JFE-680

Echo Sounder

INSTRUCTION MANUAL

JRC Japan Radio Co., Ltd.

General Information

Thank you for purchasing the JFE-680 Echo-Sounder manufactured by Japan Radio Co., Ltd. The JFE-680 conforms to the IMO (International Maritime Organization) performance standards, enabling seabed displays and digital depth displays.

Before attempting to operate this equipment, please read this instruction manual thoroughly to ensure correct and safe operation in accordance with the warning instructions and operation procedures.

You are strongly recommended to store this instruction manual carefully for future reference. In the event that you have an operational problem or malfunction, this manual will provide useful instructions.

Before You Begin

Symbols Used In This Manual

To ensure that the equipment is used safely and correctly, and that the operator and third parties are not exposed to danger or damage, pictograms are used in this manual and on the equipment itself. These pictograms are described below.
Please familiarize yourself with these pictograms and the meanings they convey before reading the rest of the manual.

⚠ WARNING

Failure to observe a warning indication, leading to incorrect handling, may result in death or serious injury to the operator.

⚠ CAUTION

Failure to observe a caution indication, leading to incorrect handling, may result in injury to the operator, or physical damage to the equipment.

Example Pictograms

This mark is intended to alert the user to the presence of precautions including danger and warning items. The picture in each mark alerts you to operations that should be carefully performed.

This mark is intended to alert the user to the presence of prohibited activity. The picture/word in/beside each mark alerts you to operations that are prohibited.

This mark is intended to alert the user to the presence of necessary instructions. The picture in each mark alerts you to operations that must be performed.

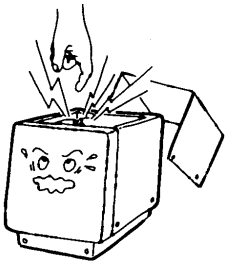
Warning Labels

Warning labels are affixed to the cover of Echo sounder body.
High voltage circuit exists inside the cover. Do not remove the cover.
Do not attempt to remove, damage, or modify, the warning labels.

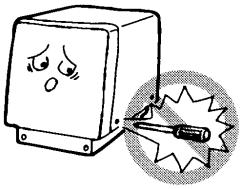
Usage Hints

⚠ WARNING

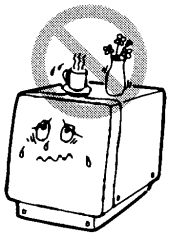
Do not remove the cover of this set. Otherwise, you may touch a high-voltage part and suffer from an electrical shock.



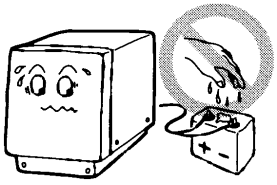
Do not dismantle or modify this equipment. Failure to observe this warning may result in fire, electric shock, or damage.



Do not place any vessels containing water or other liquids, or metal objects, on top of this equipment. If water is spilled on or metal objects fall into the equipment there is a risk of fire, electric shock, or damage.

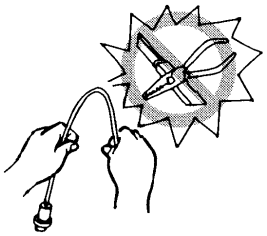


Do not insert or remove the power cord or operate switches with a wet hand.
Otherwise, you may suffer from an electrical shock.

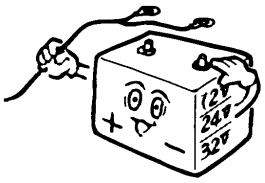


⚠ WARNING

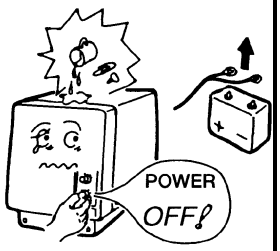
Do not damage, break or modify the power cord.
When a heavy object is placed on the cord or the cord is heated, pulled, or forcibly bent, the cord will be broken resulting in a fire or an electrical shock.



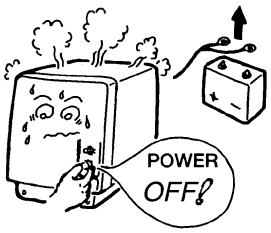
Do not use this set at a voltage other than the supply voltage stated on the set.
Otherwise, a fire, an electrical shock, or a failure may occur.



In the event of water of metal objects falling inside the equipment, immediately turn off the power switch, then contact JRC or its agent.
There is a risk of file or electric shock if you continue to use the equipment.



If you notice smoke, unusual smells, or abnormal heat coming from the equipment, immediately turn off the power switch, then contact JRC or its agent.
There is a risk of fire, electric shock, or damage if you continue to use the equipment.



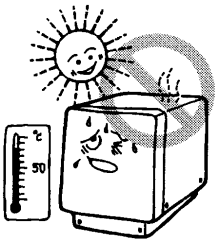
There are no customer-serviceable parts inside. Unauthorized inspections and repairs could cause fires and electrical shock hazards.
Please call our field representative or your nearest JRC office for inspection and repair services.

Use only the specified fuses.
The use of other fuse may cause fire and/or damage.
The Main switch on the CQD-2083 I/F unit must be turned off during replacing a fuse.

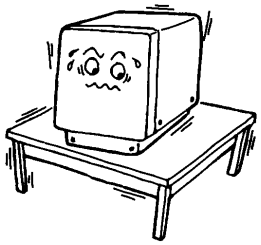
⚠ CAUTION

Please contact JRC or its agent for the electrical installation of this equipment. Electrical installations carried out by other than the qualified staff may result in faulty operation.

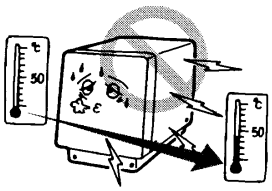
Do not store or operate the equipment where subject to temperatures more than 55℃ or less than -15℃. High temperature may cause failures.



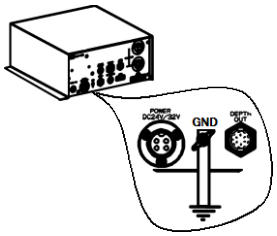
Do not install the equipment on unstable or unleveled surfaces. Failure to observe this condition may result in the equipment falling or toppling over, resulting in injury.



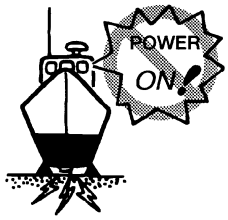
If it is cold, do not move the equipment suddenly into a warm environment and switch it on. High-voltage leaks due to condensation may result in damage to the equipment. In such situations, leave the equipment in the warm environment for about 30 minutes before switching it on.



When installing the equipment, securely connect the earth lead to the earth terminal. Failure to connect the earth may result in electric shock in the event of a fault or power leak developing.

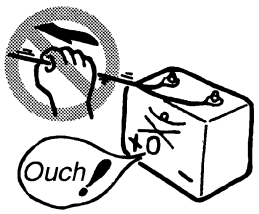


Do not turn on the equipment's power when the ship is in dry docks.
Failure to observe this caution may result in damage to the transducer, etc.

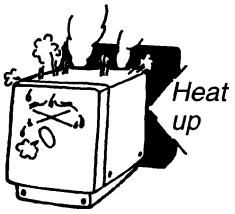


⚠ CAUTION

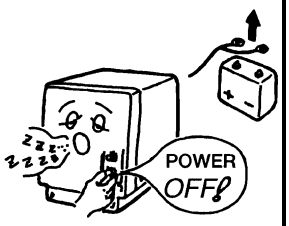
When removing the power cord, be sure to remove the power cord terminal correctly.
If the power cord is pulled, the cord may be damaged resulting in a fire or an electrical shock.



Do not install the units on the place being poor ventilation.
Otherwise, the set that is heated may cause a fire or failure.



For safety when the equipment is to be left unused for an extended period, turn off the power switch.



When turning on the power, be sure not to press any operator panel key at the same time. Alternates to the hardware configuration of the until could cause the unit to malfunction.

Take care when laying the transducer cable, power cable, and earth lead as positioning has an affect on electromagnetic interference. There is a risk of interfering with other equipment or the echo-sounder being interfered with by the other equipment.

After installing the echo-sounder, turn on the power to all other equipment to check for interference with or from all the equipment. Interference may cause malfunctions.

Use only the specified fuses. The use of other fuse may cause fire and/or damage. The Main switch on the CQD-2083 I/F unit must be turned off during replacing a fuse.

Handle the paper cutter carefully not to cut your hand.

External View

Explanation of Terms

Beam angle: The angle that sound waves spread out from the transducer. Sound waves spread out in a conical manner taking the center of the bottom surface of the transducer at the apex of the cone.

Bubbling: The phenomenon where the image of the seabed is interrupted due to air bubbles caused by the ship's hull or the propeller during a voyage.

IMO: abbreviation for the International Maritime Organization.

MED: abbreviation for the Marine Equipment Directive. This is the directive for marine equipment in Europe. This directive unifies format approval standards implemented separately by each European.

NMEA0183: formats for the National Marine Electronics Association. NMEA0183 is the format used when sending or receiving depth, position, water temperature, ship speed and other information between marine equipment.

STC: Sensitivity Time Control is used for reduce shallow water clutter. Shallow seabed echo is strong and deep seabed echo is weak. So, the STC controls the sensitivity to normalize seabed echo for precision seabed tracking.

Transducer: Device that emits ultrasonic waves in water and receives the signals reflected off the seabed. This is equivalent to an antenna on a radio.

UTC: abbreviation for the Universal Time Coordinated.

Contents

1. Introduction

1.1 Function

The JFE-680 Echo-Sounder consists of a transducer mounted on the bottom of the ship's hull and a main unit that displays information on the depth and formation of the seabed. This information is gained by using ultrasonic waves sent from the transducer that are then reflected off the sea bottom and picked up again by the transducer. The JFE-680 also has the following functions:
(1) depth alert, (2) power fail alert, (3) output of depth data, (4) output of depth and power fail alerts.

1.2 Feature

The JFE-680 features the following:

- Three display modes; standard, history, and docking.
- Depth data for last 24 hours in memory to play back the past sounding information.
- Dual frequency mode and two transducers are available in option. (*requires an optional equipment)

Conforms to the IMO Performance Standard

- When the depth becomes shallower than a previously set value, a depth alert is issued by buzzer and LCD display.
- When power is cut to the main unit, a power fail alert is issued by buzzer and LCD display.
- Contact signals can be output for both depth and power fail alerts.
- Data on depths can be output.

Digital Depth Display

- No need for time-consuming reading of depths using a scale against the profile of the seabed on the paper! The current depth can be seen at a glance.

Self-Diagnostic Functions

- Self-diagnostic functions can be selected from a menu, improving ease of maintenance.

1.3 Components

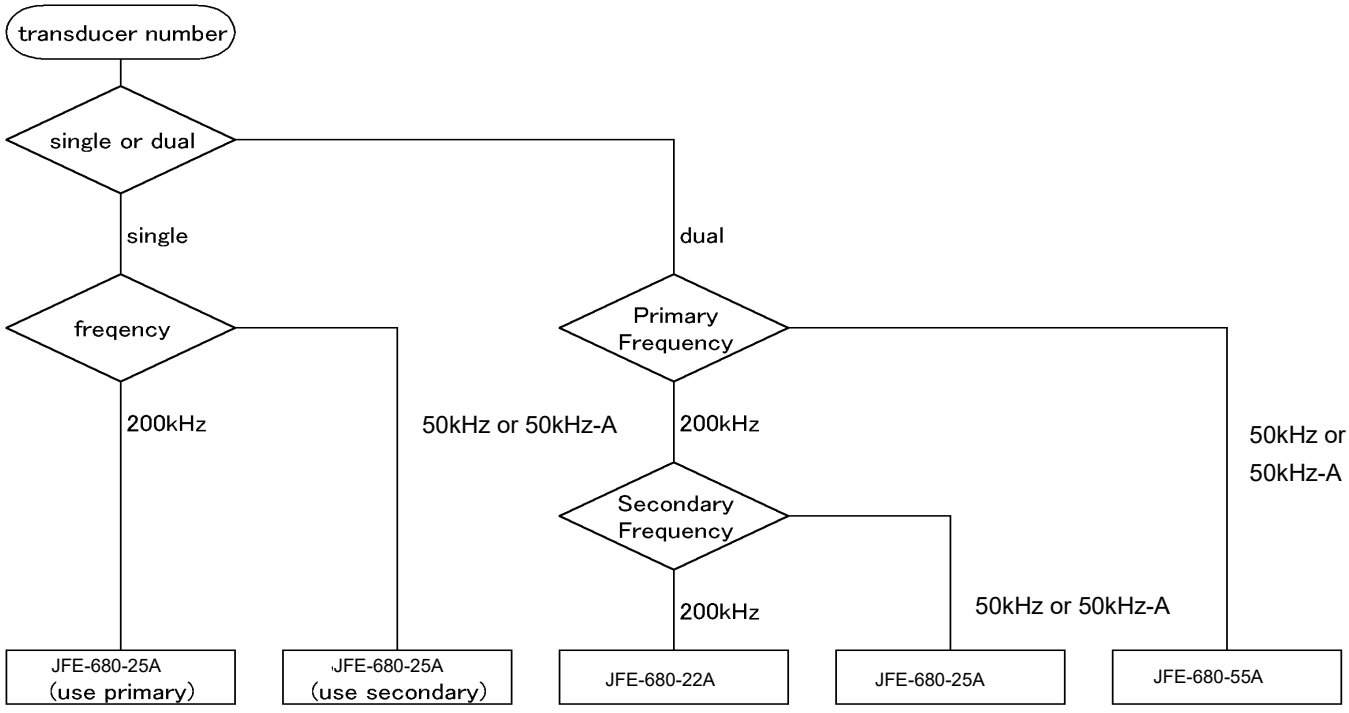
This section lists the components.

Standard Equipment

Name	Type No.	Qty.	Remarks
JRC Echo Sounder	JFE-680	1	
Matching box (primary)	AW-154F	1	200kHz
Transducer (primary)	NKF-341	1	200kHz (with cable 20,30,40m)
Spare parts	7ZXNA2002	1	Fuse×3, Printer paper
Instruction manual	7ZPNA2012H	1	

Option

Name	Type No.	Remarks
Matching box (secondary)	AW-154F	200kHz
	AW-154F-50	50kHz or 50kHz-A
Transducer (secondary)	NKF-341	200kHz (with cable 20,30,40m)
	NKF-345	50kHz or 50kHz-A(with cable 20,30,40m)
	NKF-392C	200kHz (with cable 20m)
Gate valve transducer	NKF-393/394	200kHz (with cable 20,30,40m)
	NKF-396	50kHz (with cable 20,30,40m)
Flush mounting Kit	BRBX05351	Color : MUNSELL N4
	BRBX05355	Color : MUNSELL 7.5BG7/2
	BRBX05354	Color : MUNSELL 2.5G7/2
Table mounting kit	BRBX05340	

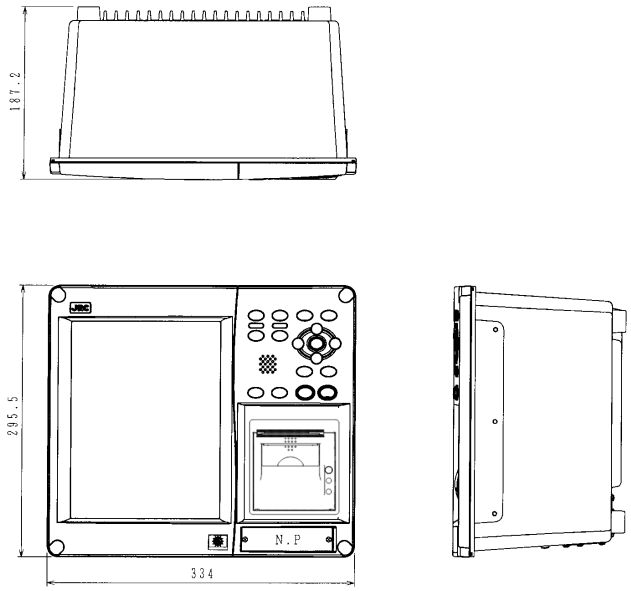


1.4 Construction

Equipment Outline

The following shows the external dimensions of the JFE-680.

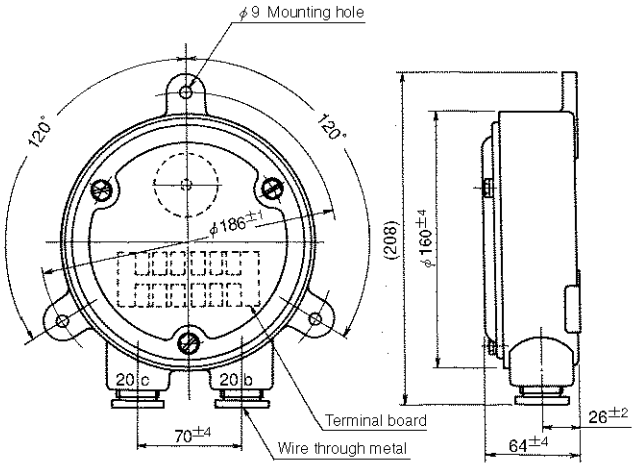
1. External Dimension of JFE-680



Unit : mm

Mass : 7kg

2. Dimensions of AW-154F/AW-154F-50 Matching box



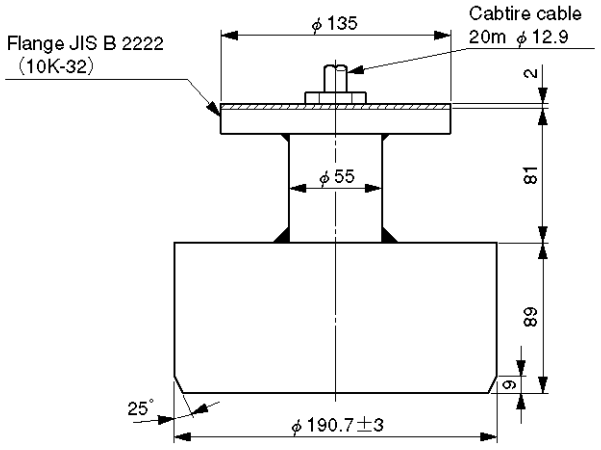
Unit : mm

Mass : 4kg

External Dimensions of Transducer mounting

The external dimensions illustrated below are for the standard equipment. Please refer to the separately supplied drawings if your specifications are not standard.

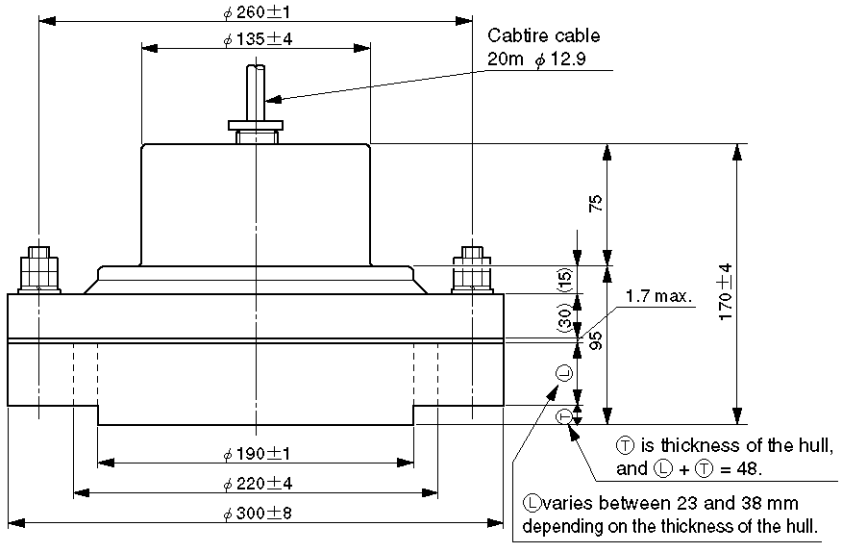
1. NKF-341/NKF-345 (Installed on ship's bottom)



Unit : mm

Mass : 22kg

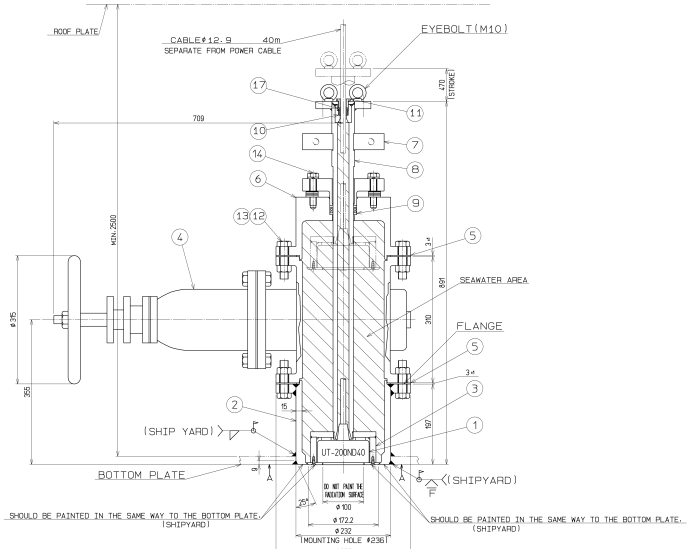
2. NKF-392C (Installed on ship's bottom)



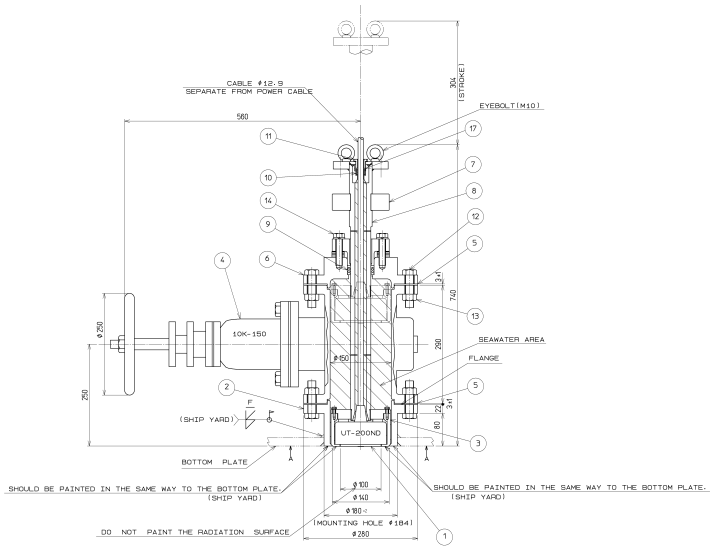
Unit : mm

Mass : 41kg

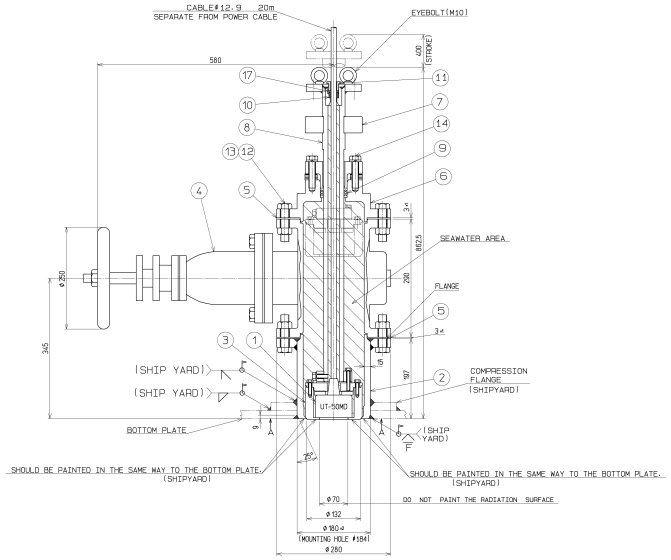
3. NKF-393
(Installed on ship's bottom)



4. NKF-394
(Installed on ship's bottom)



5. **NKF-396**
(Installed on ship's bottom)



1.5 System Configuration

2. Control Panel

This section describes the names and functions of the control panel and its controls.

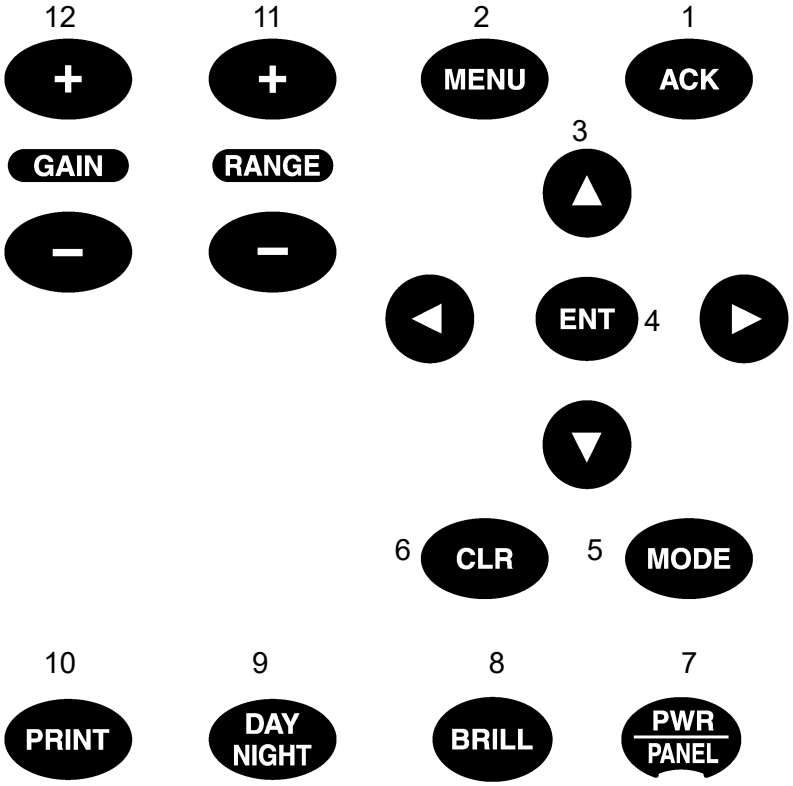


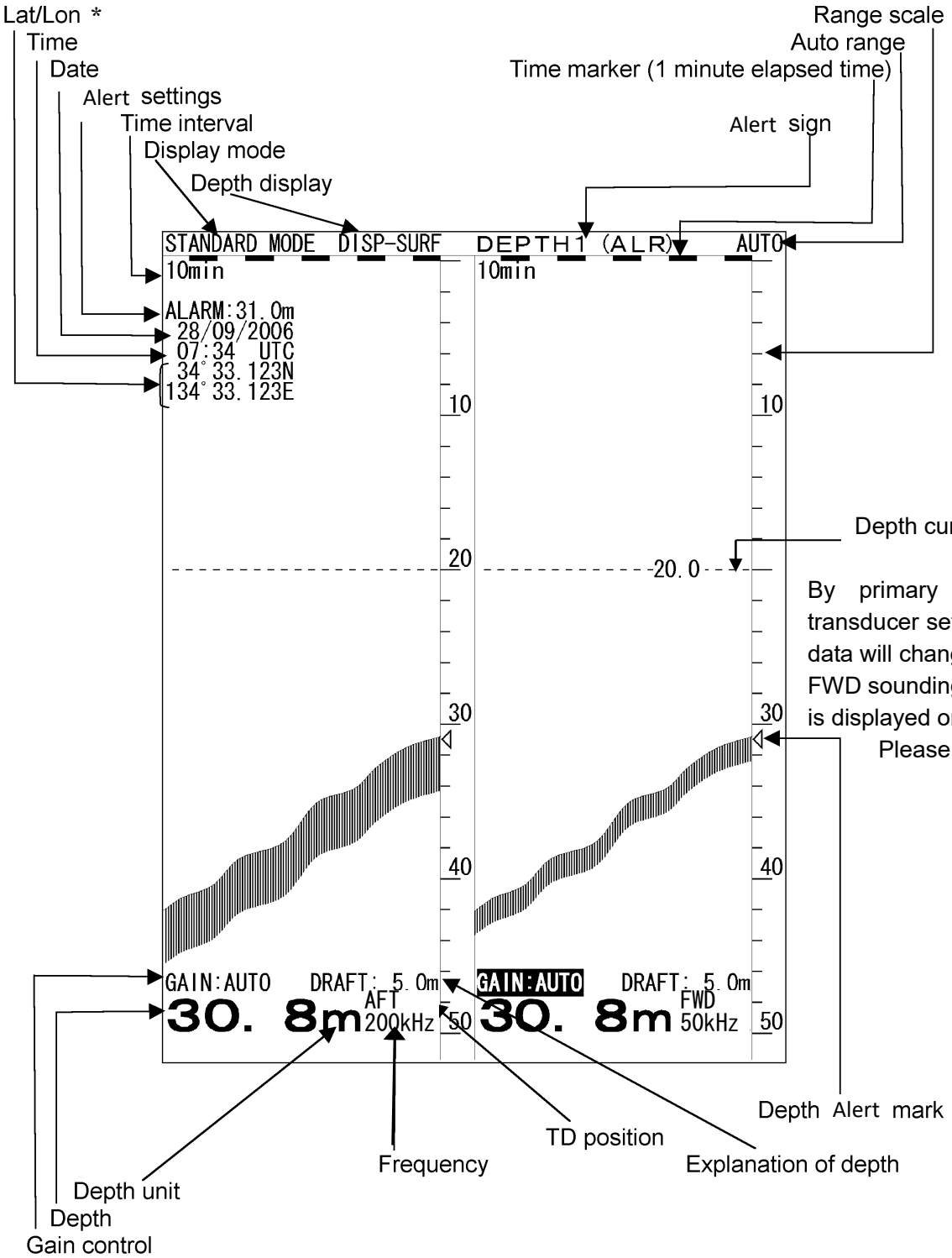
Figure 2-1 Control Panel

No.	Name	Function
1	ACK	Cancels the buzzer.
2	MENU	Displays the menu.
3	▲▼◀▶	Move a cursor.
4	ENT	Selects an item.
5	MODE	Switches the display modes.
6	CLR	Clears an item.
7	PWR/PANEL	Switches the equipment power on and off. Turn on : Hold down the PWR/PANEL key for 3 seconds. Turn off : Hold down the both the PWR/PANEL and the BRILL keys for 3 seconds. Adjusts the control panel brilliance in power-on state
8	BRILL	Adjusts the screen brilliance.
9	DAY NIGHT	Enhances the visibility of the screen.
10	PRINT	Starts printing or Data output.
11	(RANGE) +/–	Switches the depth range to shallow or deep.
12	(GAIN) +/–	Adjusts the sensitivity high or low.

3. Display

3.1 Standard mode (dual frequency)

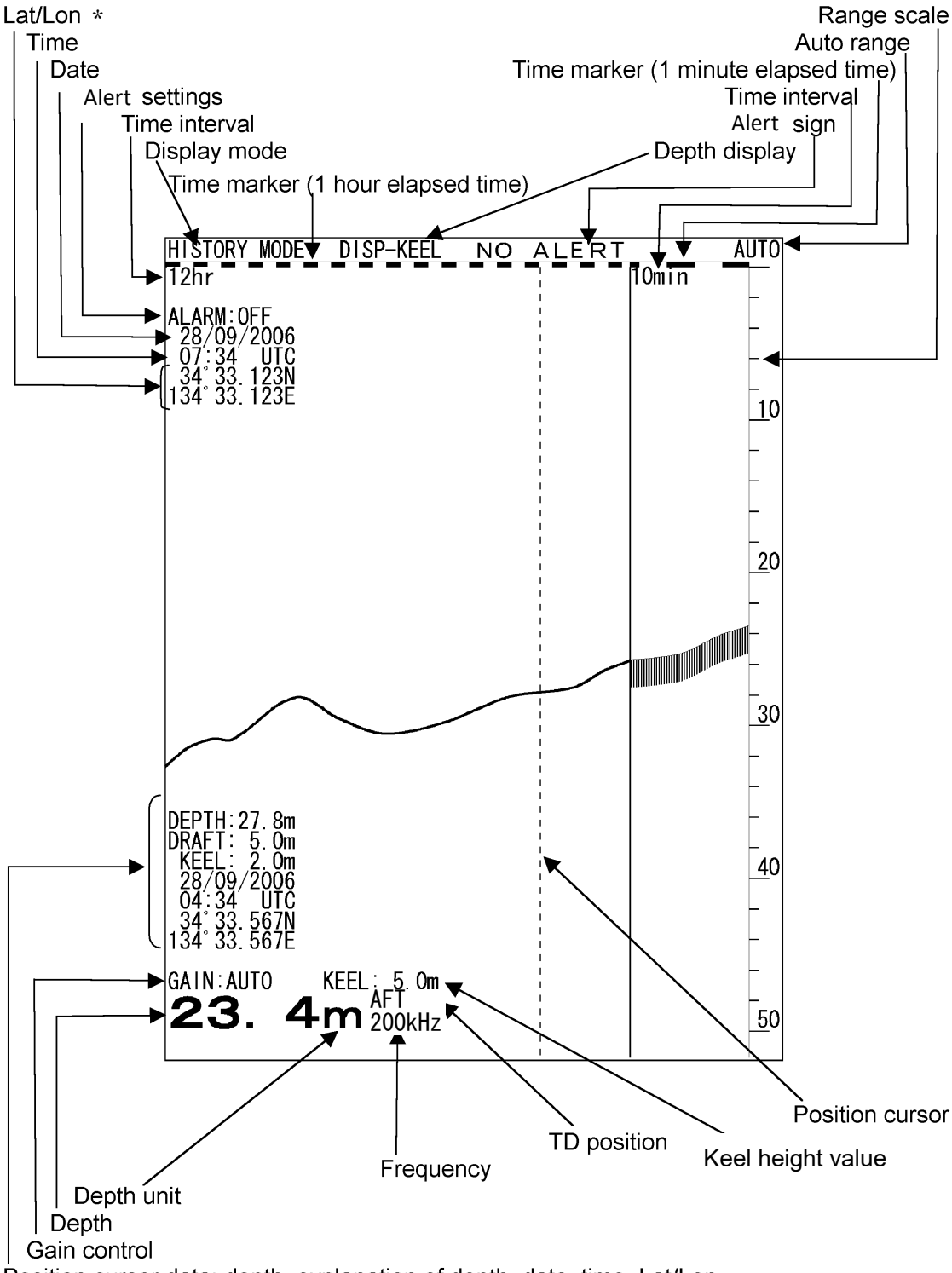
Standard mode displays real time sounding echoes.



Note : LAT/LON display needs to connect position data.

3.2 History mode

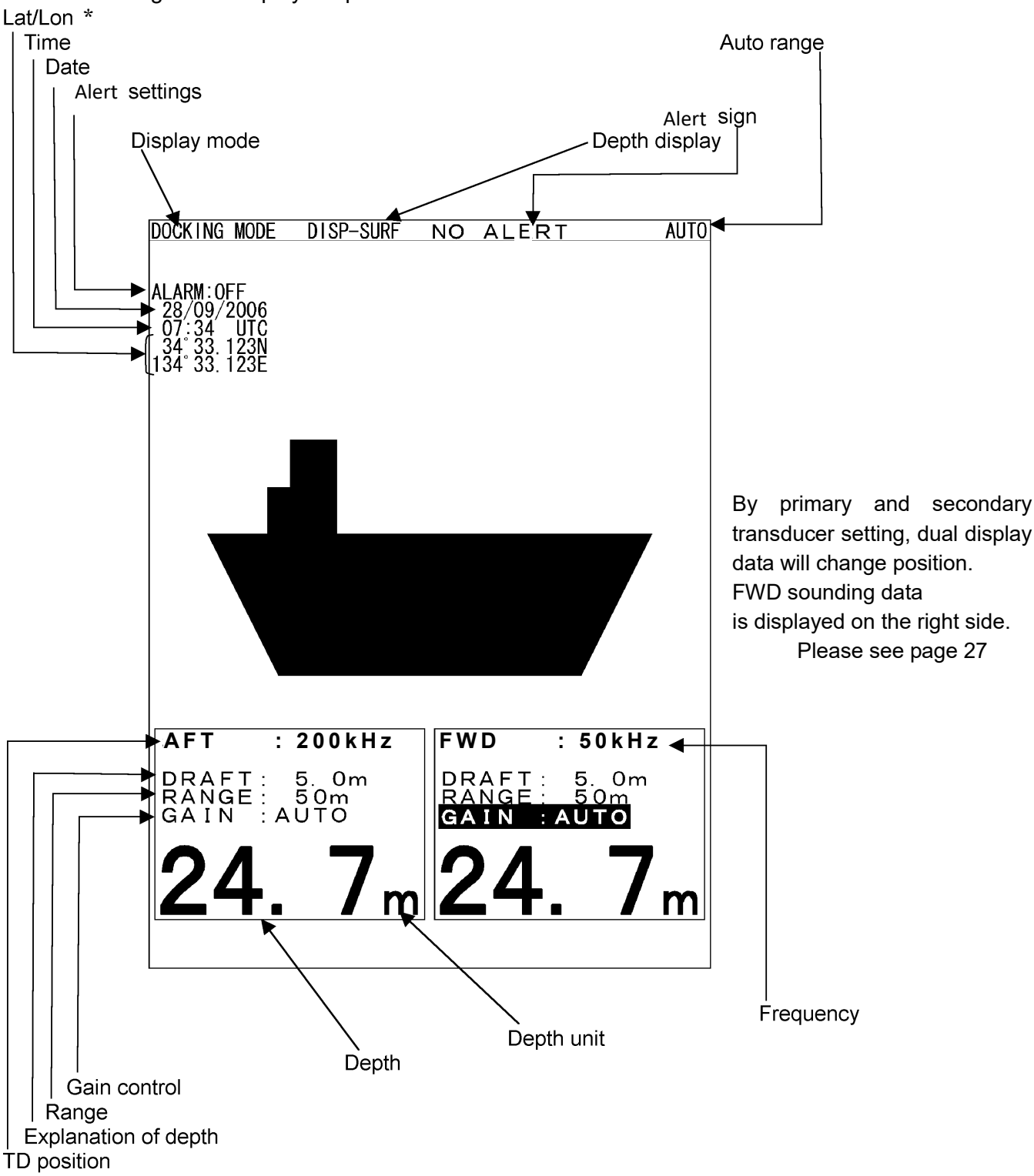
History mode displays past 12hour or 24 hour depth graph and real time sounding.



Note : LAT/LON display needs to connect position data.

3.3 Docking mode

Docking mode displays depth data.



By primary and secondary transducer setting, dual display data will change position.
FWD sounding data
is displayed on the right side.

Please see page 27

Note : LAT/LON display needs to connect position data.

4. Operation

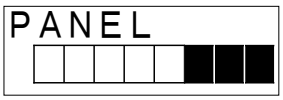
4.1 Basic Operation

Turning Power ON/OFF [PWR/PANEL]

- To turn on power, press the [PWR/PANEL] key for about three seconds.
- To turn off power, press the [PWR/PANEL] key and the [BRILL] key for about three seconds.

Adjusting Control Panel Illumination [PWR/PANEL]

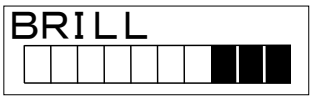
- On echo sounder working, press the [PWR/PANEL] key, the brightness level is displayed in the bar graph.
- The brightness of the operation panel changes into nine stages including OFF.



- Whenever the ▶ key is pressed, a white part in the bar graph increases and brightness goes up.
- Whenever the ◀ key is pressed, a black part in the bar graph increases and brightness goes down.
- Press the [CLR] key or leave it for ten seconds, the bar graph is not displayed.

Adjusting Screen Brilliance [BRILL]

- On echo sounder working, press the [BRILL] key, the brightness level is displayed in the bar graph.
- The brightness of the LCD display changes into ten stages excluding OFF.



- Whenever the ▶ key is pressed, a white part in the bar graph increases and brightness goes up.
- Whenever the ◀ key is pressed, a black part in the bar graph increases and brightness goes down.
- Press the [CLR] key or leave it for ten seconds, the bar graph is not displayed.

Range Control [RANGE+] [RANGE-]

- The range change of this equipment is seven stages of 10, 20, 50,100,200,500,800m.
- Whenever [RANGE +] key is pressed, the range is switched to the deep end.
- Whenever [RANGE-] key is pressed, the range is switched to shallow one.
- Keep pressing [RANGE+] key and [RANGE-] key to the setting of auto range at the same time for about three seconds. Moreover, auto range can be set from the menu. (Refer to 4.3 Display Setting.)
- When auto range setting it, “AUTO" is displayed on the screen. However, when the manual operation is set, nothing is displayed.
- When you release auto range, press [RANGE+] key or [RANGE-] key.
- After auto range releases it, it operates by range when releasing it. It doesn't return to range before setting auto range.

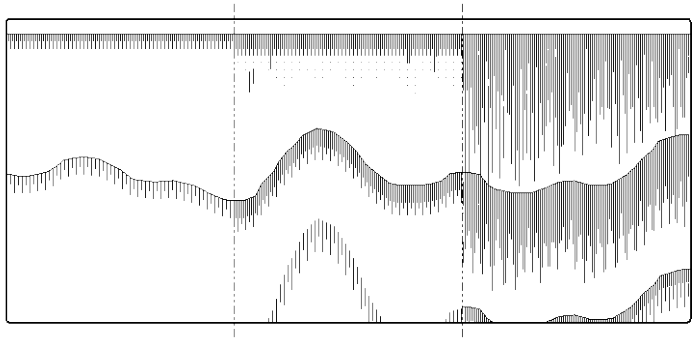
Note： Sea bottom might not be displayed according to the setting of draft.
When sea bottom is not displayed, depth is not displayed.

Gain control [GAIN+] [GAIN-]

- Gain can be set to 31 stages of 0～30.
- Whenever [GAIN+] key is pressed, the sensitivity is raised.
- Whenever [GAIN-] key is pressed, the sensitivity is lowered.
- Keep pressing [GAIN+] key and [GAIN -] key to the setting of auto range at the same time for about three seconds. Moreover, auto gain can be set from the menu. (Refer to 4.3 Display Setting.)
- When an auto gain is set, the sensitivity setting on the screen is displayed as “GAIN:AUTO". When the manual operation is set, "GAIN: the level value" is displayed.
- When you release an auto gain, press [GAIN+] key or [GAIN-] key .
- After auto gain releases it, it operates by sensitivity when releasing it. It doesn't return to sensitivity before setting auto gain.

◆ About the sensitivity setting

- Note that the obstacle might be caused to sounding when the setting of sensitivity is inappropriate.
- The reflection from sea bottom is different according to the condition of sea bottom. The reflection weakens like sand and mud, etc. though a strong reflection returns like the bedrock.
- It becomes impossible to recognize sea bottom when the reflection is weak and the depth value might not be displayed. For this case, bottom of the sea is displayed in red by raising sensitivity. However, dirt and the plankton, etc. in the sea are mistaken when sensitivity is raised too much for sea bottom, it recognizes, and a wrong depth value might be displayed.
- As for the setting of sensitivity, extent to which sea bottom is displayed by a red or an orange color is proper.



Sensitivity is too low. When sea bottom is a red or an orange color, the display sensitivity is proper. Sensitivity is too high.

Note： When setting to an auto gain, the STC curve becomes “LONG" regardless of the setting of STC. (Refer to 4.5 Setting Primary (Secondary) Transducer.)

Selecting Display Mode [MODE]

- Each time you press the MODE key, the display mode changes.

Single frequency: Each time you press the MODE key, the display mode changes as follows.

Standard mode

History mode

Docking mode

Dual frequency: Each time you press the MODE key, the display mode changes as follows.

Single frequency standard mode (primary),

Single frequency standard mode (secondary),

Dual frequency standard mode,

Single frequency history mode (primary),

Single frequency history mode (secondary),

Docking mode

Notes:

1. There is not Dual frequency history mode.
2. At “Dual frequency standard mode” and “Docking mode”, each time you press the ENT key, you can switch the settable receiver sensitivity between “primary” and “secondary”.

Selecting Day/Night Display Color [DAY/NIGHT]

- Whenever the key is pressed, it changes with DAY1 → DAY2 → NIGHT1 → NIGHT2.
- Each color "Image color and character color" of DAY1/DAY2/NIGHT1/NIGHT2 can be individually set by the menu. (Refer to 4.5 Initial Setting.)

Displaying Menu [MENU]

This key uses for setting the various menu functions. Detail settings are written in section 4.3 to 4.7.

DISPLAY	>
ALERT	>
INITIAL	>
PRINTER CONT	>
COMMUNICATION	>
MAINTENANCE	>

- The current selected item is displayed by a yellow character.
- Selecting items move a yellow display pressing ▲ or ▼ key.
- When ▶ or [ENT] key is pressed after a necessary item is selected, a set menu of the item is displayed.
- When it returns to the normal screen, press [CLR] key.

Registering Setting [ENT]

- This key uses with menu functions.
- When dual frequency using, this key is used for selecting the connection (primary or secondary) to which sensitivity can be set while usually operating (dual frequency standard mode and docking mode).

Cancelling Menu [CLR]

- This key uses with menu functions.
- When it keeps pressing the key while printing, the printer is canceled printing.

Printing [PRINT]

- This key uses for print or the data output.
- The printer setting is set on “PRINT MODE" menu.

(Refer to 4.6 Printer Control Setting.)

Stopping Buzzer [ACK]

- The buzzer sound stops when the key is pressed after the alert generated, and the alert is displayed on the screen. However, it keeps outputting the relay contact output while phenomenon is continuing.
- One key pressing deals with one alert generation factor. And, it deals with the generation of all alert factor under pressing about three seconds.

Up and Down Key Cursor [CURSOR]

◆ When it is a standard mode

- When the ▲ key is pressed, the depth cursor is moved to shallow one and it moves accelerating when keeping pressing it.
- When the ▼ key is pressed, the depth cursor is moved to the deep end and it moves accelerating when keeping pressing.
- Depth at the cursor position is displayed on the depth cursor.
- The cursor display is set by “CURSOR" menu. (Refer to 4.3 Display Setting.)
- The depth of the depth cursor doesn't display below the decimal point at 100m or more.
- The depth cursor disappears when the range is switched, and the depth cursor exceeds the display range. However, when either key is pressed, the depth cursor is displayed the under the depth scale again.

◆ When it is a history mode

- Whenever the ▲ key is pressed, the drawing time of the history is lengthened. (four stages of 3hr→6hr→12hr→24hr)
- Whenever the ▼ key is pressed, the drawing time of the history is shortened. (four stages of 24hr→12hr→6hr→3hr)

◆ When menu is displayed

- When the ▲ key is pressed, the item above the menu is selected or a set value is changed.
- When the ▼ key is pressed, the item under the menu is selected or a set value is changed.

Right and Left Key of Cursor [CURSOR]

◆ When it is a history mode

- When the ◀ key is pressed, a position cursor is moved left, and it moves accelerating when keeping pressing it.
- When the ▶ key is pressed, a position cursor is moved right, and it moves accelerating when keeping pressing it.
- The cursor display is set by "CURSOR" of the menu. (Refer to 4.3 Display Setting.)
- Information of a time point to which a position cursor is displayed is displayed in the screen.
- Display information: Depth/Draft/Keel correction/Date/Time/Latitude Longitude
- The position where a position cursor is displayed doesn't scroll and is fixed. Therefore, when the history screen scrolls, display information is updated.

◆ When menu is displayed

- ▶ key : When there is a hierarchy (submenu) below, the menu of the hierarchy (submenu) is displayed.
  When setting the date etc, move the input position.
- ◀ key : While displaying the main menu, it becomes an error. However, while displaying the submenu, the setting is not changed and it returns to the previous screen by one.
  When setting the date etc, move the input position.

◆ When screen brightness (BRILL)/operation panel brightness (PANEL) is adjusted

- Whenever the ▶ key is pressed, brightness goes up.
- Whenever the ◀ key is pressed, brightness goes down.

4.2 Menu List

Menu Tree 1

MENU	Default settings shown in underline	
├ DISPLAY		
│ ├ SCROLL SPEED	SLOW **STD** FAST	
│ ├ CLUTTER	0 1 2 3 **4** 5 6 7 8 9 10	
│ ├ INTERFERENCE	OFF **IR1** IR2 IR3	
│ ├ GAIN	MANUAL **AUTO**	
│ ├ RANGE	MANUAL **AUTO**	
│ ├ FWD DRAFT	**0.0** (0.0 to 50.0)	
│ ├ AFT DRAFT	**0.0** (0.0 to 50.0)	
│ └ CURSOR	OFF ON **AUTO**	
├ ALERT		
│ ├ KEY ACK	OFF **ON**	
│ ├ RELAY MODE	INTERMITTENT **CONTINUOUS**	
│ ├ DEPTH ALARM		
│ │ ├ ALERT CONT	OFF **ON**	
│ │ └ DEPTH SETTING	**0.0** (0.0 to 99.9)	
│ └ SYSTEM ALERT		
│ ├ DEPTH LOST	**OFF** ON	
│ ├ TX ALERT	**OFF** ON	
│ ├ RX ALERT	**OFF** ON	
│ ├ BUBBLE ALERT	**OFF** ON	
│ └ PRINTER ALERT	OFF **ON**	*JFE-680 DPU-414 does not have this alert
├ INITIAL		
│ ├ MEMORY LENGTH	12hr **24hr**	
│ ├ COLOR		
│ │ ├ DAY1		
│ │ │ ├ SCREEN	1 **2** 3 4 5 6	
│ │ │ └ CHARACTER	**1** 2 3 4 5 6	
│ │ ├ DAY2		
│ │ │ ├ SCREEN	1 2 **3** 4 5 6	
│ │ │ └ CHARACTER	**1** 2 3 4 5 6	
│ │ ├ NIGHT1		
│ │ │ ├ SCREEN	1 **2** 3 4 5 6	
│ │ │ └ CHARACTER	**1** 2 3 4 5 6	
│ │ └ NIGHT2		
│ │ ├ SCREEN	1 2 3 4 5 **6**	
│ │ └ CHARACTER	1 2 3 4 5 **6**	
│ ├ DEPTH DISPLAY MODE	SURF **TRAN** KEEL	
│ ├ PRIMARY		
│ │ ├ FREQ	**OFF** 200kHz 50kHz or 50kHz-A	
│ │ ├ POS	**FWD** MID AFT	
│ │ ├ STC	SHORT MIDDLE **LONG**	
│ │ ├ INNER	**OFF** 1 2 3 4 5	
│ │ └ KEEL	**0.0** (0.0 to 9.9)	
│ ├ SECONDARY		
│ │ ├ FREQ	**OFF** 200kHz 50kHz or 50kHz-A	
│ │ ├ POS	FWD MID **AFT**	
│ │ ├ STC	SHORT MIDDLE **LONG**	
│ │ ├ INNER	**OFF** 1 2 3 4 5	
│ │ └ KEEL	**0.0** (0.0 to 9.9)	
│ └ DATE/TIME		
│ ├ DATE	01/09/2011	
│ ├ TIME	00:00:00	
│ ├ DIFF	±00:00	
│ └ GPS SYNC	**OFF** ON	
│		

Menu Tree 2

Default settings shown in underline

MENU		
├ PRINTER CONT		
│ ├ PRINTER	Press the ENT key to start	JFE-380
│ ├	OFF **ON**	JFE-680
│ ├ PRINT MODE	**COPY** HYSTORY LOG	
│ ├ LOG BOOK PRINT	**OFF** 0.5min 1min 2min 5min 10min	
│ ├ LOG LENGTH	10min 20min 30min 1hr 2hr	
│ ├ SPEED	**4800bps** 9600bps 19200bps 38400bps	
│ └ PRINTER MODEL SELECTION	NKG-91 DPU-414 **NKG-901**	*JFE-380
│ └	BUILD-IN NKG-91 DPU-414 **NKG-901**	*JFE-680
├ COMMUNICATION		
│ ├ DEPTH	VER1.5 VER2.3 ALL **VER5.0**	
│ ├ ALERT	OFF **ON**	
│ ├ SYSTEM	OFF **ON**	
│ └ PRINTER PORT OUT	**PRINTER** PC	
│		
└ MAINTENANCE		
├ SELF TEST		
│ ├ CONTROL UNIT	Press the ENT key to start	
│ ├ LCD UNIT	Press the ENT key to start	
│ ├ KEY UNIT	Press the ENT key to start	
│ ├ PRINTER TEST	Press the ENT key to start	
│ └ ALERT TEST	**OFF** DEPTH ALARM SYSTEM ALERT	
├ ALERT LOG	Press the ENT key to start	
├ ALERT LOG OUT		
│ ├ NORMAL	Press the ENT key to start	
│ ├ PRINTER	Press the ENT key to start	
│ └ PC	Press the ENT key to start	
├ ALERT LOG DEL	Press the ENT key to start	
├ LINE MONITOR		
│ ├ NAV/DEPTH	Press the ENT key to start	
│ ├ ALR	Press the ENT key to start	
│ └ PRINTER	Press the ENT key to start	
├ RX MONITOR	Press the ENT key to start	
└ SYTEM No.	Press the ENT key to start	

*JFE-680 standard printer setting is NKG-901.

4.3 Display Setting

The following sub menu is displayed with [MENU] / DISPLAY ▶.

DISPLAY	
SCROLL SPEED	STD
CLUTTER	4
INTERFERENCE	IR1
GAIN	AUTO
RANGE	AUTO
FWD DRAFT	0.0
AFT DRAFT	0.0
CURSOR	AUTO

*The above-mentioned set content is an initial value.

- A present selection item is displayed by a yellow character.
- Move a yellow character with ▲ or ▼ key.
- When ▶ or the [ENT] key is pressed after a necessary item is selected, the item setting content is displayed.
- When the [ENT] key is pressed after the content is selected (setting), the selection (setting) is registered and it returns to a left screen.
- When returning to a left screen without registering, press ◀ or the [CLR] key.

Selecting Image Scrolling Speed

The real time echo image scroll speed is selectable.

- Select **SCROLL SPEED** and press ▶ or the [ENT] key. Then sub menu is popup as following.

  Set content: SLOW/**STD**/FAST

- Select the speed by ▲ ▼ and press the [ENT] key.

Noise Suppression

◎The generation of this noise is decreased when a weak noise to the entire screen occurs and the screen is hard to see.

- Make CLUTTER a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

  Set content: 0/1/2/3/**4**/5/6/7/8/9/10

- The ability to decrease the noise as the numerical value increases strengthens though “0" doesn't have the ability to decrease.
- Select the value by ▲ ▼ and press the [ENT] key.

Interference Rejection

◎ The interference noise by another ship displayed on the screen is reduced.

- Make INTERFERENCE a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

  Set content: OFF/**IR1**/IR2/IR3

- The ability to do the interference prevention processing strengthens while switching to “IR1 → IR2 → IR3" though the interference prevention processing is not done in “OFF".
- Select the content by ▲ ▼ and press the [ENT] key.

Setting Auto Gain

◎The setting method of sensitivity is selected.

・ Make GAIN a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : AUTO/MANUAL

AUTO : This equipment automatically sets sensitivity. At this time, STC becomes “LONG" regardless of the setting of “INITIAL>STC" of the menu.

(Refer to 4.5 Initial Setting.)

MANUAL : Set it manually with the [GAIN + -] key to the operation panel.

(Refer to 4.1 Basic Operations.)

・When it is “AUTO", it starts from sensitivity 10 within the range of sensitivity 10～20.

・ Select the method by ▲▼ and press the [ENT] key.

Setting Auto Range

◎The setting method of range is selected.

・Make RANGE a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : AUTO/MANUAL

AUTO : Range changes automatically like sea bottom's being always displayed at 3/5 positions of the lower side of the range scale.

MANUAL : Set it manually with the [RANGE + -] key to the operation panel.

(Refer to 4.1 Basic Operations.)

・When it is “AUTO", it starts from 10m.

・ Select the method by ▲▼ and press the [ENT] key.

Setting FWD/AFT Draft

◎ When using dual frequency mode, draft value is adjustable forward side and after side of the vessel.

・ Make FWD/AFT DRAFT a yellow display, press ▶ or the [ENT] key, and the numerical value (initial value 0.0) is displayed.

・The numerical value becomes large when ▲ key is pressed, and when ▼ key is pressed, the numerical value becomes small.

・ When the setting of the distance finish, press the [ENT] key.

Setting Cursor Display

◎The cursor display method in a standard mode and a history mode is selected.

・Make CURSOR a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON/**AUTO**

OFF : When the cursor key is operated, it makes an error of the cursor without displaying it.

ON : Whenever the cursor key is operated, the cursor is displayed.

AUTO : When the cursor key is operated, the cursor is displayed for 30 seconds. It doesn't display afterwards. When the cursor key is pressed again, it is displayed at the position.

・ Select the method by ▲ ▼ and press the [ENT] key.

4.4 Alert Setting

The following menu is displayed with [MENU]・ALERT ▶ .

ALERT	
KEY ACK	ON
RELAY MODE	CONTINUOUS
DEPTH ALARM	>
SYSTEM ALERT	>

※A left, set content is an initial value.

・A present selection item is displayed by a yellow character.

・Selecting items move a yellow display with ▲ or ▼ key.

・When ▶ or the [ENT] key is pressed after a necessary item is selected, the item setting content is displayed.

・When the [ENT] key is pressed after the content is selected (setting), the selection (setting) is registered and it returns to above screen.

・When returning to above screen without registering, press ◀ or the [CLR] key.

Setting Buzzer Key

・Make KEY ACK a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : ON/OFF

ON : When the key on the operation panel is pressed, it sounds a buzzer.

OFF : When the key on the operation panel is pressed, it doesn't sound a buzzer.

・ Select the method by ▲ ▼ and press the [ENT] key.

Setting Relay

◎The kind of the relay contact output is selected.

・ Make RELAY MODE a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : CONTINUOUS/INTERMITTENT

CONTINUOUS : When it is a depth alert and a system alert, the relay contact is continuously output.

INTERMITTENT : When it is a depth alert and a system alert, the relay contact is intermittent output.

・ Select the method by ▲ ▼ and press the [ENT] key.

Setting Depth Alarm

・ Make DEPTH ALARM a yellow display, press ▶ or the [ENT] key, and the following menu is displayed.

DEPTH ALARM	
ALERT CONT	OFF
DEPTH SETTING	0.0

・Selecting items move a yellow display with ▲ or ▼ key.

「ALERT CONT」

◎ The operation of the depth alert is selected.

・Make ALERT CONT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content ：OFF/ON

OFF ： The depth alert doesn't operate.

ON ： When sea bottom becomes shallower than the depth set by "DEPTH SETTING", the depth alert starts.

When sea bottom becomes deeper than a set value after the depth alert starts, it releases.

・Select the operation by ▲ ▼ and press the [ENT] key.

「DEPTH SETTING」

◎Depth where the depth alert starts is set.

・Make DEPTH SETTING a yellow display, press ▶ or the [ENT] key, and the numerical value (initial value 0.0) is displayed.

・The numerical value becomes large when ▲ key is pressed, and when ▼ key is pressed, the numerical value becomes small.

・Depth can be set up to 99.9m by a 0.1m unit.

・When depth is set and the depth alert is made “ON", the depth alert mark is displayed at the set depth position on the right of the range scale. This mark is not displayed to make the depth alert “OFF".

・After the depth setting finishes, press the [ENT] key.

<Example>

・When the alert depth is set to 10.0m, alert starts by 9.9m though it doesn't start by 10.0m.

Setting System Alert

・ Make SYSTEM ALERT a yellow display, press ▶ or the [ENT] key, and the following menu is displayed.

SYSTEM ALERT	
DEPTH LOST	OFF
TX ALERT	OFF
RX ALERT	OFF
BUBBLE ALERT	OFF
PRINTER ALERT	ON

・Selecting items move a yellow display with ▲ or ▼ key.

「DEPTH LOST」

◎The alert operation when sea bottom cannot be detected is selected.

・ Make DEPTH LOST a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : The sea bottom lost alert doesn't operate.

ON : When sea bottom was not able to be detected 15 times or more, the sea bottom lost alert is started.
When sea bottom was not able to be detected 40 times or more with range of 10/20/50m, the sea bottom lost alert is started.
When sea bottom is detected after the sea bottom lost alert starts, it is released.

・ Select the operation by ▲▼ and press the [ENT] key.

「TX ALERT」

◎When the transmitter becomes abnormal, the alert operation is selected.

・Make TX ALERT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : The transmission alert doesn't operate.

ON : When abnormality occurs in the transmitter, the transmitter alert is started.

・Select the operation by ▲▼ and press the [ENT] key.

「RX ALERT」

◎When the receiving signal becomes abnormal, the alert operation is selected.

・Make RX ALERT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : The receiving signal alert doesn't operate.

ON : When abnormality occurs in the receiving signal, the receiving signal alert is started.

・Select the operation by ▲▼ and press the [ENT] key.

「BUBBLE ALERT」

◎When sea bottom cannot be detected by the influence such as bubbles, the alert operation is selected.

・Make BUBBLE ALERT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : The bubble alert doesn't operate.

ON : When sea bottom was not able to be detected ten times or more, the bubble alert is started.

When sea bottom was not able to be detected 30 times or more with range of 10/20/50m, the bubble alert is started.

When sea bottom is detected after the bubble alert starts, it is released.

・Select the operation by ▲▼ and press the [ENT] key.

「PRINTER ALERT」

◎When the printer becomes abnormal, the alert operation is selected.

* In the case of JFE - 680, "PRINTER ALERT" function is the menu operates only when PRINTER MODEL SELECTION is set "build-in", "NKG-91" or "**NKG-901**". It does not work when PRINTER MODEL SELECTION is set to "DPU - 414".

・ Make PRINTER ALERT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : The printer alert doesn't operate.

ON : When the data of "No paper" is received from the printer, printer alert is started.

Moreover, when it becomes impossible to communicate with the printer, "Communication abnormality" alert is started.

However, when the printer is not connected at the time of turning on the power supply, this item is not displayed.

When normally returning after the printer alert starts, it is released.

・Select the operation by ▲▼ and press the [ENT] key.

※Please refer to next page for the relation between each alert and the screen alert display.

◎Each Alert and Alert Display (Screen Display) list

No.	Alert Display (Screen Display)	Alert	Primary	Description
01	DEPTH1	Primary depth alert	Alarm	Depth becomes below the set value
02	DEPTH2	Secondary depth alert	Alarm	Depth becomes below the set value
03	DEPTH1	Primary sea bottom lost	Warning	Sea bottom tracking is unavailable
04	DEPTH2	Secondary sea bottom lost	Warning	Sea bottom tracking is unavailable
05	TX1(LEVEL)	Primary transmission abnormality	Warning	Transmission level is low
06	RX1(LEVEL)	Primary receiving abnormality	Warning	Receiving level is low
07	RX1(BUBBLE)	Primary bubbling	Warning	Depth is temporally lost
08	TX2(LEVEL)	Secondary transmission abnormality	Warning	Transmission level is low
09	RX2(LEVEL)	Secondary receiving abnormality	Warning	Receiving level is low
10	RX2(BUBBLE)	Secondary bubbling	Warning	Depth is temporally lost
11	PRINT* 1	No thermal paper* 1	Warning	Printer paper is ended
12	PRINT(DATA) * 1	Printer communication abnormality* 1	Warning	Printer data communication error

* 1 Alerts of No. 11 and No. 12 occur only when "build-in, NKG-91, **NKG-901**" is selected.

This alert No. is also used in Alert Log function. (Refer to page 48)

The Alert Icons are as follows.


Active –unacknowledged alarm


Active –silenced alarm


Active –acknowledged alarm

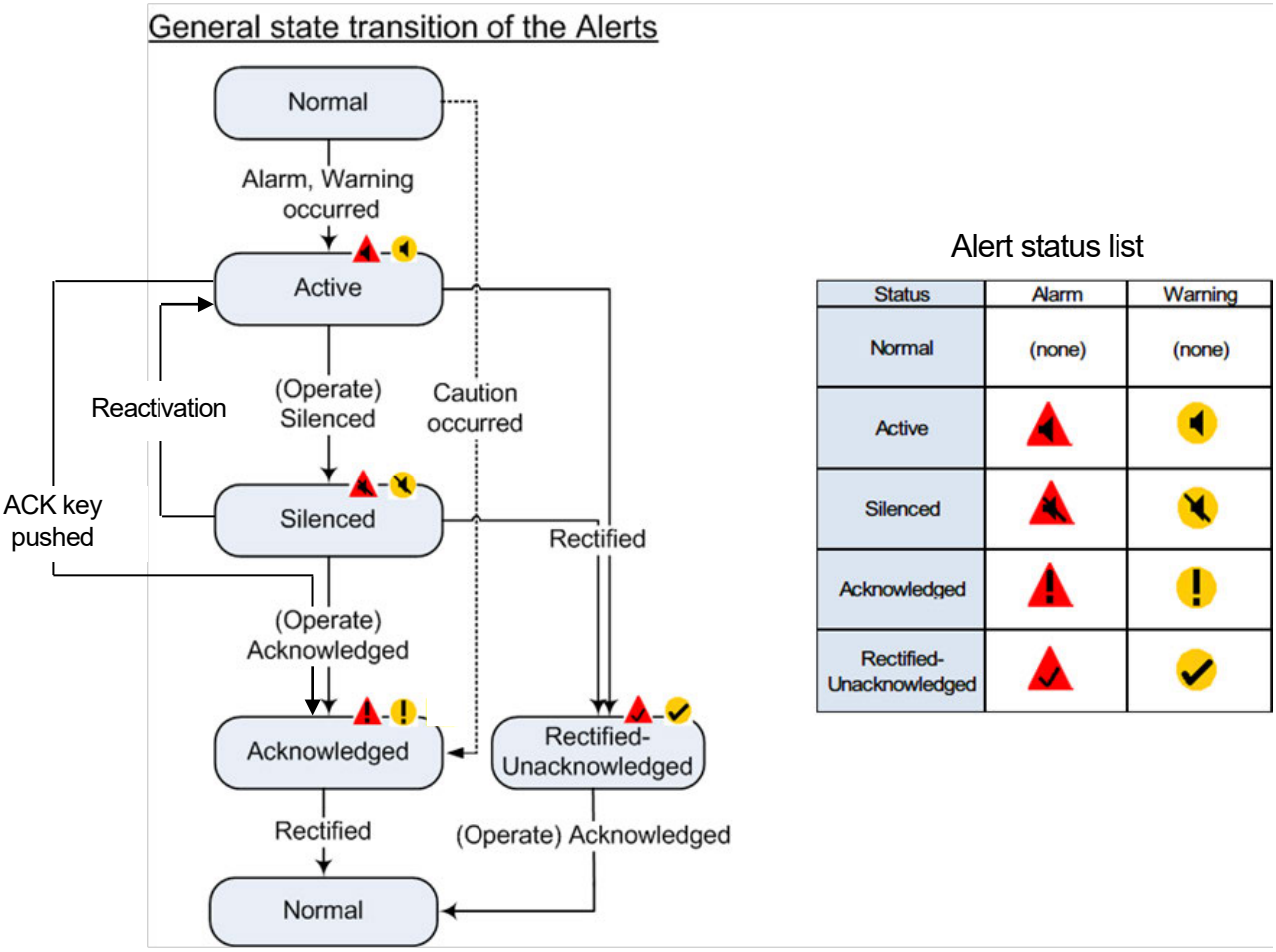

Rectified –unacknowledged alarm


Active –unacknowledged warning


Active –silenced warning


Active –acknowledged warning


Rectified –unacknowledged warning



Alert status list

Status	Alarm	Warning
Normal	(none)	(none)
Active		
Silenced		
Acknowledged		
Rectified-Unacknowledged		

Alert sound is changed to meet the IEC62288 ed. 2.0.

- The Alarm sound is three short buzzer and about ten seconds intervals.
- The Warning sound is two short buzzer and about five minutes intervals.

Alert corol

- The Alarm color is red.
- The Warning color is orange.

When JFE-680 “ACK” key push on active state, state is jump to Acknowledged state.

4.5 Initial Setting

⚠ WARNING This Initial Settings use for service engineer only. Do not change the settings. If you change the Initial settings, malfunction might occur.

The following menu is displayed with [MENU]・INITIAL ▶ .

INITIAL	
MEMORY LENGTH	24hr
COLOR	>
DEPTH DISPLAY MODE	TRAN
PRIMARY	>
SECONDARY	>
DATE/TIME	>

※A left, set content is an initial value.

・A present selection item is displayed by a yellow character.

・Selecting items move a yellow display with ▲ or ▼ key.

・When ▶ or the [ENT] key is pressed after a necessary item is selected, the item setting content is displayed.

・When the [ENT] key is pressed after the content is selected (setting), the selection (setting) is registered and it returns to above screen.

・When returning to above screen without registering, press ◀ or the [CLR] key.

Setting Memory length

◎The memory length of the sounding data displayed in the history mode is set.

・Make MEMORY LENGTH a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : 12hr/24hr

12hr : The memorizing length is set to 12 hours. (Memorizing interval is 30 seconds.)

24hr : The memorizing length is set to 24 hours. (Memorizing interval is 1 minute.)

・Select the length by ▲ ▼ and press the [ENT] key.

Setting Display Color of Day/Night

◎When switching with the [DAY/NIGHT] key, the image color and the character color are set.

・Make COLOR a yellow display, press ▶ or the [ENT] key, and the menu under the left is displayed.

COLOR	
DAY1	>
DAY2	>
NIGHT1	>
NIGHT2	>

・After the item is selected with ▲ or ▼ key, when ▶ key is pressed, a right menu is displayed.

・As for a set menu of DAY1～NIGHT2, the same content is displayed.

DAY1	
SCREEN	2
CHARACTER	1

「DAY1」/「DAY2」/「NIGHT1」/「NIGHT2」

・Make SCREEN or CHARACTER a yellow display, press ▶ or the [ENT] key, and the number of 1～6 is displayed.

・Select a color tone of the favor number with ▲ or ▼ key and press the [ENT] key because each content of characters is shown in the following.

SCREEN (image color)	CHARACTER (character color)
1 : Background color: Black・Sea bottom color: B/W 8 steps	1 : White
2 : Background color: Blue・Sea bottom color: Red 8 steps	2 : Green
3 : Background color: Black・Sea bottom color: Red 8 steps	3 : Yellow
4 : Background color: White・Sea bottom color: Red 8 steps	4 : Gray
5 : Background color: Blue・Sea bottom color: Red Brown 8 steps	5 : Navy blue
6 : Background color: Black・Sea bottom color: Amber 8 steps	6 : Amber

Setting Depth Display

◎The standard when the depth value is displayed is selected.

・Make DEPTH DISPLAY MODE a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

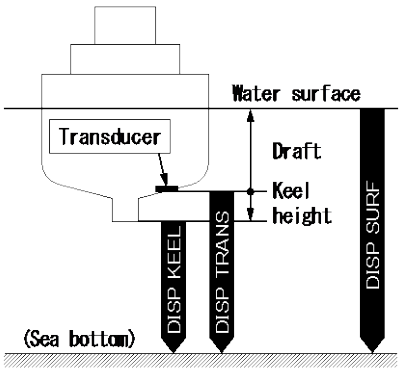
Set content : SURF/TRAN/KEEL

SURF : The record and the depth value in which the draft adjusted value is considered are displayed.

TRAN : The record and the depth value right under oscillator element are displayed.

KEEL : The record and the depth value in which the keel correction value is considered are displayed.

・Select the standard by ▲▼ and press the [ENT] key.



Setting Primary (Secondary) Transducer

> **⚠ WARNING** This Transducer Settings use for service engineer only. Do not change the settings. If you change the settings, malfunction might occur.

◎Various settings concerning the installation of the transducer are selected.

・Make PRIMARY or SECONDARY a yellow display, press ▶ or the [ENT] key, and the following menu is displayed.

PRIMARY	
FREQ	OFF
POS	FWD (AFT)
STC	LONG
INNER	OFF
KEEL	0.0

・A left, set content is an initial value, and SECONDARY is the same content. However, it is an initial value of SECONDARY in ( ).

・Selecting items move a yellow display with ▲ or ▼ key.

「FREQ」(Frequency)

・Make FREQ a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/200kHz/50kHz or 50kHz-A

OFF : When transducer is not connected with a primary (secondary) side, it selects.

200kHz : When transducer of 200kHz is connected with a primary (secondary) side, it selects.

50kHz or 50kHz-A : When transducer of 50kHz or 50kHz-A is connected with a primary (secondary) side, it selects.

・Select the content by ▲ ▼ and press the [ENT] key.

「POS」(Installation position)

・ Make POS a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : FWD/ MID/ AFT

FWD : When primary (secondary) side transducer is installed at the forward, it selects.

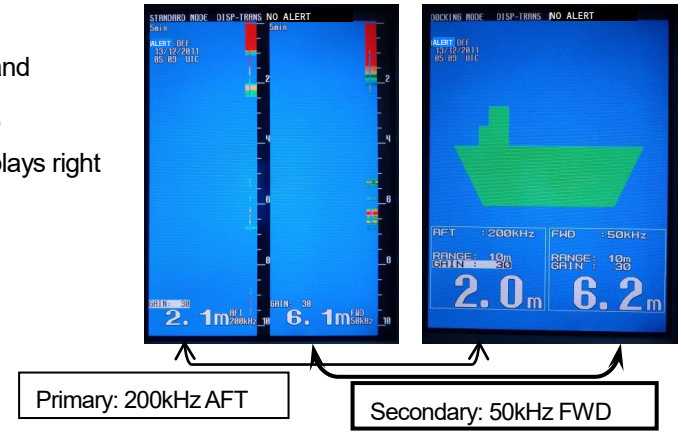
MID : When primary (secondary) side transducer is installed at the center, it selects.

AFT : When primary (secondary) side transducer is installed at the after, it selects.

・Select the installation position by ▲ ▼ and press the [ENT] key.

Note : On Primary and Secondary transducer settings, when select the transducer position as primary 200kHz position to AFT and secondary 50kHz or 50kHz-A position to FWD, standard dual display mode and docking mode display is changed to right side FWD data .

For example, primary: 200kHz, AFT and secondary 50kHz or 50kHz-A FWD, standard dual and docking mode displays right side is secondary data.



「STC」(STC curve)

・Make STC a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : SHORT/MIDDLE/LONG

SHORT : 40log is selected by the STC curve on a primary (secondary) side.

MIDDLE : 30log is selected by the STC curve on a primary (secondary) side.

LONG : 20log is selected by the STC curve on a primary (secondary) side.

・Select the curve by ▲ ▼ and press the [ENT] key.

※ The STC curve is set to “LONG" regardless of the setting by here when setting it to an auto gain.

「INNER」(Inner hull offset)

・Make INNER a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/1/2/3/4/5

OFF : The offset of inner Hull is not put on a primary (secondary) side.

1 : The offset of +4dB is set to the gain on a primary (secondary) side.

2 : The offset of +8dB is set to the gain on a primary (secondary) side.

3 : The offset of +12dB is set to the gain on a primary (secondary) side.

4 : The offset of +16dB is set to the gain on a primary (secondary) side.

5 : The offset of +20dB is set to the gain on a primary (secondary) side.

・Select the content by ▲ ▼ and press the [ENT] key.

「KEEL」(Keel correction)

・Make KEEL a yellow display, press ▶ or the [ENT] key, and the numerical value (initial value 0.0) is displayed.

・The numerical value becomes large when ▲ key is pressed, and when ▼ key is pressed, the numerical value becomes small.

・The keel correction can be set in 0.1m unit within the range of 0.0～9.9m.

・When the setting of the correction value finishes, press the [ENT] key.

Setting Adjustment of Date and Time

◎Date/Time/Time difference/GPS synchronization is set.

・ Make DATE/TIME a yellow display, press ▶ or the [ENT] key, and the following menu is displayed.

DATE/TIME	
DATE	＞
TIME	＞
DIFF	+00:00
GPS SYNC	OFF

・A left, set content is an initial value.

・Selecting items move a yellow display with ▲ or ▼ key.

「DATE」(Date)

・Make DATE a yellow display, press ▶ or the [ENT] key, and Day/Month/Year is displayed.

・The display of yellow is moved to the position set with ▶ key, and it sets with ▲ or ▼ key.

・The numerical value becomes large when ▲ key is pressed, and when ▼ key is pressed, the numerical value becomes small.

・When the setting at the date finishes, press the [ENT] key.

「TIME」(Time)

・ Make TIME a yellow display, press ▶ or the [ENT] key, and Hour: Minute: Second is displayed.

・The display of yellow is moved to the position set with ▶ key, and it sets with ▲ or ▼ key.

・The numerical value becomes large when ▲ key is pressed, and when ▼ key is pressed, the numerical value becomes small.

・When the setting at the time finishes, press the [ENT] key.

「DIFF」(Time difference)

・ Make DIFF a yellow display, press ▶ or the [ENT] key, and Hour: Minute: Second is displayed.

・The display of yellow is moved to the position set with ▶ key, and it sets with ▲ or ▼ key.

・When ▲ key is pressed, the sign is changed from - to + , and the numerical value become a large.

・When ▼ key is pressed, the sign is changed from + to - , and the numerical value become a small.

・When the time difference is “±0", it is recognized as UTC.

・When the setting of the time difference finishes, press the [ENT] key.

「GPS SYNC」(GPS synchronization)

・Make GPS SYNC a yellow display, press ▶ or the [ENT] key.

Set content : OFF/ON

OFF : An internal clock is used.

ON :When an internal clock and the ZDA data have shifted for 30 seconds or more by using the ZDA sentence, an internal clock is corrected.

・Select the synchronization by ▲ ▼ and press the [ENT] key

4.6 Printer Control Setting

Note: JFE-680 electrically stores last 12or 24hours depth data. Printer runs after only your [PRINT] pressing.

The following menu is displayed with [MENU]・PRINTER CONT ▶ .

PRINTER CONT	
PRINTER	ON
PRINT MODE	COPY
LOG BOOK PRINT	OFF
LOG LENGTH	10min
SPEED	4800bps
PRINTER MODEL SLECTION	NKG-901*

※The above-mentioned set content is an initial value.

*JFE-680 standard printer setting is NKG-901.

- A present selection item is displayed with a yellow character.
- To select items, use ▲ or ▼ key to choose.
- Press ▶ or the [ENT] key after the item selection, the detail setting will displayed.
- Press the [ENT] key after the detail setting selection. Then the settings would be registered and the menu would return to previous screen.
- To return to a previous screen without registering, press ◀ or the [CLR] key.

Setting Print Output

This item selects the [PRINT] key function ON or OFF.

・Select “PRINTER” with ▲ or ▼ key. Then press ▶ or the [ENT] key to enter the detail setting.

Detail item : OFF/ON

- OFF : The print key is invalidated.
- **ON** : The print key is validated.

・Select the item by ▲ or ▼ key. Then press the [ENT] key.

Setting Print Mode

This item selects print out mode by three items.

・Select “PRINT MODE” with ▲ or ▼ key. Then press ▶ or the [ENT] key to enter the detail setting.

Detail item : COPY/HISTORY/LOG

- **COPY** :
- HITORY :
- LOG :

The item function is different according to the setting of “COMMUNICATION > PRINTER PORT OUT" of the menu.

(Refer to 4.7 communication setting.)

・ Select the item by ▲ or ▼ key. Then press the [ENT] key.

Note: Please read a detailed explanation of the each print mode item with next page.

◎ When PRINTER PORT OUT is “PRINTER"

COPY : A present screen display is printed.
The direction of paper feed is length against the screen.

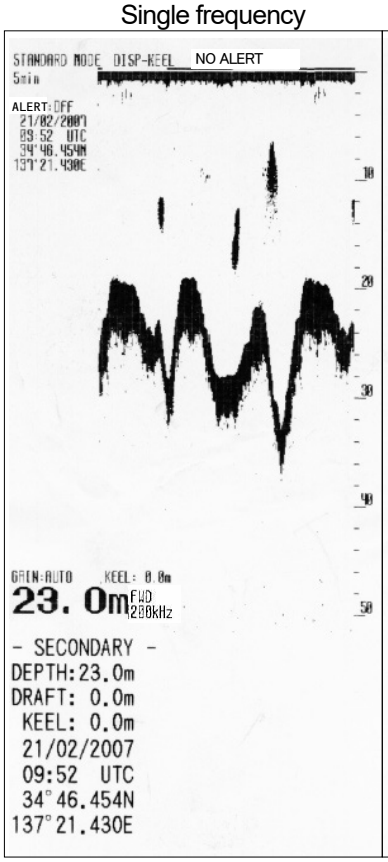
HISTORY : All the memorized depth data is graphically printed.
The direction of paper feed is time.
Secondary data is printed following primary in display screen for dual frequency.
On single frequency mode, only displaying frequency data is printed.
After the graphical printout, the data of START information and END information is printed.
The information data is same one as time cursor display information.

LOG : This printout is available only the history display mode. On history display mode, move time cursor by ◀ or ▶ key to select the center of LOG printout. LOG graphical printout length is set by “LOG LENGH” menu.(10min/ 20min/ 30min/ 1hr/ 2hr)
A time cursor is displayed in the graphical printout.
The direction of paper feed is time.
After the graphical printout, the data of START information, CURSOR information and END information is printed. Each information data is same one as time cursor display information.

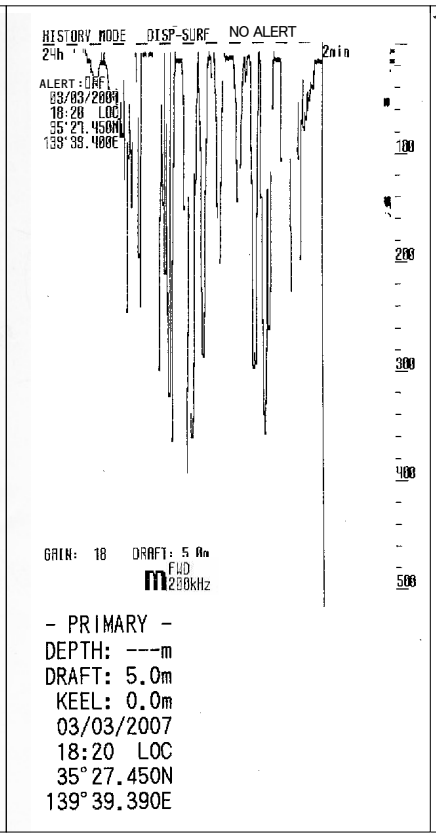
Print out examples

1. COPY print mode

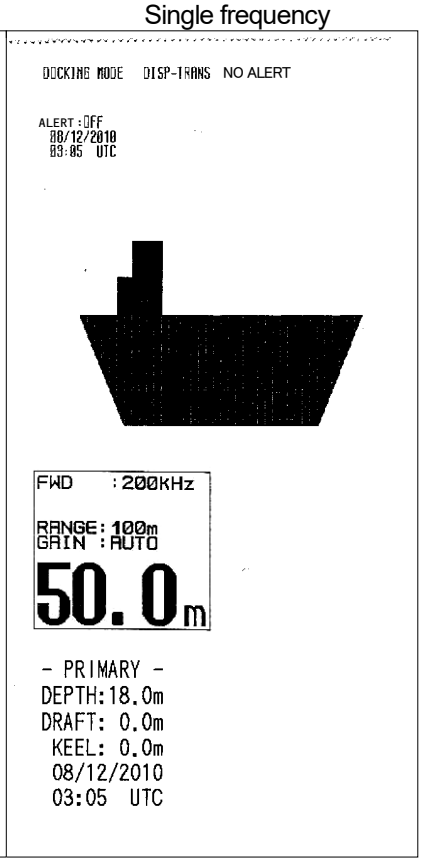
STANDARD — Single frequency



HISTORY — 24hours

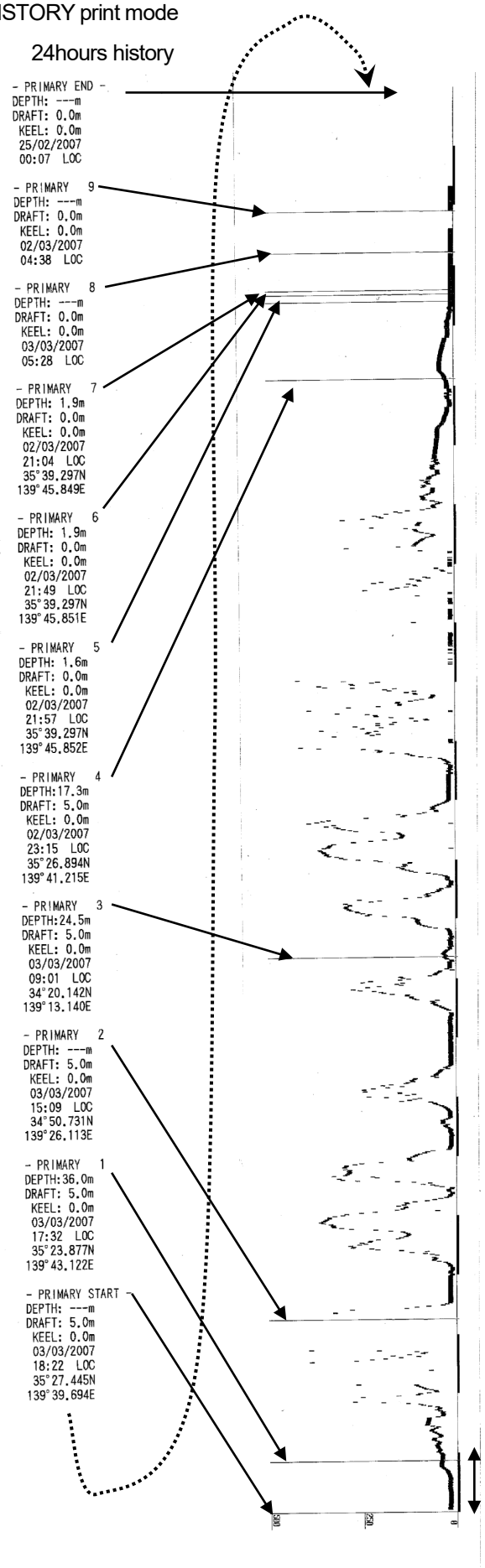


DOCKING — Single frequency



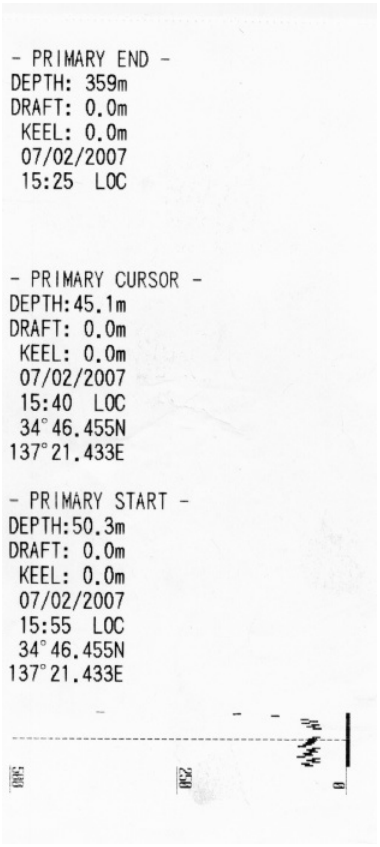
2. HISTORY print mode

24hours history



3. LOG print mode

30minutes log



◎When PRINTER PORT OUT is “PC"

COPY : Data cannot be output.
When the print or the data output is operated, it becomes an error.

HISTORY : Memorized all data and maintenance system information are output.

LOG : This data output is available only the history display mode. Data and maintenance system information in the same time as the case of above-mentioned “PRINTER" LOG are output.

01/09/2011 UTC DRAFT: 0.0m 0.0m

TIME	BOW	STERN	LAT/LON
21:39	70.3m	70.5m	36°06.839N 139°46.637E
21:40	70.6m	70.8m	36°07.039N 139°46.637E
21:41	71.0m	71.1m	36°07.242N 139°46.637E
21:42	70.0m	70.1m	36°07.442N 139°46.637E
21:43	69.0m	69.3m	36°07.642N 139°46.637E
21:44	68.6m	68.8m	36°07.839N 139°46.637E
21:45	70.3m	70.5m	36°08.039N 139°46.637E
21:46	70.8m	71.1m	36°08.242N 139°46.637E
21:47	70.8m	71.0m	36°08.442N 139°46.637E
21:48	69.8m	70.0m	36°08.642N 139°46.637E

Setting Log Book Print

This item selects automatic LOG book print mode.

When select this interval setting menu to 0.5min*, 1min, 2min, 5min, 10min, depth data will automatically print with every selected interval. * 0.5min interval is available only MEMORY LENGTH setting as 12 hours. If 24 hours is set, 0.5min runs 1min interval. “OFF” stops automatic LOG book print mode.

NOTE: When GPS position data is connected to JFE-680, LAT/LON position data would print.

・ Select “LOG BOOK PRINT” with ▲ or ▼ key. Then press ▶ or the [ENT] key to enter the automatic LOG book print interval setting.

Detail item : **OFF**/0.5min/1min/2min/5min/10min

・Select the output length by ▲ ▼ and press the [ENT] key.

Setting Log Output Length

This item selects LOG output length on the HISTORY display mode with LOG print mode.

・ Select “LOG LENGTH” with ▲ or ▼ key. Then press ▶ or the [ENT] key to enter the detail setting.

Detail item : **10min**/20min/30min/1hr/2hr

・Select the output length by ▲ ▼ and press the [ENT] key.

Setting Transfer Speed

This item selects data output baud rate. **Only 4800bps is suitable to paper print.** If you set other baud rate, unusual characters might print out. This item is used with 4.7 communication setting/printer port out : PC.

・ Select “SPEED” with ▲ or ▼ key. Then press ▶ or the [ENT] key to enter the detail setting.

Detail item : **4800bps**/9600bps/19200bps/38400bps

・Select the baud rate by ▲ ▼ and press the [ENT] key.

Setting Printer Model Selection

This item selects printer model from BUILD-IN/ NKG-91/ DPU-414/ **NKG-901**. On JFE-680 when select NKG-91 or DPU-414 printer disconnect build-in printer cable.

4.7 Communication Setting

The following menu is displayed with [MENU]・COMMUNICATION ▶ .

COMMUNICATION	
DEPTH	ALL
ALERT	ON
SYSTEM	ON
PRINTER PORT OUT	PRINTER

※A left, set content is an initial value.

・A present selection item is displayed by a yellow character.

・Selecting items move a yellow display with ▲ or ▼ key.

・When ▶ or the [ENT] key is pressed after a necessary item is selected, the item setting content is displayed.

・When the [ENT] key is pressed after the content is selected (setting), the selection (setting) is registered and it returns to above screen.

・When returning to above screen without registering, press ◀ or the [CLR] key.

Setting Depth Output

・Make DEPTH a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : Ver1.5/Ver2.3/ALL

Ver1.5 : Setting of DEPTH DISPLAY MODE in “INITIAL" of the menu;

Only “SDDBS" is output for 「SURF」.

Only “SDDBT" is output for 「TRAN」.

Only “SDDBK" is output for 「KEEL」.

Ver2.3 : “SDDPT" is output.

Ver5.0 : Alert serial data change to meet IEC61162-1ed5

ALL : Both content of “Ver1.5" and “Ver2.3" are output at the same time.

・“PJRCU" is output as for each setting of “Ver1.5/Ver2.3/ALL".

・Select the content by ▲▼ and press the [ENT] key.

Setting Alert Output

・Make ALERT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : When warning starts, the ALR sentence is not output. (Data as the history remains.)

ON : “SDALR" is output for all items of alert setting “ON" in the alert setting menu by a period for one second.

・Select the content by ▲▼ and press the [ENT] key.

◎Depth output

$SDDBS, xxx.x, f, xxx.x, M, xxx.x, F(CR)(LF)
(1) (2) (3)

$SDDBT, xxx.x, f, xxx.x, M, xxx.x, F(CR)(LF)
(1) (2) (3)

$SDDBK, xxx.x, f, xxx.x, M, xxx.x, F(CR)(LF)
(1) (2) (3)

(1) Depth value after compensation (in feet)
(2) Depth value after compensation (in meters)
(3) Depth value after compensation (in fathoms)
(4) No check sum

$SDDPT, xxx.x, x.x, x.x *hh (CR)(LF)
(1) (2) (3) (4)

(1) Depth measured from the transducer regardless of the depth display mode setting(in meters only.)
(2) According to the depth display mode:
DISP-SURF: Draft value (no + or – sign preceding values)
DISP-TRANS: 0.0
DISP-KEEL: Keel height compensation (– sign preceding values)
(3) Measuring range: RANGE (in meters only)
(4) Checksum (result after each ASCII code of every character between "S" just after "$" and "X" just before " * " is EXORed.)

$PJRCU,SD,x.x,x.x,x.x,x.x,xx,c-c*hh<CR><LF>
(1) (2) (3) (4) (5) (6) (7)

(1) Water depth relative to transducer, meters.
(2) Offset from transducer, meters
(3) Maximum range scale in use, meters
(4) Reserved
(5) Echo sounder channel number 1:reserved 2:50 kHz 3: 200 kHz
(6) Transducer location FWD/MID/AFT
(7) Checksum (result after each ASCII code of every character between "S" just after "$" and "X" just before " * " is EXORed.)

◎Alert output, input

On DEPTH output setting: ver1.5 or ver2.3 or ALL

$SDALR,hhmmss.ss,xxx,A,A,c--c*hh<CR><LF>

(1) (2) (3)(4)(5) (6)

(1) Time of alert condition change,UTC

(2) ID number of the alert source

351 primary depth alert
352 secondary depth alert
353 primary depth lost
354 secondary depth lost
356 printer paper is not good
357 printer connection is not good
360 primary transmit signal is not good
361 primary receive signal is not good
362 primary bottom echo signal is not good
363 secondary transmit signal is not good
364 secondary receive signal is not good
365 secondary bottom echo signal is not good

(3) Alert condition (A = threshold exceeded, V = not exceeded)

(4) Alert's acknowledge state (A = acknowledged, V = unacknowledged)

(5) Alert's description text

(6)Checksum (result after each ASCII code of every character between"S" just after"$" and "X" just before " * " is EXORed.)

$--ACK, xxx*hh<CR><LF>

(1) (2)

(1) Alarm number

(2) Checksum

On DEPTH output setting: ver5.0

$SDALF,x,x,x,hhmmss.ss,a,a,a,aaa,x.x,x.x,x.x,x,c---c*hh <CR><LF>

(1)(2)(3) (4) (5)(6)(7) (8) (9) (10) (11) (12) (13) (14)

(1) Total number of ALF sentences for this message, 1 to 2

(2) Sentence number, 1 to 2

(3) Sequential message identifier, 0 to 9

(4) Time of last change

(5) Alert category, A, B or C

(6) Alert priority, E, A, W or C

(7) Alert state, A, S, N, O, U or V

(8) Manufacturer mnemonic code

(9) Alert identifier

(10) Alert instance, 1 to 999999
(11) Revision counter, 1 to 99
(12) Escalation counter, 0 to 9
(13) Alert text
(14) Checksum

$SDALC,xx,xx,xx,x.x,aaa,x.x,x.x,x.x,……,aaa,x.x,x.x,x.x*hh <CR><LF>
(1) (2) (3) (4) (5) (6) (7) (8) (5) (6) (7) (8) (9)

(1) Total number of sentences for this message, 01 to 99
(2) Sentence number, 01 to 99
(3) Sequential message identifier, 00 to 99
(4) Number of alert entries
(5) Manufacturer mnemonic code
(6) Alert identifier
(7) Alert instance
(8) Revision counter
(9) Checksum

$SDARC, hhmnss.ss, aaa, x.x, x.x, c*hh<CR><LF>
(1) (2) (3) (4) (5)(6)

(1) Release time
(2) Alert specifically defined by the manufacturer
(3) Alert ID
(4) Alert Instance, 1 to 999999
(5) Rejected alert command
(6) Checksum

$--ACN,hhmmss.ss,aaa,x.x,x.x,c,a*hh <CR><LF>
(2) (2) (3) (4) (5)(6)(7)

(1) Time
(2) Manufacturer mnemonic code
(3) Alert Identifier
(4) Alert Instance, 1 to 999999
(5) Alert command, A, Q, O or S
(6) Sentence status flag
(7) Checksum

$SDHBT, x.x, A, x*hh<CR><LF>
(1) (2) (3) (4)

(1) Repetition cycle setting
(2) Equipment status
(3) Sequence number
(4) Checksum

Setting System Output

・Make SYSTEM a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/ON

OFF : Maintenance system information is not output with the constant period.

ON : Maintenance system information is added to the depth output port and it outputs.

・Select the content by ▲ ▼ and press the [ENT] key.

Setting Printer Port Output

・Make PRINTER PORT OUT a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : PRINTER/PC

PRINTER : The signal for the printer control is output.

PC : Maintenance system information is output to the printer port.

The output content follows the setting of menu “PRINTER CONT>PRINT MODE".

(Refer to 4.6 Printer Control Setting.)

・Select the content by ▲ ▼ and press the [ENT] key.

Maintenance menu operation is written in “6.2 Maintenance Function”

4.8 Master Reset

The buzzer sounds when turning on the power while pressing the [MENU] key and the [CLR] key at the same time and master reset is executed. All set values except the date and time return to the factory shipment value.

When master reset is completed, the following screen is displayed.

```
Please do connection setting of transducers.
 OFF
 200kHz
 50kHz
```

A primary transducer is set on this screen. When the [ENT] key is pressed after the frequency of the connected transducer is selected, it changes into the primary transducer setting menu of the initial setting menu.

Refer to 4.5 Initial Setting on page 27 for the following setting methods.

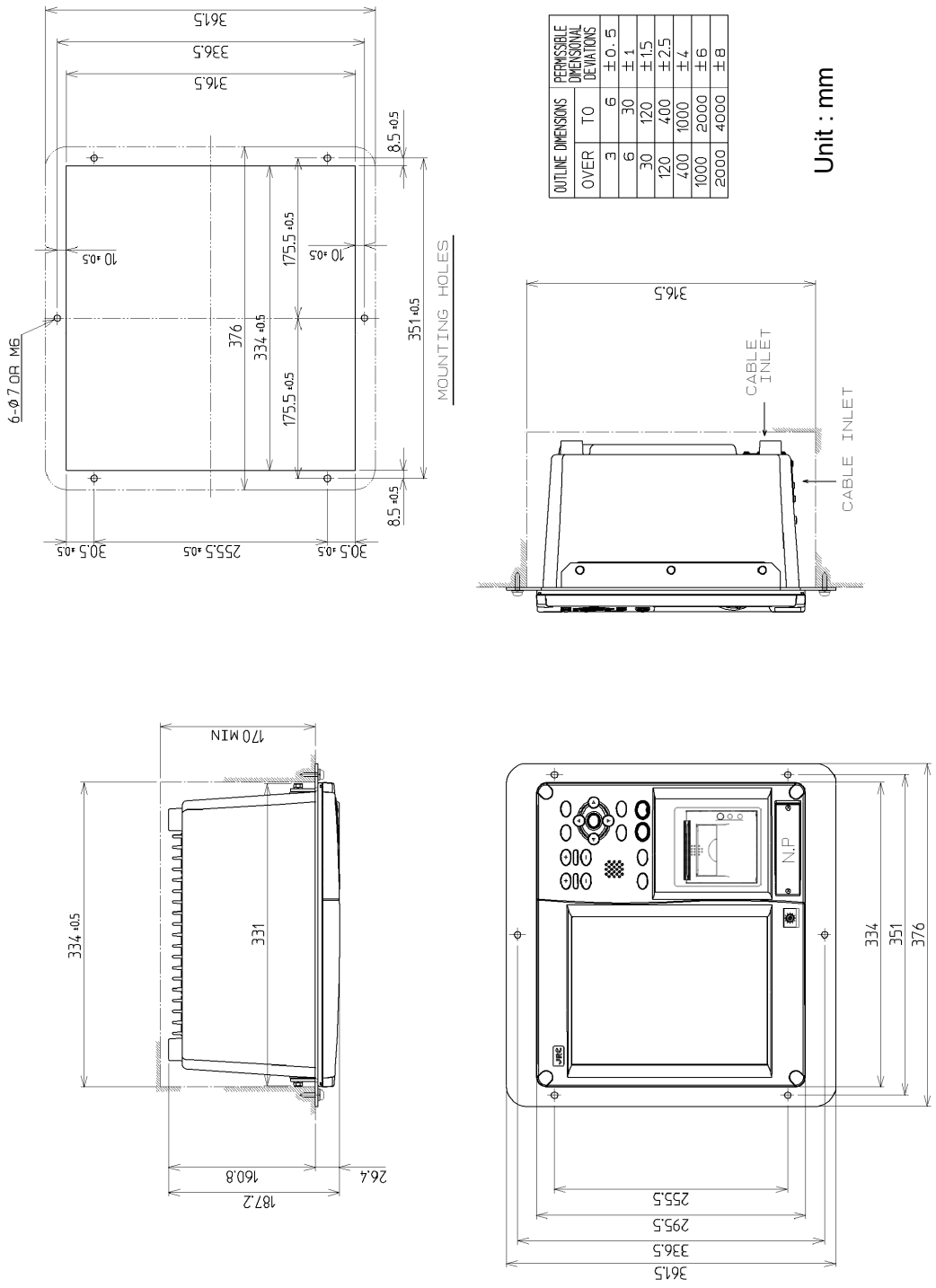
When turning on the power for the first time after installing it, this screen is displayed.

5. Installation

⚠ CAUTION
 When installing the equipment, securely connect the earth lead to the earth terminal. Failure to connect the earth may result in electric shock in the event of a fault or power leak developing.
 Do not install or operate the equipment where subject to temperatures 55°C or higher or –15°C or lower. Failure to observe this caution may result in fire or damage.
 Do not install the equipment on unstable or unlevel surfaces. Failure to observe this condition may result in the equipment falling or toppling over, resulting in injury.
 Take care when laying the transducer cable, power cable, and earth lead as positioning has an affect on electromagnetic interference. There is a risk of interfering with other equipment or the echo-sounder being interfered with by the other equipment.
 After installing the echo-sounder, turn on the power to all other equipment to check for interference with or from all the equipment. Interference may cause malfunctions.

5.1 Installing the Recorder Unit

Flush-Mount Equipment



OUTLINE DIMENSIONS		PERMISSIBLE DIMENSIONAL DEVIATIONS
OVER	TO	
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8

Unit : mm

Figure 3-1

Wall-Mount Equipment

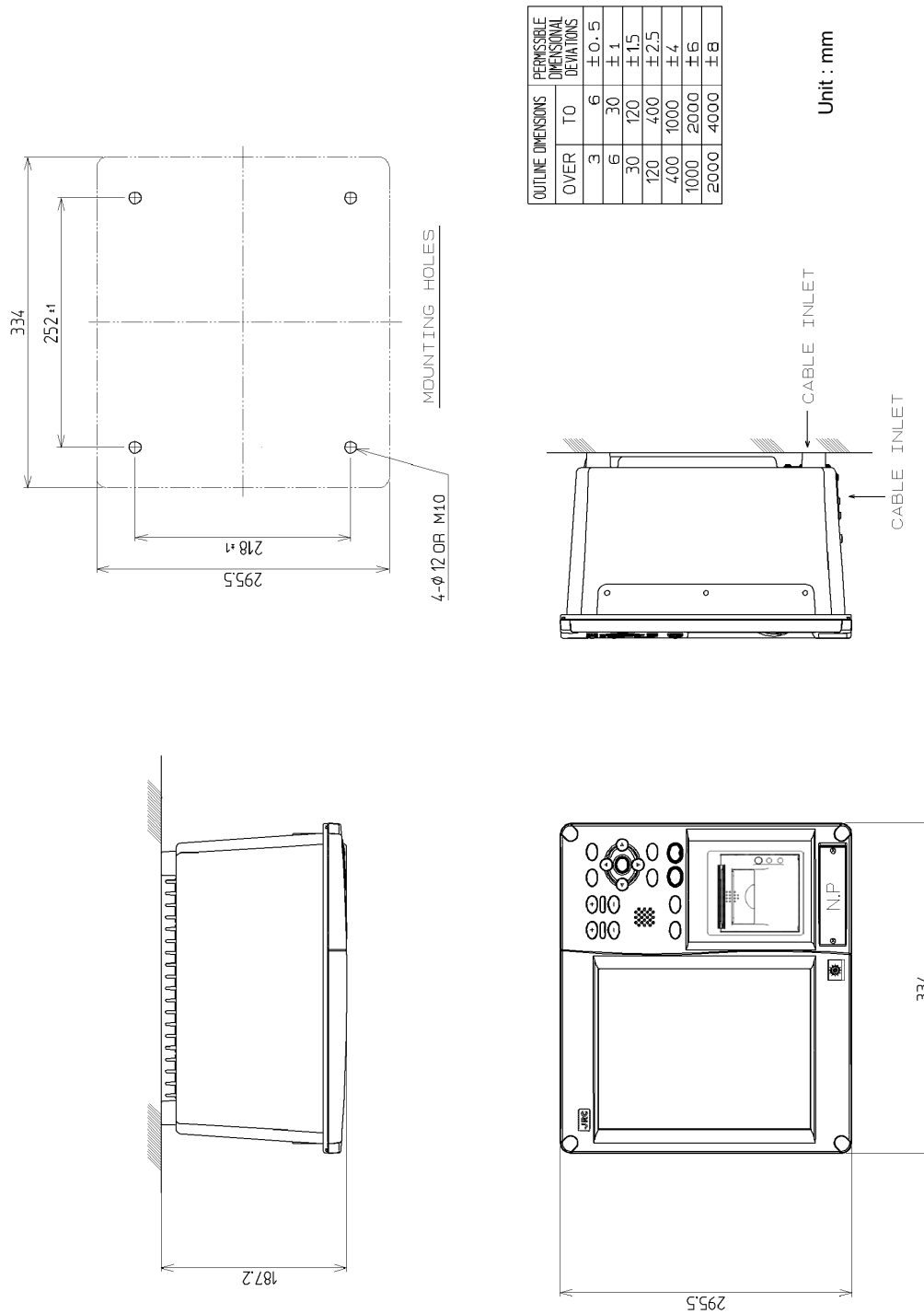
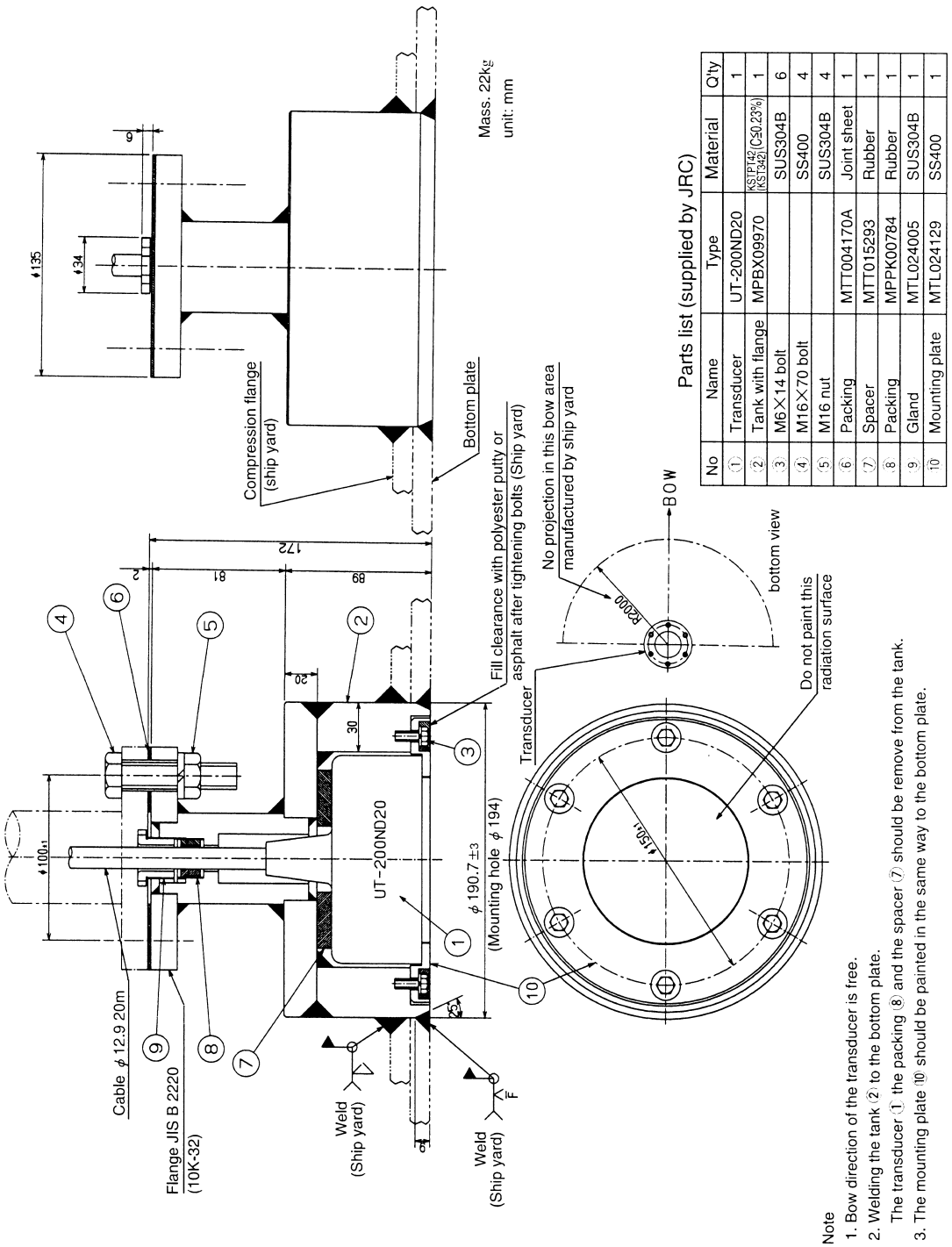


Figure 3-2

5.2 Installing the Transducer

The external dimensions illustrated below are for the standard equipment. Please refer to the separately supplied drawings if your specifications are not standard.

NKF-341

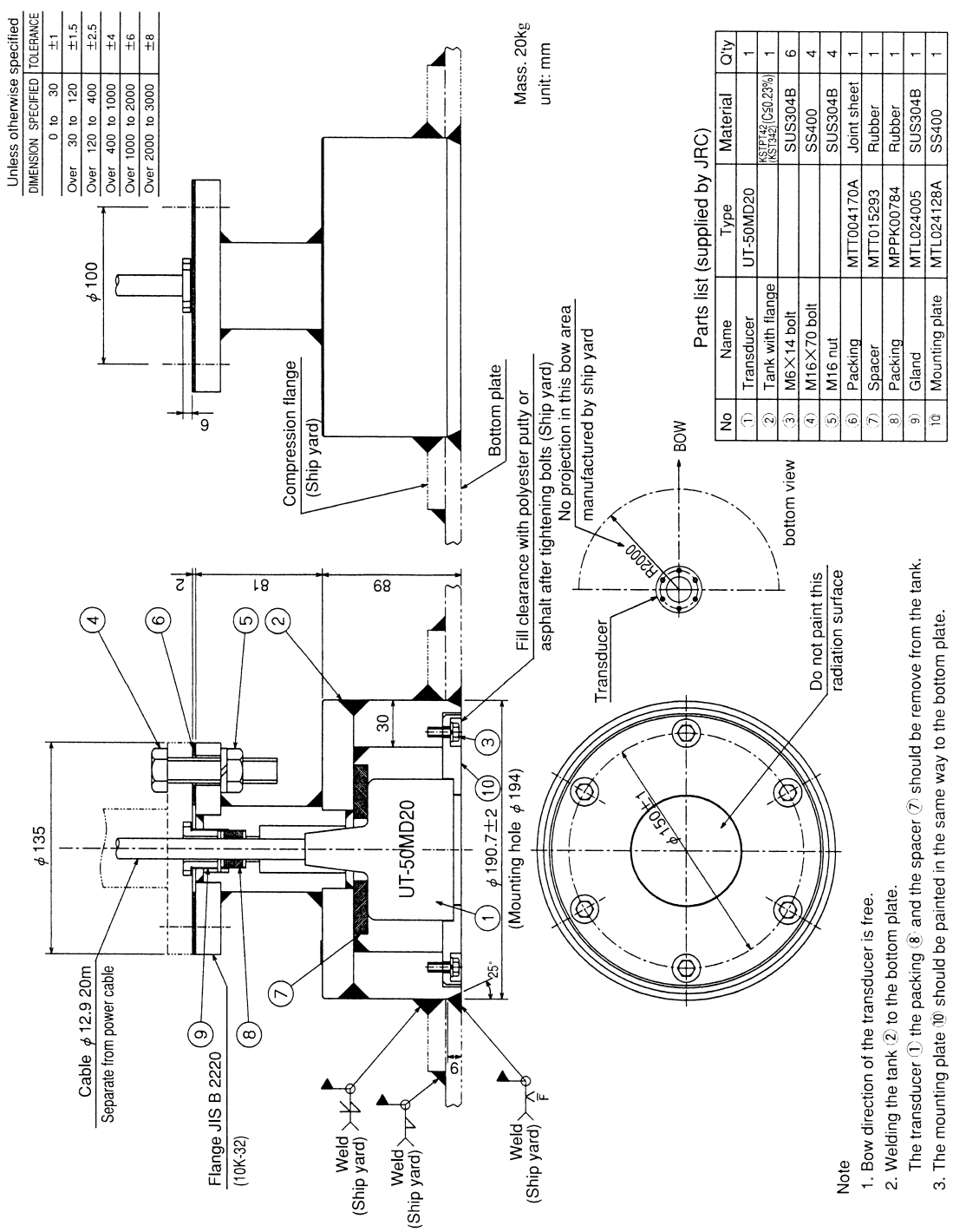


Parts list (supplied by JRC)

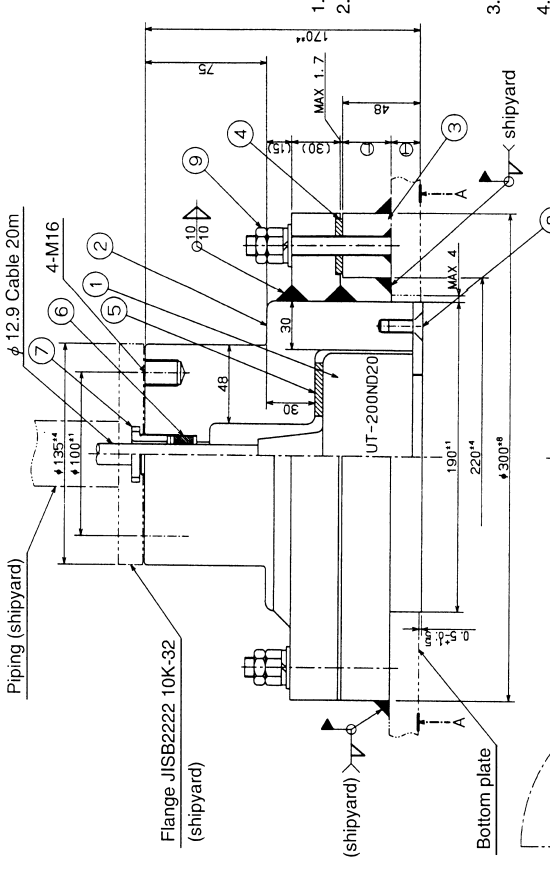
No	Name	Type	Material	Q'ty
①	Transducer	UT-200ND20		1
②	Tank with flange	MPBX09970	KS1P142 (KS1342) (C≤0.23%)	1
③	M6×14 bolt		SUS304B	6
④	M16×70 bolt		SS400	4
⑤	M16 nut		SUS304B	4
⑥	Packing	MTT004170A	Joint sheet	1
⑦	Spacer	MTT015293	Rubber	1
⑧	Packing	MPPK00784	Rubber	1
⑨	Gland	MTL024005	SUS304B	1
⑩	Mounting plate	MTL024129	SS400	1

Note
1. Bow direction of the transducer is free.
2. Welding the tank ② to the bottom plate.
   The transducer ① the packing ⑧ and the spacer ⑦ should be remove from the tank.
3. The mounting plate ⑩ should be painted in the same way to the bottom plate.

NKF-345



Note
1. Bow direction of the transducer is free.
2. Welding the tank ② to the bottom plate.
   The transducer ① the packing ⑧ and the spacer ⑦ should be remove from the tank.
3. The mounting plate ⑩ should be painted in the same way to the bottom plate.

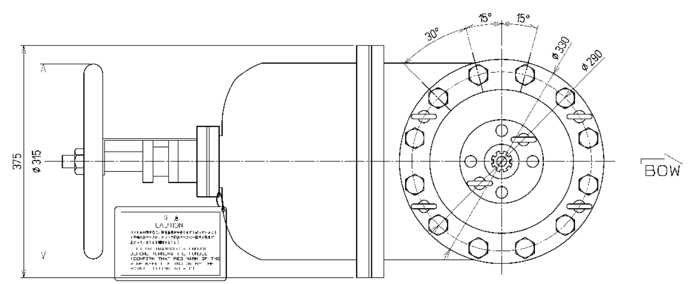


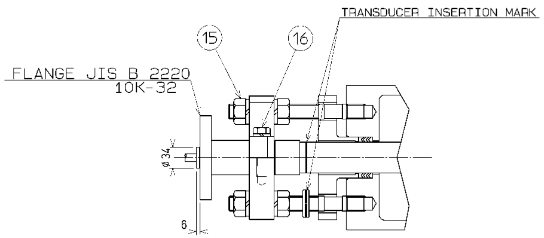
1. The mounting stand should be welded in the shipyard.
2. The dimension Ⓣ corresponds to the thickness of the steel hull bottom.
   This should be designated by the shipyard.
   The dimension Ⓛ of the mounting stand varies between 23mm and 38mm in accordance with the thickness of the steel hull bottom.
   (Ⓣ+Ⓛ=48)
3. The gap between the tank and the steel hull bottom should be less than 4mm.
4. The transducer mounting should be installed in the watertight recess and transducer cable to be protected by steel pipe. (by the shipyard)
5. Torque nuts ⑨ to 7200 to 8800 N•cm (730 to 900kgfcm).
6. The surface of transducer unit should be stuck out 0.5 $^{+1.5}_{-0.5}$ mm from bottom plate.

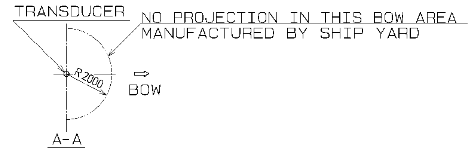
Parts list (supplied by JRC)

No	Name	Type	Material	Q'ty
①	Transducer	UT-200ND20		1
②	Tank	MPBX08424B	KSFR41 (KA) (C≤0.23%)	1
③	Mounting stand	————	KSFR41 (KA) (C≤0.23%)	1
④	Packing	MTT012873A	Rubber t5	1
⑤	Spacer	MTT012874A	Rubber t5	1
⑥	Packing	MPPK00784	Rubber	1
⑦	Gland	MTL024005	SUS304B	1
⑧	M8 flat head bolt	————	SUS304B	8
⑨	M12 nut	————	SUS304B	24

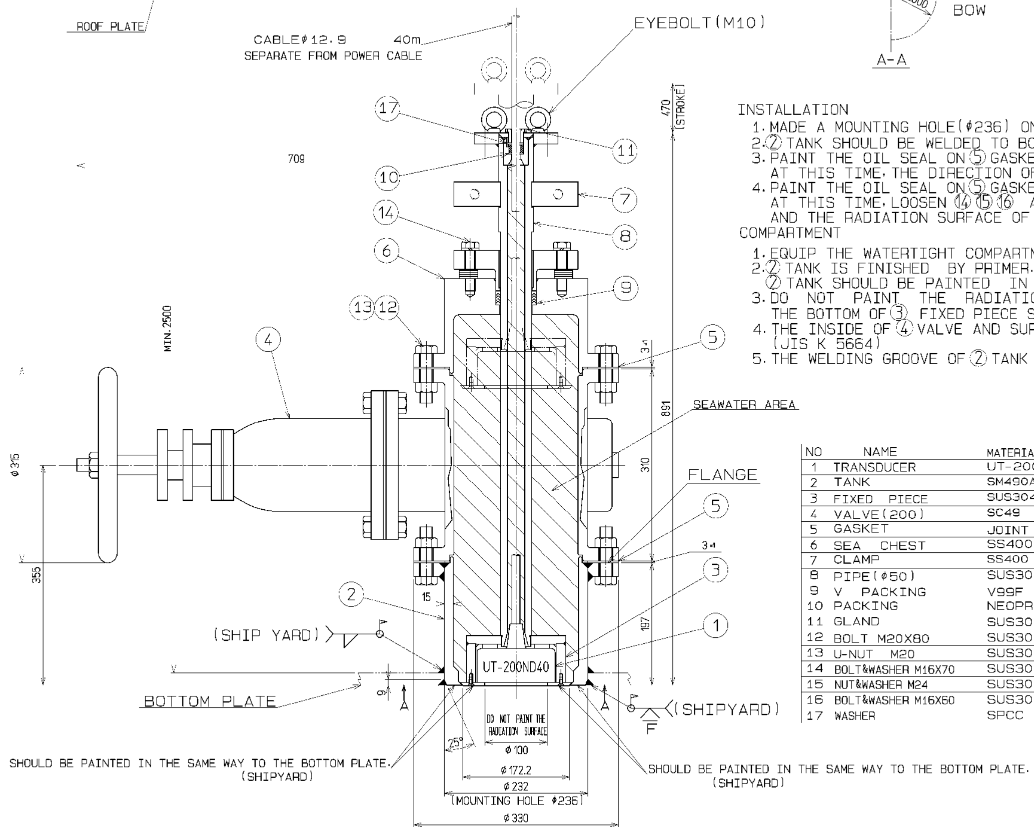
Mass. approx 41kg
Unit: mm







OUTLINE DIMENSIONS OVER	TO	PERMISSIBLE DIMENSIONAL DEVIATIONS
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8



INSTALLATION

1. MADE A MOUNTING HOLE(ϕ236) ON THE BOTTOM PLATE.
2. ② TANK SHOULD BE WELDED TO BOTTOM PLATE SO AS ITS FLANGE BECOME HORIZONTAL.
3. PAINT THE OIL SEAL ON ⑤ GASKET, AND ASSEMBLE ④ VALVE.
   AT THIS TIME, THE DIRECTION OF ④ VALVE CAN BE SELECTED EVERY 30 DEGREES.
4. PAINT THE OIL SEAL ON ⑤ GASKET, AND ASSEMBLE ⑥ SEA CHEST(INCLUDE ①③⑦⑧⑨⑩⑪).
   AT THIS TIME, LOOSEN ⑭⑮⑯ AND CHECK RISE-AND-FALL OPERATION OF TRANSDUCER,
   AND THE RADIATION SURFACE OF ① TRANSDUCER HAS COME OUT OF THE BOTTOM PLATE.

COMPARTMENT

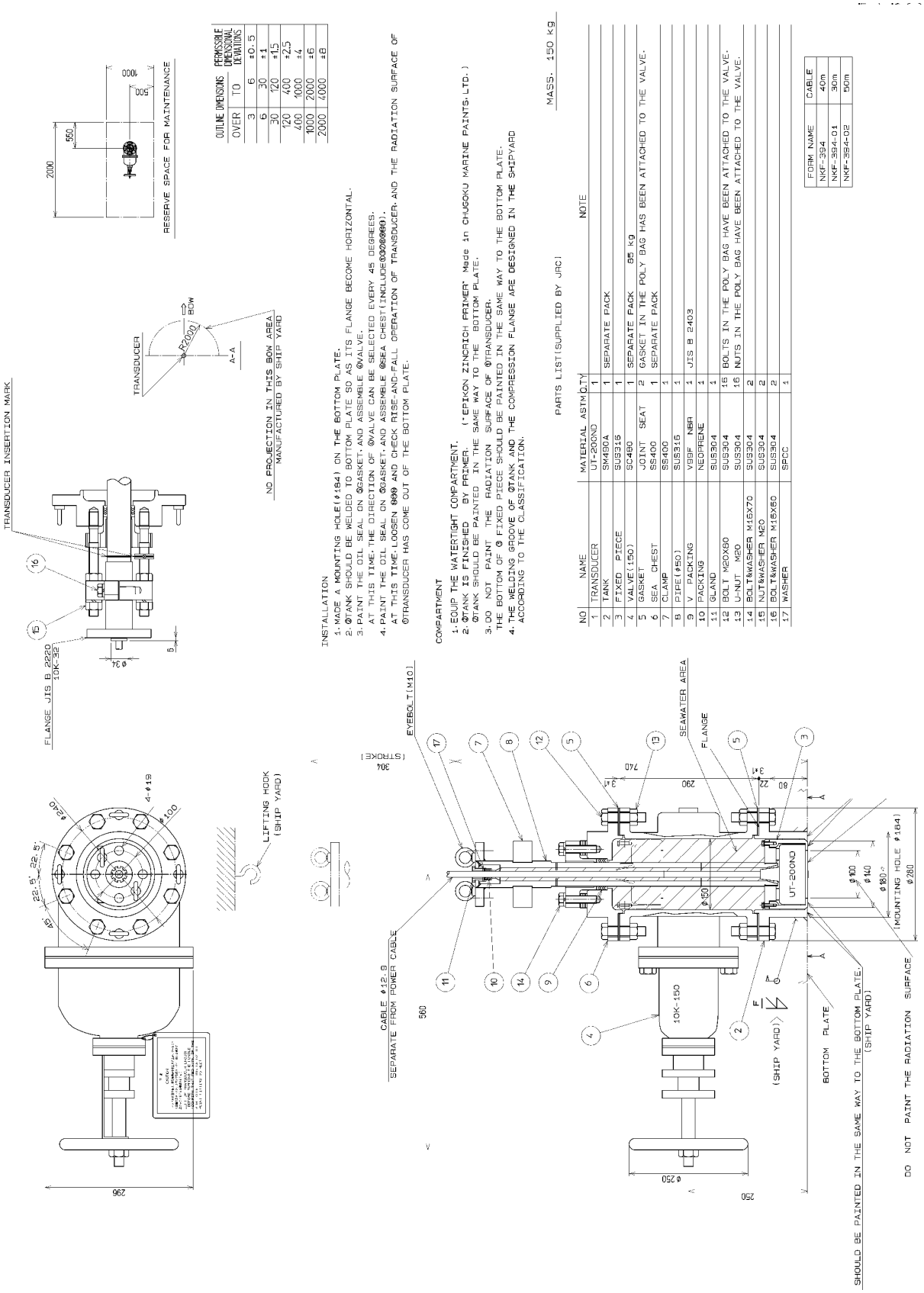
1. EQUIP THE WATERTIGHT COMPARTMENT.
2. ② TANK IS FINISHED BY PRIMER. ("EPIKON ZINCRICH PRIMER" Made in CHUGOKU MARINE PAINTS, LTD.)
   ② TANK SHOULD BE PAINTED IN THE SAME WAY TO THE BOTTOM PLATE.
3. DO NOT PAINT THE RADIATION SURFACE OF ① TRANSDUCER.
   THE BOTTOM OF ③ FIXED PIECE SHOULD BE PAINTED IN THE SAME WAY TO THE BOTTOM PLATE.
4. THE INSIDE OF ④ VALVE AND SURFACE OF SEAWATER AREA ARE FINISHED BY TAR EPOXYRESIN.
   (JIS K 5664)
5. THE WELDING GROOVE OF ② TANK IS DESIGNED IN THE SHIPYARD ACCORDING TO THE CLASSIFICATION.

MASS. 250kg

PARTS LIST(SUPPLIED BY JRC)

NO	NAME	MATERIAL ASTM	Q.TY	NOTE
1	TRANSDUCER	UT-200ND40	1	
2	TANK	SM490A	1	SEPARATE PACK
3	FIXED PIECE	SUS304	1	
4	VALVE(200)	SC49	1	SEPARATE PACK
5	GASKET	JOINT SEAT	2	GASKET IN THE POLY BAG HAS BEEN ATTACHED TO THE VALVE.
6	SEA CHEST	SS400	1	SEPARATE PACK
7	CLAMP	SS400	1	
8	PIPE(ϕ50)	SUS304	1	
9	V PACKING	V99F NBR	1	JIS B 2403
10	PACKING	NEOPRENE	1	
11	GLAND	SUS304	1	
12	BOLT M20X80	SUS304	24	BOLTS IN THE POLY BAG HAVE BEEN ATTACHED TO THE VALVE.
13	U-NUT M20	SUS304	24	NUTS IN THE POLY BAG HAVE BEEN ATTACHED TO THE VALVE.
14	BOLT&WASHER M16X70	SUS304	2	
15	NUT&WASHER M24	SUS304	2	
16	BOLT&WASHER M16X60	SUS304	2	
17	WASHER	SPCC	1	

NKF-394



OUTLINE DIMENSIONS OVER	TO	PERMISSIBLE DIMENSIONAL DEVIATIONS
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8

INSTALLATION
1. MADE A MOUNTING HOLE(φ164) ON THE BOTTOM PLATE.
2. ⑦TANK SHOULD BE WELDED TO BOTTOM PLATE SO AS ITS FLANGE BECOME HORIZONTAL.
3. PAINT THE OIL SEAL ON ⑨GASKET, AND ASSEMBLE ⑥VALVE.
   AT THIS TIME, THE DIRECTION OF ⑥VALVE CAN BE SELECTED EVERY 45 DEGREES.
4. PAINT THE OIL SEAL ON ⑨GASKET, AND ASSEMBLE ⑧SEA CHEST(INCLUDE⑨⑩⑪⑫⑬⑭).
   AT THIS TIME, LOOSEN ⑫⑬⑭ AND CHECK RISE-AND-FALL OPERATION OF TRANSDUCER, AND THE RADIATION SURFACE OF ①TRANSDUCER HAS COME OUT OF THE BOTTOM PLATE.

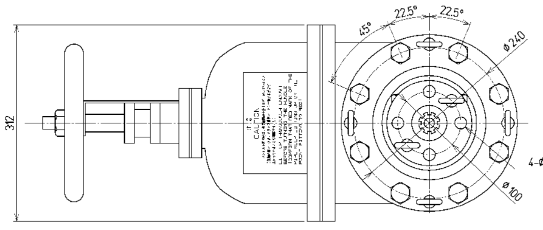
COMPARTMENT
1. EQUIP THE WATERTIGHT COMPARTMENT.
2. ⑦TANK IS FINISHED BY PRIMER. ('EPIKON ZINCRICH PRIMER' Made in CHUGOKU MARINE PAINTS, LTD.)
   ⑦TANK SHOULD BE PAINTED IN THE SAME WAY TO THE BOTTOM PLATE.
3. DO NOT PAINT THE RADIATION SURFACE OF ①TRANSDUCER.
   THE BOTTOM OF ⑰ FIXED PIECE SHOULD BE PAINTED IN THE SAME WAY TO THE BOTTOM PLATE.
4. THE WELDING GROOVE OF ⑦TANK AND THE COMPRESSION FLANGE ARE DESIGNED IN THE SHIPYARD ACCORDING TO THE CLASSIFICATION.

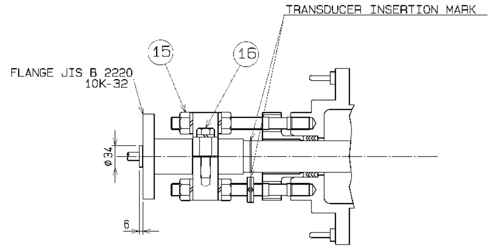
PARTS LIST(SUPPLIED BY JRC)　　MASS: 150 kg

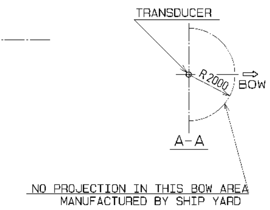
NO	NAME	MATERIAL ASTM	Q'TY	NOTE
1	TRANSDUCER	UT-200ND	1	
2	TANK	SM490A	1	SEPARATE PACK
3	FIXED PIECE	SUS316	1	
4	VALVE(150)	SC480	1	SEPARATE PACK 85 kg
5	GASKET	JOINT SEAT	2	GASKET IN THE POLY BAG HAS BEEN ATTACHED TO THE VALVE.
6	SEA CHEST	SS400	1	SEPARATE PACK
7	CLAMP	SS400	1	
8	PIPE(150)	SUS316	1	
9	V PACKING	V99F NBR	1	JIS B 2403
10	PACKING	NEOPRENE	1	
11	GLAND	SUS304	1	
12	BOLT M20X90	SUS304	16	BOLTS IN THE POLY BAG HAVE BEEN ATTACHED TO THE VALVE.
13	U-NUT M20	SUS304	16	NUTS IN THE POLY BAG HAVE BEEN ATTACHED TO THE VALVE.
14	BOLT&WASHER M16X70	SUS304	2	
15	NUT&WASHER M20	SUS304	2	
16	BOLT&WASHER M16X60	SUS304	2	
17	WASHER	SPCC	1	

FORM NAME	CABLE
NKF-394	40m
NKF-394-01	30m
NKF-394-02	50m

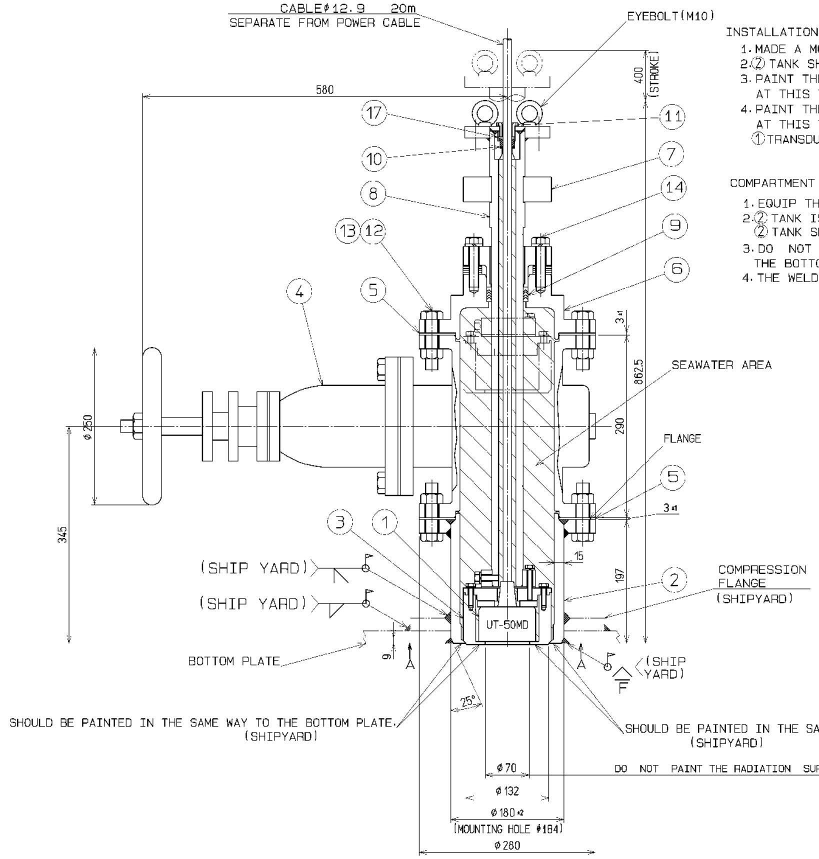
NKF-396







OUTLINE DIMENSIONS OVER	TO	PERMISSIBLE DIMENSIONAL DEVIATIONS
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8



INSTALLATION

1. MADE A MOUNTING HOLE(φ184) ON THE BOTTOM PLATE.
2. ② TANK SHOULD BE WELDED TO BOTTOM PLATE SO AS ITS FLANGE BECOME HORIZONTAL.
3. PAINT THE OIL SEAL ON ⑤ GASKET, AND ASSEMBLE ④ VALVE.
   AT THIS TIME, THE DIRECTION OF ④ VALVE CAN BE SELECTED EVERY 45 DEGREES.
4. PAINT THE OIL SEAL ON ⑤ GASKET, AND ASSEMBLE ⑥ SEA CHEST(INCLUDE ①③⑦⑧⑨⑩⑪).
   AT THIS TIME, LOOSEN ⑭⑮⑯ AND CHECK RISE-AND-FALL OPERATION OF TRANSDUCER, AND THE RADIATION SURFACE OF ① TRANSDUCER HAS COME OUT OF THE BOTTOM PLATE.

COMPARTMENT

1. EQUIP THE WATERTIGHT COMPARTMENT.
2. ② TANK IS FINISHED BY PRIMER. ("EPIKON ZINCRICH PRIMER" Made in CHUGOKU MARINE PAINTS, LTD.)
   ② TANK SHOULD BE PAINTED IN THE SAME WAY TO THE BOTTOM PLATE.
3. DO NOT PAINT THE RADIATION SURFACE OF ① TRANSDUCER.
   THE BOTTOM OF ③ FIXED PIECE SHOULD BE PAINTED IN THE SAME WAY TO THE BOTTOM PLATE.
4. THE WELDING GROOVE OF ② TANK AND THE COMPRESSION FLANGE ARE DESIGNED IN THE SHIPYARD ACCORDING TO THE CLASSIFICATION.

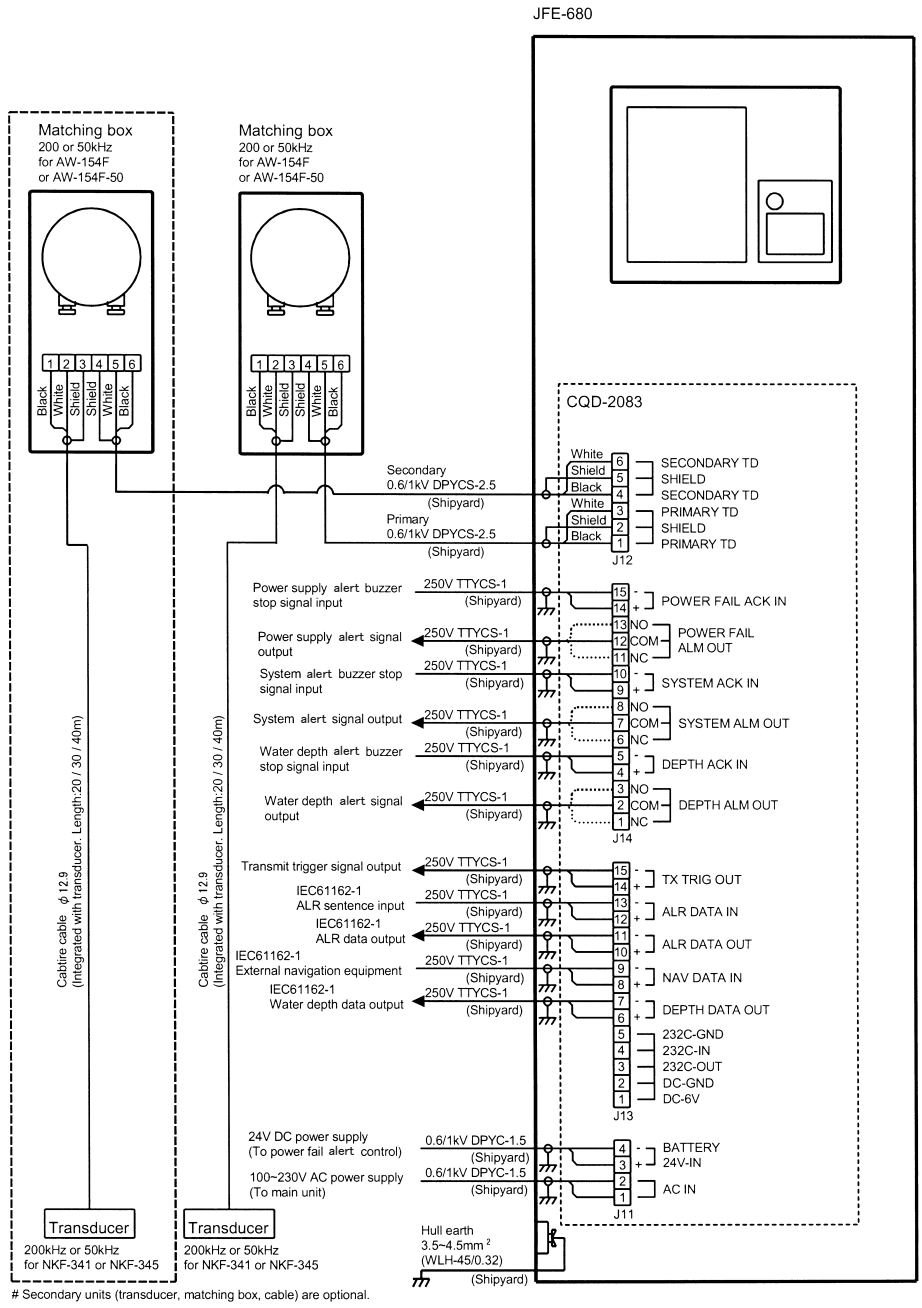
MASS. 150kg

PARTS LIST(SUPPLIED BY JRC)

NO	NAME	MATERIAL ASTM	Q.TY	NOTE
1	TRANSDUCER	UT-50MD	1	
2	TANK	SM490A	1	SEPARATE PACK
3	FIXED PIECE	STKM13A	1	
4	VALVE(150)	SC480	1	SEPARATE PACK 85kg
5	GASKET	JOINT SEAT	2	GASKET IN THE POLY BAG HAS BEEN ATTACHED TO THE VALVE.
6	SEA CHEST	SS400	1	SEPARATE PACK
7	CLAMP	SS400	1	
8	PIPE(φ50)	SUS304	1	
9	V PACKING	V99F NBR	1	JIS B 2403
10	PACKING	NEOPRENE	1	
11	GLAND	SUS304	1	
12	BOLT M20X80	SUS304	16	BOLTS IN THE POLY BAG HAVE BEEN ATTACHED TO THE VALVE.
13	U-NUT M20	SUS304	16	NUTS IN THE POLY BAG HAVE BEEN ATTACHED TO THE VALVE.
14	BOLT&WASHER M16X70	SUS304	2	
15	NUT&WASHER M20	SUS304	2	
16	BOLT&WASHER M16X60	SUS304	2	
17	WASHER	SPCC	1	

5.3 Connecting Components

JFE-680 Connecting Components



Notes:

1. The shield of each cable must be securely attached to the connectors and must not contact any other connectors, etc.
2. Casings must be grounded securely to the ship's hull using copper plates.
3. The exterior is to be grounded to the ship's hull cable bands.
4. Select NC/NO for Depth Alert, System Alert and Power Fail Alert.

6. Maintenance & Check

⚠WARNING

Do not open the equipment to inspect or repair internal circuits.
Inspection or repairs by anyone other than a specialized technician may result in fire, electrical shock, or malfunction.
If internal inspection or repair is necessary, contact our service center or agents.

6.1 Daily Maintenance

The life of the equipment depends on the execution situation of the daily maintenance and check. We would recommend regularly checking usually to always keep the best. As a result, the equipment can be prevented from breaking down beforehand.

Please execute the check shown in the table regularly.

Maintenance and check method

◎When you check the equipment, turn off the power by all means.

No.	Item	Method
1	Cleaning	For the main unit, wash off dirt by lightly wiping it with a dried and soft cloth. Never use a plastic solvent such as thinner and benzine.
2	Loosening of parts	Check the screw and the nut for loosening, and tighten correctly.
3	Cable connection	Check the connections such as cables and the connectors between equipment, and ensure the connection.
4	Fuse	When the power supply fuse is blown, replace it after thoroughly investigating the cause. Use the fuse of the cylindrical glass (included in the spare parts).

6.2 Maintenance Function

Make [MENU]・MAINTENANCE a yellow display by ▲▼, press ▶, and the following menu is displayed.

```
MAINTENANCE
  SELF TEST          >
  ALERT LOG          >
  ALERT LOG OUT      >
  ALERT LOG DEL      >
  LINE MONITOR       >
  RX MONITOR         >
  SYSTEM No.         >
```

・A present selection item is displayed by a yellow character.
・Selecting items move a yellow display with ▲ or ▼ key.
・When ▶ or the [ENT] key is pressed after a necessary item is selected, the item setting content is displayed.
・When the [ENT] key is pressed after the content is selected (setting), the selection (setting) is registered and it returns to a left screen.
・When returning to a left screen without registering, press ◀ or the [CLR] key.

Executing Self Test

・Make SELF TEST a yellow display, press ▶ or the [ENT] key, and the following menu is displayed.

```
SELF TEST
  CONTROL UNIT       >
  LCD UNIT           >
  KEY UNIT           >
  PRINTER TEST       >
  ALERT TEST         OFF
```

・Selecting items move a yellow display with ▲ or ▼ key.

「CONTROL UNIT」

・Make CONTROL UNIT a yellow display, press ▶ or the [ENT] key, and the self test starts.
・PROM/SRAM/VRAM is checked, “OK" is displayed in the item that abnormality is not found in the result, and “NG" is displayed in the item in which abnormality is found.
・The key is not accepted while checking it.
・It returns to the self test menu when the [CLR] key is pressed after the self test result is displayed.
・Because the screen data is rewritten when VRAM is checked, the image before the check is deleted.

「LCD UNIT」

・Make LCD UNIT a yellow display, press ▶ or the [ENT] key, and the LCD self test starts.
・The screen switches the color with ▲ ▼ key in single color indication of “Black/Red/Green/Blue/White".
・When the [CLR] key is pressed , it returns to the self test menu.

「KEY UNIT」

・Make KEY UNIT a yellow display, press ▶ or the [ENT] key, and the operation unit self test starts.

・When the key on the operation panel is pressed, the name of the pressed key is displayed.

However, it returns to the self test menu when the [CLR] key is pressed, and the [CLR] key is judged.

「PRINTER TEST」

・Make PRINTER TEST a yellow display, press ▶ or the [ENT] key, and the test pattern is output (print).

「ALERT TEST」

・Make ALERT TEST a yellow display, press ▶ or the [ENT] key, and select it from the following, set content.

Set content : OFF/DEPTH ALARM/SYSTEM ALERT

When DEPTH ALARM is selected, and the depth alert is set according to the following procedure, the test starts.

・Menu “ALERT" ▶ “DEPTH ALARM" ▶ “ALERT CONT" ▶ “ON" ・[ENT] key

・Menu “ALERT" ▶ “DEPTH ALARM" ▶ “ALERT SETTING" ▶ "A depth value that is deeper than 1/2 of the scale values is set" ・ [ENT] key.

・When the sea bottom lost alert is set according to the following procedure after SYSTEM ALERT is selected, the test starts.

・Menu “ALERT" ▶ “SYSTEM ALERT" ▶ “DEPTH LOST" ▶ “ON" and [ENT] key

・Set it to “OFF" after ALERT TEST finishes.

・When the [CLR] key is pressed, it returns to the self test menu.

・ Return “DEPTH ALARM" and “SYSTEM ALERT" to original setting.

Displaying Alert Log

・Make ALERT LOG a yellow display, press ▶ or the [ENT] key, and last 20 memorized alert histories are displayed.

・Each alert log displays alert occurred position (position data need), date/month/year, time, alert No. and alert status.

Alert No. is from 01 to 13. The No. meaning is shown in page 24.

Alert status has “A: alert is still lasting” and “V: cleared alert condition”.

・When the [CLR] key is pressed, it returns to the maintenance menu.

Outputting Alert Log

・Make ALERT LOG OUT a yellow display, press ▶ or the [ENT] key, and selects it from the following, set content.

Set content : NORMAL/PRINTER/PC

NORMAL : last 20 memorized alert histories are output to the depth output port.

PRINTER : The alert history is displayed to the printer in the text.
The content to display is equal to “ALERT LOG".
When “PRINTER PORT OUT" of menu “COMMUNICATION" is set to “PC", it becomes an error.

```
01 --°--.---- ---°--.----
   01/09/2011 00:02:22 01 V
02 --°--.---- ---°--.----
   01/09/2011 00:04:04 03 A
```

PC : All the memorized alert histories are output to the printer output port.
When “PRINTER PORT OUT" of menu “COMMUNICATION" is set to “PRINTER", it becomes an error.

Deleting Alert Log

・Make ALERT LOG DEL a yellow display, press ▶ or the [ENT] key, and all the memorized alert histories are deleted.

Executing Line Monitor

・Make LINE MONITOR a yellow display, press ▶ or the [ENT] key, and the following menu is displayed.

```
LINE MONITOR
  NAV/DEPTH  >
  ALR        >
  PRINTER    >
```

- NAV/DEPTH : Navigation data/Depth output
- ALR : ALR Input/Output
- PRINTER : Printer port

・Make the monitor item a yellow display, press ▶ or the [ENT] key, and the input/output data of the serial port is displayed, and input data is displayed in the upper part of the screen, and output data is displayed under the screen.

・When the [CLR] key is pressed, it returns to the maintenance menu.

Displaying RX Monitor

・Make RX MONITOR a yellow display, press ▶ or the [ENT] key, and a present situation of the receiver is displayed.

- LEVEL : Detection level of sea bottom (maximum value within the range from sea bottom detection position to the lower side)
- RANGE : Range of sea bottom tracking
- GAIN : Gain setting value

・When the [CLR] key is pressed, it returns to the maintenance menu.

Displaying System No.

・Make SYSTEM No. a yellow display, press ▶ or the [ENT] key, and the program version is displayed.

- ＊＊／＊＊／＊＊＊＊ : Date
- Ver. ＊＊. ＊＊ : Version

・When the [CLR] key is pressed, it returns to the maintenance menu.

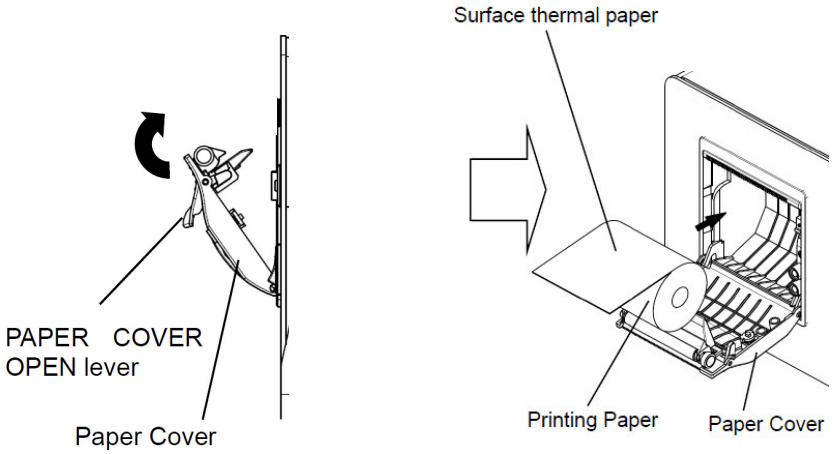
6.3 Replacing Printer Paper

⚠CAUTION
Do not cut your hand in the blade tip of the paper cutter.

Name	Model type	Remarks
Printer paper	H-7ZPJD0384	TF50KS-E2D for build-in printer
	H-6ZCAF00252A	for optional DPU-414 printer

◎After turning off the power supply of this equipment, exchange papers.

When the printer cover is opened while turning on, the alert of “NO PAPER" sounds.



① Open the paper cover by pressing the paper cover opening button.

② Set the paper like the direction of figure.

③ Shut the cover after making the paper tip put out outside of the printer and pushing both ends of the upper paper cover.

＊A red mark of a paper slip previous notice puts out from 1m remain when the remainder of the paper decreases.

6.4 Replacing Backup Battery

Backup battery is use for backup the menu set up item. Battery life depends on the leave time of OFF status. About 5 years are the battery lifetime.

If the backup battery is low, “Please do connection setting of transducers.” Message will pop up with turning on. See page 37, 4.8 Master Reset.

If your JFE-680 becomes like this, please contact our agent to order replacing the battery.

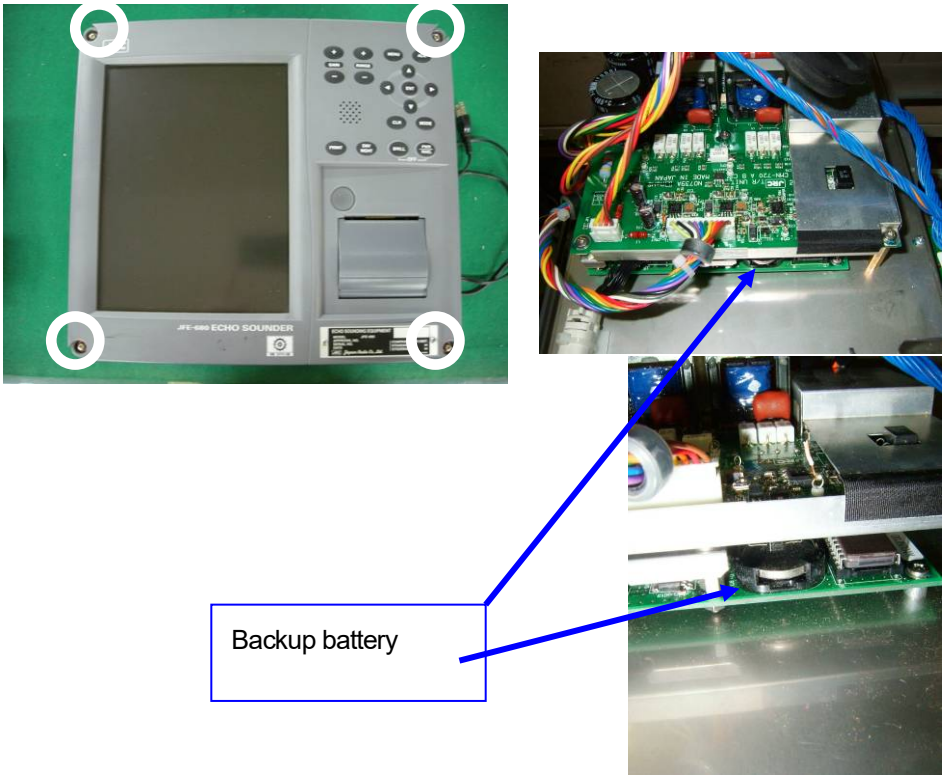
Backup lithium coin cell battery	CR2032

Note : For the safety, turn off the main power switch of echo sounder. Then start to replace the battery. The setting data would be kept about twenty minutes by super capacitor. So, if you finish replacing the battery in these minutes, the setting data would not need to set again.

- Outline of battery replace
  1 Turn off the echo sounder. Turn off the circuit breaker. Work after waiting for about 10 seconds.
  2 Remove the front cover of the echo sounder.
  3 Replace the battery.
  4 Set the front cover of the echo sounder.
  5 Turn on the circuit breaker. Turn on the echo sounder.

1 Press【PWR/PANEL】and【BRILL】for about three seconds to turn off the echo sounder. Turn off the circuit breaker. Work after waiting for about 10 seconds.

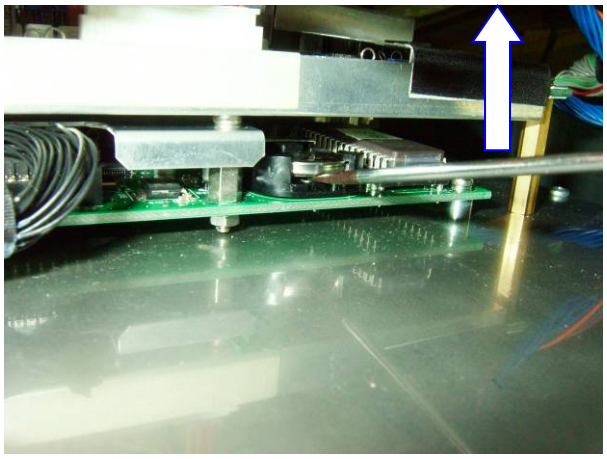
2 Remove the front cover of the echo sounder. Remove 4 screws on the front cover.
The battery is installed back side of the LCD.

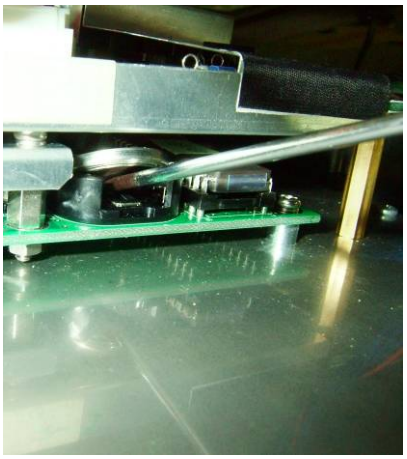


3 Replace the battery.

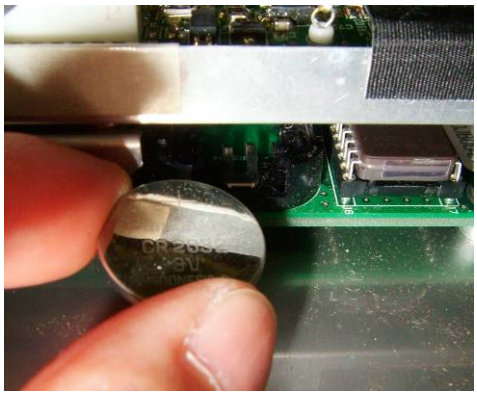
Stick the small width (narrower than 5mm) slotted screwdriver between the battery and the battery socket.

Lift the screwdriver to take off the battery.

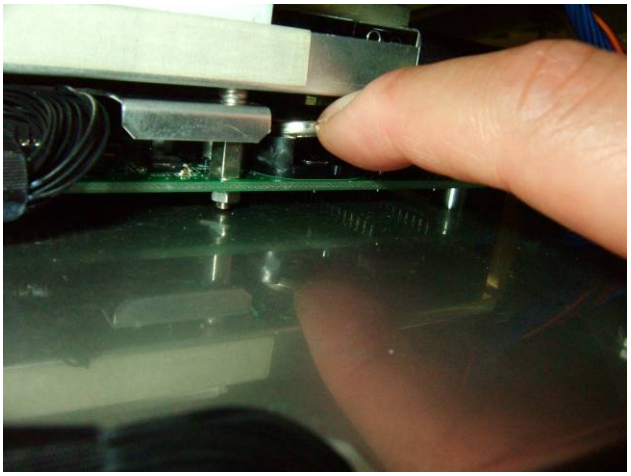


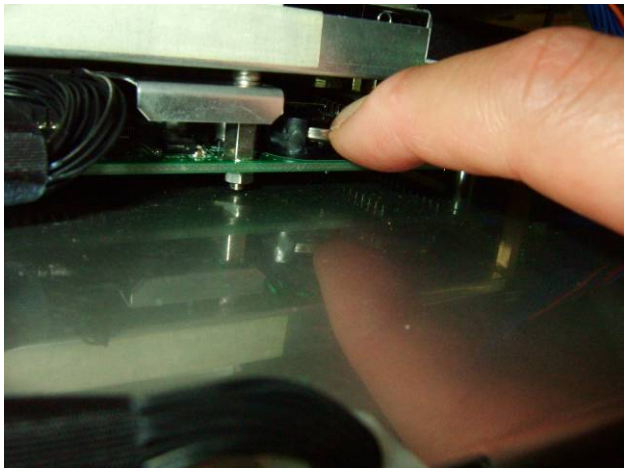


Set the new battery in the battery socket. The positive (+) terminal is upside.



Push the battery until stayed in horizontally.





6.5 Troubleshooting

The table below shows the principal symptom, the cause, and measurements. As a result, request the repair to our company or our agency when it is not possible to recover to normal operational condition.

Symptom	Cause	Measurements
The screen doesn't appear even if power switch (PWR) is pressed.	The breaker of AC100-230V of the ship is "OFF".	Make the breaker of AC100-230V of the ship "ON".
	The disconnection of the power supply AC inboard cable or the screw in the connecting terminal has loosened.	Repair the cable. Tighten the screw in the connecting terminal surely.
	Blowing the fuse.	Replace fuses.
The depth value is not displayed. Only the oscillation line is displayed in the image of a standard mode.	Actual sea bottom is deeper than the setting of range. (out of range)	Make the range setting AUTO. Or, change the range setting manually and adjust it.
	The transducer cable has been disconnected.	Repair the cable.
The depth value is not displayed. The sea bottom echo is slightly recorded by the image of a standard mode.	The sensitivity setting is too weak.	Make the sensitivity setting AUTO. Or, raise sensitivity.
	Sea bottom is mud (weak stratum).	Make the sensitivity setting AUTO. Or, raise sensitivity.
	The oyster and the barnacle adhere to the transducer.	Remove the adhesion thing of the transducer at dry-dock.
	The cable disconnection of the transducer or the screw in the connecting terminal has loosened.	Check whether for be disconnected of the one side of the transducer. Tighten the screw in the connecting terminal surely.
The depth value is not correct.	A set value of the draft adjustment is not correct.	Set a correct value.
The depth value is not correct. In the image of a standard mode, the record mistaken in a middle layer as sea bottom appears.	The sensitivity setting is too strong.	It is recorded to garbage in water, dirt, and plankton's layers that sensitivity is too high, and recognizes sea bottom this. Make the sensitivity setting AUTO. Or, lower sensitivity.
There are a lot of records of the noise.	Noise generated from dynamo.	Check the dynamo.
	The main unit earth is imperfect.	Check the main unit earth.
	External interference noise.	The influence of the underwater sonic prospecting equipment of another ship has been received. This symptom is not a trouble of this equipment and originates in an external factor.

6.6 Replacing Fuses

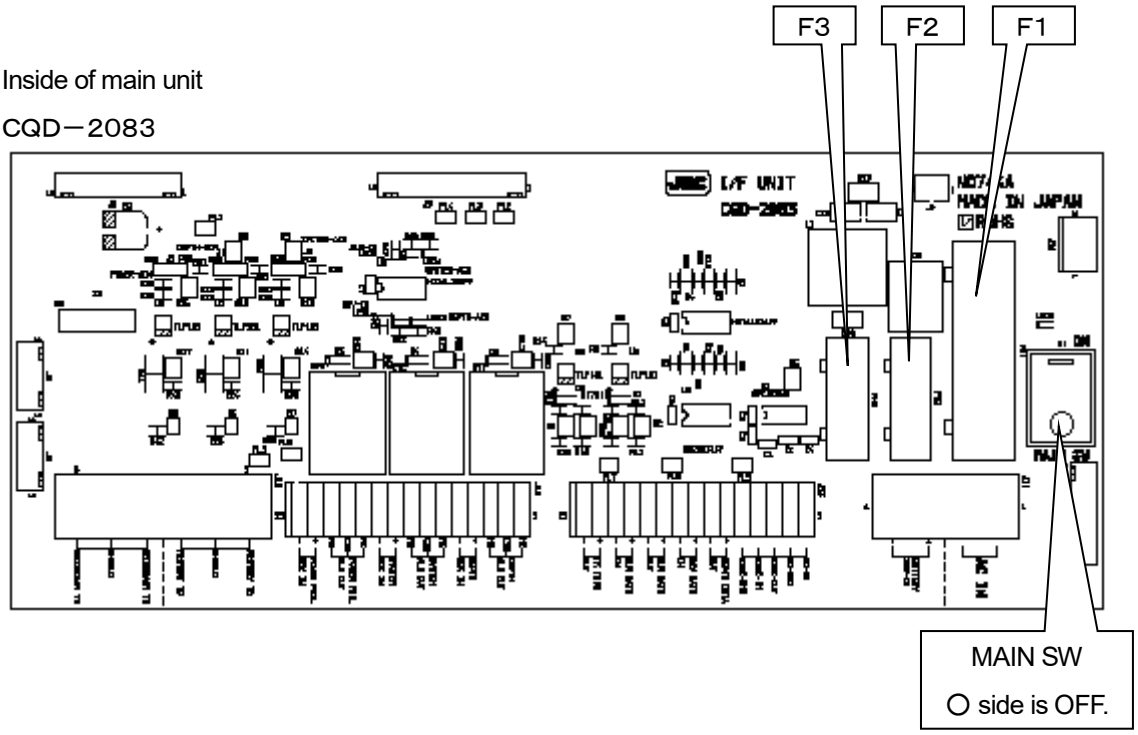
Exchange the fuse for the one of our specification. Exchange it after confirming the cause to which the fuse is blown. Moreover, turn off the main switch of the power supply CQD-2083 when you exchange fuses (Press ○ sign side).

No.	Model type	Rating	Remarks
F1	250V A TLC 5A	250V 5A	For power supply in this equipment
F2	MF51NR 250V 0.5 or equivalent	250V 0.5A	For power supply alert circuit in this equipment
F3	MF51NR 250V 2 or equivalent	250V 2A	For built-in printer power supply

Fuse Positions

Inside of main unit

CQD－2083



(1) Replacing Main Power Supply Fuse F1

・As for the cause, the defective cable connected with the power supply is considered.

Exchange fuses after defective checking the cable. Still, when the fuse is blown, the defect in the power supply CBD-1811 is thought. Request the repair.

(2) Replacing 24VDC Input Power Fail Alert Fuse F2

・As for the cause, the abnormal voltage input is thought.

Confirm the input voltage of interface unit J11 terminal stand ③ ④.

Exchange fuses after confirming it is rating DC24V(DC21.5 ～31.5V).

Still, when the fuse is blown, because defects of the interface unit CQD-2083, the power supply CBD-1811, the operation unit CCK-963, and wiring CFQ-9139, CFQ-9140, CFQ-9148, etc. are thought. Request the repair.

(3) Replacing Built-in Printer Fuse F3

・As for the cause, in the case of the built-in printer, the over current of the external unit connected with printer or Interface unit J13 ① ② is thought.

Remove the connecting cable of the external unit once. Still, when the fuse is blown, because defects of an interface unit CQD-2083, a built-in printer H-7HPJD0001, and wiring CQD-9142, etc. are thought. Request the repair.

6.7 Repair Parts

Parts name	Type	Remarks
Main Unit	CDJ-2338-2A	
	CDJ-2338-2L	
TX/RX Unit	CMN-720-22	200kHz/200kHz as standard
	CMN-720B25 CMN-720-25	200kHz/50kHz-A as option 200kHz/50kHz as option(Discontinued)
	CMN-720B55 CMN-720-55	50kHz-A/50kHz-A as option 50kHz/50kHz as option(Discontinued)
Power Supply Unit	CBD-1811	
I/F Unit	CQD-2083	
Operation Unit	CCK-963	
LCD Panel ASSY	CCN-464	
Printer	H-7HPJD0003	
Screen plate for JFE-680 printer	BRBX05341	Closing board when there is no printer
Screw Cap	BRBX05352	Decoration cap of front four corners screw

7. Consider Installation

• Do not install the JFE-680 where subject to the following conditions as such conditions may cause failures and reduce the life of the equipment.

1. Where liable to be splashed with water.

2. Where ventilation is poor.

• Do not coat the part of the transducer that outputs the ultrasonic waves (the rubber part of the tank on the ship's bottom) with the hull coating as this will deteriorate performance.

8. After-sales Service

8.1 When Requesting Servicing

If you suspect a fault, stop using the equipment and contact JRC or its agent.

Servicing Under Warranty

When the fault develops while the equipment is being used as indicated in the Instruction Manual, the equipment will be repaired free of charge. However, if the fault occurs as the result of misuse, negligence, natural disaster, fire, or other acts of God, a charge will be made for its repair.

Servicing Out of Warranty

If the fault can be rectified by servicing the equipment, the repair will be made at your expense.

Details to be Submitted

- Name, type No., month and year of manufacture, and serial number;
- Nature of fault (in as much detail as possible);
- Contact details (your name, address and phone number, etc.)

8.2 Recommendations for Inspection and Maintenance

Depending on the conditions of usage, the performance may deteriorate due to the aging of components. In such conditions, please consult JRC or its agent for inspection and maintenance, as distinct from the daily care you normally give your equipment.
Note that such inspection and maintenance is subject to charge.
Please consult JRC or its agent for further details of any part of the afterservice conditions.
Contact: See list at end of manual.

8.3 Warranty & After-sales Service

For further details of after-sale service, contact the JRC Offices.

■Warranty Period
For one year after following installation. Warranty period is subject to change by contract.

■Keeping period of maintenance parts
Keeping period of maintenance parts is ten years from the production is discontinued.

■Repair within the Warranty Period
If any failure occurs in the product during its normal operation in accordance with the instruction manual, the dealer or JRC will repair free of charge. In case that any failure is caused due to misuse, faulty operation, negligence or force major such as natural disaster and fire, the product will be repaired with charges.

■Repair after the Warranty Period
If any defective function of the product is recoverable by repair, the repair of it will be made at your own charge upon your request.
But if more than ten years has passed after the discontinuation of production and no maintenance parts, JRC cannot repair.

9. Disposal

9.1 Disposal of this equipment

If this equipment is to be disposed, please follow the guidelines of the local body governing the location at which the equipment is disposed of.

10. Specifications

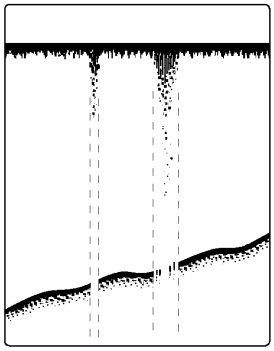
Display	10.4 inch TFT LCD (640 x 480 pixels)							
Frequency	200kHz / 50kHz or 50kHz-A							
Echo color	8 colors or 8 level monochrome							
Digital depth	3 digit (0.0m to 99.9m : 0.1m steps, 100m over : 1m steps)							
Range		10m	20m	50m	100m	200m	500m	800m
Sounding capability (Note1)	200kHz	1.0m to 10m	1.0m to 20m	1.5m to 50m	2.0m to 100m	3.0m to 200m	5.0m to 300m	7.0m to 300m
	50kHz or 50kHz-A	2.0m to 10m	2.0m to 20m	3.0m to 50m	3.0m to 100m	4.0m to 200m	6.0m to 500m	8.0m to 800m
TX pulse repetition rate	pulse per minute	171 PPM	171 PPM	171 PPM	86 PPM	86 PPM	43 PPM	43 PPM
Accuracy	0.5m : 20m range, 5m : 200m range; or 2.5% of the indicated depth, whichever is greater							
Draft adjust	0m to 50m in 0.1m steps							
Display mode	Standard, History, Docking							
Time range of echo display	5, 10, 20, 30min							
Auto function	Gain, Range							
Alert function	Depth, Power fail, System error							
Preview function	12hour or 24hour							
Transducers	200kHz : UT-200ND , 50kHz or 50kHz-A : UT-50MD							
Power supply	100-115/200-230VAC±15%, 50Hz/60Hz±5% less than 50W							
	24VDC (only use for power fail monitoring)							
Water proofing	IPX2 drip proof							
Input nav. data	IEC61162-1NMEA0183 RMA, RMC, GGA, GLL, ZDA							
Input ACK signal	IEC61162-1NMEA0183 V1.5, V2.3 ACK V5.0 ACN							
Input signals	Power fail alert ACK: (Contact input: 12VDC 2.4mA, current control: 12VDC 1.2mA) Depth alert ACK, System alert ACK: (Contact input: 5VDC 5mA, current control: 12VDC 1.2mA)							
Output depth value data	IEC61162-1 (NMEA0183 V1.5) DBS, DBT, DBK every 1 second IEC61162-1 (NMEA0183 V2.3, V5.0) DPT every 1 second							
Output alert data	IEC61162-1 (NMEA0183 V1.5, V2.3) ALR every 1 second IEC61162-1 (NMEA0183 V5.0) ALC, ALF, ARC, HBT every 1 second							
Output system data (IEC61162-1)	PJRCL every 10 seconds PJRCM (90) UTC every 0 to 4 hours PJRCM (88, 89) UTC every 0 to 4 hours							
Output PC data	PJRCP							
Output signals	Power fail alert, Depth alert, System alert: (Relay contact output: rated load 120VAC 10A, 30VDC 8A, NO/NC)							
Temperature	–15°C to +55°C / operating –25°C to +70°C / storage							
Humidity	less than 93%RH under +40°C condition (non-condensing)							

Note1: Sounding capability may vary in frequency, gain setting, bottom shape, sea state, vessel speed, etc.

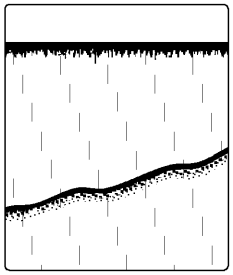
Appendix

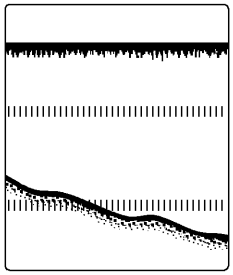
Noise

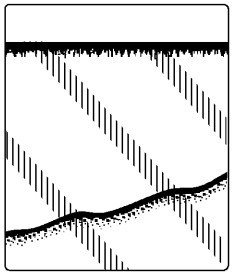
Bubble Noise



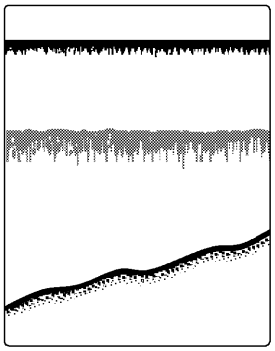
Bubble Interruption





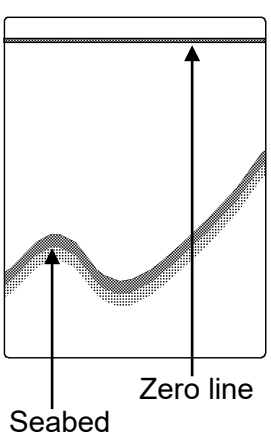


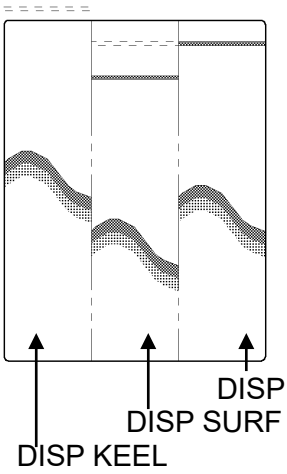
Interference Noise from other ship



Plankton layer

Actual Pictures





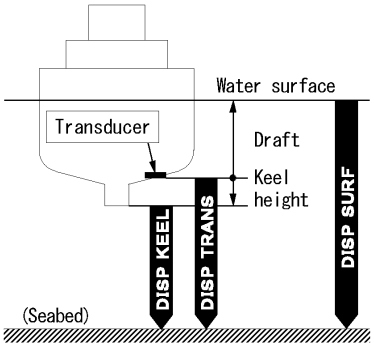
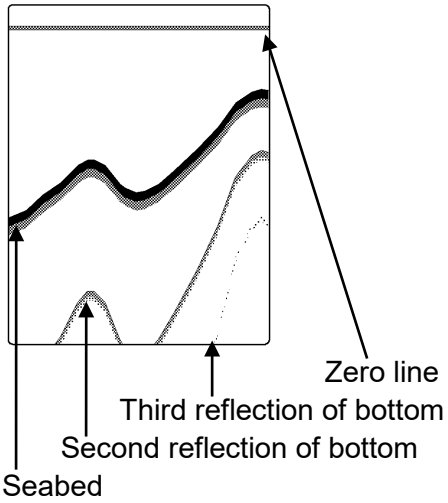


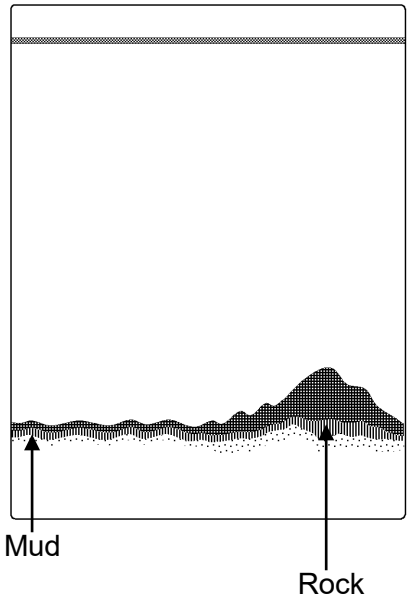
figure A

Seabed



In case of a shallow seabed or when increasing the amplifier sensitivity, two seabed lines may be recorded. This results from a multi-reflection of ultra-sonic wave between the seabed and hull bottom or surface of sea, in such manner: An emitted ultrasonic wave once reflected at the seabed returns toward the transducer or surface or sea but reflected at the hull bottom or surface of sea and again reflected at the seabed toward the transducer. Such multiple recording of the seabed may appear due to change of bottom quality. A double or triple reflection may be sometimes recorded.
In any case, a first reflection recording from the zero line represents a real seabed return. A first, second and third reflection lines of seabed arrange with approximately equal spacing on the recording.
In addition, the shade of the reflection lines fades little by little away from the fast line on the recording. From these conditions, they can be easily identified as a multi reflection.

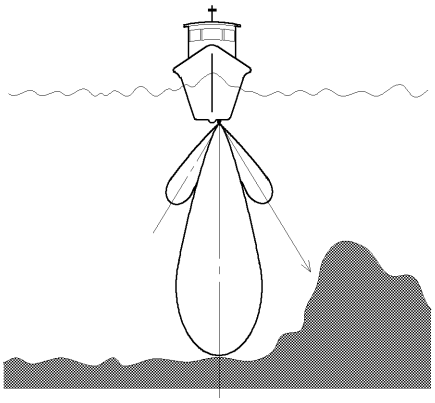
Seabed Quality Change

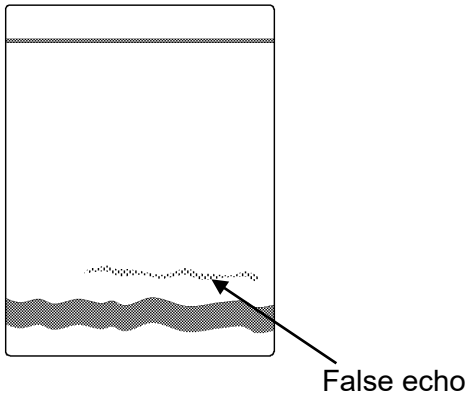


In case of a hard seabed composed of rocks etc., its return trails long, as shown in right chart.
In case of a soft seabed made of mud, seaweed, etc., they poorly reflect an ultrasonic wave to result in thin recording of the seabed with short trail.
The seabed quality can be more sufficiently identified with use of wider beam angle and longer pulse width.
Usually lower frequency is used.

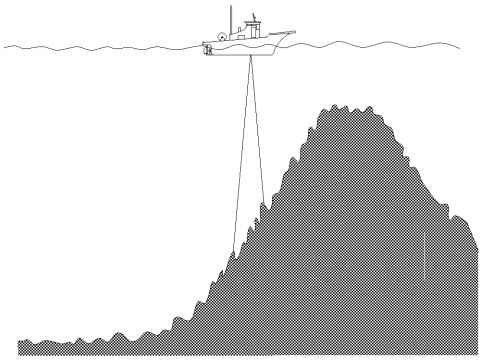
Abrupt-Sloped Seabed

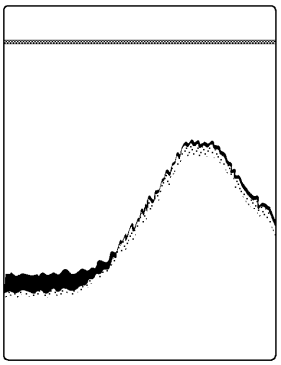
Sidelobe

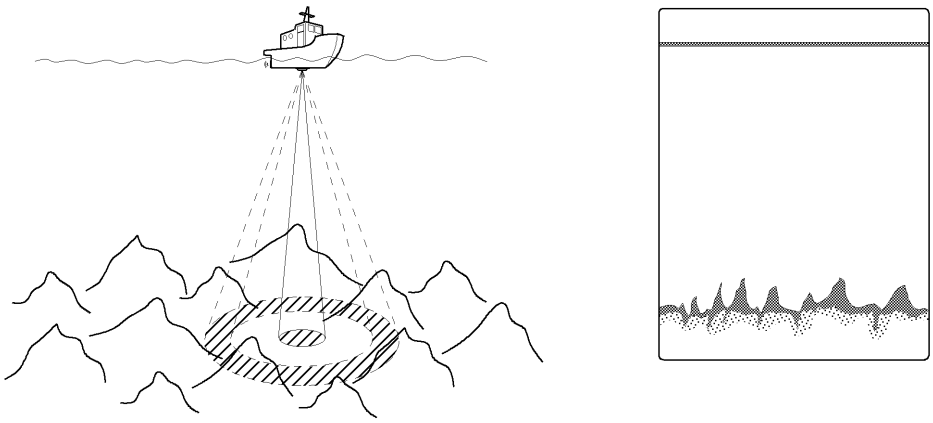




A dim echo may sometimes appear along an abrupt slope of seabed, as if it were floating above the slope, when recording.
In case of flat seabed, thin second return of seabed may sometimes appear, which is slightly below the actual seabed.
In either case, the dim or thin echoes are false and produced by side lobes of ultrasonic beam from the transducer. Any false echo is thinner than and parallel to a real echo.







The echo of a seabed with abrupt slope is recorded as a lone difficult to see and less discriminative, since it tends to accompany with a false echo due to the side lobe and the inherent property of directivity.
In particular, a seabed with abrupt slope and heavily rugged surface provided an echo very difficult to display on the recording.

アスベストは使用しておりません
Not use the asbestos

For further information,contact:

JRC Japan Radio Co., Ltd.

Since 1915

URL Head office : http://www.jrc.co.jp/eng/
Marine Service Department
1-7-32 Tatsumi, Koto-ku, Tokyo 135-0053, Japan
e-mail : tmsc@jrc.co.jp
One-call : +81-50-3786-9201

ISO 9001, ISO 14001 Certified

CODE No.7ZPNA2012H JAN. 2019 Edition 8