JFE-380

Echo Sounder

INSTRUCTION MANUAL

JRC Japan Radio Co., Ltd.

General Information

Thank you for purchasing the JFE-380 Echo-Sounder manufactured by Japan Radio Co., Ltd.. The JFE-380 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.

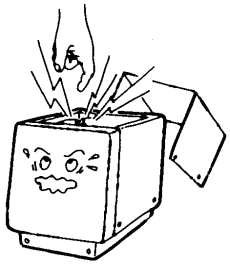
Warning Labels

Warning labels are affixed to the cover of Display unit and Connection box.
High voltage circuit exists inside the cover. Do not remove the cover.
Do not attempt to remove, damage, or modify, the warning labels.

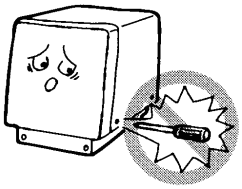
Usage Hints

⚠ WARNING

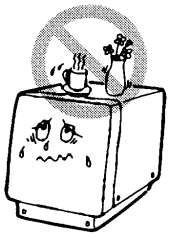
Do not remove the cover of this set. Otherwise, you may touch a high-voltage part and suffer from an electrical shock.



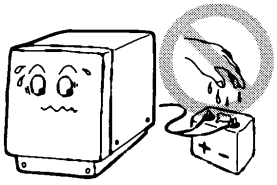
Do not dismantle or modify this equipment. Failure to observe this warning may result in fire, electric shock, or damage.



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.

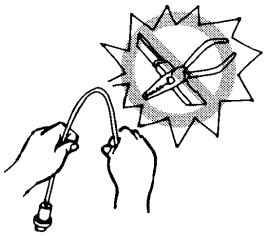


Do not insert or remove the power cord or operate switches with a wet hand.
Otherwise, you may suffer from an electrical shock.

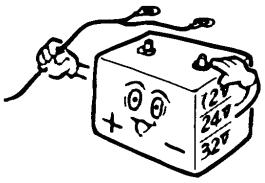


⚠ WARNING

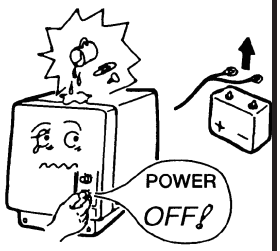
Do not damage, break or modify the power cord.
When a heavy object is placed on the cord or the cord is heated, pulled, or forcibly bent, the cord will be broken resulting in a fire or an electrical shock.



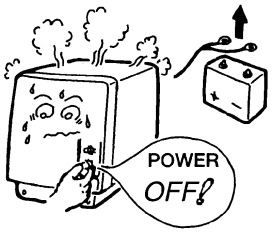
Do not use this set at a voltage other than the supply voltage stated on the set.
Otherwise, a fire, an electrical shock, or a failure may occur.



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.



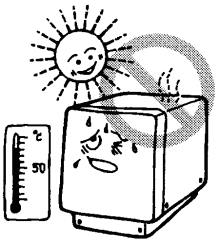
There are no customer-serviceable parts inside. Unauthorized inspections and repairs could cause fires and electrical shock hazards.
Please call our field representative or your nearest JRC office for inspection and repair services.

Use only the specified fuses.
The use of other fuse may cause fire and/or damage.
The Main switch on the CQD-2082 I/F unit must be turned off during replacing a fuse.

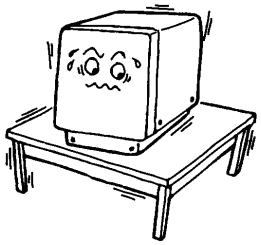
⚠ CAUTION

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.

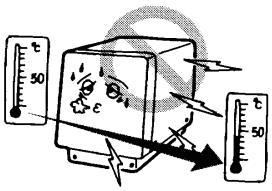
Do not install or operate the equipment where subject to temperatures more than 55℃ or less than -15℃. High temperature may cause failures.



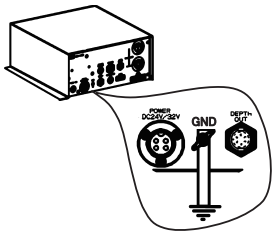
Do not install the equipment on unstable or unleveled surfaces. Failure to observe this condition may result in the equipment falling or toppling over, resulting in injury.



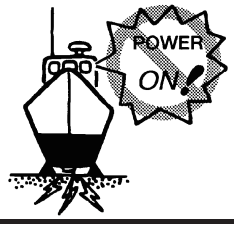
If it is cold, do not move the equipment suddenly into a warm environment and switch it on. High-voltage leaks due to condensation may result in damage to the equipment. In such situations, leave the equipment in the warm environment for about 30 minutes before switching it on.



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.

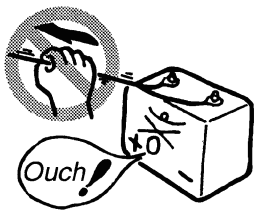


Do not turn on the equipment's power when the ship is in dry docks.
Failure to observe this caution may result in damage to the transducer, etc.

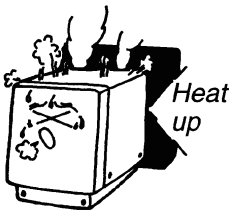


⚠ CAUTION

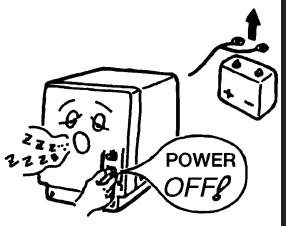
When removing the power cord, be sure to remove the power cord terminal correctly.
If the power cord is pulled, the cord may be damaged resulting in a fire or an electrical shock.



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.

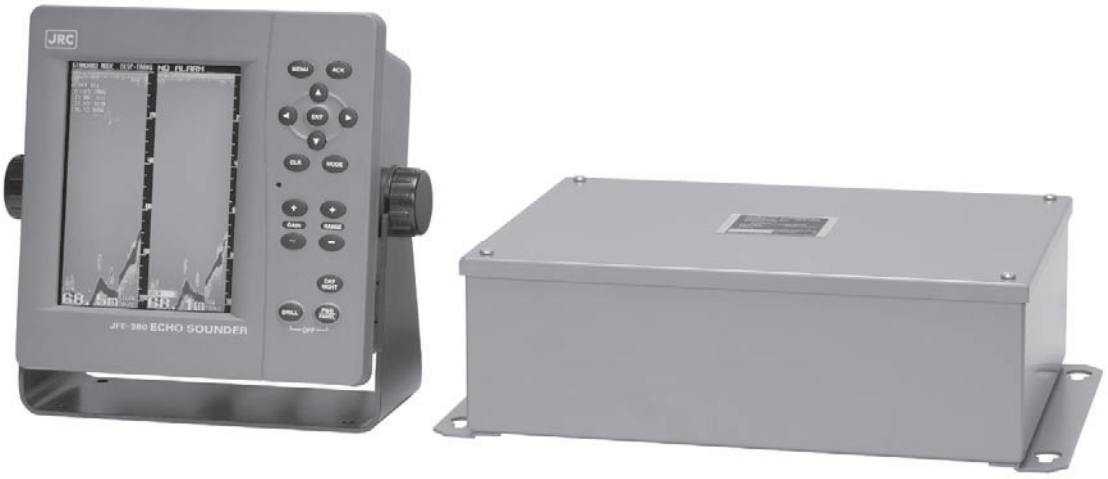


When turning on the power, be sure not to press any operator panel key at the same time. Alternates to the hardware configuration of the until could cause the unit to malfunction.

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.

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-380 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-380 also has the following functions:
(1) depth alarm, (2) power fail alarm, (3) output of depth data, (4) output of depth and power fail alarms.

1.2 Feature

The JFE-380 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 alarm is issued by buzzer and LCD display.
- When power is cut to the main unit, a power fail alarm is issued by LED blinking.
- Contact signals can be output for both depth and power fail alarms.
- 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

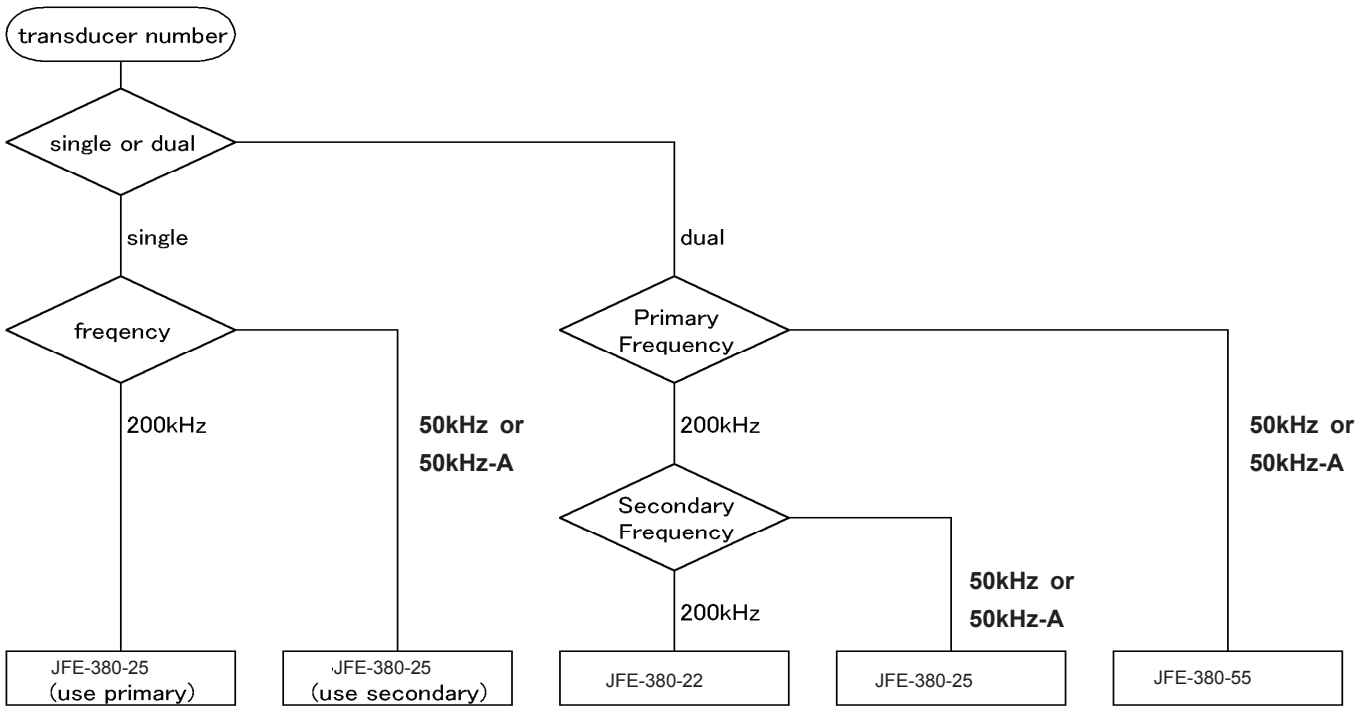
This section lists the components.

Standard Equipment

Name	Type No.	Qty.	Remarks
Display unit	NJA-98	1	
Connection box	NQD-2120	1	
TX/RX cable	CFQ-9129	1	10m
Power supply cable	CFQ-9130	1	10m
Communication cable	CFQ-9133	1	10m
Instruction manual	7ZPNA2011A	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 (with cable 20,30,40m)
	NKF-392C	200kHz (with cable 20m)
Printer	NKG-91	1
External Buzzer	CGC-300B	1
Flush mounting kit	BRBX05339	1
Table mounting kit	BRBX05353	1

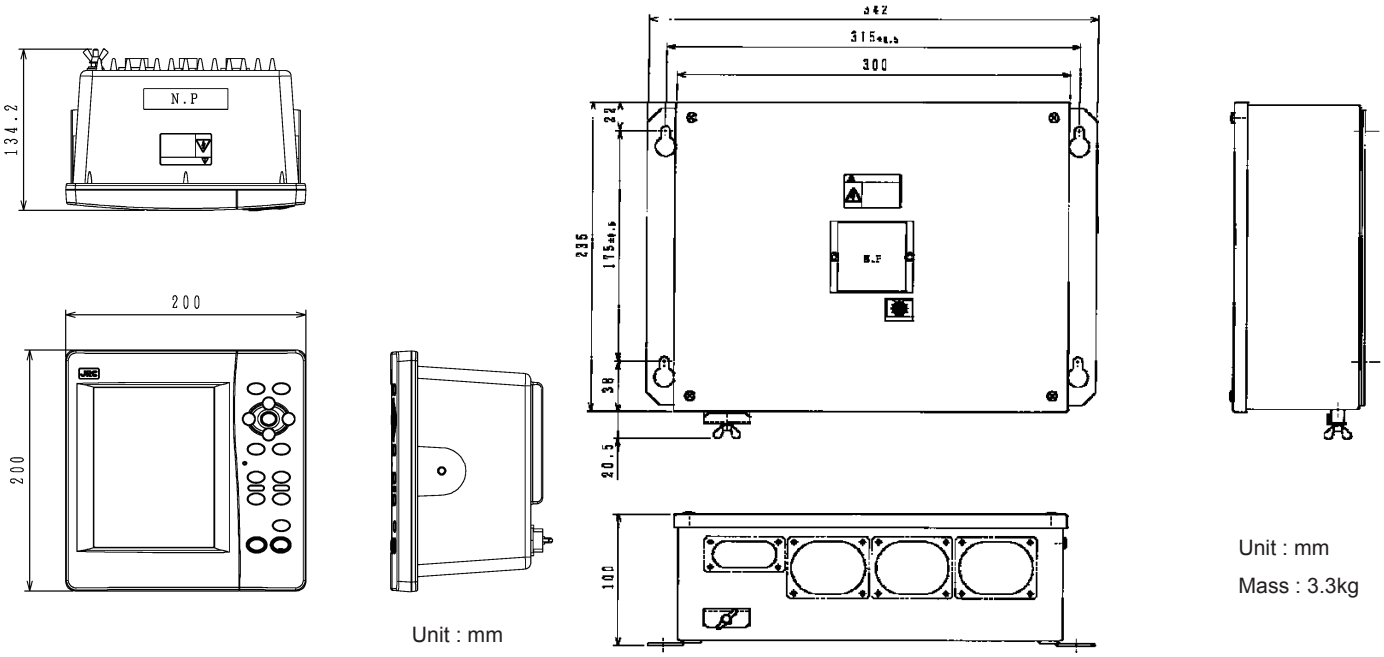


1.4 Construction

Equipment Outline

The following shows the external dimensions of the JFE-380.

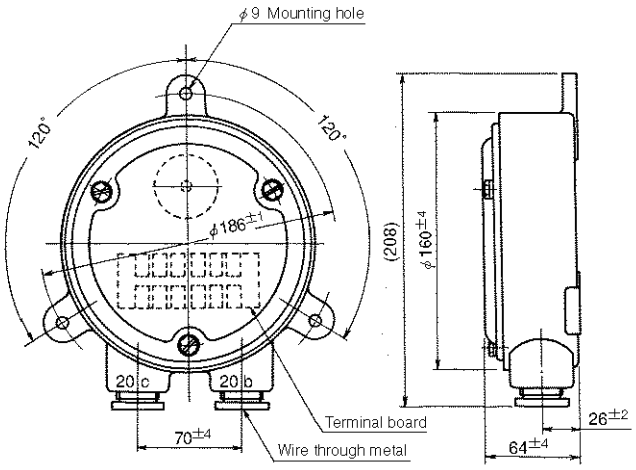
1. External Dimension of JFE-380



Unit : mm
Mass : 2.7kg

Unit : mm
Mass : 3.3kg

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

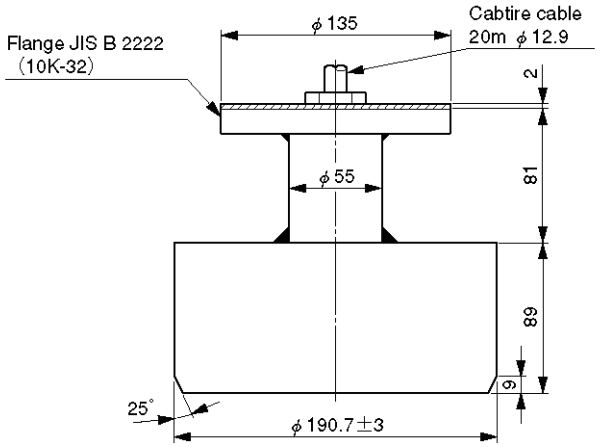


Unit : mm
Mass : 4kg

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.

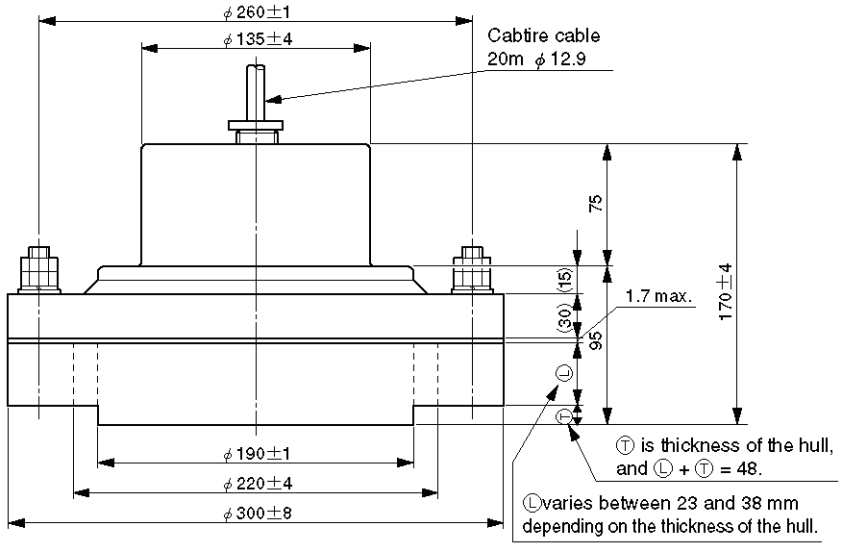
1. NKF-341/NKF-345 (Installed on ship's bottom)



Unit : mm

Mass : 22kg

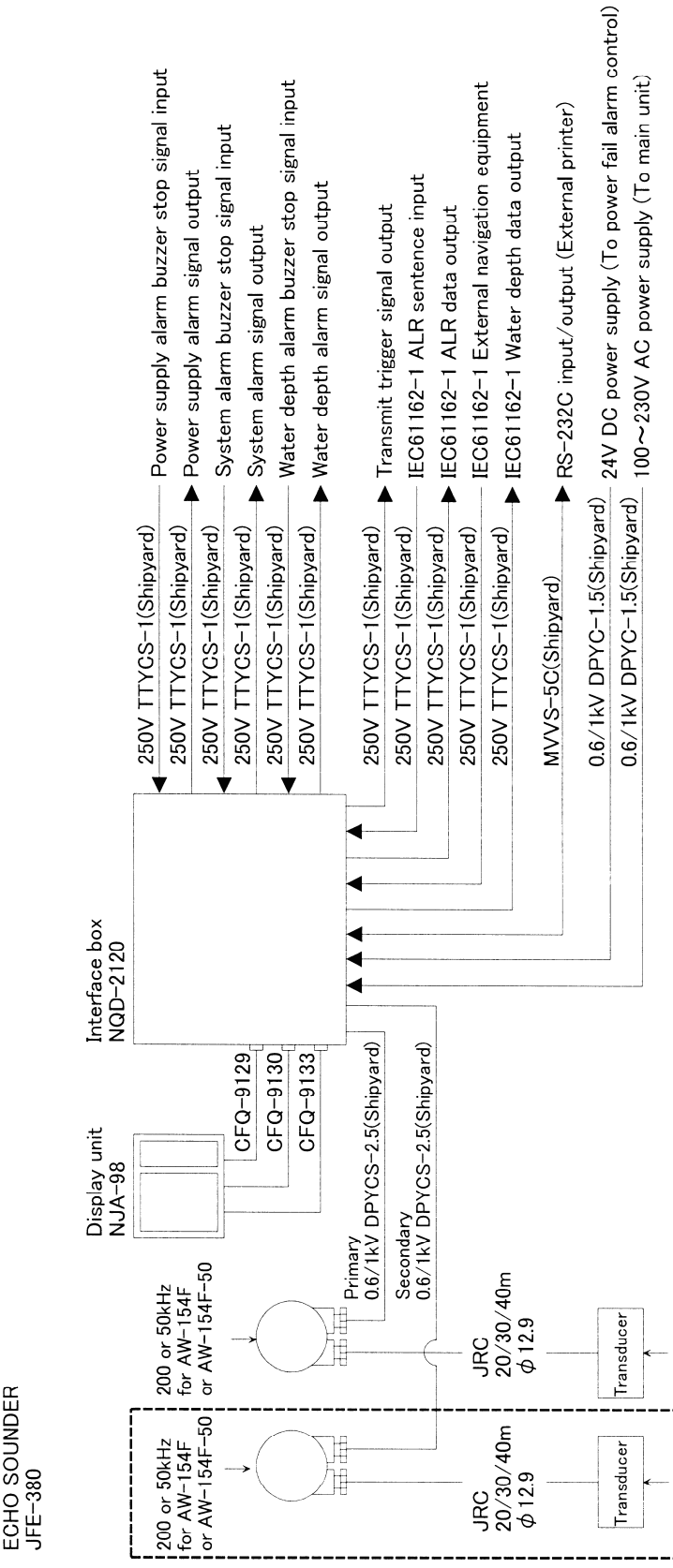
2. NKF-392C (Installed on ship's bottom)



Unit : mm

Mass : 41kg

1.5 System Configuration



2. Control Panel

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

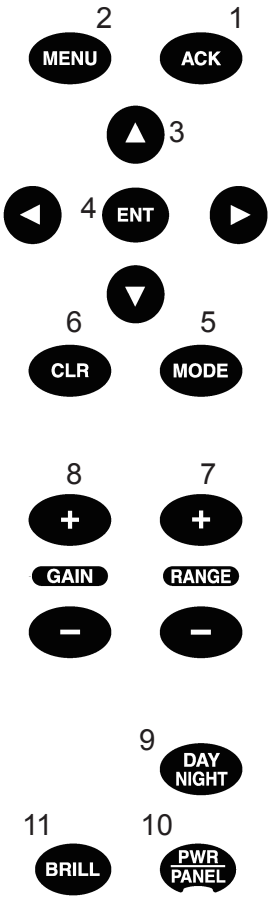


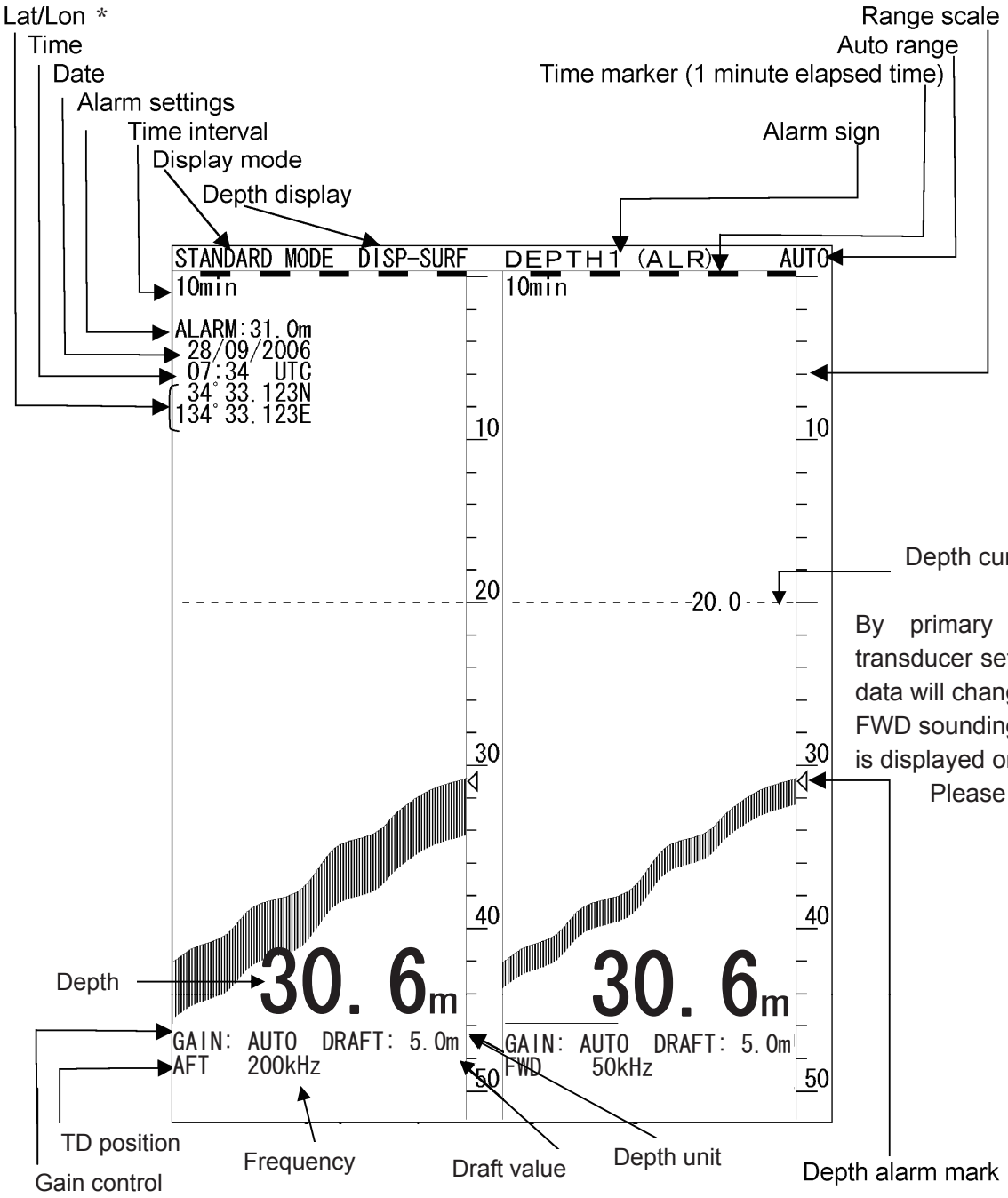
Figure 2-1 Control Panel

No.	Name	Function
1	ACK	Cancels the buzzer.
2	MENU	Displays the menu.
3	▲▼◀▶	Move a cursor.
4	ENT	Selects an item.
5	MODE	Selects a display mode.
6	CLR	Cancels an item or printing.
7	〈RANGE〉 +/–	Adjusts the depth range (deep or shallow).
8	〈GAIN〉 +/–	Adjusts the sensitivity (high or low).
9	DAY NIGHT	Selects Day/Night display colors.
10	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.
11	BRILL	Adjusts the screen brilliance.

3. Display

3.1 Standard mode (dual frequency)

Standard mode displays real time sounding echoes.

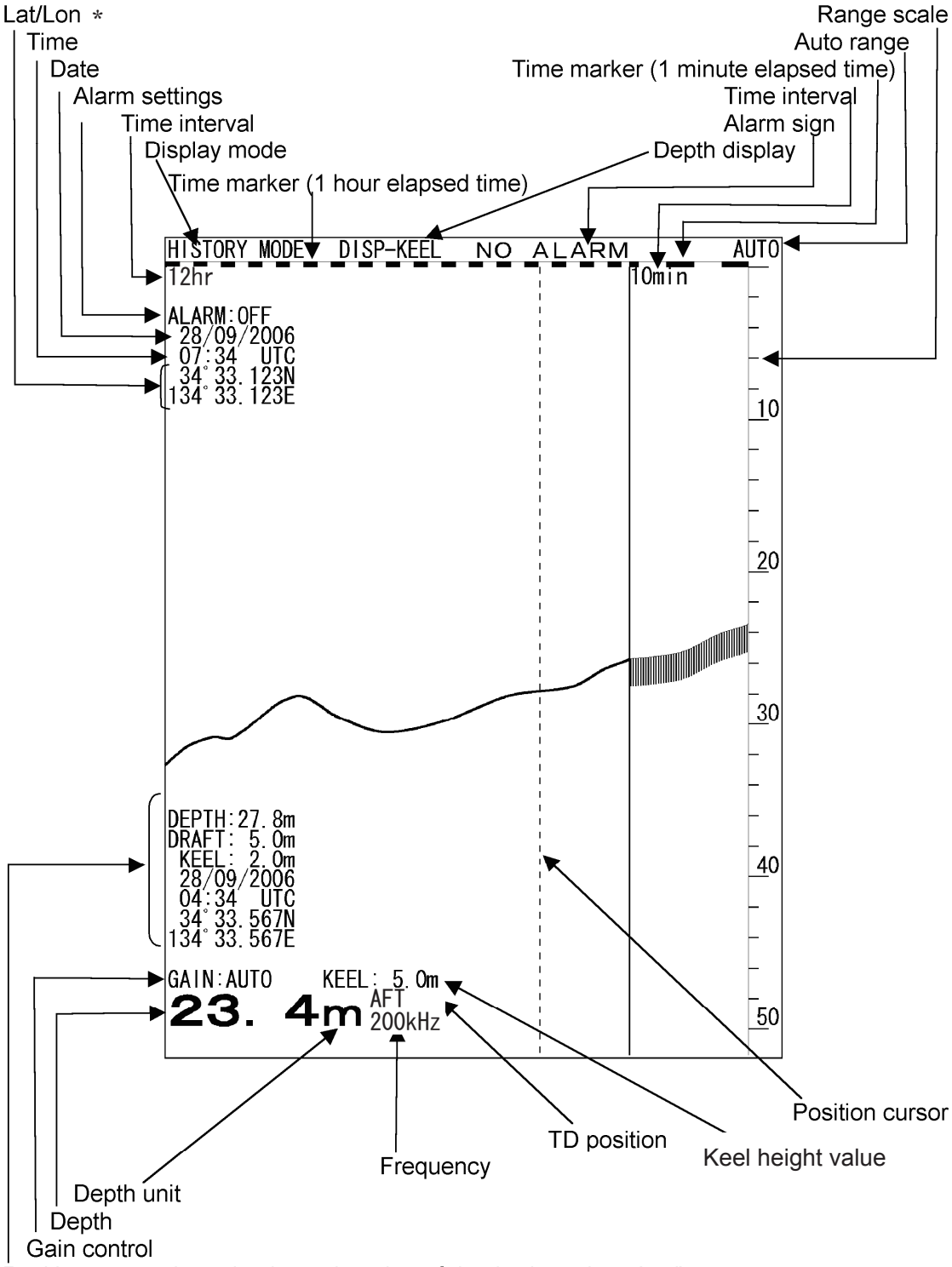


Gain control

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.

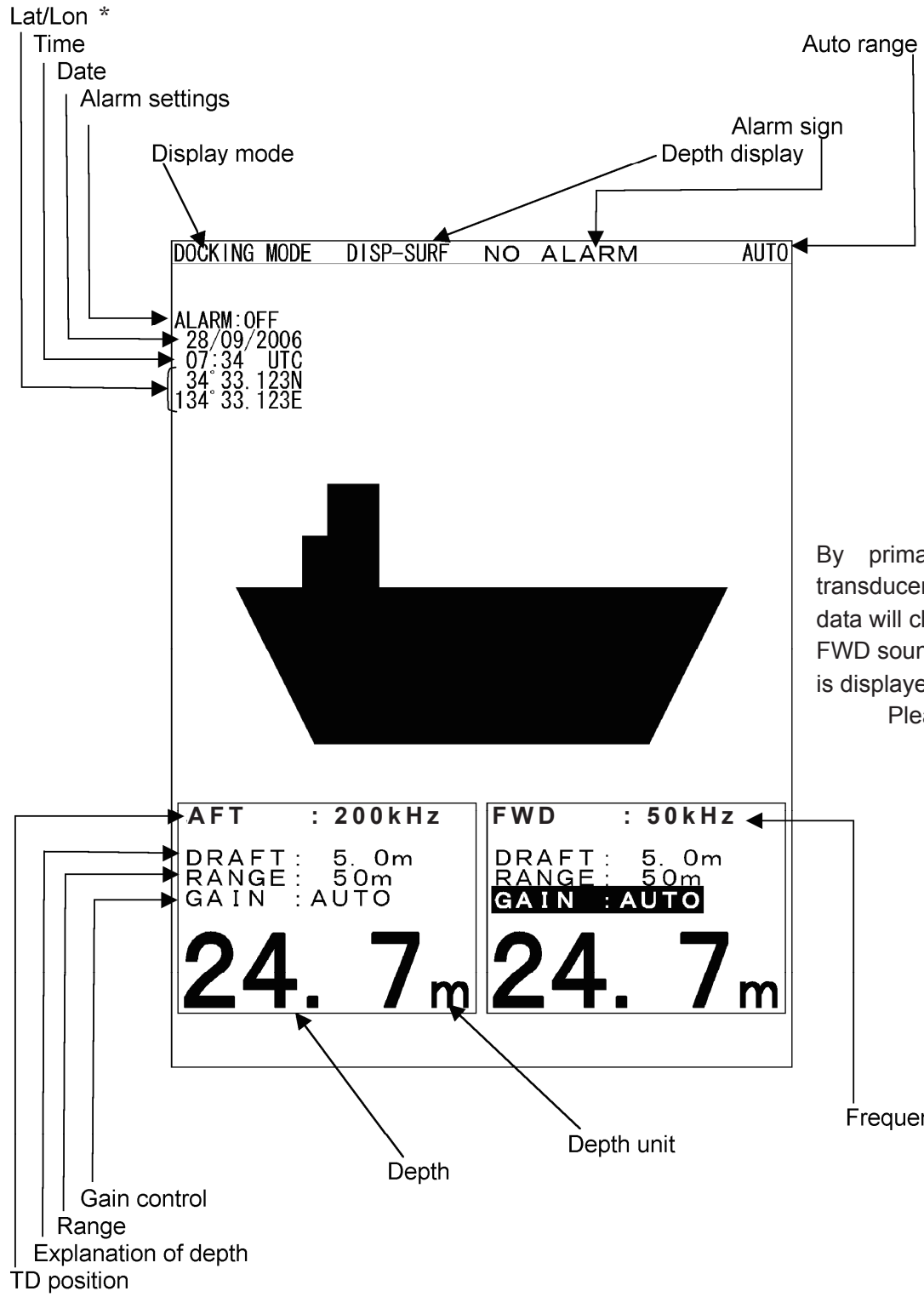


Position cursor data; depth, explanation of depth, date, time, Lat/Lon

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

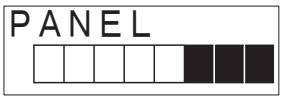
4.1 Basic Operation

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.

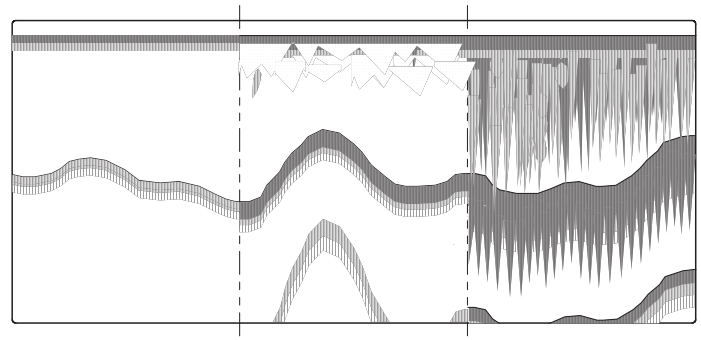
Note： Sea bottom might not be displayed according to the setting of draft.
When sea bottom is not displayed, depth is not displayed.

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	>
ALARM	>
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.

Stopping Buzzer [ACK]

- The buzzer sound stops when the key is pressed after the alarm generated, and the alarm is displayed on the screen. However, it keeps outputting the relay contact output while phenomenon is continuing.
- One key pressing deals with one alarm generation factor. And, it deals with the generation of all alarm 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**	
├ ALARM		
│ ├ KEY ACK	OFF **ON**	
│ ├ RELAY MODE	INTERMITTENT **CONTINUOUS**	
│ ├ DEPTH ALARM		
│ │ ├ ALARM CONT	OFF **ON**	
│ │ └ DEPTH SETTING	**0.0** (0.0 to 99.9)	
│ └ SYSTEM ALARM		
│ ├ DEPTH LOST	**OFF** ON	
│ ├ TX ALARM	**OFF** ON	
│ ├ RX ALARM	**OFF** ON	
│ ├ BUBBLE ALARM	**OFF** ON	
│ └ PRINTER ALARM	OFF **ON**	*JFE-680 build-in printer mode only
├ 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 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 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	*JFE-380
│ └	**BUILD-IN** NKG-91 DPU-414	*JFE-680
├ COMMUNICATION		
│ ├ DEPTH	VER1.5 VER2.3 **ALL**	
│ ├ ALARM	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	
│ └ ALARM TEST	**OFF** DEPTH ALARM SYSTEM ALARM	
├ ALARM LOG	Press the ENT key to start	
├ ALARM LOG OUT		
│ ├ NORMAL	Press the ENT key to start	
│ ├ PRINTER	Press the ENT key to start	
│ └ PC	Press the ENT key to start	
├ ALARM 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	

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 Alarm Setting

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

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

※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 alarm and a system alarm, the relay contact is continuously output.

INTERMITTENT : When it is a depth alarm and a system alarm, 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	
ALARM CONT	OFF
DEPTH SETTING	0.0

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

「ALARM CONT」

◎ The operation of the depth alarm is selected.

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

Set content ：OFF/ON

OFF ： The depth alarm doesn't operate.

ON ： When sea bottom becomes shallower than the depth set by "DEPTH SETTING", the depth alarm starts.
When sea bottom becomes deeper than a set value after the depth alarm starts, it releases.

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

「DEPTH SETTING」

◎Depth where the depth alarm 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 alarm is made “ON", the depth alarm mark is displayed at the set depth position on the right of the range scale. This mark is not displayed to make the depth alarm “OFF".

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

<Example>

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

Setting System Alarm

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

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

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

「DEPTH LOST」

◎The alarm 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 alarm doesn't operate.

ON : When sea bottom was not able to be detected 15 times or more, the sea bottom lost alarm 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 alarm is started.
When sea bottom is detected after the sea bottom lost alarm starts, it is released.

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

「TX ALARM」

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

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

Set content : OFF/ON

OFF : The transmission alarm doesn't operate.

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

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

「RX ALARM」

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

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

Set content : OFF/ON

OFF : The receiving signal alarm doesn't operate.

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

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

「BUBBLE ALARM」

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

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

Set content : OFF/ON

OFF : The bubble alarm doesn't operate.

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

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

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

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

「PRINTER ALARM」

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

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

Set content : OFF/ON

OFF : The printer alarm doesn't operate.

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

Moreover, when it becomes impossible to communicate with the printer, "Communication abnormality" alarm 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 alarm starts, it is released.

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

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

◎Each Alarm and Alarm Display (Screen Display) list

No.	Alarm	Alarm Display (Screen Display)
01	Primary depth alarm	DEPTH1(ALR)
02	Secondary depth alarm	DEPTH2(ALR)
03	Primary sea bottom lost	DEPTH1(LOST)
04	Secondary sea bottom lost	DEPTH2(LOST)
05	Primary transmission abnormality	TX1(LEVEL)
06	Primary receiving abnormality	RX1(LEVEL)
07	Primary bubbling	RX1(BUBBLE)
08	Secondary transmission abnormality	TX2(LEVEL)
09	Secondary receiving abnormality	RX2(LEVEL)
10	Secondary bubbling	RX2(BUBBLE)
11	No thermal paper	PRINT(PAPER)
12	Printer communication abnormality	PRINT(DATA)
13	Back-up data abnormality	PROC(SRAM)

This alarm No. is also used in Alarm Log function. (Refer to page 48)

4.5 Initial Setting

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.

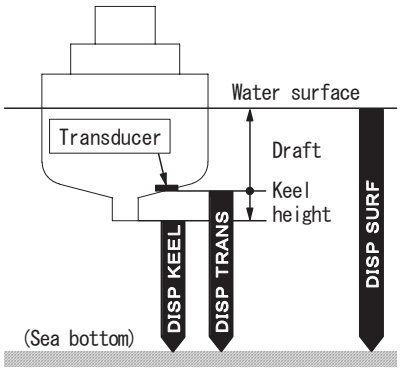
Set content : SURF/TRAN/KEEL

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

◎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.

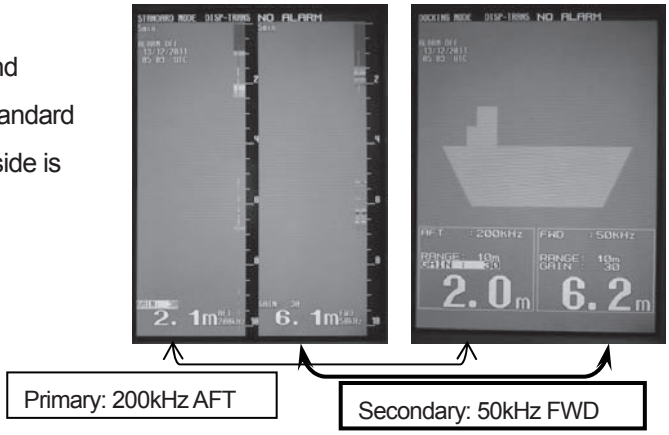
MID : When primary (secondary) side transducer is installed at the center, it selects.

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-380 electrically stores last 12or 24hours depth data. Optional printer runs after only your PRINTER CONT menu PRINTER [ENT] pressing.

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

PRINTER CONT	
PRINTER	
PRINT MODE	COPY
LOG BOOK PRINT	OFF
LOG LENGTH	10min
SPEED	4800bps
PRINTER MODEL SLECTION	NKG-91

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

- 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 starts print function of optional printer.

・Select “PRINTER” with ▲ or ▼ key. Then press the [ENT] key to start print out.

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.

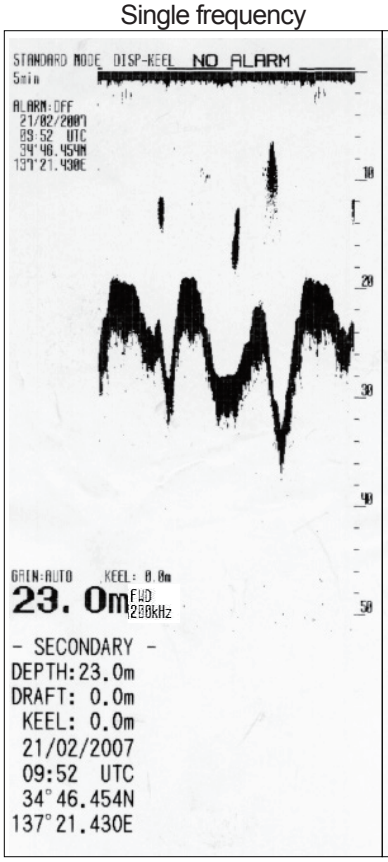
HISTORY : All the memorized depth data is graphically printed.
The direction of paper feed is time.
Secondary data is printed following primary in display screen for dual frequency.
On single frequency mode, only displaying frequency data is printed.
After the graphical printout, the data of START information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

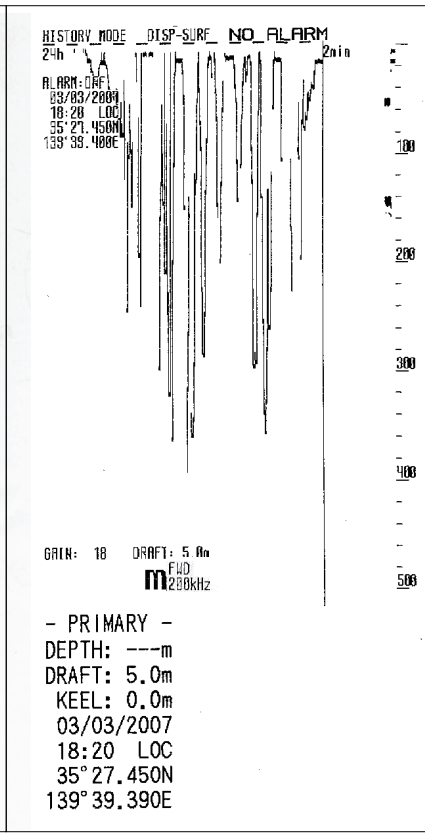
Print out examples

1. COPY print mode

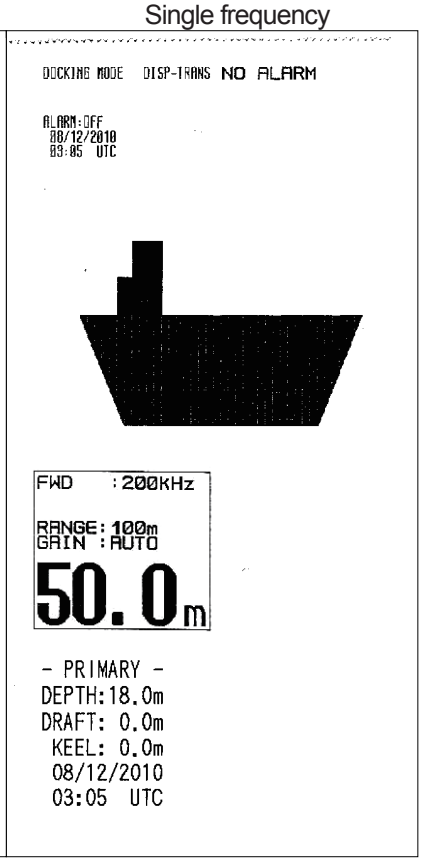
STANDARD (Single frequency)



HISTORY (24hours)

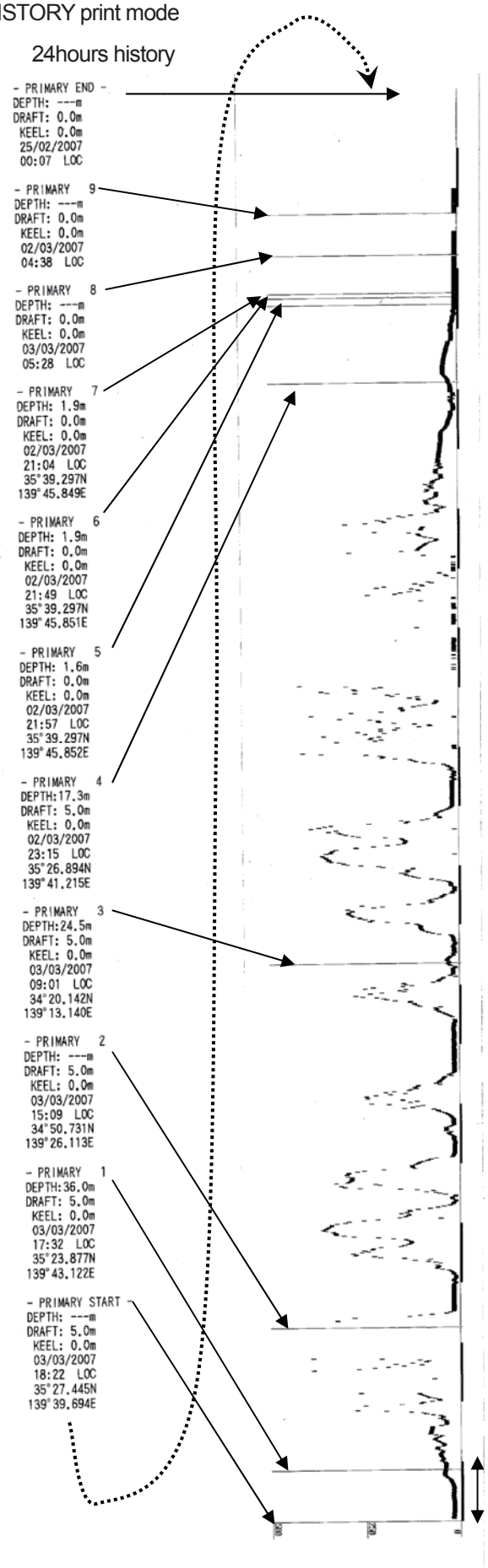


DOCKING (Single frequency)



2. HISTORY print mode

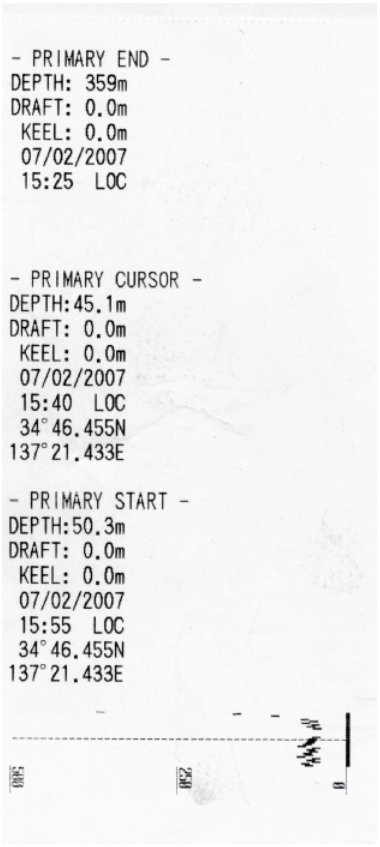
24hours history



1hour time mark

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-380, 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 **NKG-91**/ DPU-414.

4.7 Communication Setting

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

COMMUNICATION	
DEPTH	ALL
ALARM	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.

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 Alarm Output

・Make ALARM 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 alarm setting “ON" in the alarm 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 or 50kHz-A 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.)

◎Alarm output

$SDALR,hhmmss.ss,xxx,A,A,c--c*hh<CR><LF>
(1) (2) (3)(4)(5) (6)

(1) Time of alarm condition change,UTC
(2) ID number of the alarm source
- 351 primary depth alarm
- 352 secondary depth alarm
- 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
- 366 backup data area is not good

(3) Alarm condition (A = threshold exceeded, V = not exceeded)
(4) Alarm's acknowledge state (A = acknowledged, V = unacknowledged)
(5) Alarm's description text
(6)Checksum (result after each ASCII code of every character between"S" just after"$" and "X" just before " * " is EXORed.)

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 or 50kHz-A
```

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

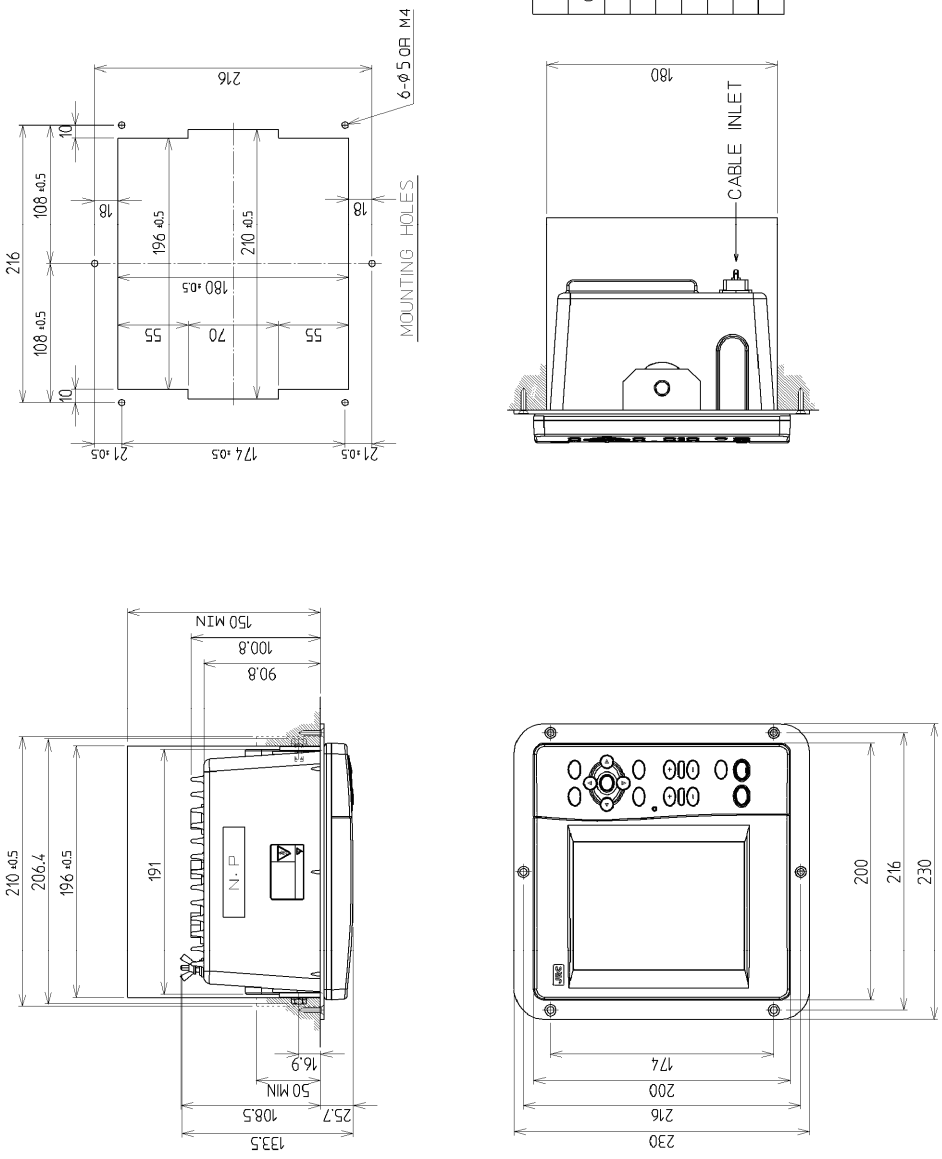
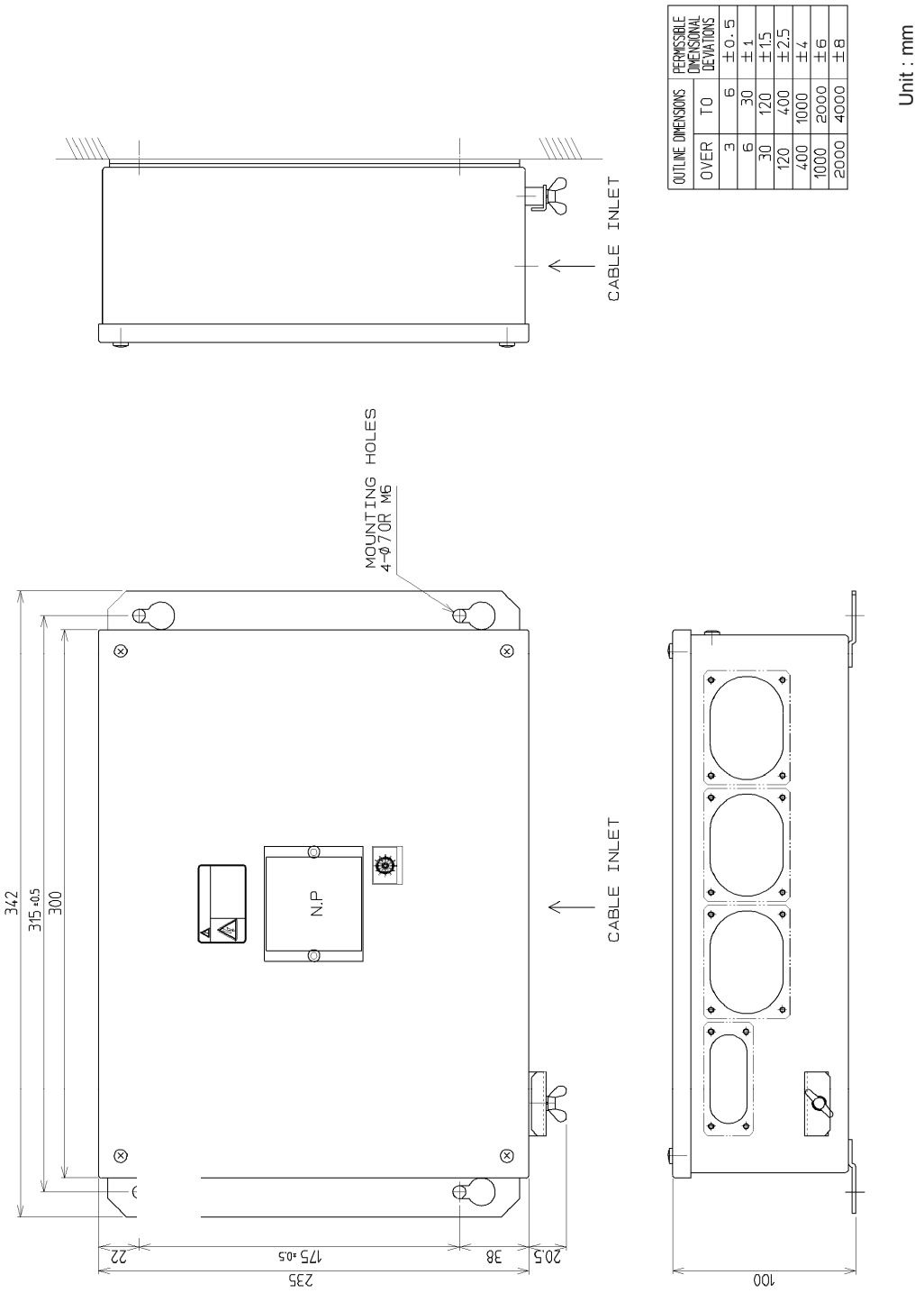


Figure 3-1

Wall-Mount Equipment



OUTLINE DIMENSIONS		PERMISSABLE 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

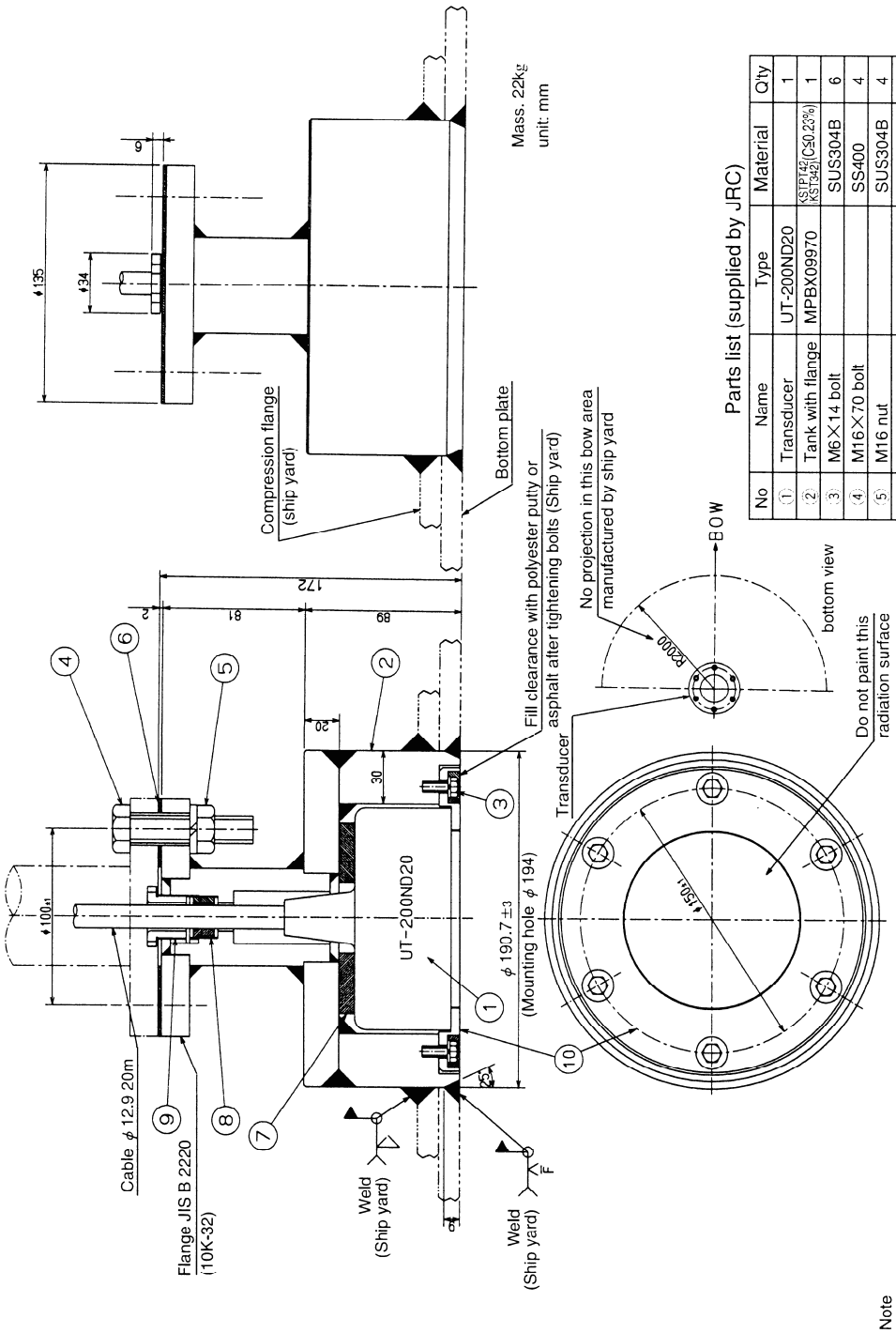
Unit : mm

Figure 3-2

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.

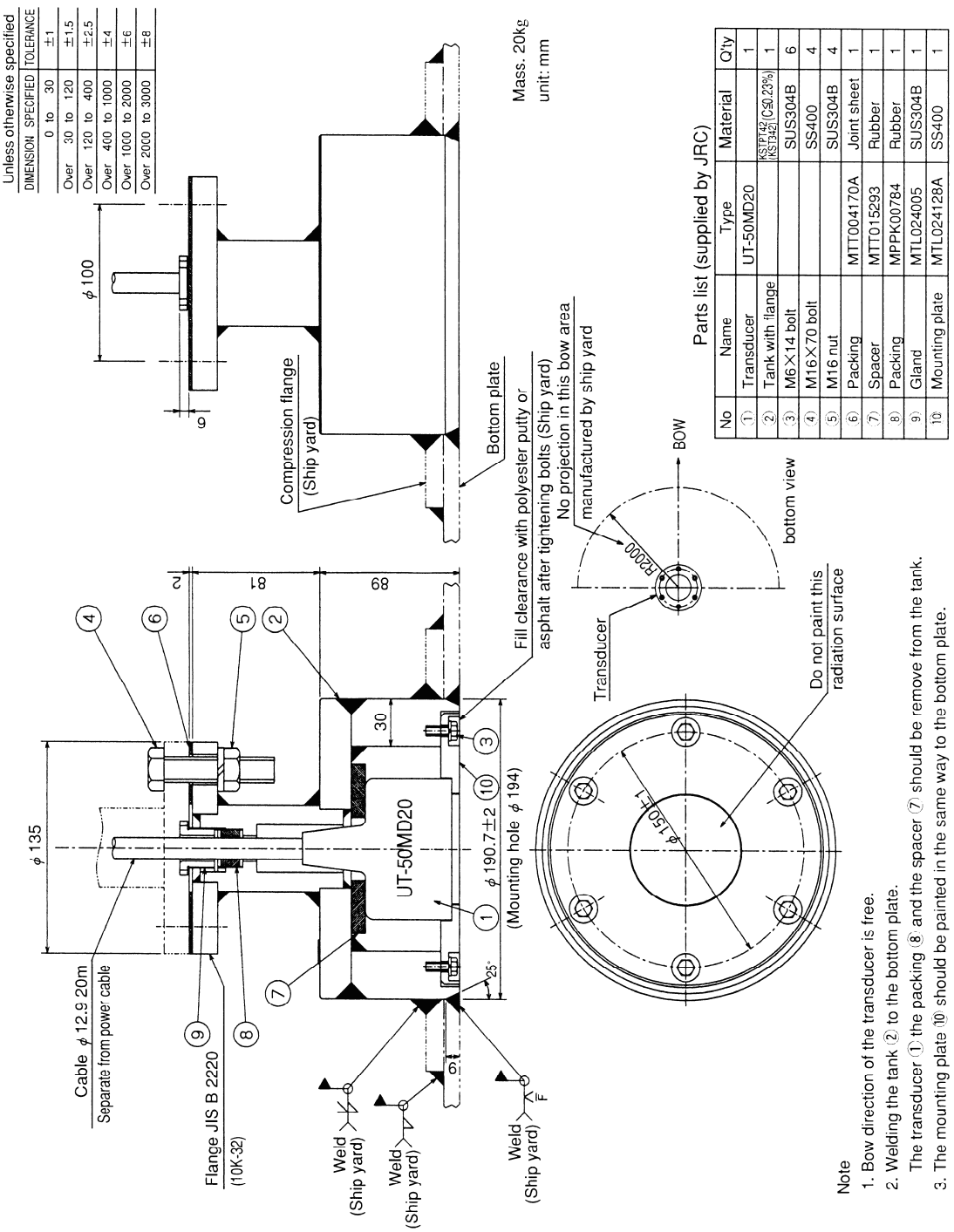
NKF-341



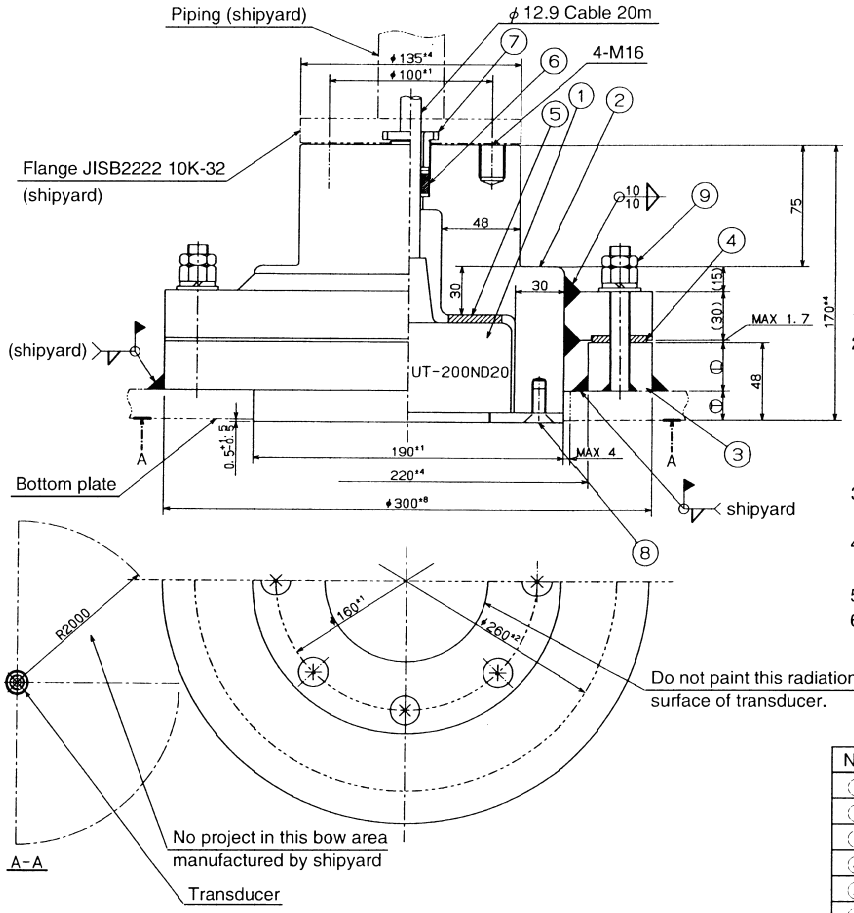
Parts list (supplied by JRC)

No	Name	Type	Material	Q'ty
①	Transducer	UT-200ND20		1
②	Tank with flange	MPBX09970	(S)TP14S (KS)T342 (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.



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.



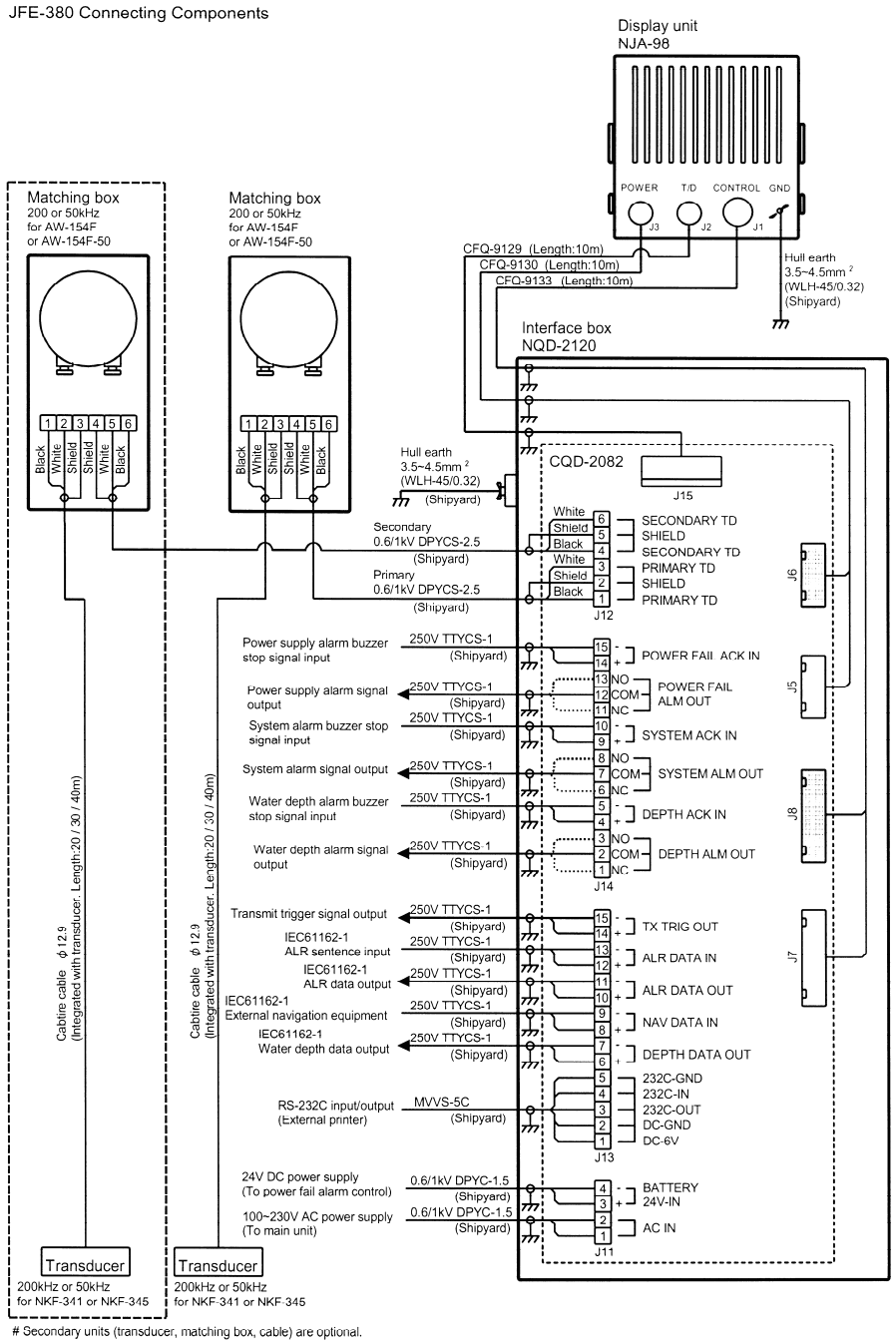
1. The mounting stand should be welded in the shipyard.
2. The dimension Ⓣ corresponds to the thickness of the steel hull bottom.
   This should be designated by the shipyard.
   The dimension Ⓛ of the mounting stand varies between 23mm and 38mm in accordance with the thickness of the steel hull bottom.
   (Ⓣ + Ⓛ =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

5.3 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 Alarm, System Alarm and Power Fail Alarm.

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	>
ALARM LOG	>
ALARM LOG OUT	>
ALARM 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	>
ALARM 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」

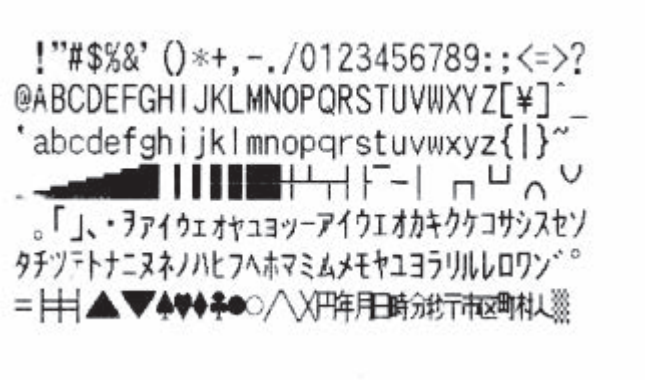
・Make KEY UNIT a yellow display, press ▶ or the [ENT] key, and the operation unit self test starts.

・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).



This example is printed by NKG-91 option printer.

「ALARM TEST」

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

Set content : OFF/DEPTH ALARM/SYSTEM ALARM

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

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

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

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

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

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

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

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

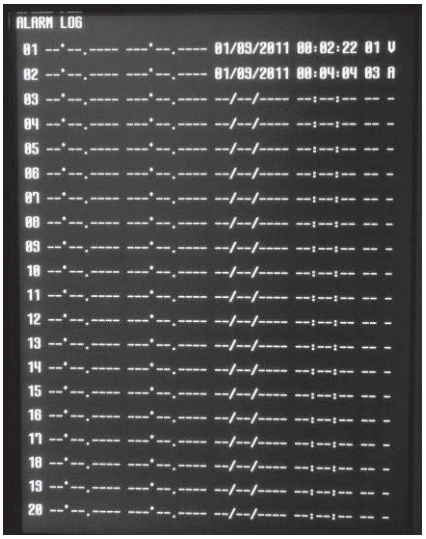
Displaying Alarm Log

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

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

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

Alarm status has “A: alarm is still lasting” and “V: cleared alarm condition”.



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

Outputting Alarm Log

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

Position date time No. status

Set content : NORMAL/PRINTER/PC

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

PRINTER : The alarm history is displayed to the printer in the text.
The content to display is equal to “ALARM 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 alarm histories are output to the printer output port.
When “PRINTER PORT OUT" of menu “COMMUNICATION" is set to “PRINTER", it becomes an error.

Deleting Alarm Log

・Make ALARM LOG DEL a yellow display, press ▶ or the [ENT] key, and all the memorized alarm 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.

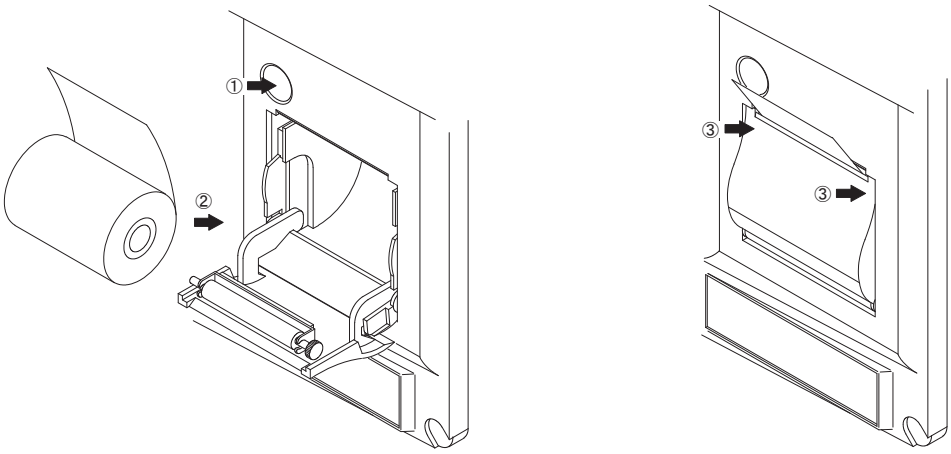
6.3 Replacing Printer Paper

⚠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 NKG-91 printer
	H-6ZCAF00252A	for DPU-414 printer

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

On NKG-91 when the printer cover is opened while turning on, the alarm 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-380 becomes like this, please contact our agent to order replacing the battery.

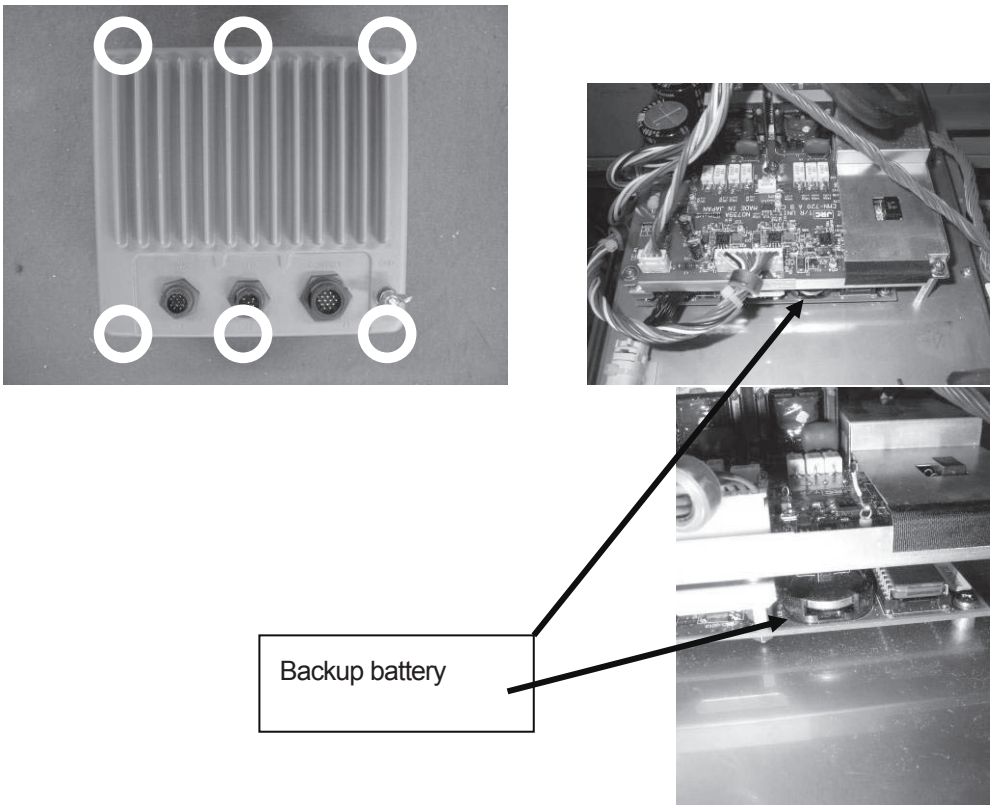
Backup lithium coin cell battery	CR2032

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 display unit.
  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.

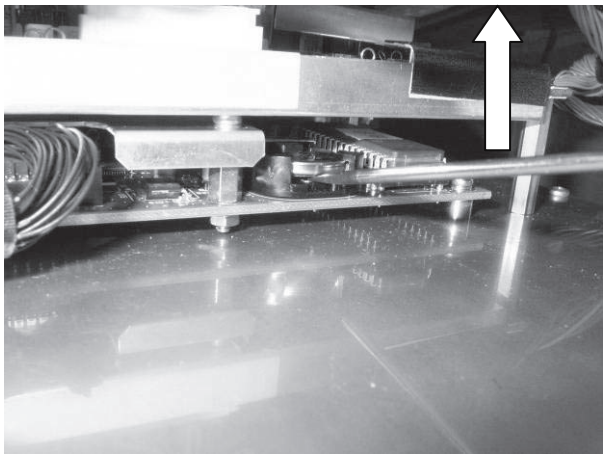
2 Remove the front cover of the echo sounder display unit. Remove 6 screws on the front cover.
The battery is installed back side of the LCD.

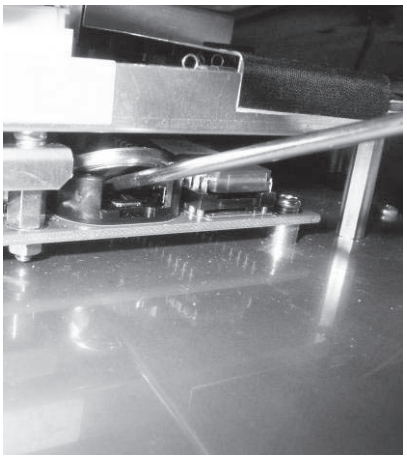


3 Replace the battery.

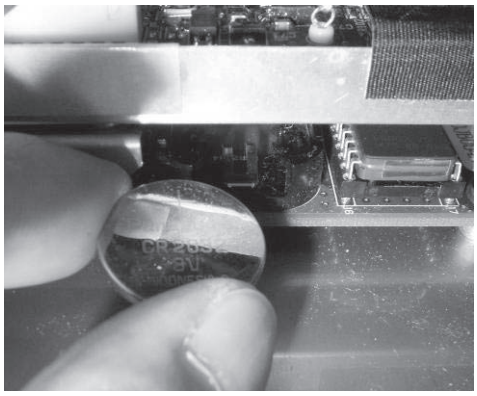
Stick the small width (narrower than 5mm) slotted screwdriver between the battery and the battery socket.

Lift the screwdriver to take off the battery.

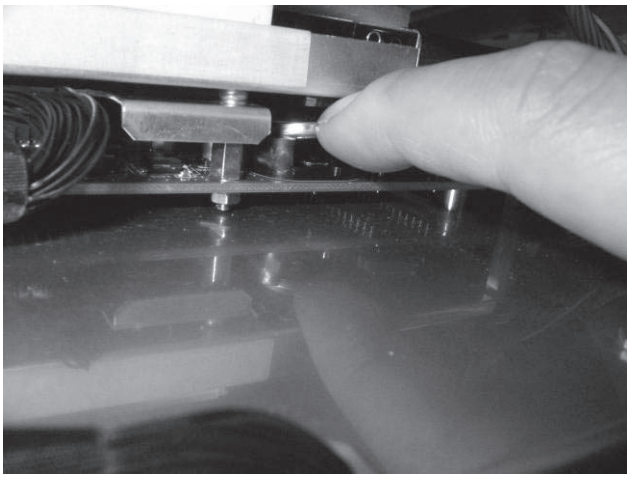


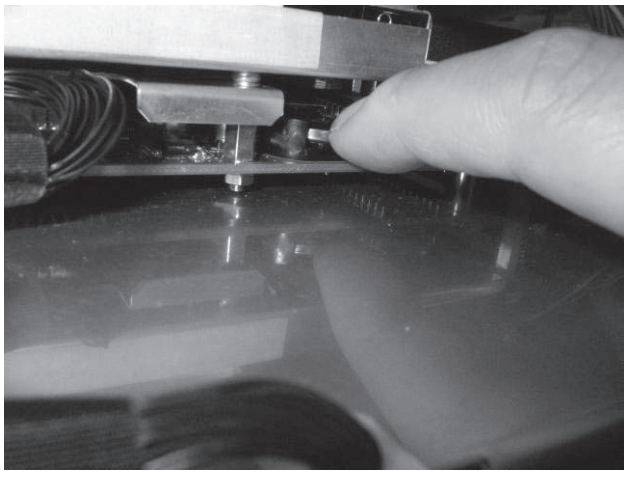


Set the new battery in the battery socket. The positive (+) terminal is upside.



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.

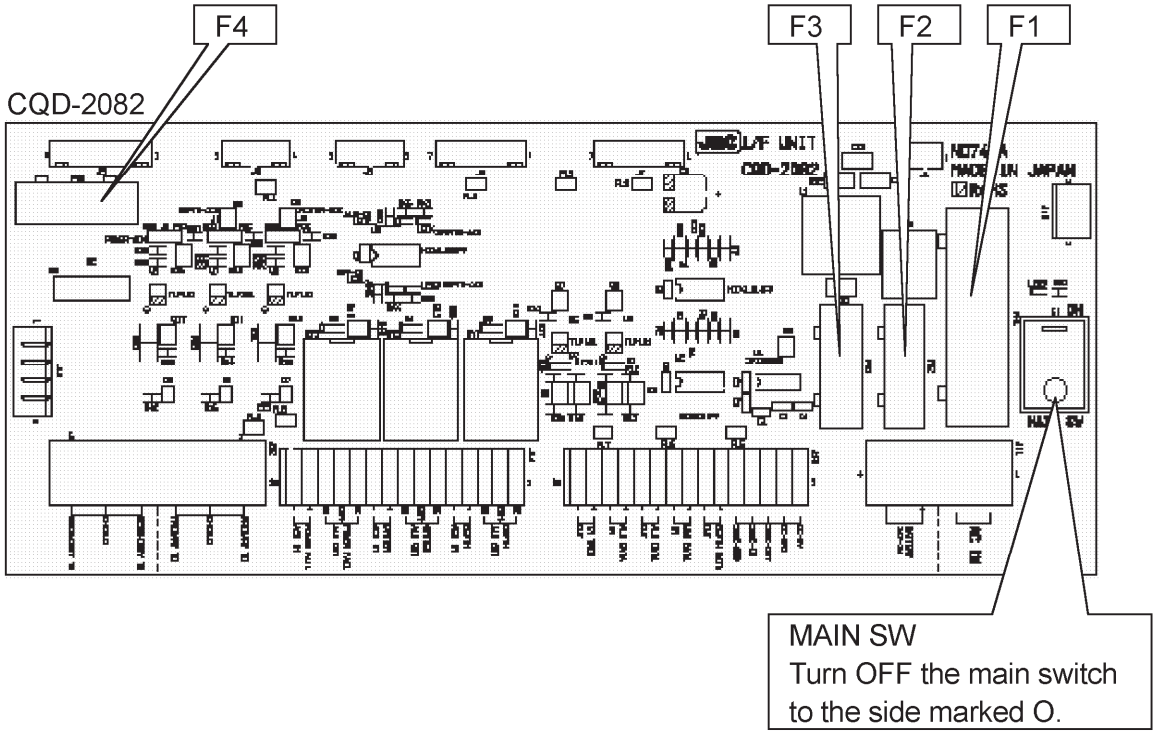
6.6 Replacing Fuses

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-2082 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 alarm circuit in this equipment
F3	MF51NR 250V 2 or equivalent	250V 2A	For built-in printer power supply
F4	MF51NR 250V 2	250V 2A	For display power supply

Fuse Positions

Use only the specified fuses, and check the cause of the fuses blowing before replacing them. Be sure to turn OFF the main power switch (to the side marked O) on the power supply (CQD-2082) before replacing the fuses.



(1) Replacing Main Power Supply Fuse F1

One reason for this fuse blowing is a faulty cable attached to the power supply. Check the cables before replacing the fuse, then turn the power on. If the fuse blows again, the Power Supply (CBD-1813) may be faulty. Contact JRC or its agent.

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

One reason for this fuse blowing is the input of an abnormal voltage. Check the input voltage at J11 pins (3) and (4) of the Interface Block. Check that the voltage is as rated (24VDC) (operating voltage: 21.5 to 31.5VDC) before replacing the fuse. If the fuse blows again, the Interface Block (CGD-2082), the Power Supply (CBD-1813), the Cables (CFQ-9132, CFQ-9131, CFQ-9130, CFQ-9125), the Display/the Power Supply (CBD-1810), or the Control Block (CCK-962) may be faulty. Contact JRC or its agent. (See the list of offices at the end of this manual.)

(3) Replacing Output Printer Fuse F3

One reason for this fuse blowing is an over current in an external device connected to J13 pins (1) and (2) of the interface block. Temporarily remove the cable to the external device. If the fuse blows again, the Interface Block (CQD-2082) may be faulty. Contact JRC or its agent. (See the list of offices at the end of this manual.)

(4) Replacing Display Power Supply Fuse F4

One reason for this fuse blowing is the Cable (CFQ-9130) connected between the Interface and the Display, the Display (NJA-98), or the Interface block (CQD-2082) may be faulty. Contact JRC or its agent. (See the list of offices at the end of this manual.)

6.7 Repair Parts

Parts name	Type	Remarks
Main Unit	CDJ-2338-1A	
TX/RX Unit	CMN-720B25	200kHz/50kHz-A as standard
	CMN-720-25	200kHz/50kHz (Discontinued)
	CMN-720-22	200kHz/200kHz as option
	CMN-720B55	50kHz-A/50kHz-A as option
	CMN-720-55	50kHz/50kHz as option(discontinued)
Power Supply Unit	CBD-1810	for NJA-98
Operation Unit	CCK-962	for NJA-98
Power Supply Unit	CBD-1813	for NQD-2120
I/F Unit	CQD-2082	for NQD-2120
LCD Panel ASSY	CCN-416	
TX/RX cable	CFQ-9129	
Power cable	CFQ-9129	
Communication cable	CFQ-9133	

7. Consider Installation

• Do not install the JFE-380 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

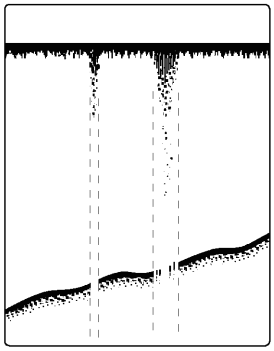
Display	6.5 inch TFT LCD (640 x 480 pixels)							
Frequency	200kHz / 50kHz or 50kHz-A							
Echo color	8 colors or 8 level monochrome							
Digital depth	3 digit (0.0m to 99.9m : 0.1m steps, 100m over : 1m steps)							
Range		10m	20m	50m	100m	200m	500m	800m
Sounding capability (Note1)	200kHz	1.0m 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							
Alarm 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	Display unit : IPX5 jet proof							
	Connection Box : IPX2 drip proof							
Input nav. data	IEC61162-1NMEA0183 RMA, RMC, GGA, GLL, VTG, ZDA							
Input ACK signal	IEC61162-1NMEA0183 ALR							
Input signals	Power fail alarm ACK: (Contact input: 12VDC 2.4mA, current control: 12VDC 1.2mA) Depth alarm ACK, System alarm 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) DPT every 1 second							
Output alarm data	IEC61162-1 (NMEA0183) ALR 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 alarm, Depth alarm, System alarm: (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.

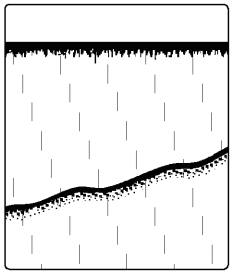
Appendix

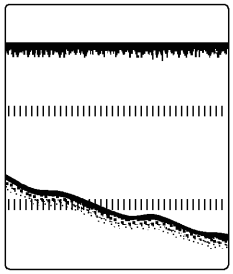
Noise

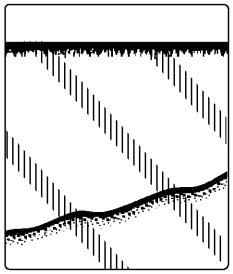
Bubble Noise



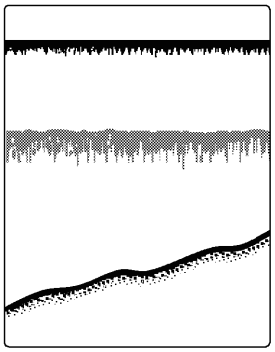
Bubble Interruption





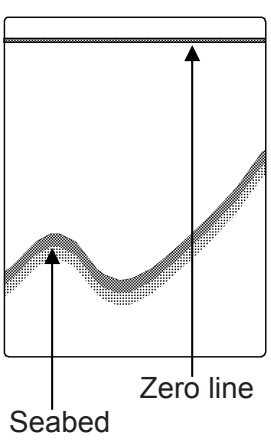


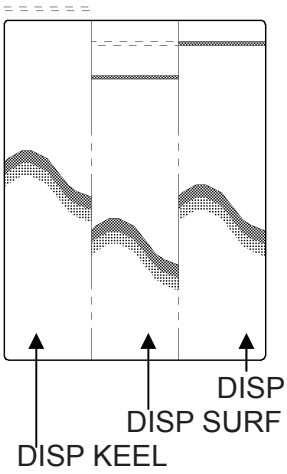
Interference Noise from other ship



Plankton layer

Actual Pictures





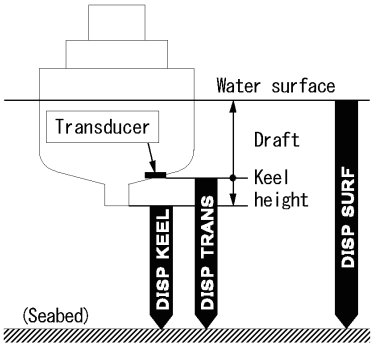
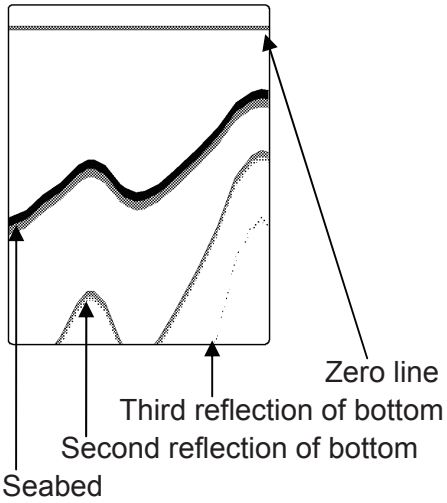


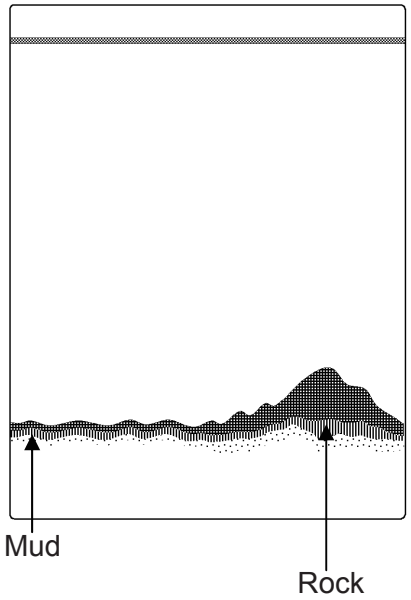
figure A

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.

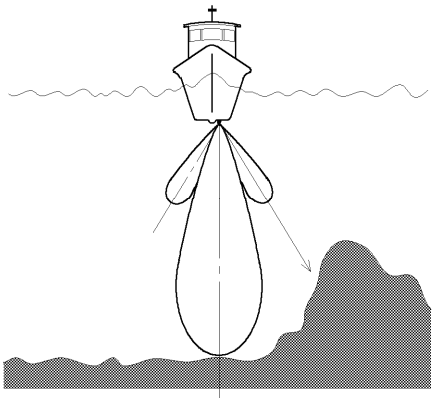
Seabed Quality Change

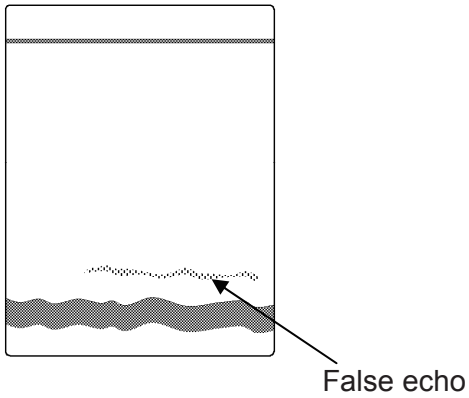


In case of a hard seabed composed of rocks etc., its return trails long, as shown in right chart.
In case of a soft seabed made of mud, seaweed, etc., they poorly reflect an ultrasonic wave to result in thin recording of the seabed with short trail.
The seabed quality can be more sufficiently identified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

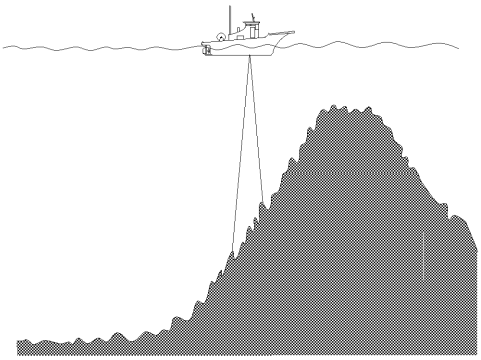
Abrupt-Sloped Seabed

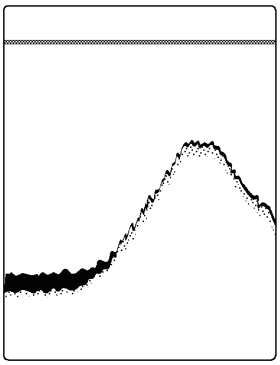
Side lobe

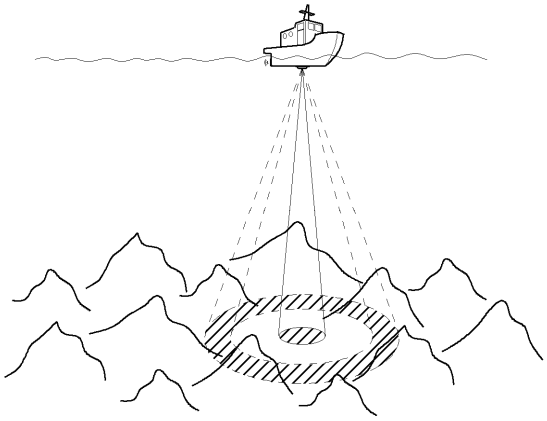


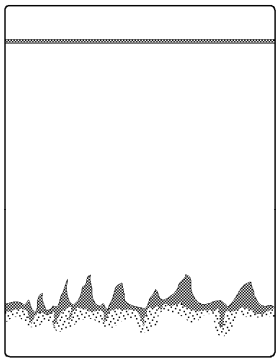


A dim echo may sometimes appear along an abrupt slope of seabed, as if it were floating above the slope, when recording.
In case of flat seabed, thin second return of seabed may sometimes appear, which is slightly below the actual seabed.
In either case, the dim or thin echoes are false and produced 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.

JRC Japan Radio Co., Ltd.

电子信息产品有害物资申明
日本无线株式会社

Declaration on toxic & hazardous substances or elements
of Electronic Information Products
Japan Radio Company Limited

有毒有害物质或元素的名称及含量
(Names & Content of toxic and hazardous substances or elements)

形式名(Type): JFE-380　　名称(Name): Echo Sounder

部件名称 (Part name)	有毒有害物质或元素 (Toxic and Hazardous Substances and Elements)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
记录装置 (Recorder Unit)	×	×	×	×	×	×
船底装置 (Hull-Bottom Unit)	×	×	×	×	×	×
外部设备(Peripherals) ・选择(Options) ・打印机(Printer) ・电线类(Cables) ・手册(Documents)	×	○	×	×	×	×

○:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11306-2006 标准规定的限量要求以下。
(Indicates that this toxic, or hazardous substance contained in all of the homogeneous materials for this part is below the requirement in SJ/T11363-2006.)

×:表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。
(Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T 11363-2006.)

JRC Code No. : 7ZPNA2002A

RE: 中华人民共和国电子信息产品污染控制管理办法
Management Methods on Control of Pollution from Electronics Information Products of the People's Republic of China

アスベストは使用しておりません
Not use the asbestos

CODE No.7ZPNA2002F

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