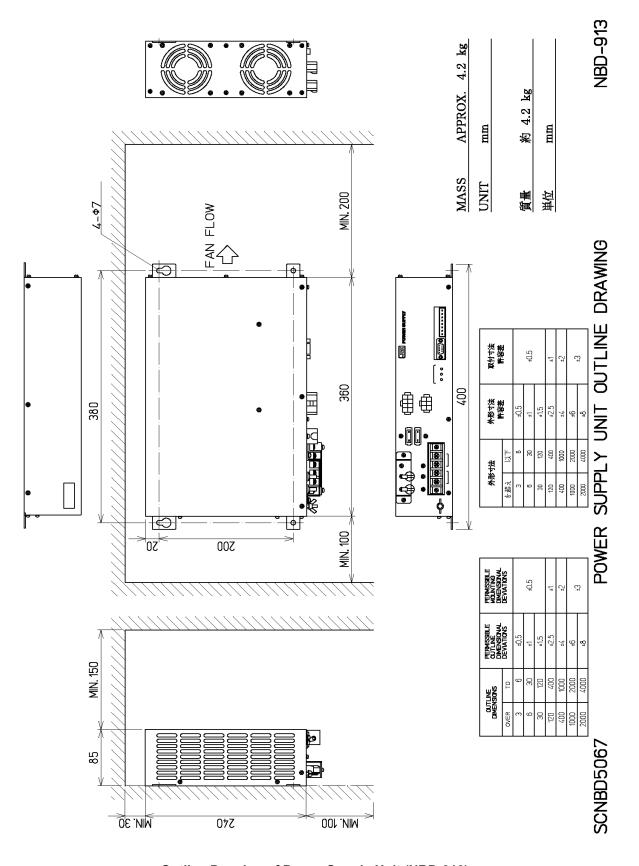


Outline drawing of 19inch Display (NWZ-214)

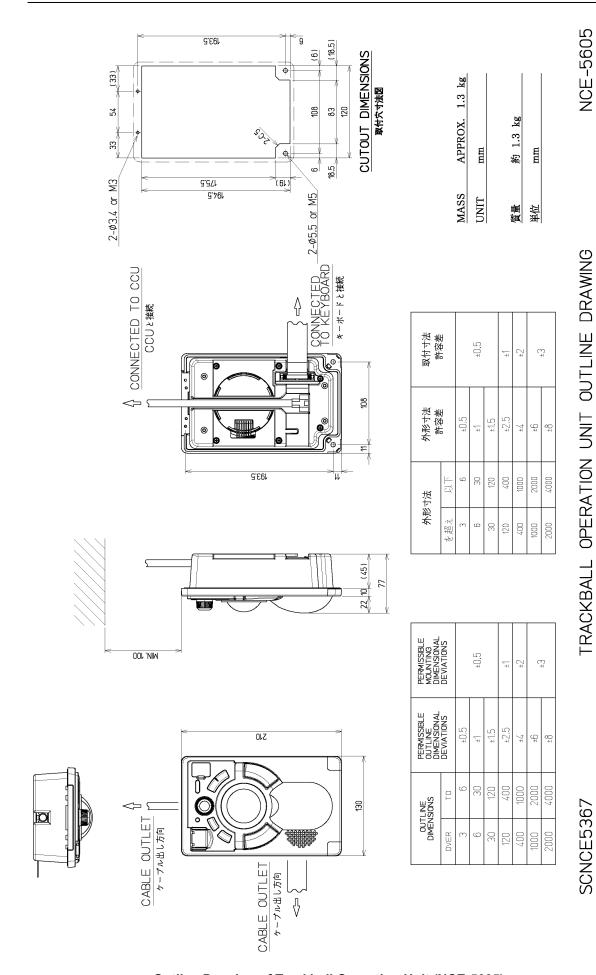
	取付寸法群略差				+1	+2	+3		PERMISSIBLE PERMISSIBLE OUTLINE MOUNTING	DIMENSIONAL DEVIATIONS		±0.5		Ħ	±2	+	-1	5. 6 kg
	外形寸法群略整		+0.5	7 7	+2.5	±4	9+1+		PERMISSIBLE OUTLINE	DEVIATIONS	±0.5	#	±1.5	±2.5	+4	9#	# +	
	英市市	を超え 以下	3 6	30 20	+	\vdash	1000 2000	\dashv	OUTLINE		\vdash	9		\dashv	\dashv	\rightarrow	2000 4000	- S E - J
					R35		01	_	Ø14.	Detail A								MIN. 130 240 MIN. 20
MIN. 45	(GIZ				(500Z			3.81	2-07		3	(10)					OZZ NIM
MN 45			•			Air holes							Earth terminal / 10 x x 380				37	Earth termina

CENTRAL CONTROL UNIT OUTLINE DRAWING

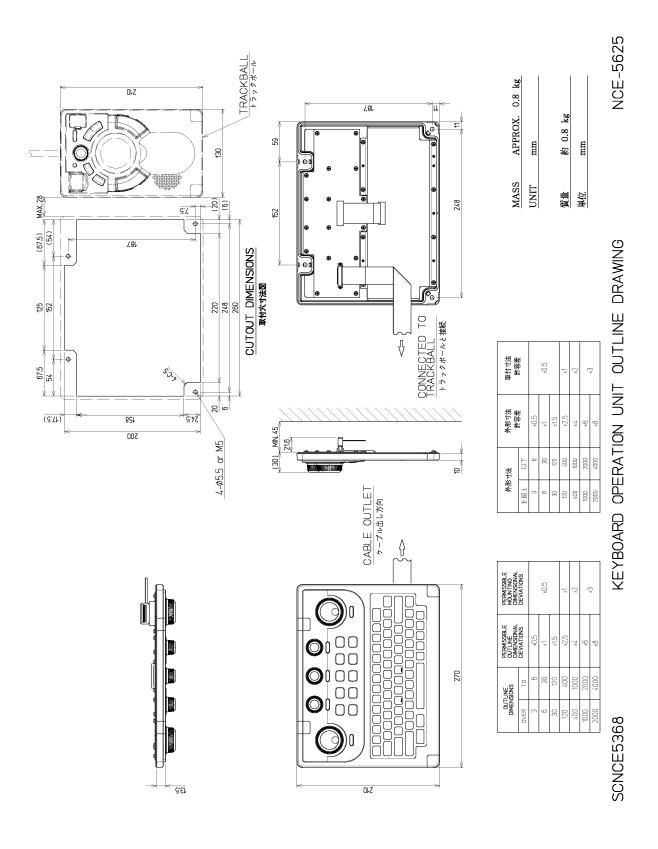
Outline Drawing of Central Control Unit (NDC-1590/A)



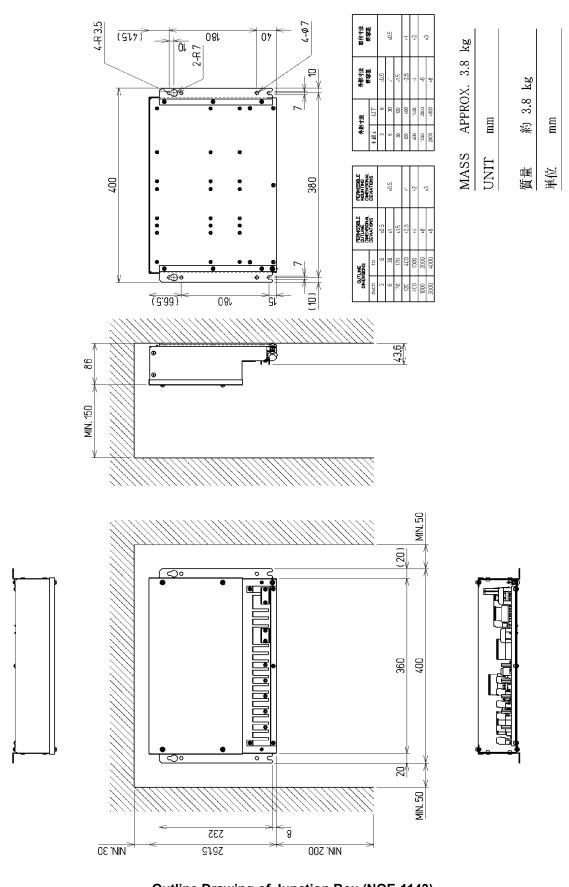
Outline Drawing of Power Supply Unit (NBD-913)



Outline Drawing of Trackball Operation Unit (NCE-5605)



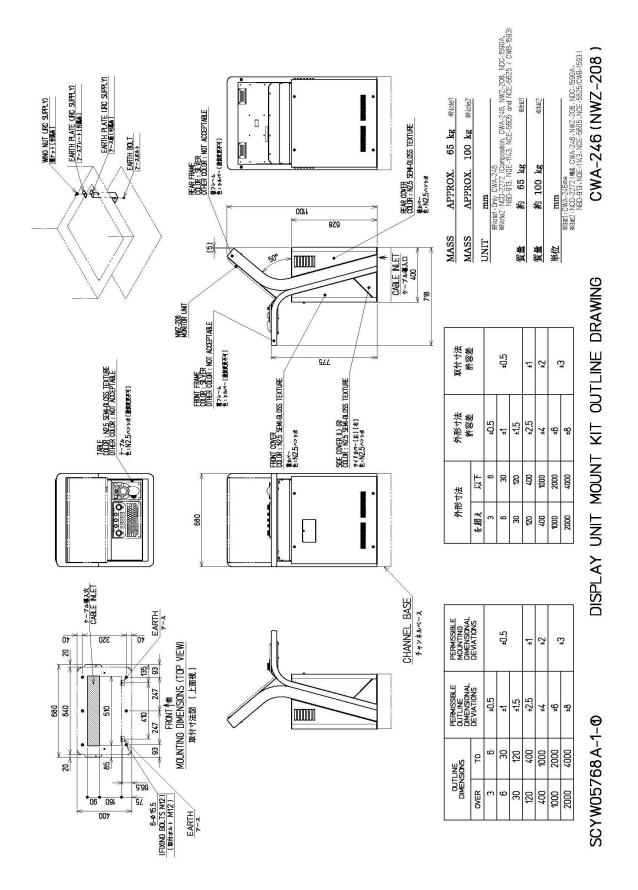
Outline Drawing of Keyboard Operation Unit (NCE-5625)



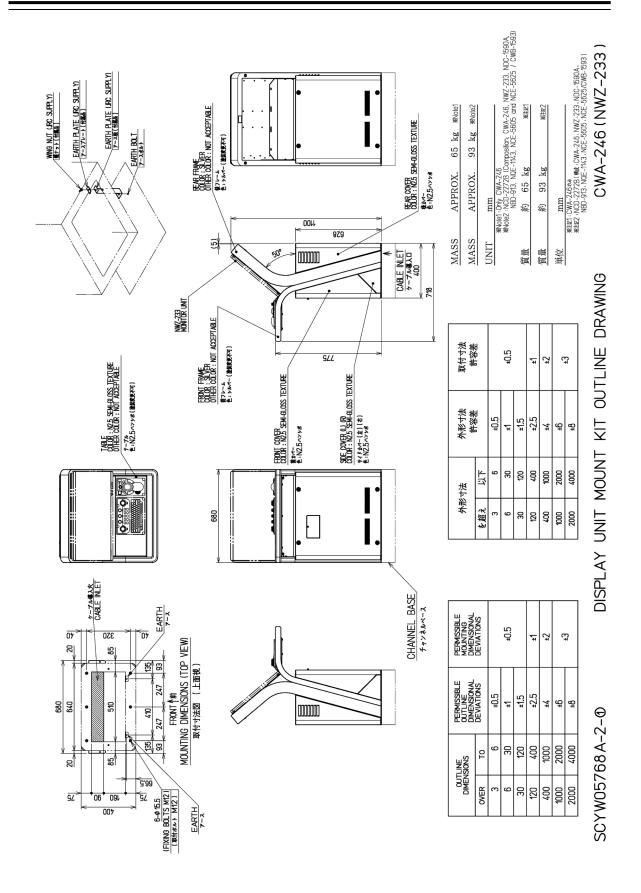
NQE-1143

SCNQE5093-0

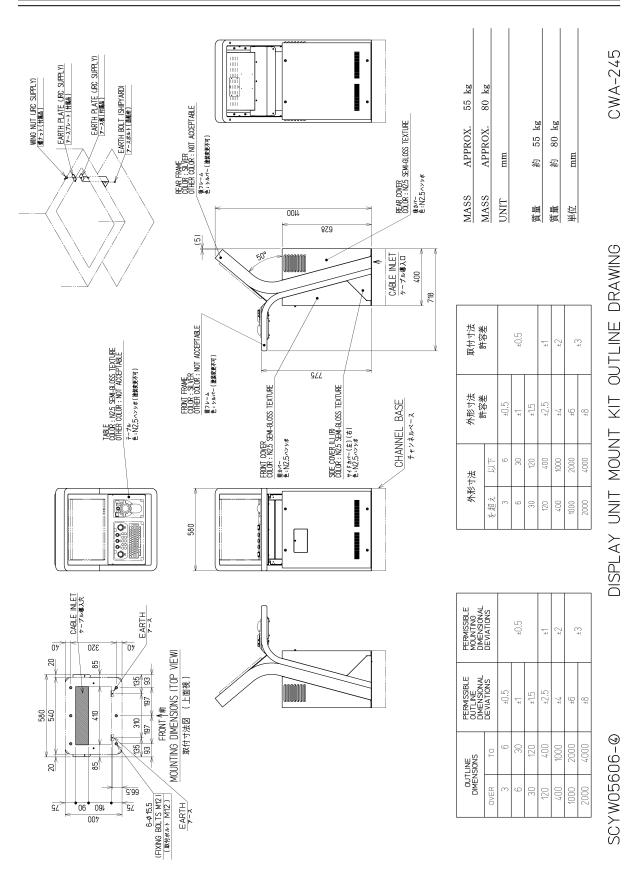
Outline Drawing of Junction Box (NQE-1143)



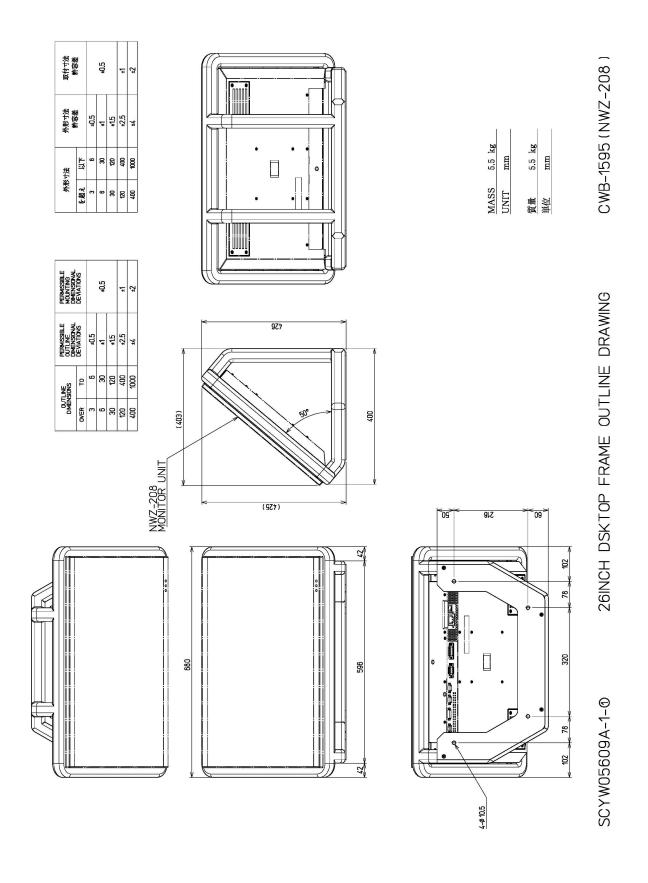
Outline Drawing of 26inch Cradle Frame (CWA-246) (with display, trackball operation unit and keyboard operation unit installed)



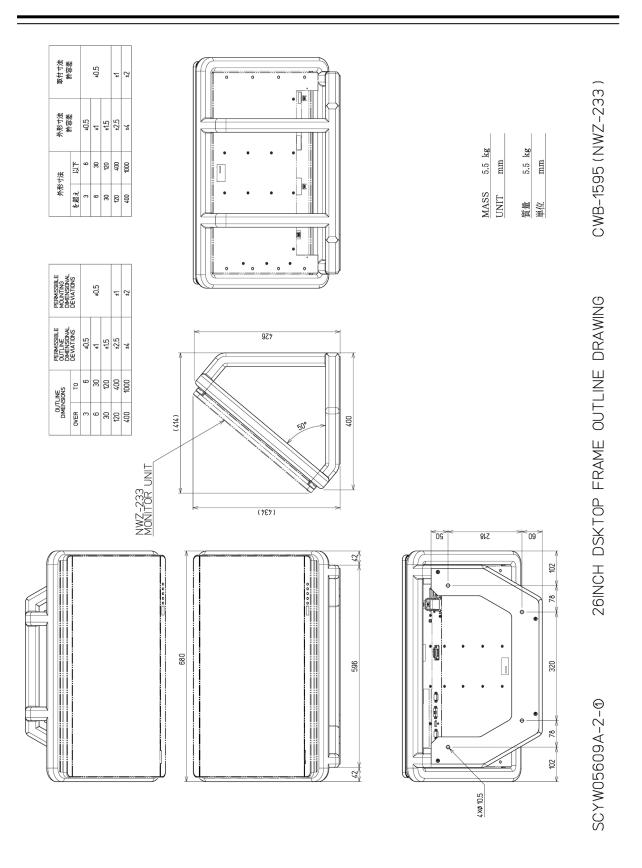
Outline Drawing of 27inch Cradle Frame (CWA-246) (with display, trackball operation unit and keyboard operation unit installed)



Outline Drawing of 19inch Cradle Frame (CWA-245) (with display, trackball operation unit and keyboard operation unit installed)



Outline Drawing of 26inch Desktop Frame (CWB-1595)



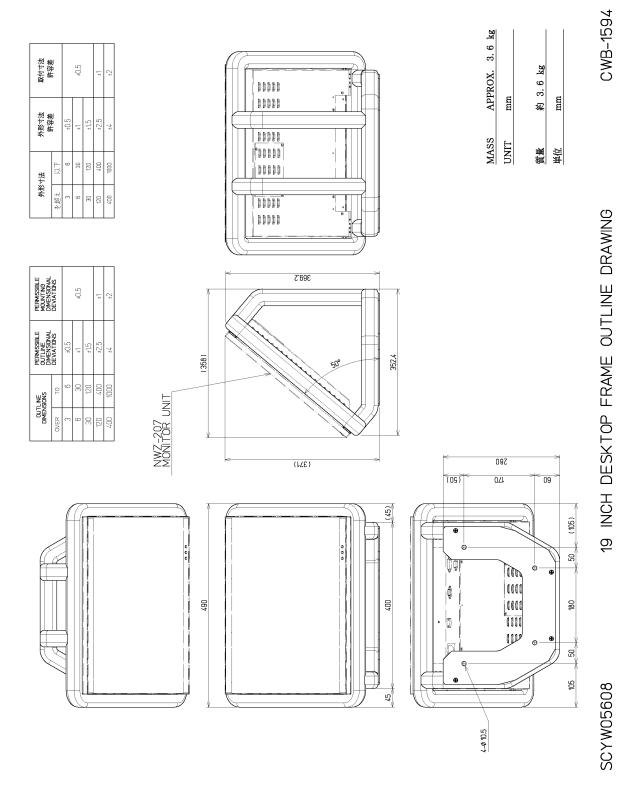
Outline Drawing of 27inch Desktop Frame (CWB-1595)

CWB-1660 (NWZ-208)

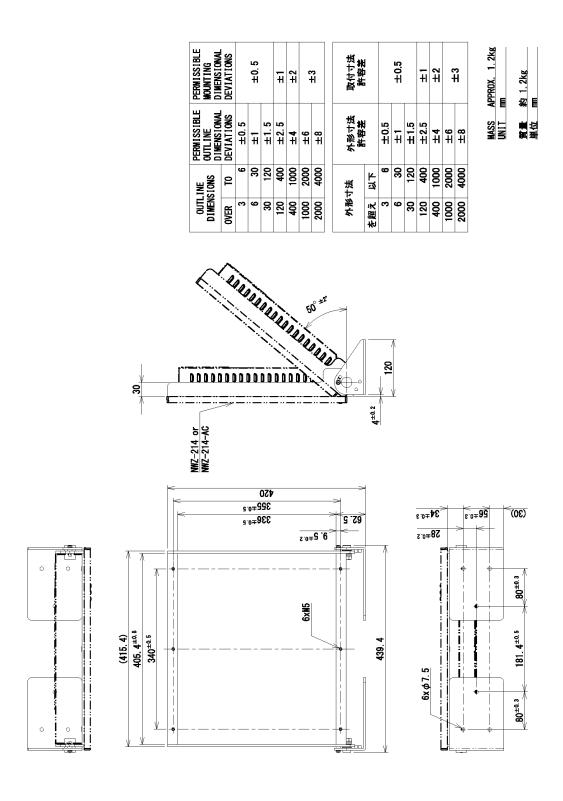
26INCH DESKTOP FRAME OUTLINE DRAWING

Outline Drawing of 26inch Desktop Frame (CWB-1660)

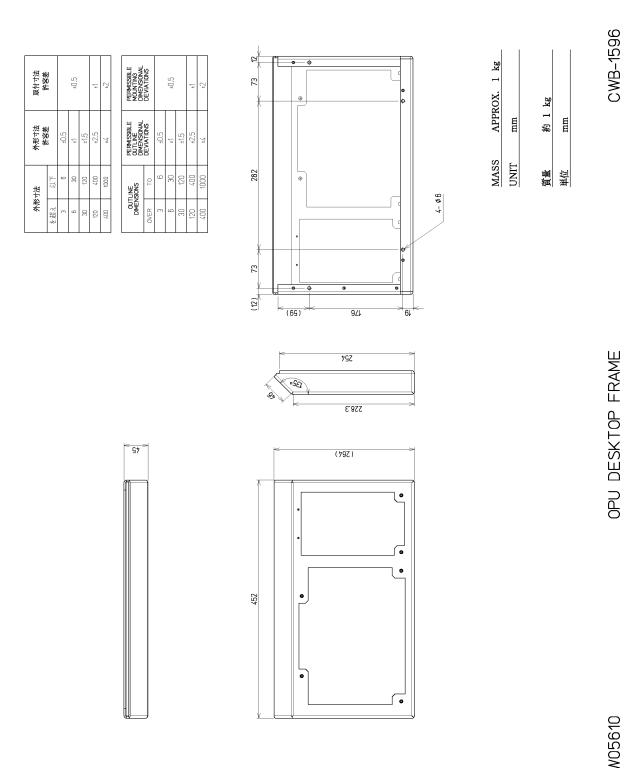
Outline Drawing of 27inch Desktop Frame (CWB-1660)



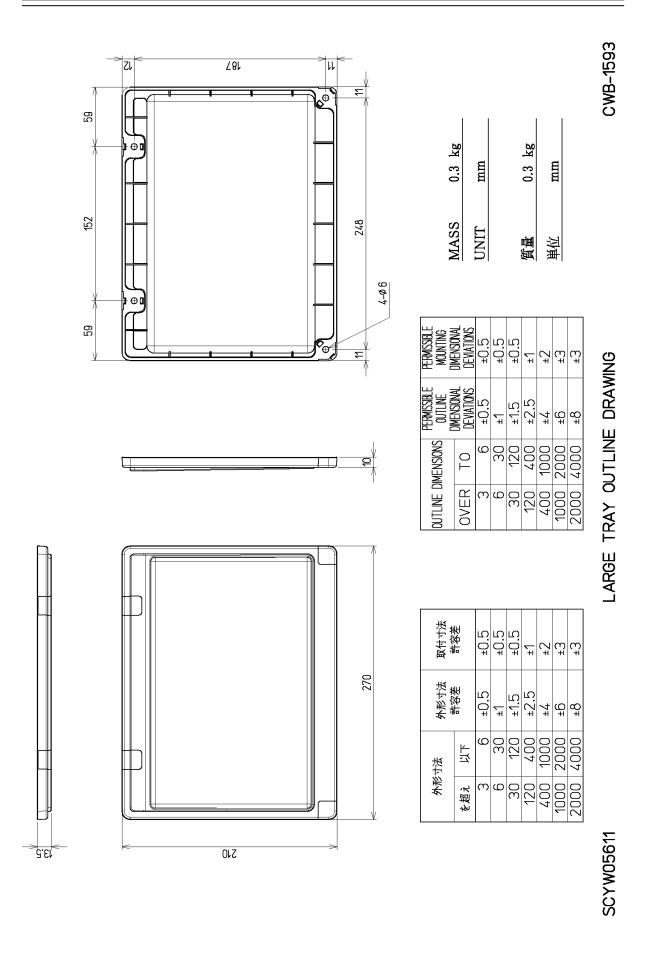
Outline Drawing of 19inch Desktop Frame (CWB-1594)



Outline Drawing of 19inch Desktop Frame (CWB-1659)



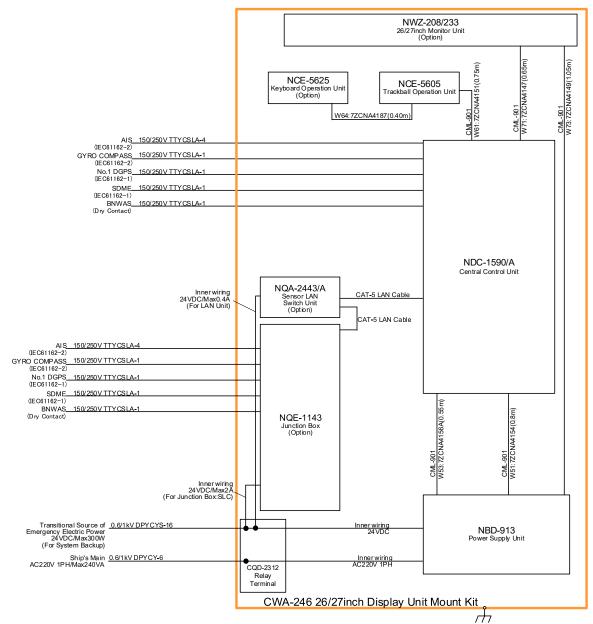
Outline Drawing of OPU Desktop Frame (CWB-1596)



Outline Drawing of Large Tray (CWB-1593)

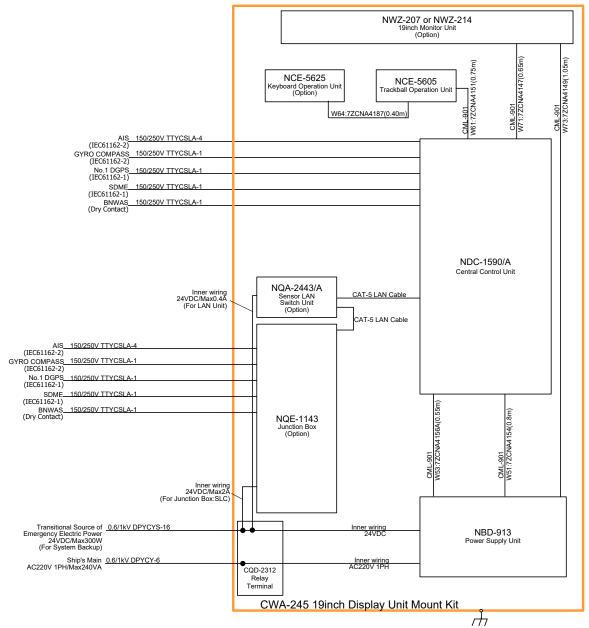
1.5 General System Diagrams

Connection examples of this equipment are shown below.



NOTE: ELIMINATING THE INTERFERENCE ON FREQUENCIES USED FOR MARINE COMMUNICATIONS AND NAVIGATION DUE TO OPERATION OF THE RADAR, ALL CABLES OF THE RADAR ARE TO BE RUN AWAY FROM THE CABLES OF RADIO EQUIPMENT. (ex. RADIOTELEPHONE, COMMUNICATIONS RECEIVER and DIRECTION FINDER etc..) ESPECIALLY INTER-WIRING CABLES BETWEEN SCANNER UNIT AND ISPLAY UNIT OF THE RADAR SHOULD NOT BE RUN PARALLEL WITH THE CABLES OF RADIO EQUIPMENT.

General System Diagram of JAN-9202



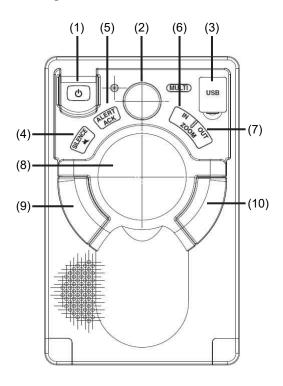
NOTE: ELIMINATING THE INTERFERENCE ON FREQUENCIES USED FOR MARINE COMMUNICATIONS AND NAVIGATION DUE TO OPERATION OF THE RADAR,
ALL CABLES OF THE RADAR ARE TO BE RUN AWAY FROM THE CABLES OF RADIO EQUIPMENT.
(ex. RADIOTELEPHONE, COMMUNICATIONS RECEIVER and DIRECTION FINDER. etc..)
ESPECIALLY INTER-WIRING CABLES BETWEEN SCANNER UNIT AND DISPLAY UNIT OF THE RADAR SHOULD NOT BE RUN PARALLEL WITH THE CABLES OF RADIO EQUIPMENT.

General System Diagram of JAN-7202

Section 2 Name and Function of Each Unit

2.1 Name and Main Function of the Operation Unit

2.1.1 Trackball operation unit



MARNING

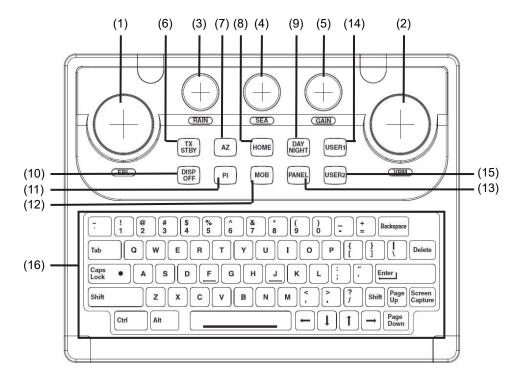


When turning off the power supply, do not press the Power button on the operation unit for an extended period of time.

If the button is pressed for an extended period of time, the equipment may not be terminated normally, causing a failure.

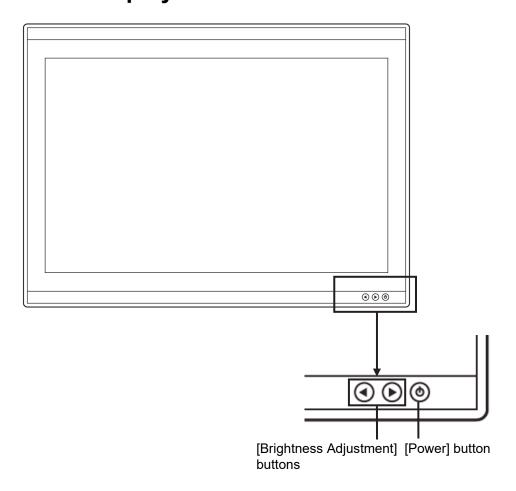
No	Name	Function outline				
1	Power button	Use this button to turn on and off this equipment.				
2	[MULTI] dial	- Turn this dial to operate the function that is assigned to the				
		[MULTI] dial, such as the Display Brightness function.				
		- If the [MULTI] dial is held down, the Display Brightness				
		function is assigned to the [MULTI] dial forcibly.				
3	USB terminal	Connects a USB flash memory.				
4	[SILENCE] key	Stops the alert buzzer.				
5	[ALERT ACK] key	Acknowledges the alert.				
6	[ZOOM IN] key	Not used.				
7	[ZOOM OUT] key	Not used.				
8	Trackball	Moves the cursor on the screen. Use the trackball to specify a				
		position or to perform various settings.				
9	Left button	- Use this button to select a function or determine the operation				
		that is set.				
		- Clicking the left button once is referred to as "click" in this				
		manual.				
		- Clicking the left button twice consecutively is referred to as				
		"double click" in this manual.				
10	Right button	Not used.				

2.1.2 Keyboard operation unit (Option)



No.	Name	Function outline
1	[EBL] dial	Not used.
2	[VRM] dial	Not used.
3	[RAIN] dial	Not used.
4	[SEA] dial	Not used.
5	[GAIN] dial	Not used.
6	[TX STBY] key	Not used.
7	[AZ] key	Not used.
8	[HOME] key	Not used.
9	[DAY NIGHT] key	Switches the display color on the screen over 5 levels according to the
		brightness on the bridge.
10	[DISP OFF] key	Not used.
11	[PI] key	Not used.
12	[MOB] (Man Over	- The [Marker] dialog box (which shows monitoring information for preventing
	Board) key	loss of sight of the position of the person who fell overboard) appears based
		on the latitude and longitude information of the own ship's position.
		- Holding down this key closes the [Marker] dialog box.
13	[PANEL] key	Whenever this key is pressed, the brightness of the panel on the operation unit
		is switched.
14	[USER1] key	- Executes the function that is assigned to the key.
		- Holding down this key displays the setting dialog box for assigning a function
		to the [USER1] key.
15	[USER2] key	- Executes the function that is assigned to the key.
		- Holding down this key displays the setting dialog box for assigning a function
		to the [USER2] key.
16	Keyboard	The keyboard is used for the input of numeric values and characters at
		operation of this equipment.

2.1.3 Display unit



[Power] button

When the Power button is pressed while the power of the display unit is turned off, the power is turned on.

To turn off the power of the display unit, press the Power button for 5 seconds or longer.

[Brightness Adjustment] buttons

These buttons are used to adjust the brightness of the screen.

The screen increases brightness by pressing the **(Section 2)** button.

The screen decreases brightness by pressing the **3** button.

Memo

Adjust the brightness of the screen to the extent it is not dazzling, taking into account the brightness of the surroundings and to the brightness which you can be easily observed the screens.

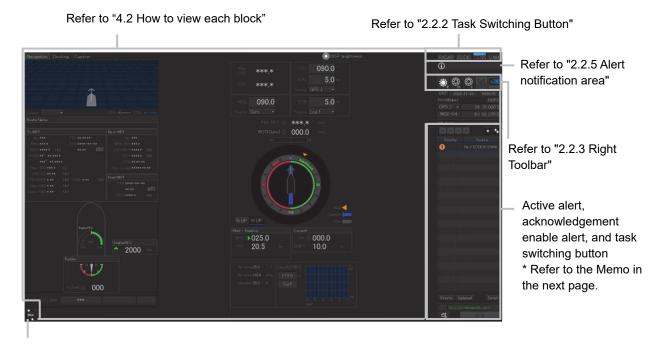
Be careful in the nighttime brightness adjustment because nighttime brightness adjustment may hinder the visibility of information.

2.2 Names and Main Functions of the Top Screen

This section describes the names and main functions of the top screen.

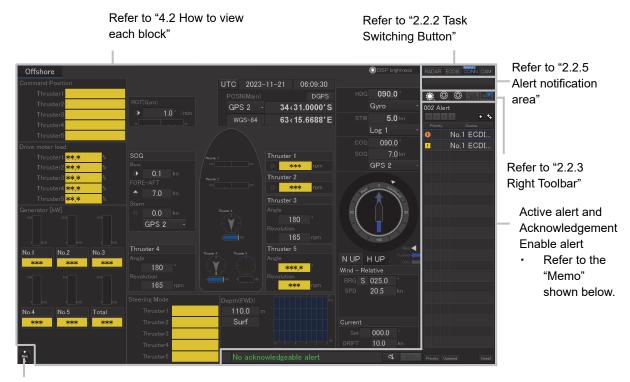
2.2.1 Conning Display top screen

Any of the following screens is displayed as the top screen depending on the Conning Display you use.



Refer to "2.2.4 [Menu] button"

Top screen (1) (with AMS license)



Refer to "2.2.4 [Menu] button"

Top screen (2) (with CAM license)

The top screen (1) and top screen (2) are displayed when the CAM license is available. When there is no CAM license, the top right of the screen is as shown below.



Memo

The active alert and acknowledgement enable alert are displayed when the CAM license is available.

For the details, refer to "(1) Active alert" and "(2) Acknowledgment enable alert" in "3.2.2 Conning Display" of the "Bridge Alert Management System (BAMS) Instruction Manual".

2.2.1.1 Color-coded numeric display

The background of the value from each sensor is displayed in three colors.

Background color	Status of numeric value								
Normal color	The numeric value is normal.								
	GPS 1 → 31°53.695'S								
	WGS-84 61°01.467'E								
Yellow	The numeric value is displayed in yellow when it is unreliable such as when the difference with the previous value is greater than the threshold value.								
	GPS 1 - 32°00.153'S								
	WGS-84 61°00.925' E								
Red	When the numeric value is abnormal, "****" is displayed in red.								
	cog <mark>***.*</mark>								
	SOG **** kn								

2.2.1.2 Color coding of bar graphs

Bar graphs are color-coded at display as follows.

Red: Port side/backward direction

Green: Starboard side/forward direction

2.2.1.3 Numeric box

A numeric value is displayed in the numeric box outside of the graph as required.

Example: Arc-like bar graph (rudder angle, etc.)



Memo

The graph and numeric value box are displayed separately from each other depending on the Conning Display you use.

2.2.2 Task Switching Button



To switch to a required task, click on the task switching button.

Click on the task to be executed from [RADAR]/[ECDIS]/[CONN] (Conning Display) /[CAM].

Memo

The [Primary] badge is displayed on the task that is set to the Primary function (basic task).

Example: ECDIS is the Primary function



2.2.3 Right Toolbar

The functions of the buttons of the right toolbar are as follows.

Day/Night button

The display color on the screen can be switched to 5 levels according to the brightness on the bridge.

For the details, refer to "3.7 Switching the Day/Night Mode".

Display Brightness button

The brightness of the screen can be switched within the range from 0 to 100.

For the details, refer to "3.8.1 Adjusting the Brightness of the Screen and Operation Unit".

MOB (Man Over Board) button

When a person falls overboard, use this button to mark the own ship's position when the button is clicked on, so as not to lose the sight of the position.

For the details, refer to "3.9 MOB (Man Over Board)".



Panel Brightness button

Switch the brightness of the operation unit to any of the 5 levels, 0 to 4.

For the details, refer to "3.8.2 Adjusting the Brightness of the Operation Unit".

2.2.4 [Menu] button

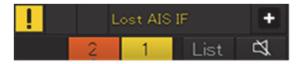
When the [Menu] button on the bottom left corner of the screen is clicked on, the top menu is displayed.

For the menu operation, refer to "3.4 Basic menu operation".

2.2.5 Alert notification area

2.2.5.1 Condition where there is no AMS license

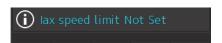
When an alert occurs, the alert status, the content of the alert and the occurrence count are displayed in the alert notification area.



For the details, refer to "3.6 Confirming and Acknowledging an Alert".

2.2.5.2 Condition where there is an AMS license

When an alert occurs, the alert status and the content of the alert are displayed in the alert notification area.



Neither alert confirmation nor approval can be performed by operating the alert notification area. Alert confirmation and approval can be performed from the active alert display and the approval enabled alert display.

For the details, refer to "(1) Active alert" and "(2) Acknowledgment enabled alert" of "3.2.2 Conning Display" of the "Bridge Alert Management System (BAMS) Instruction Manual".

Section 3 Basic Operations

3.1 Powering On and Starting

Turn on the power supply according to the following procedure.

ACAUTION



For low-temperature start-up, perform pre-heat for more than 30 minutes. Otherwise, an operation failure may occur and an accident may occur.

1 Press the Power button on the operation unit.

The Power button is lit and the start-up screen is displayed.

Memo

When power is applied with all the power supplies to the display unit shut off, the display unit starts automatically even when the Power button is not pressed.

After the start-up screen is displayed, the task menu is displayed after a brief interval.

3.2 Starting Each Mode

When this equipment starts up, a task menu is displayed on the screen.

On the Task menu, you can select and start the desired mode from the operation modes available for this equipment.



Task Menu Display Example

When the button of the mode to be executed is clicked on, the screen of the mode is displayed.

Note

When this equipment is started for the first time, if no operation is performed within 10 seconds after the task menu is displayed, the mode screen that has been set up at the time of shipment will appear.

3.2.1 Starting Conning Display

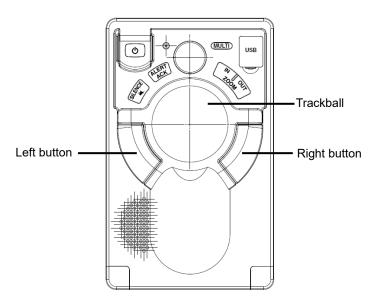
To display the top screen of Conning Display, click on the [Navigation Data Monitoring (Conning Display)] button in the task menu.

3.3 Basic Operations when using a Trackball

A trackball in the trackball operation unit is mainly used for the operations of this equipment.

This section describes the basic operations performed using the trackball.

3.3.1 Trackball functions



Trackball:

Use the trackball to move the cursor on the screen. Use the trackball for specifying a position, and setting a button and a dialog box.

Left button:

Use the left button to determine the position, and determine the button and dialog box settings. In this manual, "click" refers to the clicking of the left button once and "double-click" refers to the clicking of the left button twice consecutively.

Right button:

Do not use the right button while operating Conning Display.

3.3.2 Basic trackball operations

Move the cursor that is displayed on the screen by the trackball and perform various operations using the left mouse button.

3.3.2.1 Cursor types

Only the "Pointer Cursor" type () is available.

3.3.3 Basic click operations

When the cursor is set to a button and the button is clicked on, the function of the selected button is executed.

- When a function On/Off button is clicked on, the setting is switched to On/Off each time.
- When a function selection button is clicked on, the function selection menu is displayed.

3.4 Basic Menu Operations

Various functions can be executed or set from the menu that is displayed by clicking on the [Menu] button.

This section describes the basic menu operations.

3.4.1 Opening the menu

1 Click on the [Menu] button at the bottom left corner of the screen.



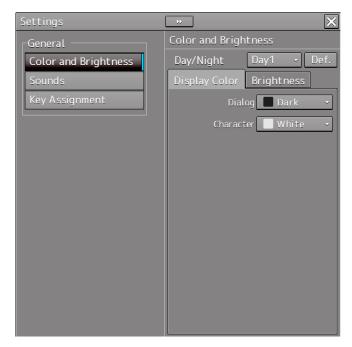
The top menu is displayed.



Page switching button

2 Click on one of the buttons that are displayed on the menu.

A dialog box for executing or setting the applicable function appears.



Display Example

A submenu is displayed depending on the function. In this case, display a dialog box of the function by clicking on the button on the submenu.

Example: Maintenance

Top menu



Maintenance submenu



Page switching button

Memo

When the submenu screen extends over two pages, similar to the menu screen, it is possible to switch between the pages using the page switching buttons.

3.4.2 Menu list

The menus that are displayed vary according to the task that is currently being executed.

Menu	Related section						
Tools	3.15 Managing Files with File Manager						
View	Section 5 Setting Up Screen View						
Alert	Section 6 Setting Up Alerts						
Settings	Section 7 Setting Up the Operation Mode						
Maintenance	9.1 Maintenance Functions Executed from Menu						
Help	3.13 Help						
Code Input	3.14 Password Input						
Service	Section 8 Adjusting and Setting Up Equipment (for Services)						

3.4.3 Closing the menu

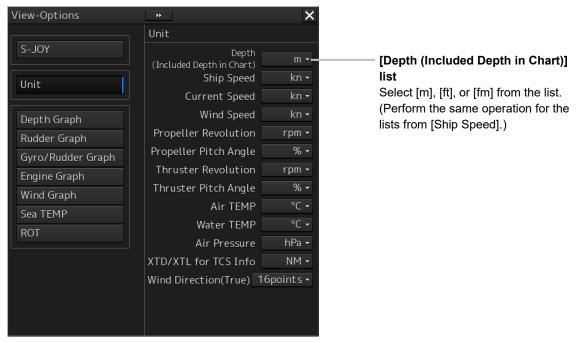
Click on the [X] button on the menu (submenu).

3.5 Basic Dialog Box Operations

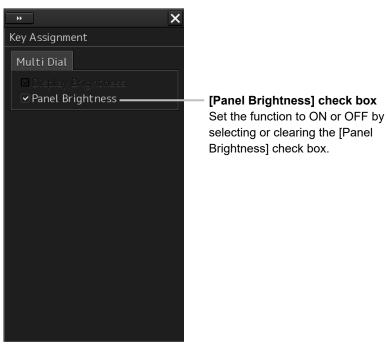
When a dialog box is opened, the dialog box is in the factory setting state or state at termination of the previous operation.

3.5.1 Changing dialog box settings

This section describes how to change the settings by using some dialogs as the examples.



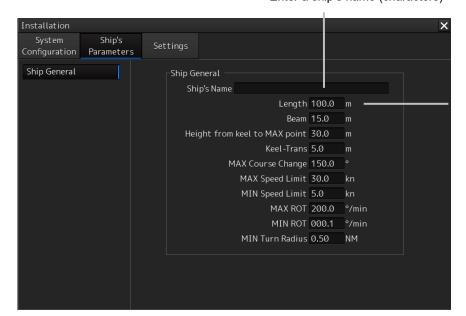
[View-Options] dialog



[Multi Dial] tab of the [Key Assignment] dialog

[Ship's Name] box

Enter a ship's name (characters)



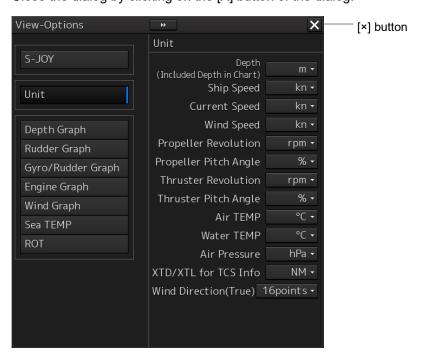
[Length] box

Enter the ship's length (numeric). (Perform the same operation for the [Beam] and subsequent boxes.)

[Ship's Parameters] dialog

3.5.2 Closing the dialog

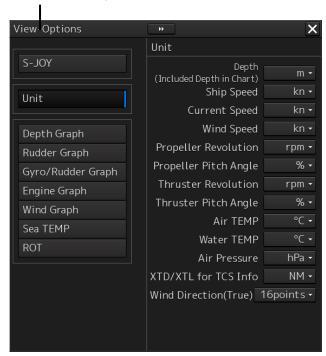
Close the dialog by clicking on the [X] button of the dialog.



3.5.3 Title Bar

The name (title) of the dialog box is displayed on the title bar of the dialog box.

Title of the dialog box



The dialog can be moved by dragging the title bar.

3.6 Confirming and Acknowledging an Alert

Memo

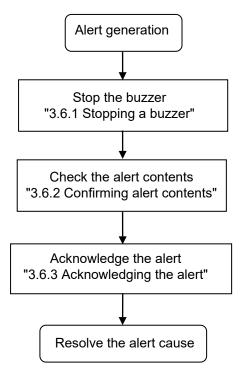
This section explains the display and operation at the occurrence of an alert when there is no AMS license.

When an alert is generated, a buzzer sound is emitted and an alert balloon is displayed in the alert notification area.



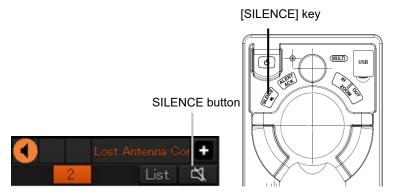
To acknowledge the alert detailed information, click on the Disclosure button. For the details of the subsequent operations, refer to "3.6.2 Confirming alert contents".

The general procedure for handling an alert is shown below.



3.6.1 Stopping a buzzer

To stop a buzzer (silencing), click the silence button in the alert notification area or press the [SILENCE] key in the trackball operation unit.



Alert notification area

3.6.2 Confirming alert contents

Alert icon showing aggregation

Alert message

Alert status area

Alarm

Caution button

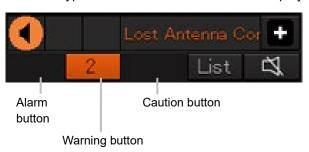
Warning button

Display Example when an Alert is generated



Display Example when No Alert is generated

When an alert is generated, the alert message is displayed in the "Alert status area". The alert type and the number of alerts are displayed by the button.



 Alarm button: Displayed when an alarm is generated. The button is displayed in red. The number of alarms is indicated on the button

 Warning button: Displayed when a warning is generated. The button is displayed in orange. The number of warnings is indicated on the button.

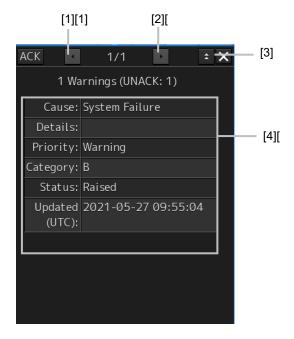
• Caution button: Displayed when a caution is generated. The button is displayed in yellow. The number of cautions is indicated on the button.

1 Click on the button.

An alert balloon is displayed.



2 Display the alert detail dialog by clicking on the Disclosure button.



[1] [Higher] button

When the Higher button is clicked on, details of the alerts of the higher priority than the alert currently displayed appear.

[2] [Lower] button

When the Lower button is clicked on, details of the alerts of the lower priority than the alert currently displayed appear.

[3] Disclosure button

When the Disclosure button is clicked on, the original alert balloon is displayed.

As a result, the operation area that was hidden can be re-acknowledged.

[4] Detail information

Cause (Cause), Status (Status), date and times (Updated), details (Details), category (Category) and priority (Priority) to be taken are displayed.

Memo

About Information:

Information is displayed in addition to a warning or a caution in the alert status area.

Information is used to report operation errors and so on to the users.

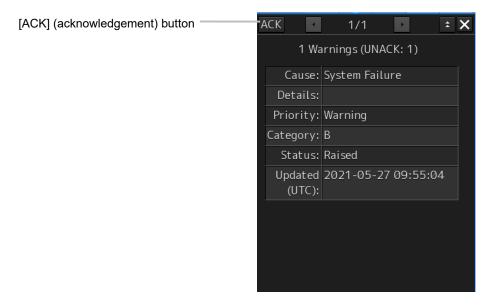
Unlike other alerts, no detail display is provided for Information.

3.6.3 Acknowledging the alert

After checking the alert contents, when the [ACK] button of the alert details or [ALERT ACK] button of the trackball operation unit is clicked on, the alert that is displayed is acknowledged.

When there are multiple alerts, perform the same operation by displaying the details dialog box of another alert.

If all the alerts are acknowledged, the alert display dialog is closed automatically.



Memo

An alert can also be acknowledged by clicking on the [Active Alert] tab - [ACK] button of the [Alert List] dialog box.

For the details refer to "3.6.4 Displaying alert list and alert history".

3.6.4 Displaying alert list, alert history and Maintenance INFO

An active alert, alert history and maintenance information can be displayed in list format by clicking on the Alert List button.

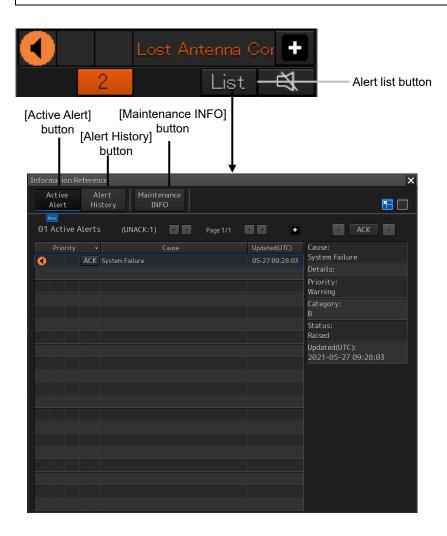
In the [Active Alert] tab, a list of the current alerts is displayed. In the [Alert History] tab, a list of past alerts that have been resolved is displayed. In the [Maintenance INFO] tab, a list of the current maintenance Information is displayed.

Memo

The window of the [Active Alert] tab 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 and extended window, refer to "3.6.4.1 Switching between a standard window and an extended window".



Memo

If the alert category is category A, alerts cannot be acknowledged with the [ACK] button in the active alert list.

[Active Alert] tab



[1] Active alert information

The number of current alerts is displayed.

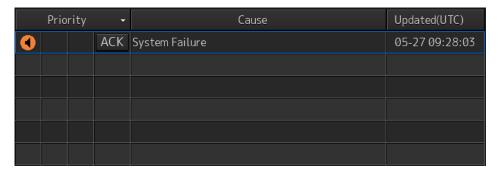


[2] Active page information

Up to 20 alert information items can be displayed in one page. Use this function to switch pages when the number of alert information items exceeds 20, requiring multiple pages.



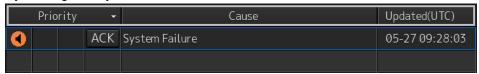
[3] Active alert list



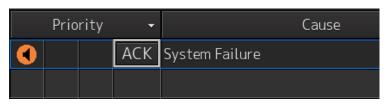
• The alerts that are being generated are displayed. When any of the alerts is clicked on, the alert can be set to a selected state.



- The details of the selected alert are displayed in "[4] Active alert details".
- When a new alert is generated during the screen display, the alert is added at the top of the list.
- By clicking on any of the items in the title line, active alerts can be sorted based on the item.



· When the [ACK] button is clicked on, the alert is acknowledged.



Memo

The [ACK] button is not displayed for the [Caution] alert since acknowledgement is not required.

[4] Details of active alert

Details of the alert that is currently selected are displayed.



Alert	Detailed information	
Cause	Displays the cause of the alert.	
Details	Displays the details of the cause of the alert.	
Priority	Displays the alert priority (identification of Alarm/Warning/Caution).	
Category	Displays the alert category.	
Status	Displays the status of the alert	
	(Raised/Silenced/ACKed/Transferred/UnACK-Rectified).	
Updated	Displays the latest update time of the alert.	

[Higher] button

When this button is clicked on, the details of the alert of the higher priority than the alert that is currently displayed appear.

[Lower] button

When this button is clicked on, the details of the alert of the lower priority than the alert that is currently displayed appear.

[ACK] button

When this button is clicked on, the alert that is currently selected is acknowledged.

[5] Aggregation of alert

When this button is clicked on, display of the aggregation of alert is switched to ON or OFF.





Aggregation: OFF (Default)

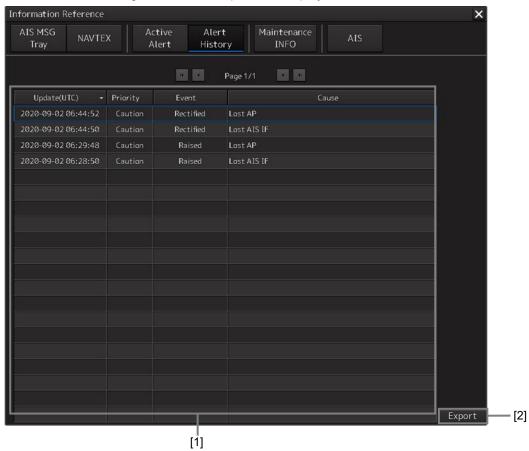
Aggregation: ON

Memo:

There are no aggregated alerts on the Conning screen.

[Alert History] tab

Alerts that have been generated in the past are displayed.



[1] Alert History List

- Up to 20 events of alerts are displayed per page.
- When an alert is no longer active, the alert is added to the top of the list.
- By clicking on any of the items in the title row, alert can be sorted based on the item.
- Alerts are added per event as follows.

2020-09-04 04:27:53	Warning	ACKed	Course difference
2020-09-04 04:27:15	Warning	Raised	Course difference

Event	Detailed information
Raised	Alert raised
Silenced	Alert silenced
ACKed	Alert acknowledged
Transferred	Alert responsibility transferred
UnACK-Rectified	Rectified alert is unacknowledged
Rectified	Alert rectified
Repeat	Alert sound was repeated
Removed	Alert removed
	This event occurs when equipment shuts down, returns to the
	task menu, removes the installation, or loses the alert function.
Call Nav	Alarm was transferred to BNWAS

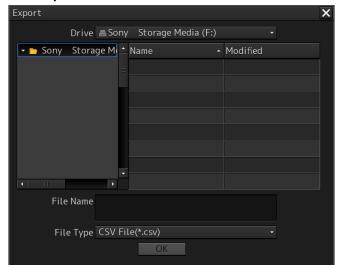
[2] Export of Alert History List

When this button is clicked on, Alert History List can be output.

1 Click on the [Export] button.

[Export] dialog box appears.

2 Select the storage destination of the Alert History List from the [Drive] combo box of the output destination.

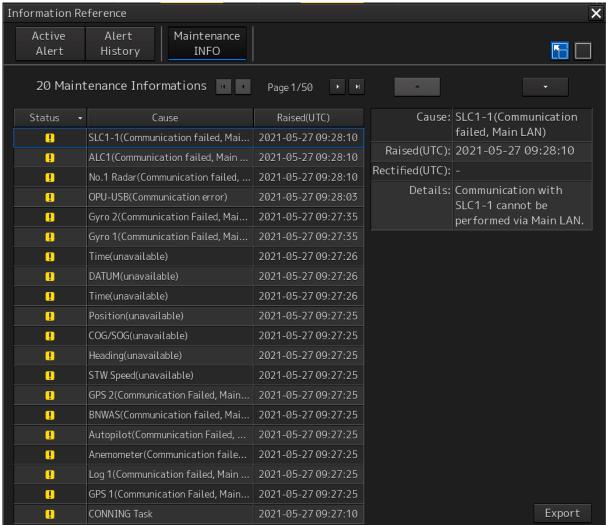


- 3 Enter [File Name].
- 4 Click on the [OK] button.

[Maintenance INFO] tab

Maintenance Information are displayed.

For the details of the Maintenance INFO, refer to "9.1.6 Confirming Maintenance INFO".



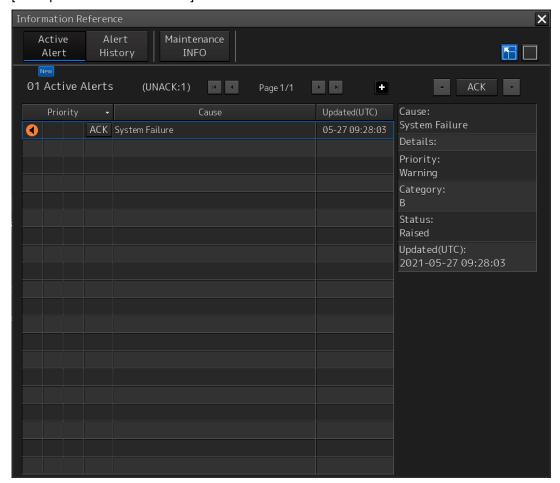
3.6.4.1 Switching between a standard window and an extended window

The window of the [Active Alert] tab 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.



[Example of Extended window]

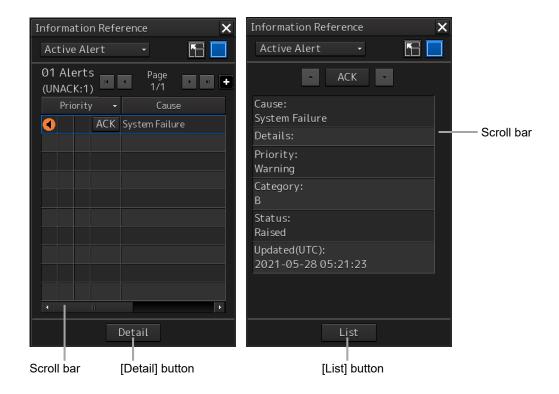


[Example of standard window]

A list screen and a detail screen are available for the standard window.

To switch to the detail screen: Click on the [Detail] button.

To switch to the list screen: Click on the [List]



When the display contents overlap the top, bottom, left, or right side of the screen, a scroll bar is displayed.

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

Memo

An extended window is displayed at the initial display.

3.7 Switching the Day/Night Mode

The screen display color can be switched to any of five levels according to the brightness within the bridge.

Use the following procedure for switching.

1 Click on the Day/Night button on the right toolbar.



Adjustment buttons are displayed based on the brightness that is currently set.



Example: Day2 is set.

2 Adjust the brightness by using the Light] button and the V [Dark] button.

Whenever the [Light] button is clicked on, the brightness increases by one level from the current level.

When the [Dark] button is clicked on, the brightness decreases by one level from the current level.







: Dusk

: Night

AWARNING



Change of the color of the Day/Night button, particularly the use of the [Night] color, may interfere with the recognition of display information.

Memo

The colors and brightness of the buttons can be changed by setting [Settings] - [General] - [Color and Brightness] in the menu. For the details, refer to "7.2 Setting Color and Brightness".

Relationship between the day/night mode and the screen/operation unit brightness setting value

When the day/night mode is changed, the screen/operation unit brightness is set to the following values.

	26-inch monitor	27-inch monitor	19-inch monitor	19-inch monitor
	NWZ-208	NWZ-233	NWZ-207	NWZ-214
Screen	Day1, Day2,	Day1, Day2,	Day1, Day2,	Day1, Day2,
brightness	Day3: 67/100	Day3: 79/100	Day3: 42/100	Day3: 70/100
	Dusk: 60/100	Dusk: 64/100	Dusk: 20/100	Dusk: 62/100
	Night: 11/100	Night: 41/100	Night: 4/100	Night: 10/100
Operation	Day1: Level4			
unit	Day2: Level3			
brightness	Day3: Level2			
	Dusk, Night: Level1			

3.8 Adjusting the Brightness of the Screen and Operation Unit

3.8.1 Adjusting the Brightness of the Screen

The screen brightness can be adjusted within the range from 0 to 100.

1 Click on the [Display Brightness] button on the right toolbar.



The following screen brightness buttons are displayed.



2 Adjust the brightness by using the Light] button and Light] button.

Whenever the [Light] button/ [Dark] button is clicked on, the brightness changes by one level.

3.8.2 Adjusting the Brightness of the Operation Unit

The brightness of the operation section can be adjusted in 5 levels (0 to 4).

1 Click on the [Panel Brightness] (Brightness of the operation unit) on the Right Tool Bar.



The following operation unit brightness buttons are displayed.

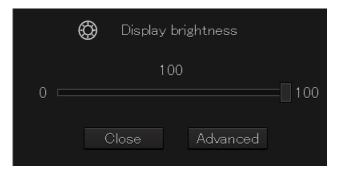


Adjust the brightness by using the [Light] button and [Dark] button.

Whenever the [Light] button/[Dark] button is clicked on, the brightness changes by one level.

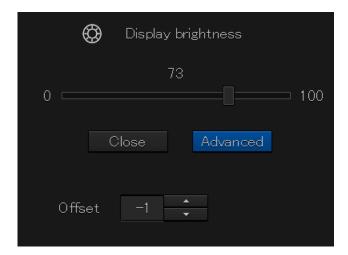
3.8.3 [Display Brightness] dialog box

When [MULTI] dial is operated while [Display Brightness] is selected as the function that is assigned to the [MULTI] dial, the [Display Brightness] dialog is displayed.



It is possible to adjust the brightness of the display section by rotating the [MULTI] dial.

In order to set an offset value so that when set to the same value as the screen brightness of other equipment, the light emitted becomes the same as in other equipment, click the [Advanced] button and adjust the offset using the buttons displayed for setting the "Offset".



3.9 MOB (Man Over Board)

When a person falls overboard, this monitoring function prevents loss of sight of the position of the person overboard.

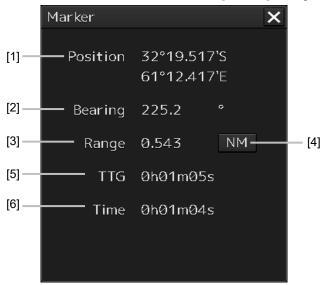
The MOB use procedure is as follows.

1 Click on the MOB button on the right toolbar.



The [Marker] dialog box appears.

See below for how to reference the [Marker] dialog box.



[1] [Position]

Displays the coordinates of the MOB.

[2] [Bearing]

Displays the bearing from own ship to the MOB position. The value changes as the ship moves.

[3] [Range]

Displays the range from the own ship to the MOB marker.

[4] NM/Km/sm switching button

Whenever this button is clicked on, the unit of [Range] is switched to NM, km or sm.

Memo

NM denotes nautical mile, sm denotes statute mile, and km denotes kilometer.

[5] [TTG]

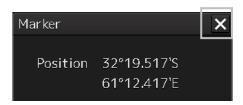
Displays the time to reach the MOB marker from the ship speed.

[6] [Time]

Displays the time elapsed after clicking on the [MOB] button.

To exit from MOB

1 Click the [X] button in the [Marker] dialog box.



A confirmation dialog box appears.

2 Click on the [OK] button.

The [Marker] dialog is closed.

The MOB marker is cleared.

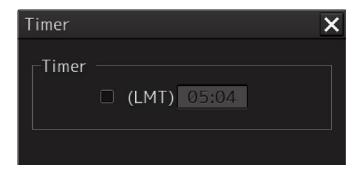


Memo

When the equipment has the ECDIS license, the MOB marker that indicates the MOB position is displayed on the chart of the ECDIS screen, enabling confirmation of the position relationship between own ship and the MOB position while the ship is moving.

3.10 Setting up the Timer

When [Timer] is selected in the Tools menu, the [Timer] dialog is displayed. In this dialog, the time to generate an alarm can be set up.



3.10.1 Setting up the timer

To turn on the timer, select the [(LMT)] check box. To turn off the timer, clear the [(LMT)] check box.

3.10.2 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 "3.17.2 Name and function of each section of the keyboard".

3.11 [MULTI] Dial

3.11.1 Functions of [MULTI] dial

By turning the [MULTI] dial, the functions that are assigned to the [MULTI] dial can be operated. Assignment to the [MULTI] dial can be changed.

3.11.2 Functions assigned to [MULTI] dial

3.11.2.1 Displaying a screen for setting the function that is assigned

By pressing the [MULTI] dial, the setting screen for the function that is currently assigned can be displayed.

Assigned function name



3.11.2.2 Changing the function that is assigned

- 1 Press the [MULTI] dial.
- 2 Select a function to be assigned by turning the [MULTI] dial.

The table below lists the functions that can be assigned.

Function name	Function outline
Display Brightness	Adjustment of brightness of the display panel
Panel Brightness	Adjustment of brightness of the operation panel

3 Press the [MULTI] dial.

The selected function is set to the assigned function.

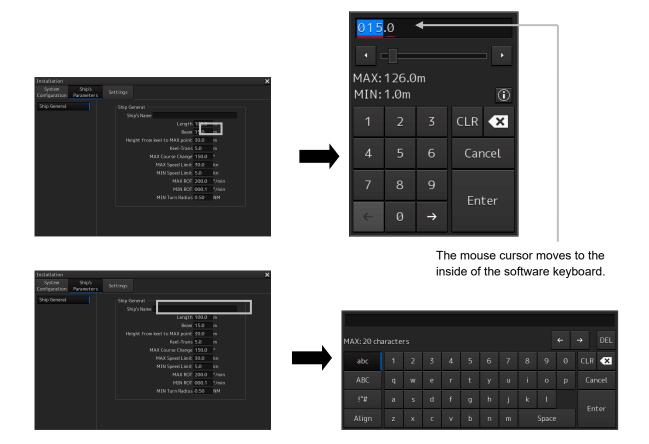
3.12 Basic Operations of the Software Keyboard

Use a software keyboard for inputting numeric values and characters in various setting operations. This section describes the basic operations of a software keyboard.

3.12.1 Starting a software keyboard

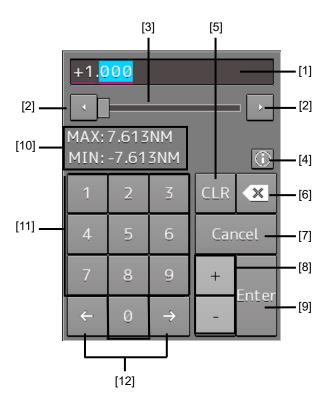
When the mouse button is clicked on a numeric input text box on such as a dialog box, a numeric input software keyboard is displayed.

When the mouse button is clicked on a character input text box, a character input full keyboard is displayed.



3.12.2 Name and function of each section of the keyboard

Numeric value input software keyboard



Sowtware full keyboard for character input

* The description of the functions common to those of a numeric value input software keyboard is omitted.

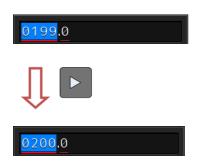


[1] Input value display section

Displays the value that is input/edited through the software keyboard.

[2] Spin button

When the right spin button is clicked on, the minimum unit value that can be set is added to the
value that is displayed. When the left spin button is clicked on, the minimum unit value that can be
set is subtracted from the value that is displayed.



Example of addition

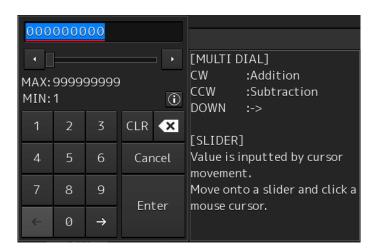
- When the mouse button is held down on the right spin button, the value is added consecutively. When the mouse button is held down on the left spin button, the value is subtracted consecutively.
- When the value set by the right spin button operation exceeds the maximum value, the minimum value is set subsequently. When the value set by the left spin button operation becomes lower than the minimum value, the maximum value is set subsequently.

[3] Numeric value slider

When the value adjustment button on the value slider is clicked on, the input value increases or decreases.

[4] Operation guide display button

Displays an operation guide.



To close the operation guide, click on the operation guide display button again or click on a location other than the operation guide.

[5] [CLR] key

Clears the input value that is currently selected.

[6] Back Space key

Clears the input value on the left-side of the cursor position.

[7] [Cancel] key

Cancels the input operation and closes the software keyboard.

[8] Option key

Displays the following keys according to the type of the software keyboard.

· Signed keyboard: + key and - key

[9] [Enter] key

Determines the input operation.

[10] Input range display section [format display section)

Displays the values and character types that can be input.

[11] Numeric keys

Use the keys for input of numeric values.

[12] Arrow keys

When there are multiple input parts, the active part can be moved to the left/right by clicking on the arrow key.

Example:



When the [left arrow key) is clicked on, the input section moves to "0100".



When the [right arrow key) is clicked on, the input section moves to "0".



[13] Lowercase character switching key

Changes the character input key mode to the lowercase character mode.

[14] Uppercase character switching key

Changes the character input key mode to the uppercase character mode.

[15] Symbol switching key

Changes the character input key mode to the symbol mode.

[16] Key alignment switching key

Switches the character key alignment between QWERTY alignment and alphabetic alignment.

[17] Character input key

Use this key for character input.

[18] [DEL] key

Deletes the character on the right-side of the cursor.

3.12.3 Example of numeric input

In this example, "241.5m" is input as the length of the ship.

When the numeric input software keyboard is displayed, follow the procedure provided below.



1 Enter "2".



2 Enter "4" and "1".



3 Click the right arrow key and move the input field to the right side of the decimal point.



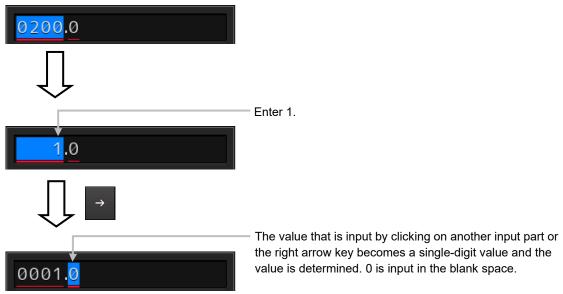
- 4 Enter "5".
- 5 Click on the [Enter] key.

The input is fixed.

Inputting a single-digit value

Enter a value and click on another input part or move the active part by using the right arrow key.

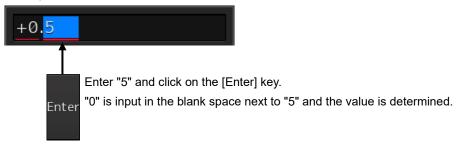
Example:



Inputting blank space in the decimal fraction section [3 digits)

After a value is input and the [Enter] key is clicked on, the input of the decimal fraction section is determined.

Example:



3.12.4 Character input example

This section describes character input by using a full keyboard.

Input caret

Indicates the character input position.



Active mark

Indicates the character string that is being input.

Input example

1 Start up a full keyboard.

When a value (character) has been input in the text box, the full character string is selected at startup.



2 Delete the character string by clicking the Back Space key.



3 Input any character string.



4 Determine the input by clicking on the [Enter] key.

Character modification example

1 Move the cursor to the left-end (or right-end) of the character string to be modified and click the mouse button.



The input caret moves to the clicked position.



Click the mouse button on the input caret position and select the character string to be modified by dragging with the trackball.

*When the character string is selected, the input caret is cleared.

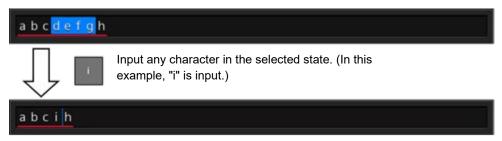
```
a b c <mark>d e f g</mark> h
```

3 Perform the following operation in the selected state.

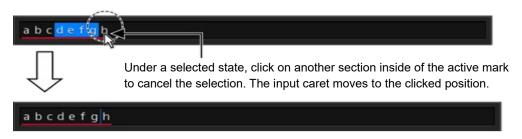
[Deleting a selected section]



[Replacing a selected section]



[Canceling a selected state]



4 After modification is determined, determine the input by clicking on the [Enter] key.

3.13 Setting a Date and a Time (Calendar Operation)

Set a date and a time on the calendar input screen. Use the following calendar for Conning Display.



Calendar picker

3.13.1 Details and usage of a calendar picker

3.13.1.1 Details of a calendar



Selected date

[1] Year selection spin button

Selects a year to be displayed in the date selection box.

- When the right spin button is clicked on, the year is changed in the ascending order.
- When the left spin button is clicked on, the year is changed in the descending order.

[2] Month selection spin button

Selects a month to be displayed in the date selection box.

- When the right spin button is clicked on, the month is changed in the ascending order.
- When the left spin button is clicked on, the month is changed in the descending order.

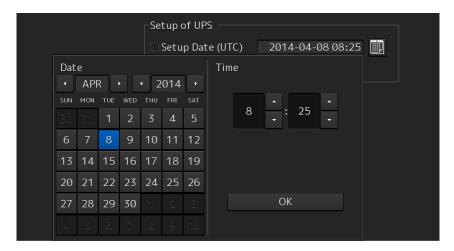
[3] Day selection box

Selects a day.

3.13.1.2 How to use a calendar

1 Click on (calendar button) next to the date setting box.

A calendar is displayed.



- 2 Set a year and a month by using the year selection spin button and the month selection spin button respectively.
- 3 Click on the day to be set from the day selection box.
 - * In the case of a calendar picker only, the day is set at this stage and the calendar picker is closed.
- 4 Set a time by clicking on the time spin button of the time picker.
- 5 Click on the [OK] button.

The setting is completed and the calendar is closed.

3.14 Help

Help information on the operation of this equipment can be displayed.

Memo

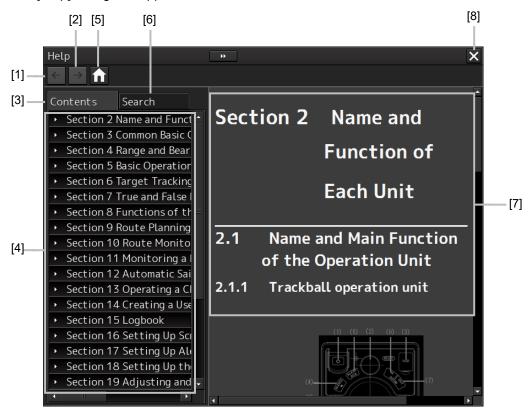
The Preface, Section 1 and Appendix A are not displayed in the Help.

1 Click on the [Menu] button at the bottom left corner of the screen.

The menu is displayed.

2 Click on the [Help] button on the menu.

The [Help] dialog box appears.



[1] Backward button

The display of the content display pane goes backwards by one.

[2] Forward button

The display of the content display pane goes forwards by one.

[3] [Contents] tab

Displays the contents. The contents are displayed in the content pane.

For the procedure, refer to "Searching the required information from the contents".

[4] Content pane

The contents are displayed in tree format. When an item is clicked on, the related contents are displayed in the content display pane.

[5] Home button

Displays the home screen of the [Help] dialog box.

[6] [Search] tab

Searches the character string in Help.

For the procedure, refer to "Searching terminologies".

[7] Content display pane

Displays the contents of the item that was clicked on.

[8] [x] button.

Closes the [Help] dialog box.

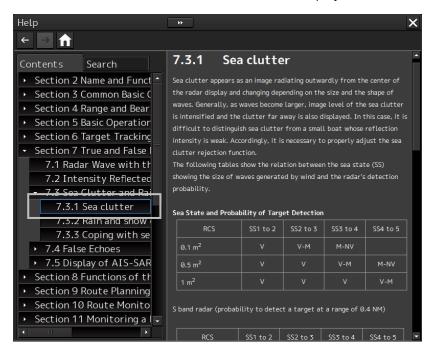
Searching the required information from the contents

1 Click on the [Contents] tab.

The contents are displayed on the contents pane.

2 Click on the item containing the required information.

The contents of the item that was clicked on are displayed on the contents display pane.



Searching terminologies

1 Click on the [Search] tab.

A search character input box is displayed.

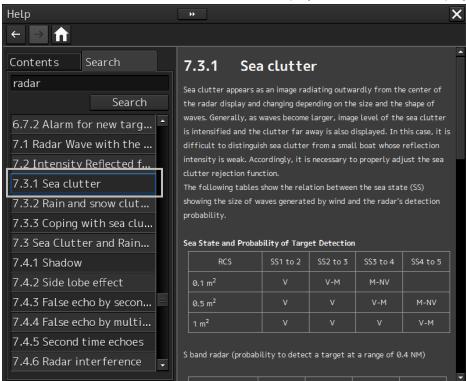
2 Enter a required terminology and click on the [Search] button.



Search is performed within Help. When the applicable terminology is hit, the item containing the terminology is displayed on the contents pane.

3 Click on the item containing the required information.

The contents of the item that is clicked on are displayed on the contents display pane.



3.15 Password Input

Equipment settings are protected by a password. To open the dialog box of the protected setting function, the password input is necessary.

Use the following procedure to enter a password.

1 Click on the [Menu] button at the bottom left corner of the screen.



The menu is displayed.

2 Click on the [Code Input] button on the Menu.



The password input dialog box appears.

3 Enter "0" (zero) and click on the [Enter] key.



4 Click on the [Menu] button at the bottom left corner of the screen again.

The [Service] button is displayed in the menu.

5 Click on the [Service] button.



Check that service-related menus are displayed in the sub-menu.



Subsequently, service-related menus can be set.

3.16 Managing Files with File Manager

The file manager function enables the copying of route files and user map from the hard disk of this equipment to external storage media such as DVD or from external storage media to the hard disk of this equipment.

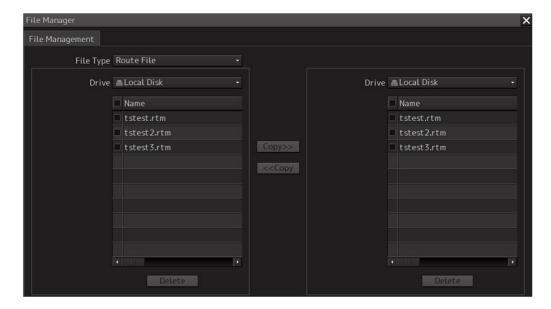
3.16.1 Displaying the [File Manager] dialog box

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

The menu is displayed.

2 Click on the [Tools] - [File Manager] button on the menu.

The [File Manager] dialog box appears.



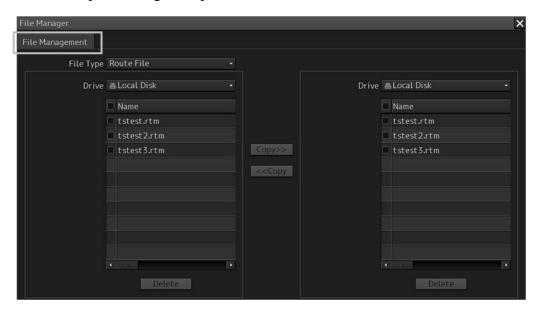
3.16.2 File management

The "File Management" tab enables file management.

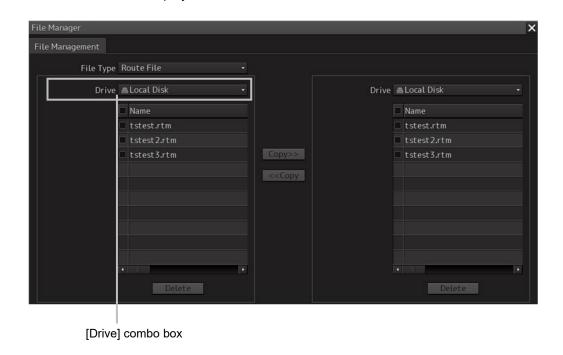
File management copies files between SSD of this equipment and external storage media and deletes files

This section describes file management by using the example copying a file in the file list of the drive that is specified in the [Drive] list on the left hand side of the dialog box to the drive that is specified in the [Drive] list on the right hand side.

1 Click on the [File Management] tab.



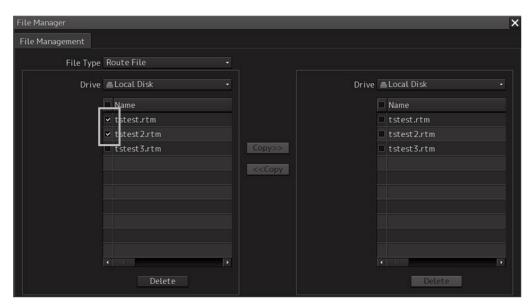
2 Select the drive that contains the file to be copied from the [Drive] combo box. Files in the drive are displayed in the list.



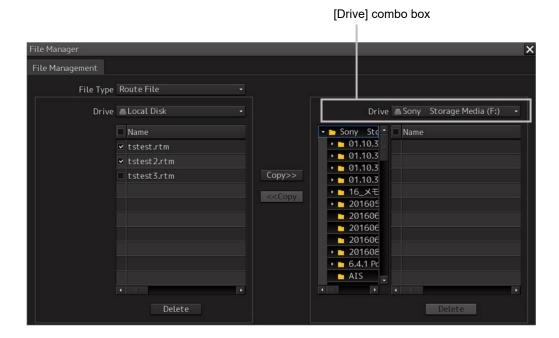
The following file types can be displayed by the file manager.

No.	File type	File extension	Contents
1	Route File	rtm	Route
2	Screen Shot (AUTO)	png	Automatically generated screen shot
3	Screen Shot (User)	png	Manually generated screen shot

3 Select the files to be copied by checking them.



4 Select a drive of the storage destination from the [Drive] combo box and select a copy location from the folder tree that is displayed.



5 Click on the [Copy>>] (copy to the right) button.

The files are copied.



When the drive of the copy source and the drive of the copy destination are reversed, click on the [<<Copy] (copy to the left) in Step 5.

Deleting a file

Click on the [Delete] button.
 A deletion confirmation dialog is displayed.

2 To delete the file, click on the [OK] button.

3.17 Returning to a Task Menu by Ending the Operation

1 Click on the [Menu] button at the bottom left corner of the screen.

The menu is displayed.



2 Click on the [Code Input] button on the menu.

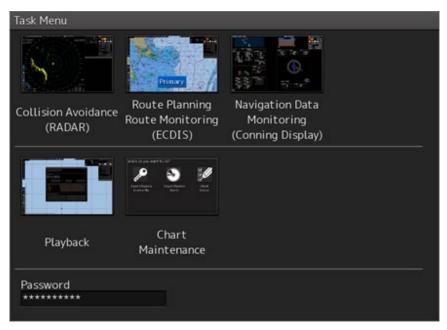


The password input dialog box appears.

3 Enter 9999 and click on the [Enter] key.



Returns to the task menu.



3.18 Terminating this Equipment

MARNING



Do not hold down the Power button of the operation unit when turning off the power supply. If the button is held down, the equipment may not be terminated normally, causing a failure.

1 Press the power supply button on the operation unit.

The power is turned off and the light of power supply button goes off.

Section 4 Each Block of Conning Display

This chapter describes the screen configuration of Conning Display and the screen details.

Conning Display

This equipment displays information from various equipment units and sensors that are installed on-board in the most suitable forms.

This supports a quick understanding of the condition of own ship, thereby enabling safe sailing and navigation.

4.1 Display mode

One of the following two top screens is displayed depending on the Conning Display you use.

Display mode switching tab



Top screen (1)



Top screen (2)

On top screen (1), the mode can be switched to any of the three modes of Navigation mode, Docking mode, and Custom mode by using the display mode switching tabs (refer to "4.1.1 Switching to the Navigation mode/Docking mode/Custom mode").

On top screen (2), the mode is fixed to Offshore mode. Unlike top screen (1), a green color that indicates the starboard/forward direction and a red color that indicates the port/backward direction are not used.

The following information is displayed in each display mode.

Display mode	Information that is displayed
Navigation mode	Information on the status of the ship that is navigating
Docking mode	Information on the status of the ship that is docking
Custom mode	Information that is arbitrarily selected to be displayed on the Custom screen
Offshore mode	Information required for offshore working ships

4.1.1 Switching to the Navigation mode/Docking mode/Custom mode

By using any of the display mode switching tabs at the top left side of the top screen, switching to any of the three display modes is enabled.

The selected mode is highlighted.

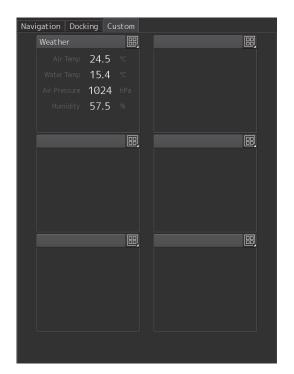


When the display mode is switched, the contents that are displayed in the area on the left side of the screen change.

Examples of screens for each mode are shown below.



Navigation mode



Custom mode



Docking mode

4.2 How to view each block

This section describes the information that is indicated in each block displayed on the Conning Display screen. The information is described on a per-block basis.

All the blocks that can be displayed by Conning Display are summarized in "4.2.1 Block list".

Search the block whose meaning of the displayed information you want to know from the list and refer to the corresponding description in "4.2.3 Description of each block".

For the procedure for selecting a block to be displayed on the screen in Custom mode, refer to "4.2.2 Selecting a block to be displayed on the screen in Custom mode".

4.2.1 Block list

Block name	Example of the shape of the block	Reference section
3D Navigation information and the legend of the navigation	Source ECDIS1 ▼ CCG: ← CTS: ←	4.2.3.1
Information about azimuth thruster of CPP (controllable pitch propeller) type	Azimuth THR1 341.2 Pitch 25.0 Rev 45 RPM	4.2.3.2
Information about side thruster of CCP (controllable pitch propeller) type	No.1 BOW	4.2.3.3
Information about propeller engine of CPP (controllable pitch propeller) type	Engine 45.3 rpm Propeller \$\int 55.4 \%	4.2.3.4
Information about azimuth thruster of FPP (fixed pitch propeller) type	Azimuth THR1 Azimuth THR 341.2 ° Rev 45 RPM	4.2.3.5
Information about side thruster of FPP (fixed pitch propeller) type	Stern THS1	4.2.3.6
Information about propeller engine of FPP (fixed pitch propeller) type	Propeller Propeller A 23 RPM	4.2.3.7
N-UP/H-UP switching button	NUP HUP	4.2.3.8

Block name	Example of the shape of the block	Reference section
Ship block	To the base land	4.2.3.9
Azimuth thruster information (with status)	Thruster 4 O 150 Running Thruster 3 Argle	4.2.3.10
	Revolution RPM	
Engine/propeller revolution graph	Engine REV (R94) (R94) (R97) (R97) (R97) (R97)	4.2.3.11
Engine output information	Power 35 kW	4.2.3.12
Engine telegraph information	Telegraph(PORT) Revolution Full No.F. BLAN BLAN BCAS SLOW STOP BEAS SLOW SLOW SLOW SLOW SLOW SLOW SLOW SLOW	4.2.3.13
Engine torque information	Torque 80 kNm	4.2.3.14
Rate Of Turn information	Plan ROT ◆ 038.2 °/min ROT(Gyro) ◆ 020.0 °/min a0	4.2.3.15
Weather information	Weather Air Temp 25.0 °C Water Temp 13.0 °C Air Pressure 1024 hPa Humidity 65.0 %	4.2.3.16
Route information source	Source ECDIS 1 ▼	4.2.3.17
Route name information	Route Name route-201401011400	4.2.3.18

Block name	Example of the shape of the block	Reference section
Final waypoint information	Final WPT ETA 2013-01-07 13:30 UTC DIST 10.2 NM	4.2.3.19
Side thruster information (with status)	Running Thruster 1	4.2.3.20
Time/position information	LMT 2013-01-03 07:30:55 POSN(Main) DGPS GPS 1 ▼ 32°26.213'S WGS-84 61°00.000'E	4.2.3.21
Automatic sailing information	A/P Stat Track Control KEEP AUTO	4.2.3.22
Next waypoint information	To WPT No. 001 BRG 180.4 ° ETA 2013-01-04 DIST 3.0 NM 13:35 UTC POSN 32*29.237'S 60*59.981'E Plan SPD 20.0 kn XTD ⟨□ 0.0 NM XTL PORT 0.20 NM STBD 0.20 NM Order RAD *.** NM	4.2.3.23
One after next waypoint information	Next WPT No. 002 NEW CRS 180.1 ° LEG DIST 3.5 NM DIST 6.5 NM TTG 65:03:48 Time to sail 34:58:45	4.2.3.24
Water temperature graph	Sea TEMP 55 (CC) 15 (C	4.2.3.25
Water depth graph	Depth 60 45 30 15 6250 [min] Depth(Trans)-FWD 142.9 fm	4.2.3.26
Water depth information	Depth(FWD) 9999.9 fm Surf Alarm Limit 9999.9 fm [60 45 50 15 0 699]	4.2.3.27
Thruster drive motor load information	Drive motor load Thruster 1 40.0 % Thruster 2 50.0 % Thruster 3 60.0 % Thruster 4 70.0 % Thruster 5 80.0 %	4.2.3.28
Thruster operation position information	Command Position Thruster 1 Aft Support Thruster 2 Aft Support Thruster 3 Aft Support Thruster 4 Ship Handling Thruster 5 Ship Handling	4.2.3.29

Block name	Example of the shape of the	Reference
Thursday design and the form of the	block Steering Mode	section
Thruster steering mode information	Thruster1 DP Thruster2 DP Thruster3 JS Thruster4 Manual Thruster5 Manual	4.2.3.30
Heading information	HDG 180.0 ° Source Gyro	4.2.3.31
Graphic display of ship's heading, course over the ground, wind bearing/wind speed, and current information		4.2.3.32
Ship speed information	SOG BOW PORT-STBD ⟨□ ②.② kn FORE-AFT ⟨□ 10.② kn Stern PORT-STBD ⟨□ ②.② kn Source GPS 1 ▼	4.2.3.33
Steering position information	Steering POSN PORT	4.2.3.34
Ship speed through water information	STW Ø.1 kn Source Log 1 •	4.2.3.35
Course/speed over the ground information	COG 180.0 ° SOG 0.1 kn Source GPS 1 •	4.2.3.36
Rudder angle/ship's heading graph	HDG/Rudder HDG —	4.2.3.37
Rudder angle graph	Rudder B 5 [min]	4.2.3.38
Rudder angle information	Rudder 180 1	4.2.3.39
	Rudder Order Actual O05 Actual	

Block name	Example of the shape of the block	Reference section
Current information	Current Set Ø90.0 ° Drift 1.0 kn Current Set № 090.0 °	4.2.3.40
	Drift 1.0 kn	
Generator information	Generator 35 Generator 30,0 MW	4.2.3.41
Wind bearing graph	Wind Bearing E N W W Limit B B A B B Comparison of the c	4.2.3.42
Wind bearing/wind speed information	Wind Wind BRG NNW BRG NO NNW SPD 10.3 kn SPD 2.6 kn SPD 3	4.2.3.43
Wind speed graph	Wind Speed	4.2.3.44
Course To Steer information	Plan 055.9 ° CTS 056 °	4.2.3.45
Hull Motion Trim	Trim ♦ 90.0 °	4.2.3.46

4.2.2 Selecting a block to be displayed on the screen in Custom mode

Up to any six blocks can be assigned to the screen in Custom mode.

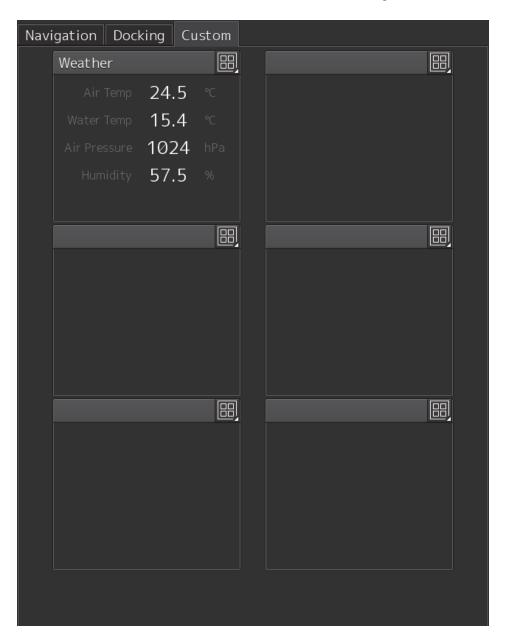
The following blocks can be assigned to the screen in Custom mode.

- Weather information
- Engine telegraph information
- Water depth graph
- Rudder angle graph
- Rudder angle/ship's heading graph
- Engine/propeller revolution graph
- Water temperature graph
- · Wind bearing graph
- · Wind speed graph

See below for the procedure for selecting a block to be displayed on the screen in Custom mode.

1 Click on the Custom tab.

The screen is switched to the Custom screen and the following six windows are displayed.



2 Click on the item selection button on the window for displaying items.

Thumbnails of the items that are displayable on that window are displayed.



3 Click on the thumbnail for the item to be displayed.

The selected item is displayed on the selected window.



Selectable items

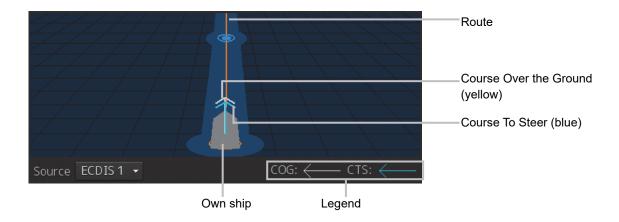
Normally, the item that is already displayed on another window cannot be selected.

Setting the window to blank

Click on [Off] in step 3 above.

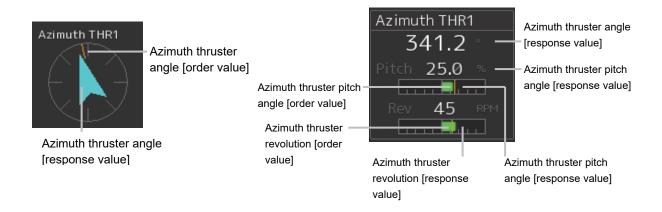
4.2.3 Description of each block

4.2.3.1 3D Navigation information and the legend of the navigation



Item	Dioplay contents
петт	Display contents
Own ship	Indicates the position of own ship.
	Displayed under H-UP (own ship is positioned at the center of the screen).
Course Over	Indicates the angle of the course over the ground.
the Ground	The sensor that is selected by the "Course/speed over the ground information" of
	the basic information display area is used as the source.
Route	Displays the route based on the route information that is received from ECDIS.
Course to	Indicates the angle of the course to steer (CTS).
Steer	*The course to steer is displayed in autopilot mode. In other modes, the information
	is not displayed.

4.2.3.2 Information about azimuth thruster of CPP (controllable pitch propeller) type



Item	Display contents
Azimuth thruster angle (response	Displays the azimuth thruster angle (response value) with a meter
value)	display and a numerical display.
Azimuth thruster angle	Displays the azimuth thruster angle (indication value).
(indication value)	On the meter display, the angle is displayed as a yellow line.
Azimuth thruster pitch angle	Displays the azimuth thruster pitch angle (response value) with a
(response value)	meter display and a numerical display.
	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of
	setting value".
Azimuth thruster pitch angle	Displays the azimuth thruster pitch angle (order value).
(order value)	On the meter display, the pitch angle is displayed as a yellow line.
Azimuth thruster revolution	Displays the azimuth thruster revolution (response value) with a
(response value)	meter display and a numerical display.
	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of
	setting value".
Azimuth thruster revolution	Displays the azimuth thruster revolution (order value).
(order value)	On the meter display, the revolution is displayed as a yellow line.

4.2.3.3 Information about side thruster of CCP (controllable pitch propeller) type



Thruster pitch angle (response value)

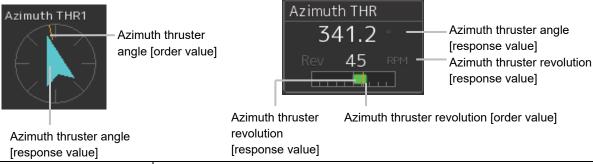
Item	Display contents
Thruster pitch angle	Displays the pitch angle (response value) of the side thruster.
(response value)	On the meter display, the angle is displayed as a red (Port direction) or green (Starboard direction) bar. The maximum value is displayed at
	both ends of the meter.
	In numerical display, a value with the port (red)/starboard (green) mark
	is displayed.
	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of setting
	value".
Thruster pitch angle	Displays the pitch angle of side thruster (order value).
(order value)	On the meter display, the angle is displayed as a yellow line.

4.2.3.4 Information about propeller engine of CPP (controllable pitch propeller) type

Propeller pitch angle (response Propeller Propeller Propeller pitch Propeller pitch Propeller pitch angle (response angle angle working value) (indicated direction Engine value) Revolution per minute of engine (response Maximum value value)

	value)
Item	Display contents
Propeller pitch	Displays the propeller pitch angle (response value).
angle (response	On the meter display, the angle is displayed as green (forward direction) or
value)	red (backward direction) bar.
	In numerical display, a value with propeller pitch angle operation direction is
	displayed.
	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".
Propeller pitch	Displays the propeller pitch angle (order value).
angle (order value)	On the meter display, the angle is displayed as a yellow line.
Engine revolution	Displays the engine revolution in numerical format.
(response value)	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".

4.2.3.5 Information about azimuth thruster of FPP (fixed pitch propeller) type



Item	Display contents
Azimuth thruster angle	Displays the azimuth thruster angle (response value) with a meter display
(response value)	and a numerical display.
Azimuth thruster angle	Displays the azimuth thruster angle (order value).
(order value)	On the meter display, the angle is displayed as a yellow line.
Azimuth thruster	Displays the azimuth revolution (response value) with a meter display and a
revolution (response	numerical display.
value)	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".
Azimuth thruster	Displays the azimuth revolution (order value).
revolution (order value)	On the meter display, the speed is displayed as a yellow line.

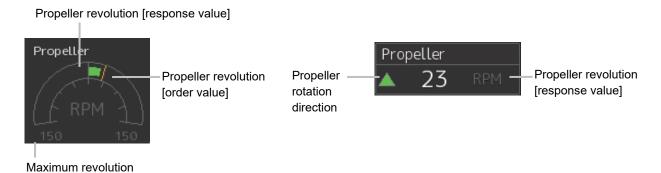
4.2.3.6 Information about side thruster of FPP (fixed pitch propeller) type



Revolution per minute of thruster (response value)

Item	Display contents	
Thruster revolution	Displays the revolution (response value) of the side thruster.	
(response value)	On the meter display, the speed is displayed as a red (Port direction) or	
	green (Starboard direction) bar. The maximum value is displayed at both	
	ends of the meter.	
	In numerical display, a value with the port (red)/starboard (green) mark is	
	displayed.	
	The unit can be changed on the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".	
Thruster revolution	Displays the revolution of the side thruster (order value).	
(order value).	On the meter display, the speed is displayed as a yellow line.	

4.2.3.7 Information about propeller engine of FPP (fixed pitch propeller) type



Item	Display contents	
Propeller revolution	Displays the revolution (response value) of the engine/propeller.	
(response value)	On the meter display, the speed is displayed as a green (forward direction)	
	or red (backward direction) bar.	
	In numerical display, a value with engine/propeller operation direction is	
	displayed.	
	The unit can be changed on the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".	
Propeller revolution	Displays the revolution (order value) of the engine/propeller.	
(order value)	On the meter display, the speed is displayed as a yellow line.	

4.2.3.8 N-UP/H-UP switching buttons



The N-UP/H-UP switching buttons enable switching between N-UP display and H-UP display.

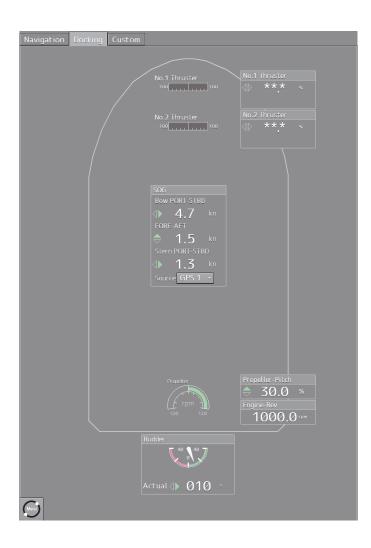
The scale display in the illustration display such as course switches according to the N-UP/H-UP display switching.

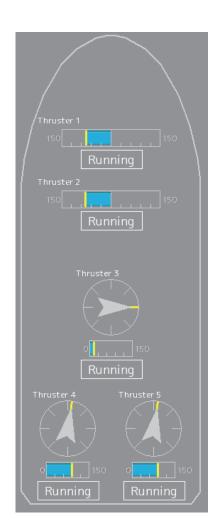
For the illustration display, refer to "4.2.3.33 Graphic display of ship's heading, course over the ground, wind bearing/wind speed, and current information".

4.2.3.9 Ship block

In the Ship block, operation statues such as the rudder angle, engine/propeller, and thruster are displayed within and surrounding the line drawing of a shape of a ship.

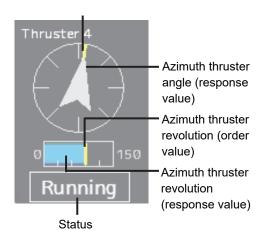
Ship block display examples are shown below.

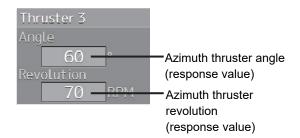




4.2.3.10 Azimuth thruster information (with status)

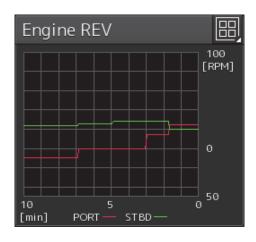
Azimuth thruster angle (order value)





lt a ma	Display contents	
Item	Display contents	
Azimuth thruster angle	Displays an azimuth thruster angle (response value) in meter	
(response value)	display and numeric value display.	
Azimuth thruster angle	Displays an azimuth thruster angle (order value).	
(order value)	Displayed on the meter with a yellow line.	
Azimuth thruster	Displays an azimuth thruster revolution (response value) in meter	
revolution (response	display and numeric value display.	
value)	The unit can be changed in the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of	
	setting value".	
Azimuth thruster	Displays an azimuth thruster revolution (order value).	
revolution (order value)	Displayed on the meter with a yellow line.	
Status	Displays a status of the azimuth thruster.	
	Running: Running	
	Stop: Stopped	

4.2.3.11 Engine/propeller revolution graph



Item	Display contents	
Engine/shaft/	Displays the engine/propeller revolution speed graph.	
propeller revolution	The graph range can be changed on the View menu.	
speed graph display	For the details, refer to "5.1.6 Setting an engine/propeller revolution graph ".	

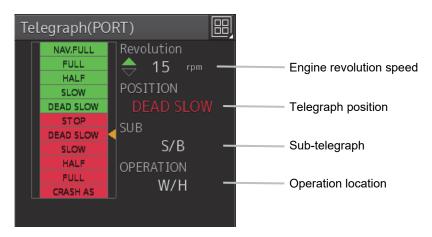
4.2.3.12 Engine output information



Item	Display contents
Engine output	Displays the engine output.

4.2.3.13 Engine telegraph information

When two engines are installed, the engine telegraph information that can be displayed on the Custom mode screen can be set to 2.



Item	Display contents
Engine revolution speed	Displays the engine revolution speed.
Telegraph position	Displays the telegraph position.
Sub-telegraph	Displays the sub-telegraph.
Operation location	Displays the engine telegraph operation location.

4.2.3.14 Engine torque information



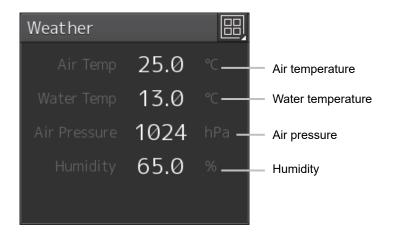
Item	Display contents
Engine torque	Displays an engine torque.
	The unit is kNm (kilo newton meter).

4.2.3.15 Rate Of Turn (ROT) information



Item	Display contents	
Rate of turn label	Displays the rate of turn sensor name.	
	ROT[TRI]:	
	Displays the rate of turn from TRI (Turn Rate Indicator).	
	ROT[Gyro]:	
	Displays the rate of turn from Gyro.	
	* When two Gyro units are installed, Gyro1 or Gyro2 is displayed according	
	to the sensor that is currently used for receiving information.	
Planned rate of turn	Displays the planned rate of turn.	
	The value is displayed following the port/starboard mark.	
	* The planned rate of turn is displayed based on the route information that is	
	received from ECDIS. The information is not displayed if the route is not	
	monitored.	
Rate of turn	Displays the rate of turn.	
	The value is displayed following the port/starboard mark.	
Rate of turn meter	Displays with the red bar when the ship is turning to the port side and with	
	the green bar when the ship is turning to the starboard side.	
	(In top screen (2), a white color is used in the display instead of red and	
	green colors.)	
	Planned rate of turn is displayed with the yellow line.	

4.2.3.16 Weather information



Item	Display contents	
Air temperature	Displays the air temperature.	
	The display unit can be changed on the View menu. For the details, refer to "5.1.2	
	Setting up the display of unit of setting value".	
Water	Displays the water temperature.	
temperature	The display unit can be changed on the View menu. For the details, refer to "5.1.2	
	Setting up the display of unit of setting value".	
Air pressure	Displays the air pressure.	
	The display unit can be changed on the View menu. For the details, refer to "5.1.2	
	Setting up the display of unit of setting value".	
Humidity	Displays the humidity.	

4.2.3.17 Route information source



This combo box is displayed to display and change the sensor source for acquiring route monitoring information.

Select a sensor source in the combo box.

When [Menu] is selected, the [Sensor Selection/Status] dialog is displayed. Any of the following sensor sources can be selected.

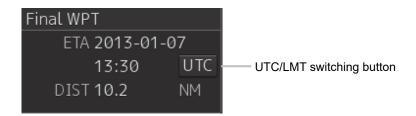
Setting item	Setting contents	Setting value
Navigational Data	Select the source (sensor) for acquiring route	ECDIS x, MFD x
	monitoring information.	("x" indicates the unit
	*The sources that can be selected vary	number.)
	according to the installation.	
	*When the Switch to equipment for Autosailing	
	check box is selected, selection is disabled.	
Switch to	When acquiring route monitoring information	ON/OFF
equipment for	from the equipment that is performing	
Autosailing	Auto-Sailing, enable the item (ON) by selecting	
	the check box.	
	When acquiring route monitoring information	
	from the source that is selected from	
	Navigational, disable the item (OFF) by	
	clearing the check box.	

4.2.3.18 Route name information

Route Name route-201401011400

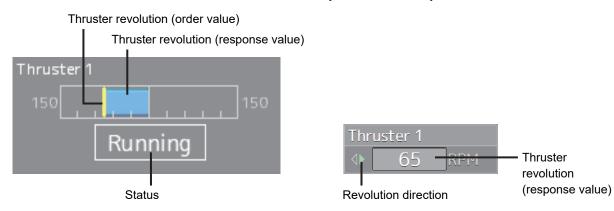
The route name is displayed based on the route information that is received from ECDIS. The information is displayed only when the route is being monitored.

4.2.3.19 Final waypoint information



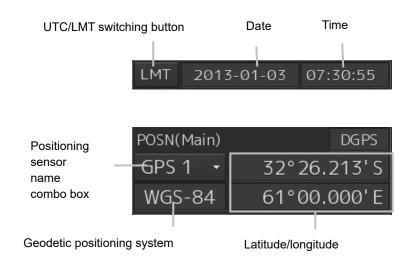
Item	Display contents	
ETA	Displays the expected time of arrival at the final waypoint.	
	The time display method can be changed by using the maintenance function.	
	For the details, refer to "9.1.2 Setting Date/Time/Time Zone".	
UTC/LMT	Displays and switches UTC/LMT of ETA.	
switching button		
DIST	Displays the distance from own ship to the final waypoint.	

4.2.3.20 Side thruster information (with status)



Item	Display contents	
Thruster revolution	Displays a thruster revolution (response value) in meter display	
(response value)	and numeric value display.	
	The unit can be changed in the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of	
	setting value".	
Thruster revolution (Order	Displays a thruster revolution (order value).	
value)	Displayed on the meter with a yellow line.	
Status	Displays a status of the thruster.	
	Running: Running	
	Stop: Stopped	

4.2.3.21 Time and position information



Item	Display contents	
Date display	Displays the current date.	
Time display	Displays the current time (Universal Time Coordinated or local time).	
UTC/LMT switching	When the button is clicked on, the display switches between the Universal	
button	Time Coordinated [UTC] and local time [LMT].	
Latitude	Displays the latitude of own ship's position. North latitude is indicated as N and	
	the South latitude is indicated as S.	
Longitude	Displays the longitude of own ship's position. East longitude is indicated as E	
	and West longitude is indicated as W.	
Positioning sensor	Displays and changes the positioning sensor name.	
name combo box	The following sensor sources can be selected.	
	When [Menu] is selected, the [Sensor Selection/Status] dialog is displayed.	
	GPSx ^{*1}	
	For the details of the sensor source setting, refer to "9.1.5 Setting and	
	confirming the sensor source".	
Geodetic system	Displays the geodetic system.	

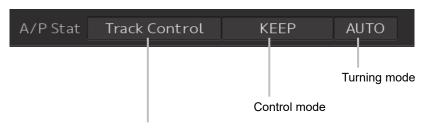
^{*1:} When two or more GPS units are present, "x" indicates the unit number.

4.2.3.22 Automatic sailing information

This section displays the status of the autopilot that is installed.

Note

Displayed when the automatic sailing option is attached.



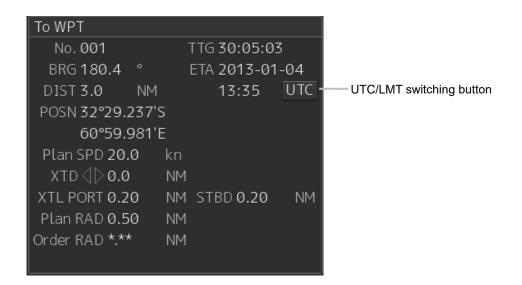
Automatic sailing mode

Item	Display contents	
Autopilot mode	Displays the automatic sailing mode.	
	No display: The [Navigational Data] combo box is blank space and the Switch to	
	equipment for Autosailing check box in the [Sensor Selection/Status] dialog is not	
	checked.	
	Track Control: The A/P (Autopilot) 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: Override steering (interrupt steering)	
Control mode	Displays the automatic sailing control mode.	
	No display: Automatic sailing is not set.	
	KEEP: During automatic sailing/course keeping state	
	TURN: During automatic sailing/turning (TCS category C)	
	Assisted Turn: During automatic sailing/turning (TCS category B)	
Turn mode	Displays the automatic sailing turn mode.	
	No display: Automatic sailing is not set.	
	AUTO: Automatic turn mode	

Notes

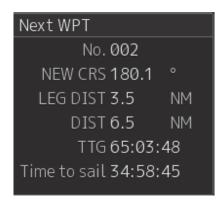
- When the mode is switched to Override steering on the Autopilot side in Track Control mode,
 Track Control is released and the mode is set to Override Steering.
- · Refer to the following information for the override steering method.
 - Autopilot manufactured by TOKYO KEIKI:
 - "4.5 Override Steering Method (Option)" of the "Autopilot Additional Instruction Manual: TCS model Category C (TOKYO KEIKI PR-6000 and HCS-9000)"
 - Autopilot manufactured by YOKOGAWA:
 - "4.2.3 Override steering (option)" of the "Autopilot Additional Instruction Manual Autopilot: TCS model Category C (YOKOGAWA PT500A and PT900)"

4.2.3.23 Next waypoint information



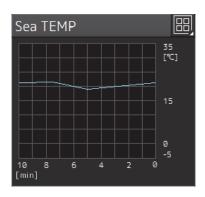
Item	Display contents	
No.	Displays the next waypoint number.	
BRG	Displays the bearing up to the next waypoint.	
DIST	Displays the distance up to the next waypoint.	
POSN	Displays the latitude and longitude of To Waypoint.	
Plan SPD	Displays the planned ship speed.	
XTD	Displays the cross track distance of own ship.	
	Indicates the port (red)/starboard (green) with the color of the triangle mark.	
	The display unit can be switched by using the View menu. For the details, refer	
	to "5.1.2 Setting up the display of unit of setting value".	
XTL PORT/STBD	XTL PORT displays the route width of the port side and XTL STBD displays	
	the route width of the starboard side.	
	The display unit can be switched in the View menu. For the details, refer to	
	"5.1.2 Setting up the display of unit of setting value".	
Plan RAD	Displays the planned turn radius.	
Order RAD	Displays the order turn radius.	
TTG	Displays the time required to arrive at the next waypoint.	
ETA	The date display method can be changed by using the maintenance function.	
	For the details, refer to "9.1.2 Setting Date/Time/Time Zone".	
UTC/LMT	Displays and switches UTC/LMT of ETA.	
switching button		

4.2.3.24 One after next waypoint information



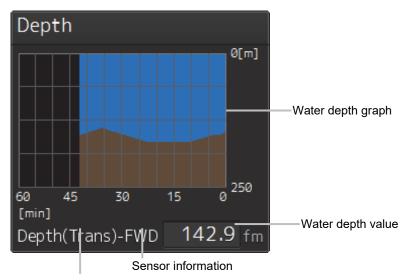
Item	Display contents	
No.	Displays the number of one after the next waypoint.	
New CRS	Displays the leg bearing of one after the next waypoint.	
LEG DIST	Displays the distance from the next waypoint to one after the next waypoint.	
DIST	Displays the distance from own ship to one after the next waypoint.	
TTG	Displays the time required to arrive at one after the next waypoint.	
Time to sail	Displays the time required from the next waypoint to one after the next	
	waypoint.	

4.2.3.25 Water temperature graph



Item	Display contents
Water temperature graph	Displays water temperatures in graph format.
display	The unit can be selected on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of
	setting value".
	The range of the graph can be changed on the View menu.
	For the details, refer to "5.1.8 Setting a water temperature
	graph".

4.2.3.26 Water depth graph

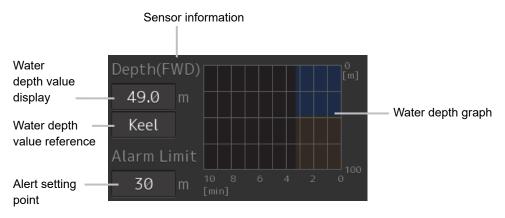


Water depth value reference

Item	Display contents
Water depth	Displays the water depth information. Water is indicated by light blue and ocean
graph	bed is indicated by brown.
	Therefore, the boundary between light blue and brown indicates the water depth.
	The graph range can be changed on the View menu.
	For the details, refer to "5.1.3 Setting up Water Depth display".
Water depth	Displays the water depth value.
value	The unit can be selected on the View menu.
	For the details, refer to "5.1.3 Setting up the display of unit of setting value".
Water depth	Displays the water depth value reference (Surf/Trans/Keel).
value reference	
Sensor	Displays the water depth sensor source.
information	FWD: Depth sounder installed at the front of the ship
	MID: Depth sounder installed at the center of the ship
	AFT: Depth sounder installed at the rear of the ship

4.2.3.27 Water depth information

The following items are displayed regularly as water depth information.



Item	Display contents	
Water depth value	Indicates the water depth value.	
display		
Water depth	Indicates the water depth information. Water is indicated in blue and the sea bed	
graph	is indicated in brown.	
	Therefore, the boundary between blue and brown indicates the water depth.	
	The graph setting range can be changed from the View menu.	
	For the details, refer to "5.1.3 Setting up the Water Depth display".	
Water depth value	Displays the water depth value reference [depth measurement point].	
reference	The depth measurement point is one of Surf, Trans, and Keel and the water	
	depth value at each point is as follows.	
	Surf: Water depth value from the water surface	
	Trans: Water depth value from the transducer of the depth sounder	
	Keel: Water depth value from the point below the keel	
	Surf [water surface] Trans [transducer of depth sounder] Keel [keel]	

Item	Display contents	
Sensor	Displays the water depth sensor source.	
information	FWD: Depth sounder installed at the front of the ship	
	MID: Depth sounder installed at the center of the ship	
	AFT: Depth sounder installed at the rear of the ship	
Alert setting point	The water depth value measured from the bottom of the keel is displayed.	
	The unit can be changed in the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".	
	* PJRCM sentence must be received from the water depth sounder to display	
	the alert setting point.	
	*When the water depth value measured from the bottom of the keel is not	
	received, the [Non SYNC] badge is displayed.	
	Alarm Limit Non SYNC 30 m	

Sentence from the water depth sounder

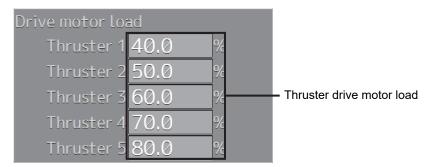
An alert setting point value is updated by the sentence from the water depth sounder.

A sentence is output at every 4 hours from 0 hour of UTC after the power supply of the depth sounder is turned on.

The contents of sentences are listed below.

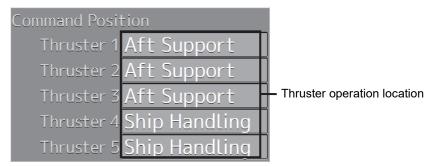
Field	Code	Data	Specification
1	\$	Header	Fixed
2	PJRCM	Sentence ID	
3	SD	Equipment ID	
4	88	System information command	
5	VXX.XX	Software version	
6	X	Image transmission	
7	X	Crack	
8	X	Interference prevention	
9	X	GAIN AUTO/NORMAL	
10	X	RANGE	
11	±XX	Draft adjustment value	
12	X	Cursor display ON/OFF	
13	X	Key ACK	
14	X	Relay contact point	
15	XX	Water depth alarm ON/OFF	OFF=0, ON=1
16	XX.X	Water depth alarm setting value	0.0 ~ 99.9
17	X	System alarm ON/OFF lost	
18	X	System alarm ON/OFF	
		transmission	
19	X	System alarm ON/OFF reception	
20	X	System alarm ON/OFF foam	
		forming	
21	Χ	System alarm ON/OFF printer	
22	X	Recording interval	
23	*hh	Check sum	
24	<cr><lf></lf></cr>	Delimiter	

4.2.3.28 Thruster drive motor load information



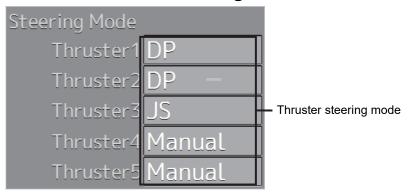
Item	Display contents
Thruster drive motor load	Displays a drive motor load of each thruster with a value between
	0% and 100%.

4.2.3.29 Thruster operation location information



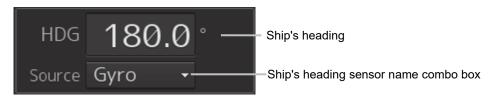
Item	Display contents
Thruster operation	Displays an operation location of each thruster.
location	Ship Handling: After bridge (ship operation)
	Aft Support: After bridge (support)
	FWD Bridge: Forward bridge
	When there are multiple operation locations for the same
	thruster, the operation location of the highest priority is displayed.
	The operation locations are shown below in the order of
	descending priorities.
	Ship Handling>Aft Support>FWD Bridge

4.2.3.30 Thruster steering mode information



Item	Display contents
Thruster steering mode	Displays a steering mode of each thruster.
	Backup: Backup control
	DP: Dynamic positioning
	DP(Locked): Dynamic positioning (locked)
	JS: Joystick
	JS(Locked): Joystick (locked)
	AP: Autopilot
	Manual: Manual
	When there are multiple steering modes for the same thruster,
	the steering mode of highest priority is displayed.
	The steering modes are shown below in the order of descending
	priorities.
	Backup>DP/DP(Locked)>JS/JS(Locked)>AP>Manual

4.2.3.31 Heading information

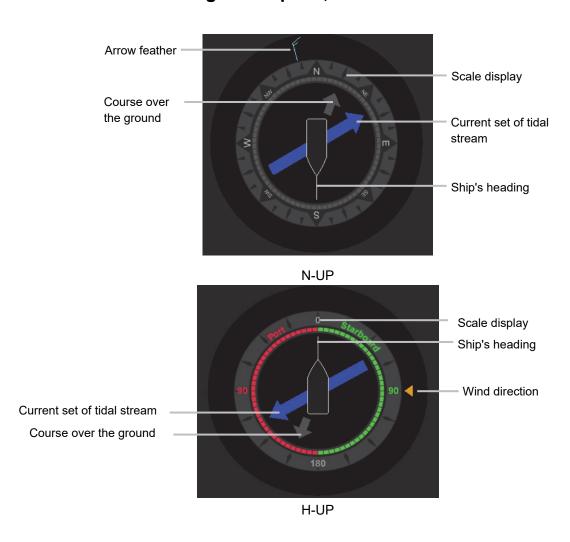


Item	Display contents	
Ship's heading	Displays the ship's heading.	
	The reliabilities of the values are color coded into three colors.	
	Normal character color: Normal sensor value	
	Yellow: Deterioration of sensor value reliability	
	Orange: Abnormal sensor value	
Ship's heading	Displays and changes the ship's heading sensor name.	
sensor name combo	The following sensor sources can be selected.	
box	When [Menu] is selected, the [Sensor Selection/Status] dialog is displayed.	
	Gyro, Gyro1*1*2, Gyro2*1*2, MAG, G/C	
	For the details of the sensor source setting, refer to "9.1.5 Setting and	
	confirming the sensor source".	

^{*1:} Only for the case where two Gyro units are available.

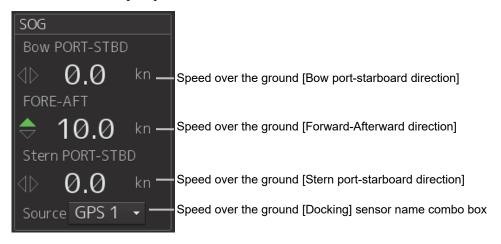
^{*2:} When the Gyro Compass system that is used has the automatic switching function, the sensor source display is switched automatically according to the switching condition.

4.2.3.32 Graphic display of ship's heading, course over the ground, wind bearing/wind speed, and current information



Item	Display contents
Ship's heading	Displays the ship's heading.
Scale display	The scale display changes according to the switching of H-UP/N-UP.
	• N-UP:
	Indicates the scale of 32 points using North as the reference.
	• H-UP:
	Indicates the scale of 180 degrees each towards the starboard side and
	portside with reference to the bow of the ship. (In top screen (2), a white color is
	used in the display instead of red and green colors.)
Course Over the	Displays the course over the ground (COG).
Ground	
Arrow feather	An arrow feather is displayed in the case of N-UP. The arrow tip indicates the
	downwind. The number of arrow feathers indicates the Beaufort wind-force scale.
Wind direction	A triangular arrow is displayed in the case of H-UP. The arrow tip indicates the
	downwind. The wind speed is not displayed.
Current set of	The arrowhead indicates the direction of the tide.
tidal stream	

4.2.3.33 Ship speed information



Item	Display contents			
Speed over the	Displays the ship speed over the ground (Bow port-starboard direction). When			
ground (Bow	the ship is moving forward in the port direction, a red arrow is displayed. When			
port-starboard	the ship is moving forward in the starboard direction, the green triangle is			
direction)	displayed. (In top screen (2), a white color is used in the display instead of red			
	and green colors.)			
	If the ship speed is 1 kn or lower, the unit changes to cm/s.			
	The unit can be changed on the View menu.			
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".			
Speed over the	Displays the speed over the ground (Forward-Afterward direction). When the			
ground	ship is moving forward, a green arrow is displayed. When the ship is moving			
(Forward-Afterward	backward, a red arrow is displayed. (In top screen (2), a white color is used in			
direction)	the display instead of red and green colors.)			
	If the ship speed is 1 kn or lower, the unit changes to cm/s.			
	The unit can be changed on the View menu.			
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".			
Speed over the	Displays the speed over the ground (Stern port-starboard direction). When the			
ground (Stern	ship is moving in the port direction, a red arrow is displayed. When the ship is			
port-starboard	moving in the starboard direction, a green arrow is displayed. (In top screen			
direction)	(2), a white color is used in the display instead of red and green colors.)			
	If the ship speed is 1 kn or lower, the unit changes to cm/s.			
	The unit can be changed on the View menu.			
	For the details, refer to "5.1.2 Setting up the display of unit of setting value".			
Speed over the	Displays and changes the speed over the ground (Docking) sensor name.			
ground (Docking)	The following sensor sources can be selected.			
sensor name	When [Menu] is selected, the [Sensor Selection/Status] dialog is displayed.			
combo box	Log ^{*1} , Log1 ^{*1 *2} , Log2 ^{*1 *2} and GPSx ^{*3}			
	For the details of the concernations acting refer to "0.1.5.5.4time and			
	For the details of the sensor source setting, refer to "9.1.5 Setting and			
	confirming the sensor source".			

^{*1:} When 1AX is installed for Log, Log cannot be selected from the sensor source.

^{*2:} Only for the case where two Log units are available.

^{*3:} When two or more GPS units are present, "x" indicates the unit number.

4.2.3.34 Steering position information

This function displays the steering position when override steering is set during Track Control.

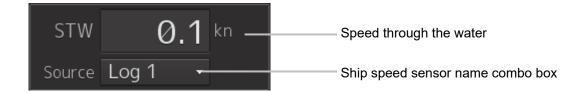


Item	Display contents
Steering position	Displays the steering position when override steering is set
	during Track Control.
	Bridge: Bridge
	PORT Wing: Port wing
	STBD Wing: Starboard wing
	Engine Room: Engine room
	Engine Side: Near the engine
	Wing: Wing (port or starboard is not specified)
	MANO C: Specific definition of TOKYO KEIKI autopilot, steering
	console
	Stand: Specific definition of TOKYO KEIKI autopilot, steering
	stand
	The Steering Position is displayed as follows when the YDK
	Steering Indicator is connected.
	STAND: Steering stand
	CENTER: BCC (Bridge Center Control)
	PORT/W: Port wing
	STBD/W: Starboard wing
	S/G ROOM: Steering gear room
	AFTER: AFTER console
	BRIDGE: Bridge
	PORT: Port
	STBD: Starboard
	PORT/SJ: Port S-JOY
	STBD/SJ: Starboard S-JOY

Memo

The character string that has been initially set is displayed. The characters that are displayed may vary depending on the system.

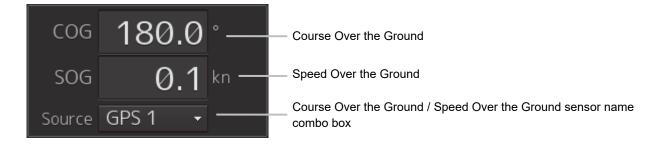
4.2.3.35 Ship speed through water information



Item	Display contents		
Speed through the	Displays the speed through the water.		
water	The reliabilities of the values are color coded into three colors:		
	Normal character color: Normal sensor value		
	Yellow: Deterioration of sensor value reliability		
	Orange: Abnormal sensor value		
	The display unit can be switched in the View menu. For the details,		
	refer to "5.1.2 Setting up the display of unit of setting value".		
Ship speed sensor	Displays/changes a ship speed sensor name.		
name combo box	The following sensor sources can be selected.		
	When [Menu] is selected, the [Sensor Selection/Status] dialog is		
	displayed.		
	Log*1, Log1*1*2, Log2*1*2		
	For the details of sensor source setting, refer to "9.1.5 Setting and		
	confirming sensor sources".		

^{*1:} When 1AX is installed for Log, Log cannot be selected from the sensor source.

4.2.3.36 Course/speed over the ground information



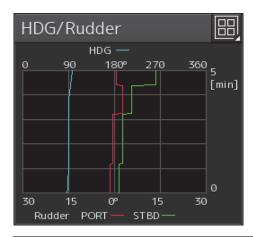
Item	Display contents
Course Over the Ground	Indicates the course over the ground.
	The reliabilities of the values are color coded into three colors:
	Normal character color: Normal sensor value
	Yellow: Deterioration of sensor value reliability
	Orange: Abnormal sensor value

^{*2:} Only when there are two Logs

Item	Display contents
Speed Over the Ground	Displays the speed over the ground.
	The reliabilities of the values are color coded into three colors:
	Normal character color: Normal sensor value
	Yellow: Deterioration of sensor value reliability
	Orange: Abnormal sensor value
	The unit can be changed on the View menu.
	For the details, refer to "5.1.2 Setting up the display of unit of
	setting value".
Course Over the	Displays and changes the course over the ground/ speed over the
Ground/Speed Over the	ground sensor name.
Ground sensor name combo	The following sensor sources can be selected.
box	When [Menu] is selected, the [Sensor Selection/Status] dialog is displayed.
	Log*1, Log1*1*2, Log2*1*2, and GPSx*3
	For the details of the sensor source setting, refer to "9.1.5 Setting
	and confirming the sensor source".

^{*1:} When 1AX is installed for Log, Log cannot be selected from the sensor source.

4.2.3.37 Rudder angle/ship's heading graph

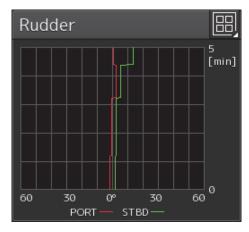


Item	Display contents	
Ship's heading +	Displays the graph of the ship's heading and rudder angle.	
Rudder angle	The graph range can be changed on the View menu.	
graph display	For the details, refer to "5.1.5 Setting a rudder angle/ship's heading graph".	

^{*2:} Only for the case where two Log units are available.

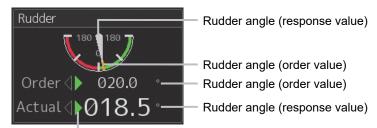
^{*3:} When two or more GPS units are present, "x" indicates the unit number.

4.2.3.38 Rudder angle graph

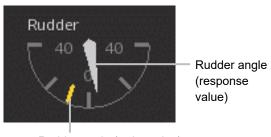


Item	Display contents
Rudder angle	Displays the rudder angle graph.
graph display	The graph range can be changed on the View menu.
	For the details, refer to "5.1.4 Setting a rudder angle graph".

4.2.3.39 Rudder angle information



Rudder angle operation direction



Rudder angle (order value)

Rudo	ler		
Orde			
	010	o	Rudder angle
Actu	al		(order value)
	005	o	Rudder angle
Rudder a	ngle operatio	on direction	(response value)

Item	Display contents
Rudder angle	Displays the rudder angle (response value).
(response value)	On the meter display, the rudder angle is indicated by a needle.
	In numerical display, the rudder angle operation direction and the value are
	displayed.
Rudder angle	Displays the rudder angle (order value).
(order value)	On the meter display, the angle is displayed as a yellow line.

4.2.3.40 Current information



Current (N-UP)



Current (H-UP)

Item	Display contents	
Current set	Indicates the current set.	
	N-UP:	
	Displays in 360 degrees.	
	H-UP:	
	Displays the port/starboard mark and the degree within the range from 0 to	
	180°.	
Current speed	Displays the current speed.	
	The unit of current speed can be selected on the View menu. For the details,	
	refer to "5.1.2 Setting up the display of unit of setting value".	

The meanings of the marks at H-UP are as follows.



The downstream is on the S (starboard) side.



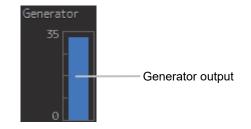
The downstream is on the P (port) side.

Memo

When the current set is 0° or 180°, no symbol is displayed.

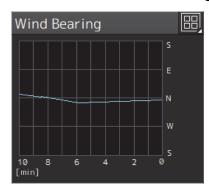
4.2.3.41 Generator information





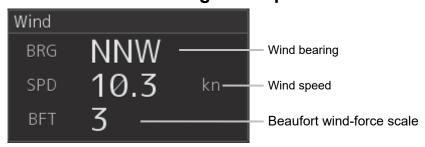
Item	Display contents		
Generator output	Displays the output from the generator in meter display and numeric		
	value display.		
	"Total", when displayed, indicates the total value of the multiple		
	generator outputs.		

4.2.3.42 Wind bearing graph



Item	Display contents	
Wind bearing graph display	Displays a wind bearing graph.	
	The unit can be selected on the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of	
	setting value".	
	The range of the graph can be changed on the View menu.	
	For the details, refer to "5.1.7 Setting wind direction graph/wind	
	speed graph".	

4.2.3.43 Wind bearing/wind speed information



Wind bearing/wind speed. True (H-UP)



Wind bearing/wind speed-Relative (H-UP)

Item	Display contents		
Wind bearing	Indicates the wind bearing. • N-UP: Displays the true wind bearing in 16 bearings or 360 degrees.		
	• H-UP: Displays the relative wind bearing with the port/starboard mark and the degree within the range from 0 to 180°.		
	The display of bearing/degree can be selected on the View menu. For the details, refer to "5.1.2 Setting up the display of unit of setting value".		
Wind speed	Displays the wind speed. • N-UP: Displays the true wind speed. • H-UP: Displays the relative wind speed.		
	The unit of wind speed can be selected on the View menu. For the details, refer to "5.1.2 Setting up the display of unit of setting value".		
Beaufort wind-force scale	Displays the Beaufort wind-force scale within the range of 13 scales for N-UP only according to the Beaufort wind-force scale table. For the details, refer to "Beaufort wind-force scale table".		

The meanings of the marks at H-UP are as follows.



: Indicates the windward is on S (starboard) side.



Indicates the windward is on P (port) side.

Memo

No symbol is displayed with the wind bearing 0° or 180°.

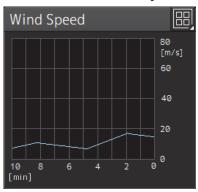
Beaufort wind-force scale table

Wind- force scale	Name	Equivalent wind force	Condition on the land	Condition on the sea	Shape of arrow feathers*1
0	Calm	0 to 0.2m/s	Smoke rises straight upwards.	The water surface is calm like a mirror.	No arrow feathers
1	Light air	0.3 to 1.5m/s	Smoke trails to the degree that indicates the wind direction.	The surface of the water ripples, such as fish scales.	
2	Light breeze	1.6 to 3.3m/s	Sensation of wind is felt on the face. Leaves sway.	The surface of water form definite ripples.	
3	Gentle breeze	3.4 to 5.4m/s	Leaves and small branches sway.	Wave crests are broken, starting to create white foam.	
4	Moderate breeze	5.5 to 7.9m/s	Wind raises cloud of dust and small rubbish and fallen leaves are blown up in the air.	Small waves appear and white foams increases.	
5	Fresh breeze	8.0 to 10.7m/s	Shrubs with leaves start to sway.	Wave crests appear on the water surface.	
6	Strong breeze	10.8 to 13.8m/s	Large branches of trees sway, making it difficult for anyone to hold umbrellas. Cables make a sound.	Wave crests with white foams spread.	
7	High wind / Moderate gale / Near gale	13.9 to 17.1m/s	Whole large trees sway, making difficult to walk against the wind.	Wave crests are broken and white foams are blown away by the wind.	
8	Gale / Fresh gale	17.2 to 20.7m/s	Small branches are broken, making impossible to walk against the wind.	Slightly small swell. Wave crests are broken, sending up clouds of spray and foams are blown away, creating trails of lines.	
9	Strong gale	20.8 to 24.4m/s	Roof tiles are blown away. The wind starts to cause some damage to houses.	Swell. Foams are blown away, drawing lines. Wave crests collapse and start whirling in reverse.	

Wind- force scale	Name	Equivalent wind force	Condition on the land	Condition on the sea	Shape of arrow feathers*1
10	Storm / Whole gale	24.5 to 28.3m/s	Rare in inland. Some trees started to fall down from the roots. The wind starts to cause serious damage to houses.	Swells leaning over. The water surface appears to be white by the white foams, creating trails of lines and the visibility deteriorates due to waves collapsing violently.	_
11	Violent storm	28.4 to 32.5m/s	Hardly ever occurs. The wind causes a wide range of damages.	Mountain of swells. The water surface is entirely covered by white foams. Wave crests are blown away by the wind, creating spray and the visibility deteriorates further.	
12	Hurricane	32.6m/s or more	The wind causes more serious damage.	The atmosphere is filled with foam and splash and the water surface became entirely white. The visibility deteriorates further.	

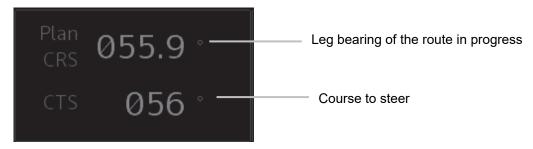
^{*1:} An arrow feather is displayed in the graphic display (refer to "4.2.3.33 Graphic display of ship's heading, course over the ground, wind bearing/wind speed, and current information").

4.2.3.44 Wind speed graph



Item	Display contents	
Wind speed graph display	Displays a wind speed graph.	
	The unit can be selected on the View menu.	
	For the details, refer to "5.1.2 Setting up the display of unit of	
	setting value".	
	The range of the graph can be changed on the View menu.	
	For the details, refer to "5.1.7 Setting wind direction graph/wind	
	speed graph".	

4.2.3.45 Course To Steer information



Item	Display contents
Leg bearing of the	Displays the leg bearing of the route in progress
route in progress	
Course to steer	Indicates the angle of CTS (Course To Steer).

4.2.3.46 Hull Motion Trim



Item	Display contents
Hull Motion Trim	Indicates the angle of Hull Motion Trim
Information	

Section 5 Setting Up Screen View

Screen display detail is set in [View-Options] dialog box on the [View] menu.

The display procedure of the [View-Options] dialog box is as follows.

1 Click on the [Menu] button at the bottom left corner of the screen.
The menu is displayed.

2 Click on the [View] button on the menu.

The submenu is displayed.

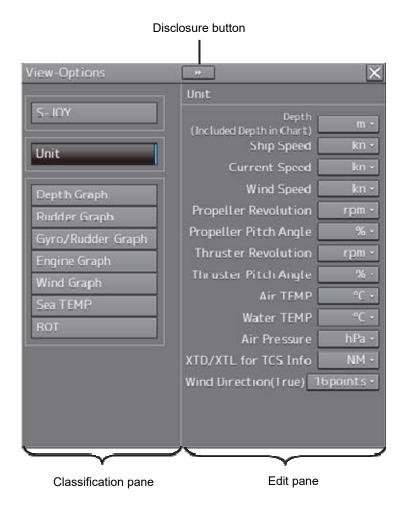


3 Click on the [Options] button on the submenu.

The submenu [View-Options] dialog box is displayed.

5.1 Setting Screen Display Options

In the [View-Options] dialog box, the screen display options can be set.



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 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

In the [View-Options] dialog box, the following screen display is set.

The following table shows the descriptions and the related sections of the classification panes that are displayed.

Classification pane	Reference section	
S-JOY	5.1.1 Setting an S-JOY predicted position display interval	
Unit	5.1.2 Setting up the display of unit of setting value	
Depth Graph	5.1.3 Setting up the Water Depth display	

Classification pane	Reference section		
Rudder Graph	5.1.4 Setting a rudder angle graph		
Gyro/Rudder Graph	5.1.5 Setting a rudder angle/ship's heading graph		
Engine Graph	5.1.6 Setting an engine/propeller revolution graph		
Wind Graph	5.1.7 Setting a wind direction graph/wind speed graph		
Sea TEMP	5.1.8 Setting a water temperature graph		
ROT	5.1.9 Setting up the graph range of the ROT slide bar		

5.1.1 Setting an S-JOY predicted position display interval

When [S-JOY] is selected in the classification pane, the "S-JOY" dialog is displayed in the edit pane.

Note

This dialog may not be displayed depending on the equipment setting.



Setting item	Setting contents	Setting value
Predictor Interval	Select an own ship predicted position	1min, 2min, 3min,
	display interval from the combo box.	5min, or 10min

Memo

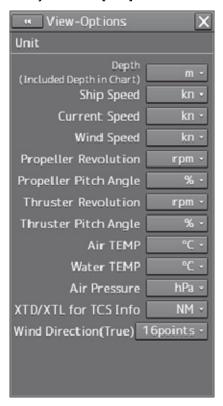
A display interval can also be set from the Conning Display screen. However, S-JOY cannot be operated from the Conning Display screen.

5.1.2 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.



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

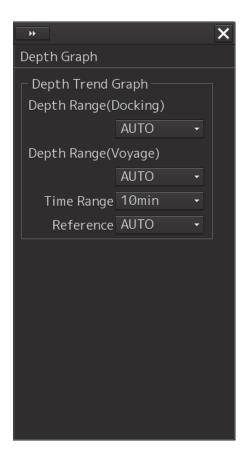
Setting Item	Description of Setting	Setting Value
Water TEMP	Select a unit of the water temperature from the combo box.	°C, °F
Air Pressure	Select a unit of the air pressure from the combo box.	hPa, mbar
XTD/XTL for TCS Info	Select a unit of the cross track limit from the combo box.	NM, m
Wind Direction(True)	Select a method for displaying the wind direction (true) from the combo box.	16points, Degree

5.1.3 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.

Note

This dialog may not be displayed depending on the equipment setting.



Setting Item	Description of Setting	Setting Value
Depth Range(Docking)	Select a water depth range for the docking depth graph from the combo box.	AUTO, 10 m, 25 m, 50 m
Depth Range(Voyage)	Select a water depth range for the route depth graph from the combo box.	AUTO, 50 m, 100 m, 250 m

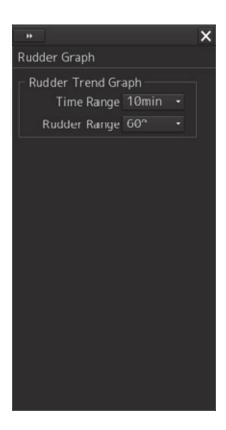
Setting Item	Description of Setting	Setting Value
Time Range	Select a time range for the water depth graph from the combo box.	10 min, 15 min, 30 min, 60 min, 12 hours
Reference (Priorities)	Switch the reference of the water depth value. AUTO: Switch the reference of the water depth value according to the received value. Keel: Set the reference of the water depth to keel. Transducer: Set the reference of the water depth to transducer. It can be selected only when FURUNO is selected in [Device Installation] - [Echo Sounder 1]. Surface: Set the reference of the water depth to surface. It can be selected only when FURUNO is selected in [Device Installation] - [Echo Sounder 1].	AUTO, Keel, Transducer(When FURUNO is selected), Surface(When FURUNO is selected)

5.1.4 Setting a rudder angle 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.



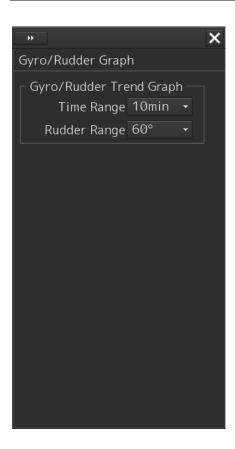
Setting Item	Description of Setting	Setting Value
Time Range	Select a time range for the rudder angle graph from the combo box.	5 min, 10 min, 15 min, 30 min
Rudder Range	Select a rudder angle for the rudder angle graph from the combo box.	30°, 40°, 50°, 60°, 70°, 80°

5.1.5 Setting a rudder angle/ship's heading 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.



Setting Item	Description of Setting	Setting Value
Time Range	Select a time range for the rudder angle/ship's heading graph from the combo box.	5 min, 10 min, 15 min, 30 min
Rudder Range	Select a rudder angle for the rudder angle/ship's heading graph from the combo box.	30°, 40°, 50°, 60°, 70°, 80°

5.1.6 Setting an engine/propeller revolution 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.



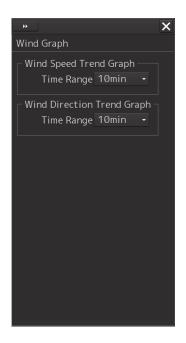
Setting Item	Description of Setting	Setting Value
Time Range	Select a time range for the engine revolution graph form the combo box.	10 min, 15 min, 30 min, 60 min
Maximum rpm	Select an engine revolution on the Ahead side form the combo box.	AH100, AH200, AH300, AH500, AH1000
Minimum rpm	Select an engine revolution on the Astern side form the combo box.	0, AS50, AS100

5.1.7 Setting a wind direction graph/wind speed graph

When [Wind Graph] is selected in the classification pane, the "Wind Graph" dialog is displayed in the edit pane.

Note

This dialog may not be displayed depending on the equipment setting.



The following table shows the setting contents.

Setting item	Setting contents	Setting value
Wind Speed Trend	Select a time range of the wind speed graph	10min, 15min, 30min,
Graph – Time Range	from the combo box.	60min, 12hours
(Wind speed graph time		
range)		
Wind Direction Trend	Select a time range of the wind speed graph	10min, 15min、
Graph – Time Range	from the combo box.	30min,60min、
(Wind direction graph		12hours
time range)		

5.1.8 Setting a water temperature graph

When [Sea TEMP] is selected in the classification pane, the "Sea TEMP Graph" dialog is displayed in the edit pane.

Note

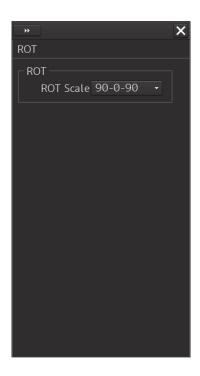
This dialog may not be displayed depending on the equipment setting.



Setting item	Setting contents	Setting value
Time Range	Select a water temperature graph time	10min, 15min, 30min,
(Time range)	range from the combo box.	60min, 12hours

5.1.9 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.



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 6 Setting Up Alerts

By setting this equipment to generate an alert when the own ship's position or the condition meets the specific condition, preliminary measures can be taken.

This section explains the method of setting conditions (threshold values) for generating alerts, alert processing operations, and alert timer setting using the [Alert] menu.

6.1 Selecting Setting Items

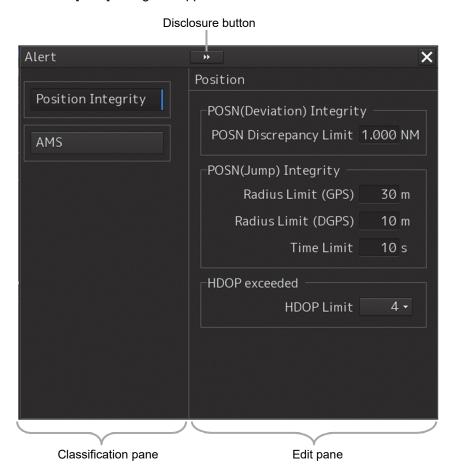
When the [Alert] menu is opened, the [Alert] dialog box appears.

By selecting a setting item in the [Alert] dialog box, the setting dialog of the selected item can be displayed.

6.1.1 Displaying the [Alert] dialog box

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Alert] button on the menu.

The [Alert] dialog box appears.



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 ().

6.1.2 Selecting a setting item

- 1 Click the item 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.

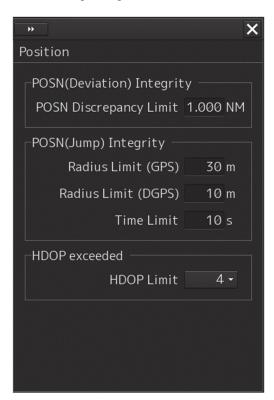
The following items can be set in the [Alert] dialog box.

Setting item	Setting contents	
Position Integrity	Set the conditions for checking the Position Integrity and generating	
(Position sensor	HDOP exceeded Maintenance Information.	
integrity)	Refer to "6.2 Position Integrity Check Conditions".	
CAM (Central Alert	Set the actions to be taken at the next stage for an unacknowledged alert.	
Management)	Refer to "6.3 Setting Up Alert Processing".	

6.2 Position Integrity Check Conditions

When [Position Integrity] is selected in the Classification pane, the [Position] dialog is displayed in the Edit pain.

In this dialog, the generation condition of the Position integrity limit and the HDOP limit can be set up.



6.2.1 Setting up the condition of the Position Integrity Check

Enter the following threshold values for checking the Position Integrity.

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:

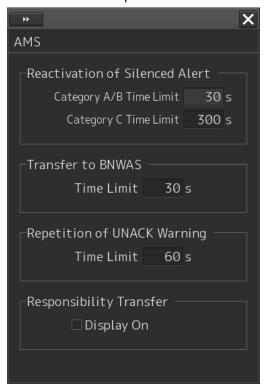
The time during which the position actually measured by a GPS/DGPS deviates from the monitoring circle is used as a threshold value. The time limit can be specified in a range between 1 and 29s.

6.2.2 Setting up the generation condition of the HDOP exceeded Maintenance Information

In the [HDOP Limit] combo box, select a threshold limit of HDOP. Select either one of [4], [10] and [20].

6.3 Setting Up Alert Processing

When [CAM] is selected in the Classification pane, the [CAM] dialog is displayed in 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.



Enter the wait time until an alert at the next stage is generated in [Time Limit].

Reactivation of Silenced Alert:

Category A/B Time Limit: 30 seconds.

Category C Time Limit: Set, within the range from 0 to 300s, 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 the range between 0 and 30s.

Repetition of UNACK Warning:

Specify the time to regenerate an unacknowledged alert as an audible warning in the range between 16 and 300s. A warning will be generated repeatedly until it is acknowledged. The default value is 60 s.

Responsibility Transfer:

When click the check box, display of responsibility transferred alert is switched to ON or OFF.



☐ Display On

Display of Responsibility transferred alert: ON

Display of Responsibility transferred alert: OFF

Section 7 Setting Up the Operation Mode

7.1 Basic Operation of the [Settings] Dialog Box

You can set up the operation mode in the [Settings] dialog box.

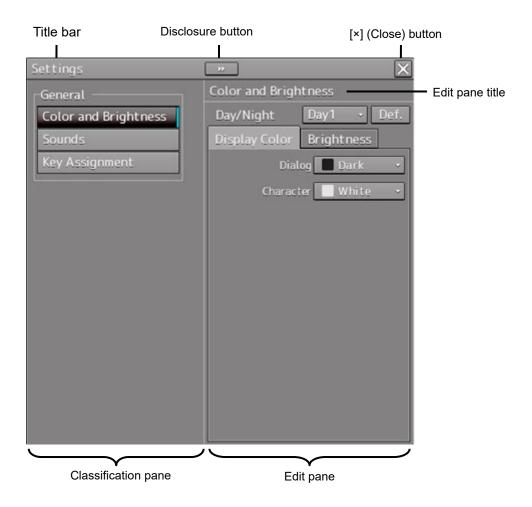
Click on the [Menu] button at the bottom left corner of the screen.
The menu is displayed.

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 edit pane again, click on the disclosure button (>>).



3 Click on the item you want to set up in the classification pane.

The setup dialog of the item you selected is displayed.

4 Set up in the edit pane.

Classification pane display targets

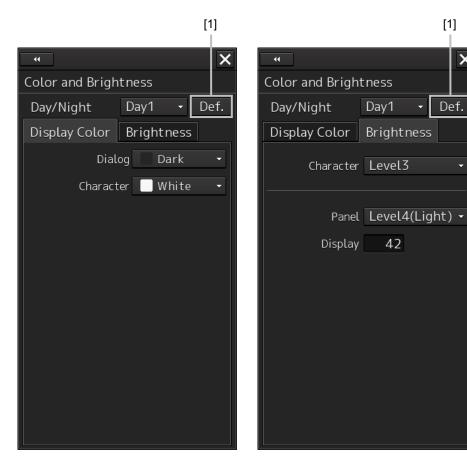
The table below provides the related sections of the classification panes and descriptions that are displayed by Conning Display.

Classification pane	Related section
Color and Brightness	7.2 Setting Color and Brightness
Sounds	7.3 Setting Sounds
Key Assignment	7.4 Setting Key Assignment

7.2 Setting 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 Dusk Night
[Display Color] tab		
Dialog	Set up the color of the dialog box.	Dark [default] Black
Character	Set up the text color.	White [default] Green
[Brightness] tab		
Character	Set up the text brightness.	Level1(Dark) [default of Day 3] Level2 [default of Day 2, Dusk] Level3 [default of Day 1] Level4(Light) [default of Night]
Panel	Set the brightness of the operation unit.	Off Level1(Dark) [default of Dusk / Night] Level2 [default of Day3] Level3 [default of Day2] Level4(Light) [default of Day1]
Display	Set the value that is input in the box for the brightness of the display unit.	0 to 100*1

^{*1} The table below provides the default value of brightness.

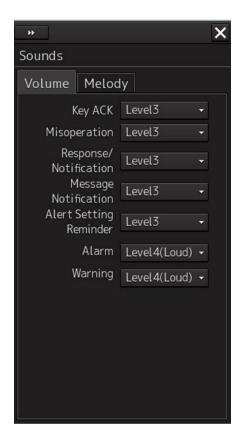
26inch screen	26inch screen	19inch screen	19inch screen
(NWZ-208)	(NWZ-208)	(NWZ-207)	(NWZ-214)
Day1/Day2	Day1/Day2	Day1/Day2	Day1/Day2
/Day3: 67	/Day3: 79	/Day3: 42	/Day3: 70
Dusk: 60	Dusk: 64	Dusk: 20	Dusk: 62
Night: 11	Night: 41	Night: 4	Night: 10

7.3 Setting Sounds

Select [Sounds] in the classification pane.

Set the volumes of the operation sound and operation error sound and alarm melody in the setting dialog of the edit pane.

When the volume or melody is changed, the selected volume or melody is played back, enabling the user to set while listening to the sound.





Setting Item	Description of Setting	Setting Value		
[Volume] tab	[Volume] tab			
Key ACK	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)		

Setting Item	Description of Setting	Setting Value	
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)	
Alarm	Set the volume of the alarm sound. *1	Level4(Loud)	
Warning	Set the volume of the warning sound. *1	Level4(Loud)	
[Melody] tab	[Melody] tab		
Alarm	Set the melody of the alarm.	Sound1 Sound2[Default] Sound3 Sound4	
Warning	Set up the melody of Warning.	Sound1 Sound2[Default] Sound3 Sound4	

^{*1} For these volumes, only Level 4 (Loud) is able to be selected.

7.4 Setting 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 the ítems whose funtions are available on the task screen are displayed on the screen.





The [User Keys] tab is displayed only when the optional operation unit is installed.

Setting Item	Description of Setting	Setting Value
[User Keys] tab		
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
[Multi Dial] tab		
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.	To enable: Select. To disable: Clear.
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.

Below is a list of functions that can be assigned to User Keys.

Function name	Function description	
Show Preset Menu	The screen registered separately is displayed.	
Capture Screen	Get screen capture.	

Below is a list of screens that can be assigned to Show Preset Menu.

Screen name
View - Options
Alert
Settings

Section 8 Adjusting and Setting Up Equipment (for Services)

This section describes the methods for equipment setting and maintenance that are conducted by the service staff by using the Service menu at installation construction of this equipment.

△CAUTION



Any adjustments must be made by specialized service personnel. Incorrect settings may result in unstable operation, and this may lead to accidents or equipment failure.

8.1 Service Menu

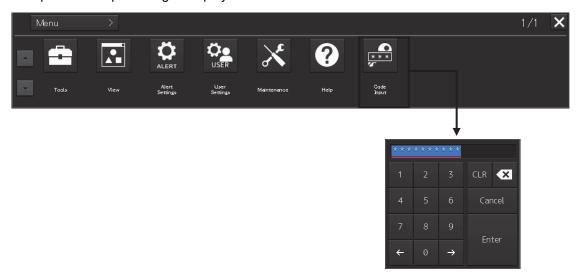
The Service menu consists of two submenus of Installation and Maintenance. To display the Service menu, a password is required.

8.1.1 To display the Service menu:

Click on the [Menu] button at the bottom left corner of the screen.
The menu is displayed.

2 Click the [Code Input] button on the menu.

The password input dialog is displayed.



- 3 Enter 0 in Password.
- 4 Click on the [Menu] button at the bottom left corner of the screen.

You can find the [Service] button added to the menu.



5 Click the [Service] button.

The submenu is displayed.



6 Display a submenu dialog by clicking on one of the [Installation] and [Maintenance] buttons.

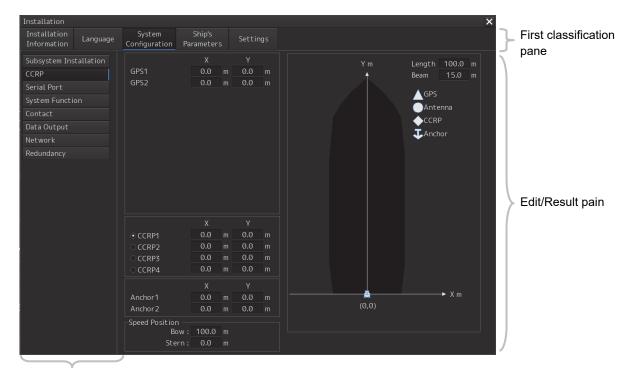
8.2 Verifying Installation and Initial Setting

Use the [Installation] dialog box to verify the installation of this equipment and perform initial setting.

8.2.1 Displaying the [Installation] dialog box

Clicking on the [Installation] in the submenu, the [Installation] dialog box appears.

The [Installation] dialog box consists of the classification pane and the edit/result pane. The classification pane consists of two-level layers of the first classification pane and the second classification pane.



Second classification pane

- 1 Click the item you want to set up in the classification pane.

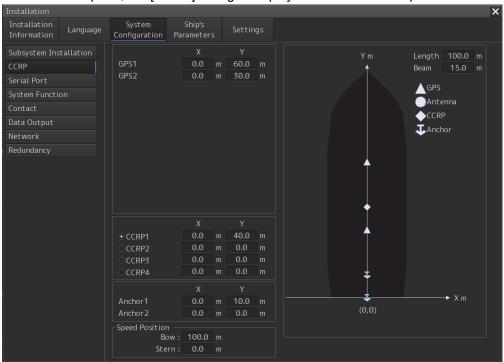
 The setup dialog of the item you selected is displayed in the edit/result pane.
- 2 Set up in the edit/result pane or check the setup result.

8.2.2 Verifying/Setting CCRP (Consistent Common Reference Point)

Set a measurement reference position (CCRP) on own ship by using the [CCRP] dialog.

8.2.2.1 Displaying the [CCRP] dialog

When you select [System Configuration] in the first classification pane and [CCRP] in the second classification pane, the [CCRP] dialog is displayed in the edit/result pane.



Note

Set up the GPS correctly. The latitude and longitude data received from the GPS is compensated and then displayed as own ship's latitude and longitude.

8.2.2.2 Setting CCRP

Set the following items in the [CCRP] dialog.

Setting Item	Description of Setting	Setting Value
Length (of ship)	Enter the ship's length in the box.	1.0 to 1022.0m
Beam (ship's width)	Enter the ship's width in the box.	1.0 to 126.0m
GPSx (When two or more GPS units are present, "x" indicates the unit number.)	Enter the equipment positions of GPSx in the boxes. X: Horizontal axis position on the ship of the applicable GPS (Center: 0) Y: Front-back axis position on the ship of the applicable GPS (Stern: 0) Note • This item may not be displayed depending on the equipment setting. • When the input range is changed by modifying [Length] and [Beam], if a value exceeding the input range after modifying has already been entered, the value will be corrected to the maximum or minimum value.	Changes depending on the value of [Length] and [Beam]. If Length=a and Beam=b: X -b/2 to b/2 Y 0.0 to a For example, • if Length=1.0 and Beam=1.0: X -0.5 to 0.5 Y 0.0 to 1.0 • if Length=700.0 and Beam=70.0: X -35.0 to 35.0 Y 0.0 to 700.0
CCRP1/2/3/4	Enter the positions of CCRP1 to CCRP4 of the ship in the boxes. X: Horizontal axis position of CCRP1/2/3/4 on the ship (Center: 0) Y: Front-back axis position of CCRP1/2/3/4 on the ship (Stern: 0) Note When the input range is changed by modifying [Length] and [Beam], if a value exceeding the input range after modifying has already been entered, the value will be corrected to the maximum or minimum value.	

Setting Item	Description of Setting	Setting Value
Radio button on the left	Select the position to be used as the ship's CCRP	CCRP1
side of each CCRP	by clicking the applicable button.	CCRP2
		CCRP3
		CCRP4
Anchor1	An anchor position can be set as an offset from the	If Length=a and Beam=b:
	stern center.	X -b/2 to b/2
	It can not be set outside the boat.	Y 0.0 to a
	X: The horizontal axis position on the shipboard of	
	Anchor 1 (center is 0)	
	Y: Front-rear axis position on the shipboard of	
	Anchor 1 (stern is 0)	
Anchor2	An anchor position can be set as an offset from the	If Length=a and Beam=b:
	stern center.	X -b/2 to b/2
	It can not be set outside the boat.	Y 0.0 to a
	X: The horizontal axis position on the shipboard of	
	Anchor 2(center is 0)	
	Y: Front-rear axis position on the shipboard of	
	Anchor 2 (stern is 0)	
Speed Position Bow	Enter the distance to the bow starboard/port speed	0.0 to Ship's length m
	display point.	
Speed Position Stern	Enter the distance to the stern starboard/port	0.0 to Ship's length m
	speed display point.	

Synchronizing setting

The [CCRP] dialog enables common setting items and individual setting items for RADAR, ECDIS, and Conning (called a task station individually). Once common items are set in any of the task stations, RADAR, ECDIS, and Conning, the settings are reflected (synchronized) in other task stations.

By setting common items in the state where all the task stations are active, the common setting items are synchronized in all the task stations.

8.2.3 Setting a Serial Port

Verify the setting of the serial port of this equipment and perform initial setting by using the [Serial Port] dialog.

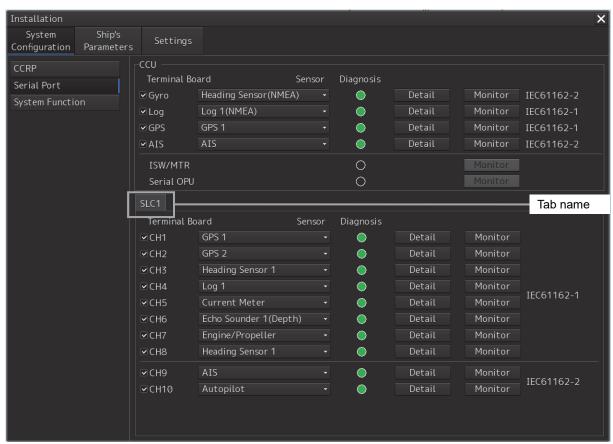
Synchronizing setting

The [Serial Port] dialog enables common setting items and individual setting items for RADAR, ECDIS, and Conning (called a task station individually). Once common items are set in any of the task stations, RADAR, ECDIS, and Conning, the settings are reflected (synchronized) in other task stations.

By setting common items in the state where all the task stations are active, the common setting items are synchronized in all the task stations.

8.2.3.1 Displaying the [Serial Port] dialog

When you select [System Configuration] in the first classification pane and [Serial Port] in the second classification pane, the [Serial Port] dialog is displayed in the edit/result pane.



8.2.3.2 [Diagnosis] lamp light colors

The [Diagnosis] lamp indicates the diagnosis result on whether or not the sentence of the sensor specified for each serial port has been received successfully and the status of ISW/MTR/Serial OPU.

Lit in green: Data not received. **Lit in green:** Data is receiving.

Lit in orange: In diagnosis (before decision).

No color: Serial port is disabled.

8.2.3.3 Setting a serial port

In the [Serial Port] dialog, allocate the sensors to be connected for the serial port on CCU (Central Control Unit) and the serial port on SLC/ALC.

Setting a serial port on CCU

Set each item as follows.

"Table A: Sensors that can be selected on CCU" shows selectable sensors.

However, the sensors that actually can be selected vary depending on the equipment setting.

For the sensor communication speed, refer to "Baud rates that can be selected" (setting at factory delivery).

Setting Item	Description of Setting	Setting Value
Gyro	Select the check box and enable the serial port for the	To enable: Select.
	Gyro.	To disable: Clear.
	2. Select a sensor to be connected to the serial port for	
	Gyro from the [Sensor] combo box. When not	
	selecting a sensor, set [-].	
LOG	Select the check box and enable the serial port for the	To enable: Select.
	LOG.	To disable: Clear.
	2. Select a sensor to be connected to the serial port for	
	LOG from the [Sensor] combo box. When not	
	selecting a sensor, set [-].	
GPS	Select the check box and enable the serial port for the	To enable: Select.
	GPS.	To disable: Clear.
	2. Select a sensor to be connected to the serial port for	
	the GPS from the [Sensor] combo box. When not	
	selecting a sensor, set [-].	
AIS	Select the check box and enable the serial port for the	To enable: Select.
	AIS.	To disable: Clear.
	2. Select a sensor to be connected to the serial port for	
	the AIS from the [Sensor] combo box. When not	
	selecting a sensor, set [-].	

Table A: Sensors that can be selected on CCU

Serial port	Sensor name
Gyro	Heading Sensor(NMEA), Heading Sensor1(NMEA)*1, Heading Sensor2(NMEA)*1
	Heading Sensor(Gyro I/F), Heading Sensor1(Gyro I/F)*1, Heading Sensor2(Gyro I/F)*1
LOG	Log(NMEA), Log1(NMEA)*2, Log2(NMEA)*2
	Log(Gyro I/F) *3
	Selector
GPS	GPS 1
	GPS 2*4
	GPS 3*4
	GPS 4*4
	Selector
AIS	AIS

^{*1:} Only when there are two Heading Sensors

Setting serial ports on SLC/ALC

Set the serial ports on SLC/ALC that is installed as follows.

Setting item	Description of Setting	Setting value
CH1 to CH8	1. Click on any of the tabs, SLC1(M) to SLC4(M)/SLC1(S) to	Enable: Select.
(RS-422)	SLC4(S)/ALC1 to ALC4.	Disable: Clear.
	Enable the serial port of the corresponding channel by	
	selecting the check box.	
	3. Select a sensor*1 to be connected to the corresponding	
	channel on the [Sensor] combo box. When not selecting a	
	sensor, select [-].	
CH9/CH10	1. Click on any of the tabs, SLC1(M) to SLC4(M)/SLC1(S) to	Enable: Select.
(RS-422/RS485)	SLC4(S)/ALC1 to ALC4.	Disable: Clear.
	Enable the serial port of the corresponding channel by	
	selecting the check box.	
	3. Select a sensor*1 to be connected to the corresponding	
	channel on the [Sensor] combo box. When not selecting a	
	sensor, select [-].	

^{*1:} The sensors that can be selected on SLC/ALC are indicated below.

However, the sensors that can be actually selected vary depending on the equipment setting.

Heading Sensor 1, Heading Sensor 2, Log 1, Log 2, GPS 1, GPS 2, GPS 3, GPS 4, Ship's Clock, Echo Sounder(Depth), Echo Sounder 2(Depth), AIS, NAVTEX, Anemometer(Wind), Water Temperature Meter, Current Meter, Climate Meter, TRI, Autopilot, Rudder, Engine/Propeller, Engine Telegraph, Thruster, Azimuth Thruster, Generator, Fin Stabilizer, YEOMAN Digitizer, RADAR1(TT RX), RADAR2(TT RX), Gyro Switch, Alert(to CAM), Alert(from Subsystem), Alert(to BNWAS), DSC, IAS(MODBUS), IAS(NMEA), NAV/Alert, Plotter, GPS Buoy

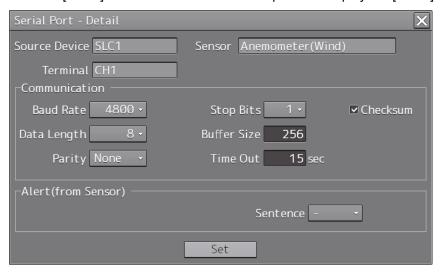
^{*2:} Only when two logs are available

^{*3:} Only when Heading Sensor(Gyro I/F) is selected for Gyro of CCU

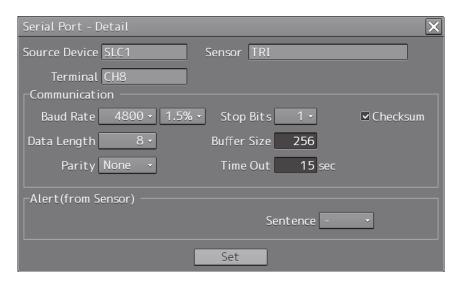
^{*4:} May not be displayed depending on the number of GPS units.

8.2.3.4 Changing the communication settings of the serial port

Click the [Detail] button of the enabled serial port and display the [Detail] dialog.



When selecting CH1 to CH7



When selecting CH8 to CH10

The setting target can be checked with [Source Device] display, [Terminal] display and [Sensor] display.

Perform the settings shown in the following table and then click on the [Set] button.

Setting Item	Description of Setting	Setting Value
Baud Rate	Select the baud rate of the corresponding serial	Selectable baud rates vary
	port from the combo box.	depending on the serial port
	In the [Detail] dialog of any of CH8 to CH10, the	(Refer to "Baud rates that
	[Baud Rate] addition ratio combo box is	can be selected".)
	displayed on the right side of the [Baud Rate]	
	combo box.	
[Baud Rate] addition ratio	Displayed in the [Detail] dialog of CH8 to CH10.	0.0% to 3.0% (can be set in
combo box	By using this combo box, the addition ratio (%)	the unit of 0.5%)
	for adjusting the baud rate can be changed. The	
	baud rate for communication is determined by	
	adding the additional ratio to the value that is set	
	in the [Baud Rate] combo box.	
	Example) 4800 × (1 + <u>1.5 / 100</u>) = 4872	
	Additional ratio	
Data Length	Select the data length of the corresponding serial	5/6/7/8
	port from the combo box.	
Parity	Select the parity of the corresponding serial port	None/Odd/Even
	from the combo box.	
Stop Bits	Select the stop bit length of the corresponding	1/2
	serial port from the combo box.	
Buffer Size	Enter the buffer size of the corresponding serial	0 to 10240 bytes
	port in the box.	
Time Out	Enter the time-out duration of the corresponding	0 to 999s
	serial port in the box.	
Checksum	Select the check box and enable the checksum	To enable: Select.
	of the sentence of the corresponding serial port.	To disable: Clear.
Subsystem	Set the equipment to be connected for Alert	"Alert (from Subsystem)":
	Handling.	Equipment that is set as
	Displayed only when the sensor is "Alert (from	-/installed (Task Station and
	Subsystem)" or "Alert (to CAM)".	sensor)
	The selection is also allowed for the subsystem	"Alert(to CAM)":
	that has already been used in the channel of	Equipment that is set as
	some other serial port.	-/installed (Task Station)
Primary/Secondary	Select Primary or Secondary for IAS(MODBUS)	Primary: Primary system
	input.	Secondary: Secondary
	Displayed only when the sensor is	system
	"IAS(MODBUS)".	
Sentence	Select the sentence of Alert Handling.	Normal sensor such as GPS
	Displayed when the sensor is other than "Alert	and Log:
	(BNWAS), "IAS(MODBUS)", "DSC" or	-/ALR/ALF
		"Alert (from Subsystem/to
	"NAV/Alert".	CAM)":
		ALR/ALF

Baud rates that can be selected

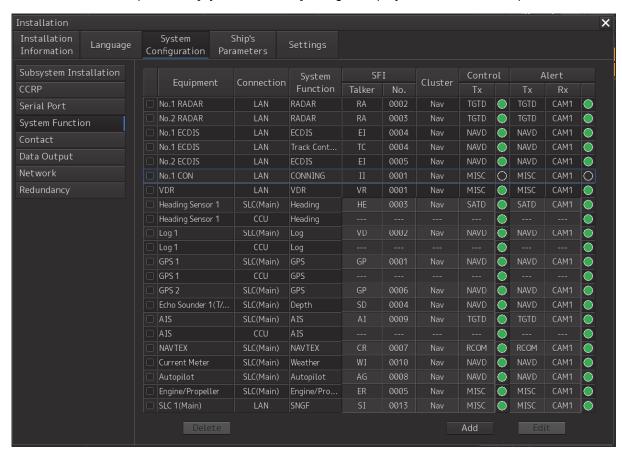
Serial port	Baud rate
Serial port on CCU	
Gyro (at selection Heading Sensor(NMEA))	4800/38400
Gyro (at selection Heading Sensor(Gyro I/F))	Fixed to 38400
Log (at selection Log(NMEA))	Fixed to 4800
Log (at selection Log(Gyro I/F))	Fixed to 38400
GPS	Fixed to 4800
AIS	Fixed to 38400
Serial port on SLC/ALC	
CH1-8	2400/4800/9600
CH9/10	2400/4800/9600/19200/38400
Gyro I/F	Fixed to 38400

8.2.4 Setting a System Function

Verify the setting of the system function of this equipment and perform initial setting by using the [System Function] dialog.

8.2.4.1 Displaying a [System Function] dialog

When you select [System Configuration] in the first classification pane and [System Function] in the second classification pane, the [System Function] dialog is displayed in the edit/result pane.



8.2.4.2 Lamp light colors

- The lamp of control indicates the Diagnosis result on whether or not the data of control of the specified for each equipment has been received successfully.
- The lamp of alert indicates the Diagnosis result on whether or not the data of Alert of the specified for each equipment has been received successfully.

Lit in green: Data not received. **Lit in green:** Data is receiving.

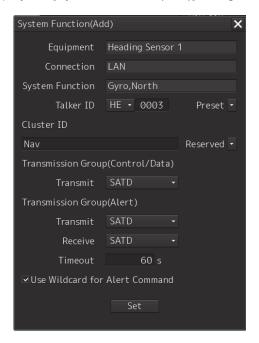
Lit in orange: In Diagnosis (before decision). **No color:** System function is disabled.

8.2.4.3 Setting a system function

In the [System Function] dialog, allocate the system functions to be connected for LAN.

Add a system function (New equipment)

Click the [Add] button and display the [System Function (Add)] dialog.



Perform the settings shown in the following table and then click on the [Set] button.

Setting Item		Description of Setting	Setting Value	
Equipment		Select an Equipment*1 on the combo box. In the case of "Add a system function (Existing equipment)", equipment can not be changed.	The Equipment that can be actually selected vary depending on the installation setting.	
Talker ID*6	Mnemonic	Select the Mnemonic*2 of Talker ID on the combo box.	The Mnemonic of Talker ID vary depending on the equipment.	
Instance No		Enter the Instance No of Talker ID.	0001 to 9999 The Instance No of Talker ID vary depending on the equipment.	
Cluster ID		Enter the Cluster ID*3. It can also be set by selecting Equipment on the Reserved combo box. In the case of "Edit a system function", Cluster ID can not be changed.	Nav/Com/Aut/Cgo/Htl/ICT/SSe/Pos/ .ROV	
Transmission Gi (Control/Data)	roup ^{*6}	Select the Transmission Group*4 for Control/Data.	The Transmission Group (Control/Data) vary depending on the equipment.	
Transmission Group (Alert)	Transmit*6	Select the Transmission Group*4 of Transmit for Alert.	The Transmission Group (Alert) vary depending on the equipment. *5	
Receive*6		Select the Transmission Group*4 of Receive for Alert.	CAM1 ^{*5}	
Timeout		Enter the time-out duration.	0 to 120s (Default: 60s)	
Use Wildcard for Alert Command		Select the check box and enable the Use Wildcard for Alert Command.	To enable: Select (Default) To disable: Clear	

^{*1:} The Equipment that can be selected are indicated below.

However, the equipment that can be actually selected vary depending on the installation setting.

Heading Sensor 1, Heading Sensor 2, Gyro Switch, Log 1, Log 2, GPS 1, GPS 2, GPS 3, GPS 4, Ship's Clock,

Echo Sounder1(T/D 1, T/D2), Echo Sounder2(T/D 3), AIS, NAVTEX, Anemometer 1, Water TEMP Meter, Current

Meter, Climate Meter, ROT Indicator, Autopilot, Rudder, Engine/Propeller, Engine Telegraph, Thruster, Azimuth

Thruster, Generator, S-JOY/Joystick 1~5, BNWAS, General Equipment(Alert)1~10, GPS Buoy, Plotter, DSC, IAS, CAM, NAV/Alert, RADAR1,RADAR2, VDR

Note:

IAS and NAVTEX: Only NMEA is supported.

CAM is settings for connecting to an external CAM by LAN.

*2: The Mnemonic of Talker ID that can be selected are indicated below.

AG, AI, BN, CA, CR, EI, ER, GP, HC, HE, II, JA, JB, JC, JD, JE, JF, JG, JH, RA, SD, SG, SI, SS, TC, TI, U0, U1, U2, U3, U4, U5, U6, U7, U8, U9, VD, VR, WI, ZA

*3: Clusters are groups of functionalities aimed at a responsible operator, which can be distributed over systems. Cluster ID is the identifier of the Cluster.

Set the Cluster ID to "Nav" for equipment in the navigation-bridge cluster. If CAM need category C alert from another cluster group, set the Cluster ID according to the transmission specifications of the equipment. Cluster ID can be set any string of a maximum of 15 characters. Cluster ID that equipment is task station is Nav and cannot be changed.

The cluster ID that can be selected are indicated below.

Cluster ID	Cluster group
Nav	Navigation
Com	Communication
Aut	Automation
Cgo	Cargo
Htl	Hotel
ICT	ICT
SSe	Safety/Security
Pos	Position control
ROV	Remote operated vehicle

*4: The Transmission Group that can be selected are indicated below.

Transmission Group	IP Address	Port number
MISC	239.192.0.1	60001
TGTD	239.192.0.2	60002
SATD	239.192.0.3	60003
NAVD	239.192.0.4	60004
VDRD	239.192.0.5	60005
RCOM	239.192.0.6	60006
TIME	239.192.0.7	60007
PROP	239.192.0.8	60008
USR1	239.192.0.9	60009
USR2	239.192.0.10	60010
USR3	239.192.0.11	60011
USR4	239.192.0.12	60012
USR5	239.192.0.13	60013
USR6	239.192.0.14	60014
USR7	239.192.0.15	60015
USR8	239.192.0.16	60016
BAM1	239.192.0.17	60017
BAM2	239.192.0.18	60018
CAM1	239.192.0.19	60019
CAM2	239.192.0.20	60020
NETA	239.192.0.56	60056

*5: BAM1/BAM2 and CAM1/CAM2 are available for system integrators to balance the traffic, for example higher volume radar in BAM1/CAM1 and low volume sensor, for example gyro, in BAM2/CAM2.

Equipment Cor	Connection	System	SFI Cluster		Control		Alert			
	Connection	Function	Talker	No.	Cluster	Tx		Tx	Rx	
No.1 RADAR	LAN	RADAR	RA	0001	Nav	TGTD		BAM1	CAM1	
Heading Sensor 1	LAN	Gyro,North	HE	0003	Nav	SATD		BAM2	CAM2	

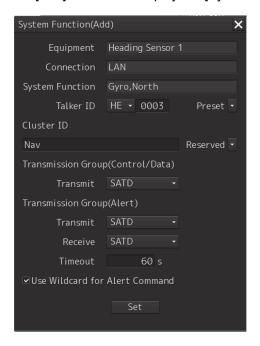
*6: Talker ID Mnemonic, Talker ID Instance No, Transmission Group (Control/Data), Transmission Group (Alert) Transmit and Transmission Group (Alert) Receive can also be set by selecting Equipment on the preset combo box. The following default values will be set.

Equipment	System	TalkerID	TalkerID	Transmission	Transmission	Transmission
	Function	Mnemonic	Instance	Group	Group (Alert)	Group (Alert)
			No	(Control/Data)	Transmit	Receive
RADAR	RADAR	RA	(TaskStatio nNo.)	TGTD	TGTD	CAM1
ECDIS	ECDIS	EI	(TaskStatio nNo.)	NAVD	NAVD	CAM1
CONNING	CONNIN G	II	(TaskStatio nNo.)	MISC	MISC	CAM1
CAM	CAM	CA	(TaskStatio nNo.)	CAM1	CAM1	CAM1
TCS	TrackCo ntrol	TC	(TaskStatio nNo.)	NAVD	NAVD	CAM1
Heading Sensor 1	Heading	HE	0001	NAVD	NAVD	CAM1
Heading Sensor 2	Heading	HE	0002	NAVD	NAVD	CAM1
Gyro Switch	Heading	HE	0001	NAVD	NAVD	CAM1
Log 1	Log	VD	0001	NAVD	NAVD	CAM1
Log 2	Log	VD	0002	NAVD	NAVD	CAM1
GPS 1	GPS	GP	0001	NAVD	NAVD	CAM1
GPS 2	GPS	GP	0002	NAVD	NAVD	CAM1
GPS 3	GPS	GP	0003	NAVD	NAVD	CAM1
GPS 4	GPS	GP	0004	NAVD	NAVD	CAM1
Ship's Clock	Clock	ZA	0001	TIME	TIME	CAM1
Echo Sounder1(T/D 1, T/D2)	Depth	SD	0001	NAVD	NAVD	CAM1
Echo Sounder2(T/D 3)	Depth	SD	0002	NAVD	NAVD	CAM1
AIS	AIS	Al	0001	TGTD	TGTD	CAM1
NAVTEX	NAVTEX	CR	0001	RCOM	RCOM	CAM1
Anemometer 1	Weather	WI	0001	NAVD	NAVD	CAM1
Water TEMP Meter	Weather	WI	0001	NAVD	NAVD	CAM1
Current Meter	Weather	WI	0001	NAVD	NAVD	CAM1
Climate Meter	Weather	WI	0001	NAVD	NAVD	CAM1
ROT Indicator	TRI	TI	0001	SATD	SATD	CAM1
Autopilot	Auto Pilot	AG	0001	NAVD	NAVD	CAM1
Rudder	Rudder	SG	0001	MISC	MISC	CAM1
Engine/Propeller	Engine/P ropeller	ER	0001	MISC	MISC	CAM1
Engine Telegraph	Engine Telegrap h	ER	0001	MISC	MISC	CAM1
Thruster	Thruster	ER	0001	MISC	MISC	CAM1
Azimuth Thruster	Azimuth Thruster	ER	0001	MISC	MISC	CAM1
Generator	Generato r	ER	0001	MISC	MISC	CAM1
S-JOY/Joystick	S-JOY/J oystick	SG	0001	MISC	-	-
BNWAS	BNWAS	BN	0001	-	VDRD	CAM1
General Equipment(Alert) 1	General 1	U0	0001	-	MISC	CAM1
General Equipment(Alert) 2	General 2	U0	0002	-	MISC	CAM1
General Equipment(Alert) 3	General 3	U0	0003	-	MISC	CAM1
General	General	U0	0004	-	MISC	CAM1

Equipment	System	TalkerID	TalkerID	Transmission	Transmission	Transmission
	Function	Mnemonic	Instance	Group	Group (Alert)	Group (Alert)
			No	(Control/Data)	Transmit	Receive
Equipment(Alert) 4	4					
General	General	U0	0005	-	MISC	CAM1
Equipment(Alert) 5	5					
General	General	U0	0006	-	MISC	CAM1
Equipment(Alert) 6	6					
General	General	U0	0007	-	MISC	CAM1
Equipment(Alert) 7	7					
General	General	U0	8000	-	MISC	CAM1
Equipment(Alert) 8	8					
General	General	U0	0009	-	MISC	CAM1
Equipment(Alert) 9	9					
General	General	U0	0010	-	MISC	CAM1
Equipment(Alert) 10	10					
GPS Buoy	GPS	GP	0001	NAVD	NAVD	CAM1
Plotter	GPS	GP	0001	NAVD	NAVD	CAM1
DSC	DSC	U1	0001	-	MISC	CAM1
IAS	IAS	JE	0001	MISC	MISC	CAM1
CAM	CAM	CA	0001	CAM1	CAM1	CAM1
NAV/Alert	NAV/Aler	ER	0001	MISC	-	-
	t					
RADAR1	RADAR	RA	0001	TGTD	-	-
RADAR2	RADAR	RA	0002	TGTD	-	-
VDR	VDR	VR	0001	MISC	MISC	CAM1
SLC 1(Main)	SNGF	SI	0013	MISC	-	-
SLC 2(Main)	SNGF	SI	0113	MISC	-	-
SLC 3(Main)	SNGF	SI	0213	MISC	-	-
SLC 4(Main)	SNGF	SI	0313	MISC	-	-
SLC 1(Sub)	SNGF	SI	0063	MISC	-	-
SLC 2(Sub)	SNGF	SI	0163	MISC	-	-
SLC 3(Sub)	SNGF	SI	0263	MISC	-	-
SLC 4(Sub)	SNGF	SI	0363	MISC	-	-
ALC 1	SNGF	SI	1213	MISC	-	-
ALC 2	SNGF	SI	1313	MISC	_	-
ALC 3	SNGF	SI	1413	MISC	_	-
ALC 4	SNGF	SI	1513	MISC	_	-

Add a system function (Existing equipment)

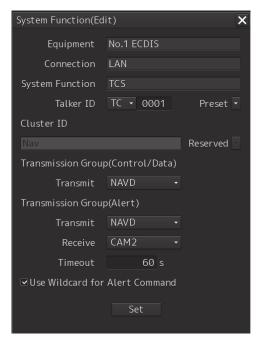
Select the check box and Click the [Add] button and display the [System Function (Add)] dialog.



Perform the settings referring to **Add a system function (New equipment)**. Equipment can not be changed on the [System Function (Add)] dialog.

Edit a system function

Select the check box and click the [Edit] button and display the [System Function (Edit)] dialog.



Perform the settings referring to **Add a system function (New equipment)**. Cluster ID can not be changed on the [System Function (Edit)] dialog.

Delete a system function

Select the check box and click the [Delete] button. Selected a system function is deleted.

Note:

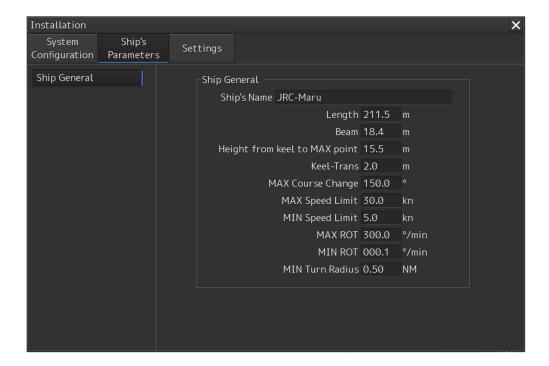
- Set the each setting according to the transmission specifications of the equipment connected to the LAN.
- Equipment connected to the SLC / ALC serial port or CCU cannot add or edit or delete system functions. System function of Equipment connected to the SLC / ALC serial port or CCU are registered automatically by serial port setting on [Serial Port] dialog.
- The native system function of VDR, No.x RADAR, ECDIS, CONN, MFD, RPS can not delete on [System Function] dialog.

8.2.5 Setting ship's parameters

Set parameter values of own ship by using the [Ship's Parameters] dialog.

8.2.5.1 Displaying the [Ship's Parameters] dialog

When you select [Ship's Parameters] in the classification pane, the [Ship's Parameters] dialog is displayed in the edit/result pane.



8.2.5.2 Setting own ship's parameters

Set the following items in the [Ship's Parameters] dialog.

Setting Item	Description of Setting	Setting Value
Ship's Name	Enter own ship's name in the box.	Max. 20 characters
Length (of ship)	Enter own ship's length in the box.	1.0 to 1022.0 m
Beam (ship's width)	Enter own ship's beam in the box.	1.0 to 126.0 m
Height from keel to MAX point	Enter the height of the ship from the	1.0 to 126.0 m
	keel to the maximum point in the box.	
Keel-Trans	Enter the distance between the	0.0 to 20.0 m
(distance between the transducer	transducer of the depth sounder and	
and the keel)	the keel. (Required when displaying the	
	water depth with the keel fixed)	
MAX Course Change	Enter the limit value of the course	20.0 to 359.9°
(limit value of course change	change angle of the planned route in	
angle)	the box.	
MAX Speed Limit	Enter the ship's maximum speed in the	10.0 to 99.9 kn
	box.	
MIN Speed Limit	Enter the ship's minimum speed in the	0.0 to 89.9 kn
	box.	
MAX ROT	Enter the maximum rate of turn in the	30.0 to 1200.0°/min
	box.	
MIN ROT	Enter the minimum rate of turn in the	0.0 to 570.0°/min
	box.	
MIN Turn Radius	Enter the minimum turn radius in the	0.00 to 9.99 NM
	box.	

Synchronizing setting

The [Ship's Parameters] dialog enables common setting items and individual setting items for RADAR, ECDIS, and Conning (called a task station individually). Once common items are set in any of the task stations, RADAR, ECDIS, and Conning, the settings are reflected (synchronized) in other task stations. By setting common items in the state where all the task stations are active, the common setting items are synchronized in all the task stations.

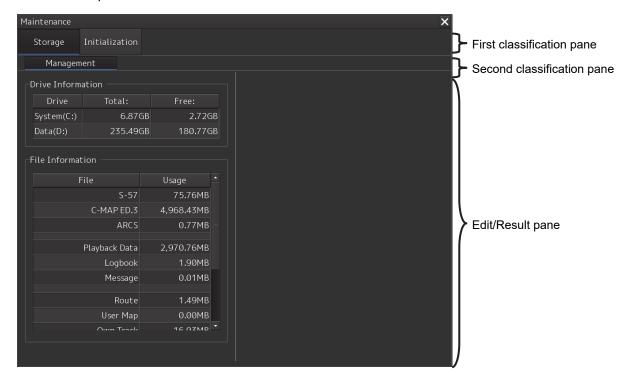
8.3 Maintenance

Use the [Maintenance] dialog box for maintenance operation of this equipment.

8.3.1 Displaying the [Maintenance] dialog box

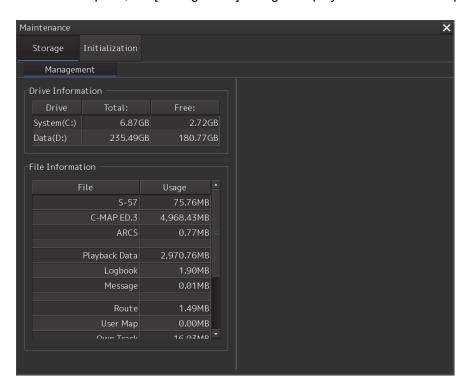
Clicking the [Maintenance] button in the submenu displays the [Maintenance] dialog box.

The [Maintenance] dialog box in the submenu consists of the classification pane and the edit/result pane. The classification pane consists of two-level layers of the first classification pane and the second classification pane.



8.3.2 Managing storage

When you select [Storage] in the first classification pane and [Management] in the second classification pane, the [Management] dialog is displayed in the edit/result pane.



The total storage capacity and free space on each of the drives (C and D) are displayed in the [Drive Information] list. The capacity of each of the files stored on the drives is displayed in the [File Information] list. The files managed by File Manager are applicable.

Section 9 Maintenance & Inspection

9.1 Maintenance Functions Executed from Menu

This section explains maintenance functions that are executed from the menu.

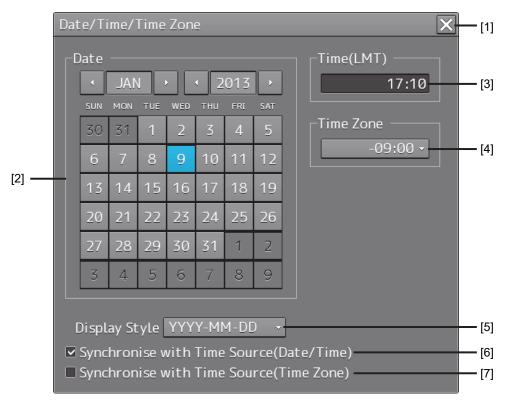
9.1.1 Starting maintenance functions

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- Click on the [Maintenance] button on the menu.
 The submenu is displayed.
- **3** Click on a button on the submenu.

 The dialog box of the corresponding maintenance function is displayed.

9.1.2 Setting Date/Time/Time Zone

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Maintenance] [Date/Time/Time Zone] button on the menu.
 The [Date/Time/Time Zone] dialog box appears.



[1] [X] button

Click on this button to close the [Date/Time/Time Zone] dialog box.

[2] [Date]

Set the year, month and day on the calendar.

For the details of how to use the calendar, refer to "3.12 Setting a Date and a Time (Calendar Operation)".

[3] [Time(LMT)]

Enter the time in the input box. The time entered will be reflected on the clock.

[4] [Time Zone]

Enter the time zone in the time zone combo box.

A time zone can be selected between -13:30 and +13:30 from UTC.

[5] [Display Style]

From the combo box, select the style to display the date.

- YYYY-MM-DD (Japanese style)
- MMM DD, YYYY (North American style)
- DD MMM,YYYY (European style)

[6)][Synchronise with Time Source(Date/Time)](Synchronize time with GPS)

When this item is checked, the date and time are synchronized by using the time information (ZDA sentence) from GPS and so on.

[7] [Synchronise with Time Source(Time Zone)](Synchronize the time difference with GPS)

When this item is checked, the time difference is synchronized by using the time information (ZDA sentence) from GPS and so on.

Note

When [Synchronize with Time Source(Date/Time)] is not checked, the time is reset to the initial value at the start of power supply. Therefore, set a correct time manually.

9.1.3 Confirming System Information

System information can be confirmed.

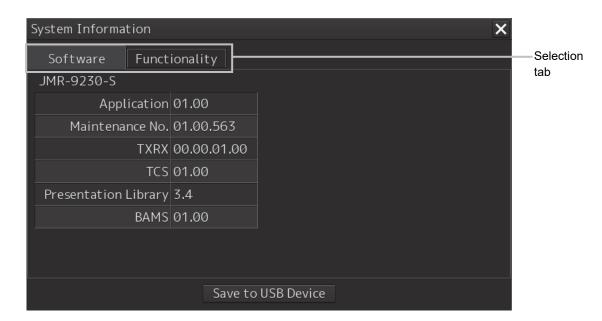
1 Click on the [Menu] button at the bottom left corner of the screen.

The menu is displayed.

2 Click on the [Maintenance] - [System Information] button on the menu.

The [System Information] dialog box appears.

The contents of the dialog will be switched by clicking on the selection tabs provided in the dialog box.



9.1.3.1 Confirming Software Information

MARNING



When you want to use a USB flash memory to read or write a file, make sure in advance that the USB flash memory is not affected by a computer virus. If the display unit is infected with a virus, other equipment may also be infected, with the result that a trouble may occur.



Before removing the USB flash memory, check for the access lamp of the USB flash memory and make sure that it is not being accessed.

If you remove or insert the USB flash memory when it is accessed, data may be destroyed and a trouble may occur.

Software information can be confirmed.

1 Click on the [Menu] button at the bottom left corner of the screen.

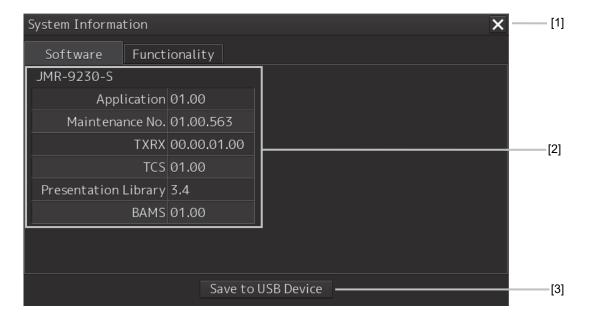
The menu is displayed.

2 Click on the [Maintenance] - [System Information] button on the menu.

The [System Information] dialog box appears.

3 Click on the [Software] tab.

The software information is displayed.



[1] [X] button

Click on this button to close the [System Information] dialog box.

[2] Software information

Item	Displayed information		
Jxx-xxxx	Type and model name of the system		
Application	Version of the application software		
Maintenance No.	7-digit maintenance number		
TXRX	Version of the software used for the radar transmitter-receiver unit * This information is displayed when the system is equipped with the RADAR function.		
TCS	Version of the software used for TCS * This information is displayed when the system is equipped with the TCS function.		
Presentation Library	Edition of S52 Presentation Library Displayed in case of ECDIS or RADAR (with ENC chart display licence)		
BAMS	Software version of the BAM system Displayed when the AMS license is available.		

[3] [Save to USB Device] (Saving to USB flash memory) button

Click on this button to save the displayed information in a USB flash memory in the text format.

9.1.3.2 Checking the enable/disable statuses of the functions that have been installed

△WARNING



When you want to use a USB flash memory to read or write a file, make sure in advance that the USB flash memory is not affected by a computer virus. If the display unit is infected with a virus, other equipment may also be infected, with the result that a trouble may occur.



Before removing the USB flash memory, check for the access lamp of the USB flash memory and make sure that it is not being accessed.

If you remove or insert the USB flash memory when it is accessed, data may be destroyed and a trouble may occur.

1 Click on the [Menu] button at the bottom left corner of the screen.

The menu is displayed.

2 Click on the [Maintenance] - [System Information] button on the menu.

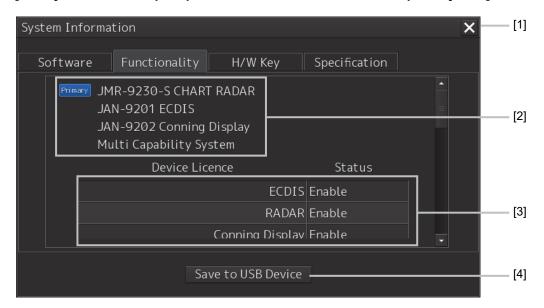
The [System Information] dialog box appears.

3 Click on the [Functionality] tab.

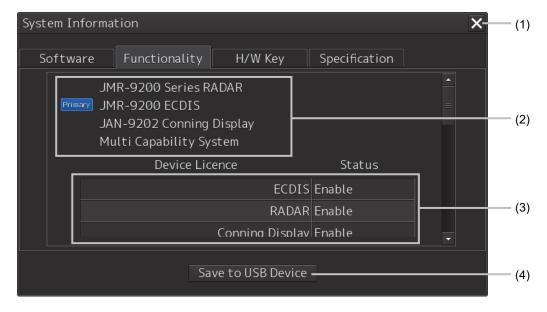
The functionality information is displayed.

The display contents vary depending on the number of operation modes and whether the modes include the primary task (shown by the name of this equipment).

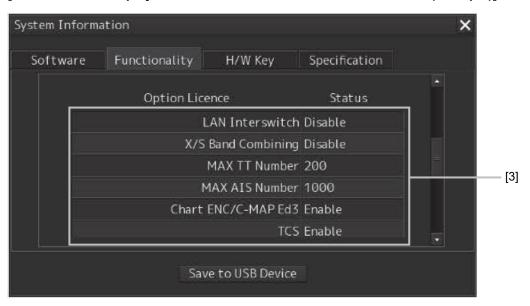
[The system has multiple operation modes and RADAR is the primary task]

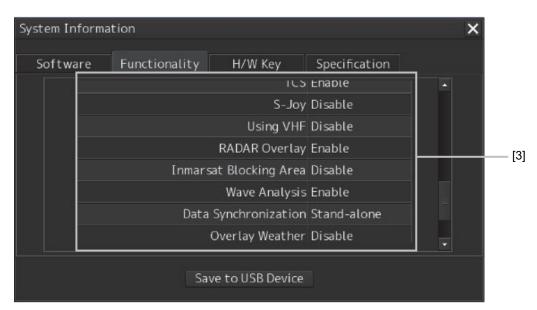


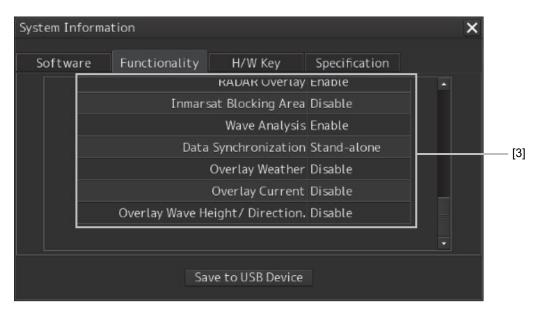
[The system has multiple operation modes and RADAR is not the primary task]



[Section that is displayed when the above screen is scrolled down (example)]







[1] [X] button

Click on this button to close the [System Information] dialog box.

[2] Format

The system format and model name of this equipment are displayed (Example: JMR-xxxx-x CHART RADAR (for Chart RADAR).

The [Primary] badge is displayed in front of the format for the primary task.

[3] Functionality

The functions that are installed are displayed in [Device Licence] and [Option Licence]. One of the following is displayed in [Status].

[Status]	Meaning		
Enable	Indicates that the function can be used.		
Disable	Indicates that the function cannot be used.		
Value (such as 500)	Indicates the setting value of the option licence of the function.		
Stand-alone	Indicates that the function can be used independently and cannot be used as the synchronization function with other devices.		

[4] [Save to USB Device] (Saving to USB flash memory) button

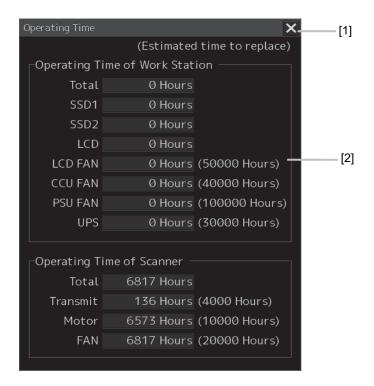
Click on this button to save the displayed information in a USB flash memory in the text format.

9.1.4 Confirming operating time

Confirm the operating time of this system.

- 1 Click on the [Menu] button at the bottom left corner of the screen.

 The menu is displayed.
- 2 Click on the [Maintenance] [Operating Time] button on the menu.
 The [Operating Time] dialog box appears.



[1] [X] button

Click on this button to close the [Operating Time] dialog box.

[2] [Operating Time Of Work Station]

The operating time of this equipment is displayed.

[Total]: Total operating time of this equipment

[SSD1]: Total operating time of SSD1.

[SSD2]: Total operating time of SSD2.

[LCD]: Total operating time of LCD.

[LCD FAN]: Total operating time of LCD FAN. The estimated replacement time is indicated in ().

[CCU FAN]: Total operating time of CCU FAN. The estimated replacement time is indicated in ().

[PSU FAN]: Total operating time of PSU FAN. The estimated replacement time is indicated in ().

[UPS]: Total operating time of UPS. The estimated replacement time is indicated in ().

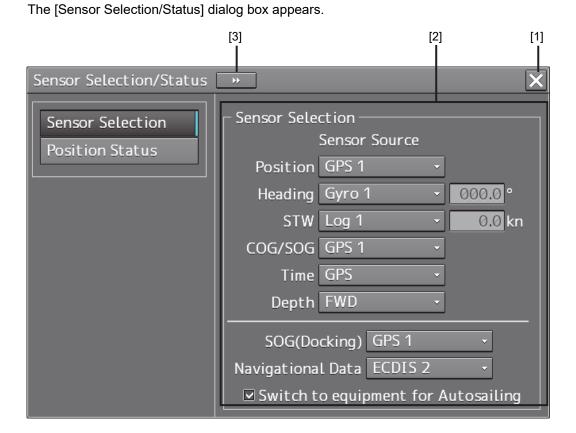
Memo

[UPS] is displayed only when UPS is installed as an option.

9.1.5 Setting and confirming the sensor source

9.1.5.1 Set and confirm the sensor source

- 1 Click on the [Menu] button at the bottom left corner of the screen. The menu is displayed.
- 2 Click on the [Maintenance] [Sensor Selection/Status] button on the menu.



[1] [X] button

Click on this button to close [Sensor Selection/Status] dialog box.

[2] [Sensor Selection]

Enables selection of a sensor source.

Setting item	Description of Setting	Setting value
Position	Select a Primary Position sensor source from the combo box.	GPS x, DR ("x" indicates the unit number)
Heading	Select a heading sensor source from the combo box.	MAN, Gyro x
	*The source that can be selected varies depending on the installation.	("x" indicates the unit number)
	*When GyroSW is enabled, only Gyro and MAN can be selected.	
	When the sensor source is set to [Manual], the heading value can also be input in the input box. Heading value input range: 0.0-359.9°	
STW (Speed Through Water)	Select a Speed Through Water sensor source from the combo box.	MAN, Gyro X, MAG, G/C
,	*The sources that can be selected vary according to the installation.	("x" indicates the unit number)
	* When 1AX is installed for Log, Log cannot be selected from the sensor source.	·
	When the Gyro Compass system that is used has the automatic switching function, the sensor source display is switched automatically according to the switching condition.	
	When the sensor source is set to [MAN], the ship's heading value can also be input in the input box.	
	Ship's heading value input range: -99.9-99.9kn	
COG/SOG (Course Over the Ground/Speed Over the Ground)	Select Course Over the Ground/Speed Over the Ground sensor source from the combo box.	Log x, GPS ("x" indicates the unit
	*The source that can be selected varies depending on the installation.	number)
	When GPS is selected for Position, the same GPS is selected automatically.	
Time (Time correction)	Select a sensor source to be used for time correction of this equipment from the combo box.	GPS, Ship Clock
	*The source that can be selected varies depending on the installation.	
Depth (water depth)	Select a water depth sensor source from the combo box.	FWD, AFT, MID, AUTO*1
,	*The selectable sources vary depending on the installation. When FURUNO is selected in [Device Installation] - [Echo Sounder 1], it is fixed to AUTO.	
SOG(Docking)	Select a sensor source of the Speed Over the Ground (Docking) from the combo box.	Log x, GPS ("x" indicates the unit
	*The source that can be selected varies depending on the installation.	number)
Navigational Data	Select a source (sensor) from which route monitoring information is acquired.	ECDIS x, MFD x ("x" indicates the unit
	*The source that can be selected varies depending on the installation.	number)
	* Cannot be selected when there is equipment that is performing Auto Sailing and the "Switch to equipment for Autosailing" check box is selected.	

Switch to When acquiring route monitoring information from the ON/OFF	Setting item	Description of Setting	Setting value
Autosailing item (ON) by selecting the check box. When acquiring route monitoring information from the source that is selected from Navigational Data, disable the item (OFF) by clearing the check box.	equipment for	equipment that is performing Auto-Sailing, enable the item (ON) by selecting the check box. When acquiring route monitoring information from the source that is selected from Navigational Data, disable	ON/OFF

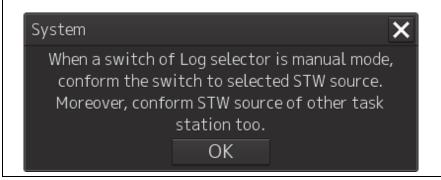
^{*1} In this case, one Echo Sounder is installed. When two Echo Sounders are installed, E/S1(AUTO) and E/S2(AUTO) can be selected, not AUTO.

[3] Disclosure button

When this button is clicked on, the left pane will be hidden.

Memo

When a Log Selector is installed and the Log (speed) sensor is switched automatically, the following popup window is displayed indicating the effect.

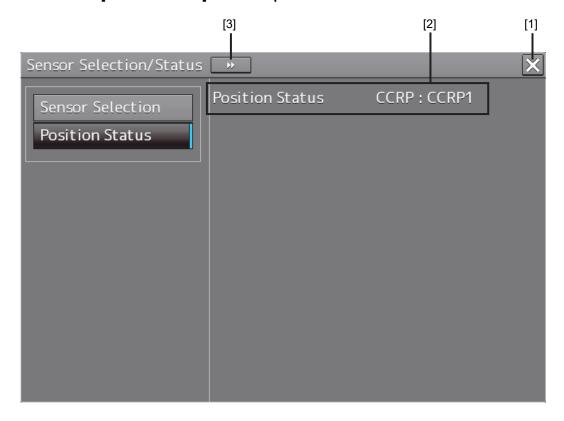


9.1.5.2 Displaying CCRP which is selected

1 Click on the [Menu] button at the bottom left corner of the screen.
The menu is displayed.

2 Click on the [Maintenance] - [Sensor Selection/Status] button on the menu.
The [Sensor Selection/Status] dialog box appears.

3 Click on the [Position Status] in the left pain.



[1] [x] button

Click on this button to close the [Sensor Selection/Status] dialog box.

[2] [Position Status]

The selected CCRP (CCRP1 to 4) is displayed.

For the details of how to change the CCRP, refer to "8.2.2.2 Verifying/Setting CCRP".

[3] Disclosure button

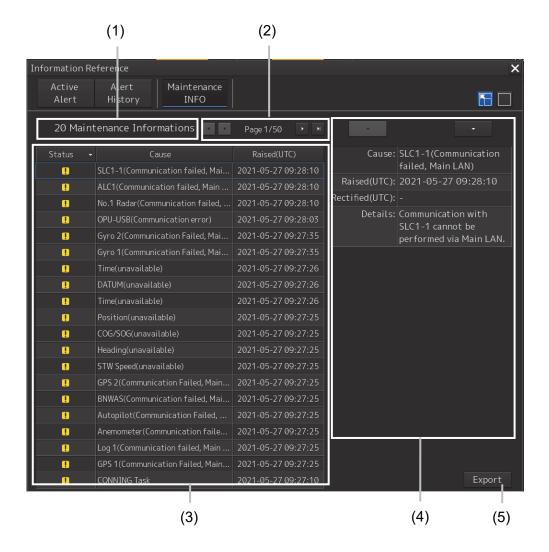
Click on the disclosure button to hide the left pain.

9.1.6 Confirming Maintenance INFO

9.1.6.1 Screen items/fields and their function

Maintenance INFO can be confirmed.

- 1 Click on the [Menu] button on the left Tool Bar.
 The menu is displayed.
- 2 Click on the [Maintenance] [Maintenance INFO] button on the menu.



The screen can be switched to either the standard window or the expanded window.

An example of an expanded window is shown above.

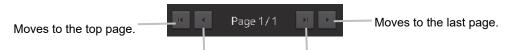
For the screen switching method, refer to "9.1.6.2 Switching to the standard window or the expanded window."

(1) Number of pieces of maintenance information

The number of pieces of maintenance information being generated is displayed.

(2) Active page information

Up to twenty pieces of maintenance information can be displayed on a page. If maintenance information exceeds 20 pieces and is displayed over multiple pages, the pages are switched by operating the page change buttons.



Moves to the previous page. Moves to the next page.

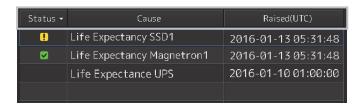
(3) Maintenance information list

Maintenance information being generated is displayed. Clicking any information selects the information.

- Details of the selected information are displayed in "(4) Detailed maintenance information."
- New maintenance information generated during screen display is added to the top of the list.
- Up to 1000 pieces of information can be displayed. When 1000 pieces are exceeded, information is sequentially deleted from the oldest information.
- Either of the following icons is displayed in the [Status] column.
 - !: Generated
 - : Resolved

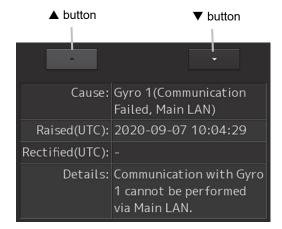
Blank: Maintenance information which had been generated before the MFD was restarted

- The [Cause] column shows the names of maintenance information.
- The [Raised(UTC)] column shows the generation time and date (UTC) of maintenance information.
- Clicking any item in the title line rearranges the list with reference to the clicked item.



(4) Detailed maintenance information

Details of the currently selected maintenance information are displayed.



Information	Description				
Cause	The cause of the maintenance information is displayed.				
Raised(UTC)	The generation time and date (UTC) of the maintenance information is displayed.				
Rectified(UTC)	The resolution time and date (UTC) of the maintenance information is displayed.				
Details	Detailed information is displayed.				

[A] button

Clicking this button displays the details of the information with higher priority than currently displayed information.

[▼] button

Clicking this button displays the details of the information with lower priority than currently displayed information.

(5) [Export] button

Use this button to export maintenance information.

Refer to "9.1.6.3 Exporting maintenance information."

9.1.6.2 Switching to the standard window or the expanded window

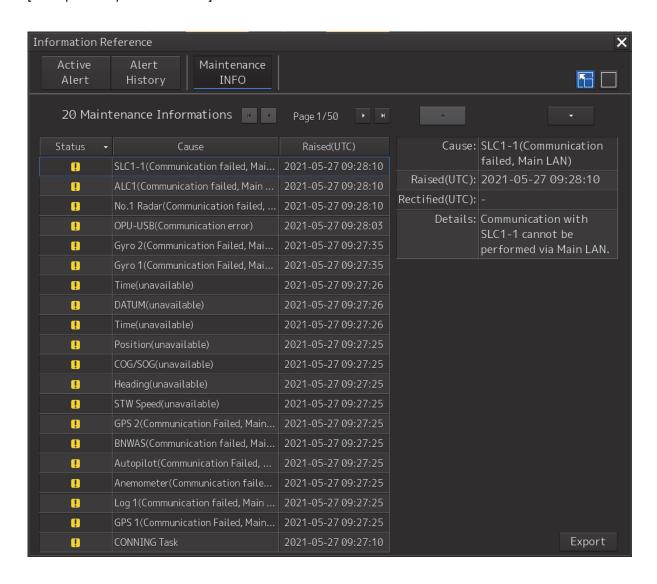
The Maintenance INFO screen can be switched to either the standard window or the expanded window.

To switch to the expanded window, click the list expansion button.

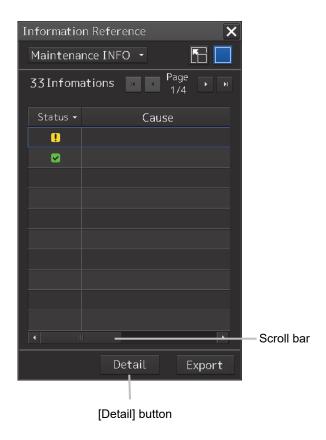
To switch to the standard window, click the list standard button.



[Example of expanded window]



[Example of standard window]



The standard window includes the list screen and the details screen.

To switch to the details screen, click the [Detail] button. Then, the [Detail] button turns into the [List] button.

To switch to the list screen, click the [List] button.

If the screen contents do not fit in the screen width, the scroll bar is displayed.

Dragging the scroll bar displays the contents not currently shown.

Memo

The initial display is shown in the expanded window.

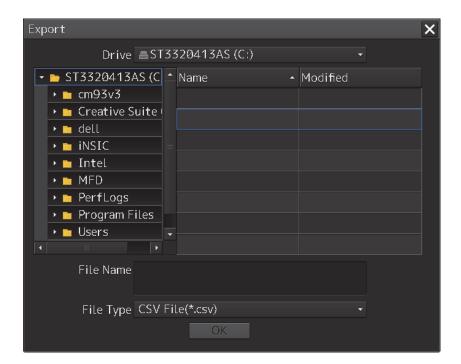
9.1.6.3 Exporting maintenance information

Maintenance information can be exported as a CSV file to USB memory.

Information to be exported is that in the Cause, Raised(UTC), Rectified(UTC), and Detail fields.

1 Click the [Export] button on the Maintenance INFO screen.

The "Export" dialog box will appear.



2 Specify the Drive (name of the drive for the USB memory) to which information is exported, Folder, and File Name.

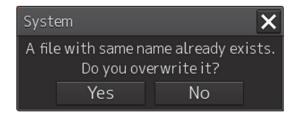
Only [CSV File(*.csv)] can be selected for File Type.

3 Click the [OK] button.

To cancel information export, click the [x] button.

If a file with the same name exists:

The following pop-up window will appear.



To cancel the export, click the [No] button.

To overwrite the existing file with the same file name, click the [Yes] button.

9.2 General Maintenance

⚠ DANGER



Never attempt to check or repair the inside of the equipment.

Checking or repair by an unqualified person may cause a fire or an electric shock.

Contact our head office, or a nearby branch or local office to request servicing.



Never remove the cover of this equipment.

Touching the high-voltage section inside will cause an electric shock.



Do not attempt to disassemble or tamper with this equipment. Otherwise, a fire, an electric shock, or a malfunction may occur.



When conducting maintenance, make sure to turn the main power off. Failure may result in electric shock.



Turn off all the main powers before cleaning the equipment. Especially when an UPS is used, make sure to turn it off since voltage is still outputted from the UPS even after the indicator and the ECDIS are turned off. Failure may result in equipment failure, or death or serious injury due to electric shock.

MARNING



When conducting maintenance work, make sure to turn off the power so that the power supply to the equipment is completely cut off.

Some equipment components can carry electrical current even after the power switch is turned off, and conducting maintenance work may result in electric shock, equipment failure, or accidents.

For operating this equipment in the good conditions, it is necessary to make the maintenance work as described below. If maintenance is made properly, troubles will reduce. It is recommended to make regular maintenance work.

The general maintenance work common among each equipment is as follows.

Clean the equipment.

Remove the dust, dirt, and sea water rest on the equipment cabinet with a piece of dry cloth. Especially, clean the air vents with a brush for good ventilation.

9.3 Maintenance on Unit

9.3.1 Display unit

MARNING



When cleaning the screen and Trackball of Operation Unit, do not wipe hard with a dry cloth. Also, do not use glass cleaner, alcohol, gasoline, or thinner to clean the screen. Also avoid wiping with water. It may cause surface damage or equipment failure.

9.3.1.1 The Screen

Dust accumulated on the screen will reduce clarity and darken the video.

Use a soft cloth such as flannel and cotton to clean the screen to prevent damage or degradation of the screen coating.

9.3.1.2 The Trackball

Clean carefully the trackball operation unit in accordance with this procedure in order not to scratch the lens. The tools shown in the following table are required in this work.

	Required tools		
1	Dry/Moist soft cloth (Lint-free)		
2	Swab		

Note

If you do not have the swab, please use lint-free cloth, moistened with water, instead.

4 Turn stopper ring in the direction of the triangle marks (counterclockwise), then remove the stopper ring together with the ball.



- 5 Clean the ball with a moist lint-free cloth, then wipe the ball with a dry soft cloth carefully.
- 6 Clean the inside of the stopper ring and the trackball housing, and the lends with a swab, moistened with water. Change the swab regularly so that dirt and dust build-up is easily removed. Wipe away moisture with a dry swab.





7 After cleaning them, reinstall the ball and the stopper ring. Don't forget to tighten the stopper ring.

9.4 Performance Check

Make performance check on the radar equipment regularly and if any problem is found, investigate it immediately. Pay special attention to the high voltage sections in inspection and take full care that no trouble is caused by any error or carelessness in measurement. Take note of the results of inspection, which can be used effectively in the next inspection work.

Carry out performance check on the items listed in the check list below.

Equipment	Item to be checked	Criteria	
Transmitter-receive	Synchronization LED of Receiver	The LED is lit during operation	
Display unit	Screen image Screen operation	Can be correctly controlled	

9.4.1 Starting Selftest functions

- **8** Click on the [Menu] button at the bottom left corner of the screen. The menu is displayed.
- **9** Click on the [Maintenance] [Selftest] button on the menu. The [Selftest dialog box appears.

Disclosure button

Selftest Monitor Test All Red All Green All Blue Key Test Sound Test Selftest functions Light Test All White Pattern4 Pattern5 Memory Check RADAR INFO S-57 Pattern6 Gray Scale Color Pattern

The Diagnosis functions are displayed in the left pane.

Click on the disclosure button to hide the left pain.

10 Click on a Diagnosis function to be executed.

The execution dialog of the selected diagnosis function is displayed.

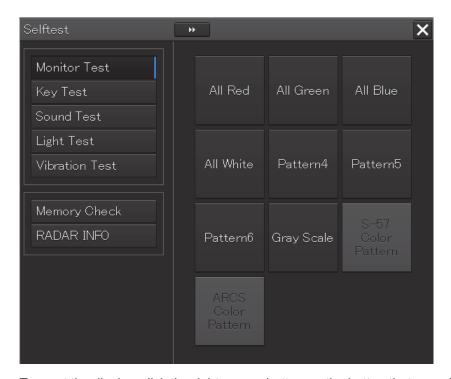
9.4.2 Confirming the screen status [Monitor Test]

Confirm the screen status.

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Maintenance] [Selftest] [Monitor Test] button on the menu.

When the color or pattern of the dialog is clicked on, the color or pattern is displayed on the screen.

Check the screen status with the display status.

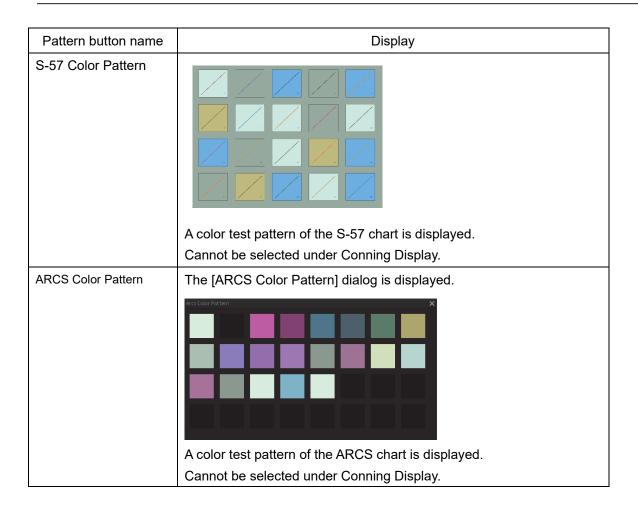


To reset the display, click the right mouse button on the button that was clicked.

Pattern list

Pattern list Pattern button name	Display
All Red	The entire screen is displayed in red.
All Green	The entire screen is displayed in green.
All Blue	The entire screen is displayed in blue.
All White	The entire screen is displayed in white.
Pattern4	Displays the pattern for checking the communication quality for VDR.

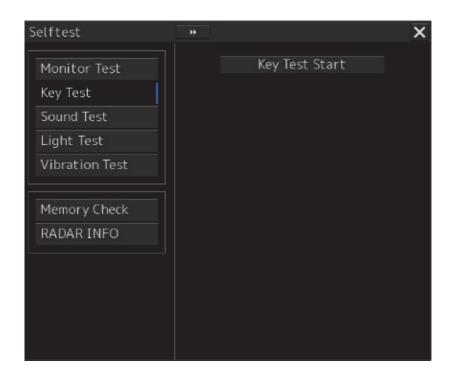
Pattern button name	Display
Pattern5	Displays the pattern for checking the communication quality for VDR.
Pattern6	Displays the pattern for checking the communication quality for VDR.
Gray Scale	Displays the grey scale pattern for checking the monitor brightness adjustment.
	Grey scale patterns can be identified with brightness in day/night mode. By adjusting the monitor brightness to facilitate identification of grey scale patterns, the optimum brightness can be set. The brightness in night mode can also be adjusted in the same way. Use the Day/Night button on the right Tool Bar for switching between the day and night mode. For the details of the Day/Night button, refer to "2.2.2 Right Toolbar".



9.4.3 Confirming the operation of the operation unit [Key Test]

Confirm the operation of the keys of the operation unit.

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Maintenance] [Selftest] [Key Test] button on the menu.
- 3 Click on the [Key Test Start] button.



Key Test window is displayed.



4 Operate the keys, buttons and dials in the operation unit.

If the performance of the operation unit is normal, the colors of the keys, buttons and dials are changed.

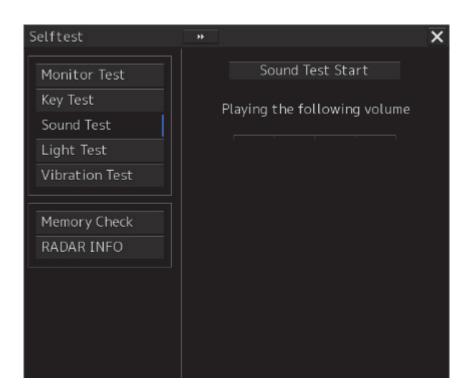
5 Click on the [Key Test Stop] button after the operation check. Returns to the [Selftest] dialog box.

9.4.4 Confirming the alert sound [Sound Test]

Confirm the alert sound.

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Maintenance] [Selftest] [Sound Test] button on the menu.
- 3 Click on the [Sound Test Start] button.

A sound test starts. All the available beep sound volumes can be tested by increasing the level from 0.



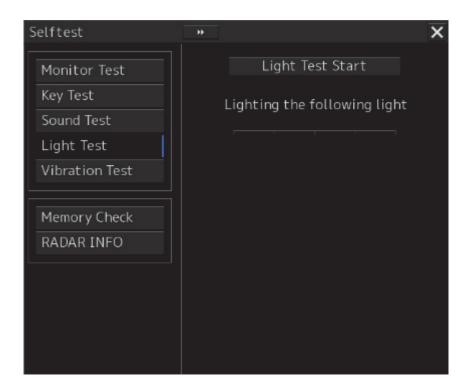
9.4.5 Testing the brightness of LED [Light Test]

Test the brightness of LED.

level from 0.

- 1 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Maintenance] [Selftest] [Light Test] button on the menu.
- 3 Click on the [Light Test Start] button.

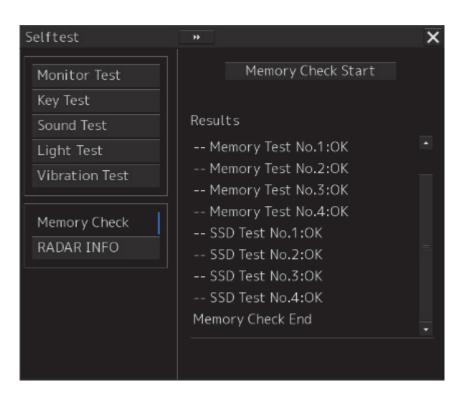
 A LED brightness test starts. All the available brightness levels can be tested by increasing the



9.4.6 Checking the memory [Memory Check]

Check the memory.

- Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 2 Click on the [Maintenance] [Selftest] [Memory Check] button on the menu.
- 3 Click on the [Memory Check Start] button.
 Memory checking starts and the checking result is displayed on the [Result] list.



9.5 Replacement of Major Parts

The system includes parts that need periodic replacement. The parts should be replaced as scheduled. Use of parts over their service life may cause a system failure.

ACAUTION



Turn off the main power source before inspecting and replacing parts. Otherwise, an electric shock or trouble may be caused.



The liquid crystal monitor shall be replaced by two more persons. If only one person does this work, he may drop the LCD, resulting in injury.

9.5.1 Parts expected for periodic replacement

Here are parts expected for periodic replacement.

Part type	Name	Part name	Life expectancy	Replacement kit type
NWZ-207	19inch monitor	FAN	40,000 hours	7ZYNA4004
NWZ-214	19inch monitor	FAN	60,000 hours	7BFRD0008
NWZ-208	26inch monitor	FAN	40,000 hours	7ZYNA4005
NBD-913	Power supply unit	FAN	100,000 hours	7ZYNA4007
QUINT-BAT/24DC/3.4AH	UPS unit dedicated battery module	Battery	30,000 hours	QUINT-BAT/24DC/3.4AH
NDC-1590/A	Central control unit	FAN	40,000 hours	7ZYNA4006

9.6 Software Update

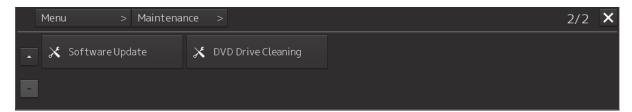
This section describes software update of this equipment.

Note

When software update starts, the tasks that are active are automatically terminated. Complete the necessary operation such as saving of settings prior to the start of update.

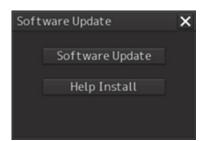
9.6.1 Local Update

- 1 Set the CD/DVD or USB flash memory containing the update data.
- 2 Click on the [Menu] button at the bottom left corner of the screen.
 The menu is displayed.
- 3 Change over to the second page using the page switching button, and click [Maintenance] [Software Update].

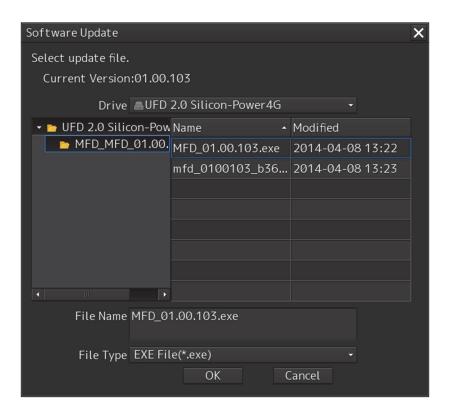


The [Software Update] dialog box appears.

4 Click on the [Software Update] button.

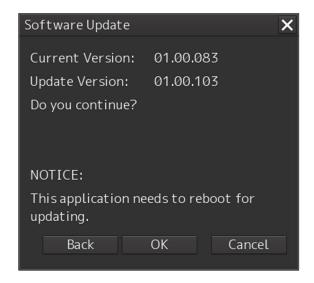


A file selection dialog box appears.



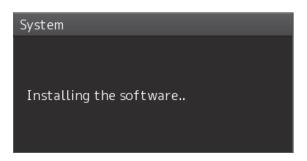
- 5 From the [Drive] combo box, select the drive where the updating data is stored.
- **From the file list, select the file MFD_xx.xx.xxx.exe.**MFD_xx.xx.xxx.exe is displayed in [File name].
- 7 Click the [OK] button.

The update content confirmation dialog box appears.



8 Confirm the contents and click [OK].

Installation of the update is started and the following screen is displayed.

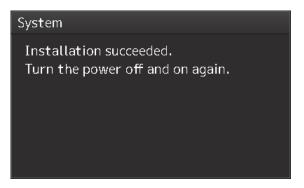


Wait for some time until the installation is completed.

Note

During installation, this equipment may reboot by itself..

When the installation is completed, the following screen is displayed.

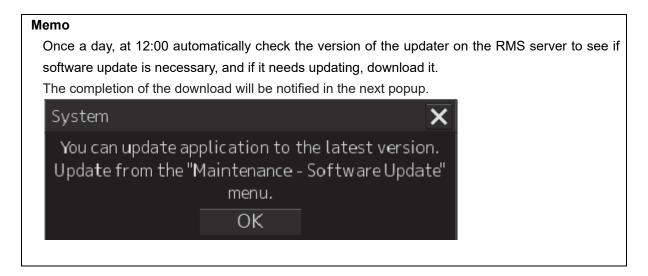


- 9 Turn off the power of this equipment.
- 10 Restart this equipment.
- 11 Start the Conning display and then confirm that the software version number has been updated correctly by the [Software] tab in [Maintenance] [System Information].

9.6.2 Remote Update

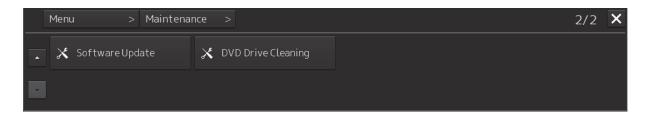
When Enable RMS of the menu [service] — [Installation] — [Settings] — [RMS] is valid, if you need to update the software, the installer will be downloaded automatically from the RMS server.

You can use this installer to update the software.



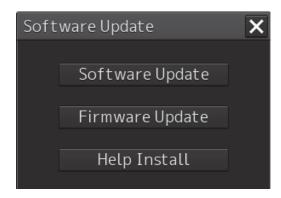
- Click on the [Menu] button at the bottom left corner of the screen.

 The menu is displayed.
- 2 Change over to the second page using the page switching button, and click [Maintenance] [Software Update].

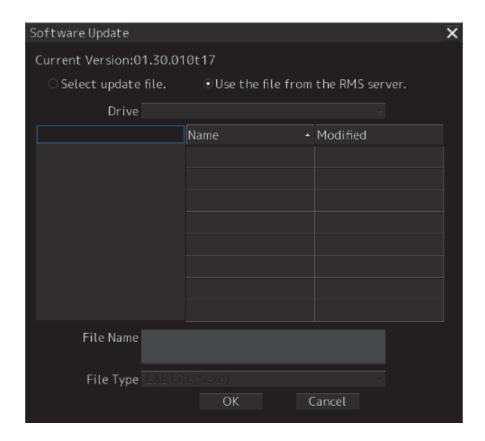


The [Software Update] dialog box appears.

3 Click on the [Software Update] button.

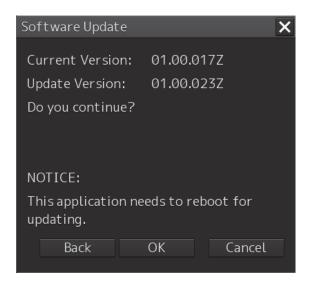


A file selection dialog box appears.



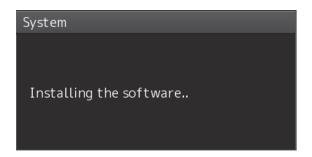
- 4 Check "Use the file from the RMS server.".
- 5 Click the [OK] button.

The update content confirmation dialog box appears.



6 Check the contents and click on [OK].

Installation of the update is started and the following screen is displayed.

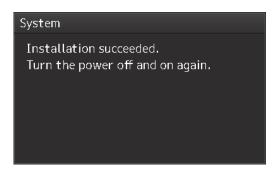


Wait for some time until the installation is completed.

Note

This equipment may restart during installation.

At completion of installation, the following screen is displayed.



- 7 Switch OFF the power supply of this equipment.
- 8 Restart this equipment.
- 9 Start the Conning display, and confirm that the software version number has been updated in the "Software" tab by selecting [Maintenance] [System Information].

9.7 Firmware Update

Explain firmware update of this product.

Note

When the firmware update is started, the active task is automatically terminated.

Please complete necessary operations, such as saving settings, before updating starts.

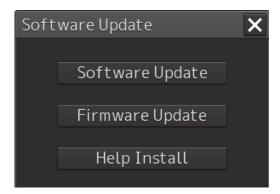
- 1 Click on the [Menu] button at the bottom left corner of the screen.

 The menu is displayed.
- 2 Change over to the second page using the page switching button, and click [Maintenance] [Software Update].

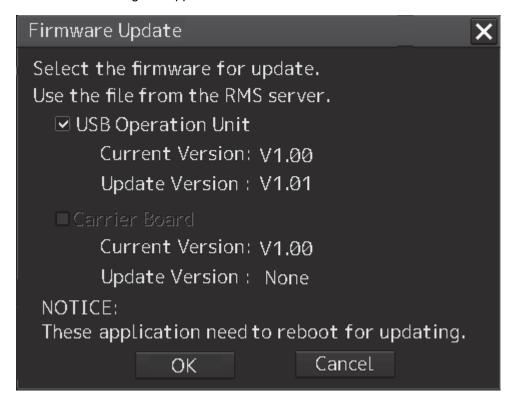


The [Software Update] dialog box appears.

3 Click on the [Software Update] button.



A file selection dialog box appears.



USB Operation Unit

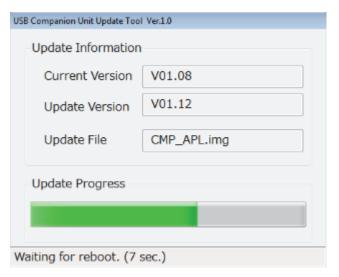
Select this when updating the firmware of the USB operation unit.

Carrier Board

Select this when updating the companion's firmware.

4 Click the [OK] button.

Firmware update is started and a popup is displayed.



When the update is completed, the following screen will be displayed.



- 5 Switch OFF the power supply of this equipment.
- 6 Restart this equipment.

9.8 Updating Help Data

This section describes updating of help data of this product.

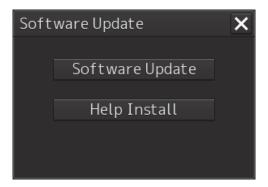
Note

- Help data is classified to the data for RADAR, data for ECDIS, and data for Conning Display. To display help information on each of the RADAR screen, ECDIS screen, and Conning Display screen, install the help data for each display.
- When Help update starts, currently active tasks are terminated automatically. Complete the necessary operations, such as saving the settings, before the start of update.
- 1 Set the CD/DVD or USB memory where update data is stored.
- 2 Click the [Menu] button at the bottom left corner of the screen. A menu is displayed.
- 3 Click [Maintenance] [Software Update].

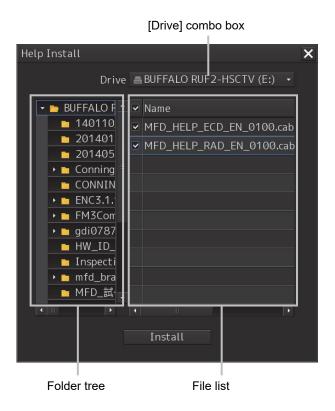


The [Software Update] dialog is displayed.

4 Click the [Help Install] button.

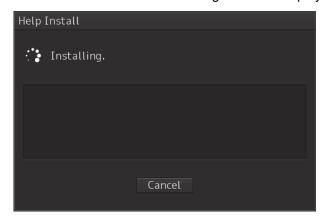


A file selection dialog is displayed.



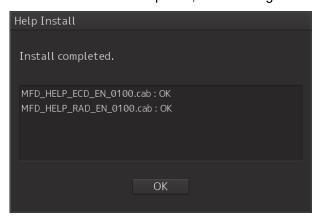
- 5 Select the drive containing update data from the [Drive] combo box.
- 6 Select the folder containing update data from the folder tree and check the file to be updated from the file list.
- 7 Click the [Install] button.

Installation starts and the following screen is displayed.



Wait until installation is completed.

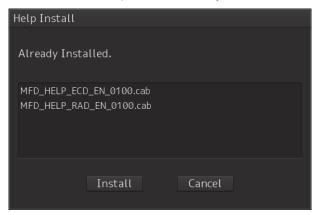
When installation is completed, the following screen is displayed.



8 Click the [OK] button.

Memo

- When the [Cancel] button is clicked during installation, installation of subsequent files is cancelled after the installation of the file that is currently being installed is completed.
- When the selected update file already exists, the following screen is displayed.



End the operation by clicking on the [Cancel] button.

9.9 Data Backup/Restore

ACAUTION



Do not turn off the power supply during backup/restore.

Otherwise, a function fault occurs, leading to the possibility of an accident.



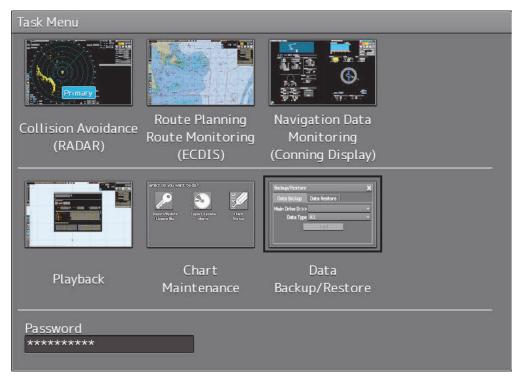
Do not back up data during sailing.

To start backup data, the Conning Display application must be terminated. Otherwise, observation using the Conning Display is disabled, leading to the possibility of an accident.

9.9.1 Backing up data

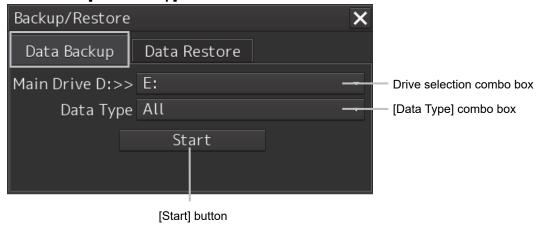
To maintain customer data, back up the data regularly by using the following procedure. Connect an external medium such as USB memory for backup.

- Press the Power supply button of the operation unit.
 The power supply button is lit. Then, the task menu is displayed.
- 10 Click on the [Data Backup/Restore] button in the task menu.



The [Backup/Restore] dialog is displayed.

2 Click on the [Data Backup] tab.



- 11 Select a drive of the data backup destination from the drive selection combo box.
- 12 Select the type of the data to be backed up in the [Data Type] combo box.

All: The entire user data is backed up.

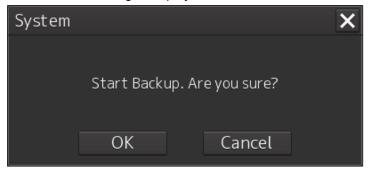
Except Charts: The user data excluding chart data is backed up.

Note

When All is selected and there are many charts, backup operation may take a long time.

13 Click on the [Start] button.

A confirmation dialog is displayed.



14 Click on the [OK] button.

Copying of data to the backup destination that is selected in the drive selection combo box starts.

Note

Do not perform any other operations until backup is completed. Otherwise, backup may fail.

9.9.2 Restoring backed up data

Use the following procedure to restore backed up data into this equipment.

Connect the external medium (USB memory, etc.) in which backup data has been saved.

1 Press the power supply button of the operation unit.

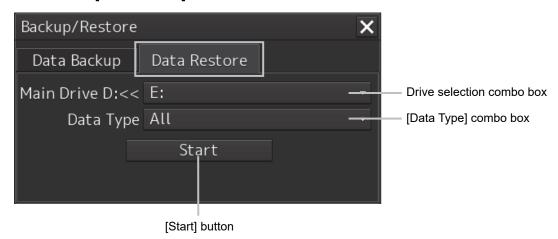
The power supply button is lit. Then the task menu is displayed.

15 Click on the [Data Backup/Restore] button in the task menu.



The [Backup/Restore] dialog is displayed.

16 Click on the [Data Restore] tab.



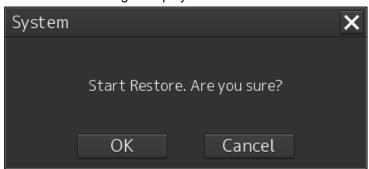
- 17 Select the drive in which backup data has been saved from the drive selection combo box.
- 18 Select the type of the data to be restored in the [Data Type] combo box.

All: The entire user data is restored.

Except Charts: The user data excluding chart data is restored.

19 Click on the [Start] button.

A confirmation dialog is displayed.



20 Click on the [OK] button.

Restoration of data from the drive that was selected from the drive selection combo box to the hard disk of this equipment starts.

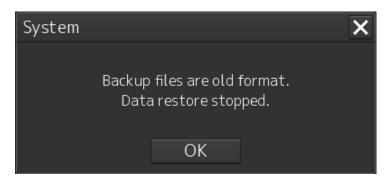
If data already exists in the hard disk, an overwriting confirmation dialog is displayed. Click on the [OK] button to start the restoration.

Note

- Do not perform any operation until restoration is completed. If some operation is performed, restoration may fail.
- If backup is executed while enough free space is not available in the USB memory, the
 "Error" message is displayed. Secure free space before executing backup. For the size
 of the data to be backed up, check the "Usage" column in the "File Information" list in
 "8.3.2 Managing storage". (For instance, when the AVCS chart for the entire world is
 installed, the size will be about 11GB.)

Memo

If the data to be restored is incompatible with this equipment, the following dialog is displayed and data is not restored.



Cancel the task by clicking on the [OK] button.

9.10 Recovery of the Images in the C Drive

ACAUTION



The backup power supply (DC power supply, etc.) of the equipment must be connected when recovery of the C drive image is performed. If the power supply stops during recovery, an equipment activation fault occurs, causing an accident.



Do not turn off the power supply during recovery of the C drive image.

Otherwise, equipment malfunction occurs, possibly causing an accident.

The operating system (OS) of this equipment runs on the C drive.

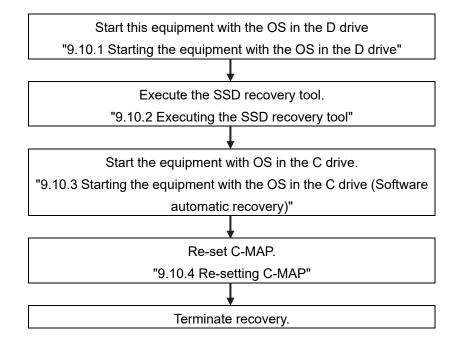
The contents of the C drive including the images are stored in the D drive.

When the OS operation on the C drive becomes unstable, the images in the C drive can be written back from the D drive.

Note

When the images in the C drive are written back, the information relating to C-MAP is cleared. After writing back of images, re-register the database and licence of C-MAP and perform update as required. (Required when the equipment has the ECDIS function or chart radar function available as an option.)

The flow of writing back of images in the C drive is as follows.

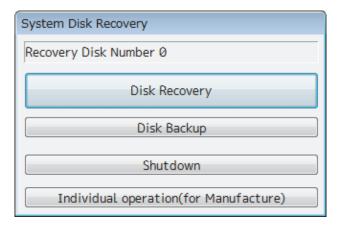


9.10.1 Starting the equipment with the OS in the D drive

Start this equipment with OS in the D drive by using the following procedure.

1 Turn on the power supply of this equipment while pressing the [SILENCE] key and the [ZOOM OUT] key of the trackball operation unit simultaneously.

When the equipment starts, the following screen is displayed.



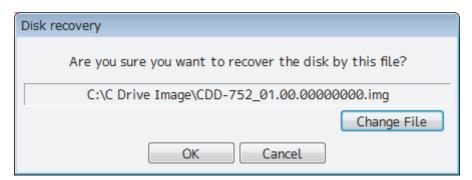
The SSD recovery tool can be executed in this state.

9.10.2 Executing the SSD recovery tool

Write back the images in the C drive by executing the SSD recovery tool.

1 Click on the [Disk Recovery] button on the screen that is displayed at activation from the D drive.

The following screen is displayed.



2 Select an image file to be written back to the C drive.

Normally, proceed with the next step with the image file that is currently displayed.

To specify a different image file, select a required image file from the list that is displayed by clicking on the [Change File] button.

Note

Since the equipment is started from the D drive, the usual C drive is displayed as the D drive and the usual D drive is displayed as C drive. Therefore, note this point when selecting an image file.

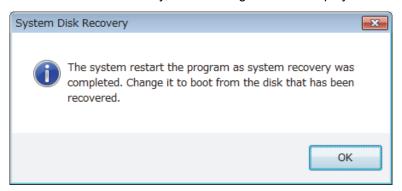
3 Click on the [OK] button.

Image file write-back operation starts.

Note

Do not perform any operation until write-back operation is completed. If any operation is performed, the image write-back operation may fail.

At termination of recovery, the following screen is displayed.



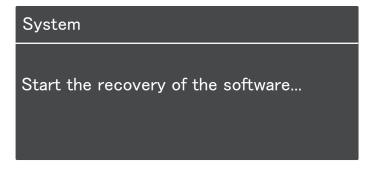
9.10.3 Starting the equipment with the OS in the C drive (Software automatic recovery)

Start this equipment with the OS that is written back to the C drive.

1 Click on the [OK] button on the screen that is displayed at termination of write-back operation.

The equipment starts from the C drive and, at the same time, the applications and various OS settings on the C drive are recovered automatically.

When recovery starts, the following screen is displayed for several seconds.



Note

This equipment restarts during the recovery operation. Do not perform any other operations until the recovery is completed.

Otherwise, recovery may fail, possibly causing an accident.

After completion of recovery, the following screen is displayed.

System

Recovery succeeded.

Turn the power off and on again.

C-MAP charts has been initialized. Set up the setting of the C-MAP charts.

2 Turn off the power supply of this equipment by pressing the power button of the operation unit.

9.10.4 Re-setting C-MAP

Re-set the settings of C-MAP by restarting this equipment.

Re-register the database and the licence.

Update as required.

Section 10 Failures and After-Sale Services

10.1 Failure Detection

Semiconductor circuits can be considered to be almost free from defective semiconductors and/or performance deterioration except when there are design and inspection errors, or external and human induced causes. Generally, the causes of comparably frequent failures include line disconnection due to humidity of the high resistor, failure of the variable resistor as well as contact failures of switches and relays.

In addition to faulty parts, faulty adjustments (especially faulty tuning) or faulty maintenance (especially faulty cable contact) occasionally make up causes of failures; thus, it is effective to reinspect or readjust these items.

10.1.1 About alerts

Failures can be detected from alerts.

For details on alerts, please refer to "Appendix B, Alert List."

10.1.2 Alert description

For a description of alerts to be displayed, please refer to "Appendix B, Alert List."

10.1.3 Fuse inspection

Because there is a specific cause for any fuse meltdown, it is necessary to check the related circuits even if there is no abnormality after changing a fuse. However, please give consideration that the fuse meltdown characteristics vary significantly. The following table shows a list of the fuses used in this unit.

List of Fuses Used

Fuse Name	Name of	Placement	Count	Part Spec.	Change Kit Model
	Model Used	Location			Name
Blade fuse	NBD-913	Power	2	32VDC 15A part	1015(5ZFCK00008)
(Auto fuse)		supply unit			
Blade (mini) fuse	NQE-1143	JB	1	32VDC 15A part	1215(5ZFCK00017)
(Auto fuse)					
Blade (mini) fuse			2	32VDC 3A part	1203(5ZFCK00016)
(Auto fuse)					
Glass fuse			4	250V 0.5A part	MF51NR 250V
					0.5(5ZFGD00019)

10.2 Countermeasures for Failures

10.2.1 Repair circuit block

Repair Circuit Block (JAN-9202)

Location	Circuit Block Name	Model Name	Remarks
Display unit	Display unit	NWZ-208	
Display unit	FAN kit for changing the 26inch MNU	7ZYNA4005	
Display unit	Display unit	NWZ-233	
Trackball operation unit	Trackball unit	CCK-1060	
Trackball operation unit	Operation circuit A	CCK-1050	
Trackball operation unit	Operation circuit SW	CCK-1069	
Trackball operation unit	Operation circuit CN	CCK-1070	
Trackball operation unit	Interior of the Trackball operation unit	CMD-1103	
Keyboard operation unit	Operation circuit B	CCK-1059	
Keyboard operation unit	Keyboard unit	CCK-1061	
Keyboard operation unit	Interior of the Keyboard operation unit	CMD-1106	
Power supply unit	Power supply unit	NBD-913	
Power supply unit	FAN kit for changing the PSU	7ZYNA4007	
Central control unit	CCU repair kit	NZC-1590/A	
Central control unit	SSD 256GB	CDD-753	
Central control unit	FAN kit for changing the CCU	7ZYNA4006	

Repair Circuit Block (JAN-7202)

Location	Circuit Block Name	Model Name	Remarks
Display unit	Display unit	NWZ-207	
Display unit	FAN kit for changing the 19inch MNU	7ZYNA4004	For NWZ-207
Display unit	Display unit	NWZ-214	
Display unit	FAN kit for changing the 19inch MNU	7BFRD0008	For NWZ-214
Trackball operation unit	Trackball unit	CCK-1060	
Trackball operation unit	Operation circuit A	CCK-1050	
Trackball operation unit	Operation circuit SW	CCK-1069	
Trackball operation unit	Operation circuit CN	CCK-1070	
Trackball operation unit	Interior of the Trackball operation unit	CMD-1103	
Keyboard operation unit	Operation circuit B	CCK-1059	
Keyboard operation unit	Keyboard unit	CCK-1061	
Keyboard operation unit	Interior of the Keyboard operation unit	CMD-1106	
Power supply unit	Power supply unit	NBD-913	
Power supply unit	FAN kit for changing the PSU	7ZYNA4007	
Central control unit	CCU repair kit	NZC-1590/A	
Central control unit	SSD 256GB	CDD-753	
Central control unit	FAN kit for changing the CCU	7ZYNA4006	

10.3 Troubleshooting

When this equipment does not operate correctly, check the following points before asking for repairs. Consult with your nearest subsidiary company, branch office, or sales office if the problem does not get solved even after checking and correcting these points, or if there are any abnormally locations other than the following items.

Symptom	Cause	Action
The power is not supplied.	The AC or DC power supply is	Connect the AC or DC power
Alternatively, the equipment	not connected.	supply.
does not start even if the	The breaker at the front of the	Set the breaker to ON by
Power button of the operation	power supply unit (NBD-913) is	pushing up the lever of the
unit is pressed.	not set to ON.	breaker.
	The AC or DC power supply is not	Connect the AC or DC power
	input within the specified voltage	supply within the specified
	range.	voltage range.
	The internal wiring is faulty	Make a request to the distributor
	The internal wiring is faulty.	for repair.
	The power supply unit (NBD-913)	Make a request to the distributor
	is faulty.	for repair.
	The central control unit	Make a request to the distributor
	(NDC-1590/A) is faulty.	for repair.
	The operation unit (NCE-5605) is	Make a request to the distributor
	faulty.	for repair.
The power is not supplied to	The display unit is not activated.	Activate the display unit.
the monitor.	The internal wiring is faulty.	Make a request to the distributor
	The internal wiring is lauity.	for repair.
	Display unit (NWZ-208/ NWZ-233/	Make a request to the distributor
	NWZ-207/NWZ-214) is faulty.	for repair.
Although the power is supplied	The brightness of the monitor is	Adjust the brightness of the
to the monitor, the screen is	set to the minimum level.	monitor to the appropriate level.
not displayed.	The internal wiring is faulty.	Make a request to the distributor
	The internal wiring is lauity.	for repair.
	Display unit (NWZ-208/ NWZ-233/	Make a request to the distributor
	NWZ-207/NWZ-214) is faulty.	for repair.
The brightness of the monitor	Display unit (NWZ-208/ NWZ-233/	Make a request to the distributor
cannot be adjusted.	NWZ-207/NWZ-214) is faulty.	for repair.
The trackball or the option	The internal wiring is faulty.	Make a request to the distributor
keyboard cannot be operated.		for repair.
	The display unit	Make a request to the distributor
	(NCE-5605/NCE5625) is faulty.	for repair.
The trackball does cannot be	The trackball is dirty.	Clean the trackball.
moved smoothly.	The trackball is ulity.	Olean และ และกับสแ

Symptom	Cause	Action
Although the power is supplied and the screen is displayed, the display is frozen, disabling processing to advance up to display of the task menu.	The central control unit (NDC-1590/A) is abnormal.	Make a request to the distributor for repair.
Some task menus cannot be	The device license has not been	Install the license of the device
selected.	installed.	to be used.
The cursor is not displayed	The central control unit	Make a request to the distributor
correctly.	(NDC-1590/A) is faulty.	for repair.
Characters/symbols are not	The central control unit	Make a request to the distributor
displayed correctly.	(NDC-1590/A) is faulty.	for repair.
Position information (GPS) is not displayed.	The communication is not set correctly.	Set the communication correctly.
	The power supply for the GPS	Turn on the power supply for the
	equipment is not turned on.	GPS equipment.
	The GPS equipment does not	Check the state of the GPS
	perform positioning.	equipment.
	The connection with the GPS	Check the connection with the
	equipment is abnormal.	GPS equipment.
		When GPS equipment is
		connected to the serial LAN
		interface circuit, check if the
		LED of the corresponding port is
	The newer cumply for the	lit at data reception.
	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on. (Case where the GPS equipment is connected to the serial-LAN interface circuit)	Turn on the power supply for the serial-LAN interface circuit.
	The serial-LAN interface circuit	Make a request to the distributor
	(CMH-2370) is faulty. (Case where the GPS	for repair.
	equipment is connected to the serial-LAN interface circuit)	
	The internal wiring is faulty.	Make a request to the distributor
		for repair.
	The central control unit	Make a request to the distributor
	(NDC-1590/A) is faulty.	for repair.
The azimuth of the Gyro compass is not displayed.	The communication is not set correctly.	Set the communication correctly.
Alternatively, the azimuth	The power supply for the Gyro	Turn on the power supply for the
rotation direction is not	compass equipment is not	Gyro compass equipment.
displayed correctly.	turned on.	

Symptom	Cause	Action
The azimuth of the Gyro compass is not displayed. Alternatively, the azimuth rotation direction is not displayed correctly.	The connection with the Gyro compass equipment is abnormal.	Check the connection with the Gyro compass equipment. When gyro compass equipment is connected to the serial LAN interface circuit or gyro interface circuit, check if the corresponding LED is lit at signal reception.
	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on. (Case where the Gyro compass equipment is connected to the serial-LAN interface circuit)	Turn on the power supply for the serial-LAN interface circuit.
	The serial-LAN interface circuit (CMH-2370) is faulty. (Case where the Gyro compass equipment is connected to the serial-LAN interface circuit)	Make a request to the distributor for repair.
	The Gyro interface circuit(CMJ-554) is not set correctly (Case where the Gyro compass equipment is connected to the Gyro interface circuit)	Set the Gyro interface circuit correctly according to the Gyro compass equipment.
	The Gyro interface circuit (CMJ-554) is faulty. (Case where the Gyro compass equipment is connected to the Gyro interface circuit)	Make a request to the distributor for repair.
	The fuse of the Gyro interface circuit (CMJ-554) is blown out. The internal wiring is faulty.	Replace the fuse of the Gyro interface circuit. Make a request to the distributor for repair.
	The central control unit (NDC-1590/A) is faulty.	Make a request to the distributor for repair.
Log is not displayed or the values are not displayed	The communication is not set correctly.	Set the communication correctly.
correctly.	The power supply for the log equipment is not turned on.	Turn on the power supply for the log equipment.
	The connection with the log equipment is abnormal.	Check the connection with the log equipment. When log equipment is connected to the serial LAN interface circuit or gyro interface circuit, check if the corresponding LED blinks at signal reception.

Symptom	Cause	Action
Log is not displayed or the values are not displayed correctly.	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on. (Case where the log equipment is connected to the serial-LAN interface circuit).	Turn on the power supply for the serial-LAN interface circuit.
	The serial-LAN interface circuit (CMH-2370) is faulty. (Case where the log equipment is connected to the serial-LAN interface circuit).	Make a request to the distributor for repair.
	The Gyro interface circuit (CMJ-554) is not set correctly. (Case where the log equipment is connected to the Gyro interface circuit).	Set the Gyro interface circuit correctly according to the log equipment.
	The Gyro interface circuit (CMJ-554) is faulty. (Case where the log equipment is connected to the Gyro interface circuit).	Make a request to the distributor for repair.
	The internal wiring is faulty.	Make a request to the distributor for repair.
	The central control unit (NDC-1590/A) is faulty.	Make a request to the distributor for repair.
Rudder angles are not displayed.	The communication is not set correctly.	Set the communication correctly.
Alternatively, the values are not displayed correctly.	The power supply for the rudder angle indicator is not turned on.	Turn on the power supply for the rudder angle indicator.
	The connection with the rudder angle indicator is abnormal.	Check the connection with the rudder angle indicator. When a rudder angle indicator is connected to the serial LAN interface circuit, check if the LED of the corresponding port is lit at data reception.
	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on. (Case where the rudder angle indicator is connected to the serial-LAN interface circuit or the rudder angle indicator is connected to the analog option circuit)	Turn on the power supply for the serial-LAN interface circuit.

Symptom	Cause	Action
Rudder angles are not displayed. Alternatively, the values are not displayed correctly.	The serial-LAN interface circuit (CMH-2370) is faulty. (Case where the rudder angle indicator is connected to the serial-LAN interface circuit or the rudder angle indicator is connected to the analog option circuit)	Make a request to the distributor for repair.
	The analog option circuit (CMJ-560) is not set correctly. (Case where the rudder angle indicator is connected to the analog option circuit)	Set the analog option circuit correctly according to the rudder angle indicator.
	The analog option circuit (CMJ-560) is faulty. (Case where the rudder angle indicator is connected to the analog option circuit)	Make a request to the distributor for repair.
	The internal wiring is faulty.	Make a request to the distributor for repair.
Wind direction/wind speed	The central control unit (NDC-1590/A) is faulty. The communication is not set	Make a request to the distributor for repair. Set the communication correctly.
(anemoscope/anemometer)	correctly.	
data is not displayed.	The power supply for the anemoscope/anemometer is not turned on.	Turn on the power supply for the anemoscope/anemometer.
	The connection with the anemoscope/anemometer is abnormal.	Check the connection with the anemoscope/anemometer. Check if the LED of the corresponding port of the serial LAN interface circuit is lit at data reception.
	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on.	Turn on the power supply for the serial-LAN interface circuit.
	The serial-LAN interface circuit (CMH-2370) is faulty.	Make a request to the distributor for repair.
	The internal wiring is faulty.	Make a request to the distributor for repair.
	The central control unit (NDC-1590/A) is faulty.	Make a request to the distributor for repair.
Water depth values are not displayed.	The communication is not set correctly.	Set the communication correctly.
	The power supply for the echo sounder is not turned on.	Turn on the power supply for the echo sounder.

Symptom	Cause	Action
Water depth values are not displayed.	The connection with the echo sounder is abnormal.	Check the connection with the echo sounder. Check if the LED of the corresponding port of the serial LAN interface circuit is lit at data reception.
	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on.	Turn on the power supply for the serial-LAN interface circuit.
	The serial-LAN interface circuit (CMH-2370) is faulty.	Make a request to the distributor for repair.
	The internal wiring is faulty.	Make a request to the distributor for repair.
	The central control unit (NDC-1590/A) is faulty.	Make a request to the distributor for repair.
Sensor signals are not displayed.	The communication is not set correctly.	Set the communication correctly.
	The power supply for the sensor equipment is not turned on.	Turn on the power supply for the sensor equipment.
	The connection with the sensor equipment is faulty.	Check the connection with the sensor equipment. Check if the LED of the corresponding port of the serial LAN interface circuit is lit at data reception.
	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on.	Turn on the power supply for the serial-LAN interface circuit.
	The internal wiring is faulty.	Make a request to the distributor for repair.
	The display unit such as the serial-LAN interface circuit (CMH-2370), analog option circuit (CMJ-560), and central control unit (NDC-1590/A) is faulty.	Make a request to the distributor for repair.

Symptom	Cause	Action
Contact signals are not output.	The power supply for the serial-LAN interface circuit (CMH-2370) is not turned on. (Case where contact signal output is acquired from the serial-LAN interface circuit)	Turn on the power supply for the serial-LAN interface circuit.
	The serial-LAN interface circuit (CMH-2370) is faulty. (Case where contact signal output is acquired from the serial-LAN interface circuit)	Make a request to the distributor for repair.
	The internal wiring is faulty.	Make a request to the distributor for repair.
	The central control unit (NDC-1590/A) is faulty.	Make a request to the distributor for repair.
UPS does not operation.	The connection with UPS is faulty.	Check the connection with UPS.
	UPS is not set correctly. The UPS battery is extremely depleted.	Set UPS correctly. Replace the battery.
		[Note] At the battery replacement, make a request for the work to the specialized service staff. During the replacement, turn off the corresponding power supply breaker in the ship. Otherwise, an unexpected accident may occur.
	The internal wiring is faulty.	Make a request to the distributor for repair.
	UPS is faulty.	Make a request to the distributor for repair.
The following popup window is displayed. System has detected an error. Turn the power off and on again.	A communication error occurred.	Close the popup window and after checking that there is no problem even if the power of this equipment is turned off, turn off the power and turn on again.
The following popup window is displayed.		Make a request to the distributor for repair. And restart this system at safe
Network failure has been detected. This system is operating under restricted mode. Contact JRC or JRC service	A network failure occurred.	waters.
agent. To restart this system, click the OK button at safe waters.		

Symptom	Cause	Action
The following popup window is displayed. Main LAN is disabled. This system is operating with Sub LAN only. Contact JRC or JRC service agent. After recovering by service engineer, click the bellow button.	A network failure occurred on the main LAN.	Make a request to the distributor for repair.
The following popup window is displayed. Sub LAN is disabled. This system is operating with Main LAN only. Contact JRC or JRC service agent. After recovering by service engineer, click the bellow button.	A network failure occurred on the sub LAN.	Make a request to the distributor for repair.
The following popup window is displayed. Main/Sub LAN is disabled. This system is operating with serial in CCU only. Contact JRC or JRC service agent. After recovering by service engineer, click the bellow button.	A network failure occurred on the main LAN and sub LAN.	Make a request to the distributor for repair.

10.4 After-Sale Services

10.4.1 About the retaining period of service parts

The retaining period of the performance-critical parts for servicing this product (parts required to maintain the functionality of the product) is 10 years after the discontinuation of production.

10.4.2 When requesting a repair

If you suspect a failure, please read "10.3 Troubleshooting" thoroughly first and check the unit again. If you still detect abnormality, stop using the product and contact your sales representative, our sales department, nearest branch office or sales office.

- Repair during the warranty period: If a failure occurs in the course of using the product correctly
 according to the explanations and instructions in the Instruction Manual, your sales representative
 or our company shall repair the product at no charge. However, repairs of failures caused by
 misuse, negligence, or act of God such as natural disasters and fire shall be chargeable.
- If the warranty period has expired: If functionality can be recovered by repair, repair shall be made by the request of the customer for a fee.
- · Please provide the following information:
 - Product name, model name, manufacturing date, serial number
 - Description of abnormality (as detail as possible) (Please refer to the next page "Radar Failure Checklist.")
 - Business name or organization name, address, phone number

10.4.3 Recommendation of inspection and maintenance

Although it depends on the usage state, performance may deteriorate by change in parts over time, Separately from regular care, inspection and maintenance are recommended.

Regarding inspection and maintenance, please contact your sales representative, our sales department, nearest branch office or sales office.

Please note that there is a charge for inspection and maintenance.

If you have questions regarding after-sale services, please inquire your sales representative, our sales department, nearest branch office or sales office.

Conning Display Failure Checklist

[Important]	Before ordering a repair, pl	ease check and fill	in the following items and then co	ontact the
	applicable repair office.			
	If there are unknown items, please contact the ship and fill in as accurate as possible.			
Ship Name:	:	Phone:	Fax:	
Integrated F	Radar Model Name: JMR	· · · · · · · · · · · · · · · · · · ·	Serial Number:	
(Please fill i	n all digits accurately.)			
(4) Charlet	ika fallawina itawa asawantia	lly and single sither	VEC on NO for each items	

(1) Check the following items sequentially and circle either YES or NO for each item. If none is applicable, please write down the specific reason in No. (7) Others.

No.	Check Item		
(1)	The power turns ON. (The light of the operation unit illuminates.)	YES	NO
(2)	The starting screen is displayed.	YES	NO
(3)	The task screen is displayed.	YES	NO
(4)	The Conning Display screen is displayed.	YES	NO
(5)	Operation using the trackball or keyboard is possible.	YES	NO
(6)	The various sensors are displayed normally.	YES	NO
(7)	Others (error messages, etc.)		

10.4.4 Extending the functions

The functions that are available for this equipment can be extended as an optional extra.

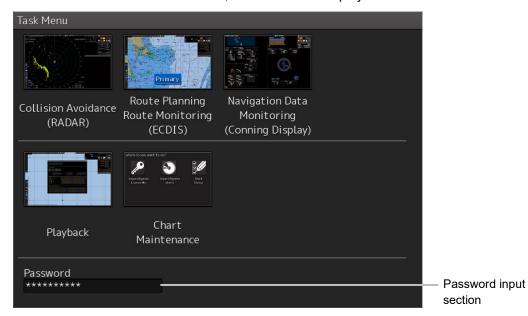
To extend a function, new license information (file) must be obtained and imported to this equipment. For function extension, please request to our Sales Department or our branch office, sales office, or agent near your premises.

10.4.4.1 Importing License information

Import the license information that was obtained (license file) to this equipment via the USB memory. Connect the USB memory in which the license information is stored.

1 Press the Power button of the operation unit.

The Power button is lit. After a while, a task menu is displayed.

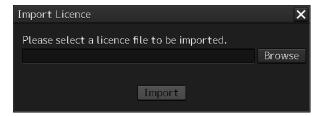


2 Click on the password input section.

A password input dialog is displayed.

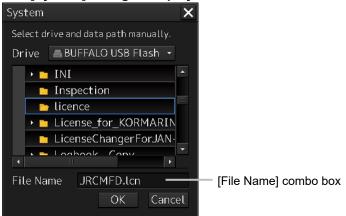
3 Enter the password, 9380.

The [Import License] dialog is displayed.



4 Click on the [Browse] button.

The [System] dialog is displayed.



- 5 Select the name of the license file (example: JRCMFD.lcn) that is stored in the USB flash memory from the [File Name] combo box and click on the [OK] button.
 - The [System] dialog is closed.
- 6 Click on the [Import] button.
 When import is completed, a confirmation dialog is displayed.
 Close the dialog by clicking on the [OK] button.
- 7 Close the [Import License] dialog by clicking on the [x] button and return to the task menu.

In this case, a new license is adopted.

Section 11 About Disposal

11.1 About Disposal of This Unit

When disposing of this equipment, follow the regulations and/or rules of the local regulatory authority which has control over the location of disposal.

11.2 Chinese Version RoHS

有毒有害物质或元素的名称及含量

(Names & Content of toxic and hazardous substances or elements)

TT/ D 4	(TT)	* * * * * * * * * * * * * * * * * * * *	T . 3 T
#27 2	Une	1. I A NL977177	JAN-7202 Series
ハンエいつ	(IYDC	1. JEXIV-7202.	JA11-1202 DOLLOS

名称(Name): Conning Display

部件名称	有毒有害物质或元素 (Toxic and Hazardous Substances and Elements)									
(Part name)	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)				
主船内装置 (Inboard Unit) ・显示装置 (Display Unit) ・键盘装置 (OperationUnit) ・信号处理装置 (Central Control Unit)	×	×	0	×	0	0				
外部设备 (Peripherals) ·选择 (Options) ·电线类 (Cables) ·手册 (Documennts)	×	×	0	×	0	0				
〇:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11306-2006 标准规定的限量要求以下。 (Indicates that this toxic, or hazardous substance contained in all of the homogeneous materials for this part is below the requirement in SJ/T11363-2006.)										
×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。 (Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T 11363-2006.)										

Section 12 Specifications

12.1 JAN-9202

GENERAL SPECIFICATION	JAN-9202
Display	26/27inch Wide LCD
Operation	Cursor and keys
External media	General purpose USB port × 1
Ambient Condition	-15°C to 55°C
- Operating Temperature	-13 6 10 33 6
Ambient Condition	+40°C, 93%
- Relative Humidity	140 0, 93 %
Ambient Condition	2 to 13.2Hz: Amplitude ± 1 mm $\pm 10\%$
- Vibration	13.2 to 100Hz: Acceleration 7m/s ²
Power Supply Input	100 to 115VAC, 50/60Hz 1φ
	220 to 240VAC, 50/60Hz 1φ
	24VDC
Power Consumption	Approx. 240VA typical
	(DC:72W at AC power outage)
Power Supply Voltage Fluctuation	AC input ±10%
	DC input +30%, -10%
Central Control Unit	
Central Control Unit	NDC-1590/A
Power Supply Unit	NBD-913
Trackball Operation Unit	NCE-5605
Display	
Display	NWZ-208/NWZ-233
Option Unit	
Keyboard Operation Unit	NCE-5625
Operation unit desktop frame rack	CWB-1596
Large tray	CWB-1593
Junction Box	NQE-1143
Sensor LAN Switch Unit	NQA-2443/A
26/27inch DESKTOP FRAME RACK	CWB-1595/CWB-1660
26/27inch DISPLAY UNIT MOUNT KIT	CWA-246
DSC	NCT-82 (32 CH)/NCT-83 (64CH)
SAFE DISTANCE FOR STANDARD CO	DMPASS
Display unit	2.4m(2.6m when installed in the optional 26inch Display
	Unit Mount Kit)

12.2 JAN-7202

GENERAL SPECIFICATION	JAN-7202
Display	19inch LCD
Operation	Cursor and keys
External media	General purpose USB port × 1
Ambient Condition - Operating Temperature	-15°C to 55°C
Ambient Condition - Relative Humidity	+40°C, 93%
Ambient Condition	2 to 13.2Hz: Amplitude ±1mm ±10%
- Vibration	13.2 to 100Hz: Acceleration 7m/s ²
Power Supply Input	100 to 115VAC, 50/60Hz 1φ
	220 to 240VAC, 50/60Hz 1φ
	24VDC
Power Consumption	Approx. 200VA typical
	(DC:72W at AC power outage)
Power Supply Voltage Fluctuation	AC input ±10%
	DC input +30%, -10%
Central Control Unit	
Central Control Unit	NDC-1590/A
Power Supply Unit	NBD-913
Trackball Operation Unit	NCE-5605
Display	
Display	NWZ-207/NWZ-214
Option	
Keyboard Operation Unit	NCE-5625
OPERATION UNIT DESKTOP	CWB-1596
FRAME RACK	6112 1666
Large tray	CWB-1593
Junction Box	NQE-1143
Sensor LAN Switch Unit	NQA-2443/A
19inch DESKTOP FRAME RACK	CWB-1594/CWB1659
19inch DISPLAY UNIT MOUNT KIT	CWA-245
DSC	NCT-82 (32 CH)/NCT-83 (64CH)
SAFE DISTANCE FOR STANDARD	
Display unit	2.4m

12.3 Display Unit

Upgrading to multi-function display

FUNCTIONAL SPECIFICATION	
View	
Display mode	Sail mode/Docking mode/Custom mode
Wind direction and speed display	H UP/N UP
mode	
Trend graph	Water depth/Rudder angle/Heading/Heading + Rudder
	angle/Engine (propeller) revolution
Display data	
Heading	
Ship position	
Geodetic positioning system	
Time	
COG/SOG	
STW	
ROT	
Water depth	
Wind direction/wind speed	
Current direction and speed	Calculated from own ship's COG/SOG
Engine (propeller) revolution	Max. 2 units
Engine telegraph	Max. 2 units
Rudder angle	Max. 2 units
Side thruster	Max. 5 units (Bow: 3 units, Stern: 2 units)
Azimuth thruster	Max. 2 units
Route information	
Autopilot information	
Air temperature	
Water temperature	
Atmospheric pressure	
Humidity	
Other functions	
Self-diagnosis function	Present
Remote maintenance function	Present

Possible

Receivable signals (i)	
Ship heading	THS > HDT (over 40Hz)
Course	GGA > RMC > RMA > GNS > GLL
Geodetic positioning system	DTM
Date information	ZDA
COG/SOG	RMC > RMA > VTG
Ship speed through water	VBW
Turning speed	ROT
Water depth	DPT > DBS > DBK > DBT
Wind direction/wind speed	MWV > MWD
Engine (propeller) revolution	Serial: RPM(Response), PRC(Order) Analog: XDR
Engine telegraph	ETL
Rudder angle	Serial: RSA(Response), ROR(Order) Analog: XDR
Side thruster	Serial: TRD(Response), TRC(Order) Analog: XDR
Azimuth thruster	TRD(Response), TRC(Order)
Route information	ECDIS information notification (PJRC, EIF00/PJRC,
	EIS00/WPL)
Auto pilot information	ECDIS information notification (PJRC, EIF00)
Air temperature	MTA > MDA
Water temperature	MTW > MDA
Atmospheric pressure	MMB > MDA
Humidity	MHU > MDA
Alert	ACK, ALR, ACN, ALF, HBT
Transmittable signals	
Watch Timer Reset	EVE
Remote maintenance data	JRC format
Alert	ACK, ALR, ACN, ALC, ALF, ARC, HBT
Visual range	
Visual range	1.00m from the center of display(NWZ-208/207/214) 1.07m from the center of display(NWZ-233)

i. The measuring precision of the speed sensor complies with IMO Resolution MSC.96(72). The measuring precision of the GPS sensor complies with IMO Resolution MSC.112(73).

12.4 Central Control Unit

GENERAL SPECIFICATION	NDC-1590/A: Central Control Unit
CPU	Intel Core i5 2515E 2.5GHz (NDC-1590)
	/ CPU Intel Core i3 6100E 2.7GHz (NDC-1590A)
Main Memory	2GB (DDR3, NDC-1590) / 4GB (DDR4, NDC-1590A)
JRC ASIC	Yes
Mechanical	
Dimension	Width 400 x Depth 240 x Height 125 (mm)
Mass	5.6kg
FAN	1
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
Vibration	Sweep 2Hz to 13.2Hz at ± 1mm, 13.2Hz to 100Hz at 7m/s ² and
	for 2h on each resonance, otherwise 2h at 30Hz in all three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	IP20
Interfaces	
DVI-D	1
VGA	1 (Slave output with same resolution as DVI-D)
IEC61162-450	3 (IEEE802.3/IEEE802.3ab Compliance
	(100BASE-TX/1000BASE-T))
IEC61162-1	2 input (GPS and LOG)
IEC61162-2	2 input (AIS and THD (Transmitting Heading Devices))
LAN	3 (up to 1GBase-T)
Dry Contact Output	2 (Power Fail and Watch Timer Reset)
Normally Close	Power Fail (32V 0.8A MAX)
Normally Open	Watch Timer Reset (32V 0.8A MAX)
Operation Unit	1 (5m max)
Ext Operation Unit	1 (up to 30m)
USB I/F	3 (1 for MNU, Others are general purpose)
RADAR I/F	1 input for scanner unit, 1 output for other equipment
RADAR I/F Power	1 input for scanner unit, 1 output for other equipment Connecting with NBD-913

12.5 Power Supply Unit

GENERAL SPECIFICATION	NBD-913: Power Supply Unit
AC Input	
Voltage	100 to 115VAC, 50/60Hz 1φ
	220 to 240VAC, 50/60Hz 1φ
Voltage Range	85 to 264VAC
Overvoltage Protection	295VAC±2V
Input Current	Max 6.8A(100VAC) / 3.4A(220VAC)
Over current Protection	YES
DC Input	
Voltage	24VDC
Voltage Range	21.6 to 31.2VDC
Overvoltage Protection	42V
Input Current	Max 16A
Over current Protection	YES
Rated Output	
Output 1	12.0V±0.24V 2A
Output 2A (for CCU)	24.0V±0.48V 4A
Output 2B (for MNU)	24.0V±0.48V 6A
Output 3 (for TXRX)	48.0V±0.96V 4A
Mechanical	
Dimension	Width 400 x Depth 240 x Height 85 (mm)
Mass	4.2kg
FAN	2
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at ± 1mm, 13.2Hz to 100Hz at 7m/s2
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all
	three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	IP20

12.6 Trackball Operation Unit

GENERAL SPECIFICATION	NCE-5605: Trackball Operation Unit
Pointing Device	2inch Trackball
Click Button	2-buttons (Left and Right)
USB I/F	1
Speaker	1
Keys	SILENCE/ALERT ACK/ZOOM IN/ZOOM OUT
Knob	Multi Function Knob
Cable Length	Up to 5m (Up to 30m when the extended option is used.)
Mechanical	
Dimension	Width 130 x Depth 210 x Height 77 (mm)
Mass	1.3kg
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at \pm 1mm, 13.2Hz to 100Hz at 7m/s ²
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all
	three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front : IP22

12.7 19inch Display (NWZ-207)

GENERAL SPECIFICATION	NWZ-207: Display
Screen Size	19inch
Aspect Ratio	5:4
Full Resolution	1280 × 1024
Supported format	$1280 \times 1024, 1280 \times 960, 1024 \times 768, 800 \times 600, 640 \times \\ 480, 720 \times 400$
Dot Pitch	0.294mm
Viewing Area	376.32mm × 301.06mm
Display Colors	1.677 billion colors
Contrast Ratio	2000:1
Viewing Angles (H / V)	178°/178°
Back Light	LED
Brightness	500cd/m2 Type
Digital Scanning Frequency (H / V)	Horizon 30kHz to 80kHz Vertical 56Hz to 75Hz
DVI-D input	1
VGA input	1
VGA output	N/A
USB I/F	1
Power	21.6 to 31.2VDC
Overvoltage Protection	N/A
DC Reverse Connection Protection	Self Return Type
Cables	Up to 5m
Glass Bonding	Standard
Mechanical	
Dimension	Width 429 x Depth 76 x Height 382 (mm)
Mass	6.0kg
Fan	1
Glass	Tempered Glass + AR Coating
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at ± 1mm, 13.2Hz to 100Hz at 7m/s2
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all
	three axes
EMS	IEC60945-Ed4.0
Ingress Protection Rating	Front:IP65 Back:IP22

12.8 19inch Display (NWZ-214)

GENERAL SPECIFICATION	NWZ-214 : Display
Screen Size	19inch
Aspect Ratio	5:4
Full Resolution	1280 × 1024
Supported format	$1280 \times 1024, 1280 \times 960, 1024 \times 768, 800 \times 600, 640 \times 480, 720 \times 400$
Dot Pitch	0.294 mm
Viewing Area	376.32 mm × 301.06 mm
Display Colors	16.77 million colors
Contrast Ratio	2000:1
Viewing Angles (H / V)	178°/ 178°
Back Light	LED
Brightness	1000cd/m ² Type
Digital Scanning Frequency (H / V)	Horizon 30 kHz to 80 kHz Vertical 56 Hz to 75 Hz
DVI-D input	1
VGA input	1
VGA output	N/A
USB I/F	N/A
Power	21.6 to 31.2VDC
Overvoltage Protection	N/A
DC Reverse Connection Protection	Self Return Type
Cables	Up to 5m
Glass Bonding	Standard
Mechanical	
Dimension	Width 429 × Depth 76 × Height 382 (mm)
Mass	4.6kg
Fan	1
Glass	Tempered Glass + AR Coating
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
Vibration	Sweep 2Hz to 13.2Hz at \pm 1mm, 13.2Hz to 100Hz at 7m/s ² and for 2h on each resonance, otherwise 2h at 30 Hz in all three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front:IP65 Back:IP22

12.9 26inch Display

GENERAL SPECIFICATION	NWZ-208: Display
Screen Size	26inch
Aspect Ratio	16:10
Full Resolution	1920 × 1200RB
T dil Troccidion	1920 × 1200RB, 1680 × 1050, 1680 × 1050RB, 1600 ×
	1200,
Supported format	1600 × 1200RB, 1280 × 1024, 1024 × 768, 800 × 600, 640 ×
	480
Dot Pitch	0.2865mm
Viewing Area	550.08mm × 343.8mm
Display Colors	1.677 billion colors
Contrast Ratio	1500:1
Viewing Angles (H / V)	176°/176°
Back Light	LED
Brightness	400cd/m ² Type
	Horizon 30kHz to 75kHz
Digital Scanning Frequency (H / V)	Vertical 56Hz to 75Hz
DVI-D input	1
VGA input	1
VGA output	1
USB I/F	1
_	21.6 to 31.2VDC
Power	85 to 265VAC 50/60Hz
Overvoltage Protection	N/A
DC Reverse Connection Protection	Self-Return Type
Cables	Up to 5m
Glass Bonding	Optional
Mechanical	
Dimension	Width 624 x Depth 85 x Height 456 (mm)
Mass	16kg
Fan	2
Glass	Tempered Glass + AR Coating
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at \pm 1mm, 13.2Hz to 100Hz at 7m/s ²
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all
	three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front: IP65 Back: IP22

12.10 27inch Display

GENERAL SPECIFICATION	NWZ-233: Display
Screen Size	27inch
Aspect Ratio	16:9
Full Resolution	1920 × 1080
Supported format	1920x1200,1920x1080,1680x1050,1600x1200,1280x1024, 1280x960,1024x768,800x600,720x400,640x480
Dot Pitch	0.311mm
Viewing Area	597.6mm × 336.2 mm
Display Colors	16.77 million colors
Contrast Ratio	3000:1
Viewing Angles (H / V)	178° / 178°
Back Light	LED
Brightness	350cd/m ² Type
Digital Scanning Frequency (H / V)	Horizontal 31kHz to 76kHz Vertical 59Hz to 61Hz
DVI-D input	1
VGA input	1
DP input	1
USB I/F	1
_	21.6 to 31.2VDC
Power	85 to 265VAC 50/60Hz
Overvoltage Protection	N/A
DC Reverse Connection Protection	Reverse current protection with FET control
Cables	Up to 5m
Glass Bonding	Optional
Mechanical	
Dimension	Width 656 × Depth 62.5 × Height 454 (mm)
Mass	8.6kg
Fan	N/A
Glass	Tempered Glass + AR/AF Coating
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at ± 1mm, 13.2Hz to 100Hz at 7m/s ²
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front: IP65 Back: IP22
g. 130	

12.11 Keyboard OPU

GENERAL SPECIFICATION	NCE-5625: Keyboard Operation Unit
PC Keyboard	
Layout	QWERTY
Pitch	15mm
Stroke	2mm
Dedicated Keys	
Keys	HOME, TX/STBY, PI, DISP OFF, AZ, PANEL, DAY/NIGHT, MOB, USER1, USER2
Knobs	EBL, VRM, SEA, RAIN, GAIN
Mechanical	
Dimension	Width 270 x Depth 210 x Height 30 (mm)
Mass	0.8kg
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
Vibration	Sweep 2Hz to 13.2Hz at ± 1mm, 13.2Hz to 100Hz at 7m/s2 and for 2h on each resonance, otherwise 2h at 30Hz in all three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front : IP22

12.12 26/27inch Display Unit Mount Kit

GENERAL SPECIFICATION	CWA-246: 26inch Display Unit Mount Kit
Mechanical	
Dimension	Width 680 x Depth 718 x Height 1100 (mm)
Mass	APPROX. 65kg
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at \pm 1mm, 13.2Hz to 100Hz at 7m/s ²
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all
	three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front: IP22

12.13 19inch DISPLAY UNIT MOUNT KIT

GENERAL SPECIFICATION	CWA-245: 19inch DISPLAY UNIT MOUNT KIT
Structure	
Dimension	Width 580 × Depth 718 × Height 1100 (mm)
Mass	Approx. 55kg
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
Vibration	Sweep 2Hz to 13.2Hz at ± 1mm, 13.2Hz to 100Hz at 7m/s2 and
Vibration	for 2h on each resonance, otherwise 2h at 30Hz in all three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front: IP22

12.14 Sensor LAN switch unit

GENERAL SPECIFICATION	NQA-2443: Sensor LAN switch unit
Technology	
Standards	IEEE802.3, 802.3u, 802.3x
Droppeding type	Store and Forward, with IEEE802.3 full duplex,
Processing type	back pressure flow control
Forward and Filtering Rate	148810 pps
Latency	Less than 5us
Interface	
Number of ports	16
RJ45	10/100Base-T(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
LED	Power, Fault, Speed
Power	
Input Voltage	12 to 48 VDC
Input Current	0.34A max
Over Current Protection	1.6A
Reverse Polarity Protection	Yes
Mechanical	
Dimension	Width 75.0 x Depth 105 x Height 179 (mm)
Mass	1.5kg
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
Vibration	Sweep 2Hz to 13.2Hz at \pm 1mm, 13.2Hz to 100Hz at 7m/s ²
	and for 2h on each resonance, otherwise 2h at 30Hz in all three axes
EMC	IEC60945-Ed4.0

CENTERAL OREGINATION	NOA OARON O IAN . W. I W
GENERAL SPECIFICATION	NQA-2443A: Sensor LAN switch unit
Technology	
Standards	IEEE802.3, 802.3u, 802.3x, 802.3ab
Processing type	Store and Forward, with IEEE802.3 full duplex,
	14880 pps / port (10Mbps, 64byte pkt, uni-cast)
Maximum throughput	148810 pps / port (100Mbps, 64byte pkt, uni-cast)
Maximum tilloughput	1488100 pps / port (1000Mbps, 64byte pkt, uni-cast)
	*Wire speed : 100%
Interface	
Number of ports	16
D M5	10/100/1000BASE-T(X) auto negotiation speed, F/H duplex mode,
RJ45	and auto MDI/MDI-X connection
LED	PWR, UVP/OVP, RVP, LOOP, LINK/ACT
Power	
Input Voltage	18 to 36 VDC
Maximum Power Consumption	13.2 W and under
Reverse Polarity Protection	Yes
Mechanical	
Dimension	Width 75.0 x Depth 105 x Height 179 (mm)
Mass	0.8kg
Environment	
Operational Temperature	-25°C to +70°C
Operational Humidity	40°C RH 93%
	Sweep 2 Hz to 13.2 Hz at \pm 1 mm, 13.2 Hz to 100 Hz at 7m/s ²
Vibration	and for 2h on each resonance, otherwise 2h at 30 Hz in all three
	axes

12.15 Junction Box

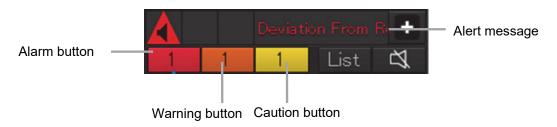
GENERAL SPECIFICATION	NQE-1143: Junction Box
Mechanical	
Dimension	Width 400 x Depth 86 x Height 261.5 (mm)
Mass	3.8kg
Environment	
Operational Temperature	-15°C to +55°C
Operational Humidity	40°C RH 93%
	Sweep 2Hz to 13.2Hz at \pm 1mm, 13.2Hz to 100Hz at 7m/s ²
Vibration	and for 2h on each resonance, otherwise 2h at 30Hz in all
	three axes
EMC	IEC60945-Ed4.0
Ingress Protection Rating	Front : IP20
Power	
Power	21.6 to 31.2 VDC
Input Voltage	48W MAX
Power Consumption	$3A \times 2$, $15A \times 1$ Mini Blade Fuse
Over Current Protection	Yes
FUNCTIONAL SPECIFICATION	CMH-2370: Serial LAN Interface Circuit
Interface	
IEC61162-1	8 input / 8 output
IEC61162-2	2 input / 2 output
IEC61162-450	1 (100Base-TX)
Dry Contact Output (N.C/N.O selectable)	8 (32V, 0.8A sink MAX)
Dry Contact Input	8 (5V, 50mA source MAX)
Ingress Protection Rating	Front : IP20
FUNCTIONAL SPECIFICATION	CMJ-554: Gyro Interface Circuit
GYRO	
STEP	22 to 70 VDC
SYNC	24 to 115VAC, 50/60/400Hz
RATIO	36×/90×/180×/360×
OUTPUT	THS (50Hz)
LOG	
PULSE	Dry contact: 30V(max), 50mA(max)
	Voltage signal: 0-50V (threshold level is 2V)
RATIO	100/200/400/800 [P/NM]
OUTPUT	VBW (1Hz), VLW (0.1Hz)
FUNCTIONAL SPECIFICATION	CMJ-556: Analog Option Circuit
Interface	
Isolated Input	4
Input Signal Range	-10 to 10 VDC or 4 to 20 mA

APP A

Appendix A Alert and Maintenance INFO and Permanent information

A.1 Alert

When an alert occurs, alert information is displayed in the alert notification area.



Alert notification area when there is no AMS license

The numbers displayed in the buttons indicate the number of such alerts that have occurred.

Memo

The alert button of a category that has not occurred will not be displayed.



Alert notification area when there is an AMS license

The display colors of alert messages are defined as follows according to the type and seriousness of alerts.

Alert Type	Alert Class (Seriousness)	Display Color	Alert Display Status	Alert Sound
Alarms (An alert indicating a state asking sailors to pay immediate attention and take immediate action.)	Alarms	Red	Before alarm acknowledgement: Blinking After alarm acknowledgement: Lighting	3 short audible signals (repetitive)
Warnings (An alert indicating that the state has changed, which although not immediately dangerous, but may become so in the near future if no action is taken. Warnings are alerts displayed for preventing possible future hazardous states.)	Warnings	Orange	Before warning acknowledgement: Blinking After warning acknowledgement: Lighting	2 short audible signals (repetitive)

Alert Type	Alert Class (Seriousness)	Display Color	Alert Display Status	Alert Sound
Cautions				
(Although these are neither				
alarms nor warnings, these				
alerts indicate that it is	Cautions	Yellow	Lighting	No sound
necessary to pay more than	Cautions	Tellow	Lighting	NO Sound
normal attention to cautions,				
statuses, or to the supplied				
information.)				
No Alarm	-	Green	-	-

The list of alerts is shown below.

Types of alert categories is shown below.
Category A: Alert about grounding, collision
Category B: All alerts except category A

A.1.1 Priority: Alarms

There are no alarms on the conning display.

A.1.2 Priority: Warnings

Cause	Conditions to raise	Conditions to rectify	Detail	Cate gory	Required standard
AC Power Failure	The AC input voltage is 75V or less	The AC input voltage is more than 75V	The AC input voltage is 75V or less	В	-
System Failure	CCU or PSU or OPU or GIF or RIF Abnormal is occurred (Check Maintenance info for details of the cause).	CCU and PSU and OPU and GIF and RIF Abnormal are repaired.	-	В	IEC 61174

A.1.3 Priority: Cautions

Cause	Conditions to raise	Conditions to rectify	Detail	Cate gory	Required standard
DC Power Failure	The DC input voltage is 18V or less	The DC input voltage is more than 18V	The DC input voltage is 18V or less	В	-

A.1.4 List of Alert escalation

There are unacknowledged alert that escalates as follows.

- Warning to Warning

An unacknowledged warning will be generated repeatedly until it is acknowledged.

The Alerts to escalation are as shown below.

Cause	Escalation	Time	Explanation	
All warning	Warning to Warning	60s (Default)	An unacknowledged warning will be generated repeatedly until it is acknowledged.	

A.1.5 List of Alerts with responsibility-transferred state

The responsibility-transferred state is a state for priority reduction. When the equipment managing the alert in the system requests a transfer of responsibility of alert, the requested equipment changes state of the alert to responsibility transferred.

Alerts in responsibility transferred state will not be displayed on the active alert list. Whether to display of the responsibility have been transferred alerts on the active alert list can be switched to ON or OFF in the setting. Refer to 6.4 Setting up Alert Processing.

These alerts with responsibility transferred states are as shown below.

Cause	Priority	Category
AC Power Failure	Warning	В
System Failure	Warning	В

A.1.6 List of Aggregated Alerts

There are no Aggregated Alerts on the conning display.

A.1.7 List of Alert Icons

The alert icons displayed in the alert status area are listed below.

No.	Name of alert icon	Functional outline	Alert icon
1	Active – unacknowledged alarm	A flashing red triangle. A symbol of loudspeaker in the middle of the triangle.	
2	Active – silenced alarm	A flashing red triangle. A symbol as in icon number 1 with a prominent diagonal line above it.	
3	Active – acknowledged alarm	A red triangle. An exclamation mark in the middle of the triangle.	
4	Active - responsibility transferred alarm	A red triangle. An arrow pointing towards the right in the middle of the triangle.	
5	Rectified – unacknowledged alarm	A flashing red triangle. A tick mark in the middle of the triangle.	
6	Active - unacknowledged warning	A flashing yellowish orange circle. A symbol of loudspeaker in the middle of the circle.	
7	Active – silenced warning	A flashing yellowish orange circle. A symbol as in icon number 6 with a prominent diagonal line above it.	
8	Active – acknowledged warning	A yellowish orange circle. An exclamation mark in the middle of the circle.	
9	Active - responsibility transferred warning	A yellowish orange circle. An arrow pointing towards the right in the middle of the circle.	→
10	Rectified – unacknowledged warning	A flashing yellowish orange circle. A tick mark in the middle of the circle.	>
11	Caution	A yellow square. An exclamation mark in the middle of the square.	!
а	Aggregation	A plus sign. To be presented together with icons number 1 to 11	+
b	Acknowledge not allowed for alarm	A red triangle with a cross in the middle of triangle. To be presented together with icons number 1, 2 and 5.	
С	Acknowledge not allowed for warning	A yellowish orange circle with a cross in the middle of circle. To be presented together with icons number 6, 7 and 10.	×

A.2 Maintenance INFO

The list of Maintenance INFO message is shown below.

Message	Explanation	Advice
Air Pressure(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Air Pressure(not plausible)	There is a range error of the data.	Check the sensor condition.
Air	The data cannot be	Check the condition of the sensor and the
Pressure(unavailable)	received.	communication path.
Air TEMP(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Air TEMP(not plausible)	There is a range error of the data.	Check the sensor condition.
Air TEMP(unavailable)	The data cannot be	Check the condition of the sensor and the
All TEIVII (dilavallable)	received.	communication path.
		Check the condition of AIS and Serial.
AIS(Communication failed, Direct)	Communication with AIS cannot be performed via Serial.	If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
AIS(Communication failed, Main LAN)	Communication with AIS cannot be performed via Main LAN.	Check the condition of AIS and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
AIS(Communication failed, Sub LAN)	Communication with AIS cannot be performed via Sub LAN.	Check the condition of AIS and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ALC1(Communication failed, Main LAN)	Communication with ALC1 cannot be performed via Main LAN.	Check the condition of ALC1 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
ALC1(Communication failed, Sub LAN)	Communication with ALC1 cannot be performed via Sub LAN.	Check the condition of ALC1 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ALC2(Communication failed, Main LAN)	Communication with ALC2 cannot be performed via Main LAN.	Check the condition of ALC2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ALC2(Communication failed, Sub LAN)	Communication with ALC2 cannot be performed via Sub LAN.	Check the condition of ALC2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ALC3(Communication failed, Main LAN)	Communication with ALC3 cannot be performed via Main LAN.	Check the condition of ALC3 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ALC3(Communication failed, Sub LAN)	Communication with ALC3 cannot be performed via Sub LAN.	Check the condition of ALC3 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ALC4(Communication failed, Main LAN)	Communication with ALC4 cannot be performed via Main LAN.	Check the condition of ALC4 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
ALC4(Communication failed, Sub LAN)	Communication with ALC4 cannot be performed via Sub LAN.	Check the condition of ALC4 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Anemometer(Communic ation failed, Main LAN)	Communication with Anemometer cannot be performed via Main LAN.	Check the condition of Anemometer and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Anemometer(Communic ation failed, Sub LAN)	Communication with Anemometer cannot be performed via Sub LAN.	Check the condition of Anemometer and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Autopilot malfunction	AP equipment error	Turn off the power of the device and request the distributor to repair.
Autopilot malfunction	AP equipment error	Turn off the power of the device and request the distributor to repair.
Autopilot(Communicatio n Failed, Main LAN)	Communication with Autopilot cannot be performed via Main LAN.	Check the condition of Autopilot and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Autopilot(Communicatio n Failed, Sub LAN)	Communication with Autopilot cannot be performed via Sub LAN.	Check the condition of Autopilot and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
	There is a format error or	Check the sensor condition. Switch to a
Autopilot(Invalid)	a status error of the	sensor in good condition, if available.
	Autopilot data.	Sensor in good condition, if available.
Autopilot(Not Plausible)	There is a range error of	Check the sensor condition. Switch to a
Autopilot(Not Flausible)	Autopilot data.	sensor in good condition, if available.
	The Autopilot data cannot	Check the condition of the sensor and the
Autopilot(Unavailable)	be received.	communication path. Switch to a sensor in
	be received.	good condition, if available.
Azimuth Thruster	There is a format error or	Check the sensor condition.
1(invalid)	a status error of the data.	Check the sensor condition.
Azimuth Thruster 1(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
1(unavailable)	received.	communication path.
Azimuth Thruster	There is a format error or	Check the sensor condition.
2(invalid)	a status error of the data.	Check the sensor condition.
Azimuth Thruster 2(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
2(unavailable)	received.	communication path.
Azimuth Thruster	There is a format error or	Check the sensor condition.
3(invalid)	a status error of the data.	Check the sensor condition.
Azimuth Thruster 3(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
3(unavailable)	received.	communication path.
Azimuth Thruster	There is a format error or	Check the sensor condition.
4(invalid)	a status error of the data.	Check the sensor condition.
Azimuth Thruster 4(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
4(unavailable)	received.	communication path.
Azimuth Thruster	There is a format error or	Check the sensor condition.
5(invalid)	a status error of the data.	Check the sensor condition.
Azimuth Thruster 5(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
5(unavailable)	received.	communication path.
Azimuth Thruster	There is a format error or	Check the sensor condition.
6(invalid)	a status error of the data.	Check the sensor condition.

Message	Explanation	Advice
Azimuth Thruster 6(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
6(unavailable)	received.	communication path.
Blizzard(Process Error)	The control circuit in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
Blizzard(SYNC Signal Lost)	ASIC for radar detected an error in an interrupt signal.	Restart the device.
Blizzard1 DSP1(Load Failed)	DSP cannot be started.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
Blizzard1 DSP2(Load Failed)	DSP cannot be started.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
Blizzard1 High TEMP	The temperature of Blizzard is too high.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
Blizzard1-DSP1(Comm unication error)	There is an error in communication with DSP.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
Blizzard2 DSP1(Load Failed)	DSP cannot be started.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
Blizzard2 High TEMP	The temperature of Blizzard is too high.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
Blizzard2-DSP1(Comm unication error)	There is an error in communication with DSP.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.

Message	Explanation	Advice
BNWAS(Communicatio n failed, Main LAN)	Communication with BNWAS cannot be performed via Main LAN.	Check the condition of BNWAS and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor. Check the condition of BNWAS and Sub LAN.
BNWAS(Communication n failed, Sub LAN)	Communication with BNWAS cannot be performed via Sub LAN.	If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Bow Azimuth Thruster 1(invalid)	There is a range error of the data.	Check the sensor condition.
Bow Azimuth Thruster 1(not plausible)	There is a range error of the data.	Check the sensor condition.
Bow Azimuth Thruster	The data cannot be	Check the condition of the sensor and the
1(unavailable) Bow Azimuth Thruster 2(invalid)	received. There is a format error or a status error of the data.	communication path. Check the sensor condition.
Bow Azimuth Thruster 2(not plausible)	There is a range error of the data.	Check the sensor condition.
Bow Azimuth Thruster 2(unavailable)	The data cannot be received.	Check the condition of the sensor and the communication path.
Bow Thruster 1(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Bow Thruster 1(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Bow Thruster 1(not plausible)	There is a range error of the data.	Check the sensor condition.
Bow Thruster 1(not plausible)	There is a range error of the data.	Check the sensor condition.
Bow Thruster 1(unavailable)	The data cannot be received.	Check the condition of the sensor and the communication path.
Bow Thruster	The data cannot be	Check the condition of the sensor and the
1(unavailable) Bow Thruster 2(invalid)	received. There is a format error or a status error of the data.	communication path. Check the sensor condition.

Bow Thruster 2(invalid) There is a format error or a status error of the data. Bow Thruster 2(not plausible) There is a range error of the data. There is a range error of the data. Check the sensor condition. Check the sensor condition.	
Bow Thruster 2(not plausible) Bow Thruster 2(not plausible) There is a range error of the data. Check the sensor condition. Check the sensor condition. Check the sensor condition. Check the sensor condition.	
plausible) the data. Check the sensor condition.	
plausible) the data. Bow Thruster 2(not plausible) There is a range error of the data. Check the sensor condition.	
plausible) the data. Check the sensor condition.	
plausible) the data.	
Bow Thruster The data cannot be Check the condition of the sense	
	sor and the
2(unavailable) received. communication path.	
Bow Thruster The data cannot be Check the condition of the sens	sor and the
2(unavailable) received. communication path.	
There is a format error or	
Bow Thruster 3(invalid) a status error of the data.	
Bow Thruster 3(not There is a range error of Chack the concer condition	
plausible) the data. Check the sensor condition.	
Bow Thruster The data cannot be Check the condition of the sens	sor and the
3(unavailable) received. communication path.	
There is a format error or Chack the concer condition	
Bow Thruster 4(invalid) a status error of the data.	
Bow Thruster 4(not There is a range error of Chack the concer condition	
plausible) the data. Check the sensor condition.	
Bow Thruster The data cannot be Check the condition of the sens	sor and the
4(unavailable) received. communication path.	
Bow Thruster 5(invalid) There is a format error or Check the sensor condition.	
a status error of the data.	
Bow Thruster 5(not There is a range error of Check the sensor condition.	
plausible) the data.	
Bow Thruster The data cannot be Check the condition of the sens	sor and the
5(unavailable) received. communication path.	
The CCU unit fan	
CCU Fan revolution per minute has Request the distributor to repai	r.
been decreased.	
Restart the power.	
CIF(Communication There is an error in If it cannot be recovered after the	hree times of
error) communication with restart, turn off the device and	contact the
Companion MPU. distributor.	
Restart the power.	
CMP There is an error in Polary Software (Communication with	hree times of
RelaySoftware(Commu communication with restart, turn off the device and	contact the
nication error) Companion MPU. distributor.	

Message	Explanation	Advice
COG/SOG(invalid)	There is a format error or a status error of the SOG/COG data.	Check the sensor condition. Switch to a sensor in good condition, if available.
COG/SOG(not	There is a range error of	Check the sensor condition. Switch to a
plausible)	SOG/COG data.	sensor in good condition, if available.
COG/SOG(unavailable)	The SOG/COG data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
CPU Core1 Clock down	The CPU core has been underclocked.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
CPU Core1 High TEMP	The CPU core temperature is too high.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
CPU Core2 Clock down	The CPU core has been underclocked.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
CPU Core2 High TEMP	The CPU core temperature is too high.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
CPU Fan	The RPS fan revolution per minute has been decreased.	Request the distributor to repair.
CPU High TEMP	The CPU temperature is too high.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.
Current(Communication failed, Main LAN)	Communication with tidal current meter cannot be performed via Main LAN.	Check the condition of tidal current meter and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
Current(Communication failed, Sub LAN)	Communication with tidal current meter cannot be performed via Sub LAN.	Check the condition of tidal current meter and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Current(invalid)	There is a format error or a status error of the Tidal Current data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Current(invalid)	There is a format error or a status error of the Tidal Current data.	Check the sensor condition.
Current(not plausible)	There is a range error of	Check the sensor condition. Switch to a
Current(not plausible)	Tidal Current data. There is a range error of Tidal Current data.	sensor in good condition, if available. Check the sensor condition.
Current(unavailable)	The Tidal Current data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
Current(unavailable)	The Tidal Current data cannot be received.	Check the condition of the sensor and the communication path.
DATUM(unavailable)	The DTM data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
Depth(invalid)	There is a format error or a status error of the Depth data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Depth(unavailable)	The Depth data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
Dongle Disable Mode	It is operating in dongle-disabled mode when the USB dongle is in failure.	Request the distributor to provide a USB dongle.
Draft(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Draft(not plausible)	There is a range error of the data.	Check the sensor condition.

Message	Explanation	Advice
Draft(unavailable)	The data cannot be	Check the condition of the sensor and the
Diait(ullavallable)	received.	communication path.
DSC(Communication failed, Main LAN)	Communication with DSC cannot be performed via Main LAN.	Check the condition of DSC and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
DSC(Communication failed, Sub LAN)	Communication with DSC cannot be performed via Sub LAN.	Check the condition of DSC and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
DSP(Heading Data)	There is an error in the heading data received by DSP.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
Dual Axis SOG(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Dual Axis SOG(not plausible)	There is a range error of the data.	Check the sensor condition.
Dual Axis	The data cannot be	Check the condition of the sensor and the
SOG(unavailable)	received.	communication path.
		Check the condition of Echo Sounder and Serial.
Echo Sounder	Communication with Echo	If it cannot be recovered after you check the
1(Communication failed,	Sounder cannot be	connection of the equipment cable in
Direct)	performed via Serial.	power-off status and restart, turn off the power of the device and contact your distributor.
Echo Sounder	Communication with Echo	Check the condition of Echo Sounder and Main LAN. If it cannot be recovered after you check the
1(Communication failed,	Sounder cannot be	connection of the equipment cable in
Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
=,		power of the device and contact your distributor.

Message	Explanation	Advice
		Check the condition of Echo Sounder and
		Sub LAN.
Echo Sounder	Communication with Echo	If it cannot be recovered after you check the
1(Communication failed,	Sounder cannot be	connection of the equipment cable in
Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Echo Sounder and
		Serial.
Echo Sounder	Communication with Echo	If it cannot be recovered after you check the
2(Communication failed,	Sounder cannot be	connection of the equipment cable in
Direct)	performed via Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Echo Sounder and
		Main LAN.
Echo Sounder	Communication with Echo	If it cannot be recovered after you check the
2(Communication failed,	Sounder cannot be	connection of the equipment cable in
Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Echo Sounder and
		Sub LAN.
Echo Sounder	Communication with Echo	If it cannot be recovered after you check the
2(Communication failed,	Sounder cannot be	connection of the equipment cable in
Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Echo Sounder and
		Serial.
Echo	Communication with Echo	If it cannot be recovered after you check the
Sounder(Communicatio	Sounder cannot be	connection of the equipment cable in
n failed, Direct)	performed via Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
		Check the condition of Echo Sounder and
		Main LAN.
Echo	Communication with Echo	If it cannot be recovered after you check the
Sounder(Communicatio	Sounder cannot be	connection of the equipment cable in
n failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Echo Sounder and
		Sub LAN.
Echo	Communication with Echo	If it cannot be recovered after you check the
Sounder(Communicatio	Sounder cannot be	connection of the equipment cable in
n failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
Engine Telegraph	There is a format error or	Charlette and a series of the series
1(invalid)	a status error of the data.	Check the sensor condition.
Engine Telegraph 1(not	There is a range error of	Charlette annual condition
plausible)	the data.	Check the sensor condition.
Engine Telegraph	The data cannot be	Check the condition of the sensor and the
1(unavailable)	received.	communication path.
Engine Telegraph	There is a format error or	Charlette and a series of the series
2(invalid)	a status error of the data.	Check the sensor condition.
Engine Telegraph 2(not	There is a range error of	Charlette annual condition
plausible)	the data.	Check the sensor condition.
Engine Telegraph	The data cannot be	Check the condition of the sensor and the
2(unavailable)	received.	communication path.
Engine/Propeller	There is a format error or	Check the sensor condition.
1(invalid)	a status error of the data.	Check the sensor condition.
Engine/Propeller 1(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Engine/Propeller	The data cannot be	Check the condition of the sensor and the
1(unavailable)	received.	communication path.
Engine/Propeller	There is a format error or	Check the concer condition
2(invalid)	a status error of the data.	Check the sensor condition.
Engine/Propeller 2(not	There is a range error of	Check the concer condition
plausible)	the data.	Check the sensor condition.
Engine/Propeller	The data cannot be	Check the condition of the sensor and the
2(unavailable)	received.	communication path.

Message	Explanation	Advice
e-Token(Communicatio n error)	There is an error in communication with e-Token.	Restart the device. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
General Equipment1(Communic ation Failed, Main LAN)	Communication with General Equipment1 cannot be performed via Main LAN.	Check the condition of General Equipment1 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment1(Communic ation Failed, Sub LAN)	Communication with General Equipment1 cannot be performed via Sub LAN.	Check the condition of General Equipment1 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment10(Communi cation Failed, Main LAN)	Communication with General Equipment10 cannot be performed via Main LAN.	Check the condition of General Equipment10 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment10(Communi cation Failed, Sub LAN)	Communication with General Equipment10 cannot be performed via Sub LAN.	Check the condition of General Equipment10 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment2(Communic ation Failed, Main LAN)	Communication with General Equipment2 cannot be performed via Main LAN.	Check the condition of General Equipment2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
General Equipment2(Communic ation Failed, Sub LAN)	Communication with General Equipment2 cannot be performed via Sub LAN.	Check the condition of General Equipment2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment3(Communic ation Failed, Main LAN)	Communication with General Equipment3 cannot be performed via Main LAN.	Check the condition of General Equipment3 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment3(Communic ation Failed, Sub LAN)	Communication with General Equipment3 cannot be performed via Sub LAN.	Check the condition of General Equipment3 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment4(Communic ation Failed, Main LAN)	Communication with General Equipment4 cannot be performed via Main LAN.	Check the condition of General Equipment4 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment4(Communic ation Failed, Sub LAN)	Communication with General Equipment4 cannot be performed via Sub LAN.	Check the condition of General Equipment4 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
General Equipment5(Communic ation Failed, Main LAN)	Communication with General Equipment5 cannot be performed via Main LAN.	Check the condition of General Equipment5 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment5(Communic ation Failed, Sub LAN)	Communication with General Equipment5 cannot be performed via Sub LAN.	Check the condition of General Equipment5 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment6(Communic ation Failed, Main LAN)	Communication with General Equipment6 cannot be performed via Main LAN.	Check the condition of General Equipment6 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment6(Communic ation Failed, Sub LAN)	Communication with General Equipment6 cannot be performed via Sub LAN.	Check the condition of General Equipment6 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment7(Communic ation Failed, Main LAN)	Communication with General Equipment7 cannot be performed via Main LAN.	Check the condition of General Equipment7 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
General Equipment7(Communic ation Failed, Sub LAN)	Communication with General Equipment7 cannot be performed via Sub LAN.	Check the condition of General Equipment7 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment8(Communic ation Failed, Main LAN)	Communication with General Equipment8 cannot be performed via Main LAN.	Check the condition of General Equipment8 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment8(Communic ation Failed, Sub LAN)	Communication with General Equipment8 cannot be performed via Sub LAN.	Check the condition of General Equipment8 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment9(Communic ation Failed, Main LAN)	Communication with General Equipment9 cannot be performed via Main LAN.	Check the condition of General Equipment9 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
General Equipment9(Communic ation Failed, Sub LAN)	Communication with General Equipment9 cannot be performed via Sub LAN.	Check the condition of General Equipment9 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Generator (invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Generator (not plausible)	There is a range error of the data.	Check the sensor condition.

Message	Explanation	Advice
Concrete (unaveilable)	The data cannot be	Check the condition of the sensor and the
Generator (unavailable)	received.	communication path.
Consenter 4 (investible)	There is a format error or	Ob a le Maria de la compania del compania de la compania del compania de la compania del compania de la compania de la compania del compani
Generator 1(invalid)	a status error of the data.	Check the sensor condition.
Generator 1(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Check the sensor condition.
Generator	The data cannot be	Check the condition of the sensor and the
1(unavailable)	received.	communication path.
Concretor 2(invalid)	There is a format error or	Check the sensor condition.
Generator 2(invalid)	a status error of the data.	Check the sensor condition.
Generator 2(not	There is a range error of	Ob a leable a company and disting
plausible)	the data.	Check the sensor condition.
Generator	The data cannot be	Check the condition of the sensor and the
2(unavailable)	received.	communication path.
0	There is a format error or	
Generator 3(invalid)	a status error of the data.	Check the sensor condition.
Generator 3(not	There is a range error of	
plausible)	the data.	Check the sensor condition.
Generator	The data cannot be	Check the condition of the sensor and the
3(unavailable)	received.	communication path.
	There is a format error or	
Generator 4(invalid)	a status error of the data.	Check the sensor condition.
Generator 4(not	There is a range error of	
plausible)	the data.	Check the sensor condition.
Generator	The data cannot be	Check the condition of the sensor and the
4(unavailable)	received.	communication path.
	There is a format error or	
Generator 5(invalid)	a status error of the data.	Check the sensor condition.
Generator 5(not	There is a range error of	
plausible)	the data.	Check the sensor condition.
Generator	The data cannot be	Check the condition of the sensor and the
5(unavailable)	received.	communication path.
		Restart the power.
GIF(Communication	There is a communication	If it cannot be recovered after three times of
error)	error with Gyro IF.	restart, turn off the device and contact the
	-	distributor.
	GIF-RIF open is detected.	Check the status of the cable (W81 in
GIF-RIF(Open)		Junction Box:NQE-1143).
		Check the status of the cable (W82 in
GIF-SLC(Open)	GIF-SLC open is detected.	Junction Box:NQE-1143).

Message	Explanation	Advice
GPS 1(Communication Failed, Direct)	Communication with GPS 1 cannot be performed via Serial.	Check the condition of GPS 1 and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 1(Communication Failed, Main LAN)	Communication with GPS 1 cannot be performed via Main LAN.	Check the condition of GPS 1 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 1(Communication Failed, Sub LAN)	Communication with GPS 1 cannot be performed via Sub LAN.	Check the condition of GPS 1 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 2(Communication Failed, Direct)	Communication with GPS 2 cannot be performed via Serial.	Check the condition of GPS 2 and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 2(Communication Failed, Main LAN)	Communication with GPS 2 cannot be performed via Main LAN.	Check the condition of GPS 2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 2(Communication Failed, Sub LAN)	Communication with GPS 2 cannot be performed via Sub LAN.	Check the condition of GPS 2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
GPS 3(Communication Failed, Direct)	Communication with GPS 3 cannot be performed via Serial.	Check the condition of GPS 3 and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your
GPS 3(Communication Failed, Main LAN)	Communication with GPS 3 cannot be performed via Main LAN.	distributor. Check the condition of GPS 3 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 3(Communication Failed, Sub LAN)	Communication with GPS 3 cannot be performed via Sub LAN.	Check the condition of GPS 3 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 4(Communication Failed, Direct)	Communication with GPS 4 cannot be performed via Serial.	Check the condition of GPS 4 and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 4(Communication Failed, Main LAN)	Communication with GPS 4 cannot be performed via Main LAN.	Check the condition of GPS 4 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
GPS 4(Communication Failed, Sub LAN)	Communication with GPS 4 cannot be performed via Sub LAN.	Check the condition of GPS 4 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
		Check the condition of GPS Compass 1 and
		Serial.
GPS Compass	Communication with GPS	If it cannot be recovered after you check the
1(Communication failed,	Compass 1 cannot be	connection of the equipment cable in
Direct)	performed via Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of GPS Compass 1 and
		Main LAN.
GPS Compass	Communication with GPS	If it cannot be recovered after you check the
1(Communication failed,	Compass 1 cannot be	connection of the equipment cable in
Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of GPS Compass 1 and
		Sub LAN.
GPS Compass	Communication with GPS	If it cannot be recovered after you check the
1(Communication failed,	Compass 1 cannot be	connection of the equipment cable in
Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of GPS Compass 2 and
		Serial.
GPS Compass	Communication with GPS	If it cannot be recovered after you check the
2(Communication failed,	Compass 2 cannot be	connection of the equipment cable in
Direct)	performed via Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of GPS Compass 2 and
		Main LAN.
GPS Compass	Communication with GPS	If it cannot be recovered after you check the
2(Communication failed,	Compass 2 cannot be	connection of the equipment cable in
Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
		Check the condition of GPS Compass 2 and
		Sub LAN.
GPS Compass	Communication with GPS	If it cannot be recovered after you check the
2(Communication failed,	Compass 2 cannot be	connection of the equipment cable in
Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of GPS Selector and
0.00		Serial.
GPS	Communication with GPS	If it cannot be recovered after you check the
Selector(Communicatio	Selector cannot be	connection of the equipment cable in
n Failed, Direct)	performed via Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Gyro 1 and Serial.
	Communication with Gyro	If it cannot be recovered after you check the
Gyro 1(Communication	1 cannot be performed via	connection of the equipment cable in
Failed, Direct)	Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Gyro 1, GIF and Serial.
	Communication with Gyro	If it cannot be recovered after you check the
Gyro 1(Communication	1 cannot be performed via	connection of the equipment cable in
Failed, GIF-Direct)	Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Gyro 1, GIF and Main
		LAN.
Gyro 1(Communication	Communication with Gyro	If it cannot be recovered after you check the
Failed, GIF-Main LAN)	1 cannot be performed via	connection of the equipment cable in
	Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Gyro 1, GIF and Sub
	Communication with Com-	LAN.
Gyro 1(Communication	Communication with Gyro	If it cannot be recovered after you check the
Failed, GIF-Sub LAN)	1 cannot be performed via	connection of the equipment cable in
	Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
Gyro 1(Communication Failed, Main LAN)	Communication with Gyro 1 cannot be performed via Main LAN.	Check the condition of Gyro 1 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro 1(Communication Failed, Sub LAN)	Communication with Gyro 1 cannot be performed via Sub LAN.	Check the condition of Gyro 1 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro 2(Communication Failed, Direct)	Communication with Gyro 2 cannot be performed via Serial.	Check the condition of Gyro 2, GIF and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro 2(Communication Failed, GIF-Direct)	Communication with Gyro 2 cannot be performed via Serial.	Check the condition of Gyro 2, GIF and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro 2(Communication Failed, GIF-Main LAN)	Communication with Gyro 2 cannot be performed via Main LAN.	Check the condition of Gyro 2, GIF and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro 2(Communication Failed, GIF-Sub LAN)	Communication with Gyro 2 cannot be performed via Sub LAN.	Check the condition of Gyro 2, GIF and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
Gyro 2(Communication Failed, Main LAN)	Communication with Gyro 2 cannot be performed via Main LAN.	Check the condition of Gyro 2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro 2(Communication Failed, Sub LAN)	Communication with Gyro 2 cannot be performed via Sub LAN.	Check the condition of Gyro 2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro(Communication Failed, Direct)	Communication with Gyro cannot be performed via Serial.	Check the condition of Gyro, GIF and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro(Communication Failed, GIF-Direct)	Communication with Gyro cannot be performed via Serial.	Check the condition of Gyro, GIF and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro(Communication Failed, GIF-Main LAN)	Communication with Gyro cannot be performed via Main LAN.	Check the condition of Gyro, GIF and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro(Communication Failed, GIF-Sub LAN)	Communication with Gyro cannot be performed via Sub LAN.	Check the condition of Gyro, GIF and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
Gyro(Communication Failed, Main LAN)	Communication with Gyro cannot be performed via Main LAN.	Check the condition of Gyro and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Gyro(Communication Failed, Sub LAN)	Communication with Gyro cannot be performed via Sub LAN.	Check the condition of Gyro and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
HASP(Communication error)	There is an error in communication with HASP.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
HDG(No Correction)	No correction included in heading	Perform the operation carefully.
HDOP exceeded(GPS1)	The GPS1 precision is deteriorated.	Check the sensor condition.
HDOP exceeded(GPS2)	The GPS2 precision is deteriorated.	Check the sensor condition.
HDOP exceeded(GPS3)	The GPS3 precision is deteriorated.	Check the sensor condition.
HDOP exceeded(GPS4)	The GPS4 precision is deteriorated.	Check the sensor condition.
Heading(invalid)	There is a format error or a status error of the Heading data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Heading(not plausible)	There is a range error of Heading data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Heading(unavailable)	The Heading data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
Hull Motion(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Hull Motion(not plausible)	There is a range error of the data.	Check the sensor condition.
Hull Motion(unavailable)	The data cannot be received.	Check the condition of the sensor and the communication path.

Message	Explanation	Advice
Humidity(invalid)	There is a format error or	Check the sensor condition.
-,	a status error of the data.	
Humidity(not plausible)	There is a range error of	Check the sensor condition.
, ,	the data.	
Humidity(unavailable)	The data cannot be	Check the condition of the sensor and the
, ,	received.	communication path.
		Check the condition of IAS and Main LAN.
IAS	Communication with IAS	If it cannot be recovered after you check the
Primary(Communication	cannot be performed via	connection of the equipment cable in
Failed, Main LAN)	Main LAN.	power-off status and restart, turn off the
Talled, Main LAN	Wall LAN.	power of the device and contact your
		distributor.
		Check the condition of IAS and Sub LAN.
IAS	Communication with IAS	If it cannot be recovered after you check the
		connection of the equipment cable in
Primary(Communication	cannot be performed via	power-off status and restart, turn off the
Failed, Sub LAN)	Sub LAN.	power of the device and contact your
		distributor.
		Check the condition of IAS and Main LAN.
14.0	Communication with IAC	If it cannot be recovered after you check the
IAS	Communication with IAS cannot be performed via Main LAN.	connection of the equipment cable in
Secondary(Communicat		power-off status and restart, turn off the
ion Failed, Main LAN)		power of the device and contact your
		distributor.
		Check the condition of IAS and Sub LAN.
		If it cannot be recovered after you check the
IAS	Communication with IAS	connection of the equipment cable in
Secondary(Communicat	cannot be performed via	power-off status and restart, turn off the
ion Failed, Sub LAN)	Sub LAN.	power of the device and contact your
		distributor.
		Check the condition of IAS and Main LAN.
IAS(Communication	Communication with IAS cannot be performed via Main LAN.	If it cannot be recovered after you check the
		connection of the equipment cable in
failed, Main LAN)		power-off status and restart, turn off the
,		power of the device and contact your
		distributor.

Message	Explanation	Advice
IAS(Communication failed, Sub LAN)	Communication with IAS cannot be performed via Sub LAN.	Check the condition of IAS and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
ISW(Communication error)	There is a communication error with ISW.	If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Joystick(Communication Failed, MainLAN)	A communication error with MJS via Main LAN was detected.	Check MJS. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Joystick(Communication Failed, SubLAN)	A communication error with MJS via Sub LAN was detected.	Check MJS. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
LCD Fan1(LCD)	The fan in the display unit has stopped.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
LCD Fan2(LCD)	The fan in the display unit has stopped.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
LCD High TEMP	The temperature of LCD is too high. It will be dim or dark.	Turn off the power of the device and restart after ten minutes. If it cannot be recovered, turn off the device and contact the distributor.

Message	Explanation	Advice
Log 1(Communication failed, Direct)	Communication with Log 1 cannot be performed via Serial.	Check the condition of Log 1 and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 1(Communication failed, GIF-Direct)	Communication with Log 1 cannot be performed via Serial.	Check the condition of Log 1, GIF and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 1(Communication failed, GIF-Main LAN)	Communication with Log 1 cannot be performed via Main LAN.	Check the condition of Log 1, GIF and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 1(Communication failed, GIF-Sub LAN)	Communication with Log 1 cannot be performed via Sub LAN.	Check the condition of Log 1, GIF and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 1(Communication failed, Main LAN)	Communication with Log 1 cannot be performed via Main LAN.	Check the condition of Log 1 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 1(Communication failed, Sub LAN)	Communication with Log 1 cannot be performed via Sub LAN.	Check the condition of Log 1 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
Log 2(Communication failed, Direct)	Communication with Log 2 cannot be performed via Serial.	Check the condition of Log 2 and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 2(Communication failed, GIF-Direct)	Communication with Log 2 cannot be performed via Serial.	Check the condition of Log 2, GIF and Serial. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 2(Communication failed, GIF-Main LAN)	Communication with Log 2 cannot be performed via Main LAN.	Check the condition of Log 2, GIF and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 2(Communication failed, GIF-Sub LAN)	Communication with Log 2 cannot be performed via Sub LAN.	Check the condition of Log 2, GIF and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 2(Communication failed, Main LAN)	Communication with Log 2 cannot be performed via Main LAN.	Check the condition of Log 2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Log 2(Communication failed, Sub LAN)	Communication with Log 2 cannot be performed via Sub LAN.	Check the condition of Log 2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
		Check the condition of Log Selector and
		Serial.
Log	Communication with Log	If it cannot be recovered after you check the
Selector(Communicatio	Selector cannot be	connection of the equipment cable in
n failed, Direct)	performed via Serial.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Magnetic Compass 1
	Communication with	and Serial.
Magnetic Compass	Magnetic Compass 1	If it cannot be recovered after you check the
1(Communication failed,	cannot be performed via	connection of the equipment cable in
Direct)	Serial.	power-off status and restart, turn off the
	Contain	power of the device and contact your
		distributor.
		Check the condition of Magnetic Compass 1
	Communication with	and Main LAN.
Magnetic Compass	Magnetic Compass 1 cannot be performed via Main LAN.	If it cannot be recovered after you check the
1(Communication failed,		connection of the equipment cable in
Main LAN)		power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Magnetic Compass 1
	Communication with Magnetic Compass 1 cannot be performed via	and Sub LAN.
Magnetic Compass		If it cannot be recovered after you check the
1(Communication failed,		connection of the equipment cable in
Sub LAN)	Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Magnetic Compass 2
Magnetic Compass	Communication with	and Serial.
	Magnetic Compass 2	If it cannot be recovered after you check the
2(Communication failed,	cannot be performed via Serial.	connection of the equipment cable in
Direct)		power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
Magnetic Compass 2(Communication failed, Main LAN)	Communication with Magnetic Compass 2 cannot be performed via Main LAN.	Check the condition of Magnetic Compass 2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Magnetic Compass 2(Communication failed, Sub LAN)	Communication with Magnetic Compass 2 cannot be performed via Sub LAN.	Check the condition of Magnetic Compass 2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
MJS IF <-> AP(Communication error)	MJS detected a communication error with AP.	Check AP. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
MJS IF(Unit failure)	An error occurred in the MJS unit.	Turn off the power of the device and request the distributor to repair.
MJS OPE <-> MJS IF(Communication error)	MJS detected a communication error with MJS I/O.	Turn off the power of the device and request the distributor to repair.
MJS OPE(Unit failure)	An error occurred in the MJS equipment.	Turn off the power of the device and request the distributor to repair.
Multi Current(unavailable)	The data cannot be received.	Check the condition of the sensor and the communication path.
NAVTEX(Communicatio n failed, Main LAN)	Communication with NAVTEX cannot be performed via Main LAN.	Check the condition of NAVTEX and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
		Check the condition of NAVTEX and Sub
		LAN.
NAVTEX(Communicatio	Communication with	If it cannot be recovered after you check the
n failed, Sub LAN)	NAVTEX cannot be	connection of the equipment cable in
II lailed, Sub LAIV)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 Conning and
		Main LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
Conning(Communicatio	Conning cannot be	connection of the equipment cable in
n failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 Conning and Sub
		LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
Conning(Communicatio	Conning cannot be	connection of the equipment cable in
n failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 ECDIS and Main
		LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 ECDIS and Sub
		LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
		Check the condition of No.1 RADAR and Main LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 RADAR and Sub
		LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 Remote-Conning
No.1	Communication with No.1	and Main LAN.
		If it cannot be recovered after you check the
Remote-Conning(Comm	Remote-Conning cannot	connection of the equipment cable in
unication failed, Main	be performed via Main LAN.	power-off status and restart, turn off the
LAN)	LAN.	power of the device and contact your
		distributor.
		Check the condition of No.1 Remote-Conning
No.1	Communication with No.1	and Sub LAN.
Remote-Conning(Comm	Remote-Conning cannot	If it cannot be recovered after you check the
unication failed, Sub	be performed via Sub	connection of the equipment cable in
LAN)	LAN.	power-off status and restart, turn off the
LAN)	LAN.	power of the device and contact your
		distributor.
		Check the condition of No.1 RPS and Main
		LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
RPS(Communication	RPS cannot be performed	connection of the equipment cable in
failed, Main LAN)	via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
		Check the condition of No.1 RPS and Sub
		LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
RPS(Communication	RPS cannot be performed	connection of the equipment cable in
failed, Sub LAN)	via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 Wing-Conning
		and Main LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
Wing-Conning(Commun	Wing-Conning cannot be	connection of the equipment cable in
ication failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.1 Wing-Conning
		and Sub LAN.
No.1	Communication with No.1	If it cannot be recovered after you check the
Wing-Conning(Commun	Wing-Conning cannot be	connection of the equipment cable in
ication failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.2 Conning and
		Main LAN.
No.2	Communication with No.2	If it cannot be recovered after you check the
Conning(Communicatio	Conning cannot be	connection of the equipment cable in
n failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.2 Conning and Sub
		LAN.
No.2	Communication with No.2	If it cannot be recovered after you check the
Conning(Communicatio	Conning cannot be	connection of the equipment cable in
n failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
		Check the condition of No.2 ECDIS and Main
		LAN.
No.2	Communication with No.2	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.2 ECDIS and Sub
		LAN.
No.2	Communication with No.2	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.2 RADAR and Main
		LAN.
No.2	Communication with No.2	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.2 RADAR and Sub
		LAN.
No.2	Communication with No.2	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.2 Remote-Conning
No.2	Communication with No.2	and Main LAN.
Remote-Conning(Comm		If it cannot be recovered after you check the
unication failed, Main	Remote-Conning cannot	connection of the equipment cable in
LAN)	be performed via Main LAN.	power-off status and restart, turn off the
LAN	LAIN.	power of the device and contact your
		distributor.

Message	Explanation	Advice
No.2 Remote-Conning(Comm unication failed, Sub LAN)	Communication with No.2 Remote-Conning cannot be performed via Sub LAN.	Check the condition of No.2 Remote-Conning and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
No.2 RPS(Communication failed, Main LAN)	Communication with No.2 RPS cannot be performed via Main LAN.	Check the condition of No.2 RPS and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
No.2 RPS(Communication failed, Sub LAN)	Communication with No.2 RPS cannot be performed via Sub LAN.	Check the condition of No.2 RPS and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
No.2 Wing-Conning(Commun ication failed, Main LAN)	Communication with No.2 Wing-Conning cannot be performed via Main LAN.	Check the condition of No.2 Wing-Conning and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
No.2 Wing-Conning(Commun ication failed, Sub LAN)	Communication with No.2 Wing-Conning cannot be performed via Sub LAN.	Check the condition of No.2 Wing-Conning and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
		Check the condition of No.3 ECDIS and Main
		LAN.
No.3	Communication with No.3	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.3 ECDIS and Sub
		LAN.
No.3	Communication with No.3	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.3 RADAR and Main
		LAN.
No.3	Communication with No.3	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.3 RADAR and Sub
		LAN.
No.3	Communication with No.3	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.4 ECDIS and Main
		LAN.
No.4	Communication with No.4	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
		Check the condition of No.4 ECDIS and Sub LAN.
No.4	Communication with No.4	If it cannot be recovered after you check the
ECDIS(Communication	ECDIS cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.4 RADAR and Main LAN.
No.4	Communication with No.4	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of No.4 RADAR and Sub LAN.
No.4	Communication with No.4	If it cannot be recovered after you check the
Radar(Communication	RADAR cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
OPA-OPB(Communicati		
on error)	-	-
	There is a communication	Restart the power.
OPU-Serial(Communica	error with the operating	If it cannot be recovered after three times of
tion error)	portion.	restart, turn off the device and contact the
	portion.	distributor.
	There is a communication	Restart the power.
OPU-USB(Communicati	error with the operating	If it cannot be recovered after three times of
on error)	portion.	restart, turn off the device and contact the
	portion.	distributor.
Port Main	There is a format error or	Check the sensor condition.
Propeller(invalid)	a status error of the data.	Chesic die delicer condition.
Port Main Propeller(not	There is a range error of	Check the sensor condition.
plausible)	the data.	Shook the seriou condition.
Port Main	The data cannot be	Check the condition of the sensor and the
Propeller(unavailable)	received.	communication path.
	There is a format error or	Check the sensor condition. Switch to a
Position(invalid)	a status error of the	sensor in good condition, if available.
	Position data.	Solicor in good condition, il available.

Message	Explanation	Advice
Position(not plausible)	There is a range error of	Check the sensor condition. Switch to a
Position(not plausible)	Position data.	sensor in good condition, if available.
	The Position data cannot	Check the condition of the sensor and the
Position(unavailable)	be received.	communication path. Switch to a sensor in
	be received.	good condition, if available.
POSN(GPS1) Not	Differential operation is	Check the sensor condition.
Differential	not performed by GPS1.	Check the sensor condition.
POSN(GPS2) Not	Differential operation is	Check the sensor condition.
Differential	not performed by GPS2.	Officer the serisor condition.
POSN(GPS3) Not	Differential operation is	Check the sensor condition.
Differential	not performed by GPS3.	Officer the serisor condition.
POSN(GPS4) Not	Differential operation is	Check the sensor condition.
Differential	not performed by GPS4.	Officer the serisor condition.
POSN(Low Integrity,	Integrity of the GPS	Perform the operation carefully.
GPS1)	position is low.	r enorm the operation carefully.
POSN(Low Integrity,	Integrity of the GPS	Perform the operation carefully.
GPS2)	position is low.	r enorm the operation carefully.
POSN(Navigational	Navigational status of	Perform the operation carefully.
Status Not Valid, GPS1)	GPS is not valid.	r enorm the operation carefully.
POSN(Navigational	Navigational status of	Perform the operation carefully.
Status Not Valid, GPS2)	GPS is not valid.	r chom the operation carefully.
	Power incoming of	
Power Fail	3.3V/2.5V/1.5V/1.2V etc.	Check the electronic power supply.
1 Ower 1 am	has decreased and	Check the clostoffic power supply.
	stopped.	
	A failure of the fun in the	Restart the power.
Power(Fan)	power supply unit has	If it cannot be recovered after three times of
l ewer(r arry	been detected.	restart, turn off the device and contact the
		distributor.
	There is an error in the	Turn off the power of the device and request
Power(TXRX, Failed)	power supply unit for the	the distributor to repair.
	radar antenna.	'
		Turn off the power of the device and check
	An azimuth signal error	the connection of the equipment cable.
PROC(AZI)	has occurred at the signal	If it cannot be recovered after three times of
	processing unit.	restart, turn off the device and contact the
		distributor.

Message	Explanation	Advice
		Turn off the power of the device and check
	A heading line signal error	the connection of the equipment cable.
PROC(HL)	has occurred at the signal	If it cannot be recovered after three times of
	processing unit.	restart, turn off the device and contact the
		distributor.
		Restart the power.
	There is a stern interrupt	If it cannot be recovered after three times of
PROC(Interrupt1)	error in the signal	restart, turn off the device and contact the
	processing unit.	distributor.
		Restart the power.
	There is a stern interrupt	If it cannot be recovered after three times of
PROC(Interrupt2)	error in the signal	restart, turn off the device and contact the
	processing unit.	distributor.
		Turn off the power of the device and check
	A trigger signal error has	the connection of the equipment cable.
PROC(Trigger)	occurred at the signal	If it cannot be recovered after three times of
	processing unit.	restart, turn off the device and contact the
		distributor.
		Turn off the power of the device and check
	A radar image signal error	the connection of the equipment cable.
PROC(Video)	has occurred at the signal	If it cannot be recovered after three times of
	processing unit.	restart, turn off the device and contact the
		distributor.
	Control of modern	Restart the power.
DADAD DDOO(Data)	Control of radar signal/image processing failed.	If it cannot be recovered after three times of
RADAR PROC(Data)		restart, turn off the device and contact the
		distributor.
		Restart the power.
RIF(Communication	There is an error in	If it cannot be recovered after three times of
error)	communication with RIF.	restart, turn off the device and contact the
		distributor.
	There is a format error or	
ROT(invalid)	a status error of the ROT	Check the sensor condition.
	data.	
POT(upovoiloble)	The ROT data cannot be	Check the condition of the sensor and the
ROT(unavailable)	received.	communication path.
		Restart the power.
DTO AL	RTC is abnormal.	If it cannot be recovered after three times of
RTC Abnormal	NTO IS abrillinai.	in it cannot be recovered after times times of

Message	Explanation	Advice
Rudder 1(invalid)	There is a format error or	
	a status error of the	Check the sensor condition.
	Rudder data.	
	There is a format error or	
Rudder 1(invalid)	a status error of the	Check the sensor condition.
	Rudder data.	
Rudder 1(not plausible)	There is a range error of	Check the sensor condition.
(not plausible)	Rudder data.	Check the sensor conductr.
Rudder 1(not plausible)	There is a range error of	Check the sensor condition.
rtadaci i(not piadolbic)	Rudder data.	Check the series condition.
Rudder 1(unavailable)	The Rudder data cannot	Check the condition of the sensor and the
rtadas r(anavanasis)	be received.	communication path.
Rudder 1(unavailable)	The Rudder data cannot	Check the condition of the sensor and the
rtadas r(anavanasis)	be received.	communication path.
	There is a format error or	
Rudder 2(invalid)	a status error of the	Check the sensor condition.
	Rudder data.	
	There is a format error or	
Rudder 2(invalid)	a status error of the	Check the sensor condition.
	Rudder data.	
Rudder 2(not plausible)	There is a range error of	Check the sensor condition.
, ,	Rudder data.	
Rudder 2(not plausible)	There is a range error of	Check the sensor condition.
,	Rudder data.	
Rudder 2(unavailable)	The Rudder data cannot	Check the condition of the sensor and the
,	be received.	communication path.
Rudder 2(unavailable)	The Rudder data cannot	Check the condition of the sensor and the
,	be received.	communication path.
		Check the condition of Rudder and Main LAN.
	Communication with	If it cannot be recovered after you check the
Rudder(Communication	Rudder cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
	portormod vid Main 27 itt.	power of the device and contact your
		distributor.
		Check the condition of Rudder and Sub LAN.
Rudder(Communication failed, Sub LAN)	Communication with Rudder cannot be performed via Sub LAN.	If it cannot be recovered after you check the
		connection of the equipment cable in
		power-off status and restart, turn off the
		power of the device and contact your
		distributor.

Message	Explanation	Advice
	There is a format error or	Check the sensor condition. Switch to a
Sea TEMP(invalid)	a status error of the Water	sensor in good condition, if available.
	temperature data.	Sensor in good condition, if available.
	There is a format error or	
Sea TEMP(invalid)	a status error of the Water	Check the sensor condition.
	temperature data.	
Sea TEMP(invalid)	There is a format error or	Check the sensor condition.
Oca TEIVII (IIIValla)	a status error of the data.	Officer the series container.
	The Water temperature	Check the condition of the sensor and the
Sea TEMP(unavailable)	data cannot be received.	communication path. Switch to a sensor in
	data dannot be received.	good condition, if available.
Sea TEMP(unavailable)	The Water temperature	Check the condition of the sensor and the
Coa l'Elvii (unavaliable)	data cannot be received.	communication path.
Sea TEMP(unavailable)	The data cannot be	Check the condition of the sensor and the
Coa l'Elvii (unavaliable)	received.	communication path.
		Check the condition of Ship's clock and Main
		LAN.
Ship's	Communication with	If it cannot be recovered after you check the
clock(Communication	Ship's clock cannot be	connection of the equipment cable in
failed, Main LAN)	performed via Main LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check the condition of Ship's clock and Sub
		LAN.
Ship's	Communication with	If it cannot be recovered after you check the
clock(Communication	Ship's clock cannot be	connection of the equipment cable in
failed, Sub LAN)	performed via Sub LAN.	power-off status and restart, turn off the
		power of the device and contact your
		distributor.
		Check AP.
S-J I/O <->	S-JOY detected a	If it cannot be recovered after you check the
AP(Communication	communication error with	connection of the equipment cable in
error)	AP.	power-off status and restart, turn off the
,		power of the device and contact your
		distributor.

Message	Explanation	Advice
S-J I/O Time Out	A communication error with S-JOY was detected.	Check S-JOY. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
S-J I/O(Unit failure)	An error occurred in the S-JOY unit.	Turn off the power of the device and request the distributor to repair.
S-JOY <-> S-J I/O(Communication error)	S-JOY detected a communication error with S-JOY I/O.	Turn off the power of the device and request the distributor to repair.
S-JOY(Unit failure)	An error occurred in the S-JOY equipment.	Turn off the power of the device and request the distributor to repair.
SLC1-1(Communication failed, Main LAN)	Communication with SLC1-1 cannot be performed via Main LAN.	Check the condition of SLC1-1 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
SLC1-2(Communication failed, Main LAN)	Communication with SLC1-2 cannot be performed via Main LAN.	Check the condition of SLC1-2 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
SLC1-3(Communication failed, Main LAN)	Communication with SLC1-3 cannot be performed via Main LAN.	Check the condition of SLC1-3 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
SLC1-4(Communication failed, Main LAN)	Communication with SLC1-4 cannot be performed via Main LAN.	Check the condition of SLC1-4 and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
SLC2-1(Communication failed, Sub LAN)	Communication with SLC2-1 cannot be performed via Sub LAN.	Check the condition of SLC2-1 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
SLC2-2(Communication failed, Sub LAN)	Communication with SLC2-2 cannot be performed via Sub LAN.	Check the condition of SLC2-2 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
SLC2-3(Communication failed, Sub LAN)	Communication with SLC2-3 cannot be performed via Sub LAN.	Check the condition of SLC2-3 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
SLC2-4(Communication failed, Sub LAN)	Communication with SLC2-4 cannot be performed via Sub LAN.	Check the condition of SLC2-4 and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Stbd Main Propeller(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Stbd Main Propeller(not plausible)	There is a range error of the data.	Check the sensor condition.
Stbd Main	The data cannot be	Check the condition of the sensor and the
Propeller(unavailable) Stern Thruster 1(invalid)	received. There is a format error or a status error of the data.	communication path. Check the sensor condition.
Stern Thruster 1(invalid)	There is a format error or a status error of the data.	Check the sensor condition.
Stern Thruster 1(not plausible)	There is a range error of the data.	Check the sensor condition.
Stern Thruster 1(not plausible)	There is a range error of the data.	Check the sensor condition.
Stern Thruster	The data cannot be	Check the condition of the sensor and the
1(unavailable)	received.	communication path.

Stem Thruster 1 (unavailable) The data cannot be received. There is a format error or a status error of the data. There is a range error of plausible) There is a range error of the data. Check the sensor condition.	Message	Explanation	Advice
Stern Thruster 2(invalid) There is a range error of the data. Stern Thruster 2(invalid) Stern Thruster 3(invalid) Stern Thruster 4(invalid) Stern Thruster 5(invalid) Stern Th	Stern Thruster	The data cannot be	Check the condition of the sensor and the
Stern Thruster 2(invalid) a status error of the data. Stern Thruster 2(invalid) There is a format error or a status error of the data. Stern Thruster 2(not plausible) There is a range error of the data. Stern Thruster 2(not plausible) There is a range error of the data. Stern Thruster 2(not plausible) There is a range error of the data. Stern Thruster 2(not plausible) The data cannot be communication path. Stern Thruster The data cannot be received. Stern Thruster The data cannot be received. Stern Thruster 3(invalid) Stern Thruster 3(invalid) There is a format error or a status error of the data. Stern Thruster 3(not plausible) There is a range error of the data. Stern Thruster The data cannot be received. Stern Thruster 4(invalid) There is a format error or a status error of the data. Stern Thruster 4(invalid) Stern Thruster 4(invalid) There is a format error or a status error of the data. Stern Thruster 4(invalid) There is a format error or a status error of the data. Stern Thruster 4(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a range error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data.	1(unavailable)	received.	communication path.
Stern Thruster 2(invalid) Stern Thruster 2(invalid) Stern Thruster 2(not plausible) Stern Thruster 3 The data cannot be received. Stern Thruster 7 The data cannot be received. Stern Thruster 8 The data cannot be received. Stern Thruster 3(invalid) Stern Thruster 4(invalid) Stern Thruster 5(invalid) Stern Thruster 4(invalid) Stern Thruster 4(invalid) Stern Thruster 4(invalid) Stern Thruster 4(not plausible) Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the data. Stern Thruster 5(invalid) There is a format error or a status error of the STW All Stern 5 (invalid) There is a format error or a stat	Stern Thruster 2(invalid)	There is a format error or	Check the sensor condition
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good condition, if available.			communication path. Switch to a sensor in
	Speed(unavailable) red	received.	good condition, if available.

Message	Explanation	Advice
Time(invalid)	There is a format error or a status error of the Time data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Time(invalid)	There is a format error or a status error of the Time data.	Check the sensor condition.
Time(unavailable)	The Time data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
Time(unavailable)	The Time data cannot be received.	Check the condition of the sensor and the communication path.
TXRX(AZI)	Azimuth signals cannot be recognized in the radar antenna.	Confirm that the status is standby and, if the status is transmitting, set the status to standby. After that, set the status to transmitting again. If it cannot be recovered in this transmitting state, visually confirm that the antenna of radar antenna is rotating in a proper way. If the rotation of the antenna has been able to be confirmed, turn off the power of the device and, after confirming cable connection of the encoder in the radar antenna, turn the power on again. If it cannot be recovered after the operation above, turn off the device and contact the distributor.
TXRX(Communication error)	There is a communication error with radar antenna.	Confirm that the setting of the instruction machine is Master. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
TXRX(DRV AC LKV)	The supply voltage of the motor driver circuit in the radar antenna falls short of the rated value.	Turn off the power of the device and check the connection of the equipment cable. If it cannot be recovered after three times of restart, turn off the device and contact the distributor. Turn off the power of the device if it is equipped and check the AC power voltage provided to the radar antenna and the DIP switch setting of the motor driver circuit.
TXRX(DRV AC OVV)	The supply voltage of the motor driver circuit in the radar antenna exceeds the rated value.	Turn off the power of the device and check the connection of the equipment cable. If it cannot be recovered after three times of restart, turn off the device and contact the distributor. Turn off the power of the device if it is equipped and check the AC power voltage provided to the radar antenna and the DIP switch setting of the motor driver circuit.
TXRX(DRV COM)	The communication with the motor driver circuit in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(DRV CPU1)	The control unit of the motor driver circuit in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(DRV Hall Sensor)	The rotation sensor of the motor in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(DRV High Rotate)	The rotation speed of the antenna is higher than the specification.	Confirm that the status is standby and, if the status is transmitting, set the status to standby. After that, set the status to transmitting again. If it cannot be recovered after repeating the above operation three times, turn off the device and contact the distributor.

Message	Explanation	Advice
TXRX(DRV IPM OVH)	The temperature of IPM of	Turn off the power of the device and restart
	the motor driver circuit in	after ten minutes.
	the radar antenna is	If it cannot be recovered, turn off the device
	abnormal.	and contact the distributor.
		Confirm that the status is standby and, if the
		status is transmitting, set the status to
	The rotation speed of the	standby.
TXRX(DRV Low Rotate)	antenna is lower than the	After that, set the status to transmitting again.
	specification.	If it cannot be recovered after repeating the
		above operation three times, turn off the
		device and contact the distributor.
		Turn off the power of the device and restart
TVDV/DDV/AACT CV/UV	The temperature of the	after ten minutes.
TXRX(DRV MOT OVH)	motor in the radar antenna	If it cannot be recovered, turn off the device
	is abnormal.	and contact the distributor.
		Confirm that the status is standby and, if the
		status is transmitting, set the status to
		standby.
	The supply current of the	Then, after confirming that there is no
TXRX(DRV OVC)	motor in the radar antenna	obstruction in the swing circle of the antenna,
	exceeds the rated value.	set the status to transmitting again.
		If it cannot be recovered after the operation
		above, turn off the device and contact the
		distributor.
		Confirm that the status is standby and, if the
	The rotation speed of the antenna is abnormally higher than the specification.	status is transmitting, set the status to
TVDV/DDV 0		standby.
TXRX(DRV Over		After that, set the status to transmitting again.
Rotate)		If it cannot be recovered after repeating the
		above operation three times, turn off the
		device and contact the distributor.
TXRX(DRV VBUS LKV)	The supply voltage of the	Restart the power.
	motor in the radar antenna	If it cannot be recovered after three times of
	falls short of the rated	restart, turn off the device and contact the
	value.	distributor.
	The cumply voltage of the	Restart the power.
TYPY(DD\/\\DLIC O\/\\	The supply voltage of the	If it cannot be recovered after three times of
TXRX(DRV VBUS OVV)	motor in the radar antenna	restart, turn off the device and contact the
	exceeds the rated value.	distributor.

Message	Explanation	Advice
		Restart the power.
TXRX(Fan1)	Fan 1 in the radar antenna	If it cannot be recovered after three times of
	is abnormal.	restart, turn off the device and contact the
		distributor.
		Restart the power.
TVDV/Fa=2)	Fan 2 in the radar antenna	If it cannot be recovered after three times of
TXRX(Fan2)	is abnormal.	restart, turn off the device and contact the
		distributor.
		Restart the power.
TVDV/Fan2\	Fan 3 in the radar antenna	If it cannot be recovered after three times of
TXRX(Fan3)	is abnormal.	restart, turn off the device and contact the
		distributor.
	The heater voltage of the	Restart the power.
TXRX(Heater)	The heater voltage of the magnetron in the radar	If it cannot be recovered after three times of
TARA(Heater)	antenna is abnormal.	restart, turn off the device and contact the
	antenna is abnomiai.	distributor.
	The temperature in the	Turn off the power of the device and restart
TXRX(High	radar antenna is	after ten minutes.
Temperature)	abnormal.	If it cannot be recovered, turn off the device
		and contact the distributor.
		Confirm that the status is standby and, if the
		status is transmitting, set the status to
		standby.
		After that, set the status to transmitting again.
		If it cannot be recovered in this transmitting
		state, visually confirm that the antenna of
	Azimuth reference signals	radar antenna is rotating in a proper way.
TXRX(HL)	cannot be recognized in	If the rotation of the antenna has been able to
	the radar antenna.	be confirmed, turn off the power of the device
		and, after confirming cable connection of the
		encoder in the radar antenna, turn the power
		on again.
		If it cannot be recovered after the operation
		above, turn off the device and contact the
		distributor.
TXRX(IF PLL)	The transmitting signal	Restart the power.
	clock in the radar antenna	If it cannot be recovered after three times of
	part is in an error state.	restart, turn off the device and contact the
		distributor.

Message	Explanation	Advice
TXRX(LO PLL)	The radar antenna detected a problem with the LO frequency.	Restart the device.
TXRX(MHV)	The supply voltage to the magnetron in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(Option)	The option equipment in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(PROC)	The radar antenna detected a problem with the signal control circuit.	Restart the device.
TXRX(PS)	The power supply circuit in the radar antenna is abnormal.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(Trigger)	There is possibility that timing reference signals are not normally output from the radar antenna.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
TXRX(Video)	There is possibility that radar image signals are not normally output from the radar antenna.	Restart the power. If it cannot be recovered after three times of restart, turn off the device and contact the distributor.
VDR(Communication failed, Main LAN)	Communication with VDR cannot be performed via Main LAN.	Check the condition of VDR and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
VDR(Communication failed, Sub LAN)	Communication with VDR cannot be performed via Sub LAN.	Check the condition of VDR and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.

Message	Explanation	Advice
Water Thermometers(Commu nication failed, Main LAN)	Communication with Water Thermometer cannot be performed via Main LAN.	Check the condition of Water Thermometer and Main LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Water Thermometers(Commu nication failed, Sub LAN)	Communication with Water Thermometer cannot be performed via Sub LAN.	Check the condition of Water Thermometer and Sub LAN. If it cannot be recovered after you check the connection of the equipment cable in power-off status and restart, turn off the power of the device and contact your distributor.
Wind(invalid)	There is a format error or a status error of the Wind data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Wind(invalid)	There is a format error or a status error of the Wind data.	Check the sensor condition.
Wind(not plausible)	There is a range error of Wind data.	Check the sensor condition. Switch to a sensor in good condition, if available.
Wind(not plausible)	There is a range error of Wind data.	Check the sensor condition.
Wind(unavailable)	The Wind data cannot be received.	Check the condition of the sensor and the communication path. Switch to a sensor in good condition, if available.
Wind(unavailable)	The Wind data cannot be received.	Check the condition of the sensor and the communication path.

APP B

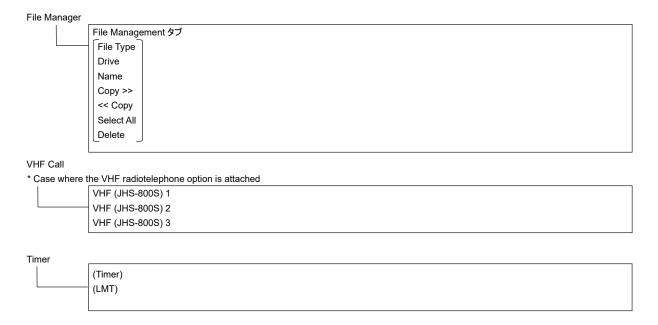
Appendix B Menu List and Materials

B.1 Menu List

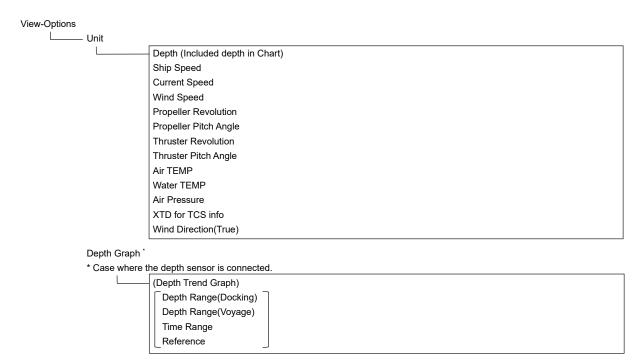
This section shows the menus and dialog items of this equipment by target menu.

* Items that are enclosed by a frame of broken lines indicate the dialog and window names that are displayed by selecting the relevant menu.

B.1.1 Tools

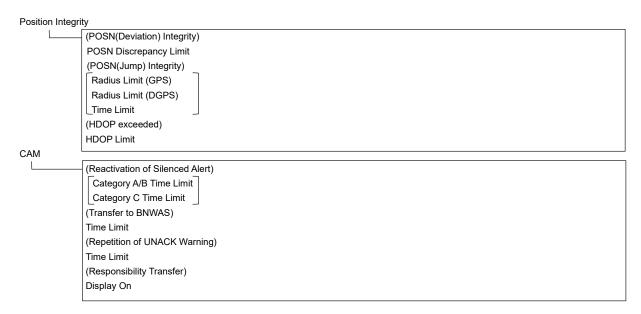


B.1.2 View



Rudder Graph	
* Case where the	e gyro and rudder is connected.
L((Rudder Trend Graph)
]	Time Range
	_Rudder Range _
Gyro/Rudder Gra	aph [*]
* Case where the	e depth sensor is connected.
	(Gyro/Rudder Trend Graph)
	Time Range
	_Rudder Range _
Engine Graph *¯	
	e engine is connected.
L((Engine REV Trend Graph)
[[Time Range
	Maximum rpm
	_Minimum rpm _
Wind Graph*	
* Case where the	e anemometer is connected
<u> </u>	(Wind Speed Trend Graph)
	Time Range
	Wind Direction Trend Graph)
	Time Range
Sea TEMP Grap	h*
*Case where the	water temperature meter is connected
	(Sea TEMP Trend Graph)
	Time Range
Tooltips/Infotips	
	Tooltips
	Mouse Over Information
ROT [∟]	
	(ROT)
	[ROT Scale]
_	

B.1.3 Alert



B.1.4 Settings

VHF

```
* Case where the VHF radiotelephone is connected.
              Call Device
Color and Brightness
              Day/Night
              Def.
              Display Color tab
               Dialog
                Character
                ALL GPS Buoy
                GPS Buoy1~10
                Other
               Brightness tab
               Character
                Panel
                Day1: Level4 / Day2: Level3 / Day3: Level2 / Dusk, Night: Level1
                <26 inch> [0~100]Day1/Day2/Day3 : 67 / Dusk : 60 / Night : 11
                <19 inch> Day1/Day2/Day3 : 42 / Dusk : 20 / Night : 4
Sounds
               Volume tab
               Key ACK
                Misoperation
               Response/Notification
               Message Notification
                Alert Setting Reminder
               Alarm
               Warning
               Melody tab
               Alarm
               Warning
Key Assignment
              Multi Dial tab
               Display Brightness
               Panel Brightness
```

B.1.5 Maintenance

```
Date/Time/Time Zone
              (Date)
              Month
               Year
               Day
              Time(LMT)
              Time Zone
              Display Style
              Synchronise with Time Source(Date/Time)
              Synchronise with Time Source(Time Zone)
System Information
              Software tab
                  Туре
                  Application
                  Maintenance No.
                  TXRX
                  TCS
                  Presentation Library
              Functionality tab
                  Device Licence Status
                  Option Licence Status
              Save to USB Device
Operating Time
              (Operating Time of Work Station)
                Total
                SSD1
                SSD2
                LCD
                LCD FAN
                CCU FAN
                PSU FAN
              LUPS
              (Operating Time of Scanner)*
                Under radar connection
                .
Total
                Transmit
                Motor
                FAN
Voyage Distance
              (Current Voyage Distance)
               Ground
               Water
               Clear
Sensor Selection/Status
              Sensor Selection
                           - (Sensor Selection)
                            Position
                            Heading
                            STW
                            COG/SOG
                            Time
                            Depth
                            SOG (Docking)
                            Navigational Data
                            Switch to equipment for Autosailing
              Position Status
                            Position Status
                            CCRP
```

```
Selftest
               Monitor Test
                             - All Black
                             All Red
                              All Green
                              All Blue
                              All White
                              Pattern1
                              Pattern2
                              Pattern3
                              Pattern4
                              Pattern5
                              Pattern6
                              Color Bar
                              Gray Scale
                              S-57 Color Pattern
                              ARCS Color Pattern
               Key Test
                              Key Test Start
                                           – Key
                                             Key Test Stop
               Sound Test
                             Sound Test Start
               Light Test
                             Light Test Start
               Memory Check
                             - Memory Check Start
                              Results
Software Update
```

DVD Drive Cleaning

Software Update Firmware Update Help Install

Maintenance INFO

B.1.6 Help

←
→
Home
(Contents tab)
(Search tab)

keyword
Search
Results

B.1.7 Code Input

Password

APP B

B.1.8 Service

```
Installation
               Installation Information (Menu for a person in charge of installation)
                              (Installation Information)
                              Date:
                              Calendar Icon
                              Name:
                              Company:
                              SSR Scanner type *
                              * Under compact solid-state radar connection
               Language (English version only) (Menu for a person in charge of installation)
                             - Language
               System Configuration
                             - Subsystem Installation (Menu for a person in charge of installation)
                                             (Own Task Station)
                                             Task Station No.
                                             Own Equipment No.
                                             IP Address(Main):
                                             IP Address(Sub):
                                             USB OPU
                                             Serial OPU
                                              (Junction Box)
                                             Junction Box 1
                                             Task Station
                                             Space A
                                             Space B
                                             AOC
                                             (Junction Box 2 : Same as Junction Box 1)
                                             (Junction Box 3 : Same as Junction Box 1)
                                             (Junction Box 4 : Same as Junction Box 1)
                                             (Junction Box 5 : Same as Junction Box 1)
                                             (Junction Box 6 : Same as Junction Box 1)
                                             (Junction Box 7 : Same as Junction Box 1)
                                              (Junction Box 8 : Same as Junction Box 1)
                                              (Device Installation)
                                              Task Station 1
                                             Equipment No. 1
                                              Task Station 2
                                             Equipment No. 2
                                              Task Station 3
                                              Equipment No. 3
                                              Task Station 4
                                             Equipment No. 4
                                              Task Station 5
                                             Equipment No. 5
                                             Task Station 6
                                             Equipment No. 6
                                             Task Station 7
                                             Equipment No. 7
                                             Task Station 8
                                             Equipment No. 8
                                             RADAR 1
                                             RADAR 2
                                             VDR(JRC)
                                             Printer
                                             Heading Sensor 1
                                             Heading Sensor 1(Type)
```

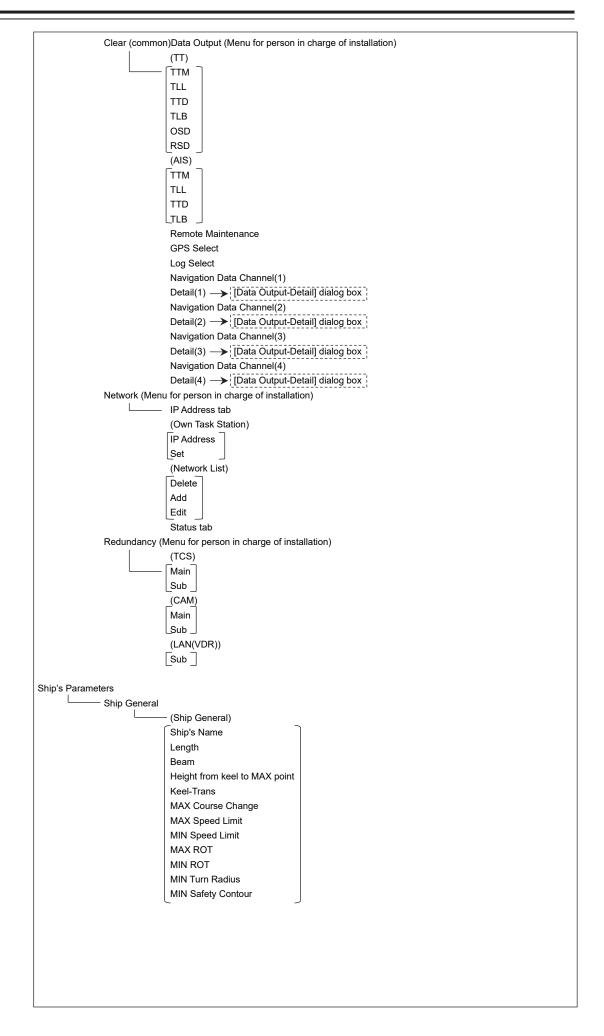
```
Heading Sensor 2
Heading Sensor 2(Type)
Log 1
Log 1 Interface/Type
Log 2
Log 2 Interface/Type
GPS 1
GPS 2
GPS 3
GPS 4
Ship's Clock
Echo Sounder 1
Transducer 1
Transducer 2
Echo Sounder 2
Transducer 3
AIS
NAVTEX
Anemometer
Water TEMP Meter
Current Meter
Climate Meter
Autopilot
Autopilot Type
Rudder
Rudder Number
Engine/Propeller
Engine/Propeller Number
Engine Telegraph
Engine Telegraph Number
Bow Thruster
Bow Thruster Number
Stern Thruster
Stern Thruster Number
Azimuth Thruster
Azimuth Thruster Number
Generator
Generator Number
S-JOY/Joystick 1
S-JOY/Joystick 2
S-JOY/Joystick 3
S-JOY/Joystick 4
S-JOY/Joystick 5
GPS Selector
Log Selector
Inmarsat-C 1
Inmarsat-C 2
Satellite Terminal 1
Satellite Terminal 2
Satellite Terminal 3
Satellite Terminal 4
BNWAS
BNWAS Type
General Equipment(Alert)
General Equipment(Alert) Number
GPS Buoy
Plotter
VHF (JHS-800S) 1
VHF (JHS-800S) 2
```

VHF (JHS-800S) 3 Hull Motion Set

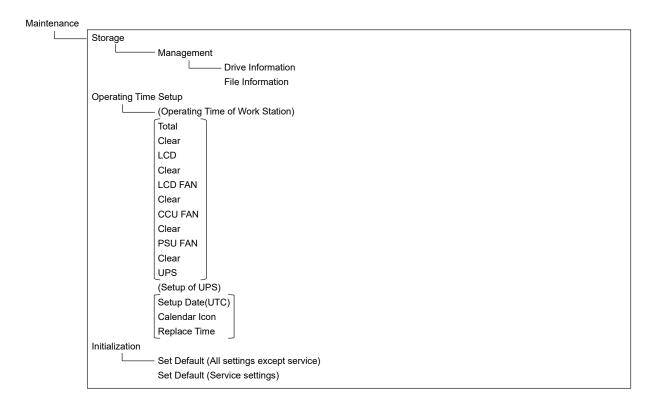
```
CCRP
              Length
              Beam
              GPS1 X~GPS4 X
              GPS1 Y~GPS4 Y
              RADAR Antenna1 X~RADAR Antenna8 X
              RADAR Antenna1 Y~RADAR Antenna8 Y
              CCRP1 X~CCRP4 X
              CCRP1 Y~CCRP4 Y
              Anchor1
              Anchor2
              (Speed Position(from fore Draft))
              Bow
             Stern
Serial Port
              (CCU)
             Gyro/Log/GPS/AIS
              Sensor
              Diagnosis
                        ➤[Serial Port-Detail] dialog box
              Detail
              Monitor → [Serial Port-Monitor] dialog box
             ISW/MTR/Serial OPU
              Diagnosis
              Monitor → [Serial Port-Monitor] dialog box
              SLC1(M) tab
              CH1 ~ CH8
              CH9 ~ CH10
             Gyro I/F
              Sensor
              Diagnosis
                       ➤[Serial Port-Detail] dialog box
              Detail
              Monitor → [Serial Port-Monitor] dialog box
              (SLC2(M) \sim SLC4(M) : SAME AS SLC1(M))
              (SLC2(S) \sim SLC4(S) : SAME AS SLC1(M))
              (ALC1 ~ ALC4 : SAME AS SLC1(M))
              Same as SLC(Main)
System Function
              Equipment
              Connection
              System Function
              SFI Talker
               SFI No.
               Cluster
               Control Tx
               Alert Tx
               Alert Rx
              Delete
                       ➤ [System Function(Add)] dialog box
              Edit 

[System Function(Edit)] dialog box
```

```
Contact (Menu for a person in charge of installation)
              (CCU)
             WMRST
              PWR FAIL
              SLC<sub>1</sub>1 tab
                          Contact Output tab
                          Contact1 ~ Contact8
                          Test
                          Task Station
                          Contact Input tab
                          Contact1 ~ Contact4
                          Diagnosis
                          Task Station
              (SLC2 : Same as SLC1)
              (SLC3 : Same as SLC1)
              (SLC4 : Same as SLC1)
              (ALC1 : Same as SLC1)
              (ALC2: Same as SLC1)
              (ALC3: Same as SLC1)
              (ALC4: Same as SLC1)
A/D (Menu for a person in charge of installation)
              (SLC1)
              Connect (common)
              CH1~CH4 → [A/D-A/D CH Configuration] dialog box
              Contents (common)
              Generator Power
              Value (common)
              Data Unit (common)
              Clear (common)
              (SLC2: Same as SLC1)
              (SLC3: Same as SLC1)
              (SLC4: Same as SLC1)
              (ALC1 : Same as SLC1)
              (ALC2: Same as SLC1)
              (ALC3: Same as SLC1)
              (ALC4 : Same as SLC1)
              (Analog Option Circuit2)
              Connect (common)
              CH1~CH4
              Contents (common)
              Value (common)
              Data Unit (common)
```



```
Settings
              Alert
                              (Watch Alarm)
                              Reset Interval
                              Trackball Threshold
                              Sound Output Mode
              AC Power Failure
                             Auto Shutdown of Task Station after
                             (LCD Control)
                             Power Off
                              Set display brightness
                              Power Off of Antenna
              AIS
                              Setting Password
               AFT Operation
                              AFT Operation Mode
                              Location
              Satellite Terminal
                              Enable the Function of Prediction for Blocking Area
                              (Satellite Terminal 1)
                              _
Туре
                              IP Address
                              Import Blocking Chart Data
                              (Satellite Terminal 2)
                              _
Туре
                              IP Address
                              Import Blocking Chart Data
                              (Satellite Terminal 3)
                              _
Type
                              IP Address
                              Import Blocking Chart Data
                              (Satellite Terminal 4)
                              Туре
                              IP Address
                              Import Blocking Chart Data
                              Set
              Display Size
                              Horizontal Size
               Sensor
                              Synchronization depth alarm limit
                              Synchronise position sensor selected on Master
              GPS Shared Route
                              - GPS Shared Route
              Route Plan Excange
                           — Destination Equipment
              RMS
              GPS Buoy
                              GPS Buoy Number
               VHF
                              VHF (JHS-800S) 1
                              VHF (JHS-800S) 2
                              VHF (JHS-800S) 3
```



B.2 Abbreviations of Geodetic Data

		Display to the top	DTM sentence	
No.	Geodetic Data		Abbreviation	User-defined
		screen	Appreviation	No.
0	WGS 84	WGS 84	W84	0
1	WGS 72	WGS 74	W74	1
2	Tokyo	TOY	TOY	2
3	North American 1927(USA)	NAS	NAS(*2)	3
4	North American 1927(Canada & Alaska)	NAS	NAS(*2)	4
5	European 1950	EUR	EUR	5
6	Australian Geodetic 1966	AUA	AUA	6
7	Ordnance Survey of Great Britain	OGB	OGB	7
8	North American 1983	NAR	NAR	8
9	No Use	Blank display	-	9
10	No Use	Blank display	-	10
11	Adindan	ADI	ADI	11
12	Arc 1950	ARF	ARF	12
13	Australian Geodetic 1984	AUG	AUG	13
14	Bermuda 1957	BER	BER	14
15	Bogota Observatory	воо	ВОО	15
16	Campo Inchauspe	CAI	CAI	16
17	Chatam Island Astro 1971	СНІ	CHI	17
18	Chua Astro	CHU	CHU	18
19	Corrego Alegre	COA	COA	19
20	Djakarta (Batavia)	BAT	BAT	20
21	European 1979	EUS	EUS	21
22	Geodetic Datum 1949	GEO	GEO	22
23	Guam 1963	GUA	GUA	23
24	Hayford 1910	024	024(*1)	24
25	Hjorsey 1955	HJO	HJO	25
26	Indian	IND	IND	26
27	Ireland 1965	IRL	IRL	27
28	Kertau 1948	KEA	KEA	28
29	L. C. 5 Astro 1961	LCF	LCF	29
30	Liberia 1964	LIB	LIB	30
31	Luzon	LUZ	LUZ	31
32	Merchich	MER	MER	32
33	Minna	MIN	MIN	33

		Discolar to the day	DTM sentence	
No.	Datum	Display to the top screen	Abbreviation	User-defined No.
34	Nahrwan	NAH	NAH	34
35	Naparima, BWI	NAP	NAP	35
36	Old Egyptian 1907	OEG	OEG	36
37	Old Hawaiian	ОНА	ОНА	37
38	Pico de las Nieves	PLN	PLN	38
39	Provisional South American 1956	PRP	PRP	39
40	Provisional South Chilean 1963	HIT	HIT	40
41	Puerto Rico	PUR	PUR	41
42	Qornoq	QUO	QUO	42
43	RT 90	043	043(*1)	43
44	Sao Braz	SAO	SAO	44
45	South American 1969	SAN	SAN	45
46	Graciosa Base SW 1948	GRA	GRA	46
47	Timbalai 1948	TIL	TIL	47
48	No Use	Blank display	-	48
49	No Use	Blank display	-	49

B.3 Lists of Terminologies, Units, and Abbreviations

Abbreviation	Term	
Α		
A/D = AD	Analog/ Digital	
A/P = AP	Auto Pilot	
AC	Alternating Current	
ACC	Actual Course Change	
ACCA	Actual Course Change Alarm	
ACK	Acknowledge	
ACQ	Acquire, Acquisition	
ACT	Activate	
AFT	After	
AIO	Admiralty Information Overlay (additional information to the navigation)	
AIS	Automatic Identification System	
ALC	Alert LAN Converter	
AMP	Amplifiers	
AMS	Alert Management System	
ANT	Antenna	
ARCS	Admiralty Raster Chart Service (A raster chart published by UKHO.)	
ASCII	American Standard Code for Information Interchange	
ASIC	Application Specific Integrated Circuit	
AtoN	Aids to Navigation	
AUTO = auto	Automatic	
Av. = AVE	Average	
AVCS	Admiralty Vector Chart Service	
AZ		
AZI	ZI Azimuth Stabilization Mode	
В		
BAM	Bridge Alert Management	
BCR	Bow Crossing Range	
BCT	Bow Crossing Time	
BFT	Beaufort	
BNWAS	Bridge Navigational Watch Alarm System	
BP	Bearing Pulse	
BRG	Bearing	
BWW	Bearing to waypoint to waypoint	
BZ	Bearing Zero	
С		
C UP	Course Up	
CA-CFAR	Cell Averaging CFAR	
Cargo.Cat	Cargo Category	

Abbreviation	Term	
CAM	Central Alert Management	
CCRP	Consistent Common Reference Point	
CCRS	Consistent Common Reference System	
CCU	Central Control Unit	
CCW	Counterclockwise	
CFAR	Constant False Alarm Rate	
СН	Channel	
CHG	Change	
CID=CONN	Conning Information Display	
CIF	Companion MPU Interface	
CLR	Clear	
COG	Course Over the Ground	
СОМ	Communication Port	
CONT	Contrast, Control	
CONV	Conventional	
CORREL	Correlation	
СРА	Closest Point of Approach	
CPP	Controllable Pitch Propeller	
CPU	Central Processing Unit	
CRS	Course	
CTS	Course to Steer	
CTW	Course Through the Water	
Curr.	Current	
CW	Clockwise	
D		
D/N	Day/Night	
DC	Direct Current	
Def.	Definition	
DGPS	Differential GPS	
DIFF	Difference	
DIR = Dir.	Direction	
DISP = Disp	Display	
DIST	Distance	
DR	Dead Reckoning, Dead Reckoned Position	
DSC	Digital Selective Calling	
DSP	Digital Signal Processor	
DWOL	Distance to Wheel Over Line	
E		
EBL	Electronic Bearing Line	
ECC	Early Course Change	
ECDIS	Electronic Chart Display and Information System	
Ed.	Edition	
EGC	Enhanced Group Calling	

Abbreviation	Term
ENC	Electronic Navigational Chart
ENH	Enhance
EOT	End of Track
EP	Estimated Position
EPA	Electronic Plotting Aids
EPFS	Electronic Position Fixing System
EQUIP	Equipment
ETA	Estimated Time of Arrival
F	
FPGA	Field Programmable Gate Array
FTC	Fast Time Constant
FWD	Forward
G	
GC	Great Circle
GIF	Gyro Interface
GLONASS	Global Orbiting Navigation Satellite System
GND	Ground
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GZ	Guard Zone
н	
H UP	Head Up
H/W = HW	HardWare
HASP	Hardware Against Software Piracy
HC	Heading Control
HCS	Heading Control System
HDG	Heading
HDOP	Horizontal Dilution of Precision
HL	Heading Line
НО	Hydrographic Organization
HSC	High Speed Craft
1	
I/F = IF	Interface
I/O	Input/Output
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IALA-A	IALA - Region A
IALA-B	IALA - Region B
ID	Identification
IMO	International Maritime Organization
IND	Indication
INFO	Information
INIT	Initialisation
INS	Integrated Navigation System

Abbreviation	Term		
INT	Interval		
IP Address	Internet Protocol Address		
IR	Interference Rejection		
ISW	Interswitch		
J			
JB	Junction Box		
K			
KOPU	Keyboard Operation Unit		
L			
L/L = LL	Latitude/ Longitude		
LAN	Local Area Network		
LAT	Latitude		
LCD	Liquid Crystal Display		
LMT	Local Mean Time		
LON	Longitude		
LOP	Line of Position		
LORAN	Long Range Navigation		
LP	Long Pulse		
М			
M/E	Main Engine		
MAG	Magnetic		
MAN	Manual		
MAX	Maximum		
MBS	Main Bang Suppression		
MFDF	Medium Frequency Direction Finding		
MHV	Modulator High Voltage		
MIC	Microphone		
MID	Middle		
MIN	Minimum		
MMSI	Maritime Mobile Services Identity Number		
МОВ	Man Overboard		
MON	Monitor		
MP	Medium Pulse		
MSC	Maritime Safety Committee		
MSG	Message		
N	N		
N UP	North Up		
NAV = NAVI	Navigation		
NAVTEX	Navigational Telex		
NE	North East		
NFU	Non Follow Up		
NLT	Not Less Than		
NMEA	National Marine Electronics Association		

Abbreviation	Term		
NMEA0183	NMEA 0183 standards		
NMT	Not More Than		
No. = NUM	Number		
NW	North West		
0			
OPE	Operation		
OPU	Operation Unit		
OSD	Own Ship Data		
OVRD	Override		
Р			
PI	Parallel Index Line		
PIN	Personal Identification Number		
PL	Pulse Length		
PORT	Port/ Portside		
POS = POSN	Position		
PPI	Plan Position Indicator		
PRF	Pulse Repetition Frequency		
PROC	Process		
PS	Power Supply		
PSU	Power Supply Unit		
PWR	Power		
Q			
R			
R	Relative		
RADAR	Radio Detecting and Ranging		
RAND	Random		
RCID	Raster Chart Issue Date		
REF	Reference		
REL	Relative		
Rev.	Revolution		
RIF	Radar I/F Circuit		
RL	Rhumb Line		
RM	Relative Motion		
RM(R)	Relative Motion. Relative Trails.		
RM(T)	Relative Motion. True Trails.		
RMS	Root Mean Square		
RNC	Raster Navigational Chart		
RNG	Range		
RoRo	Roll On/ Roll Off (Vessel)		
ROM	Read Only Memory		
ROT	Rate of Turn		
RPS	Route Planning System		
RX	Receiver		

Abbreviation	Term		
s			
SA	Scheme Administrator		
SAR	Search and Rescue		
SART	Search and Rescue Transponder		
SATNAV	Satellite Navigation		
SBAS	Satellite Based Augmentation System		
SCL	Serial LAN Converter		
SDK	Software Development Kit		
SE	South East		
SEL	Select		
SENC	System Electronic Navigational Chart		
Seq	Sequence		
SFI	System Function ID		
S-JOY	Steering Joystick Controller		
SLC	Serial LAN Interfaces CircuitSerial LAN Converter		
SOG	Speed Over the Ground		
SP	Short Pulse		
SPD	Speed		
SprsLvl	Spurious Level		
SSD	Solid State Drive		
SSE	Security Scheme Error		
SSR	Solid State Radar		
SSW	Safety Switch		
STAB	Stabilised, Stabilisation		
STBD	Starboard, Starboard Side		
STC	Sensitivity Time Control		
STD	Standard		
STW	Speed Through the Water		
Surf	Surface		
SW HUB	Switching Hub		
SYNC	Synchronisation		
SYS	System		
Т			
Т	True		
T&P	Temporary and Preliminary Notice to Mariners		
TCPA	Time to CPA		
TCS	Track Control System		
TD	Time Difference		
TEMP / Temp.	Temperature		
TGT	Target		
ТМ	True Motion		
TNI	Tune Indicator		
TOPU	Trackball Operation Unit		

Abbreviation	Term		
TPL	Transferred Line of Position		
Trans	Transducer		
TRX	Transceiver		
TT	Target Tracking		
TTG	Time to Go		
TWOL	Time to Wheel Over Line		
TX	Transmitter		
TXRX	Transceiver		
U			
U.Map	User Map		
UNACK	Un-Acknowledge		
Up.No.	Update Number		
USB	Universal Serial Bus		
UTC	Coordinated Universal Time		
V			
VD	Video		
VDIN	Video In		
VDR	Voyage Data Recorder		
Ver.	Version		
VHF	Very High Frequency		
VOL	Volume		
VRM	Variable Range Marker		
W			
W UP	Waypoint Up		
WGS	World Geodetic System		
WIG	Wing-in-ground effect craft		
WOL	Wheel Over Line		
WPT	Waypoint		
WS	Work Station		
WTRST	Watch Timer Reset		
X			
XTD	Cross Track Distance		
XTE	Cross Track Error		
XTL	Cross Track Limit, Route Width		
Υ			
Z			
Unit			
bps	bit per second		
cm	centimetre		
dB	decibel		
deg	degree		
fm	fathom		
ft	feet, foot		

Abbreviation	Term
h = hr	hour
hPa	hecto pascal
Hz	hertz
kg	kilogram
km	kilometre
kn = kts	knot
m	metre
mbar	millibar
min	minute
mph	mile per hour
NM	nautical mile
RAD	radius
rpm	revolutions per minute
s	second
sm	statute mile

B.4 List of Icons/Icon Buttons

The icons/icon buttons displayed in this equipment are listed below.

No.	Name	Functional outline	Displayed image
1	Active indicator	Indicates that the computer is processing by an animation.	
2	Delete	Deletes the item.	×
3	Setting mark	Displayed when the operation is valid.	₹
4	Drive	Displayed at the left of the name when a drive is selected.	
5	Folder	Displayed at the left of the name when a folder is selected.	
6	Close	Closes the dialog box.	×
7	Date selection	Displays the calendar picker.	31
8	Day/Night	Displays the state of the current Day/Night setting by an icon.	
9	Screen brightness	Enables adjustment of the screen brightness.	₩
10	Panel brightness	Enables adjustment of the brightness of operation unit.	
11	MOB	Starts the MOB (Man Over Board) mode. In the MOB mode, a symbol display of the position of the sailor falling over board and a dotted like connecting it to the own ship are displayed graphically.	
12	Menu	[Menu] button with freeze indicator function. Displays the menu. Indicates using animation that the system is operating.	Menu Menu Menu Menu Menu Menu Menu
13	Silencing	Silences the alert sound.	A
14	Multiple knob (small knob)	Displays the functions assigned to the multiple knob. Displayed as an icon with the function name at left.	

No.	Name	Functional outline	Displayed image
15	Brightness	Sets the brightness of the screen.	
16	Page selection	Selects the item to be displayed in the custom tab.	
17	View	Opens the View related menu. Sets the graph display.	
18	Alert	Opens the alert related menu. When clicked, the [Alert] dialog box appears. Alert settings can be made in the dialog box.	ALERT
19	Settings	Opens the menu related to the operation settings of the equipment.	USER
20	Maintenance	The maintenance related menu for the users is displayed. It is possible to check the software version and to monitor the status of the equipment.	X
21	Help	Opens the help screen.	?
22	Code Input	Input the password.	***
23	Service	The menu related to adjustment, servicing, and maintenance is displayed for the servicing personnel.	Z.
24	Back space	Carries out a backspace operation.	*
25	Backward movement of the input position	Moves back the input position.	+
26	Forward movement of the input position	Moves the input position forward	→
27	Operation guide	Displays the operation guide when clicked.	①
28	Search	Displayed in the search text box.	Q

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 - For additional information on export of the Software, refer to the website: http://www.microsoft.com/exporting/.

Font License Agreement

This product uses Migu font (http://mix-mplus-ipa.sourceforge.jp/migu/) to display characters on the screen. Migu font data is distributed from the URL stated above. Migu font is distributed in compliance with "IPA Font License Agreement v1.0" (http://ipafont.ipa.go.jp/ipa_font_license_v1.html). This product loaded with the Migu font is also in compliance with "IPA Font License Agreement v1.0." You may use this product under the agreement to the provisions of "IPA Font License Agreement v1.0." You have the right to change the font used for the display of this product from Migu font to IPA font. However, there is no need to change the Migu font to IPA font in the specifications of this product. Moreover, this product is designed to provide the display which is optimized for using Migu font. Note that using IPA font for the display may cause a problem of compatibility of font data with regard to the form of some characters resulting in degradation of the display on the screen. If you desire to change from Migu font to IPA font, consult with our service agent.

IPA Font License Agreement v1.0

The Licensor provides the Licensed Program (as defined in Article 1 below) under the terms of this license agreement ("Agreement"). Any use, reproduction or distribution of the Licensed Program, or any exercise of rights under this Agreement by a Recipient (as defined in Article 1 below) constitutes the Recipient's acceptance of this Agreement.

Article 1 (Definitions)

In this Agreement, the following terms set forth in each item shall be defined as therein.

- 1. "Digital Font Program" shall mean a computer program containing, or used to render or display fonts.
- 2. "Licensed Program" shall mean a Digital Font Program licensed by the Licensor under this Agreement.
- 3. "Derived Program" shall mean a Digital Font Program created as a result of a modification, addition, deletion, replacement or any other adaptation to or of a part or all of the Licensed Program, and includes a case where a Digital Font Program newly created by retrieving font information from a part or all of the Licensed Program or Embedded Fonts from a Digital Document File with or without modification of the retrieved font information.
- 4. "Digital Content" shall mean products provided to end users in the form of digital data, including video content, motion and/or still pictures, TV programs or other broadcasting content and products consisting of character text, pictures, photographic images, graphic symbols and/or the like.
- 5. "Digital Document File" shall mean a PDF file or other Digital Content created by various software programs in which a part or all of the Licensed Program becomes embedded or contained in the file for the display of the font ("Embedded Fonts"). Embedded Fonts are used only in the display of characters in the particular Digital Document File within which they are embedded, and shall be distinguished from those in any Digital Font Program, which may be used for display of characters outside that particular Digital Document File.
- 6. "Computer" shall include a server in this Agreement.
- 7. "Reproduction and Other Exploitation" shall mean reproduction, transfer, distribution, lease, public transmission, presentation, exhibition, adaptation and any other exploitation.
- 8. "Recipient" shall mean anyone who receives the Licensed Program under this Agreement, including one that receives the Licensed Program from a Recipient.

Article 2 (Grant of License)

The Licensor grants to the Recipient a license to use the Licensed Program in any and all countries in accordance with each of the provisions set forth in this Agreement. However, any and all rights underlying in the Licensed Program shall be held by the Licensor. In no sense is this Agreement intended to transfer any right relating to the Licensed Program held by the Licensor except as specifically set forth herein or any right relating to any trademark, trade name, or service mark to the Recipient.

- 1. The Recipient may install the Licensed Program on any number of Computers and use the same in accordance with the provisions set forth in this Agreement.
- 2. The Recipient may use the Licensed Program, with or without modification in printed materials or in Digital Content as an expression of character texts or the like.
- The Recipient may conduct Reproduction and Other Exploitation of the printed materials and Digital Content created in accordance with the preceding Paragraph, for commercial or non-commercial purposes and in any form of media including but not limited to broadcasting, communication and various recording media.
- 4. If any Recipient extracts Embedded Fonts from a Digital Document File to create a Derived Program, such Derived Program shall be subject to the terms of this agreement.
- 5. If any Recipient performs Reproduction or Other Exploitation of a Digital Document File in which Embedded Fonts of the Licensed Program are used only for rendering the Digital Content within such Digital Document File then such Recipient shall have no further obligations under this Agreement in relation to such actions.
- 6. The Recipient may reproduce the Licensed Program as is without modification and transfer such copies, publicly transmit or otherwise redistribute the Licensed Program to a third party for commercial or non-commercial purposes ("Redistribute"), in accordance with the provisions set forth in Article 3 Paragraph 2.
- 7. The Recipient may create, use, reproduce and/or Redistribute a Derived Program under the terms stated above for the Licensed Program: provided, that the Recipient shall follow the provisions set forth in Article 3 Paragraph 1 when Redistributing the Derived Program.

Article 3 (Restriction)

The license granted in the preceding Article shall be subject to the following restrictions:

- If a Derived Program is Redistributed pursuant to Paragraph 4 and 7 of the preceding Article, the following conditions must be met:
 - (1) The following must be also Redistributed together with the Derived Program, or be made available online or by means of mailing mechanisms in exchange for a cost which does not exceed the total costs of postage, storage medium and handling fees:
 - (a) a copy of the Derived Program; and
 - (b) any additional file created by the font developing program in the course of creating the Derived Program that can be used for further modification of the Derived Program, if any.
 - (2) It is required to also Redistribute means to enable recipients of the Derived Program to replace the Derived Program with the Licensed Program first released under this License (the "Original Program"). Such means may be to provide a difference file from the Original Program, or instructions setting out a method to replace the Derived Program with the Original Program.
 - (3) The Recipient must license the Derived Program under the terms and conditions of this Agreement.
 - (4) No one may use or include the name of the Licensed Program as a program name, font name or file name of the Derived Program.
 - (5) Any material to be made available online or by means of mailing a medium to satisfy the requirements of this paragraph may be provided, verbatim, by any party wishing to do so.

- 2. If the Recipient Redistributes the Licensed Program pursuant to Paragraph 6 of the preceding Article, the Recipient shall meet all of the following conditions:
 - (1) The Recipient may not change the name of the Licensed Program.
 - (2) The Recipient may not alter or otherwise modify the Licensed Program.
 - (3) The Recipient must attach a copy of this Agreement to the Licensed Program.
- 3. This licensed Program is provided by the licensor "as is" and any expressed or implied warranty as to the Licensed Program or any derived program, including, but not limited to, warranties of title, non-infringement, merchantability, or fitness for a particular purpose, are disclaimed. In no event shall the licensor be liable for any direct, indirect, incidental, special, extended, exemplary, or consequential damages (including, but not limited to; procurement of substituted goods or service; damages arising from system failure; loss or corruption of existing data or program; lost profits), however caused and on any theory of liability, whether in contract, strict liability or tort (including negligence or otherwise) arising in any way out of the installation, use, the reproduction or other exploitation of the licensed Program or any derived program or the exercise of any rights granted hereunder, even if advised of the possibility of such damages.
- 4. The Licensor is under no obligation to respond to any technical questions or inquiries, or provide any other user support in connection with the installation, use or the Reproduction and Other Exploitation of the Licensed Program or Derived Programs thereof.

Article 4 (Termination of Agreement)

- The term of this Agreement shall begin from the time of receipt of the Licensed Program by the Recipient and shall continue as long as the Recipient retains any such Licensed Program in any way.
- 2. Notwithstanding the provision set forth in the preceding Paragraph, in the event of the breach of any of the provisions set forth in this Agreement by the Recipient, this Agreement shall automatically terminate without any notice. In the case of such termination, the Recipient may not use or conduct Reproduction and Other Exploitation of the Licensed Program or a Derived Program: provided that such termination shall not affect any rights of any other Recipient receiving the Licensed Program or the Derived Program from such Recipient who breached this Agreement.

Article 5 (Governing Law)

- 1. IPA may publish revised and/or new versions of this License. In such an event, the Recipient may select either this Agreement or any subsequent version of the Agreement in using, conducting the Reproduction and Other Exploitation of, or Redistributing the Licensed Program or a Derived Program. Other matters not specified above shall be subject to the Copyright Law of Japan and other related laws and regulations of Japan.
- 2. This Agreement shall be construed under the laws of Japan.

アスベストは使用しておりません Not use the asbestos

For further information, contact:



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