JHS-182

Automatic Identification System

INSTRUCTION MANUAL

JRC Japan Radio Co., Ltd.

Preface

Thank you for purchasing JHS-182 Automatic Identification System (AIS).

JHS-182 is the Class A shipborne AIS equipment that communicates the ship's static data and the ship's dynamic data with ships or coast stations on VHF channels using TDMA techniques.

- Be sure to read this manual for full comprehension before using the equipment.

- Save this manual near at hand for quick reference in the future.
  Make use of this manual when experiencing operation difficulties.

Before Operation

Concerning the symbols

This manual uses the following symbols to explain correct operation and to prevent injury or damage to property.
The symbols and descriptions are as follows. Understand them before proceeding with this manual.

⚠ WARNING	Indicates a warning that, if ignored, may result in serious injury or even death.
⚠ CAUTION	Indicates a caution that, if ignored, may result in injury or damage to property.

Examples of symbols

The △ symbol indicates caution (including DANGER and WARNING).
The illustration inside the △ symbol specifies the content of the caution more accurately. (This example warns of possible electrical shock.)

The ⃠ symbol indicates that performing an action is prohibited.
The illustration inside the ⃠ symbol specifies the contents of the prohibited operation. (In this example disassembly is prohibited.)

The ● symbol indicates operations that must be performed.
The illustration inside the ● symbol specifies obligatory instructions. (In this example unplugging is the obligatory instruction.)

Concerning warning labels

A warning label is pasted to the top cover of this product.
Do not remove, damage or modify the label.

Handling Precautions

⚠ WARNING

Do not disassemble or customize this unit. Doing so may cause fire, electrical shock or malfunction.

Do not use a voltage other than specified. Doing so may cause fire, electrical shock or malfunction.

Do not attempt to service the interior of this equipment with the exception of qualified service personnel, as doing so may cause fire, electric shock or malfunction. If any malfunctions are detected, contact our service center or agents.

Handling Precautions

⚠ CAUTION

Do not use this equipment for anything other than specified.
Doing so may cause malfunction or damage to persons.

Do not adjust the trimmer resistors or the trimmer capacitors on the PCB unit, except when and if they need to be adjusted.
Doing so may cause malfunction or damage to persons. They are preset at the factory.

Do not install this equipment in a place other than specified or in one with excessive humidity, steam, dust or soot. Doing so may cause fire, electric shock, malfunction or damage to persons.

Do not get this equipment wet or spill any liquids on or near this equipment.
Doing so may cause electrical shock or malfunction.

Do not place this equipment anywhere vibration or impact is likely to occur.
Doing so may cause a fall or damage to property and persons.

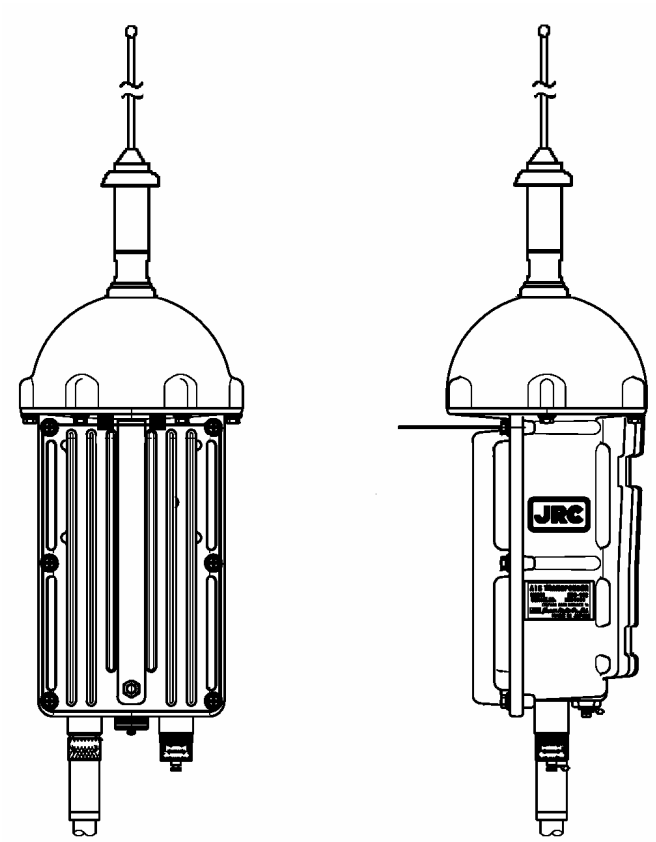
Do not place any equipment on this equipment.
Doing so may cause a fall, malfunction or damage to property and persons.

Leave installation of this equipment to our service center or agents.
Installation by an unauthorized person may lead to malfunction.

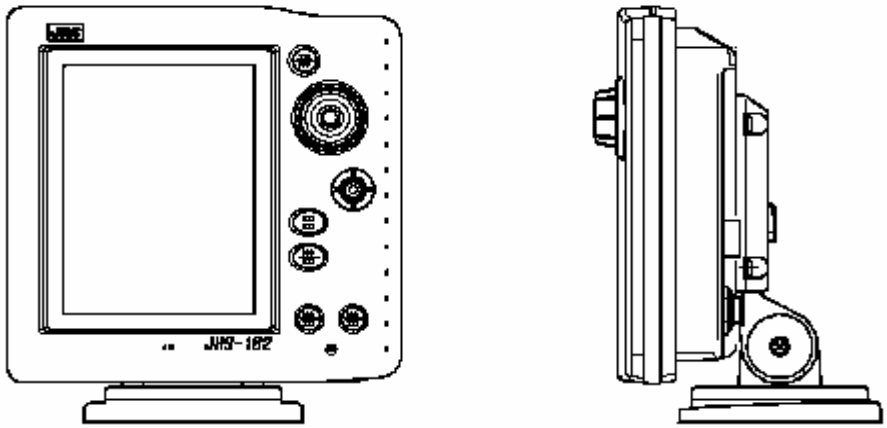
Use this AIS equipment only as assisting device for collision avoidance. Also, the officer should make the final decision maneuvering by himself.

External Views

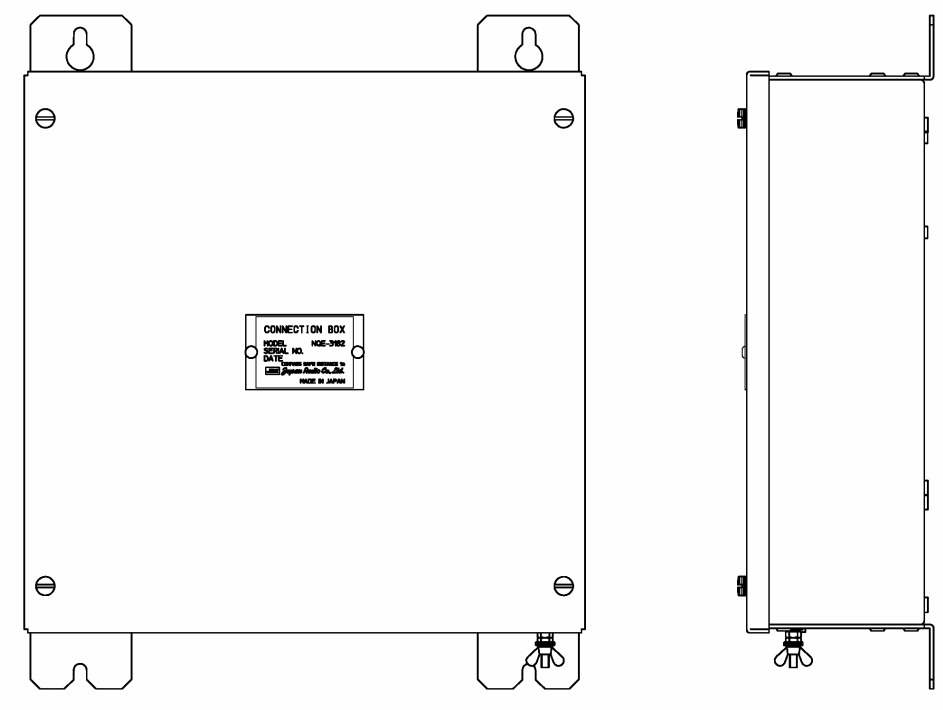
NTE-182 AIS Transponder



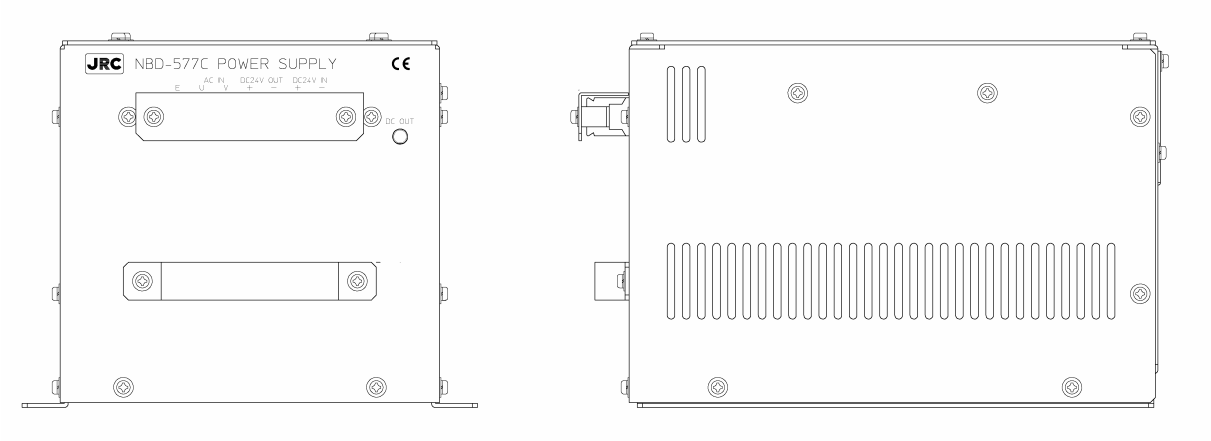
NCM-779 AIS Controller



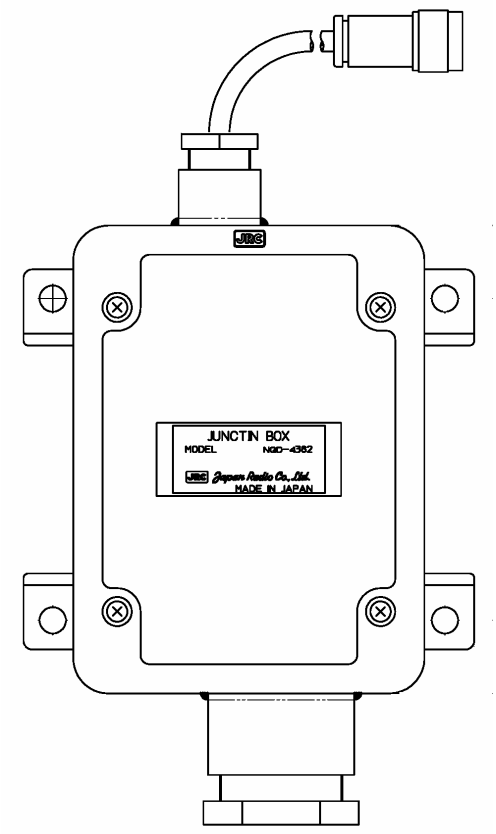
NQE-3182 Connection Box



NBD-577C Power Supply Unit



NQD-4382 Junction Box



CONTENTS

1. GENERAL

1.1 Outlines

Automatic Identification System (AIS) is a maritime navigation and radio communication system. This system intends to enhance the safety of life at sea, the safety and efficiency of navigation and the protection of the marine environment by communicating navigational information automatically on VHF channels between ship and ship, ship and shore.
JHS-182 meets the requirements of the SOLAS Conventions for the Class A shipborne equipment of the universal AIS. JHS-182 mainly consists of AIS Transponder, Connection Box and AIS Controller. The combined antenna and transponder design allows installation at any convenient location on any vessels. The small and simple design controller allows easy installation and operation. Moreover, easy equipment that connects a connection box and these each equipments by one cable is designed. JHS-182 employs the latest technologies such as digital signal processing, circuit integration technology, and these technologies ensure high performance and high reliability.

1.2 Features

● Fully Comply with International Regulations

JHS-182 is designed to meet the requirements of the SOLAS Conventions for the Class A shipborne equipment of the universal AIS and fully complies with international regulations: IMO MSC74(69) Annex 3, ITU-R M.1371, IEC61993-2, IEC60945 etc.

● Combined Antenna and Transponder for Ease of Installation

JHS-182 employs the combined antenna and transponder design. This design allows installation at any convenient location on any vessels. For the connection between abode deck component and below deck component, only one cable is needed.

● Increased Probability of Vessel Detection

JHS-182 is equipped with a guard zone alert function. When preset guard zone range and other vessel enters into the zone, JHS-182 indicates and sounds the alert. This function enhances probability of vessel detection.

● Recognition of Own-group Vessels

JHS-182 is equipped with a recognition of own-group vessels function. When preset own-group vessels' identification in advance, the display indicates the own-group vessel sign. This sign allows easy recognition of own-group vessels.

● Self-diagnosis Function

JHS-182 is equipped with a built-in automatic self-diagnosis function. This function allows easy maintenance and high system reliability.

● System Integration Availability

JHS-182 is equipped with various interfaces. These interfaces allow system integration and future expansions.

1.3 Components

1. 3. 1 Standard Components

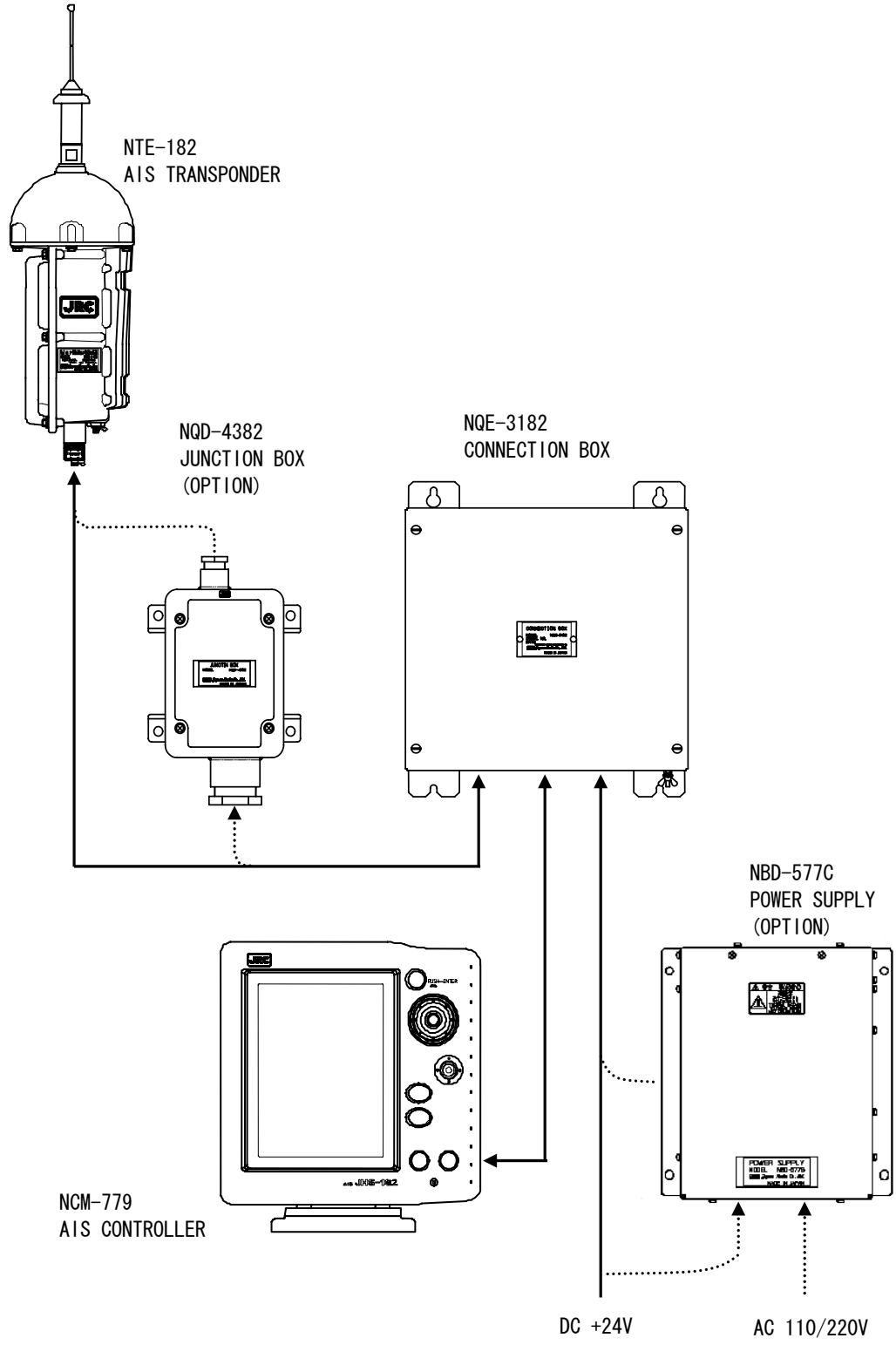
No.	Name	Type	Quantity	Remarks
1	AIS Transponder	NTE-182	1	With whip antenna
2	Connection box	NQE-3182	1	
3	AIS Controller	NCM-779	1	With Pilot Plug
4	Control cable	7ZCJD0214A	1	L=10m
5	Spare parts	7ZXJD0049	1	Fuses
6	Instruction manual	7ZPJD0226A	1	

1. 3. 2 Options

No.	Options	Type	Quantity	Remarks
1	Power supply unit	NBD-577C	1	100/220V Manual Change
2	Junction box	NQD-4382	1	For TTYCYS-7
3	Junction unit	CQD-5182	1	For TTYCYS-7
4	NSK unit	CMJ-3182	1	
5	Console mount kit For NCM-779	NCE-5779	1	With pilot plug on the panel
6	AC power supply unit for pilot PC	NBG-380	1	120Vac output
7	Pilot plug cable	CFQ-6961	1	L=20m
8	Pilot plug box	NQE-3150	1	Wall mount type
9	Console mount kit for NQE-3150	MPBX40498	1	

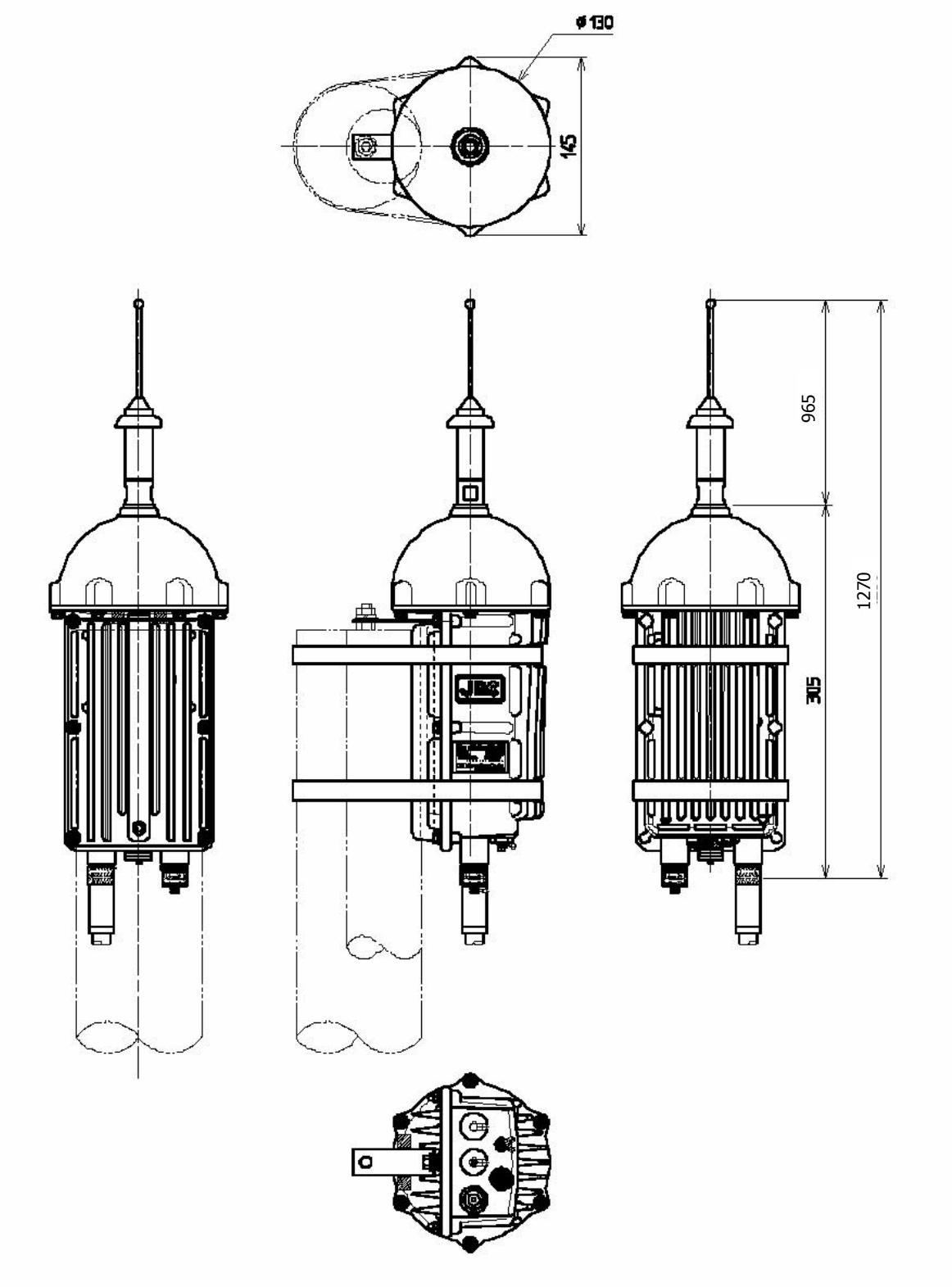
1.3.3 Configuration

- **System Block Diagram**



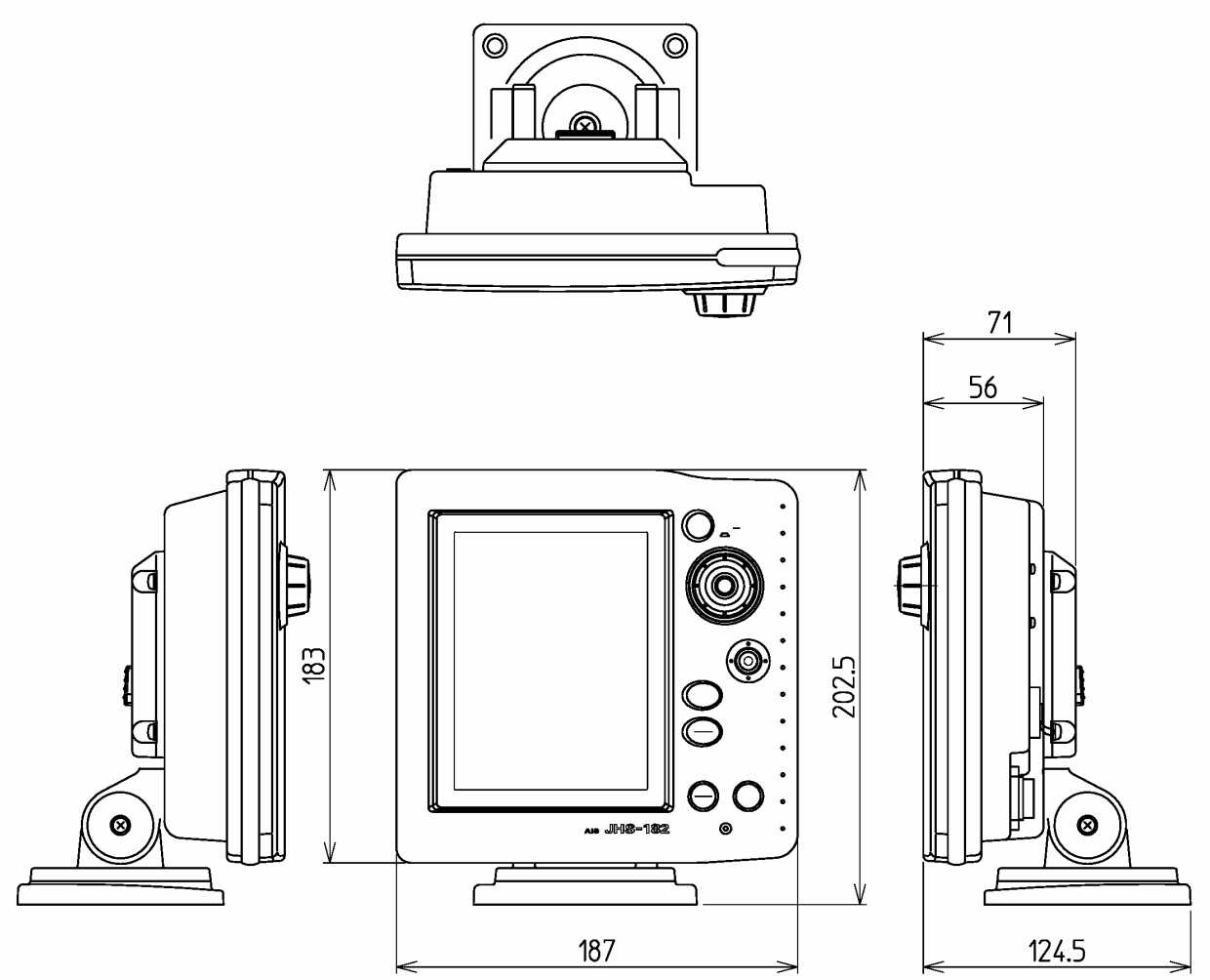
1.4 Outline

- **Outline Drawing of NTE-182 AIS Transponder**



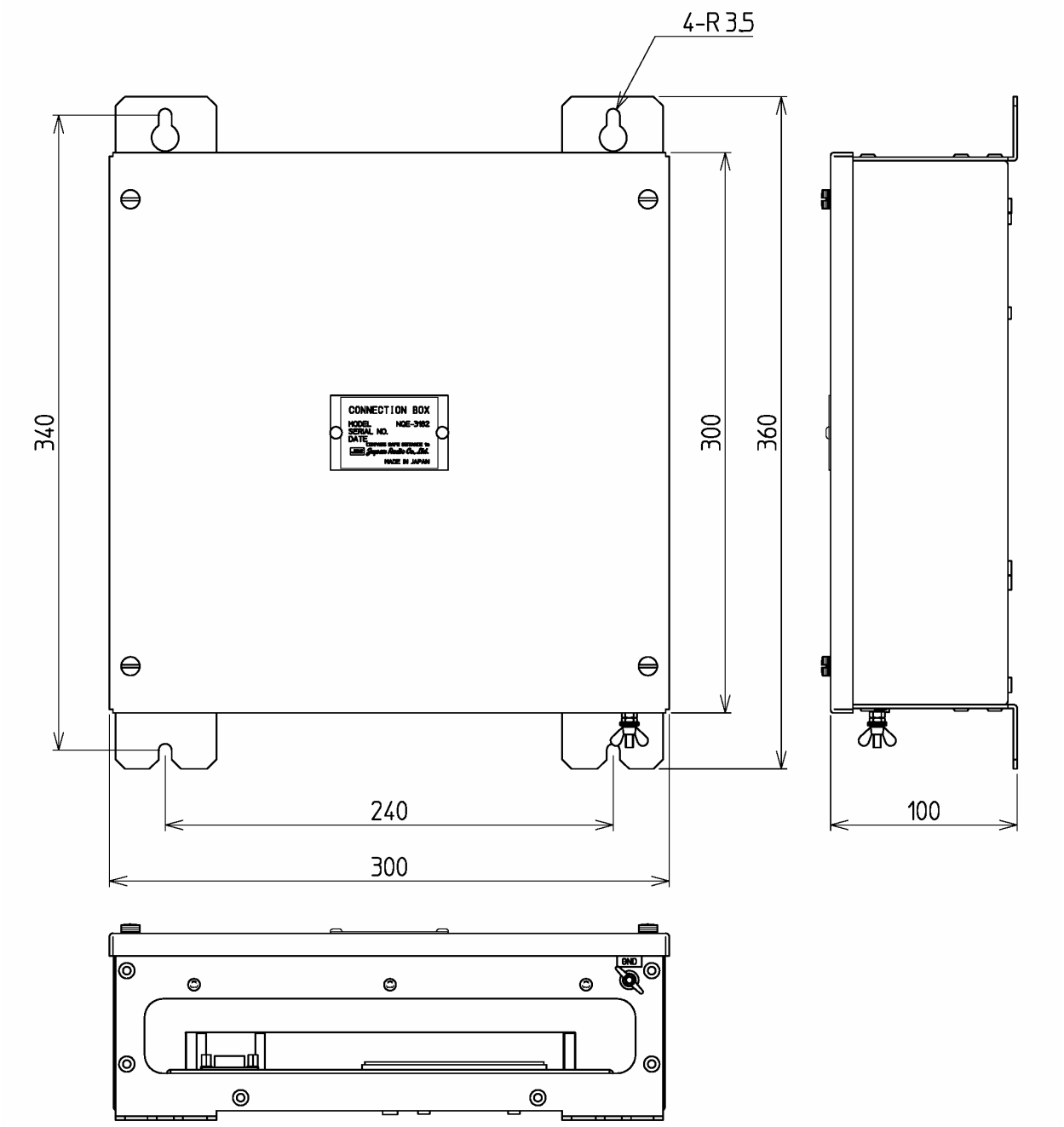
Unit: mm
Mass: approx. 2.6 kg

- **Outline Drawing of NCM-779 AIS Controller**



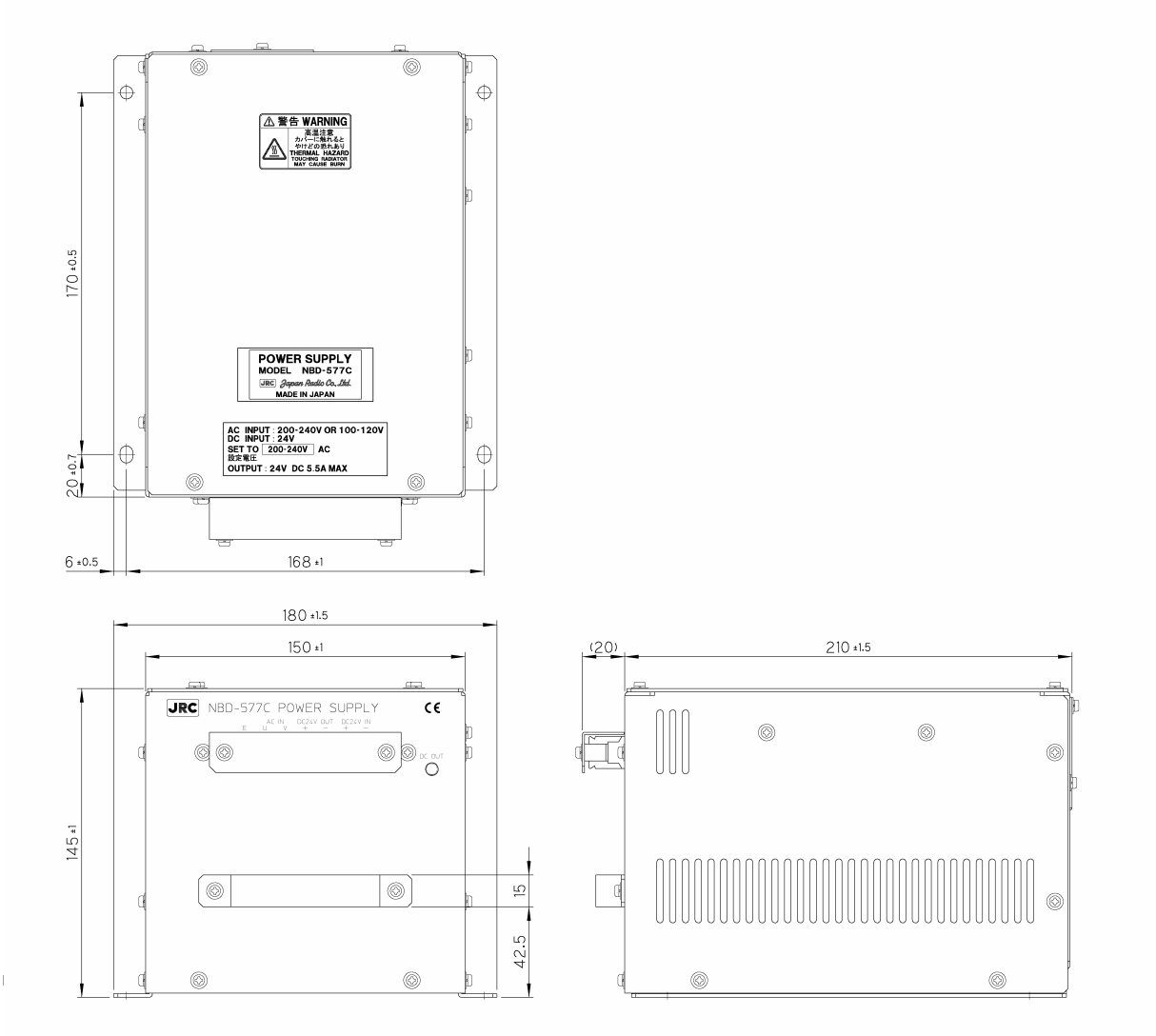
Unit: mm
Mass: approx. 1.0 kg

- **Outline Drawing of NQE-3182 Connection Box**



Unit: mm
Mass: approx. 2.5 kg

- **Outline Drawing of NBD-577C Power Supply Unit**

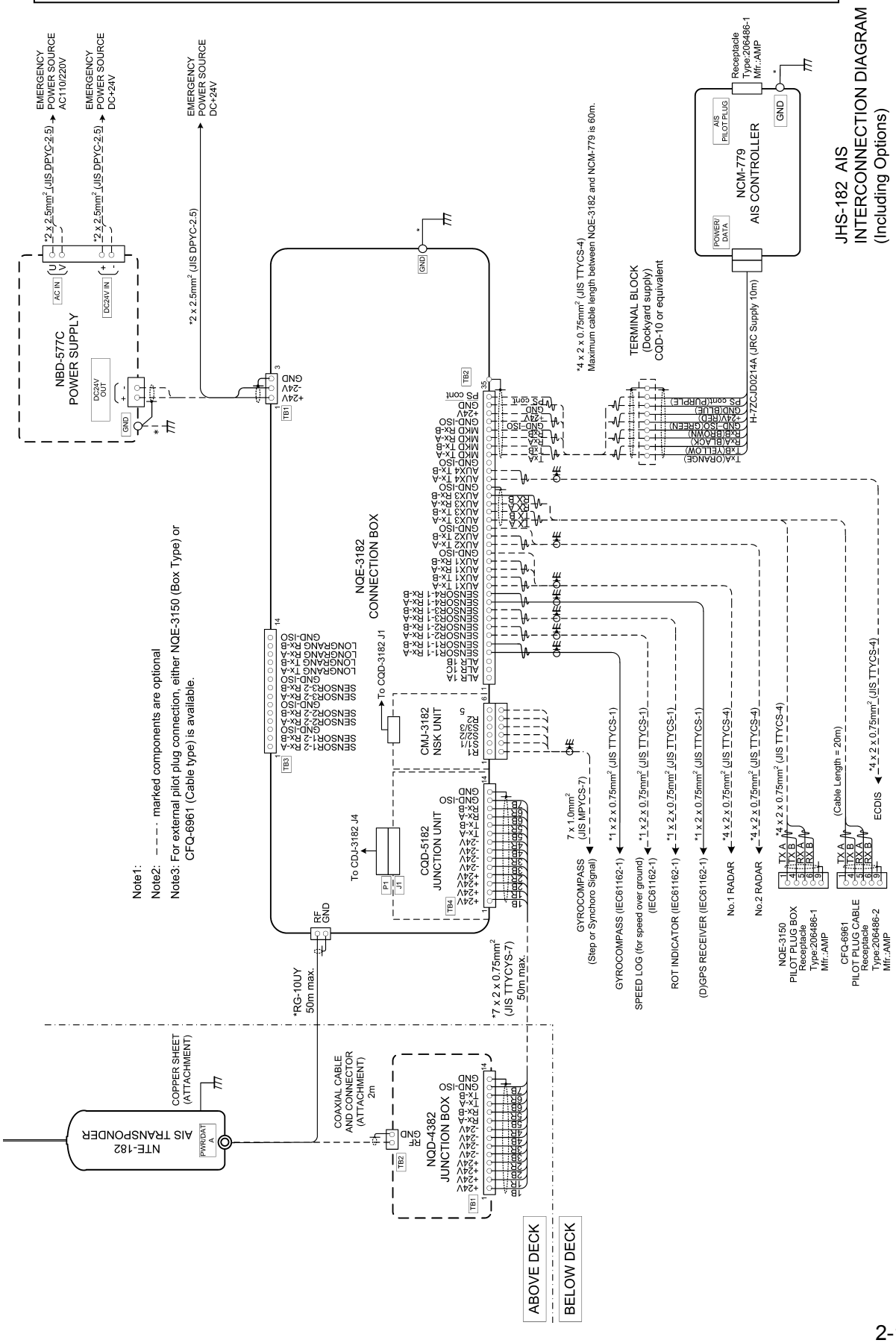


Unit: mm
Mass: approx. 5.4 kg

2. INSTALLATION DIAGRAM

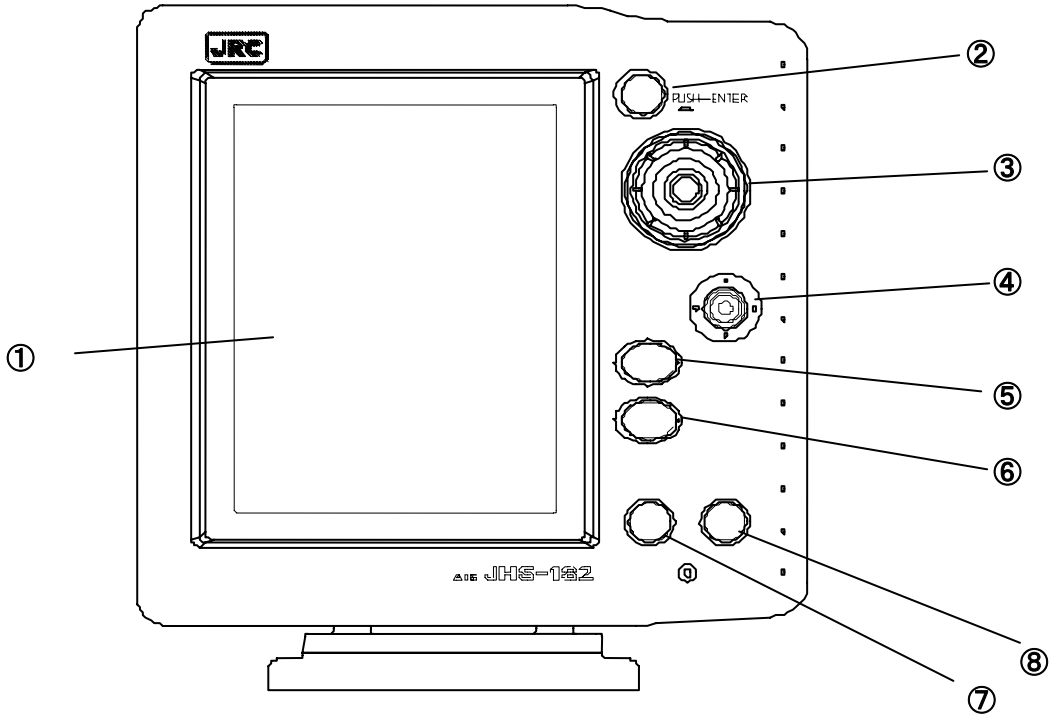
Notes:

Leave installation of this equipment to our service center or agents.
Installation by an unauthorized person may results in malfunction.



3. PART NAMES AND FUNCTIONS

3.1 NCM-779 AIS controller



① LCD Panel
For further information, refer to “4. Display”.

② Menu key
Displays the Main-menu.

③ Jog Dial
Moves the cursor to a clockwise rotation or a counterclockwise rotation to choose the items. Pressing the dial makes the selection.

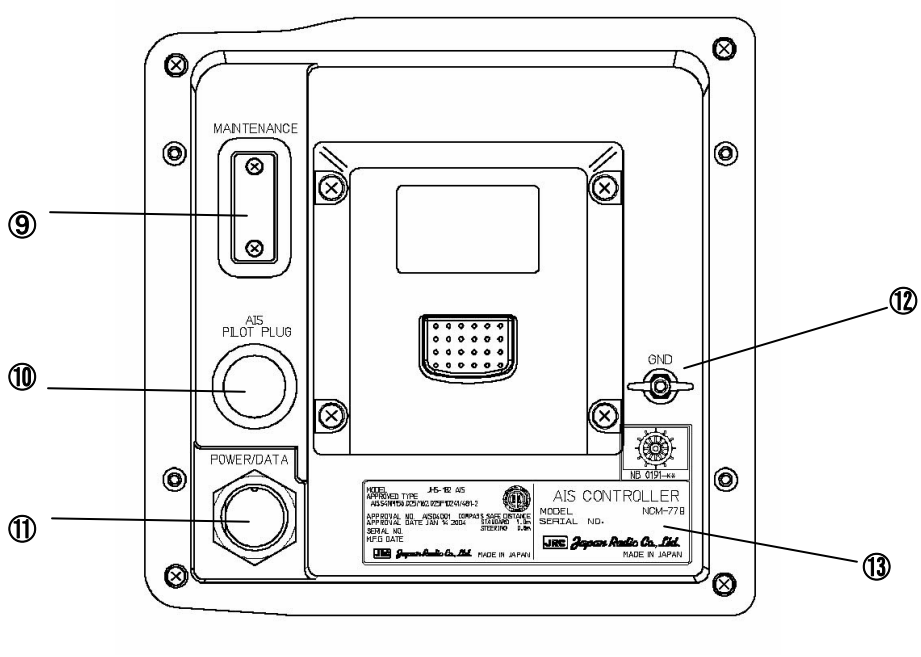
④ Joy Stick
Moves the cursor when Graphic display is displayed (Keyboard display, etc.).

⑤ CLR key
Clears input errors.
Turns Off the alarm sound when beeping alarm sound.

⑥ DSPL – Select key
Changes the screen.

⑦ Power/Dimmer key
Turns the power ON when power is OFF.
Adjusts the back light brightness of the LCD and key in four stages when power is ON.
(Each time [PWR/DIM] is pressed, the display dims one stage at a time.)

⑧ Power OFF key
Pressing [PWR/DIM] and [OFF] at the same time turn the power OFF.



⑨ **MAINTENANCE connector**

Maintenance connector is available in the cover. Maintenance PC connects to the connector.

⑩ **Pilot Plug**

Pilot PC connects to the connector.

⑪ **POWER/DATA connector**

Attached cable connects between AIS controller and Connection Box.

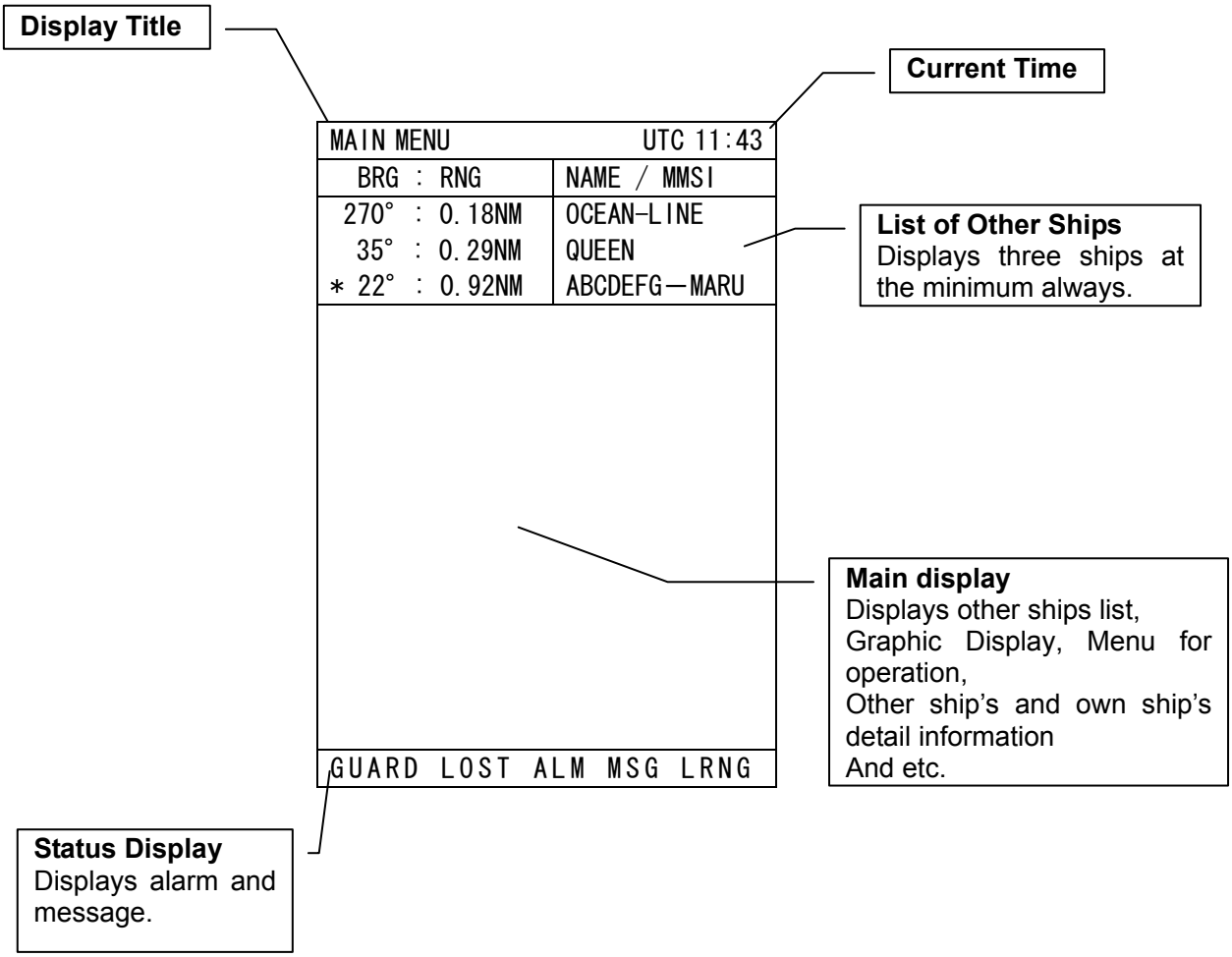
⑫ **GND terminal**

Ship ground connects to the terminal.

⑬ **Name plate**

Serial number of the equipment is printed on the plate.

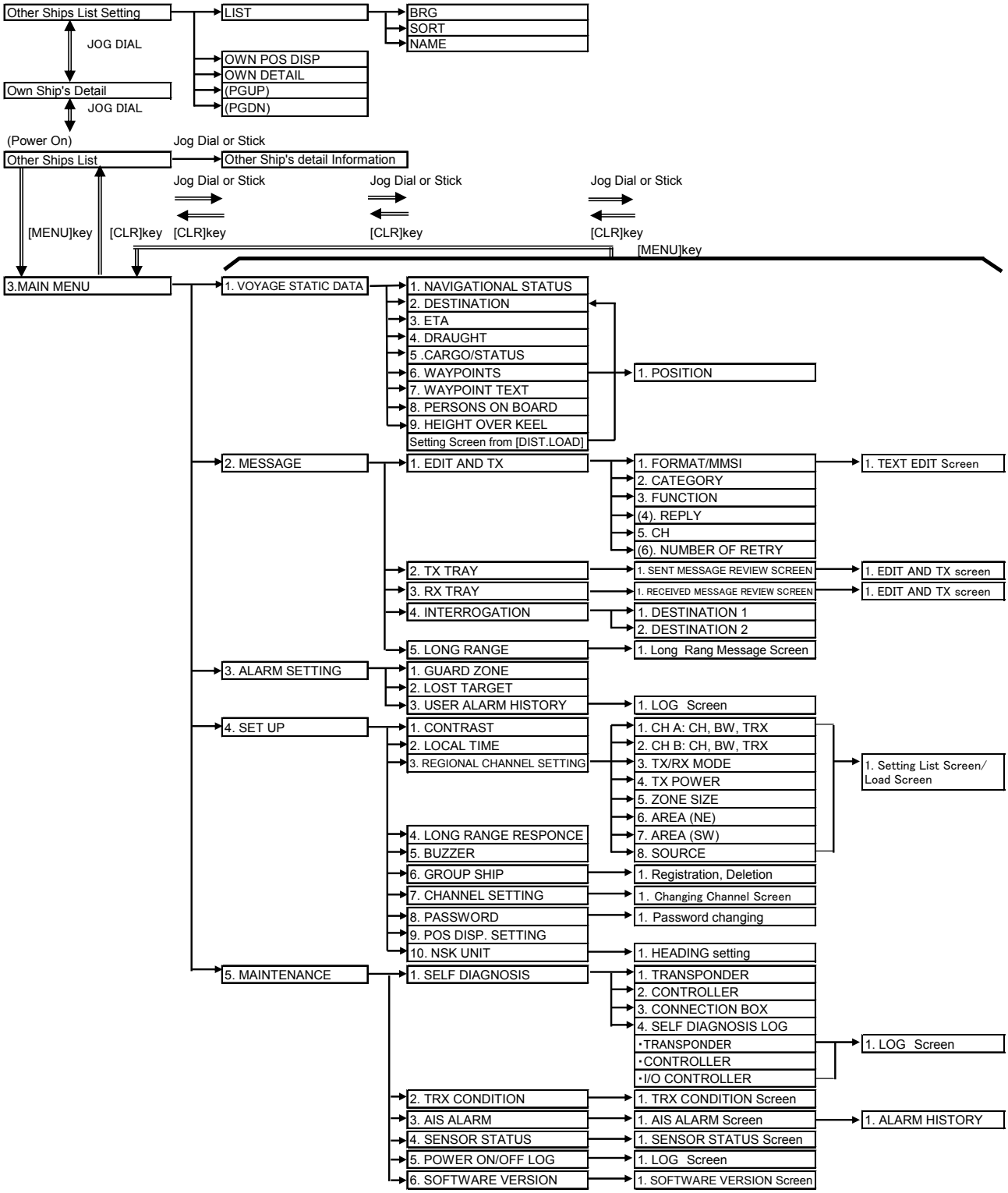
4. DISPLAYS


Display Title
Current Time
MAIN MENU UTC 11:43
BRG : RNG
NAME / MMSI
270° : 0.18NM
OCEAN-LINE
35° : 0.29NM
QUEEN
* 22° : 0.92NM
ABCDEFG—MARU
GUARD LOST ALM MSG LRNG
List of Other Ships
Displays three ships at the minimum always.
Main display
Displays other ships list,
Graphic Display, Menu for operation,
Other ship's and own ship's detail information
And etc.
Status Display
Displays alarm and message.

5. OPERATION

5.1 Menu Tree

*( ) is not displayed depending on the selection.



5.2 Basic Operation

5.2.1 Turning ON the power

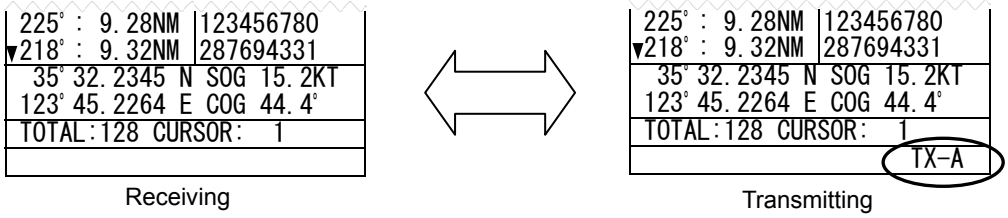
Holding down the PWR/DIM key for one second turns on the power, the starting screen appears about 5 seconds later, and then the Other Ships List display appears about 40 seconds later.

Warning :	Check the main power supply of a switchboard, the switch in the NQE-3182 connection box and a cable connection of NCM-779 AIS controller when the power cannot be turned on.

During operation,
Pressing MENU key displays Main Menu.
Pressing DSPL/SEL key switches between the text display and the graphic display.
Pressing OFF key displays the password inputting display to turn off the power.

When alarm buzzer is beeping, press CLR key to stop the beeping. When alarm display is displaying, press CLR key to close the display. The alarm buzzer is able to set disable by initial setting. (See 5.3.4.5 BUZZER SETTIUNG)

After the Other Ships List is displayed, transmission is started after 1 minute later.
When the transponder transmits in normal power operation, the transmission status “TX-A” or “TX-B” is displayed in the status line.
When the transponder transmits on CH A (CH B), “TX-A (TX-B)” is displayed in the status line. (“TX-A” and “TX-B” are indicated for one second)



Receiving　　Transmitting

When the saving data is different between AIS Transponder and AIS Controller, the information screen is displayed.

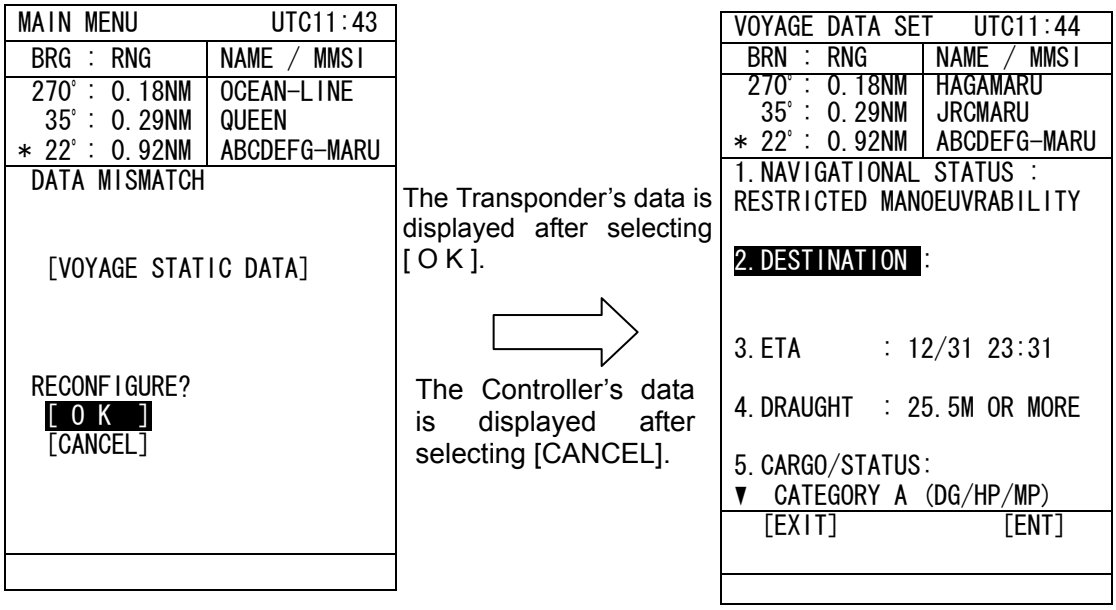
The following item are displayed in the information screen.

- VOYAGE STATIC DATA : The voyage static data mismatching.
- SHIP STATIC DATA : The ship static data mismatching.
- MMSI / IMO NO. : The MMSI and IMO No. mismatching.
- MMSI SETTING : 000000000 : The MMSI No. is ‘000000000’ setting.
- NG AIS TRANSPONDER [CONTROL UNIT] : Malfunction of the AIS TRANSPONDER

a) The voyage static data mismatching

When only voyage data is different, it is displayed as follows.
When [ＯＫ] is selected, voyage static data setting screen of Transponder's data appears.
When [CANCEL] is selected, voyage static data setting screen of Controller's data appears.

Confirms the voyage data and select [ENT].
Refer to 5.3.1 VOYAGE DATA SETTING for the change of the setting and the operating method.

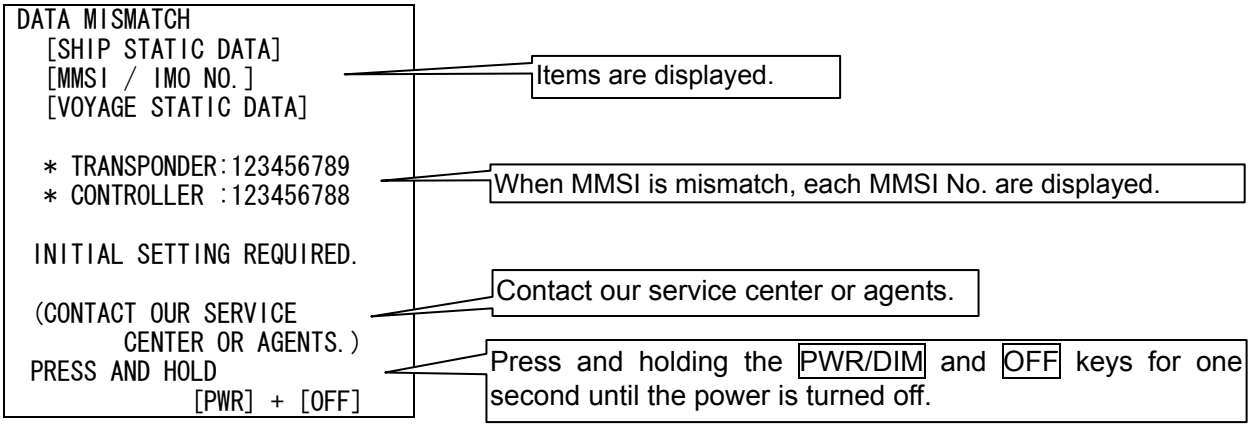


b) The other data mismatching

When the following item is displayed, press and holding the PWR/DIM and OFF keys together until the power is turned off (5.2.2).
- SHIP STATIC DATA
- MMSI / IMO NO.
- MMSI SETTING : 000000000

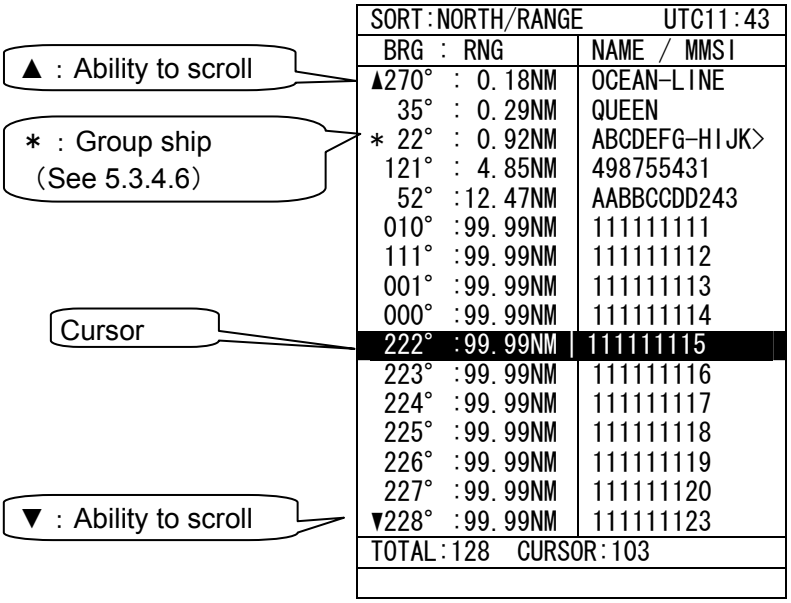
According to the information screen, contact our service center or agents.

Ex) Ship static data, MMSI/IMO No., Voyage static data mismatching



5.2.1.1 Other Ships List

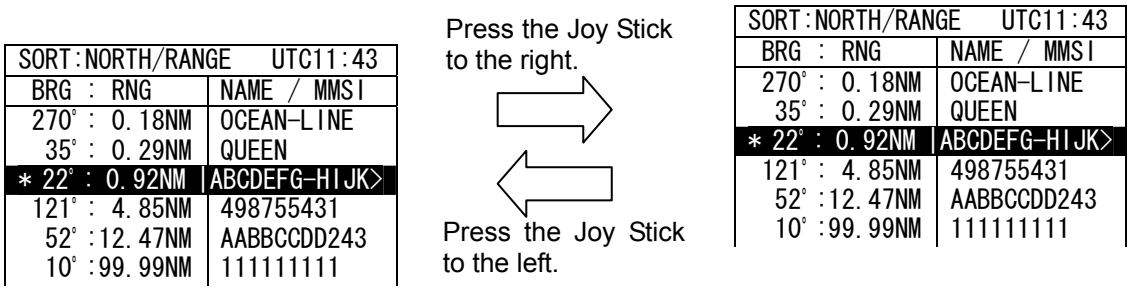
After turn on the power, the Other Ships List appears. When Main Menu is display, pressing CLR key displays the Other Ships List.



Other Ships List (A)

To select a ship in the Other Ships List, rotate the Jog Dial or use the Joy Stick.
To display the Other Ship's Detail Information, press the Jog Dial or the Joy Stick after select the ship. (See 5.2.1.2 Other Ship's Detail Information)
To return the Other Ships List again, press CLR key in the Other Ship's Detail Information display.

To scroll the selected ship's name that is more than 11 letters, press the Joy Stick to the right or the left. （See the following figure and PAGE SCROLL 5.2.1.4）

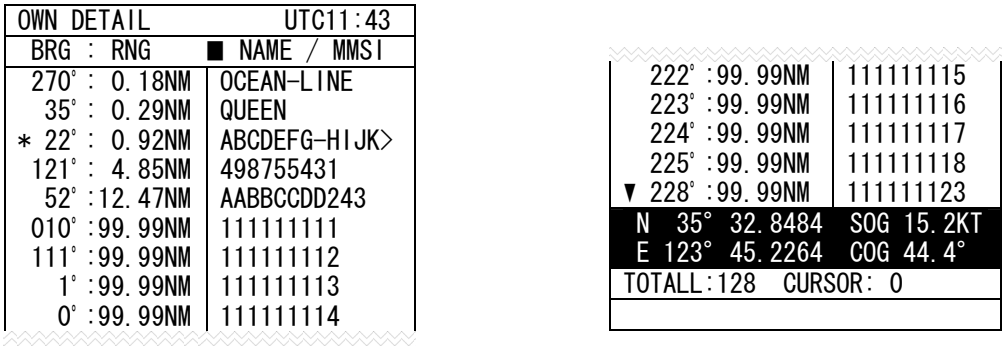


Scrolling of the ship's name

'▼' mark is displayed on the bottom line when the Other Ships List is able to scroll downward. To move the cursor downward, rotate the Jog Dial counter clockwise. When the cursor is on the bottom line it has '▼' mark, to scroll the Other Ships List downward, rotate the Jog Dial counter clockwise.

When the cursor is moved upward from the top of the screen by rotating the Jog Dial counter clockwise the next ship is displayed. (The cursor scrolls one by one in the Other Ships list.)
'▲' mark is displayed on the top line when the Other Ships List is able to scroll upward. To move the cursor upward, rotate the Jog Dial clockwise. When the cursor is on the top line it has '▲' mark, to scroll the Other Ships List downward, rotate the Jog Dial clockwise.
Also, pressing the Joy Stick upward or downward can operate above operation similarly.

When the cursor is on the top line with out '▲' mark, rotating the Jog Dial clockwise or pressing upward the Joy Stick moves the cursor to own ship selecting position (See the bellow figure).



Own ship is selected

When the own ship is selected, pressing the Jog Dial or Joy Stick displays Own Ship's Detail Information. (See 5.2.1.3 Own Ship's Detail Information)

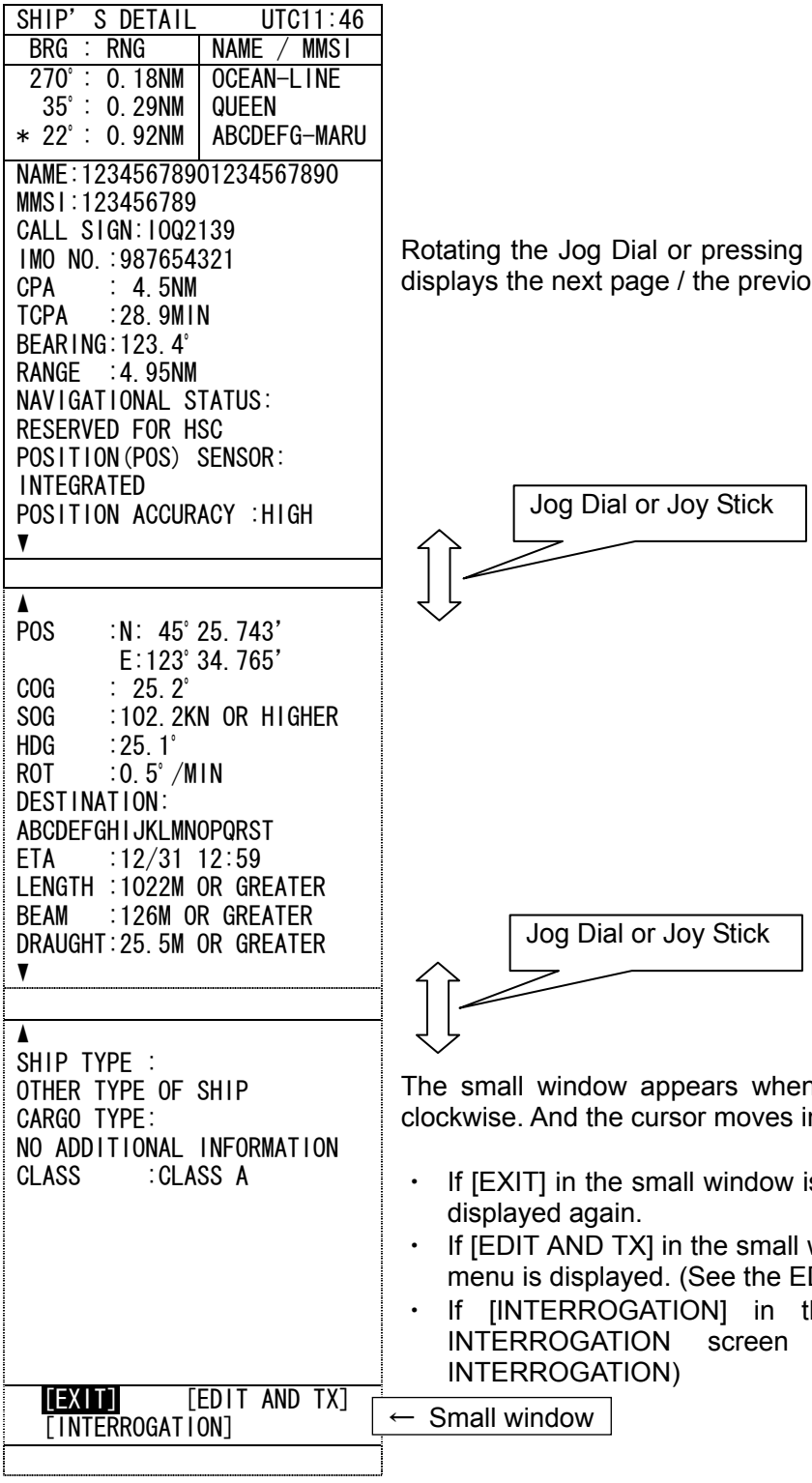
To return to the Other Ships List from the Own Ship's Detail Information display, press the CLR key.

When the own ship is selected, rotating the Jog Dial clockwise or pressing upward the Joy Stick displays the display setup of the Other Ships List. (See 5.2.1.4 Display Setup of Other Ships List)

To return to the Other Ships List from the display setup of the Other Ships List, press the CLR key.

5.2.1.2 Other Ship's Detail Information

The Other Ship's Detail Information is displayed if the Jog Dial or Joy Stick is pressed when the other ship is selected on the Other Ships List or the Graphic Display.



Other Ship's Detail Information

Rotating the Jog Dial or pressing downward / upward the Joy Stick displays the next page / the previous page.

The small window appears when the Jog Dial is rotated counter clockwise. And the cursor moves into the small window.

- If [EXIT] in the small window is selected, the Other Ships List is displayed again.
- If [EDIT AND TX] in the small window is selected, EDIT AND TX menu is displayed. (See the EDIT AND TX 5.3.2.1)
- If [INTERROGATION] in the small screen is selected, INTERROGATION screen is displayed. (See 5.3.2.4 INTERROGATION)

The Other Ships List is displayed again if CLR key is pressed.

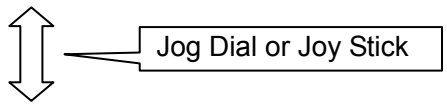
5.2.1.3 Own Ship's Detail Information

The Own Ship's Detail Information is displayed when own ship is selected in the Other Ships List display or the Graphic display.
Also, selecting [OWN DETAIL] in the setup of the Other Ships List displays the Own Ship's Detail Information.

```
OWN SHIP' S DETAIL UTC11:46
 BRG : RNG      | NAME / MMSI
 270° : 0.18NM  | OCEAN-LINE
  35° : 0.29NM  | QUEEN
* 22° : 0.92NM  | ABCDEFG-MARU
NAME:12345678901234567890
MMSI:123456789
CALL SIGN:IOQ2139
IMO NO.   :987654321
NAVIGATIONAL STATUS:
RESTRICTED MANOEUVRABILITY
POSITION(POS) SENSOR:
 INTEGRATED
POSITION ACCURACY :HIGH
POS     :N: 45° 25.743'
       E:123° 34.765'
COG     : 25.2°
SOG     :102.2KN OR HIGHER
▼
▲
HDG     :25.1°
ROT     :0.5° /MIN
DESTINATION:
     ABCDEFGHIJKLMNOPQRST
ETA     :12/31 12:59
LENGTH :1022M OR GREATER
BEAM   :126M OR GREATER
DRAUGHT:25.5M OR GREATER
SHIP TYPE:
OTHER TYPE OF SHIP
CARGO TYPE:
NO ADDITIONAL INFORMATION
PERSONS ON BOARD:OVER 8191
```

Own Ship's Detail Information

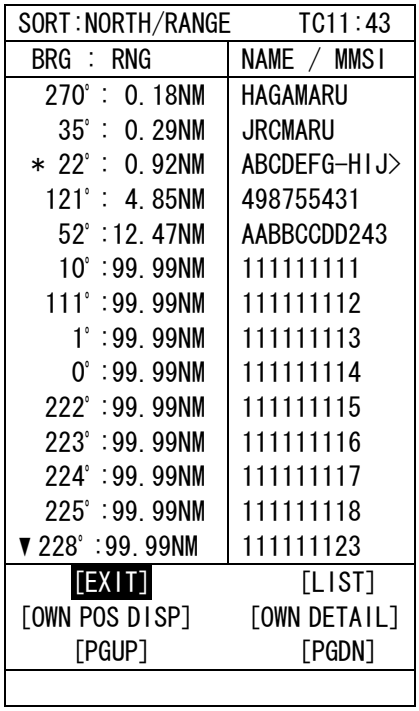
Rotating the Jog Dial or pressing the Joy Stick switches between the next page and the previous page.



To return the previous display (Other Ships List or Graphic display), press CLR key.

5.2.1.4 Display Setup of Other Ships List

The Other Ships List can display a maximum of 17 ships (14 ships when the Own Position Display is displayed) at one time.
And the ships can be displayed by doing a following order figure if there are more ships.



The small window can be displayed if the Jog Dial is rotated clockwise (Or the Joy Stick is moved upward) when the cursor is on the position that can display the Own Ship's Detail Information.

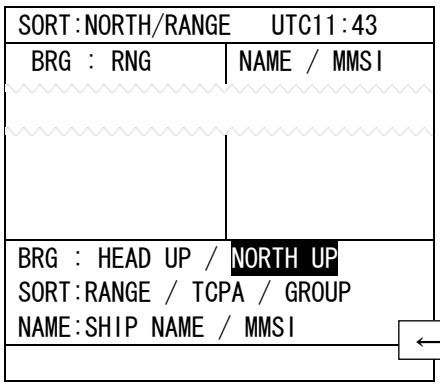
The cursor is on [EXIT] when the small window is displayed.

[PGUP] and [PGDN] can be displayed only when there are more than 2 pages.

Pressing CLR key or selecting [EXIT] moves the cursor back to the position that can display the Own Ship's Detail Information.

Setting of the LIST

Setting display for the Other Ship List is display, when [LIST] is selected in the small window of the Other Ships List.



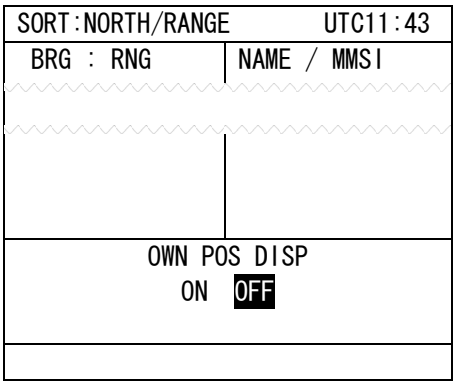
← Small window

BRG (Bearing) : Other ship's bearing value are displayed
HEAD UP : on the own ship's bearing base.
NORTH UP : on the north base.
SORT : Other ships are displayed
RANGE : in the order of small range from own ship.
TCPA : in the order of small TCPA with own ship.
GROUT : with the priority for own group ships.
NAME : In "NAME/MMSI" columns of each other ship,
SHIP NAME : the ship's NAME is displayed
MMSI : the ship's MMSI is displayed.

To return to the previous display, press CLR key.

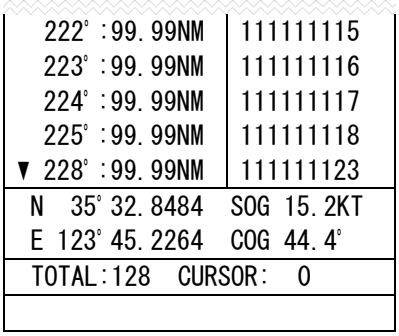
Display setup of the Own Position Display

It can be set to display or not the own ship's position with the Other Ships List.
To set the own ship's position display, select [OWN POS DISP] in the small window of the Other Ships List.

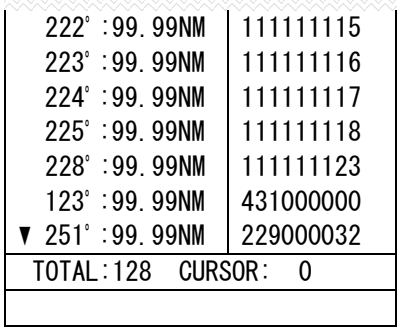


OWN POS DISP :
ON : Own ship's position is displayed with Other Ship List.
OFF : Own ship's position is not displayed with Other Ship List.

To return to the previous display, press CLR key.



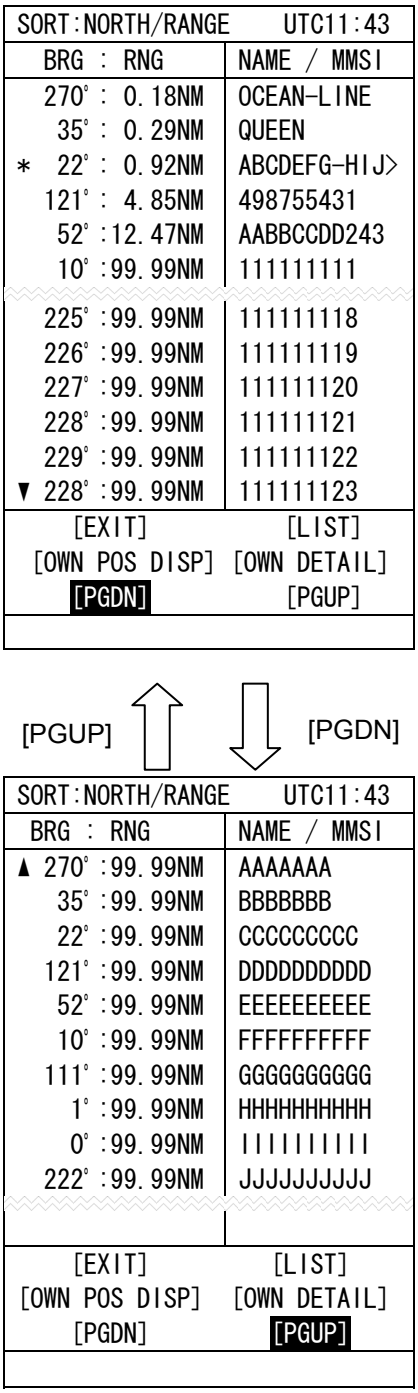
When OWN POS DISP is set ON



When OWN POS DISP is set OFF

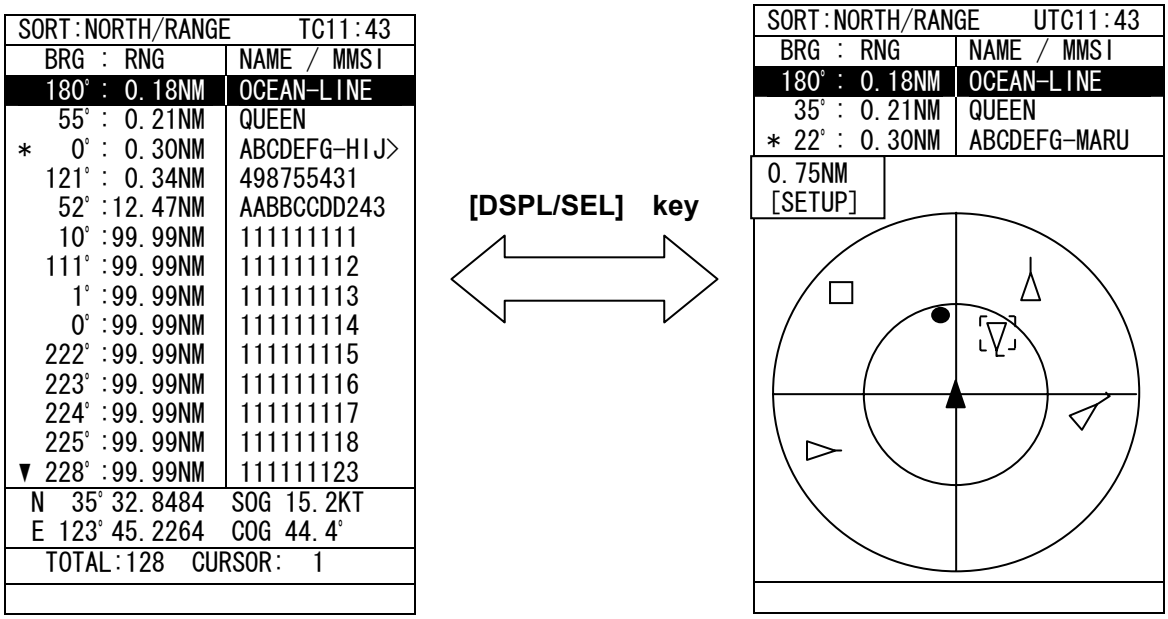
Page Scroll

‘▼’ mark is displayed on the bottom line and [PGDN] is displayed in the small window when the Other Ships List is able to scroll downward.
‘▲’ mark is displayed on the top line and [PGUP] is displayed in the small window when the Other Ships List is able to scroll upward.
To scroll downward the Other Ships List, select [PGDN] and press the Jog Dial..
To scroll upward the Other Ships List, select [PGUP] and press the Jog Dial.
In addition, the cursor can get out from the small window for moving onto the page



5.2.1.5 Graphic Display

Pressing [DSPL/SEL] key switches alternately between text and graphic display. (See 5.4 Graphic Display Function)



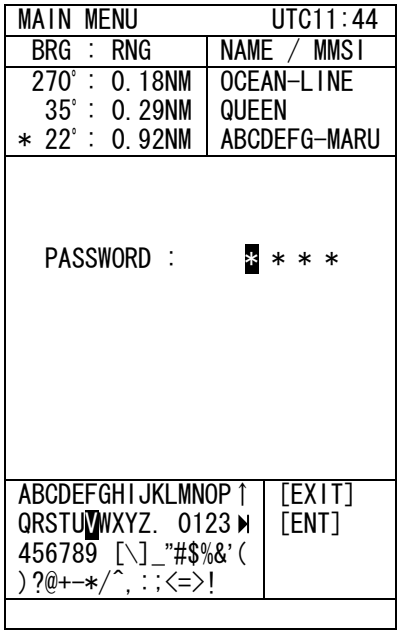
Text display

Graphic display

5.2.2 Turning OFF the power

WARNING :	The PASSWORD must be entered to turn off the power. The password preset before shipment is “0000”. The administrator must manage PASSWORD.

Press OFF key for turning off the power at first. The Display of PASSWORD Input (refer to the following figure) is displayed after pressing OFF key.



Display of PASSWORD Input

Next page is displayed when the Jog Dial is pressed after the password of four figures is entered.
(Refer 5.2.4 KEYBOARD DISPLAY AND INPUT METHOD to input the password.)

After inputting the correct password, the display for turn off the power is appears, then press and holding the PWR/DIM and OFF keys together for one second until the power is turned off.

WARNING :	Input the password before the power supply is turned off, otherwise the setup contents may not be saved.

5.2.3 Alarm

5.2.3.1 Guard Zone Alarm

When a ship enters within the guard zone range, the alarm status “GUARD” appears on the display and an alarm buzzer beeps. Refer to “5.3.3 Setting Alarm.

SORT:NORTH/RANGE	UTC11:43
BRG : RNG	NAME / MMSI
G270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-HIJ>
121° : 4.85NM	498755431
52° :12.47NM	AABBCCDD243
10° :99.99NM	111111111
111° :99.99NM	111111112
1° :99.99NM	111111113
0° :99.99NM	111111114
222° :99.99NM	111111115
223° :99.99NM	111111116
224° :99.99NM	111111117
225° :99.99NM	111111118
226° :99.99NM	111111119
227° :99.99NM	111111120
▼ 228° :99.99NM	111111123
TOTAL:128 CURSOR: 1	
GUARD	

Setting of Guard Zone Alarm

The ship within the guard zone range is displayed in reverse.
“G” is displayed at the left of the BRG on the line.

To stop the alarm buzzer beeping, press CLR key, and then return to the normal display.

5.2.3.2 Lost Target Alarm

When the information on a ship within the lost target range is not received for 6 minutes or more, the alarm status display “LOST” appears and the alarm buzzer beeps. When not received for 6 minutes or more after the alarm, the ship eliminates from the list. To see the lost target range, refer to “4.3.4 Setting Alarm.”

SORT:NORTH/RANGE	UTC11:43
BRG : RNG	NAME / MMSI
L270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-HIJ>
121° : 4.85NM	498755431
52° :12.47NM	AABBCCDD243
10° :99.99NM	111111111
111° :99.99NM	111111112
1° :99.99NM	111111113
0° :99.99NM	111111114
222° :99.99NM	111111115
223° :99.99NM	111111116
224° :99.99NM	111111117
225° :99.99NM	111111118
226° :99.99NM	111111119
227° :99.99NM	111111120
▼ 228° :99.99NM	111111123
TOTAL:128 CURSOR: 1	
LOST	

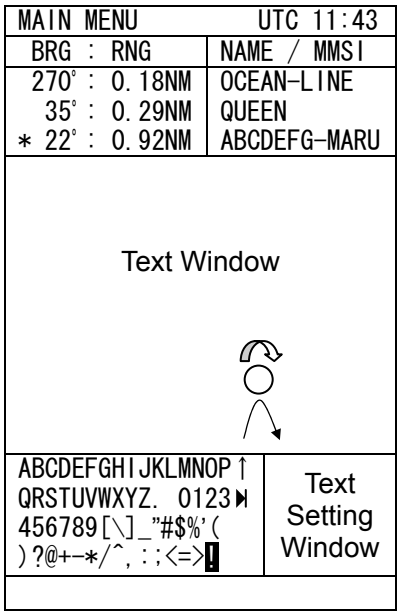
Setting of Lost Target Alarm

The lost-target ship is displayed in reverse.
“L” is displayed at the left of the BRG on the line.

To stop the alarm buzzer beeping, press CLR key, and then return to the normal display, and then the lost-target ship is not displayed.

5.2.4 Keyboard Display And Input Method

The entry of characters

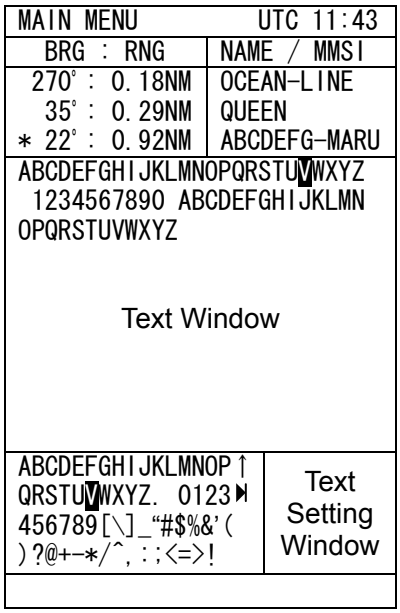


When input operation starts, the cursor is on “A” in the keyboard area at the bottom left of the screen.

The cursor jumps into the Text Setting Window if the Jog Dial is rotated clockwise when the cursor is on “!” in the keyboard area.

The cursor jumps back onto “!” in the Keyboard area if the Jog Dial is rotated counter clockwise when the cursor is on the top-row in the Text Setting Window.

Inserting a character

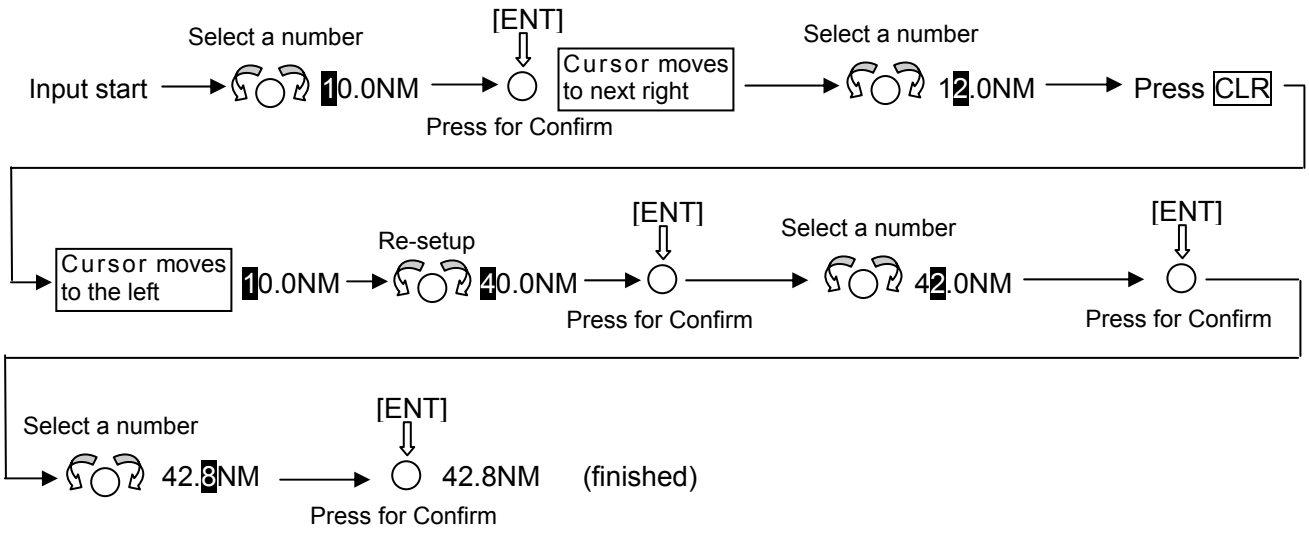


The procedure which inserts a character in the text is followings.

1. Select ‘ ↑ ’ mark in the keyboard area, and then press the Jog Dial.
2. Then the cursor in the Text Window can be moved by the Jog Dial. Move the cursor to insert position, and then press the Jog Dial.
3. Then the cursor in the Keyboard area can be moved by the Jog Dial.
   Select a insert character and press the Jog Dial.
4. After inserting characters, to move the cursor to the end of the text window, select ‘ ▶| ’ in the keyboard area, and then press the Jog Dial.
5. Additional characters can be input to the end of the text.

5.2.5 Numerical Input

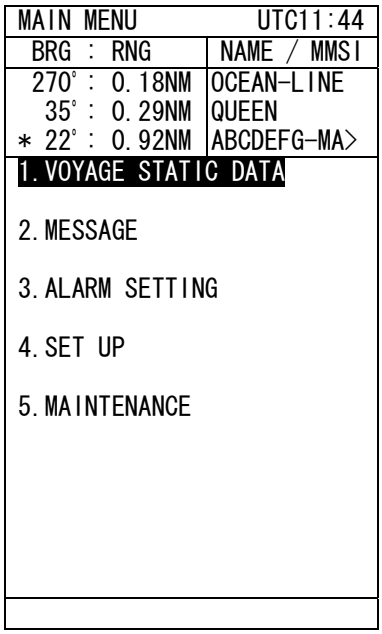
The procedure for entering numbers is mentioned below.



The numbers are always entered from left to right for each digit.
When CLR key is pushed, the input position (Cursor) moves back to the left.

5.3 MAIN MENU

Main Menu displays menu items for setting, sending messages, and maintenance, etc..
To display the Main Menu, press the MENU key during operation.



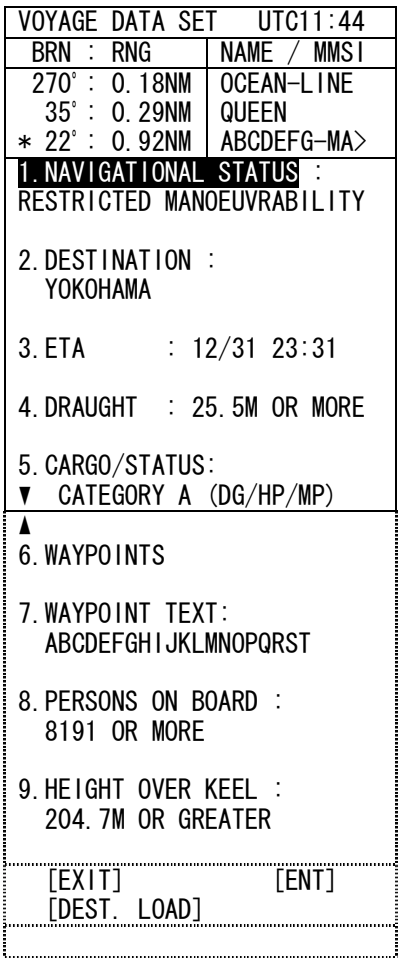
Main Menu

Rotate the Jog Dial for moving the cursor over the menu.
When the Jog Dial is pressed, the selected menu is displayed.

The outlines of Menus are below:
1. VOYAGE STATIC DATA SETTING･･･displays a menu for setting voyage information (See 5.3.1)
2. MESSAGE･･･displays a menu for sending/receiving messages (See 5.3.2).
3. ALARM SETTING･･･displays a menu for setting alarms (See 5.3.3).
4. SET UP･･･displays a menu for setting the device (See 5.3.4).
5. MAINTENANCE･･･displays a menu for setting the display of device conditions (See 5.3.5).

5.3.1 VOYAGE DATA SETTING

When 1. VOYAGE STATIC DATA is selected, a menu for setting voyage data appears.



Voyage Data Setting Menu

When the Jog Dial is rotated, the cursor moves upwards or downwards accordingly.

Select an item from the menu.

Press the Jog Dial to confirm when the cursor is on the item to select, and then a submenu appears.

When CLR key is pressed, the Main Menu appears.

Caution :	To save the setting, select [ENT] in the small window after inputting each items. Returning unless selecting [ENT] quits the setting.

← small window

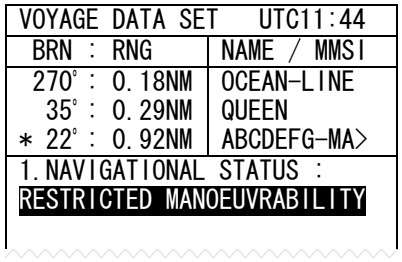
The outlines of menu items are:
NAVIGATIONAL STATUS･･･select navigational status. (See 5.3.1.1)
DESTINATION･･･input information of the destination. (See 5.3.1.2)
ETA･･･input ETA(expected time for arrival). (See 5.3.1.3)
DRAUGHT･･･input draught value.(See 5.3.1.4)
CARGO/STATUS･･･select cargo/status.(See 5.3.1.5)
WAYPOINTS･･･set waypoints (max 14 points)(See 5.3.1.6)
WAYPOINTS TEXT･･･input waypoints name.(See 5.3.1.7)
PERSONS ON-BOARD･･･input a number of persons on-board.(See 5.3.1.8)
HEIGHT OVER KEEL･･･input value of the height over keel(See 5.3.1.9)

5.3.1.1 Navigational Status

When 1.NAVIGATIONAL STATUS is selected, the navigational status is ready to be selected.

When the Jog Dial is pressed on 1.NAVIGATIONAL STATUS, the cursor is moved down to the second line.
On the line, the displayed item changes as the Jog Dial is rotated.
Therefore rotate the Jog Dial until the item to select is displayed.
Press the Jog Dial to confirm when the cursor is on the item.
The cursor moves to next item (2. DESTINATION) after the selection was made.

To cancel the input, press CLR key, and then the Voyage Data Setting Menu appears.



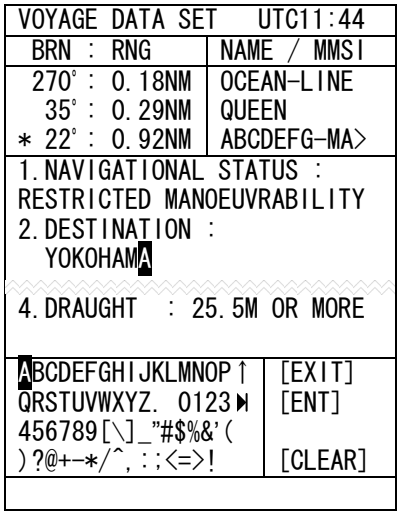
Navigational Status

The Navigational Status will be selected from listed below:

UNDER WAY USING ENGINE
AT ANCHOR
NOT UNDER COMMAND
RESTRICTED MANOEUVRABILITY
CONSTRAINED BY HER DRAUGHT
MOORED
AGROUND
ENGAGED IN FISHING
UNDER WAY SAILING
RESERVED FOR HSC (High Speed Craft)
RESERVED FOR WIG (Wing-in-Ground Effect Craft)
NOT DEFINED

5.3.1.2 Destinations Entry

When 2.DESTINATION is selected, the name of the destination is ready to be entered. The name can be entered with the keyboard on the bottom left of the screen.
See“5.2.4 KEYBOARD DISPLAY AND INPUT METHOD” for the operation of the keyboard.



The name of the destination

The function of the keyboard setting window is as below:

Up to 20 characters can be entered for naming destination.

If [EXIT] on the bottom right of the screen is selected to confirm, the entered contents will be canceled and the cursor returns to 2.DESITINATION. (The keyboard display disappears)

When [ENT] is selected, the entered contents are applied(The keyboard display disappears). The cursor moves to the next item (3. ETA)

If [CLEAR] is selected, the entered contents are canceled and the cursor will return to the top of the inputs.

5.3.1.3 Estimated Time of Arrival (ETA) ENTRY

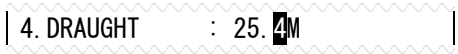
When 3. ETA is selected, ETA (Expected Time of Arrival) is ready to be entered.
Enter ETA on UTC in the order of Month-Day-Hour-Minute.

See 5.2.5. the methodology of the numerical input
‘/’ will be inserted automatically.

ETA (Expected Time of Arrival)

5.3.1.4 Draught Value Entry

When 4. DRAUGHT in the Voyage Data Setting Menu (5.3.1) is selected, the draught value is ready to be entered. Enter the value according to the procedure of ”5.2.5 Numerical Input.”. Up to 25.4 or “25.5 or more” can be entered as the draught value.



Draught Value Entry

After pressing the Jog Dial or the Joy Stick to confirm, the cursor moves to the next item (5.CARGO/STATUS).

5.3.1.5 Cargo Type Selection

When 5.CARGO/STATUS is selected, Cargo Type is ready to be selected.
When 5.CARGO/STATUS is selected, the cursor moves to the second line.
Rotate the Jog Dial until the menu item to select.
If the Jog Dial is pressed, the selection is made and the cursor moves to the next item (6. Waypoint)

CARGO TYPE SELECTION

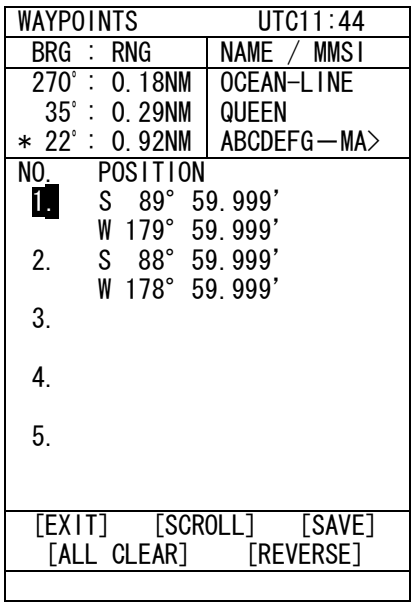
The cargo type selection item changes by the setting of the Ship Type as follows.
Some CARGO TYPE cannot be selected depends on the type of the ship
In such cases, “NONE” is displayed.

SHIP TYPE	CARGO TYPE
WIG	CATEGORY A(DG/HP/MP)
	CATEGORY B(DG/HP/MP)
	CATEGORY C(DG/HP/MP)
HIGH SPEED CRAFT	CATEGORY D(DG/HP/MP)
	NO ADDITIONAL INFORMATION
	ALL SHIPS OF THIS TYPE

PASSENGER SHIPS	CATEGORY A(DG/HP/MP)
	CATEGORY B(DG/HP/MP)
CARGO SHIPS	CATEGORY C(DG/HP/MP)
	CATEGORY D(DG/HP/MP)
TANKER	NOT UNDER COMMAND
	RESTRICTED BY MANOEUVRE
OTHER TYPE OF SHIP	CONSTRAINED BY DRAUGHT
	NO ADDITIONAL INFORMATION
	ALL SHIPS OF THIS TYPE

5.3.1.6 Waypoints Settings

When 6. WAYPOINTS is selected, the Waypoints Setting appears. Up to 14 Waypoints can be set up.



Waypoints Setting

Rotate the Jog Dial to move the cursor for selecting the number of the waypoints.

To enter the waypoint, press the Jog Dial after selecting the waypoint.

To return to the Voyage Data Setting menu (5.3.1) , press CLR .

After completing the setting for No.5 the above, the cursor moves into the small window on the bottom of the screen.

When [EXIT] is selected, the entered contents are canceled and “VOYAGE DATA SETTING” appears.

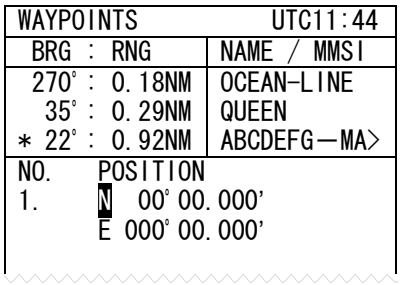
When [SCROLL] is selected, the process continues to enter another 5 items (positions). For example, if you press [SCROLL] after you filled No.1-5, the cursor moves to No.6 and you can set up No.6 to No.10. (For setting up the next 6 items, you must complete entering the last item of the screen. This means you have to complete No.6 for going to the next screen and entering No.6-10. If you are still between No.1 and No.5, you cannot go to the next screen.)

When [SAVE] is selected, the process goes back to “VOYAGE DATA SETTING” after saving the entered data.

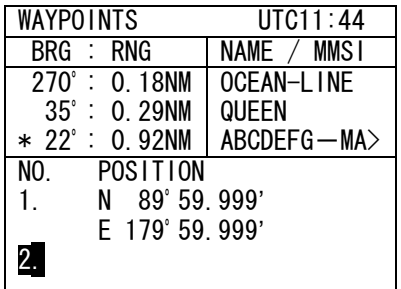
When [ALL CLEAR] is selected, the entered data is lost and the cursor returns to No.1 after the screen turns blank.

a) Waypoint Setting Procedure

Setting waypoints items



Waypoints Setting



Displaying Next Item

Waypoints contents setting

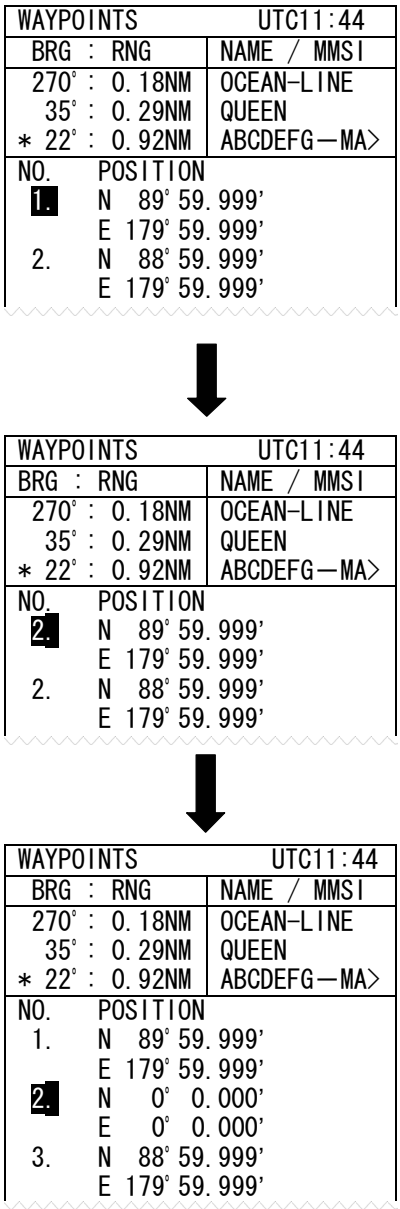
1. Rotate the Jog Dial to select the number of the sailing plan.
2. Press the Jog Dial, then cursor moves to the latitude input.
3. Rotate the Jog Dial to selecting N or S, and confirm the selection by pressing the Jog Dial.
4. Set up degree/minute/second of the latitude.
   Therefore, the ranges for latitude and longitude are:
   Latitude: N/S 0 - 90° 00.000
   Longitude: E/W 0 - 180° 00.000
5. The entry for latitude has finished, the cursor jumps to longitude entry. Following the entry method for latitude, set up longitude also.
6. When the entry for longitude has been completed, the cursor jumps to the next NO. So set the waypoint up same as above.

If CLR key is pressed, the procedure will be canceled and “Sailing Information Setting Menu” appears.

Changing waypoints
The procedure which changes waypoints is the followings.
1. Move the cursor to the number of the waypoint to change.
2. Press the Jog Dial, then the cursor blinks.
3. Press the Jog Dial again (not move the cursor.), then the cursor moves to the latitude input position.
4. Set the waypoint information according to the above “Waypoints contents setting " procedure.

Addition of Waypoints

For adding new items between existing items, follow the procedure below:



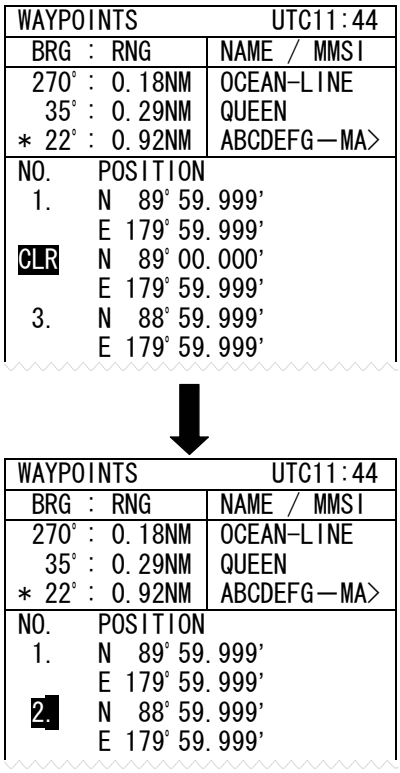
If you want to add a setting between No.1 and No.2, then put a cursor on No.1.
Press the Jog Dial one time for making 1. blink.
Rotate the Jog Dial clockwise until “2” appears. Then press the Jog Dial.
As to the items after NO.2, the numbers advance by one (e.g. No.2→No.3, No.3→No.4, etc.), and No.2 that is not set up yet is newly created.
Set up the newly created No.2 following (1) WAYPOINTS CONTENTS SETTINGS above.

Note: When 14 waypoints is already saved, a waypoint cannot newly be entered.
Please be sure to delete one or more waypoints.

Addition of Waypoints

Deletion of Waypoints

For deleting existing waypoints, follow the deletion procedure below. But please **do not** use [ALL CLEAR] on the bottom of the screen for deleting Waypoints.

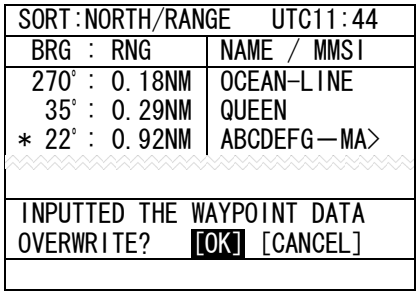


Deletion of Waypoints

Move the cursor on the number of Waypoint item that you want to delete, and press the Jog Dial once.
While No. is blinking, rotate the Dial counter clockwise. Then the display of CLR appears.
Set the cursor on CLR and press the Jog Dial again.
Make sure the selected item was deleted and the numbers of the items following the deleted one decrease by one.

The input from external equipment

When the waypoint data is inputted from external equipment, the small window (Waypoints information screen) is displayed.



OK: Waypoint data is overwritten.
After selecting [OK], confirm saving data with Waypoints setting screen.

CANCEL: Waypoint data of external equipment is canceled.
(Saving data is kept.)

The input from external equipment

5.3.1.7. Waypoints Text Setting

The Waypoints text can be set with 20 characters.
Refer 5.2.4 KEYBOARD DISPLAY AND INPUT to input the waypoints test.

5.3.1.8 Persons On Board Entry

When 8. PERSONS ON BOARD is selected, the number of persons on board can be entered.
Enter the number with the Jog Dial.
The persons on board can be set up to 8190 or “8191 or more”.

Press the Jog Dial to confirm. And the cursor returns back to 8. PERSONS ON BOARD

```
8.PERSONS ON BOARD :
              8190
```

5.3.1.9. Height Over Keel Entry

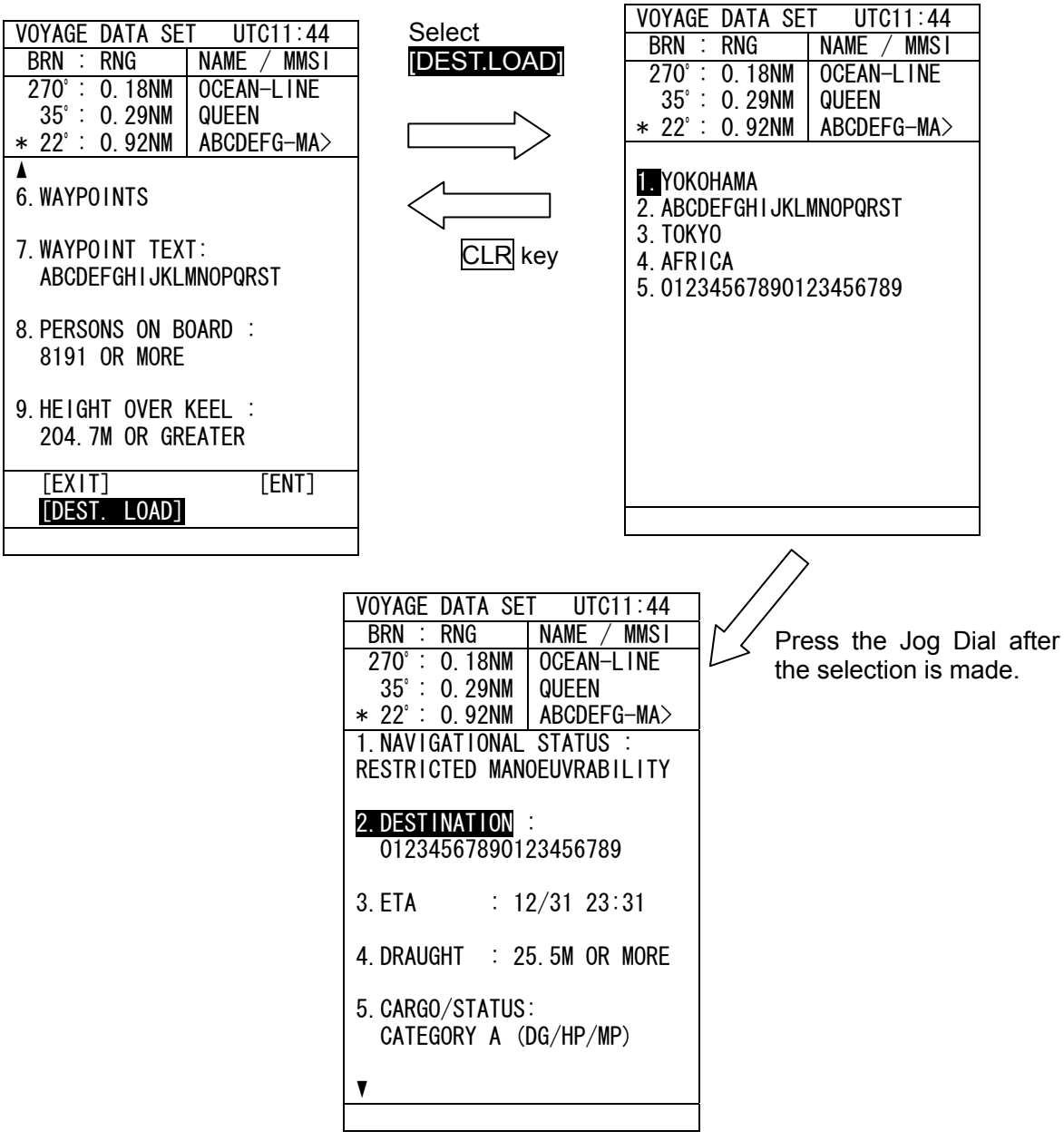
When 9. HEIGHT OVER KEEL is selected, the height over keel is ready to be entered.
The height over keel can be set up to 204.6 meters or “204.7 meter or more”.

```
9.  HEIGHT OVER KEEL :
                      104.7M
```

If CLR is pressed, the entry procedure is canceled and the Voyage Data Setting appears (5.3.1).
Press the Jog Dial to confirm. Then the cursor move [ENT] in the small window.

5.3.1.10 Re-load destination from ever set data

When the [DEST. LOAD] in the small window is selected, 5 entered destinations (the present destination and 4 destinations in the past) which can be displayed.



When the destination is selected from 5 entered destinations on the screen, the destination can be displayed under the 2.DESTINATION and the Voyage Data Setting menu can be displayed.
If CLR is pressed, the contents are canceled and Voyage Data Setting menu is displayed.
In the screen that displays 5 destinations, the content is displayed as the newest destination when the destination was selected. For example, the following figure can be displayed after the 3.TOKYO was selected on above.

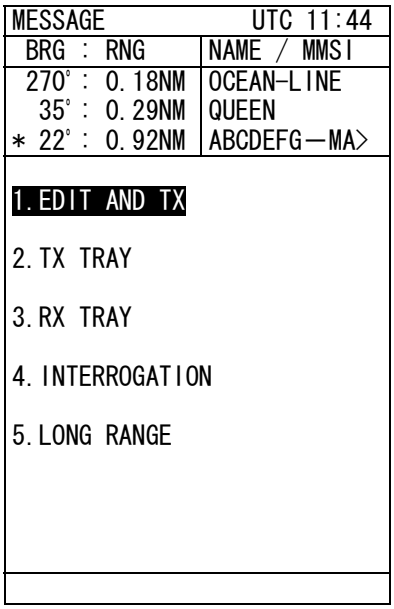
In the above figure, 3.TOKYO is displayed as follows after selection as the example.

（Example）

1. YOKOHAMA	1. TOKYO
2. ABCDEFGHIJKLMNOPQRST	2. YOKOHAMA
3. TOKYO	3. ABCDEFGHIJKLMNOPQRST
4. AFRICA	4. AFRICA
5. 01234567890123456789	5. 01234567890123456789

5.3.2 MESSAGE MENU

When 2. MESSAGE is selected, MESSAGE MENU (a menu for sending/receiving messages) appears.



Message Menu

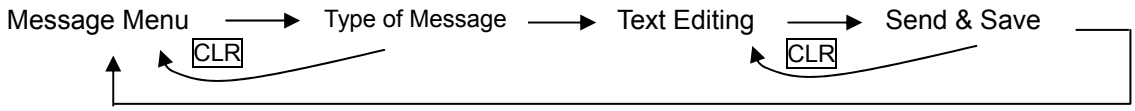
Rotate the Jog Dial to move the cursor for selecting the item from menu.
Press the Jog Dial to confirm on the selected item.
Then the corresponding sub-menu appears.

The outlines of each menu items are below:

1. EDIT AND TX ･･･displays a menu for message editing and transmission. (See. 5.3.2.1)
2. TX TRAY ･･･displays a menu for TX (transmission) tray. (See. 5.3.2.2)
3. RX TRAY ･･･displays a menu for RX (reception) tray. (See. 5.3.2.3)
4. INTERROGATION ･･･displays a menu for interrogation. (See. 5.3.2.4)
5. LONG RANGE ･･･displays a menu for long-rang messages. This menu only works when a long-range communication device is connected. (See. 5.3.2.5)

5.3.2.1 Editing / Sending Messages

When 1.EDIT AND TX is selected, the screens transit as the chart below shows.



Edit: After setting the Type of Message, edit it in “EDIT AND TX” display.
Send: After editing the message, send and save the message, and then return to “MESSAGE MENU”.
Return: Pressing CLR key or selecting [EXIT] returns to the previous display.

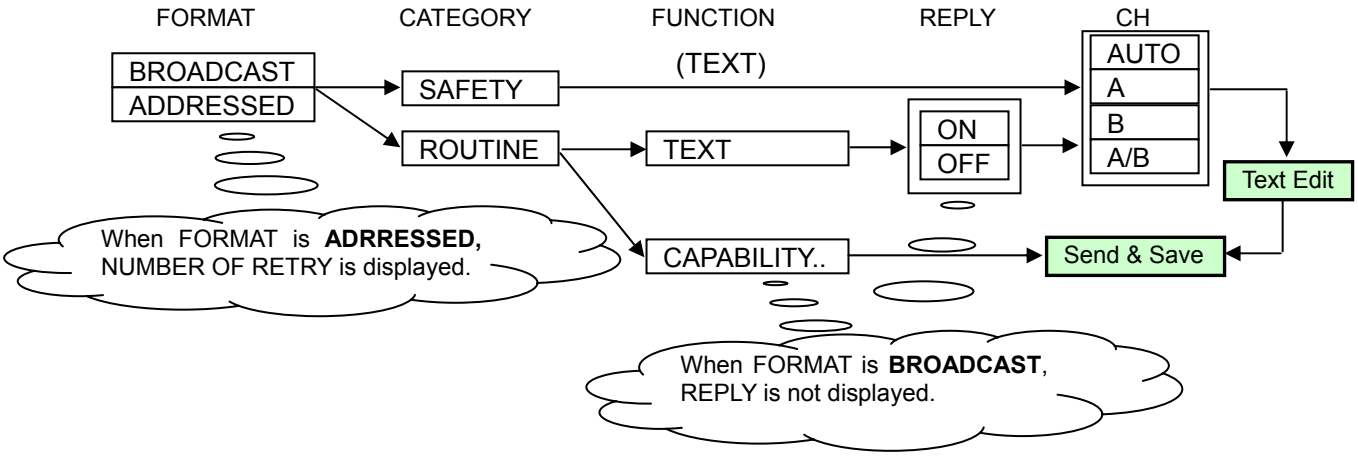
a) MESSAGE TYPE

For defining a type of each message, select items for each category that consists of the message.

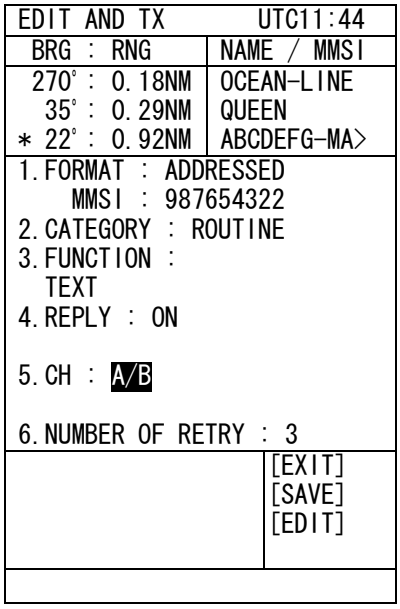
Message Types

Categories	Items	SUPPLEMENT
FORMAT	BROADCAST	Send to all ships
	ADDRESSED	Send to individual ships
CATEGORY	SAFETY	Message relating to safety
	ROUTINE	Messages relating to daily tasks
FUNCTION (Function Identifier)	TEXT	Sending text message
	CAPABILITY INTERROGATE	Sending interrogation for items which can be answered
REPLY	ON	Requirement of rely for sent messages
	OFF	No reply
CH	AUTO	Select channel automatically and send messages
	A	Send on Ach
	B	Send on Bch
	A/B	Send on both (A&B) ch
NUMBER OF RETURY	0 - 3	

Following the illustration below, select one “item” for each “category”. And combine them and finally define the type of message.



b) MESSAGE TYPE SETTINGS - setting example



From MESSAGE MENU (5.3.2), select 1. EDIT AND TX and press the Jog Dial.
EDIT AND TX opens. When “EDIT AND TX” opens, the cursor is on 1.
Rotate the Jog Dial, then the cursor moves up and down over the numbers (1, 2, 3, 4…) and the items at the bottom ([EXIT], [SAVE], [EDIT], [ALL CLEAR]).
Make a selection and press the Jog Dial.
If a confirmation is made while the cursor is at 1-6, the cursor jumps to the right side of “:” of each item. (e.g. If the Jog Dial is pressed when the cursor is on 5. , the cursor moves to ”A/B.” Then “A/B” turns into” A/B “)
By rotating Jog Dial, view the selections and press the Jog Dial when you want to confirm the selection being displayed on the screen. (In this example, the selection varies AUTO → A → B → A/B → AUTO…)

Selection and Confirmation
(1) FORMAT
Setting up directions of messages.
“ADDRESSED” or “BROADCAST” can be selected by rotating the Jog Dial.
Select “ADDRESSED” for sending messages to individuals and confirm it by pressing the Jog Dial.
Select ”BROADCAST” for sending messages to all ships and confirm it by pressing the Jog Dial
Only when ”ADDRESSED” is selected, enter MMSI. Initially “000000000”is displayed so select 9 digits with the Jog Dial and confirm it by pressing the Dial.

(2) CATEGORY
Select category of message.
By rotating the Jog Dial, select “SAFETY” or “ROUTINE.”
Select “SAFETY” for sending a message about safety, and select “ROUTINE” for sending a message on ordinary tasks.
After making a selection, press the Jog Dial for confirmation.

(3) FUNCITON
Select the function of messages:
“TEXT” and “CAPABILITY INTERROGATE” are selectable by rotating the Jog Dial.
If you send a text message, select “TEXT”, and if you send an interrogation select “CAPABILITY INTERROGATE”.

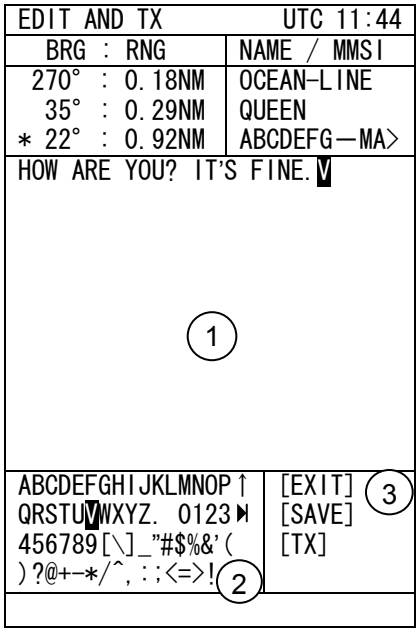
(4) REPLY
Select the response to messages is requested or not requested:
“ON” and “OFF” are selectable by rotating the Jog Dial.
For messages which are sent personally, if response to reception required, then select “ON”,if not “OFF”

(5) CH (Channel)
Select the transmitting channel:
“AUTO”, “A”, “B” and “A/B” are selectable by rotating the Jog Dial.
If the transmitting channel is selected automatically, select “AUTO”, use channel A then select “A”, use channel B then select “B”, and use channel A and B then select “A/B”.

(6) NUMBER OF ENTRY
See “e) 5.3.2.2. Retry Setting” for input “NUMBER OF ENTRY”.

c) TEXT EDIT SCREEN

Select [EDIT] on the bottom of the screen and display TEXT EDIT SCREEN for transmitting a text message.
Enter texts, according to the procedure of “5.2.4 KEYBOARD DISPLAY AND INPUT METHOD”.



Text Edit Screen

TEXT EDIT SCREEN consists of three sub screens :

① Text Screen

② Keyboard Screen（See 5.2.4）

③ Send and Save Screen (See “d)”)

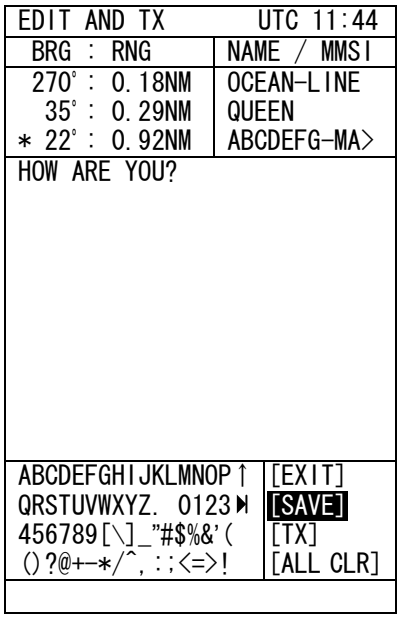
Rotate the Jog Dial, then the cursor in Keyboard Display Screen (②) moves accordingly.
Select a character in ② with the cursor and press the Jog Dial, then the selected character appears on ①.
While entering characters with the keyboard, if CLR is pressed, one character under the cursor disappears.
Select 『!』 in ② and press the Jog Dial, then the cursor jumps to ③.
While the cursor is on ③, if CLR is pressed or [EXIT] is selected and pressed、the cursor returns to ②.
Selecting [SAVE] saves the message, and returns the display to Message Menu.
Selecting [TX] sends and saves the message, and returns the display to Message Menu.
Selecting [ALL CLR] clears all the data in ① and moves the cursor to ②.

Maximum Number of characters to send a message

FORMAT	CATEGORY	CHARACTERS
ADDRESSED	SAFETY	156
	ROUTINE	151
BROADCAST	SAFETY	161
	ROUTINE	156

d) SENDING AND SAVING MESSAGES

In case, “FUNCTION” in Message Type Screen (see a), b) Message Type) is TEXT, for sending or saving messages, follow the instruction below:

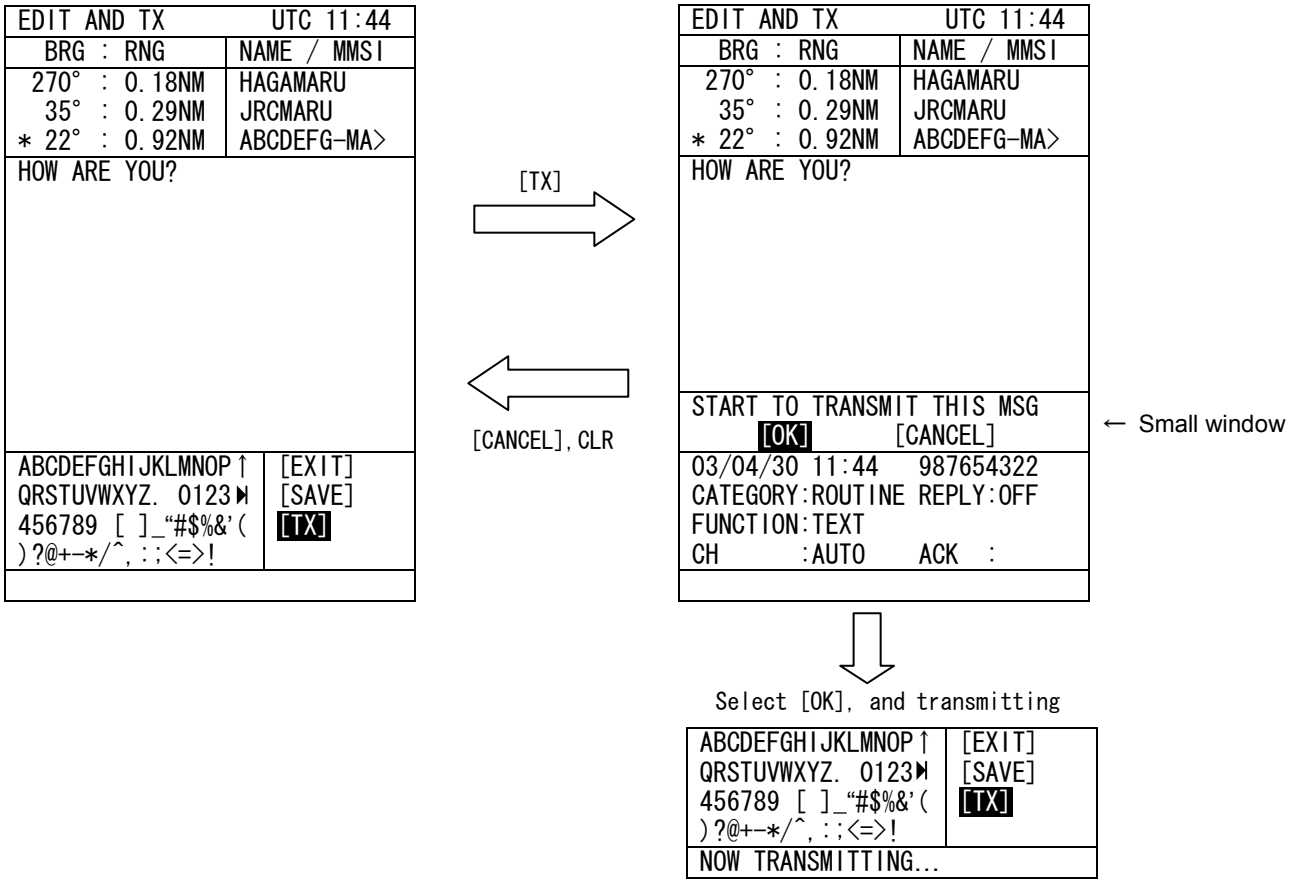


SENDING AND SAVING MESSAGES

If [SAVE] is selected, the message is saved without transmission, and then the screen returns to Message Menu. (The data is displayed at TX TRAY.)

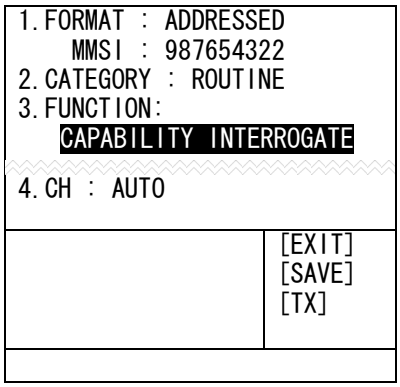
If [EXIT] is selected, the MESSAGE TYPE SETTINGS Screen appears.

Select [TX] to transmit the message, then small window appears.
Select [OK] in the small window, then the message is saved and transmitted, and the screen returns to Message Menu. (The data is displayed at TX TRAY.)
To return to the edit screen, select 'CANCEL' or press CLR key in the small window.



TX screen

In the case" Function" is CAPABILITY INTERROGATE, sending/saving messages are displayed as the followings.



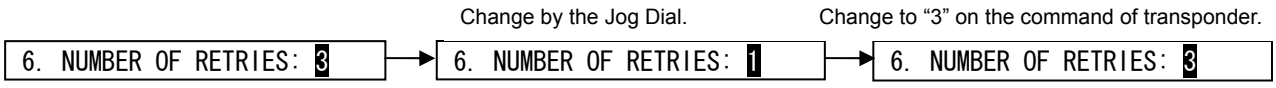
e) RETURY SETTINGS

Normally, when a addressed message is received at addressed station, the acknowledge message is sent from the addressed station.

If the station could not received the acknowledge message after transmitting an addressed message, the station retries to transmit the address message. (= Retry)

Setting up Numbers of Retries

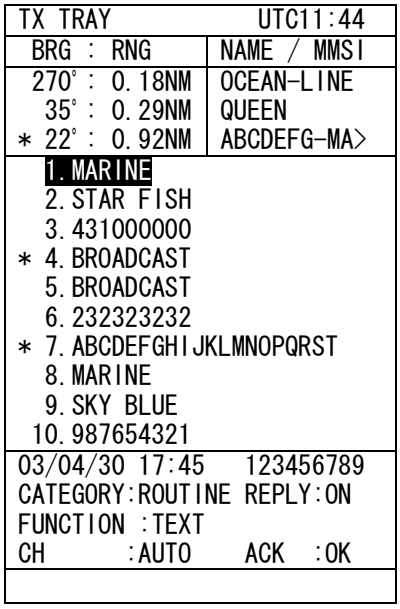
Numbers of retries are changeable. (0～3, default value is three.).



Retry Settings

5.3.2.2 TX Tray (Viewing Sent Messages)

TX TRAY menu is displayed when 2. TX TRAY is selected in the Message menu..
In the TX TRAY menu, transmitted messages can be display, or can be edited and transmitted again.



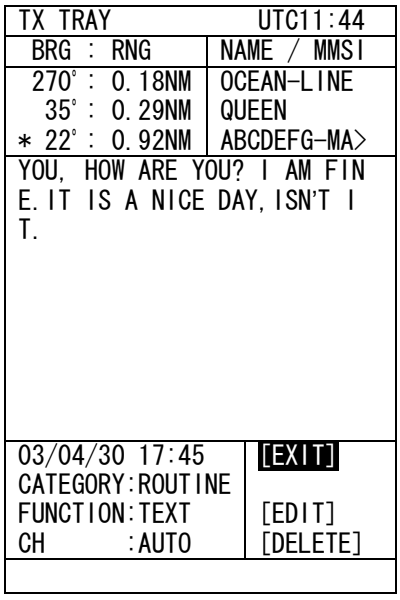
TX TRAY display

Transmitted or saved messages are listed up to 10.
"＊" mark indicates not transmitted messages.

The following Information of the selected message is displayed in the bellow of the display.
- Transmitted date and time
- MMSI or "BROADCAST"
- CATEGORY : SAFETY or ROUTINE
- FUNCTION : CAPABILITY or TEXT
- CH : AUTO, A, B, or A/B
- ACK : [Addressed] OK or NACK(no acknowledgment)
  [Broadcast] TRANSMITTED or NG

Pressing CLR returns the display to Message Menu (5.3.2).

To display the text of the message, press the Jog Dial with selecting the message.



Message text display

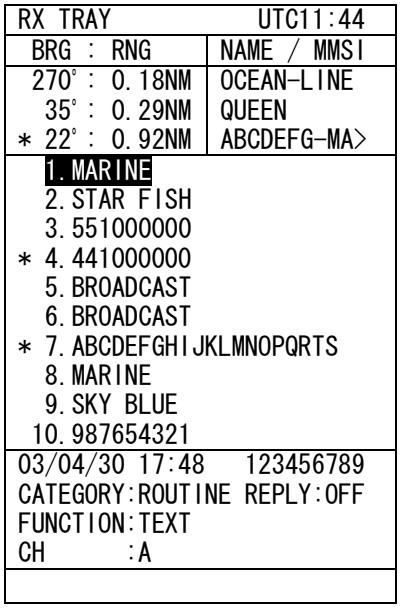
Pressing CLR key or selecting [EXIT] returns to the Message Menu.

Selecting [EDIT] displays the EDIT AND TX display to send the message (5.3.2.1)

Selecting [DELETE] deletes the selected message.

5.3.2.3 RX Tray (Viewing Received Messages)

RX TRAY menu is displayed when 3. RX TRAY is selected in the Message menu..
In the RX TRAY menu, received messages can be display, or can be edited and transmitted as reuse.



RX TRAY display

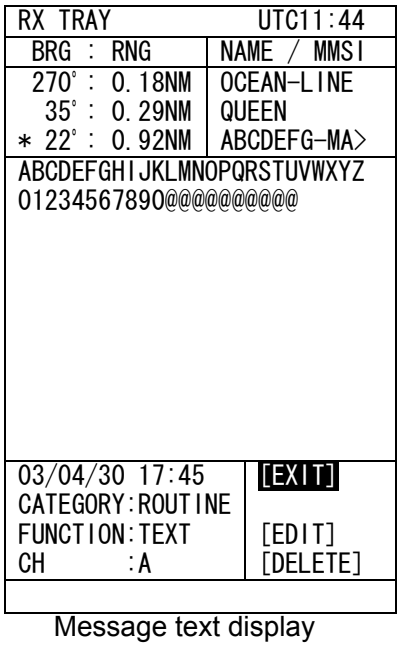
Received messages are listed up to 10.
"＊" mark indicates a unread messages.

The following Information of the selected message is displayed in the bellow of the display.
Received date and time
MMSI or "BROADCAST"
CATEGORY : SAFETY or ROUTINE
FUNCTION : CAPABILITY or TEXT
CH : AUTO, A, B, or A/B

Pressing CLR returns the display to Message Menu (5.3.2).

The '*' symbol means being unread.
The 'R' symbol means a received message with Reply [1].

To display the text of the message, press the Jog Dial with selecting the message.



Message text display

Pressing CLR key or selecting [EXIT] returns to the Message Menu.

Selecting [EDIT] displays the EDIT AND TX display to reuse the message (5.3.2.1)

Selecting [DELETE] deletes the selected message.

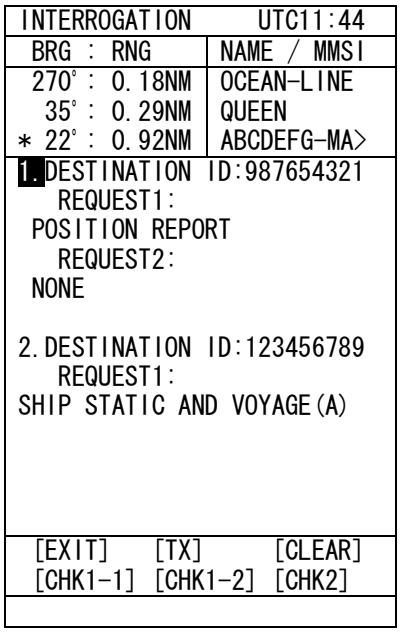
.

.

A received message with Reply [1]: The message type of the reception message is the following setting.
1. Message Type = Addressed, Routine, Text and Reply ON
2. Message Type = Addressed, Routine, Capability interrogation

5.3.2.4 Interrogation

INTEROGATION menu is displayed when 4. INTERROGATION is selected in the Message menu..
In the INTERROGATION menu, two destinations (DESTINETION 1 and DESTINETION 1) can be selected as interrogations simultaneously



INTERROGATION menu

a) INTERROGATION SETTINGS
When the Jog Dial is rotated, the cursor moves between 1. and 2.
Press the Jog Dial, then the destination is confirmed.

(1) DESTINATION 1
For DESTINATION 1, two interrogations can be made in one time.
When DESTINATION 1 is selected and confirmed, then the first destination ID is ready to be entered. Then enter 9 digits with Jog Dial.
Press the Jog Dial and then the entry was confirmed and the cursor jumped to REQUEST1.
(See b) for how to select)

For entering REQUEST 1, rotate the Jog Dial for scrolling the contents.
Press the Jog Dial for confirming the entry. (See b) for how to select)

Set up the REQUEST 2 same as 1.

(2) DESTINATION 2
For DESTINATION 2, one interrogation can be made in one time.
Set up the DESTINATION and REQUEST, follow the same procedure for setting up DESTINATION 1.

DESTINATION 1 is selected and confirmed, and then the first destination ID is ready to be entered. Then enter 9 digits with Jog Dial.
Press the Jog Dial, and then the entry was confirmed and the cursor jumped to REQUEST1.
After confirming REQUEST by pressing the Jog Dial, then the cursor jumps to the lower box. (for the operation in the lower box, see c))

b) INTERROGATION REQUEST PATTERNS
The possible patterns of interrogation are below:

patterns of interrogations

Interrogation	Request 1-1	Request 1-2	Request 2-1	note
POSITION REPORT(A)	○	○	○	Class A shipborne AIS Position Report
SHIP STATIC AND VOYAGE(A)	○	○	○	Class A shipborne AIS ship static and voyage data
SAR AIRCRAFT POS. REPORT	○	○	○	Search and rescue aircraft AIS position report
POSITION REPORT(B)	○	○	○	Class B shipborne AIS Position Report
SHIP STATIC AND VOYAGE(B)	○	○	○	Class B shipborne AIS ship static and voyage data
AIDS-TO-NAVIGATION REPORT	○	○	○	Aids to navigation AIS report
BASE STATION REPORT	○	○	○	Base station AIS report
DATA LINK MANAGEMENT MSG	○	○	○	Base station AIS data link manage message
CHANNEL MANAGEMENT	○	○	○	Base station AIS cancel management message
NONE	×	○	○	No Interrogation

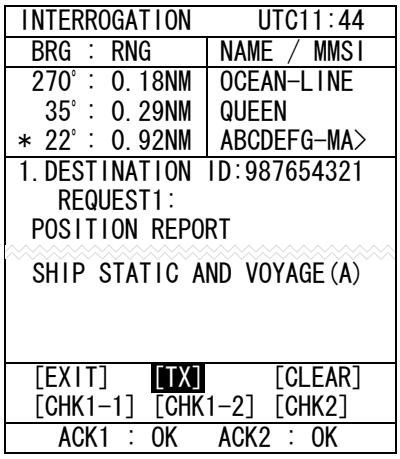
Caution :	Check the class of the destination station, when editing interrogation. Mismatch class interrogation might be not responded.

c) ITEMS IN THE BOTTOM BOX
In the Interrogation Screen (5.3.2.5), when one of the items in the bottom of the box, the system operates as mentioned below.

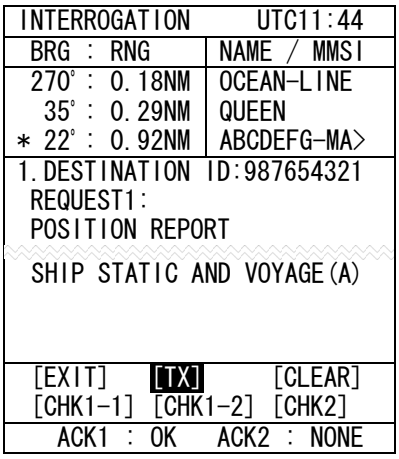
[EXIT] ・・・・・・・・・・・・・・・・ Cancel the contents and return to Message Manu.
[TX] ・・・・・・・・・・・・・・・・・ Transmit to “DESTINATION1” (and ”DESTINATION2”)
[CLEAR] ・・・・・・・・・・・・・・・・・Cancel the contents and move the cursor on ”1.DESTINATION ID”
[CHECK1-1],[1-2],[2-1] ・・・・・・Return respond messages correspond to each item.

If there is no response to interrogations, this means respond message correspond to the interrogation doesn’t exist. So when such selection is made in Interrogation Screen, a short warning buzzer rings.

Additionally, basically the last line (box) of Interrogation screen is for displaying received messages or alarms, but after an interrogation request is made, it displays if response for the request was made or not.
Ex. Responded・・・・・・・・・ACK：OK
Not responded・・・・・・・ ACK：NONE



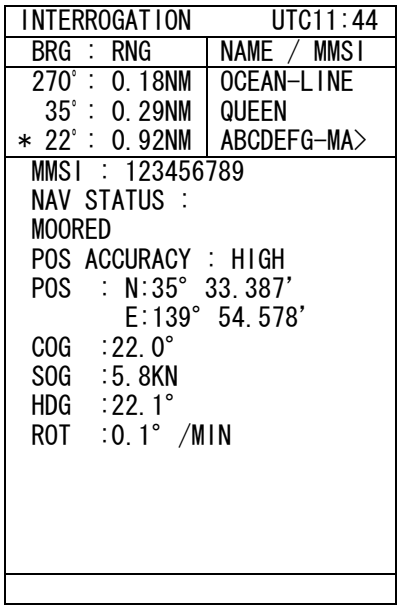
Responded from both destinations



Responded from DESTINATION1 only

Response display for examples

d) VIEWING RESPONSED MESSAGES



At Interrogation screen(5.3.2.5), when [CHECK○-○]([CHECK1-1], [1-2], or [2-1]) is selected, response messages are provided.

Pressing CLR key returns to the Interrogation Menu (5.3.2.5).

The response display is depend on the type of interrogation.

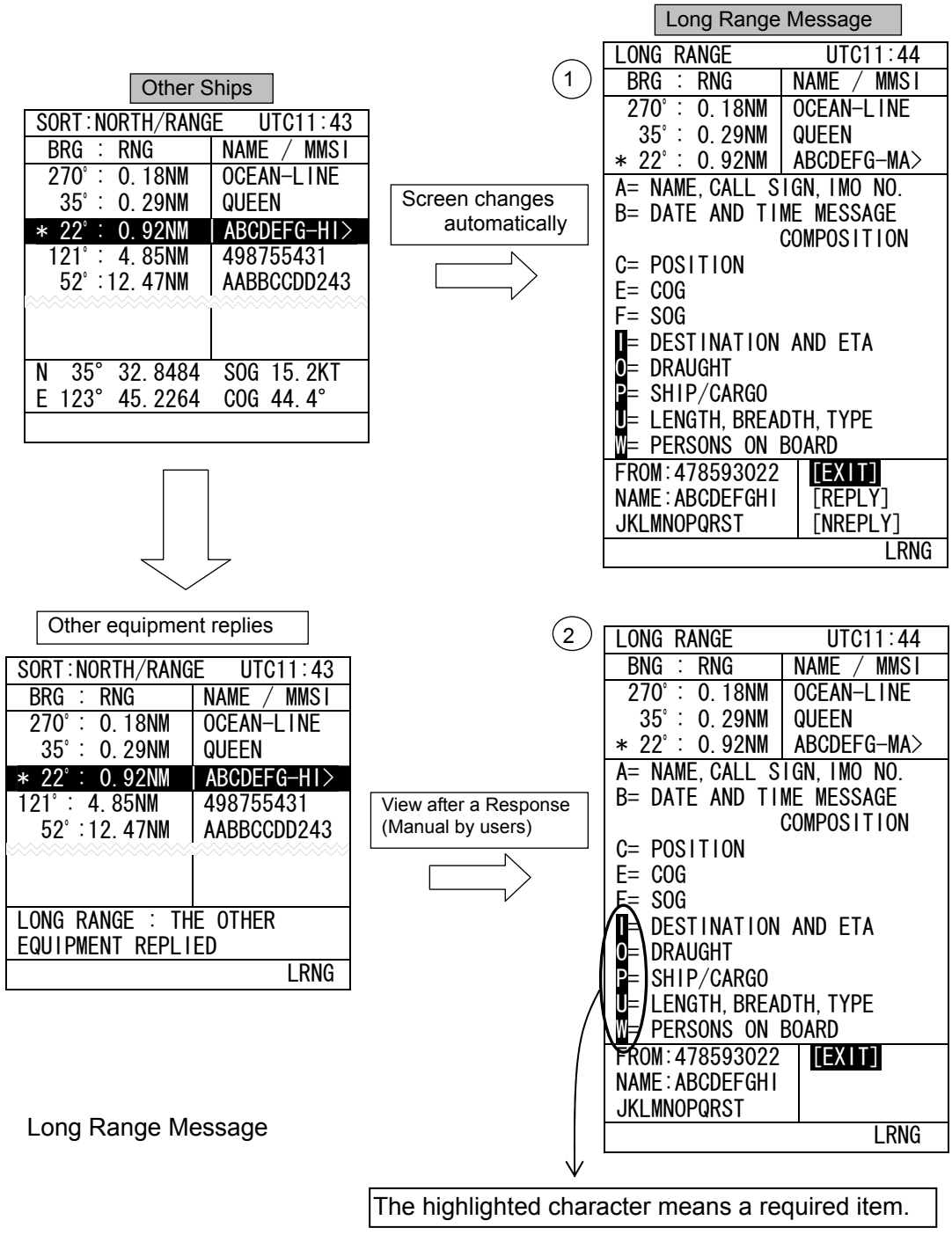
5.3.2.5 Long Range Messages

In Message Screen (5.3.2), if 5.LONG RANGE is selected, Long Rang Message Screen will be displayed.

The set up of Long Range Message is mentioned in 5.3.4. (SET UP MENU).

In SET UP MENU, select 4.LONG RANGE RESPONSE SETTING (5.3.4.4), and next select from AUTO or MANUAL.

When Long Range is requested, “LRNG” is displayed at the bottom line.



a) MANUAL RESPONSES

For Long Range Message, when MANUAL RESPONCES is set, when the system receives Long Range Request, Long Range Screen is opened automatically

Check the Response and REPLY manually to the message.

1.After Long Range Request, “Long Range Message ①”opens automatically.
2.When Other Ships reply, 『The other equipment replied』is displayed for 2 seconds.（③）

In Manual Response (①),
Show the Name and MSI, in the box at down-left of ①.
Reverse display the requested items
Initially, the cursor appears on [EXIT].

In bottom right of LONG RANGE screen,
If [EXIT] is selected or CRL key is pressed, return to Message Menu.
If [REPLY] is pressed, display a sentence of accepting the request and change the display of down right of the screen.（see ① and ② above）
If [NOT REPLY] is pressed, display a sentence of “No Reply” and change the display of down right of the screen.（see ① and ② above）

b) AUTOMATIC RESPONSES

For Long Range Message, when AUTOMATIC RESPONCES is set, the reply to the message will be performed background. In this case, LONG RANGE MESSAGE SCREEN does not open automatically.

When uses see the message, the response has been already done.

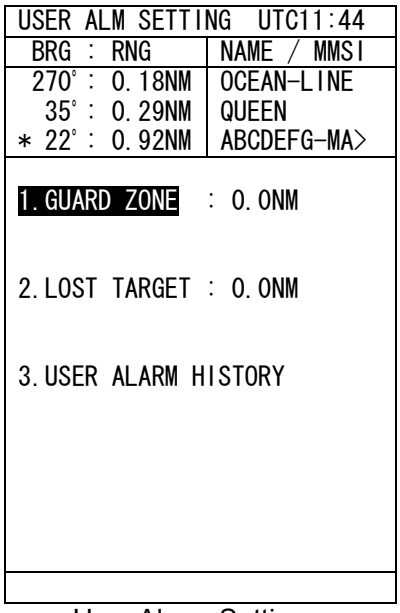
Long Range Message Screen is same as a). ②.

5.3.3 USER ALARM SETTING

ALARM SETTING menu is displayed when 3.ALARM SETTING is selected in the Main Menu.

The alarms that users can change the alarm settings are GUARD ZONE ALARM and LOST TARGET ALARM. On this screen, users can change the settings of these alarms.

Initially the cursor is on 1.GUARD ZONE. When the Jog Dial is rotated, the cursor moves over the selections (1.GUARD ZONE → 2.LOST TARGET → 3. USER ALARM HISTORY), so select one of them and confirm the selection by pressing the Jog Dial.



User Alarm Setting

Pressing CLR key returns the display to the Main Menu.

To make the setting which doesn't beep an alarm buzzer, refer to " 5.3.4.5 BUZZER SETTINGS".

5.3.3.1 Guard Zone Alarm Setting

To set Guard Zone alarm, select 1.GUARD ZONE in the USER ALARM SETTING menu. If an other ship approach into the Guard Zone range, a warning message-“GUARD” is displayed and the buzzer beeps.

The Guard Zone range stands for the radius centered by own ship, and can be set up to 99.9 NM.
In the case the Guard Zone range is set to zero (0), the GUARD ZONE ALARM is disable.

From USER ALARM SETTING MENU, use the Jog Dial and select 1.GUARD ZONE
With the Jog Dial, input the radius. (See 5.3.3)
Maximum 99.9NM.
When it is set 0.0NM, then the alarm will be canceled.
When the Jog Dial is pressed, the selection is confirmed.
When CLR key is pressed, the selection is canceled.
The cursor jumps to the next item.

5.3.3.2 Lost Target Alarm Setting

To set the Lost Target alarm, select 2. LOST TARGET in the USER ALARM SETTING menu. If the information of an other ship in the Lost Target range for more than six minutes, a warning message-“LOST” is displayed and the buzzer beeps. The display/alarm can be cleared by CLR.

1.
From USER ALARM SETTING MENU, use the Jog Dial and select 2.LOST TARGET
With the Jog Dial, input the radius. (See 5.3.3 for numeric input)
Set the distance which is sufficiently possible to communicate
When the Jog Dial is pressed, the selection is confirmed.
When CLR key is pressed, the selection is canceled.
The cursor jumps to the next item.

5.3.3.3 User Alarm History

When USER ALARM HISTORY is selected, USER ALARM HISTORY Screen appears.
The day and time of the alarms above are recorded.
The newest record comes to the top.
The newest ten records are displayed and older records are discarded.

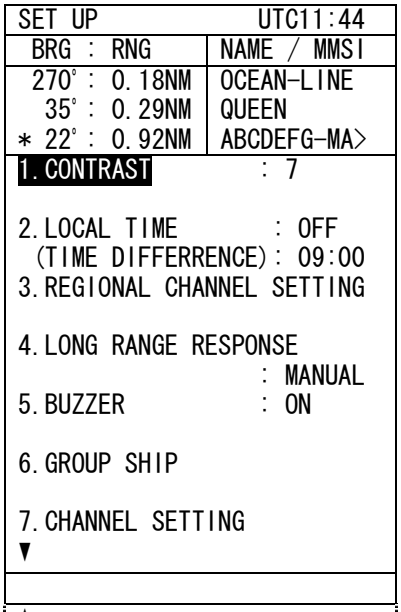
When CLR key is pressed, USER ALARM SETTING Screen appears.

USER ALM HISTORY UTC11:44	
BRG : RNG	NAME / MMSI
270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-MA>
1. 2004/01/01 12:34 GUARD	
2. 2003/12/31 23:40 GUARD	
3. 2003/12/31 23:34 GUARD	
4. 2003/12/31 10:10 LOST	
5. 2003/12/21 12:00 GUARD	
6. 2003/11/09 12:59 GUARD	
7. 2003/11/09 12:58 GUARD	
8. 2003/11/09 12:57 LOST	
9. 2003/11/07 12:01 LOST	
10. 2003/11/01 19:48 GUARD	

USER ALARM HISTORY Screen

5.3.4 SET UP MENU

When 4. SETUP is selected from MAIN MENU, the menu for setting AIS Controller appears.



SET UP MENU

Setup of the AIS Controller functions and channel management of the transponder.

The outlines of menu items are:
1. CONTRAST･･･adjust the shade of this display. (See 5.3.4.1)
2. LOCAL TIME･･･input Local time. (See 5.3.4.2)
3. REGIONAL CHANNEL SETTING･･･ (See 5.3.4.3)
4. LONGRANGE RESPONSE･･･select MANUAL/AUTO response. (See 5.3.4.4)
5. BUZZER･･･select buzzer ON/OFF.(See 5.3.4.5)
6. GROUP SHIP･･･entry of group ships (max 10 ships)(See 5.3.4.6)
7. CHANNEL SETTING･･･set channels.(See 5.3.4.7)
8. PASSWORD･･･entry of a new password.(See 5.3.4.8)
9. POS DISP. SETTING･･･set up the display of the position (See 5.3.4.9.)

5.3.4.1 Contrast Adjustment

When 1. CONTRAST is selected, CONTRAST is ready to be entered.

See 5.3.3 for Numerical Input for the methodology of the numerical input.

CONTRAST ADJUSTMENT

The adjustment of the contrast
- '1' is the darkest.
- '13' is the lightest.

5.3.4.2 Time Difference Setting

Setup of local time, and select a display change of time.

SET UP	LMT13:22
BRG : RNG	NAME / MMSI
270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-MARU
1.CONTRAST : 49	
2.TIME DIFFERENCE : ON	
(LOCAL TIME) :+09:00	

LMT

Rotate the Jog Dial and select the "2.TIME DIFFERENCE".
Input the Local Time. (See 5.3.3.1)
Enter the Local Time with the Jog Dial. The cursor moves to the lower line.
Rotate the Jog Dial and select the "ON/OFF".
When "ON" is selected, Current Time (the upper line) is changed to 'LMT' from 'UTC'.

When UTC time is not obtained, Local Time cannot set up.

5.3.4.3 Regional Channel Setting

When 3. REGIONAL CHANNEL SETTING is selected, Regional Channel Setting Menu appears.

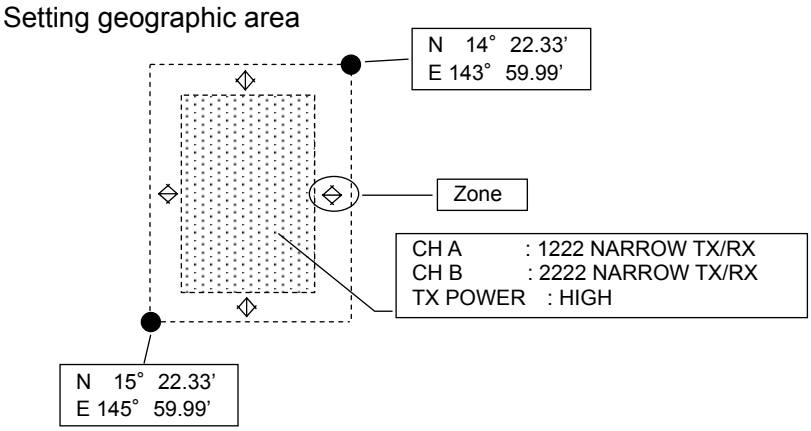
A maximum eight channel management information can be inputted.

Rotate the jog dial to left/right and move the cursor for selecting the menu.
Press the Jog Dial, then the sub menu displayed
If CLR is pressed, the set up menu is displayed (5.3.4).

REGIONAL CH.SET UTC11:44	
BRG : RNG	NAME / MMSI
270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-MARU
1.CH A : 1222 NARROW	
2.CH B : 2222 NARROW	
3.TX/RX MODE: TX/RX,TX/RX (CH A,CH B)	
4.TX POWER : HIGH	
5.ZONE SIZE : 5NM	
6.AREA (NE) :N 15°22.33' E 145°59.99'	
7.AREA (SW) :N 14°22.33' E 143°59.99'	
8.SOURCE:BROADCAST MSG.22	
MMSI :123456789	
UTC :2004/07/29 12:49	
▼	

Regional channel setting

Setting geographic area



The range of coordinates is set up in distance less than 200NM [20NM or more].

[Setting Up Procedure]
Set up a new transmission as the picture above. Check if the settings work or not. If OK, you can save the setting.
Additionally, if you want to see settings that had already been registered (maximum 9), it is available from a list.

When this menu opens, the cursor is on 1. Press the Jog Dial then the cursor jumps to the channel number. (e.g. In the picture above, if the Jog Dial pressed while the cursor is on 1., then it jumps to "1222" .)

And if you rotate the Jog Dial while it is on 1., then the cursor moves 1 → 2 → 3 → 4 …

[Explanation of the setting menus]
1. CH A
2. CH B
   1. 2. are a menu for setting channel number and bandwidth.
   By rotating Jog Dial, input the channel number and confirm it by pressing the Dial.

No. : Set up to the channels which are used.
BANDWIDTH : Select the bandwidth from WIDE/NARROW

3. TX/RX MODE :
This menu is used for setting the transmission/receive (TX/RX) mode of CH A and CH B.

With Jog-Dial, select a combination of communication method.
Turn the Jog Dial left then the number changes 1→2→3 from 3 patterns below:

1.TX/RX,TX/RX (CH A → TX/RX、CH B → TX/RX)
2.TX/RX, RX (CH A → TX/RX、CH B → RX)
3.RX, TX/RX (CH A → RX、CH B → TX/RX)

Press the Jog Dial for confirming the selection.
Setting as (RX, RX) cannot be selectable.

4. TX POWER: Select the TX Output Power(HIGH/LOW).
This menu is for setting the transmission power.
The power of each setting is:
High……12.5W
Low……2W
Rotate Jog Dial and select from High or Low.
Press the Jog Dial for confirming the selection.

5.ZONE SIZE : Set up the width of the channel change zone.
Set the range with Jog Dial.
The range can be input between 1 and 8NM.
Press the Jog Dial for confirming the entry.

6,7. Coordinates in area : Set up the coordinates of area.
By setting NE at 6, SW at 7, define the area.

When cursor is on 6, press the Jog Dial.
The cursor moves to the right of ":", turn the Jog Dial and select "N".
Press the Jog Dial for confirming "N".
Enter numeric value for "xxx° xx.xx'" and press for confirmation.

Follow the procedure above, enter value for E (East), S(South) and W(West).

8. Change direction of the Regional Channel :
When 8. is selected, the information about a setting direction is provided.
Here only displaying the information, no selections/changes are made.

SOURCE…The contents of directions received
1. ADDRESSED MSG.22: An own ship was defined by the AIS communication.
2. BROADCAST MSG.22: All ships were defined by the AIS communication.
3. CH ASSIGNMENT : It was defined by the external equipment which was connected with NQE-3182.
4. DSC 70CH TELCOM : It was defined by the DSC communication.
5. MANUAL INPUT : It was defined by the manual operation.

MMSI…MMSI of the origin of the setting direction
UTC…The UTC time when the direction was accepted

a) CONFIRMATION OF SETTINGS
When you completed step 7 above, the cursor moves down to [EXIT] at the bottom of the screen.
Bring the cursor on [CHECK] with the Jog Dial and press it. Then the result of diagnosis is displayed at the bottom of the screen.

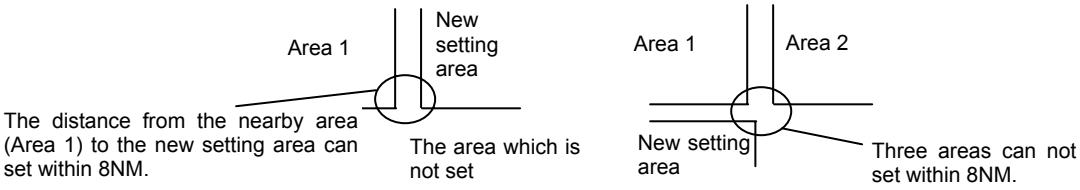
```
REGIONAL CH.SET    UTC11:44
 BRG : RNG        NAME / MMSI
 270° : 0.18NM    OCEAN-LINE
  35° : 0.29NM    QUEEN
* 22° : 0.92NM    ABCDEFG-MA>
1.CH A       : 1222 NARROW
2.CH B       : 2222 NARROW
3.TX/RX MODE: TX/RX, TX/RX

 [EXIT]  [CHECK]  [SAVE]
 [LIST]  [LOAD]   [CLEAR]
  NG 20NM>AREA, AREA<200NM
```

If the message does not show an error, you can register it by selecting and confirming [SAVE].

Diagnosis Results is being displayed

Information	Notes
NG 20NM>AREA, AREA<200NM	The side of the area is 20 NM or less, or 200 NM or more. The each side of area should be between 20 and 200 NM.
NG AREA CORNER ERR(*1)	The distance between corners of more than 3 areas is 8 NM or less. The distance should be 8 NM or more.
NG AREA 500NM OVER	The distance from own position to the area is 500 NM or more. The distance should be 500 NM or less, otherwise the inputted information will be rejected.
NG CH BW ERR	Channel or bandwidth setting is incorrect. The channel number and bandwidth defined in ITU-R M.1084 are available.
NG OTHER ERR	The inputted information other than channel and bandwidth is incorrect. Edit the incorrect information again.
NG OVERTIME ERR	There is no response from the transponder. Check the transponder cable or the inputted information.

(*1): In the following case, AREA CONER ERR is displayed.




```
REGIONAL CH.SET    UTC11:44
 BRG : RNG        NAME / MMSI
 270° : 0.18NM    OCEAN-LINE
  35° : 0.29NM    QUEEN
* 22° : 0.92NM    ABCDEFG-MA>
 1.
 CH A       : 2087 WIDE
 CH B       : 2088 WIDE
 TX/RX MODE: TX/RX,TX/RX
              (CH A,CH B)
 TX POWER   : HIGH
 ZONE SIZE : 4NM
 AREA (NE) :N  20°11.30'
            E 152°50.20'
 AREA (SW) :N  19°11.30'
            E 151°50.20'
 SOURCE:BROADCAST MSG.22
 MMSI   :123456789
▼UTC    :2004/07/20 10:10
```

b) The display of the [LIST] screen
When [LIST] in the small screen is selected in the Regional Channel Setting Menu, the list of the channel management information is displayed in a maximum of eight affairs.

'▼' mark is displayed on the bottom line when the Regional Channel List screen is able to scroll downward.
To display the next screen, rotate the Jog Dial counterclockwise.
'▲' mark is displayed on the top line when the Regional Channel List screen is able to scroll upward.

Pressing CLR key returns the display to the Regional Channel Setting Menu.

c) [LOAD] Setting

When the [LOAD] in the small screen is selected in the Regional Channel Setting Menu, the preservation list of manual inputs is displayed.

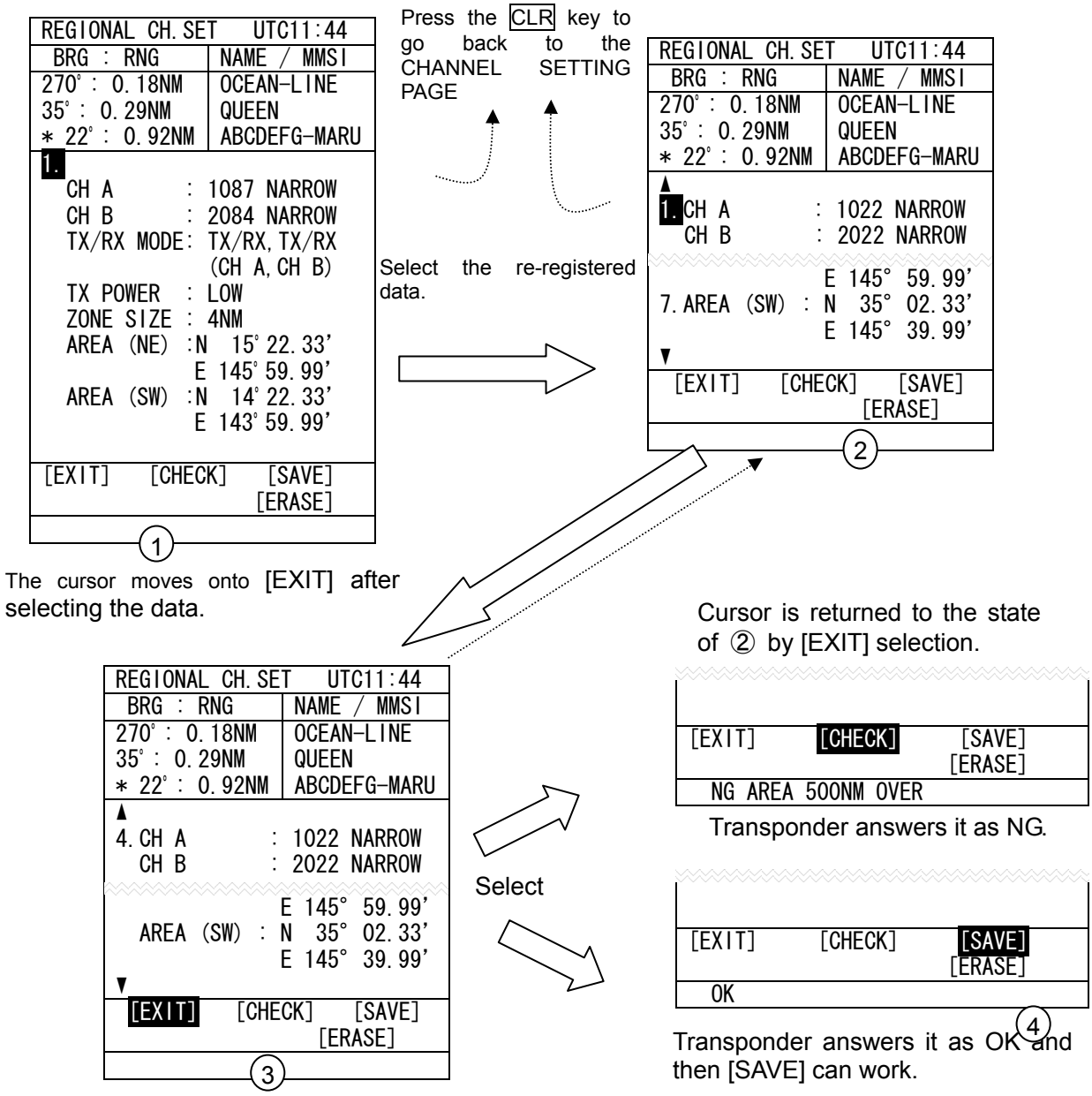
Moreover, the contents of the setting selected from preservation lists can be registered.

Transponder saves a maximum of nine channel management information.

The data applicable to the condition is eliminated when the ship is separated more than 500NM from the set-up area or when five weeks pass from the saved time.

This is for saving the time to input the same data manually every time.

A maximum of 8 affairs from the newest manual input settings can be reconfirmed and re-registered.



The screen ① is displayed if the [LOAD] is selected after the cursor is moved into small screen of the Regional Channel Setting Menu.

Move the cursor onto 1. at ①. “NO DATA” is displayed if there is no data and then the cursor is on [EXIT] in the small window.

[CHECK], [SAVE], etc. cannot be selected.

The registered setup can be seen when the Jog Dial is rotated. Only the saved number of data is displayed.

The CHANNEL SETTING display is displayed when the CLR key is pressed on the screen ① and ② states as the cursor is on the numbers.
The cursor moves onto [EXIT] in the small window when the item is selected by Jog Dial from the screen ① and ② states.
If [EXIT] is selected, the cursor returns to the state of Screen ②.
If [CHECK] is selected, the transponder outputs the command of the contents. (See 5.3.4.3.1.)
When the result is NG, the contents are displayed on the last line.（See 5.3.4.3.1）
When the result is OK, the setting can be saved after [SAVE] is selected. (See 5.3.4.3.1)
If [SAVE] is selected, the transponder outputs the command of the contents. (See 5.3.4.3.2.)
If [ERASE] is selected, the selected contents are erased and then the cursor moves onto [EXIT].
If there are any data which are saved after erased data, all of the data put upward.

5.3.4.4 Long Range Response Settings

To set the Long Range Response, select 4.LONG RANGE RESPONSE .
Auto response (AUTO) and manual response (MANUAL) can be selected.

This setting works when a long range communication device is connected.

The default setting is AUTO. Use the Jog Dial for selection and confirmation.

Long Range Response Screen

5.3.4.5 Buzzer Settings

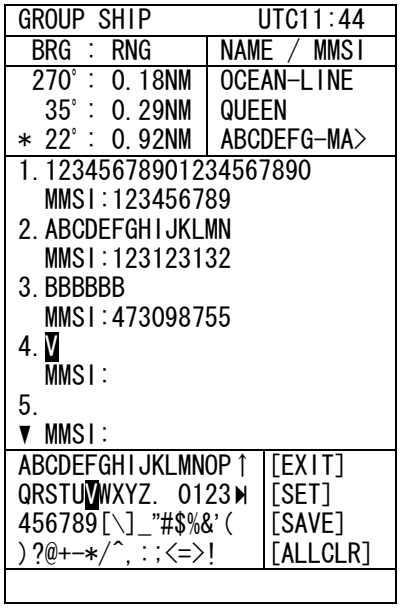
To set the buzzer beeping functions, select 5.BUZZER .
Each buzzer functions can be set enable (ON) or disable (OFF) as followings.

BUZZER: ON / OFF
ON: Key touch beeping is enabled and the other buzzer function can be work by the each setting.
OFF: All buzzer functions are disabled including key touch beeping.
MESSAGE: ON / OFF
When a binary message is received.
GUARD ZONE ALARM: ON / OFF
When a other ship approaches within the guard zone range
LOST TERGET ALARM: ON / OFF
When the other ship information within the range is not received for 6 minutes.
ALARM: ON / OFF
When a failure alarm occurs.

Setting of Buzzer functions

5.3.4.6 Group Ship Registration

When 6.GROUP SHIP is selected, GROUP SHIP opens.
Use this screen for registering group ships.



Group Ships Registration Screen

Maximum 10 ships can be registered as a group ship.
When [SAVE] is selected, the information is saved.

Other ships which are registered as group ships, obtain "*" on the other ships list. And the Ship Name shown in other ships list succeeds the names which are registered from this screen.

1. Entering Name
When this menu opens, the cursor is on 1.
Rotate the Jog Dial and the cursor move up/down over the numbers.
Select the number and press the Jog Dial, the cursor jumped to the entry of NAME and at the same time, a cursor is on A in the keyboard area. Then the name can be entered.
The method of using keyboard, see 5.2.4

2. Entering MMSI
After completing the name entry, select and push [NEXT] by the Jog Dial, then the cursor jumps to the MMSI entry area.
Numeric Entry for MMSI, see 5.2.5.
When the entry of MMSI has completed, the cursor move to next line.

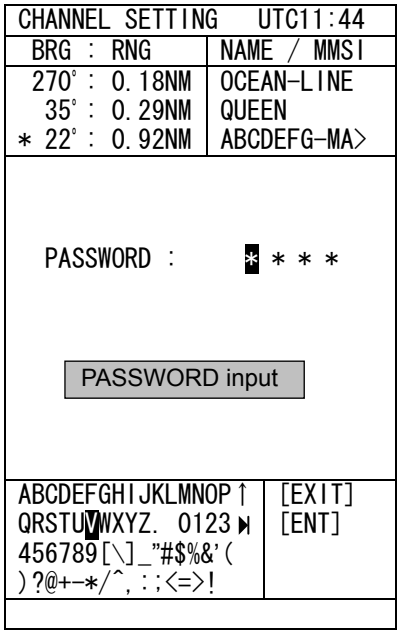
While the cursor is between 1 and 10, if it is rotated counter clockwise, then jump down to [EXIT]. (Not Keyboard Area)

Select [EXIT], then discard the contents and return to SETUP.
Select [SAVE], then save the contents and return to SETUP.
Select [ALL CLEAR], and then discard all contents and the cursor returns to 1.

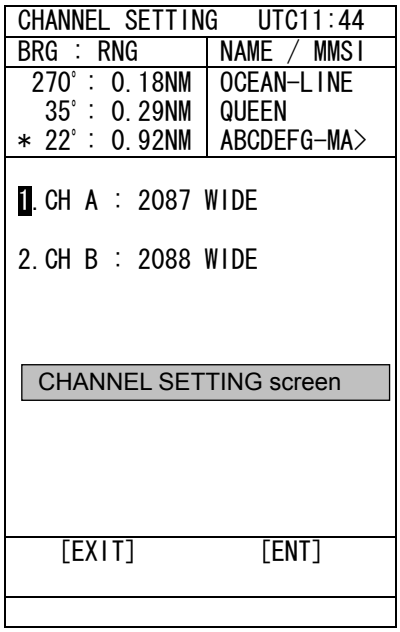
5.3.4.7 Changing The Channel

In case, a user want to change a channel, select 7.CHANNEL SETTING
After that, type in password from Password Input Screen(①) and the proper password is entered, go to Next screen(②)

①



②



Entering Password
For creating password which consists of 4 digit, using 『A～9』 by the Jog Dial.
Enter 4 digits and finally confirm by pressing the Jog Dial, then the cursor jumps to [EXIT].

① Select [EXIT], and return to SETUP
② Select [ENT], and proceed to Changing Channel Screen.

Changing Channel
Enter channel number and select the width.
In Changing Channel screen, bring the cursor on 1.

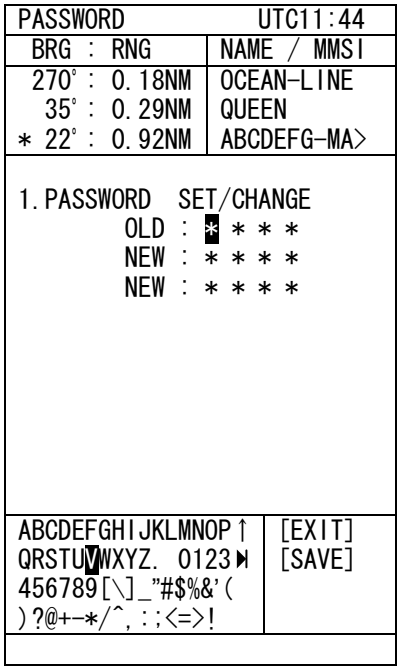
On 1. , press the Jog Dial for confirming and bring the cursor to the Channel number (in the picture above, channel numbers are 2087 and 2088)
See 5.2.5. for entering numeric values
The channels that can be chosen at this moment are acceptable. But numbers besides registered channel number is specified, then the contents are discarded and the cursor jumps to the channel number entry area.
If the Jog Dial is pressed at the right edge of the channel number input area, the cursor moves to WIDE.
The width can be selected from: a) WIDE, b) NARROW
Select the width and press the Jog Dial, the cursor jumps to the next item
.
The setting procedure for 2 is same as the procedure for 1.
When the setting for 2 has completed or while the cursor is over 2, if the Jog Dial is rotated to left, the cursor moves down to [EXIT].

1. If [EXIT] is selected, discard the contents and return to SETUP screen.
2. If [ENT] is selected, output a command and return to SETUP screen.

Note: When the illegal channel number has been specified, “NG CH BW ERR” of the error information is displayed. In this case, channels aren't changed.

5.3.4.8 Changing Password

Select 8. PASSWORD, then the screen for Password setting appears.
The passwords for turning off the electricity or changing channel are set up from this screen.
A person who is in charge of ship should administrate passwords.



Password setting screen

Rotate the Jog Dial for moving the cursor.

Press the Jog Dial and submenus will be displayed.

Press CLR key for returning to SETUP MENU.

When the submenu is opened, the cursor is on * of the leftmost of the line of OLD. At the same time, there is a cursor in the keyboard area of the screen.
Use keyboard and type in 4 digits password after “OLD:”.
When you type in the fourth letter and confirm by pushing the Jog Dial, then
If the password now input matched the current password, then the cursor jumps to the next line.
If the password now input does not match the current password, the cursor return to 1.
Type in the 4 digits new password, after upper “NEW:” for creating new password.
When you type in the fourth letter, then the cursor jumps to the next line. Then type in new pass word after the lower “NEW:”
If two passwords match, then the cursor moves to [EXIT]
If two new passwords don’t match, the cursor returns to 1.

And
If you select [EXIT], discard the contents and return to SETUP MENU.
If you select [SAVE], save the contents and return to SETUP MENU.

Caution :
Only alphabets and numbers can be used for password.
You cannot move cursor irregularly, (such as “from 1. to keyboard area” or “Keyboard area to [EXIT]” etc.) by rotating left the Jog Dial.

5.3.4.9 Changing of Position Display Setting

When the 9. POS DISP. SETTING is selected, the Position Display Setting (displaying position of N/S, E/W) can be changed.

10. POS DISP. SETTING: OFF

Position Display Setting

When the setting is

OFF : N xx° xx.xxx ┐→ N, W, etc. are before the coordinates.
Wxxx° xx.xxx ┘

ON : xx° xx.xxx N ┐→ N, W, etc. are after the coordinates
xxx° xx.xxx W ┘

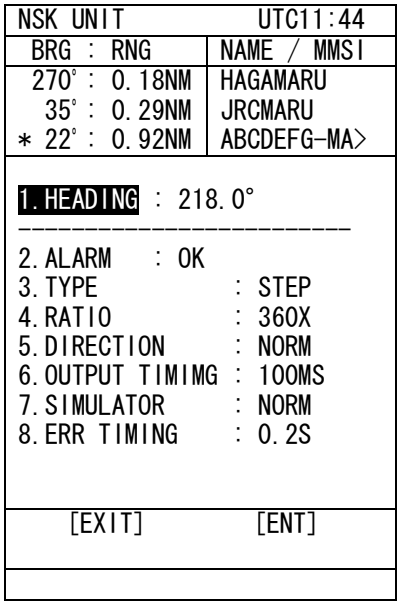
The screen that changes by this setup is the following item.

- OWN POS DISP.
- OWN DETAIL
- SHIP'S DETAIL
- WAYPOINTS
- The result of INTERROGATION
- REGIONAL CH SETTING
- GROUP SHIP
- TRX CONDITION

5.3.4.10 Own ship's heading initial setting (CMJ-3182 NSK UNIT – Optional unit)

NSK UNIT menu is automatically displayed every time own ship's heading initial setting became need when CMJ-3182 NSK UNIT is installed.

Select "4.SETUP" in " 5.3 the main menu " to display by pressing MENU key and display the Set up Menu (5.3.4).
NSK UNIT menu is displayed when 10.NSK UNIT is selected in the Setup Menu.
In the NSK UNIT menu, the own ship's heading and CMJ-3182 NSK UNIT setting status is displayed.



NSK UNIT menu

Pressing CLR returns the display to Setup Menu.

Select 1.HEADING with the Jog Dial, and then enter the own ship's heading in the range from 000.0 to 359.9 degrees.
Input the each digit of the heading value with the Jog Dial.
When input of every digit has been completed, the cursor moves to the [ENT] in the small window.
Selecting [ENT] sets the inputted heading value, and then returns the display to the Setup Menu.
Selecting [EXIT] returns the display to the Setup Menu without setting the inputted heading.

Caution:
After the alarm of NSK UNIT is recovered, the NSK UNIT menu is displayed automatically.
Be sure to enter the heading value, if the NSK UNIT menu is automatically displayed.
Even if the NSK UNIT menu is closed without heading entry, NSK UNIT menu will be appear again.

The item from 2 to 8 is the contents to have set to CMJ-3182 NSK UNIT. It isn't possible to do the choice of the number.

The setting information of each menu is described below.

2. ALARM

The alarm which has occurred to NSK UNIT now is displayed.

Indication	Explanation
OK	Normal operating
SYNCIRQ ERR	SYNCHRO type is selected, The communication with a gyroscope stopped. (Disconnect, etc.)
SYNCWIRE ERR	
STEPIRQ ERR	STEP type is selected, The communication with a gyroscope stopped. (Disconnect, etc.)
STEPWIRE ERR	
PROG.MEM.ERR	NSK UNIT is malfunctioned.

3. TYPE

The type of input signal is displayed.

Indication	Explanation
STEP	Step signal
SYNC	Synchro signal

4. RATIO

The type of gyration ratio is displayed.

Indication	Explanation
36X	The type of gyration ratio
90X	
180X	
360X	

5. DIRECTION

The rotation direction is displayed.

Indication	Explanation
REV	Reverse (counterclockwise)
NORM	Normal (clockwise)

6. OUTPUT TIMING

The update interval of an own ship's bearing value is displayed.

Indication	Explanation
RESERV	Not in use
1S	The bearing value is updated at intervals of 1 second.
100MS	At intervals of 0.1 sec.
50MS	At intervals of 0.05 sec.

7. SIMULATOR

The operation mode is displayed.

Indication	Explanation
TEST	Test mode (Compass direction data is outputted by '0.0'.)
NORM	Normal mode

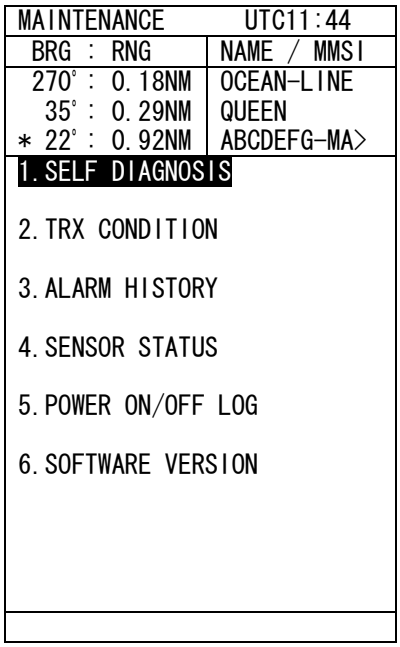
8. ERR TIMING

The detection time of an error is displayed.

Indication	Explanation
5S	An error is detected at intervals of 5 seconds.
0.2S	At intervals of 0.2 sec.

5.3.5 MAINTENANCE

When 5.MAINTENANCE is selected from Main Menu (5.3) Maintenance Menu appears.



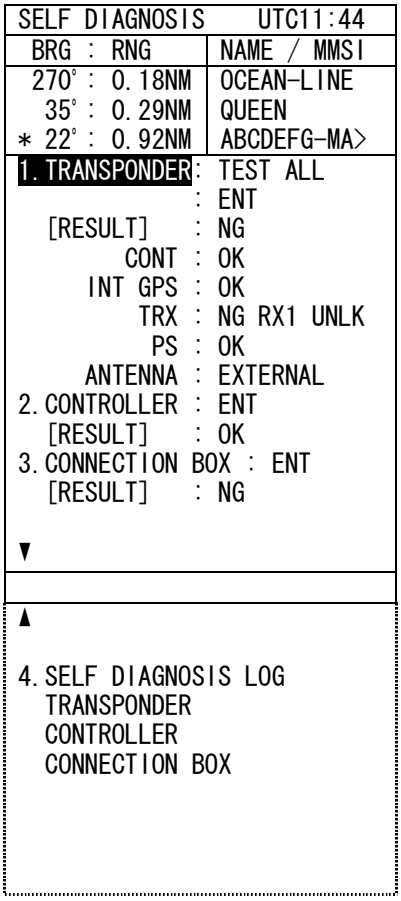
Users can check current status of the system by the menu.

The outlines of each menu items are below:

1. SELF DIAGNOSIS ・・・ Perform Self Diagnosis test. (See. 5.3.5.1)
2. TRX CONDITION ・・・ Display Logs, which enable to confirm what sea area the ship, has been crossing. (Maximum eight items) (See. 5.3.5.2)
3. ALARM HISTORY ・・・ Display alarm logs for disorders. (Maximum twenty items) (See. 5.3.5.3)
4. SENSOR STATUS ・・・ Display current status of sensors working. (See. 5.3.5.4)
5. POWER ON/OFF LOG ・・・ Display data and time of Power on and off. (Maximum twenty items) (See. 5.3.5.5)
6. SOFTWARE VERSION ・・・ Display versions of software installed in computers. (See. 5.3.5.6)

5.3.5.1. Self Diagnosis

When 1.SELF DIAGNOSIS is selected from Maintenance Menu (5.3.5), SELF DIAGNOSIS screen appears.



SELF DIAGNOSIS screen

Pressing CLR key returns the display to the Maintenance Menu.

a) TRANSPONDER

Initially, the cursor is on 1.TRANSPONDER. And is the Jog Dial is pressed, the cursor moves to the right hand of ":"as TEST ALL.

The following item are selectable by rotating the Jog Dial.

TEST ALL:	Executes the diagnosis of all the units.
CONTROL:	Executes the diagnosis of the control unit.
INT GPS:	Executes the diagnosis of the internal GPS unit.
PLL LOCK:	Executes the diagnosis of the transceiver unit (TRX unit).
LOOP TEST:	Executes the loop test for AIS transponder.
PS:	Executes the diagnosis of the PS unit.

Press the Jog dial, and the cursor moves to ENT.
To execute a self diagnosis, select ENT and press the Jog dial.
Rotate the Jog Dial counterclockwise until 'CANCEL', and then press the Jog Dial.
Without executing a self diagnosis, the cursor returns to "1.TRANSPONDER".

The diagnosis result

The list of the diagnosis result is shown in the following table.

Diagnosis Result Item	Diagnosis Result	Defective Unit	Description	Corrective Action
CONT	NG CPU FROM	CDJ-2282A	CPU internal Flash ROM error	Replace NTE-182.
	NG SRAM	CDJ-2282A	SRAM error	
	NG FROM	CDJ-2282A	CPU external Flash ROM error	
	NG TX DAC	CDJ-2282A	Transmission DA converter error	
	NG RX1 PORT	CDJ-2282A	GMSK receiver CH A input port error	
	NG RX2 PORT	CDJ-2282A	GMSK receiver CH B input port error	
	NG RX3 PORT	CDJ-2282A	DSC reception input port error	
	NG	CDJ-2282A	Multiple errors	
INT GPS	NG PPS CONT.	CDJ-2282A	Internal GPS unit error	
	NG SAT.RCV.	CDJ-2282A	Internal GPS unit receives signal from only less than four satellites.	Check the NTE-182 installation state. (*1)
	NG	CDJ-2282A	Multiple errors	Replace NTE-182
TRX	NG RX1 UNLK	CMN-2182	GMSK receiver CH A synthesizer unlock	
	NG RX2 UNLK	CMN-2182	GMSK receiver CH B synthesizer unlock	
	NG RX3 UNLK	CMN-2182	DSC receiver synthesizer unlock	
	NG TX UNLK	CMN-2182	Transmitter synthesizer unlock	
	NG RX1 LOOP	CMN-2182	GMSK receiver CH A loop back test error	
	NG RX2 LOOP	CMN-2182	GMSK receiver CH B loop back test error	
	NG RX1 RSSI	CMN-2182	GMSK receiver CH A loop back test Reception level error	
	NG RX2 RSSI	CMN-2182	GMSK receiver CH B loop back test Reception level error	
	NG RX3 RSSI	CMN-2182	DSC receiver loop back test Reception level error	
	NG PA	CMN-2182	PA error	
	NG	CMN-2182	Multiple errors	
PS	NG PS LOW	CBD-2182	Output voltage (9.8 V) error	
ANTENNA	INTERNAL	--	The internal antenna terminal	
	EXTERNAL	--	The external antenna terminal	

When the result of the self diagnosis is normal, "OK" is displayed.
The displayed result of the antenna is not a diagnosis result and displays the terminal of the antenna to be using at present.

(*1): Check the installation state of AIS transponder NTE-182. Check that the AIS transponder is not in the shadow of the mast or others. If the self-diagnosis result still becomes NG, replace NTE-182.

Caution:
When the result of the malfunction is displayed, contact us or a agency as soon as possible.

b) CONTROLLER

To execute the self-diagnosis of the AIS Controller, select 2.CONTROLLER, select [ENT], and then press the Jog dial to start the self-diagnosis.

The diagnosis result

The list of the diagnosis result is shown in the following table.

Diagnosis Result Item	Diagnosis Result	Defective Unit	Description	Corrective Action
CONTROLLER	NG SRAM	CDJ-2779	SRAM error	Replace CDJ-2779.
	NG FROM	CDJ-2779	Flash ROM error	
	NG	CDJ-2779	Multiple errors	

c) CONNECTION BOX

To execute the self-diagnosis of the Connection Box, select 3.CONNECTION BOX, select [ENT], and then press the Jog dial to start the self-diagnosis.

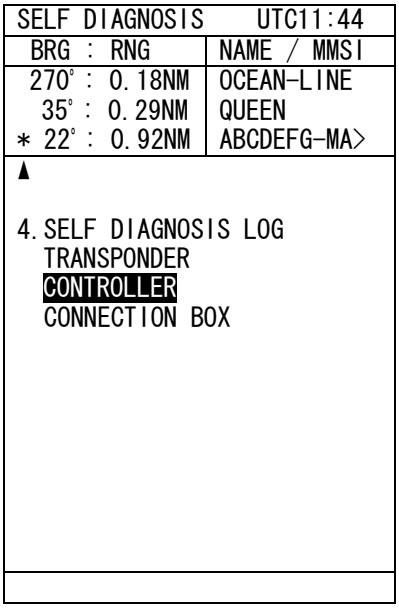
The diagnosis result

The list of the diagnosis result is shown in the following table.

Diagnosis Result Item	Diagnosis Result	Defective Unit	Description	Corrective Action
CONNECTION BOX	NG CPU FROM	CDJ-3182	CPU internal Flash ROM error	Replace CDJ-3182.
	NG SRAM	CDJ-3182	SRAM error	
	NG FROM	CDJ-3182	CPU external Flash ROM error	
	NG FPGA	CDJ-3182	FPGA error	
	NG	CDJ-3182	Multiple errors	

d) SELF DIAGNOSIS LOG

To check the past self diagnosis results, select 4.SELF DIAGNOSIS LOG, select the unit, and then press the Jog dial to display the past self-diagnosis results.
(Up to last 20 results for each unit.)

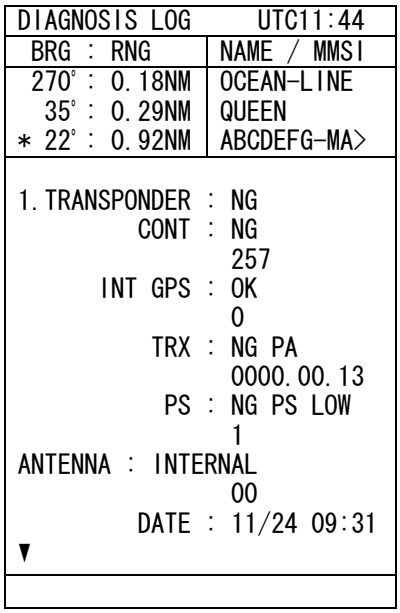


Pressing CLR key returns the display to the SELF DIAGNOSIS screen.

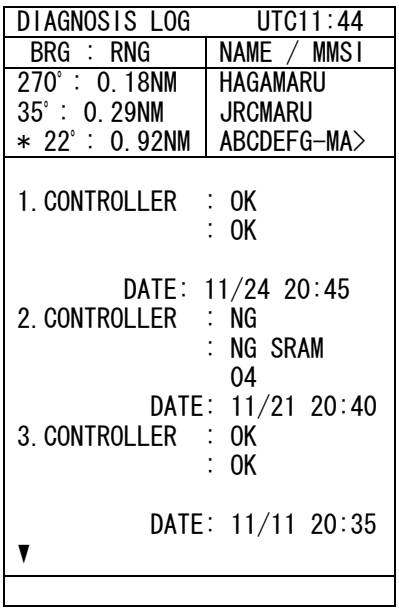
SELF DIAGNOSIS screen

(The screen of the next page)

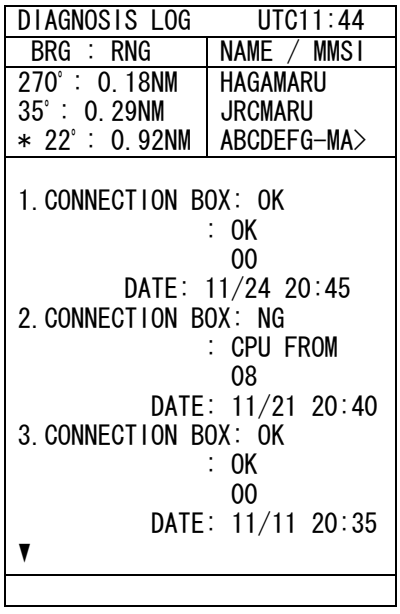
The result and contents that accord to each diagnostic value are displayed as shown of the following figure. And the last diagnostic time is displayed.
In addition,"--/-- --:--" is displayed when time is not able to be acquired.
Rotating the Jog Dial or moving the Joy Stick can display the next page.



Log screen of SELF DIAGNOSIS (TRANSPONDER)



Log screen of SELF DIAGNOSIS (CONTROLLER)



Log screen of SELF DIAGNOSIS (CONNECTION BOX)

5.3.5.2. TRX Condition

When 2.TRX CONDITION is selected from Maintenance Menu (5.3.5), TRX CONDITION screen appears.

This menu provides the information of how the setting has been changing.

```
TRX CONDITION     UTC11:44
 BRG : RNG      | NAME / MMSI
 270° : 0.18NM  | OCEAN-LINE
  35° : 0.29NM  | QUEEN
* 22° : 0.92NM  | ABCDEFG-MA>
1.CH A       : 1087 NARROW
  CH B       : 2084 WIDE
  TX/RX MODE:   /RX, TX/RX
                (CH A, CH B)
  TX POWER   : LOW
  ZONE SIZE  : 4NM
  AREA (NE)  :N  36°00.00'
              W 139°40.00'
  AREA (SW)  :N  35°30.00'
              W 139°20.00'
  SOURCE: BROADCAST MSG22
  MMSI    : 123456789
  UTC     : 2004/12/21 16:45
▼
```

TRX CONDITION

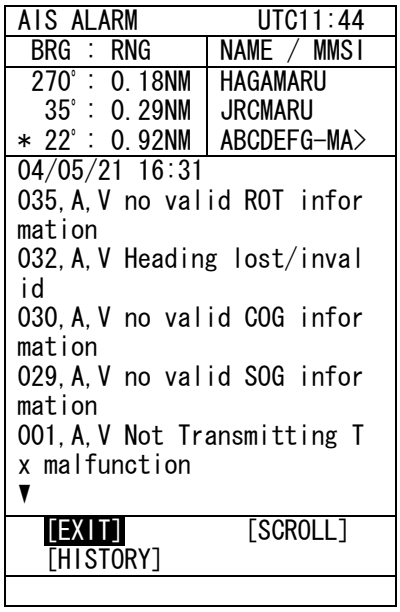
Eight records from the newest are displayed. 1. of this menu is showing the current transmission.

'▼' mark is displayed on the bottom line when the TRX CONDITION screen is able to scroll downward.

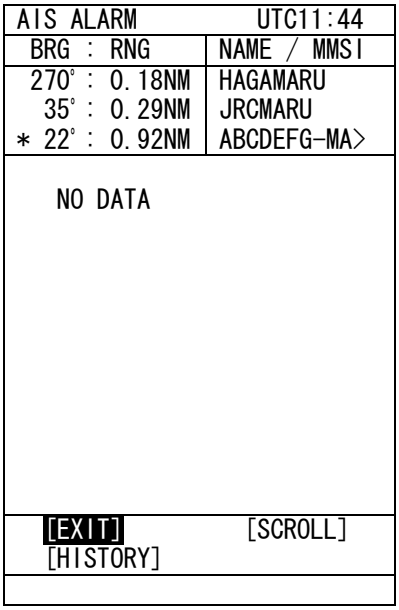
When CLR key is pressed, MAINTENANCE menu screen appears.

5.3.5.3. AIS Alarm

When 3.AIS ALARM is selected from Maintenance Menu (5.3.5), AIS ALARM screen appears.
In the AIS ALARM screen, the alarm which occurred in operation can be displayed from the latest one to a maximum of 20 affairs.



The present alarm occurrence status



The status which doesn't have an alarm

1. AIS ALARM

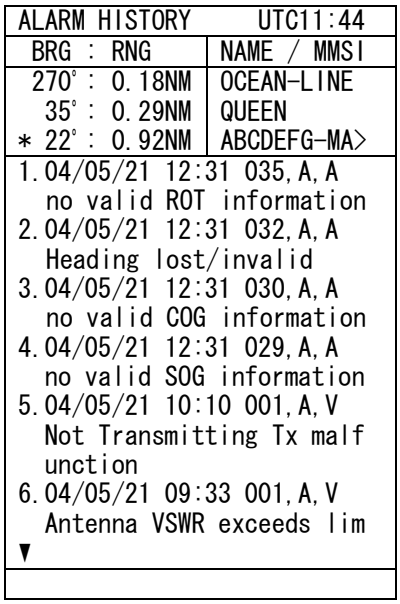
When AIS alarm screen is displayed, the cursor is on [EXIT].
Pressing CLR key or selecting [EXIT] returns to the Maintenance Menu.

When AIS alarm screen is displayed, the alarm which is occurring at present is displayed.
- When the AIS alarm doesn't occur, 『NO DATA』 is displayed.
- '▼' mark is displayed on the bottom line when the AIS alarm screen is able to scroll downward.
  To display the next page, select [SCROLL] and press the Jog Dial. The next alarm message is displayed.

Note: After the alarm occurs, confirm the alarm history.

2. Alarm history

Select [HISTORY] in the small window of the AIS alarm screen, and press the Jog Dial.



This screen displays a history of alarms which occur while the power is on. It displays the alarm history from the most recent one maximum 20 lines.

If there is no more information to be displayed on the next screen, [SCROLL] is not selectable. (▼ does not appear either.)

If CLR key is pressed, the procedure goes back to “Maintenance Menu.

The display of the alarm is described.

Alarm message: 035, V, A, no valid ROT information
(1) (2) (3) (4)

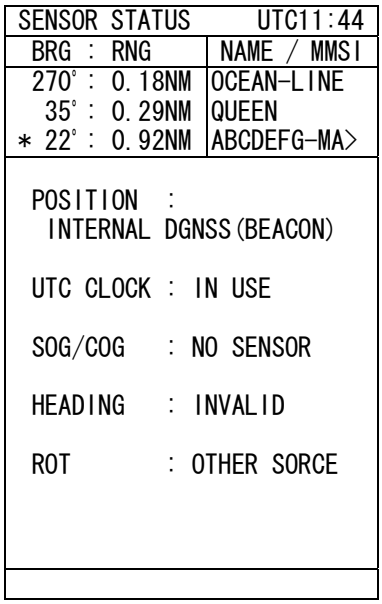
(1): The alarm number (refer to the following table)
(2): The alarm condition -> “V”: Healthy status,
“A”: Alarm is occurring
(3): Not used
(4): Alarm’s description text (refer to the following table)

Alarm No.	Alarm’s description text	The contents of unusual detection
001	Not Transmitting TX malfunction	Unusual detection at the transmission.
002	Antenna VSWR exceeds limit	Unusual detection of antenna output.
003	Rx channel 1 malfunction	Unusual detection of Rx channel 1.
004	Rx channel 2 malfunction	Unusual detection of Rx channel 2
005	Rx channel 70 malfunction	Unusual detection of DSC.
006	General failure	Detected a general failure
008	MKD connection lost	Detected the connection between AIS and TRANSPONDER is lost.
025	External EPFS lost	No information of sensor position from outside.
026	No sensor position in use	No information of sensor position.
029	No valid SOG information	No information of SOG.
030	No valid COG information	No information of COG.
032	Heading lost/invalid	No information of HEADING.
035	No valid ROT information	No information of ROT.
051	TX power down	Detected TX power is down.
052	TX power supply error	Unusual detection of TX power supply.
053	Power supply error	Unusual detection of power supply.
055	Pa temp error	Detected the PA temperature is warming up.
056	TX power too low	Detected the TX power is lower.
057	Vr error	Unusual detection of TX output.
058	Tx stop interrupt	Unusual detection of transmission (forced outage)
059	Tx power too high	Detected the TX power is higher.
060	TX pll unlock	Detected the TX PLL is unlocked.
061	Not TX	Detected the TX is not outputting.
062	Program Flash memory err	Unusual detection of check sum in the ROM with CPU.
063	Data Flash memory err	Unusual detection of check sum in the other ROM.
064	MKD connection lost	No serial input from the transponder.（detected by AIS）
065	SSD mismatch	Mismatch static information between transponder and AIS.

5.3.5.4. Sensor Status

When 4.SENSOR STATUS is selected from Maintenance Menu, SENSOR STATUS screen appears. The information of current status of sensor connection is displayed on this screen.

Select [EXIT] at the bottom or press CLR key, and you can go back to Maintenance Menu.



Sensor Status Screen

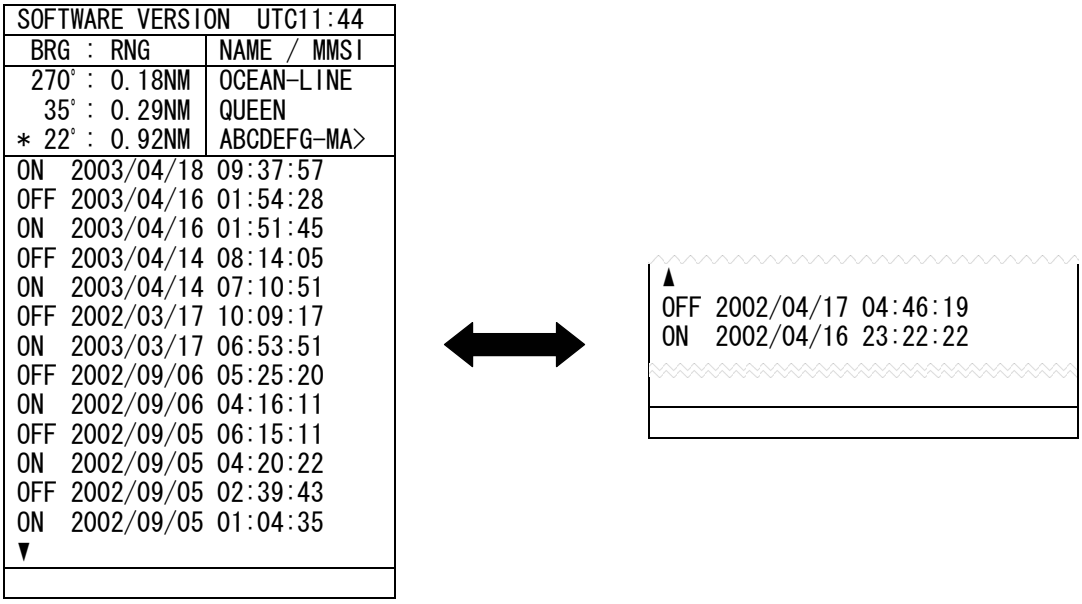
Sensor Type	Display	Explanation
POSITION	EXTERNAL DGNSS	Data is obtained from the external GPS (high accuracy).
	EXTERNAL GNSS	Data is obtained from the external GPS (low accuracy).
	INTERNAL DGNSS(BEACON)	Correction data is obtained from the beacon receiver and the internal GPS is used (high accuracy).
	INTERNAL DGNSS(MSG.17)	Correction data is obtained from the base station and the internal GPS is used (high accuracy).
	INTERNAL GNSS	Data is obtained from the internal GPS (low accuracy).
	NO SENSOR	No data is available.
UTC CLOCK	LOST	The internal GPS is not synchronized with PPS.
	IN USE	The internal GPS is synchronized with PPS.
SOG/COG	EXTERNAL	Data is obtained from the external equipment.
	INTERNAL	Data is obtained from the internal GPS.
	NO SENSOR	No data is available.
HEADING	VALID	Data is obtained from the external equipment.
	INVALID	No data is available.
ROT	IN USE	Data is obtained from the rate-of-turn indicator.
	OTHER SORCE	Data is obtained from the equipment other than the rate-of-turn indicator.
	NO SENSOR	No data is available.

5.3.5.5. Power ON/OFF Log

When 5.POWER ON/OFF LOG is selected, maximum 20 lines of Power ON/OFF LOG is displayed.

There are more than 20 lines of data, ▼▲ arrears at the bottom of the screen for indicating there are more information. You can scroll down/up the screen by clicking [SCROLL] when ▼ or ▲ exists on the screen.

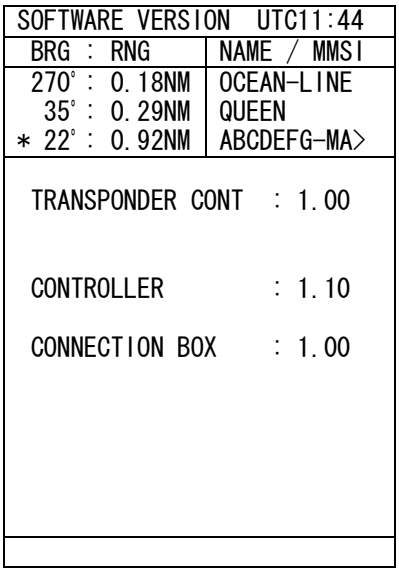
Select [EXIT] at the bottom or press CLR key, and you can go back to Maintenance Menu.



Power ON/OFF LOG screen

5.3.5.6. Software Version

When 6.SOFTWARE VERSION is selected from Maintenance Menu, the version information of the software of each part are displayed.

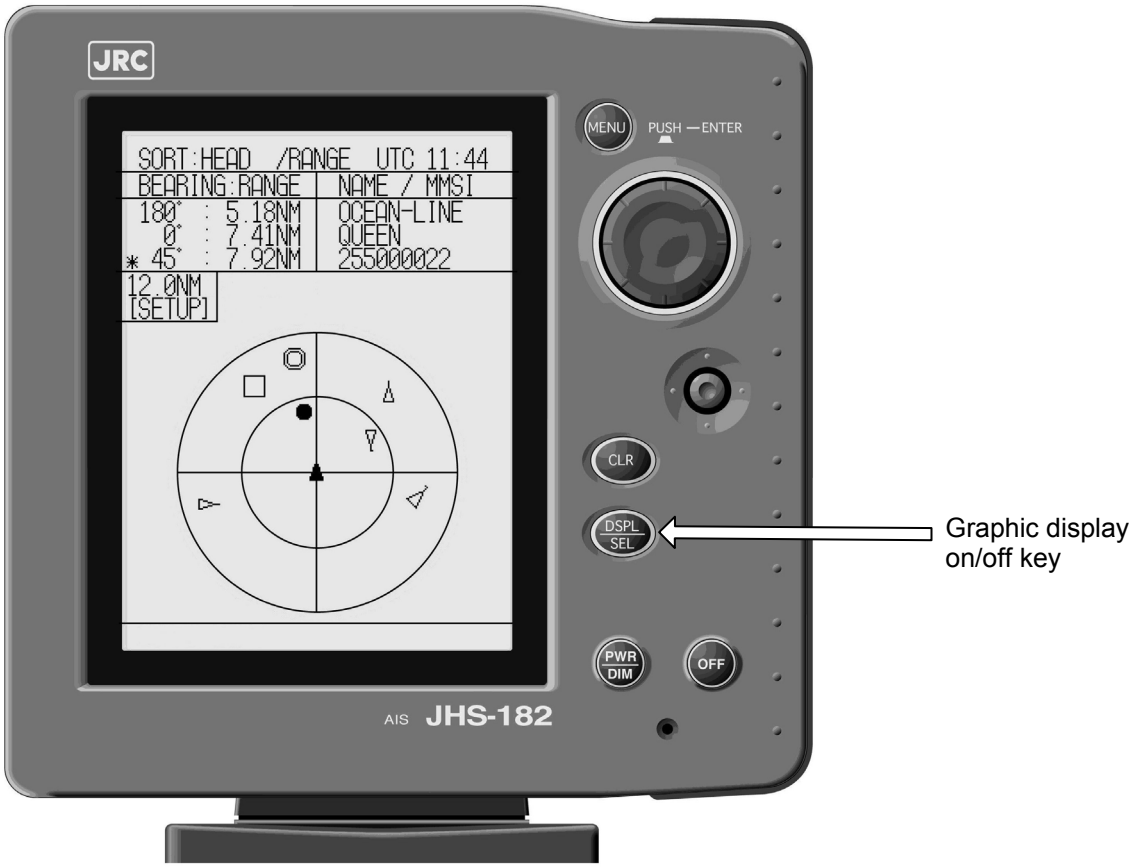


Software Version Screen

Select [EXIT] at the bottom or press CLR key, and you can go back to Maintenance Menu.

5.4 Graphic Display Function

5.4.1 Operation keys for Graphic Display Function



NCM-779 Panel and Graphic Display

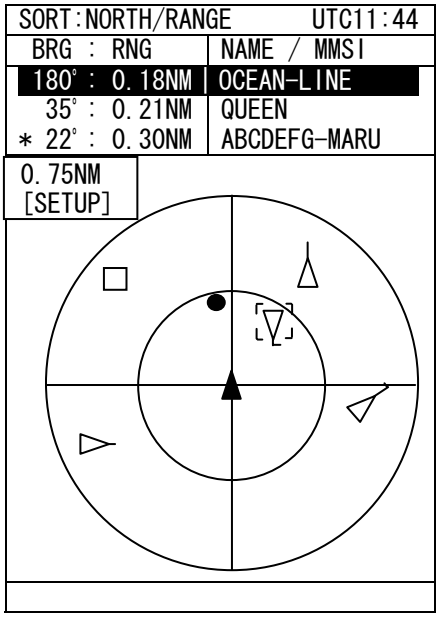
5.4.2 Operating Graphic Display

Press [DSPL/SEL] key, then the display is alternated between text display and graphic display.

SORT:NORTH/RANGE	UTC11:44
BRG : RNG	NAME / MMSI
180° : 0.18NM	OCEAN-LINE
55° : 0.21NM	QUEEN
* 0° : 0.30NM	ABCDEFG-HIJK>
121° : 0.34NM	498755431
52° :12.47NM	AABBCCDD243
010° :99.99NM	111111111
111° :99.99NM	111111112
001° :99.99NM	111111113
000° :99.99NM	111111114
222° :99.99NM	111111115
223° :99.99NM	111111116
224° :99.99NM	111111117
225° :99.99NM	111111118
▼228° :99.99NM	111111123
N 35° 32.8484	SOG 15.2KT
E 123° 45.2264	COG 44.4°
TOTAL:128	CURSOR: 1

Text display (Other Ship list)

[DSPL/SEL] key

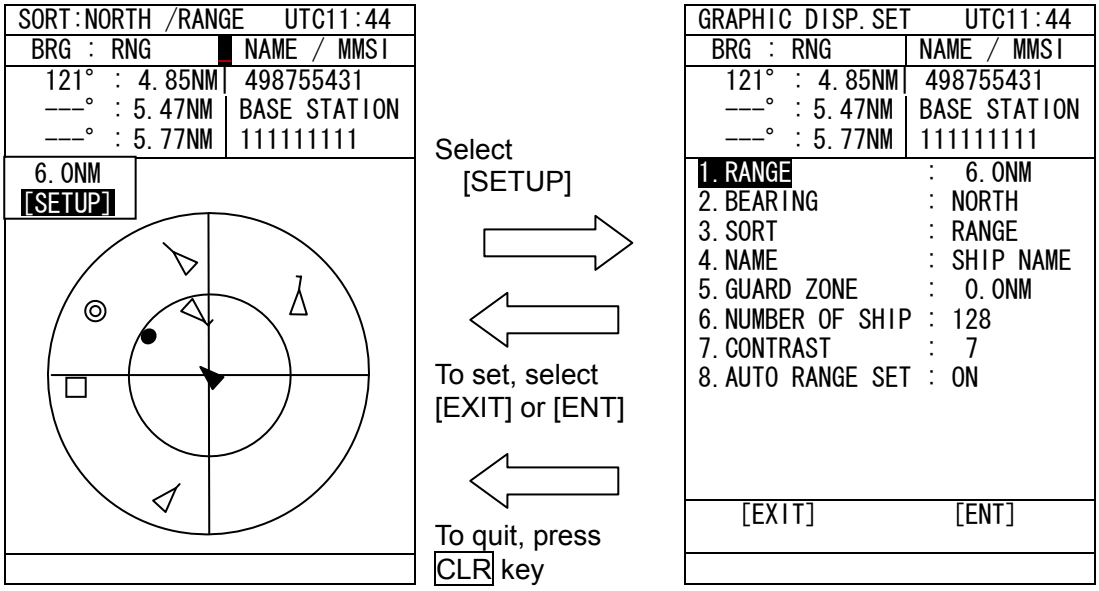


Graphic display

5.4.3 Operation

5.4.3.1 SETUP menu

Pressing [CLR] key with selecting own ship moves the cursor to the SETUP window.
Pressing the Jog Dial with selecting [SETUP] displays the SETUP menu of graphic display.



Graphic display

Setup menu of Graphic display

5.4.3.2 SETUP details

(1) RANGE scale
Outside circle scale and inside circle scale are followings.

RNG [NM]	Outside Scale [NM]	Inside Scale [NM]
0.75	0.75	0.375
1.5	1.5	0.75
3.0	3.0	1.5
6.0	6.0	3.0
12.0	12.0	6.0
24.0	24.0	12.0

(2) BEARING
Select the BEARING base from NORTH UP and HEAD UP.
HEAD UP : Other ship's bearing are displayed on the own ship's bearing base.
NORTH UP : Other ship's bearing are displayed on the north base.

(3) SORT
Select the sort item from RANGE, TCPA, and GROUP for text display of other ship list.
RANGE : Other ships are listed in the order of small range from own ship.
TCPA : Other ships are listed in the order of small TCPA with own ship.
GROUP : Other ships are listed with the priority for own group ships.

(4) NAME
Select the NAME from SHIP NAME and MMSI for text display of other ship list.

(5) GUARD ZONE range
Set GUARD ZONE range for guard zone alarm.
The maximum range is 99.9 nautical miles (NM).
If it is set as 0.0NM, the range alarm does not work.

(6) NUMBER OF SHIPS
Number of displayed ship can be limited to see easily.
Select NUMBER OF SHIPS to limit maximum number of displayed other ship from 22, 32, 64, and 128.

(7) CONTRAST
Set the contrast of the display between 1 and 13.

(8) AUTO RANGE SET function
Set the AUTO RANGE SET function ether ON or OFF.
When this function set ON, graphic display RANGE is change to display the furthest distance ship.

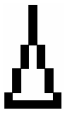
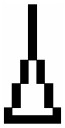
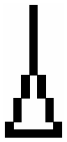
Select [ENT] and press the Jog dial after above setting is finished, then the Graphic display appears.

5.4.3.3 Symbol display

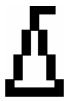
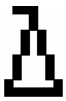
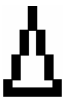
(1) Heading: The direction of symbol indicates the ship's heading with 45 degrees steps as follows.

Heading [deg]	337.6 ― 22.5	22.6― 67.5	67.6― 112.5	112.6― 157.5	157.6 ― 202.5	202.6 ― 247.5	247.6 ― 292.5	292.6 ― 337.5	
Symbol									

(2) Speed over ground (SOG): The length of vector indicates the ship's SOG as follows.

SOG [knot]]	0.0	0.1― 14.0	14.1― 23.0	23.1―	
Symbol					

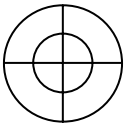
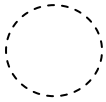
(3) Rate of turn (ROT): The flag on vector indicates the ship's ROT (turning direction) as follows.

ROT	+ (Right)	― (Left)	0
Symbol			

(4) Other symbols

Status	Symbol
Own ship	
Other ship	
Base Station	
Non COG / non HDG	
Waypoint	
Lost target	
Lost target (Non COG / non HDG)	
Selected target	

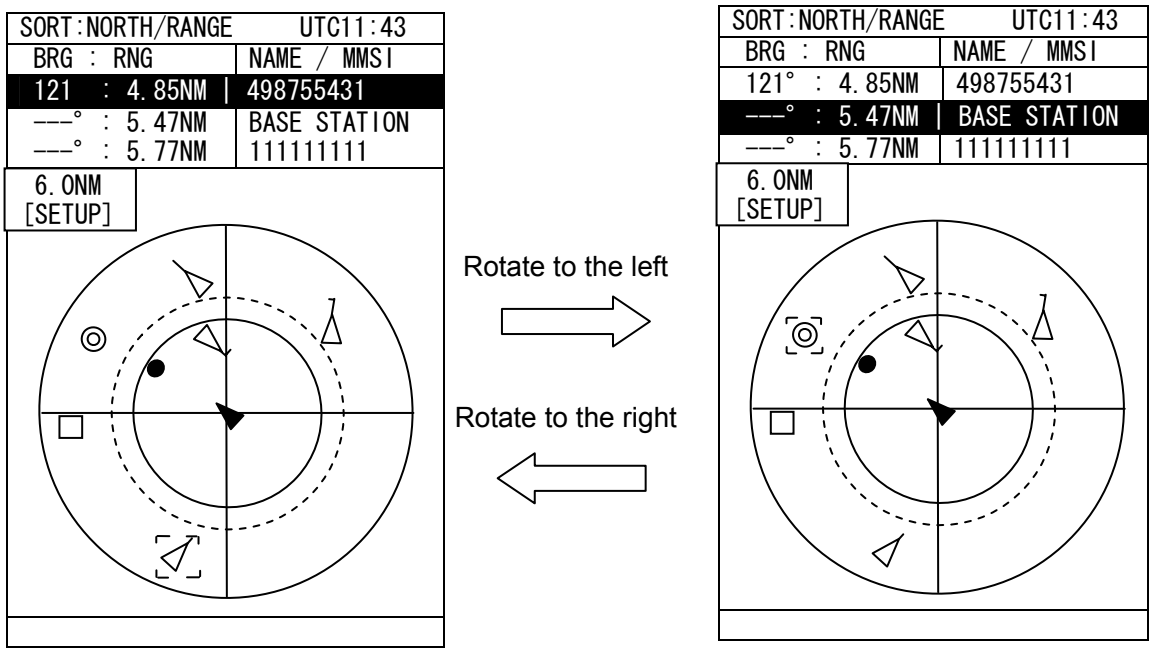
(5) Displayed circle line

Type	Line	note
Range scale circle		Inside circle is half of outside circle. **1NM=1852m**
GUARD ZONE range circle		When GUARD ZONE is set validly.

5.4.4 Cursor control in the graphic display

To select the ship in the Graphic display, rotate the Jog Dial or press the Joy Stick.

(1) Jog Dial
Rotating the Jog Dial moves the cursor in order of the ships list.
Pressing CLR key moved the cursor to the own ship.



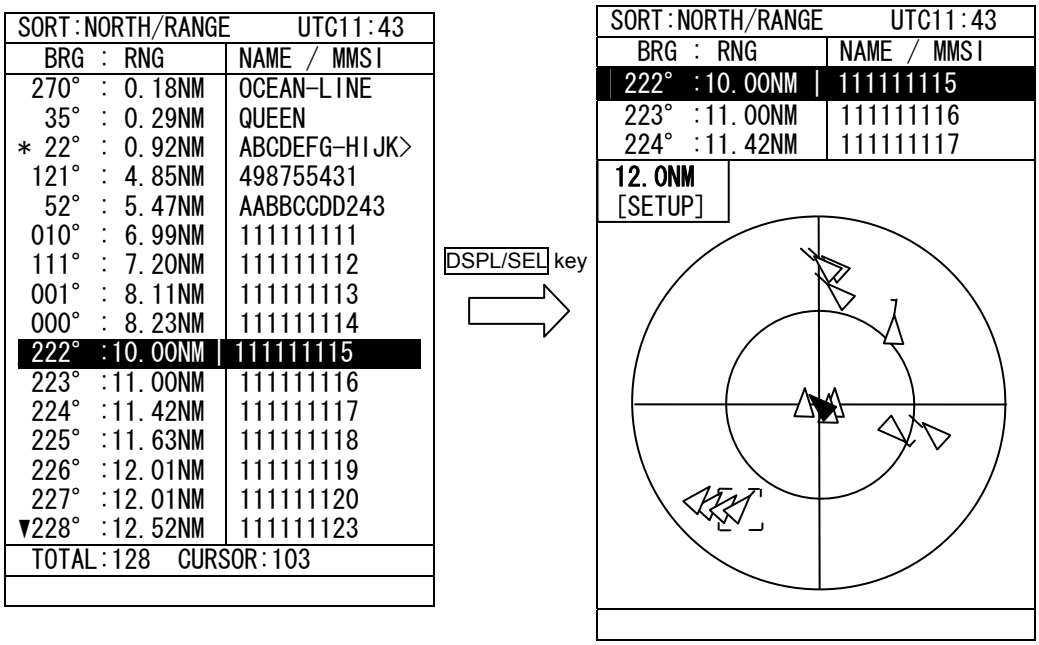
(2) Joy Stick
Pressing the Joy Stick to up/ down/right/left moves the cursor to the up/ down/right/left ship.
Pressing CLR key moved the cursor to the own ship.

5.4.5 Auto Range Set Function

When ‘AUTO RANGE SET’ in setup menu is valid, operate as follows.

- The other ship on ‘OTHER SHIPS LIST’ screen of a larger range than the range of setup menu in Graphic display is selected.
- Press [DSPL/SEL] key, and change to Graphic display.
- If the selected other ship is less than 24 NM, the range of Graphic display change to the range in which the selected ship is displayed automatically.

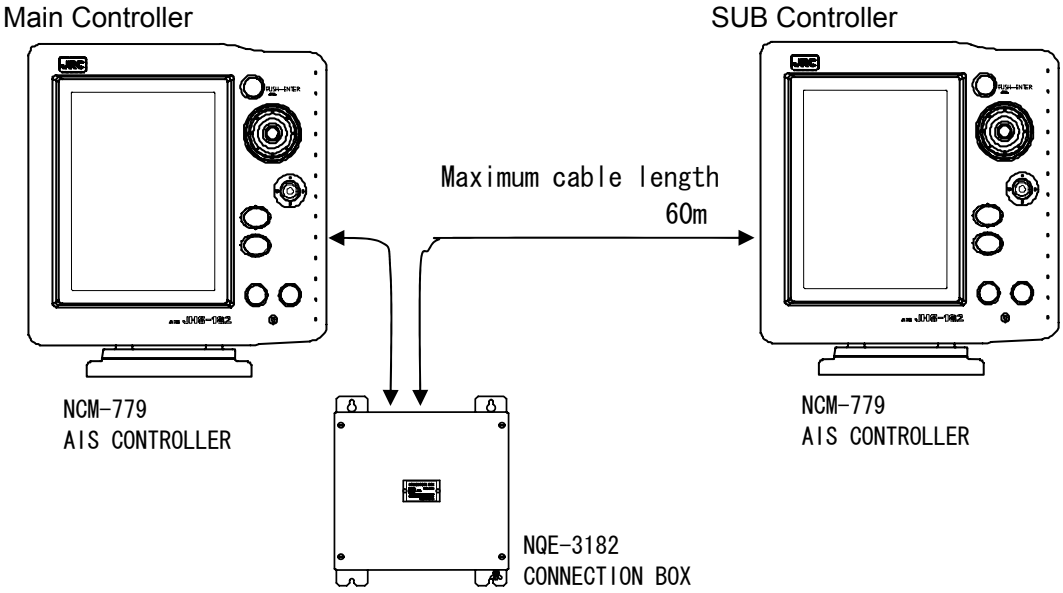
Ex) When the range of 0.75NM is set up, the ship of 10NM (range) is selected on ‘OTHER SHIPS LIST’ screen.
Press [DSPL/SEL] key, When Graphic display is displayed, a range value changes to ‘12NM’.



5.5 SUB Controller Function

5.5.1 Outlines

JHS-182 can be added AIS controller as the SUB controller.
The SUB controller is possible to operate except the thing that the self diagnosis of the transponder and the connection box can not be executed.



Note: For the connection of SUB controller, either AUX1 or AUX3 is available.
When you add a controller, please consult our service center or agents.

5.5.2 Menu Restriction

The SUB controller restricts use about the following.

・Maintenance menu : 'SELF DIAGNOSIS'

Only the 'CONTROLLER' can be selected in SELF DIAGNOSIS menu. The SUB controller can diagnose.
And **only the 'CONTROLLER**' can be selected in 'SELF DIAGNOSIS LOG' menu.

5.5.3 Precaution For Use

1. The SUB controller can not turn off the power of Main controller, AIS Transponder and Connection box.

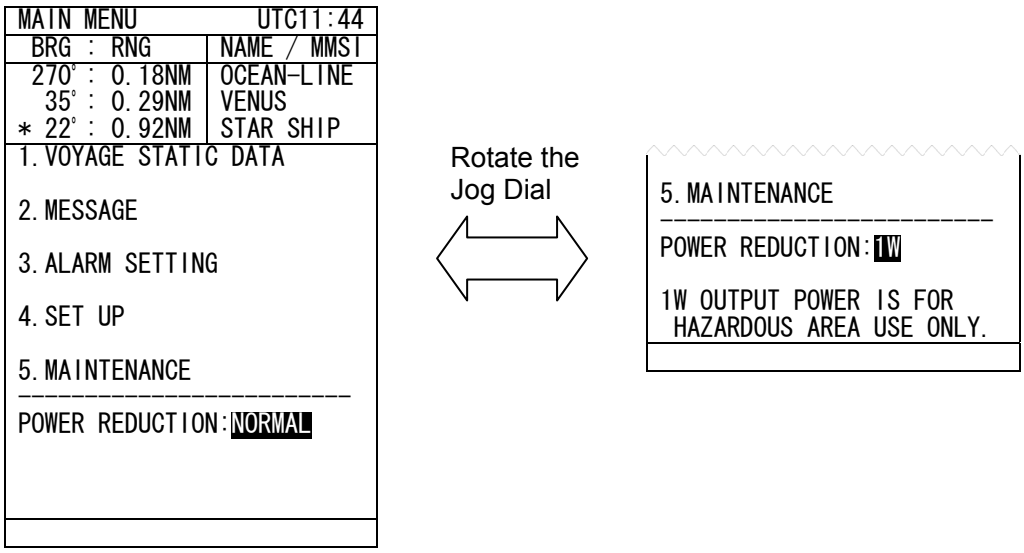
2. If Main controller is turned off the power, The SUB controller can not be turned off the power.

5.6 1W power reduction setting of transmission output power (OPTION)

The tanker which applied ISGOTT

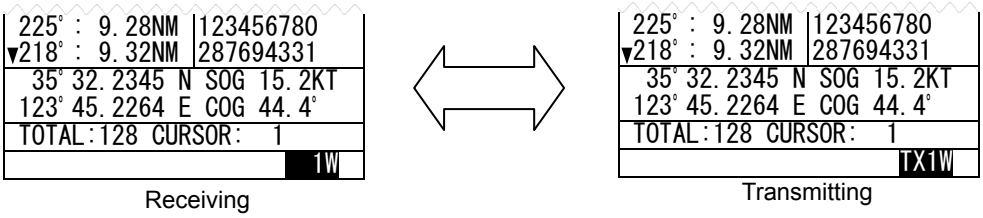
Transmission output power can be set to 1 W at display of “POWER REDUCTION” in the MAIN MENU when 1W transmission function is installed. Transponder operation switches back automatically from 1 W operation to normal power operation when the ship has moved more than 0.25 NM from the position where the 1W operation started.
(During the transponder can’t be get valid position data, It doesn’t switch back automatically from 1W operation to normal power operation.)

a) Transmission output power setting
Press the MENU key to display the Main Menu.
Select “POWER REDUCTION”, and then press the Jog dial.
Rotate the Jog dial to select “1W”, and then press the Jog dial.
NORMAL: Normal power operation
1W: 1W power operation

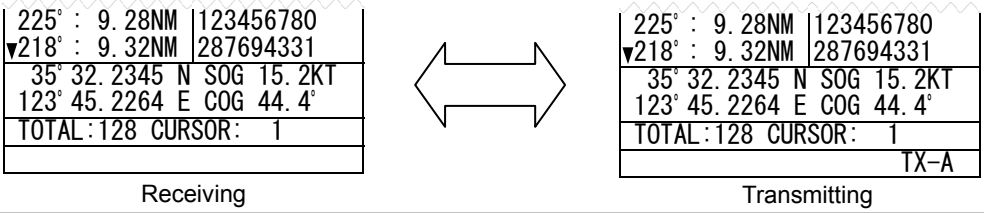


b) 1W indication on the status line
When the transponder transmits in normal power operation, the transmission status “TX-A” or “TX-B” is displayed in the status line.
On the other hand, during 1 W operation, “ 1W” is displayed in the status line. When the transponder transmits in 1 W operation, “TX1W” is displayed in the status line. (“TX” is indicated for one second)

[1W power operation]



[Normal power operation]



Caution: Be sure to confirm that "POWER REDUCTION" is set to "NORMAL" during normal operation. 1W operation can not communicate with distant stations.

6. MAINTENANCE AND INSPECTION

The performance and longevity of this equipment depend on careful maintenance. To maintain the best performance, the following periodic inspections are highly recommended.

(1) Keep the power supply voltage within the specified value (19-35Vdc).
(2) Know the condition of normal status when the equipment is properly functioning. Keep comparing the current status to the normal status to immediately detect any malfunctions.

⚠WARNING

Do not attempt to service the interior of this equipment with the exception of qualified service personnel, as doing so may cause fire, electric shock or malfunction. If any malfunctions are detected, contact our service center or agents.

6. 1 General Maintenance and Inspection

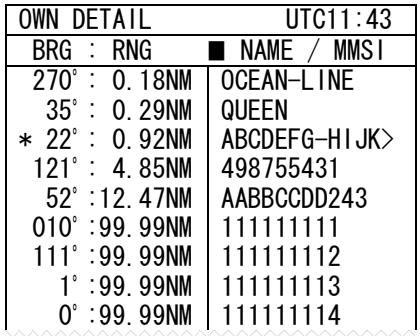
Below are listed general maintaining and inspecting items, which can be done with usual tools and apparatus.

No.	Item	Maintenance and inspection
1	Cleaning	Gently clean the surface of the panel, knobs, switches, and cover with soft cloth or silicon oil. No oil is needed because this unit has no moving mechanisms inside.
2	Looseness of parts	Inspect for looseness and correctly tighten the following: Screws, nuts, knobs, switches and connectors.
3	Fuse	When checking and replacing the fuse, be sure the power is off. If the power source fuse is blown, be sure to inspect the cause before replacing the blown fuse with a new one.
4	Unit	Check whether there are not discoloration of the part which is mounted to the unit, burnout and so on. When exchanging a unit, contact our service center or agents.

6. 2 Periodic Inspection

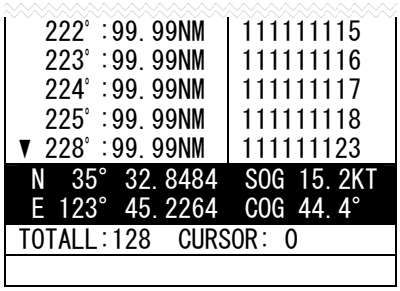
6.2.1 Confirming the Own Ship's Information

Display own ship's detail information and be sure that the static (ship name, MMSI etc.) and dynamic (position, heading etc.) information is correct. To display own ship's detail information, please select own ship in the Other Ships List display, and then press the Jog Dial.



OWN DETAIL	UTC11:43
BRG : RNG	■ NAME / MMSI
270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-HIJK>
121° : 4.85NM	498755431
52° :12.47NM	AABBCCDD243
010° :99.99NM	111111111
111° :99.99NM	111111112
1° :99.99NM	111111113
0° :99.99NM	111111114

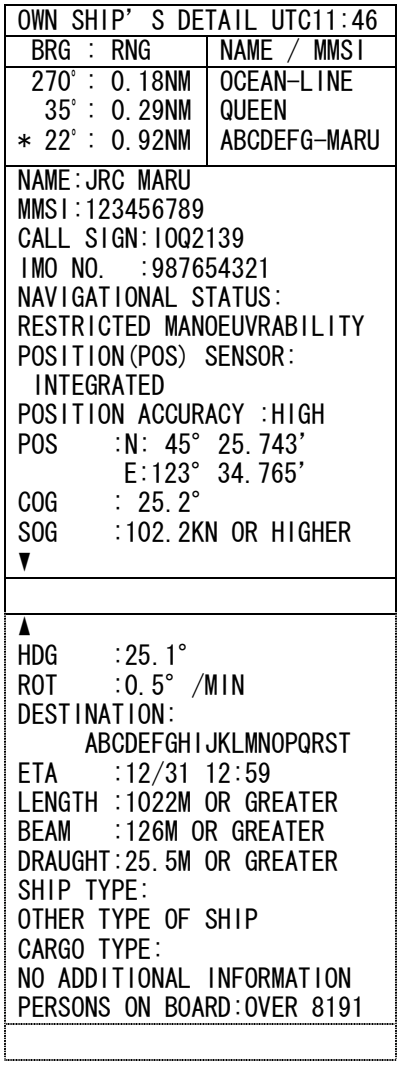
Display without own ship's information



222° :99.99NM	111111115
223° :99.99NM	111111116
224° :99.99NM	111111117
225° :99.99NM	111111118
▼ 228° :99.99NM	111111123
N 35° 32.8484	SOG 15.2KT
E 123° 45.2264	COG 44.4°
TOTALL:128	CURSOR: 0

Display with own ship's information

Selecting own ship in Other Ships List display



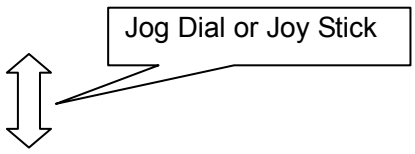
OWN SHIP' S DETAIL	UTC11:46
BRG : RNG	NAME / MMSI
270° : 0.18NM	OCEAN-LINE
35° : 0.29NM	QUEEN
* 22° : 0.92NM	ABCDEFG-MARU

NAME:JRC MARU
MMSI:123456789
CALL SIGN:IOQ2139
IMO NO. :987654321
NAVIGATIONAL STATUS:
RESTRICTED MANOEUVRABILITY
POSITION(POS) SENSOR:
INTEGRATED
POSITION ACCURACY :HIGH
POS :N: 45° 25.743'
E:123° 34.765'
COG : 25.2°
SOG :102.2KN OR HIGHER
▼

▲
HDG :25.1°
ROT :0.5° /MIN
DESTINATION:
ABCDEFGHIJKLMNOPQRST
ETA :12/31 12:59
LENGTH :1022M OR GREATER
BEAM :126M OR GREATER
DRAUGHT:25.5M OR GREATER
SHIP TYPE:
OTHER TYPE OF SHIP
CARGO TYPE:
NO ADDITIONAL INFORMATION
PERSONS ON BOARD:OVER 8191

Own Ship's Detail Information

Rotating the Jog Dial or pressing downward / upward the Joy Stick displays the next page / the previous page.



Pressing CLR key returns to Other Ships List display.

6.2.2 Confirming the TRX Channel

Display the TRX (transponder) condition and be sure that the TRX Channel information is correct. To display the TRX condition, please select “Main Menu” → “5. MAINTENANCE” → “2. TRX CONDITION”.

In case international frequencies are used, the information is displayed as below.

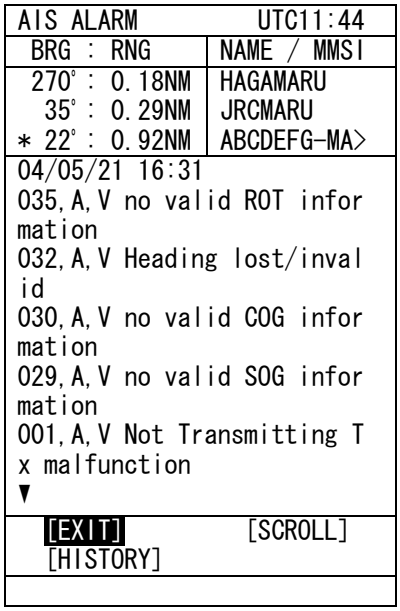
```
TRX CONDITION     UTC11:44
 BRG : RNG      | NAME / MMSI
 270° : 0.18NM  | OCEAN-LINE
  35° : 0.29NM  | QUEEN
* 22° : 0.92NM  | ABCDEFG-MARU
1.CH A       : 2087 WIDE
  CH B       : 2088 WIDE
  TX/RX MODE: TX/RX, TX/RX
              (CH A, CH B)
  TX POWER   : HIGH
  ZONE SIZE : 5NM
  AREA (NE) :N    °   .   ’
             W    °   .   ’
  AREA (SW) :N    °   .   ’
             W    °   .   ’
  SOURCE:
  MMSI   :
  UTC    :
▼
```

In case local frequencies are used, the information is displayed as below.

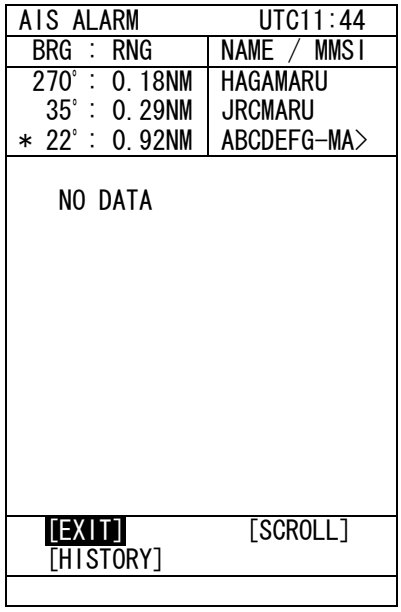
```
TRX CONDITION     UTC11:44
 BRG : RNG      | NAME / MMSI
 270° : 0.18NM  | OCEAN-LINE
  35° : 0.29NM  | QUEEN
* 22° : 0.92NM  | ABCDEFG-MARU
1.CH A       : 1087 NARROW
  CH B       : 2084 WIDE
  TX/RX MODE:   /RX, TX/RX
              (CH A, CH B)
  TX POWER   : LOW
  ZONE SIZE : 4NM
  AREA (NE) :N  36°00.00’
             W 139°40.00’
  AREA (SW) :N  35°30.00’
             W 139°20.00’
  SOURCE: BROADCAST MSG22
  MMSI   : 123456789
  UTC    : 2004/12/21 16:45
▼
```

6.2.3 Confirming the Alarm Status

Display the AIS alarm status and be sure that the alarm is none. To display the AIS alarm status, please select “Main Menu” → “5. MAINTENANCE” → “3. AIS ALARM”.
Buitl-in integrity test (BIIT) is always working during AIS equipment operation to watch over any alarms and it notifies with the screen and the buzzer when it detect any alarm. After the automatic displayed alarm screen is closed by pressing CLR key, the current AIS alarm can be confirmed with the AIS alarm status screen.



The present alarm occurrence status



The status which doesn't have an alarm

If any alarms occur, please confirm the alarm occurrence conditions with the alarm table.

JHS-182 Alarm Table

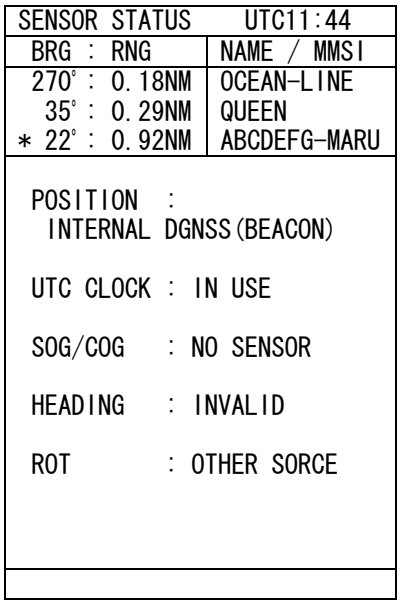
Failure alarm (ALR sentence output)

Alarm No.	Indication	Alarm Occurrence Conditions
006 052	general failure Tx power supply error	The voltage became abnormal during transmission because of PA failure.
006 053	general failure Power supply error	The voltage became abnormal during reception because of PA failure.
001 054	Tx malfunction Pa current error	The PA collector current became abnormal during transmission.
001 055	Tx malfunction Pa temp error	The PA temperature became abnormal during transmission.
002 051	Antenna VSWR exceeds limit Tx power down	Computed result of VSWR is 3 or greater but no greater than 4 during rated transmission output or transmission level is lowered.
001 002	Tx malfunction Antenna VSWR exceeds limit	The computed result of VSWR is 4 or greater.
001 057	Tx malfunction Vr error	The antenna is open or broken.
001 060	Tx malfunction Tx pll unlock	The TX synthesizer is unlocked.
056	Tx power too low	Tx power level is too low.
058	Tx stop interrupt	Transmission was stopped forcibly.
059	Tx power too high	Tx power level is too high.
003	Rx channel 1 malfunction	The RX CH A synthesizer is unlocked.
004	Rx channel 2 malfunction	The RX CH B synthesizer is unlocked.
005	Rx channel 70 malfunction	The RX CH70 synthesizer is unlocked.
008	MKD connection lost	Communication between the transponder and controller is failed. (Transponder generates the alarm.) AIS Transponder setting is initialized.
064	mkd connection lost	Communication between the transponder and controller is failed. (Controller generates the alarm.)
025	external EPFS lost	The any of following commands has not been entered from the external sensor or data is invalid. GNS, GLL, GGA, RMC
026	no sensor position in use	The internal GPS is invalid and any of the following commands has not been entered from the external sensor or data is invalid. GNS, GLL, GGA, RMC
029	no valid SOG information	The internal GPS is invalid and any of the following commands has not been entered from the external sensor or data is invalid. VBW, VTG, OSD, RMC
030	no valid COG information	The internal GPS is invalid and any of the following commands has not been entered from the external sensor or data is invalid. RMC, VTG, OSD
032	Heading lost/invalid	Any of the following commands has not been entered from the external sensor or data is invalid. HDT, OSD, HDG
035	no valid ROT information	Any of the following commands has not been entered from the external sensor or data is invalid. HDT, OSD, HDG, ROT
062	Program flash memory error	The flash memory for programs is abnormal.
063	Data flash memory error	The flash memory data is abnormal.

6.2.4 Confirming the Conditions of the Sensors

Display the sensor status and be sure that the sensor is working, being good. To display the sensor status, please select “Main Menu” → “5. MAINTENANCE” → “4. SENSOR STATUS”.

POSITION: Be sure that the indicated status is not NO SENSOR.
UTC CLOCK: Be sure that the indicated status is IN USE. (It takes some time before IN USE appears in case the power has been off for a long time.)
SOG/COG: Be sure that the indicated status is not NO SENSOR.
HEADING: Be sure that the indicated status is not INVALID.
ROT: Be sure that the indicated status is not NO SENSOR.



The variation of the sensors’ conditions is tabulated below.

Sensor	Indication	Sensor’s Condition
POSITION	EXTERNAL DGNSS	The external DGNSS is in use.
	EXTERNAL GNSS	The external GNSS is in use.
	INTERNAL DGNSS (BEACON)	The internal DGNSS (beacon) is in use.
	INTERNAL DGNSS (MSG.17)	The internal DGNSS (message 17) is in use.
	INTERNAL GNSS	The internal GNSS is in use.
	NO SENSOR	The position data is not yet entered or invalid.
UTC CLOCK	IN USE	The internal GPS compensates PPS.
	LOST	The internal GPS has not compensated PPS.
SOG /COG	EXTERNAL	The external SOG/COG is in use
	INTERNAL	The internal SOG/COG is in use
	NO SENSOR	The SOG/COG data are not yet entered or invalid.
HEADING	VALID	Heading data are entered.
	INVALID	Heading data are not yet entered.
ROT	IN USE	During input from a rate-of-turn indicator.
	OTHER SOURSE	During input from other than the rate-of-turn indicator.
	NO SENSOR	The ROT data are not yet entered or invalid.

6. 3 Trouble Shootings

6.3.1 Trouble Shootings

⚠WARNING

Do not attempt to service the interior of this equipment with the exception of qualified service personnel, as doing so may cause fire, electric shock or malfunction. If any malfunctions are detected, contact our service center or agents.

For reference, this section presents a troubleshooting guideline for finding defective sections.

Symptom of Error	Possible Cause or Cause of Fault	Countermeasures
Power is not supplied when the power switch is pressed.	Power is not distributed from the inboard distribution panel.	Supply power from the distribution panel.
	Power is not supplied from the power supply unit.	Check that the wiring of the power unit is correct. Check that the output voltage of the power unit is correct.
	Power that the power unit supplies is out of range.	Replace the power unit.
	Power is not supplied to the DC-DC converter in the connection box.	Supply power.
	The fuses in the connection box are blown out.	Check that the wiring is correct and replace the fuses.
	The power supplied by the DC-DC converter in the connection box is outside the range.	Replace the CDJ-3182 circuit board.
	Power is not supplied from the DC-DC converter in the connection box.	Check that the power switch in the Connection Box is ON. Replace the CDJ-3182 circuit board.
	The IC in the AIS controller power circuit is broken.	Replace the CDJ-2779 circuit board.
	The power supply cable of the transponder is broken.	Replace the power supply cable of the transponder.
	The IC in the transponder power circuit is broken.	Replace the AIS transponder.
	The controller switch is broken.	Replace the switch panel.
The transponder software version is -.--.	The transponder power is not turned on.	Check the transponder cable.
No response after depressing a key on the operation panel.	The panel unit malfunctions.	Replace the CCK-2779 circuit board.
	The control unit malfunctions.	Replace the CDJ-2779 circuit board.
Some dots are missing on the LCD.	The LCD malfunctions.	Replace the LCD.
	The control unit malfunctions.	Replace the CDJ-2779 circuit board.
No alarming sound is generated.	The buzzer malfunctions.	Replace the CDJ-2779 circuit board.
	The control unit malfunctions.	

Symptom of Error	Possible Cause or Cause of Fault	Countermeasures
The illumination does not light.	The control unit malfunctions.	Replace the CDJ-2779 circuit board.
	The LCD malfunctions.	Replace the LCD.
No AIS message is received.	The transponder power supply is not turned on.	Turn on the transponder power unit.
	The whip antenna is damaged.	Replace the whip antenna.
	The following alarm number appears: 003, 004, or 005. The synthesizer in the receiving circuit is unlocked.	Replace the transponder.
No AIS message is transmitted.	The following alarm number appears.	Replace the transponder.
	001, 052, 53: Power circuit fault	
	001, 054: PA collector current abnormal	
	001, 055: PA temperature abnormal	
	001, 058: PA protection circuit operated	
	001, 060: TX synthesizer unlock operated	
	003, 004, 005: RX synthesizer unlock operated	
	001, 057: Antenna not connected	Check that the antenna is connected. Check setting of the external and internal antennas.
	001, 002: VSWR abnormal	Check that the antenna is connected. Check that there are no objects around the antenna. Replace the antenna and check for normal transmission.
Sensor data (external GPS, gyro, and rate-of-turn) cannot be loaded.	The polarity of the serial cable is incorrect.	Check if the polarity is correct and connect it.
	The interface between the sensor and connection box is incorrect.	Check if the interface is correct before its connection.
	The sentence that the sensor generates is not supported by the AIS.	Check the output command and the version.
	The serial format (baud rate, etc.) does not meet the setting of the controller.	Check the serial format of the sensor.
	The sentence that the sensor generates does not match the sentence setting of the controller.	Check the serial format of the sensor.
	The valid/invalid sensor data flag is invalid.	Check if the sensor is working correctly.
	The sensor (GPS, gyro, rate-of-turn indicator) malfunctions.	Replace the sensor.
	The control unit malfunctions.	Replace the CDJ-3182 circuit board.

Symptom of Error	Possible Cause or Cause of Fault	Countermeasures
Internal GPS data cannot be loaded.	Execute TEST2 of self-diagnosis. PPS GPS malfunctions in displaying GPS-INFO.	Replace the AIS transponder.
	Execute self-diagnosis of the transponder. The receiving level of PPS GPS from the satellite is low in displaying GPS.	Check the external GPS-receiving status from the satellite when the external GPS is provided.
NSK UNIT menu is displayed.	The own ship's heading is not entered.	Enter the own ship's heading.
'ERR' is displayed in the NSK UNIT menu.	The cable of the NSK UNIT is broken.	Replace the cable of the NSK UNIT.
	The polarity of the cable between the NSK UNIT and GYRO is incorrect.	Check if the polarity is correct and connect it.
	The CMJ-3182 is malfunction.	Replace the CMJ-3182 NSK UNIT.

6.3.2 Maintenance Units

Maintenance units for repair are followings.

No.	Unit Name	Model	Note
1	AIS Transponder	NTE-182-2	Transponder (CAV-2180 is unattached.)
2	VHF Antenna	CAV-2180	Whip antenna
3	I/O CONTROL	CDJ-3182	Circuit board for NQE-3182
4	TERMINAL UNIT	CQD-3182	Circuit board for NQE-3182
5	PANEL UNIT	CCK-2779	Circuit board for NCM-779
6	CONTROL UNIT	CDJ-2779	Circuit board for NCM-779
7	NSK UNIT	CMJ-3182	NSK UNIT
8	Power Supply unit	NBD-577C	Power supply unit
9	Spare parts	7ZXJD0049	Fuse

6.3.3 Spear parts for periodic maintenance

Spear parts for periodic maintenance are followings.

No.	Unit Name	Code	Decline period	Note
1.	LCD Unit	CDE-1779	40,000 hours	5 years in continuous operation
2.	VHF Antenna	CAV-2182	About 5 years	Whip antenna

7. AFTER-SALES SERVICE

Warranty

- Warranty period is one year from the purchase day.

Warranty

- Keeping period of maintenance parts is ten years from the production halt.

Before returning repair

If what appears to be a defect is detected, refer to “6.3 Troubleshooting” to check if the equipment is actually defective before requesting repair.
If the defect persists, immediately stop operation and call our service center or agents.

- During the warranty period, our agencies or we will repair the malfunction without any fee, according to the specified procedure.
- After the warranty expires, we will repair the malfunction for a fee, if repair is possible.
- Item for notification
  Product name, type, manufactured data, serial number,
  information about the malfunction (the more detailed, the better),
  information about the alarm number and software version,
  your company or organization name, address and phone number.

Periodical maintenance recommended

Performance of this equipment may degrade over time because parts wear out, although degradation depends on how this unit has been maintained.
We recommend periodic professional maintenance checks in addition to daily maintenance.

Call our service center or agents for periodic professional maintenance (This maintenance requires a service charge).

Call our office or the nearest agency for detailed information about after-sales service.

8. SPECIFICATIONS

8.1 General (JHS-182)

(1) Rated power supply voltage : 24Vdc (19 – 35Vdc)
(2) Current consumption : 4.5A max. when transmitting
: 1.5A max. when receiving

8.2 AIS TRANSPONDER (NTE-182)

(1) Frequency range : 156.025MHz to 162.025MHz,
: Default channels: 161.975MHz, 162.025MHz
(2) Channel spacing : 25kHz/12.5kHz
(3) Frequency accuracy : Within $\pm 3 \times 10^{-6}$
(4) Type of emission : G1D (FiD), G2B (F2B)
(5) Type of modulation : GMSK, FSK
(6) Output power : 12.5W/2W
(7) Operating temperature : -25°C to +55°C (IEC 60945)

8.3 AIS CONTROLLER (NCM-779)

8.3.1 Operation panel

(1) Type of display : 5.7-inch FSTN LCD, 320×240 dots
(2) Keyboard : 7 keys
(3) Back-light : For LCD and keyboard
(4) Dimmer control : Bright, medium1, medium2, off (Selectable from keyboard)

8.3.2 Environmental condition

(1) Operating temperature : -15°C to +55°C (IEC 60945)

8.3.3 External interfaces

(1) Connection Box communication ports
One communication port meets the requirements of IEC 61162-2.
(2) External display equipment communication ports with Pilot Plug
One communication port meets the requirements of IEC 61162-2
(3) Maintenance ports
One communication port meets the RS-232C (D-sub 9pin).

8.4 CONNECTION BOX (NQE-3182)

8.4.1 Environmental condition

(1) Operating temperature : -15°C to +55°C (IEC 60945)

8.4.2 External interfaces

(1) Sensor data input ports SENSOR1-1 / SENSOR2-1/ SENSOR3-1/ SENSOR4-1
Four input ports meet the requirements of IEC 61162-1.

(2) Sensor data input ports SENSOR1-2 / SENSOR2-2/ SENSOR3-2
Three input ports meet the requirements of IEC 61162-2.

(3) Gyro data input port SENSOR1-1
One input port receives external NSK unit NCT-27

(4) External display equipment communication ports AUX1 / AUX3
Two communication ports meet the requirements of IEC 61162-2

(5) External display equipment output ports AUX2 / AUX4
Two output ports meet the requirements of IEC 61162-2

(6) Long range communication port LONGRANGE
One communication port meets the requirements of IEC 61162-2

(7) GNSS differential correction data input port SENSOR4-1
One input port meet the requirement of ITU-R M.823-2 on TTL level

(8) Relay terminals ALR
One port for external alarm device

Note: IEC61162-2 interfaces comply with the following specifications.
- Output drive capacity: Differential driver output voltage is 2.0V or more (RL=100 ohms), Driver output current 50mA
- Load on the line of inputs: 100 ohms. 1 IEC61162-2 output can drive 1 IEC61162-2 input.
- Electrical isolation of input circuits: Input circuits are electrically isolated from internal circuit with opt-isolator.

8.4.3 Supported interface sentences

	Indication	Sentence format	Supported sentence formatters		
1.	SENSOR1-1 SENSOR2-1 SENSOR3-1 SENSOR1-2 SENSOR2-2 SENSOR3-2	IEC61162-1/2	Input data	Recommend	Optional
			Longitude/Latitude Position Accuracy Time of Position	GNS GLL	GGA RMC
			Datum Reference	DTM	
			RAIM Indicator	GBS	
			Speed Over Ground (SOG)	VBW	VTG OSD RMC
			Course Over Ground (COG)	RMC	VTG OSD
			Heading	HDT	OSD
			Rate of Turn (*1)	ROT	
	SENSOR4-1	ITU-R M.823-2	Input: RTCM SC-104 Ver.2.0 Type 1, 2, 7, 9		
2.	SENSOR1-1	IEC61162-1	Input: VHW		
3.	AUX1 AUX3	IEC61162-2 IEC61993-2	Input: ABM, ACA, ACK, AIR, BBM, LRI, LRF, VSD, SSD(AUX1,AUX3) Output: ABK, ACA, ALR, DSC, DSI, LRF, LR1, LR2, LR3, TXT, VDO, VDM		
4.	AUX2 AUX4	IEC61162-2 IEC61993-2	Output: ABK, ACA, ALR, DSC, DSI, LRF, LR1, LR2, LR3, TXT, VDO, VDM		
5.	LONGRANGE	IEC61993-2	Input: LRI, LRF Output: LRF, LR1, LR2, LR3		

(*1) Rate of Turn includes errors caused by calculation in the range of +/- 5.6 degree/minute.

8.5 POWER SUPPLY UNIT (NBD-577C - Option)

(1) Input voltage : 100-120 / 200-240 Vdc ±10%, 50/60Hz Single phase
: 24Vdc (Back up power supply)

(2) Output voltage : Typ. 24Vdc (19-35Vdc)

8.6 NSK UNIT (CMJ-3182 - Option)

8.6.1 Environmental condition

(1) Operating temperature: -15°C to +55°C (IEC 60945)

8.6.2 External interfaces

(1) The type of gyro compass

Synchro Type : Gyration ratio - 360X, 180X, 90X, 36X
Primary power source - 50 - 115Vac, 50/60Hz
Secondary power source - 20 - 90Vac, 50/60Hz

Step Type : Gyration ratio - 360X, 180X, 90X, 36X
Power source - 24Vdc / 35Vdc / 50Vdc / 70Vdc

(2) Connection Box communication ports

One communication port meets the requirements of IEC 61162-1.

アスベストは使用しておりません
Not use the asbestos

CODE No.7ZPJD0226A

For further information,contact:

JRC Japan Radio Co.,Ltd.
Since 1915

URL http://www.jrc.co.jp

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Facsimile : +1-206-654-7030
e-mail : service@jrcamerica.com

01ETM ISO 9001, ISO 14001 Certified