JFE-380

Echo Sounder

INSTRUCTION MANUAL

JRC Japan Radio Co., Ltd.

4th edition

General Information

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

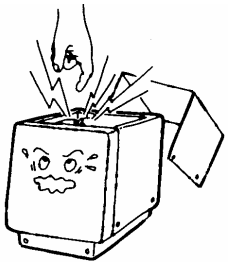
Warning Labels

Warning labels are affixed to the cover of this equipment.
Do not attempt to remove, damage, or modify, the warning labels.

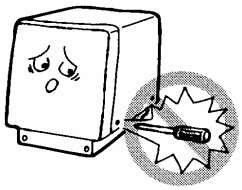
Usage Hints

⚠ WARNING

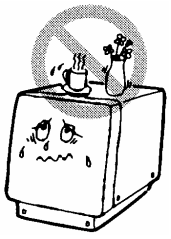
Do not remove the cover of this set. Otherwise, you may touch a high-voltage part and suffer from an electrical shock.



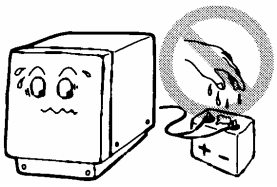
Do not dismantle or modify this equipment. Failure to observe this warning may result in fire, electric shock, or damage.



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.

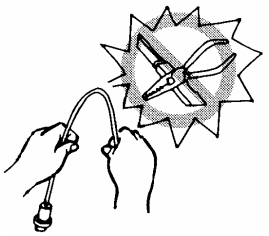


Do not insert or remove the power cord or operate switches with a wet hand.
Otherwise, you may suffer from an electrical shock.

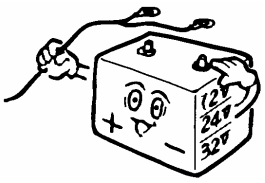


⚠ WARNING

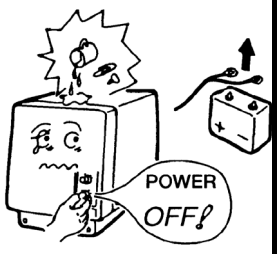
Do not damage, break or modify the power cord.
When a heavy object is placed on the cord or the cord is heated, pulled, or forcibly bent, the cord will be broken resulting in a fire or an electrical shock.



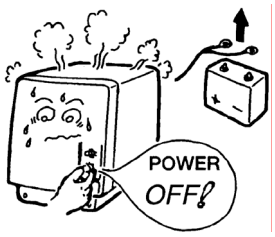
Do not use this set at a voltage other than the supply voltage stated on the set.
Otherwise, a fire, an electrical shock, or a failure may occur.



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.

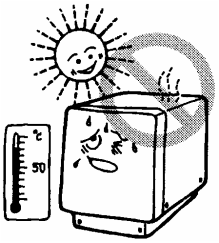


There are no customer-serviceable parts inside. Unauthorized inspections and repairs could cause fires and electrical shock hazards.
Please call our field representative or your nearest JRC office for inspection and repair services.

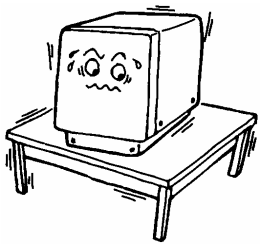
⚠ CAUTION

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

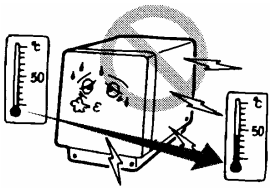
Do not store or operate the equipment where subject to temperatures in excess of 55°C. High temperature may cause failures.



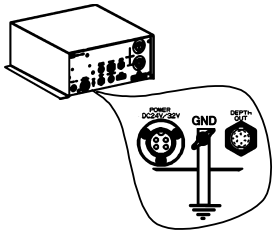
Do not install the equipment on unstable or unleveled surfaces. Failure to observe this condition may result in the equipment falling or toppling over, resulting in injury.



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.

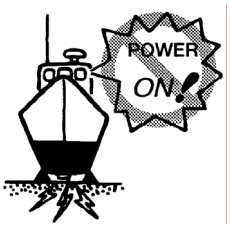


When installing the equipment, securely connect the earth lead to the earth terminal. Failure to connect the earth may result in electric shock in the event of a fault or power leak developing.

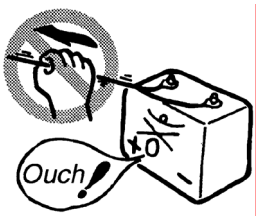


⚠ CAUTION

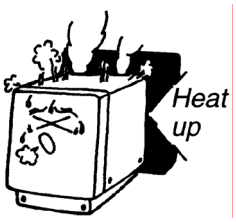
Do not turn on the equipment's power when the ship is in dry docks.
Failure to observe this caution may result in damage to the transducer, etc.



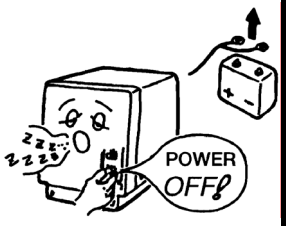
When removing the power cord, be sure to remove the power cord terminal correctly.
If the power cord is pulled, the cord may be damaged resulting in a fire or an electrical shock.



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.

External View

Contents

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: stands for International Maritime Organization.

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

NMEA0183: NMEA stands 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: stands for Universal Time Coordinated.

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:

- Tree 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 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 buzzer and LCD display.
- 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

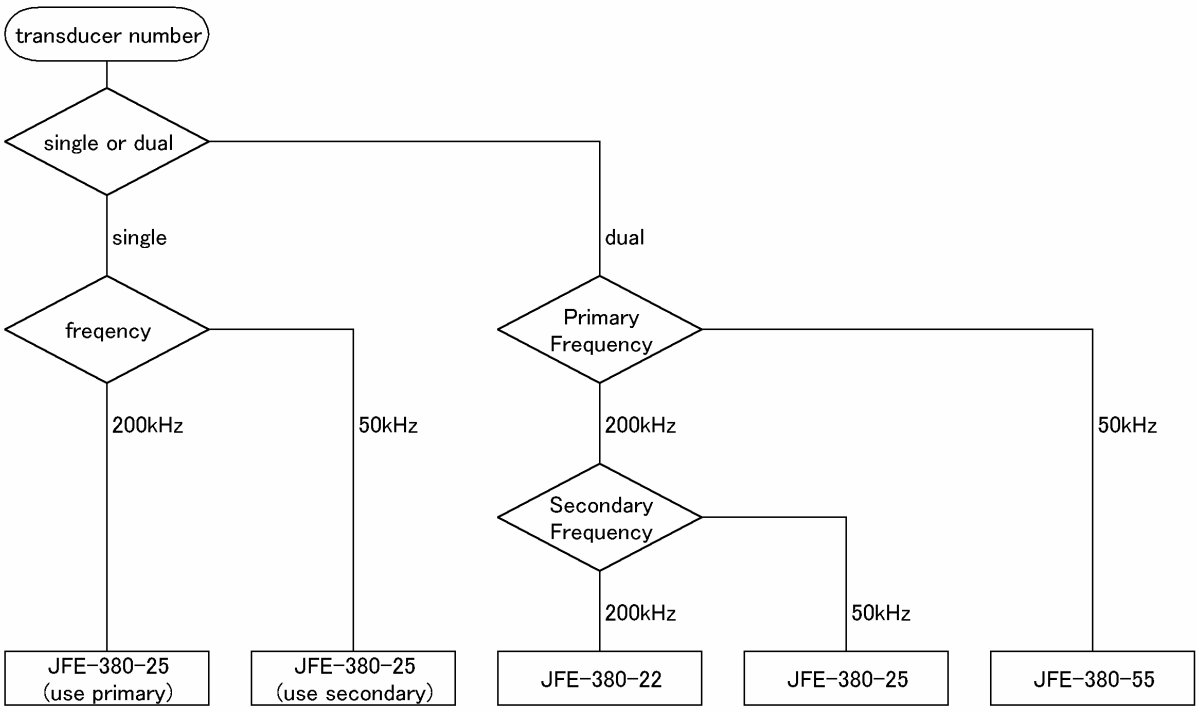
- Self-diagnostic functions can be selected from a menu, improving ease of maintenance.

1.3 Components

This section lists the components.

Standard Equipment

Name		Type No.	Qty.	Remarks
Display unit		NJA-98	1	
Interface box		NQD-2120	1	
TX/RX cable		CFQ-9129	1	10m
Power supply cable		CFQ-9130	1	10m
Communication cable		CFQ-9133	1	10m
Matching box (primary)		AW-154F	1	200kHz
transducer mounting (primary)		NKF-341	1	200kHz (with cable 20,30,40m)
Option	Matching box (secondary)	AW-154F	1	200kHz
		AW-154F-50	1	50kHz
	Transducer mounting (secondary)	NKF-341	1	200kHz (with cable 20,30,40m)
		NKF-345	1	50kHz (with cable 20,30,40m)
	Printer	NKG-91	1	
	External Buzzer	CGC-300B	1	
	Flush mounting kit	BRBX05339	1	Color : MUNSELL N4
	Table mounting kit	BRBX05353	1	

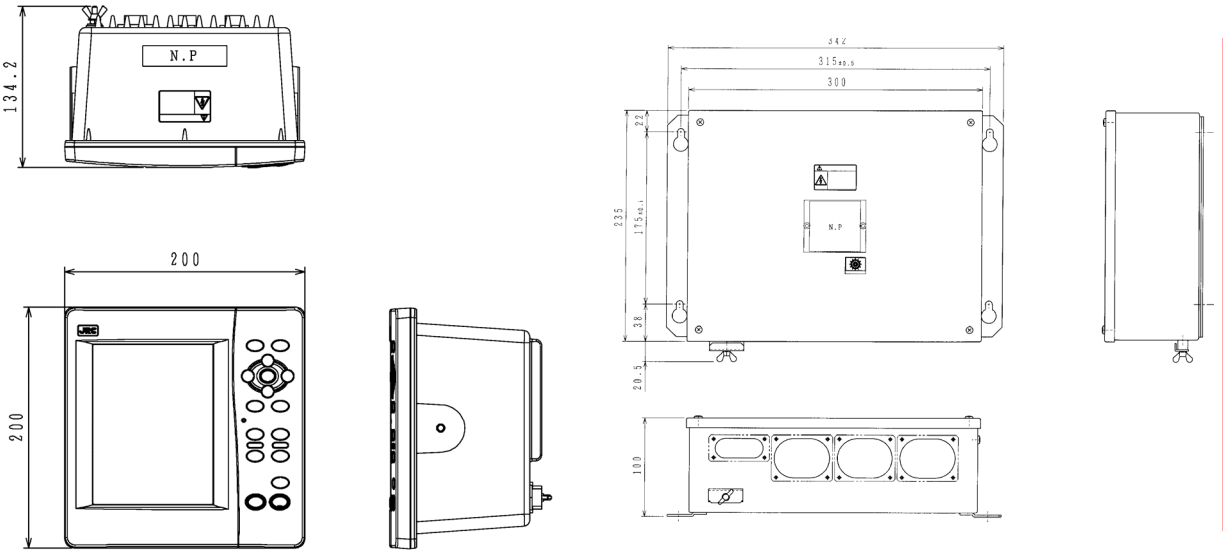


1.4 Construction

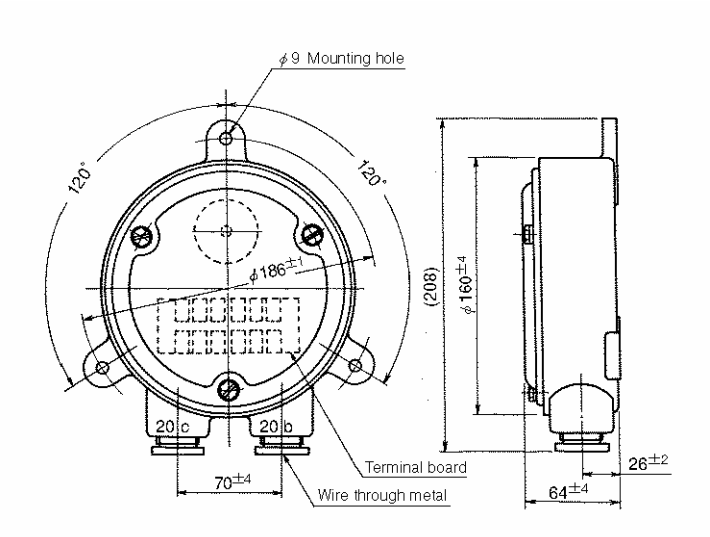
Equipment Outline

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

1. External Dimension of JFE-380



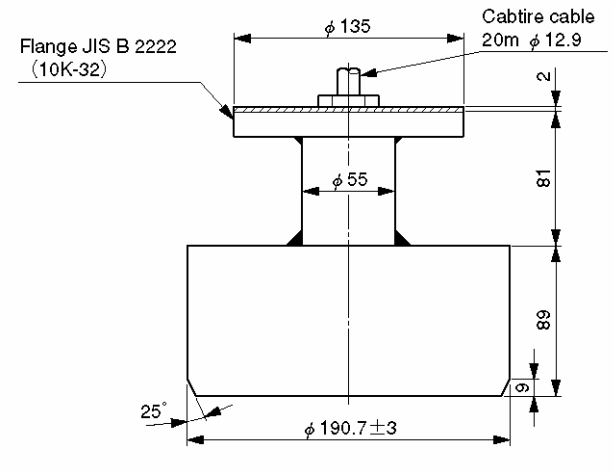
2. Dimensions of AW-154F-50/AW-154F-50 Matching box



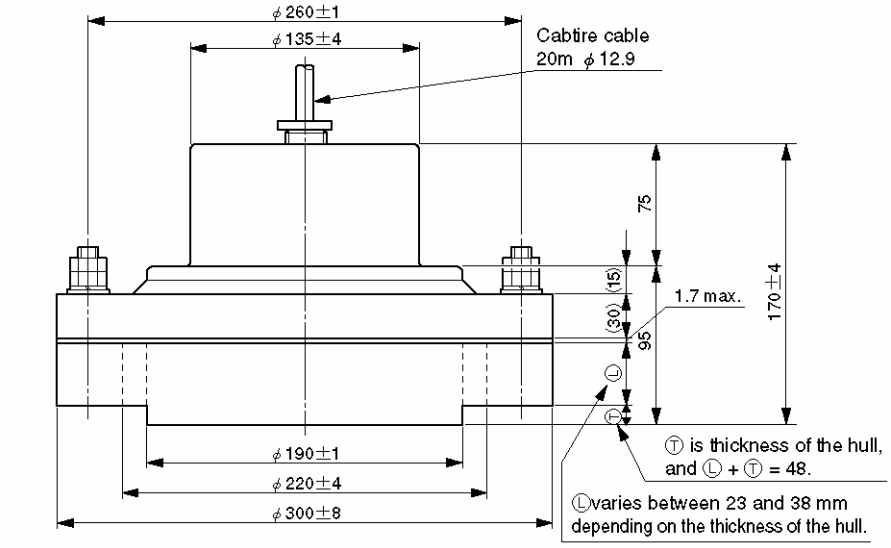
External Dimensions of Transducer mounting

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

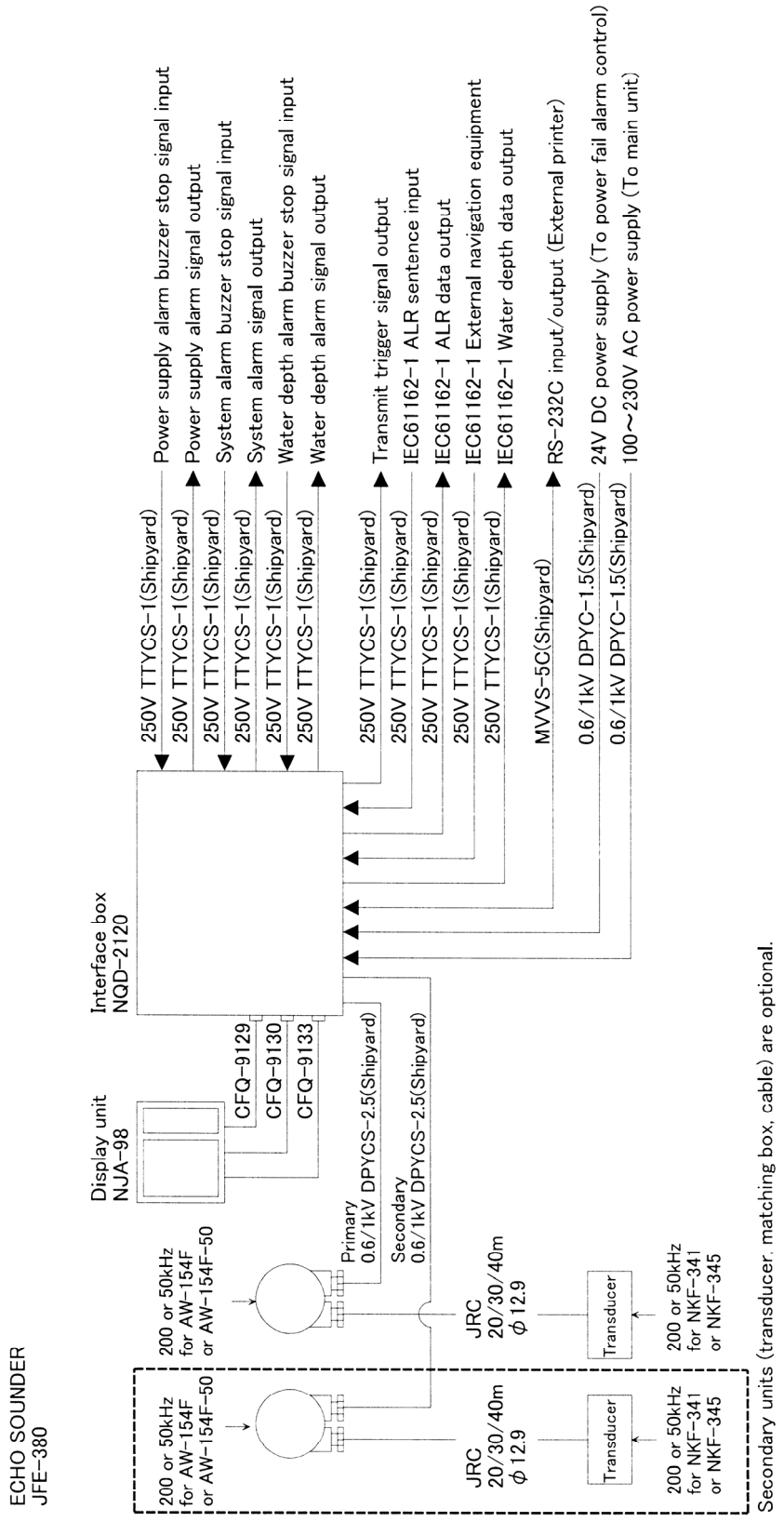
1. NKF-341/NKF-345 (Installed on ship's bottom)



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



1.5 System Configuration



2. 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.

2.1 Installing the Recorder Unit

Flush-Mounted 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

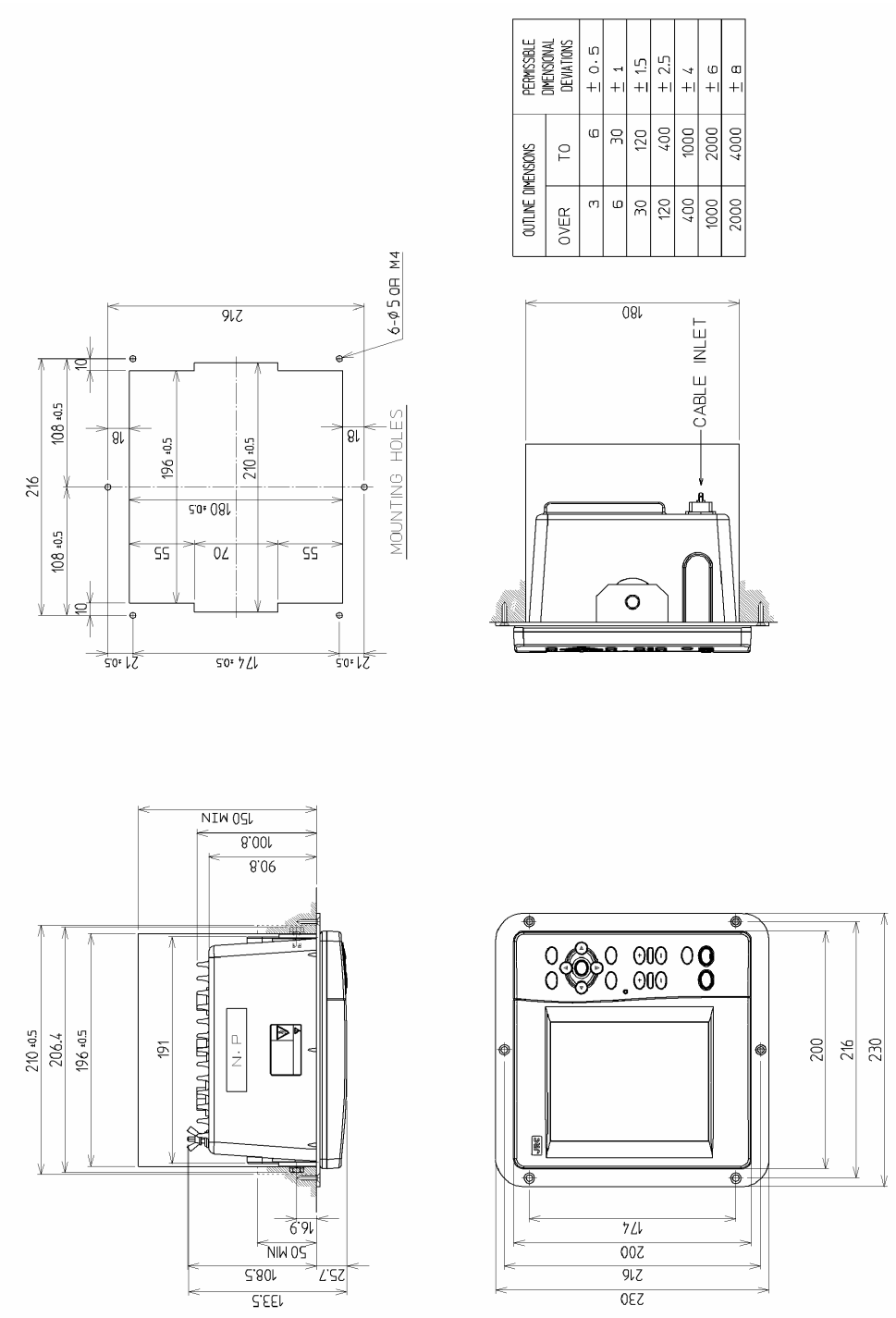
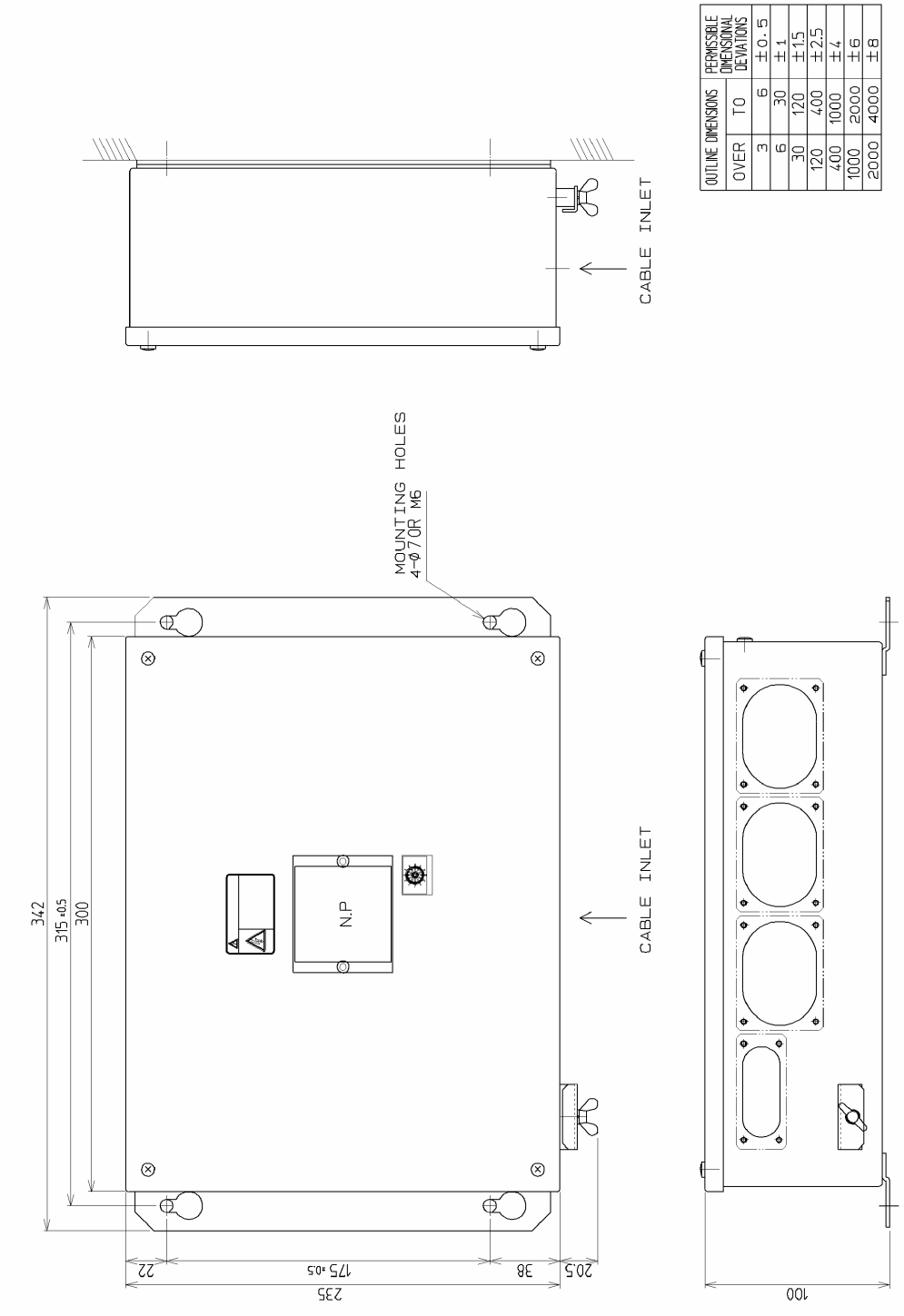


Figure 3-1

Wall-Mounted Equipment



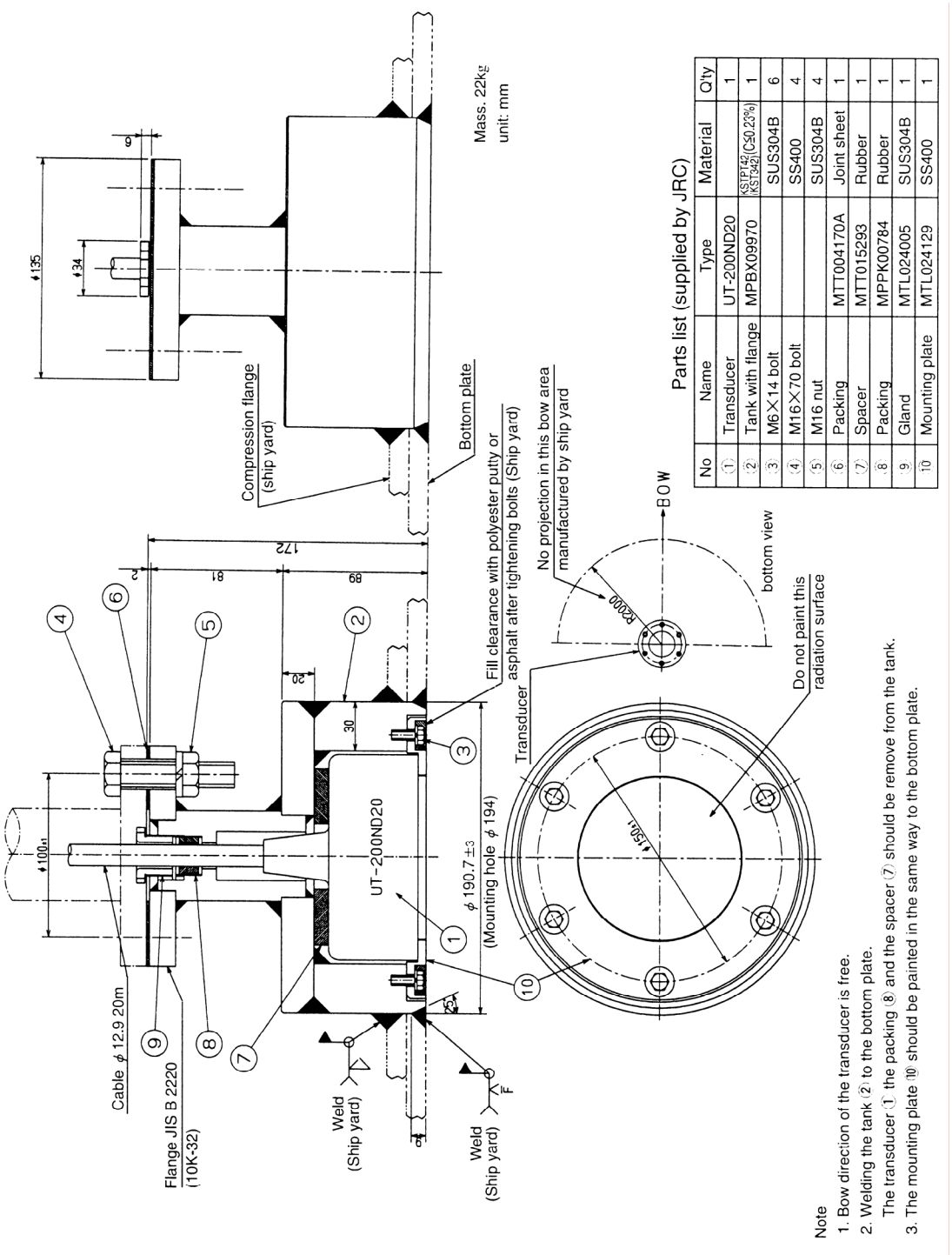
OUTLINE DIMENSIONS		PERMISSIBLE DIMENSIONAL DEVIATIONS
OVER	TO	
3	6	±0.5
6	30	±1
30	120	±1.5
120	400	±2.5
400	1000	±4
1000	2000	±6
2000	4000	±8

Figure 3-2

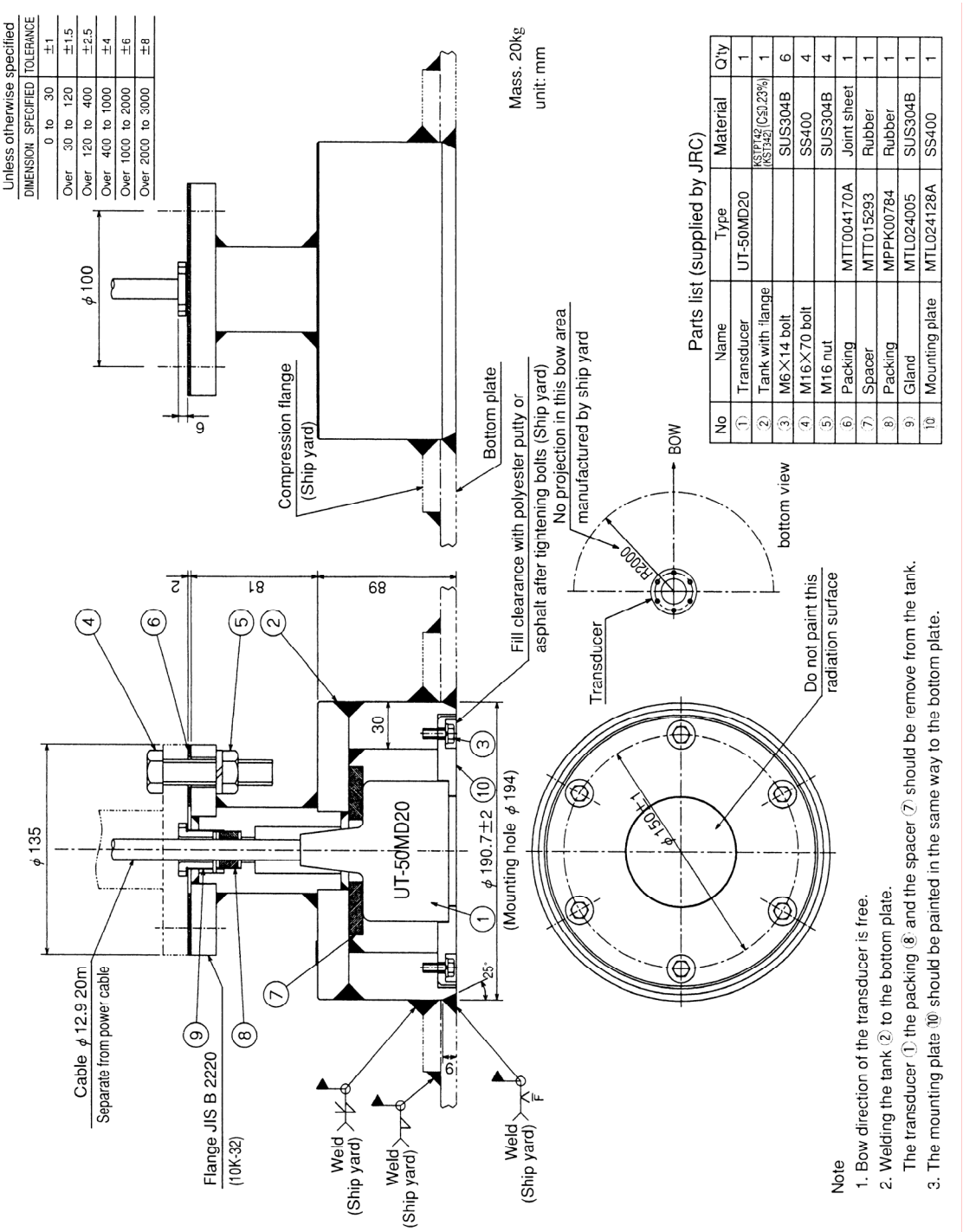
2.2 Installing the Transducer

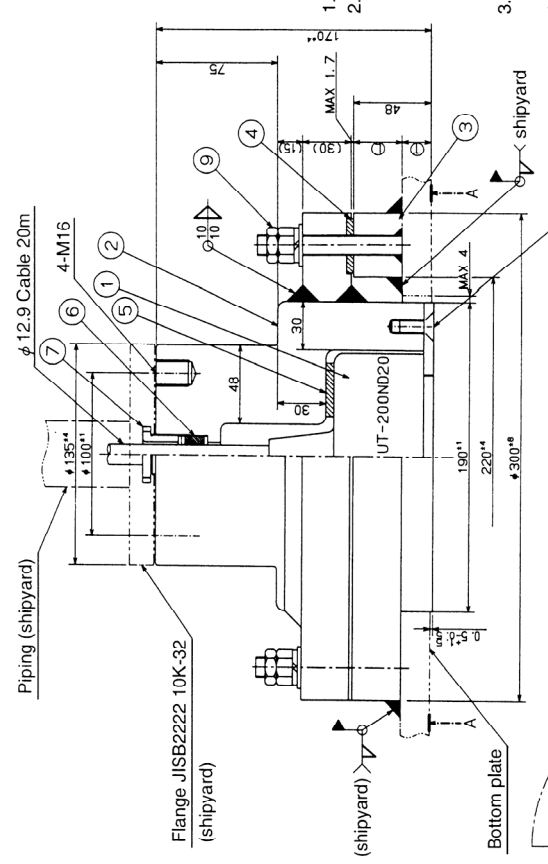
The external dimensions illustrated below are for the standard equipment. Please refer to the separately supplied drawings if your specifications are not standard.

NKF-341



No	Name	Type	Material	Q'ty
①	Transducer	UT-200ND20		1
②	Tank with flange	MPBX09970	(KSTP142 (C≤0.23%) (KST342)	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


Unless otherwise specified
DIMENSION SPECIFIED TOLERANCE
0 to 30 ±1
Over 30 to 120 ±1.5
Over 120 to 400 ±2.5
Over 400 to 1000 ±4
Over 1000 to 2000 ±6
Over 2000 to 3000 ±8
Mass. 20kg
unit: mm
Parts list (supplied by JRC)
No Name Type Material Q'ty
① Transducer UT-50MD20 1
② Tank with flange KSTP142 (C≦0.23%) (KST342) 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 MTL024128A SS400 1
Cable φ12.9 20m
Separate from power cable
Flange JIS B 2220
(10K-32)
Weld
(Ship yard)
Weld
(Ship yard)
Weld
(Ship yard)
UT-50MD20
φ135
φ190.7±2
(Mounting hole φ194)
φ100
Compression flange
(Ship yard)
Bottom plate
Fill clearance with polyester putty or
asphalt after tightening bolts (Ship yard)
No projection in this bow area
manufactured by ship yard
Transducer
R2000
BOW
bottom view
Do not paint this
radiation surface
φ150H7
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.



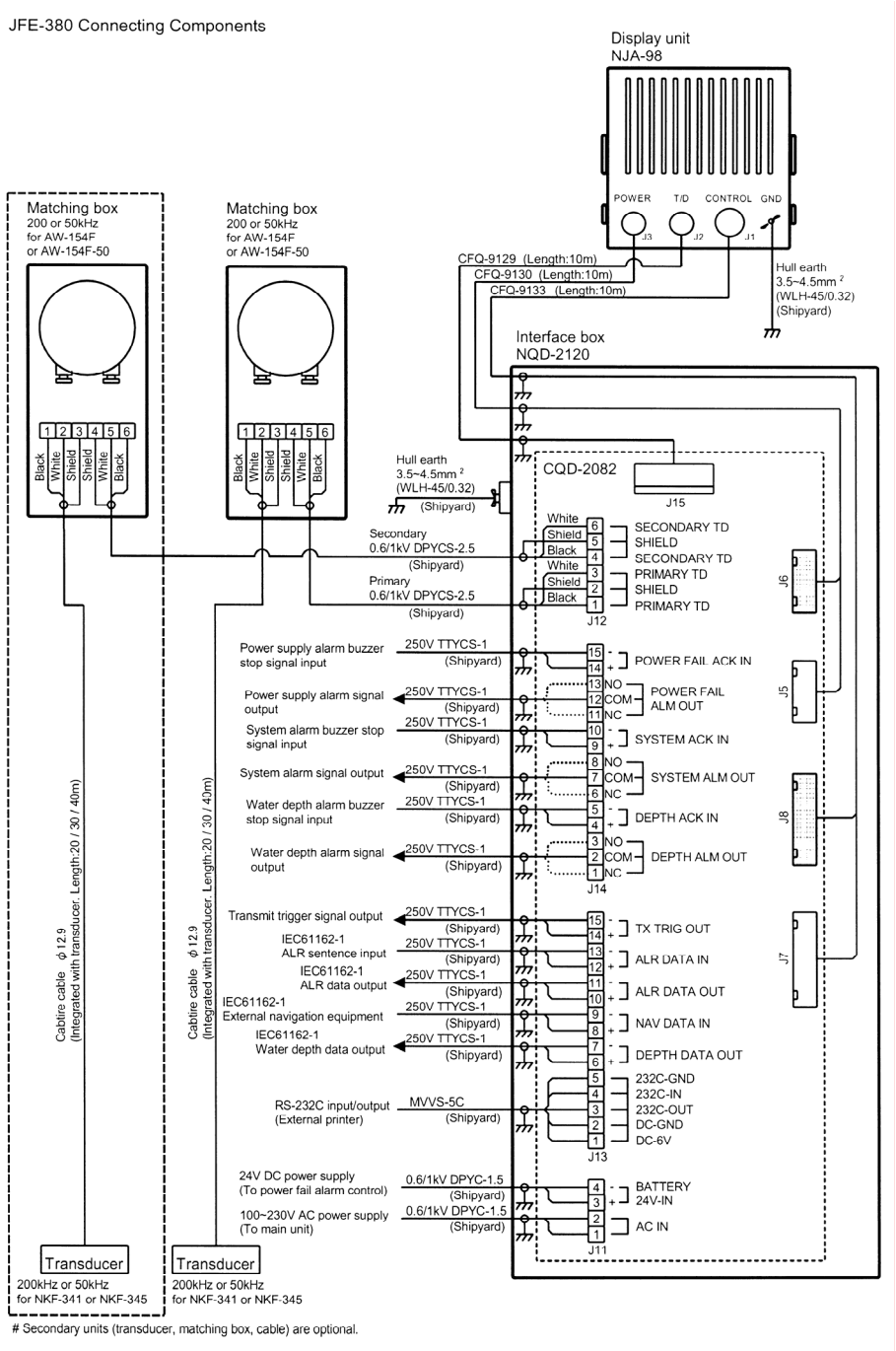
1. The mounting stand should be welded in the shipyard.
2. The dimension Ⓣ corresponds to the thickness of the steel hull bottom.
   This should be designated by the shipyard.
   The dimension Ⓛ of the mounting stand varies between 23mm and 38mm in accordance with the thickness of the steel hull bottom.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

2.3 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 and Power Fail Alarm.

3. Control Panel

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

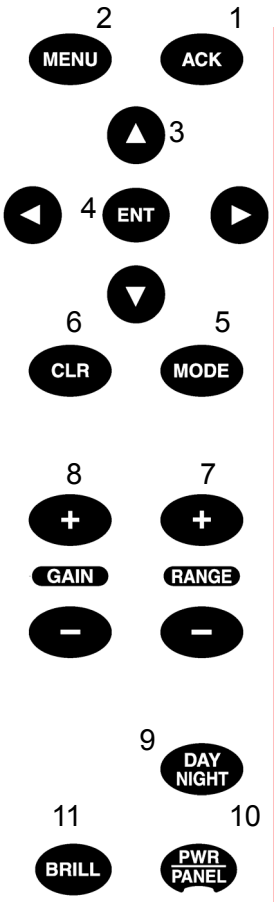
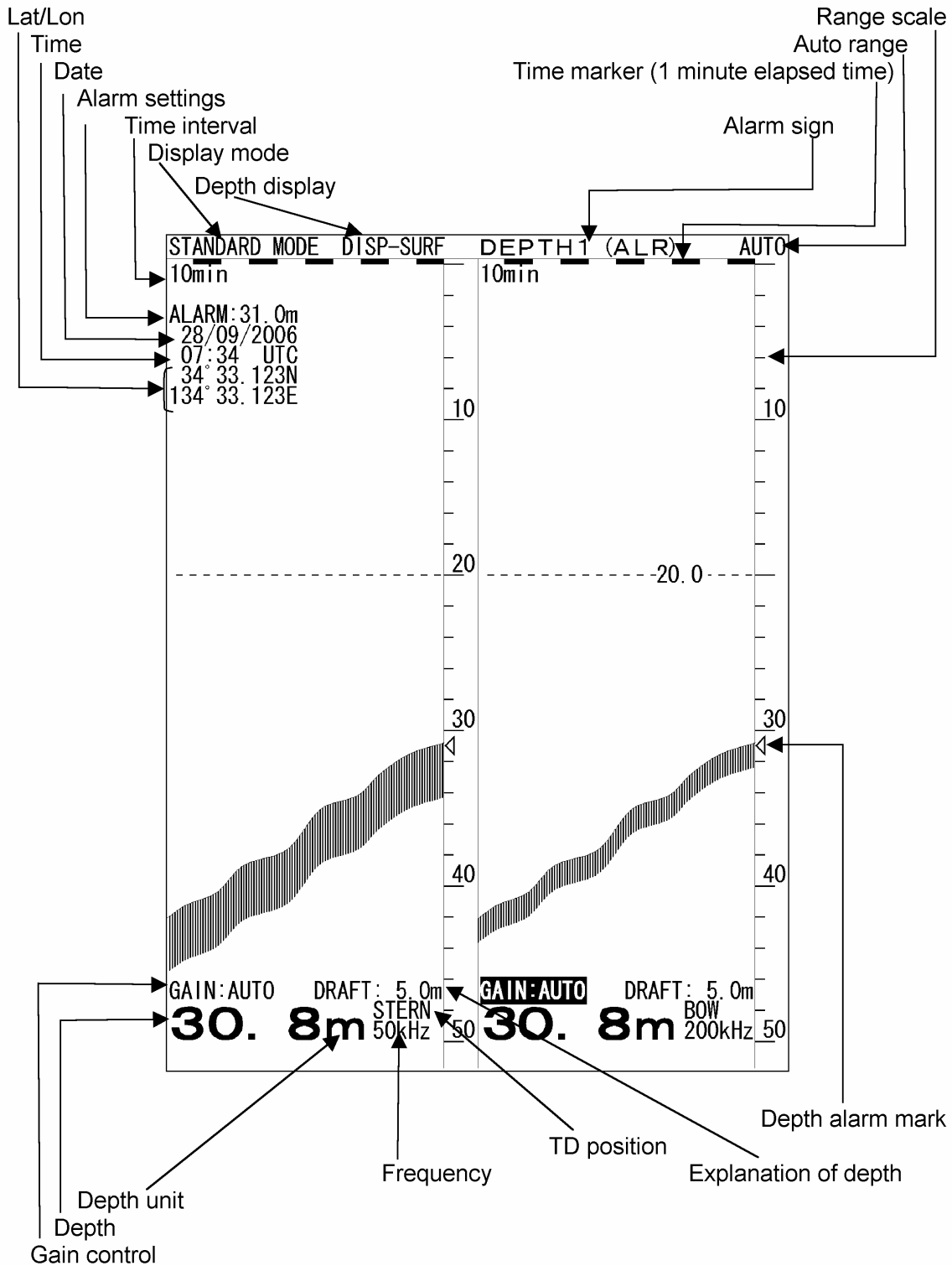


Figure 2-1 Control Panel

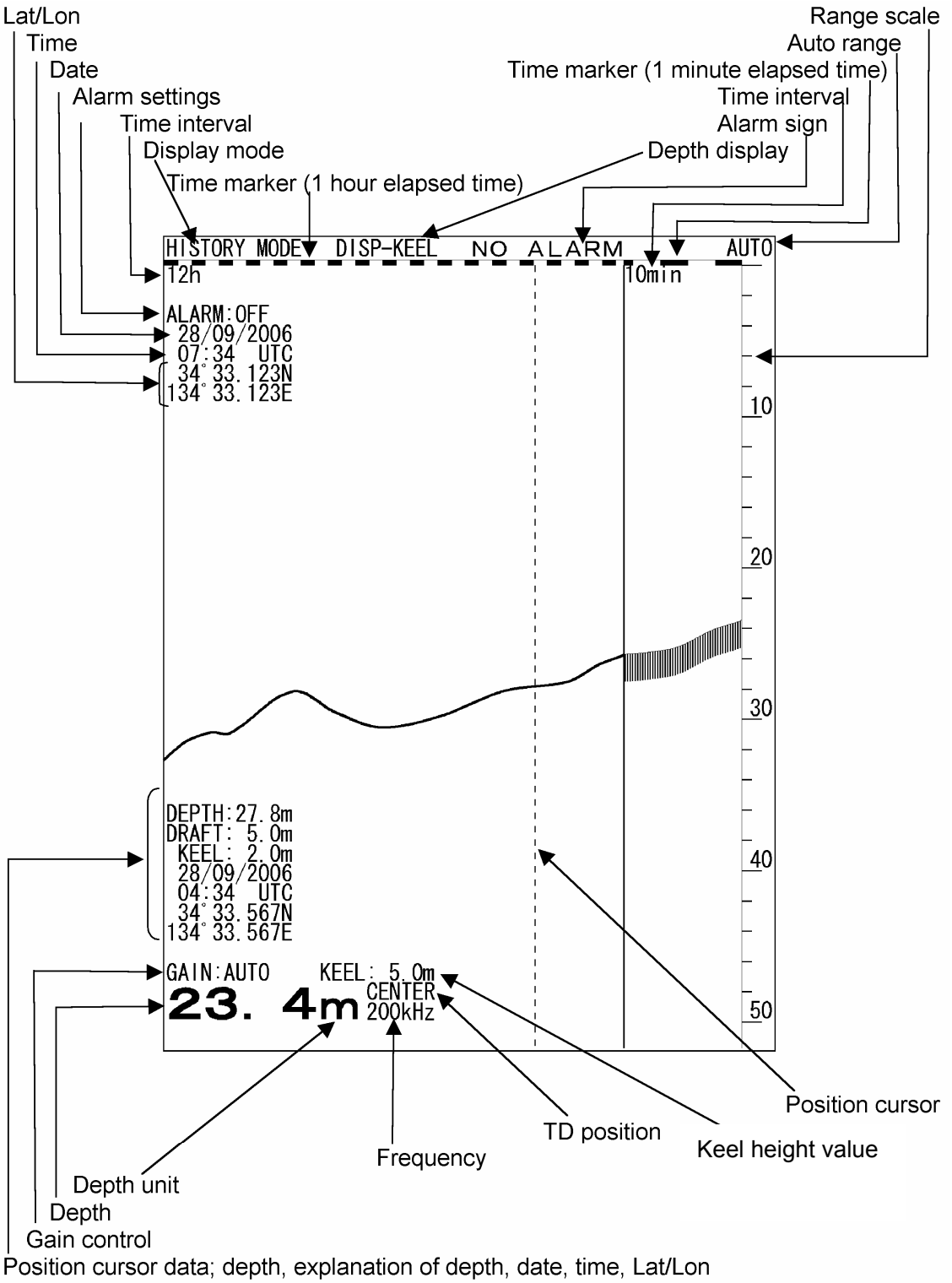
No.	Name	Function
1	ACK	Cancels the buzzer.
2	MENU	Displays the menu.
3	Arrows	Move a cursor.
4	ENT	Selects an item.
5	MODE	Switches the display modes.
6	CLR	Clears an item.
7	(RANGE) +/–	Switches the depth range to shallow or deep.
8	(GAIN) +/–	Adjusts the sensitivity high or low.
9	DAY NIGHT	Enhances the visibility of the screen.
10	PWR/PANEL	Switches the equipment power on and off, adjusts the brightness of the panel. Press and hold both the PWR/PANEL and the BRILL keys to turn off the power.
11	BRILL	Adjusts the screen brilliance.

4. Display

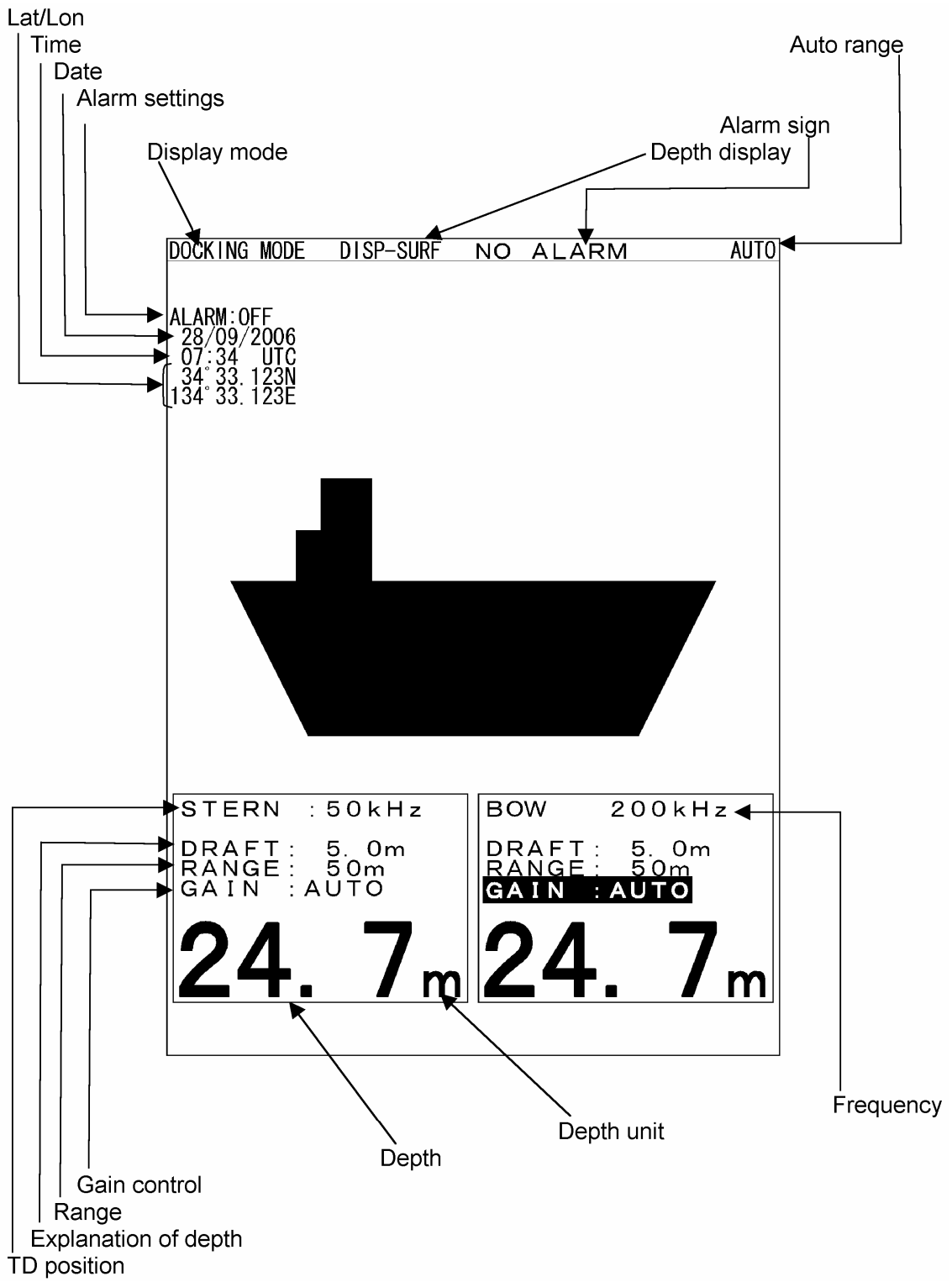
4.1 Standard mode (dual frequency)



4.2 History mode



4.3 Docking mode



5. Operation

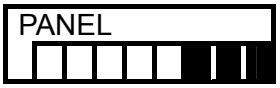
5.1 Basic Operations

Turning Power ON/OFF

Turning Power On
Press and hold the PWR/PANEL key for three seconds.

Turning power OFF
Press and hold both the PWR/PANEL and the BRILL keys for three seconds.

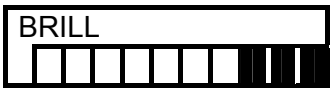
Adjusting Control Panel Illumination



Press the PWR/PANEL key, and use the arrow keys to adjust the control panel brightness.

The control panel illumination can not be turned fully off, it can only be dimmed.

Adjusting Screen Brilliance



The screen brilliance is adjusted by pressing the BRILL key. Set the brilliance to optimum visibility by using the arrow keys.

Note:
Use the Day/Night Vision also to enhance the visibility of the screen depending in the surrounding light condition.

Setting Depth Range

Each time you press the (RANGE) + key, the measuring range increases in the sequence 10, 20, 50, 100, 200, 500, 800 meters.

Each time you press the (RANGE) – key, the measuring range decreases in the sequence 800, 500, 200, 100, 50, 20, 10 meters.

Note:
1. As per the draft setting, the seabed image may shift outside the depth measuring range.
2. You must display the seabed, otherwise you don't see the depth value.

Automatic Range

In the Automatic range mode, the range scale is automatically adjusted.

Turn on the power or press and hold both the (RANGE) + and – keys for three seconds. Once Automatic range mode is selected, the text "AUTO" will appear on the screen.

The Automatic range mode is cancelled by pressing the (RANGE) + or – key.

Note:
1. The Automatic range mode can be set by a dedicated menu function.
2. Default setting of the automatic range is 10m.

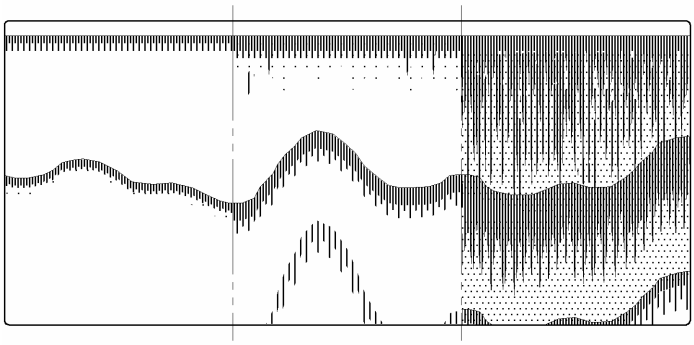
Adjusting Receiver Sensitivity

Select the step from 0 to 30.

Pressing the (GAIN) + key increases sensitivity.

Pressing the (GAIN) – key decreases sensitivity.

If the receiver sensitivity is set too high, noise will also be displayed on the screen, making it difficult to distinguish the seabed. The seabed color should be orange, red or color between orange and red. Adjust the sensitivity to an appropriate value by monitoring the image being plotted on the screen. (See figure below)



Increase sensitivity | Good | Decrease sensitivity

Automatic Gain

In the Automatic gain mode, the sensitivity is automatically adjusted.

Press and hold both the (GAIN) + and – keys for three seconds. Once Automatic gain mode is selected, the text “GAIN:AUTO” will appear on the screen and LONG will be selected at STC function.

The Automatic range mode is cancelled by pressing the (GAIN) + or – key.

Note:
1. The Automatic gain mode can be set by a dedicated menu function.
2. Default setting of the automatic gain is 10 in the steps 0 to 20.

Selecting Display Mode

Pressing the MODE key choose the display mode among STANDARD, HISTORY, and DOCKING.

[Single frequency]
Each press of the MODE key brings up the display mode as follows, “Standard mode, History mode, Docking mode.”

[Dual frequency]
Each press of the MODE key brings up the display mode 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.”

Adjusting Screen Visibility

Use the Day/Night Vision to enhance the visibility of the screen depending in the surrounding light condition.

Select day1, day2, night1, or night2.

Note:
The color be set by a dedicated menu function.

Canceling the Buzzer

Press the ACK key to cancel the depth alarm buzzer.

Menu Tree 1

Default settings shown in underline.

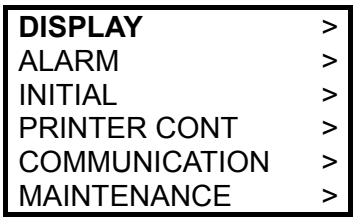
MENU	
├ DISPLAY	
│ ├ SCROLL SPEED	SLOW **STD** FAST
│ ├ CLUTTER	0 1 2 3 **4** 5 6 7 8 9 10
│ ├ INTERFERENCE	OFF **IR1** IR2 IR3
│ ├ GAIN	MANUAL **AUTO**
│ ├ RANGE	MANUAL **AUTO**
│ ├ DRAFT	**0. 0**(0. 0～50. 0)
│ └ CURSOR	OFF ON **AUTO**
├ ALARM	
│ ├ KEY ACK	OFF **ON**
│ ├ RELAY MODE	INTERMITTENT **CONTINUOUS**
│ ├ DEPTH ALARM	
│ │ ├ ALARM CONT	**OFF** ON
│ │ └ DEPTH SETTING	**0. 0**(0. 0～99. 9)
│ └ SYSTEM ALARM	
│ ├ DEPTH LOST	**OFF** ON
│ ├ TX ALARM	**OFF** ON
│ ├ RX ALARM	**OFF** ON
│ ├ BUBBLE ALARM	**OFF** ON
│ └ PRINTER ALARM	OFF **ON**
├ INITIAL	
│ ├ MEMORY INTERVAL	30S **1min**
│ ├ 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
│ │ ├ POS	**BOW** CENTER STERN
│ │ ├ STC	SHORT MIDDLE **LONG**
│ │ ├ INNER	**OFF** 1 2 3 4 5
│ │ └ KEEL	**0. 0**(0. 0～9. 9)
│ ├ SECONDARY	
│ │ ├ FREQ	**OFF** 200kHz 50kHz
│ │ ├ POS	BOW CENTER **STERN**
│ │ ├ STC	SHORT MIDDLE **LONG**
│ │ ├ INNER	**OFF** 1 2 3 4 5
│ │ └ KEEL	**0. 0**(0. 0～9. 9)
│ └ DATE/TIME	
│ ├ DATE	01／01／2000
│ ├ TIME	00:00:00
│ ├ DIFF	±00:00
│ └ GPS SYNC	**OFF** ON

Menu Tree 2

MENU	Default settings shown in underline.
├ PRINTER CONT	
│ ├ PRINTER	Press the ENT key to start JFE−380
│ │	OFF **ON** JFE−680
│ ├ PRINT MODE	**COPY** HISTORY LOG
│ ├ LOG LENGTH	**10min** 20min 30min 1h 2h
│ └ SPEED	**4800bps** 9600bps 19200bps 38400bps
├ 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
└ SYSTEM No.	Press the ENT key to start

5.2 Menu Operations

Selecting Item to set



Press the MENU key. The window shown above appears on the screen. While watching the display, use the arrow keys to select the item to be changed. The selected item is highlighted on the display. In the figure at above, "DISPLAY" is selected.

When an item is highlighted, press the ENT key to change the setting.

Switching to Normal Operation

To switch to normal operating, press the CLR key several times.

Note:
You can press the MENU key also to return to normal operation at any time the menu window is displayed.

Display Settings

DISPLAY	
SCROLL SPEED	FAST
CLUTTER	4
INTERFERENCE	OFF
GAIN	AUTO
RANGE	MANUAL
DRAFT	6.1
CURSOR	ON

Scroll speed: Choose one among slow, standard, and fast.

Clutter: Suppresses small noise. Choose one among 11 levels. “0” is the weakest.

Interference: Eliminates noise from other boats. “OFF” does not eliminate the noise. “IR1” compares it with the last data. “IR2” compares it with the last two data. “IR3” compares it with the last three data.

Gain: Choose manual or automatic.

Range: Choose manual or automatic.

Draft: Enter the desired value. The draft can be set between 0.0 and 50.0 m in steps of 0.1 m.

Cursor: “OFF” does not display the cursor. “ON” displays the cursor. “AUTO” displays the cursor for 30 seconds after the cursor movement is stopped.

Alarm Settings

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

Key acknowledgement: Enables / disables the keypads beep.

Relay mode: Choose intermittent or continuous.

Setting Depth Alarm

DEPTH SETTING
20.0

Display the window shown above.

Pressing and holding the upward-arrow key increases the depth setting of the depth alarm.

Pressing and holding the downward-arrow key decreases the depth setting of the depth alarm.

Press the ENT key to finish setting.

If the measured depth is less than the set depth alarm value, a warning character blinks and the buzzer sounds.

Notes:
1. The buzzer sounds for depth and system alarms. You can check which alarm is being issued from the blinking characters.
2. If, due to bubbling, etc., it is not possible to discriminate the sea bottom, it is also not possible to trigger the depth alarm. When sailing in shallow waters, please check the sea bottom reflected on the screen.
3. The alarm tone sounds from the hole at the front panel. Do not block this hole.

The currently set depth alarm is displayed on the screen.

Note:
The depth can be set between 0.0 and 99.9 meters.

Activating/deactivating the alarm

Highlight the alarm item you wish to activate or deactivate.

Select OFF to deactivate the alarm.
Select ON to activate the alarm.

Press the ENT key to finish setting.

Initial Settings

INITIAL	
MEMORY INTERVAL	30S
COLOR	>
DEPTH DISPLAY MODE	TRAN
PRIMARY	>
SECONDARY	>
DATE/TIME	>

Memory interval: “30S” saves the sounding data every 24 hours. “1min” saves the sounding data every 12 hours.

Color: Adjust color of the screen and character for the DAY NIGHT key.

Depth display mode: “SURF” displays the depth below water surface. “TRAN” displays the depth below the transducer. “KEEL” displays the depth below the keel. (see figure A)

Primary: Enter the data of the primary transducer; frequency, position, STC, inner, and keel.

Secondary: Enter the data of the secondary transducer; frequency, position, STC, inner, and keel.

Date/time: Set the time, the date, and a time difference. GPS synchronization “OFF” uses the inner clock. GPS synchronization “ON” uses the ZDA data to synchronize the inner clock.

Printer Control Settings

PRINTER CONT	
PRINTER	ON
PRINT MODE	COPY
LOG LENGTH	10min
SPEED	4800bps

Printer: Enables / disables to print.

Print mode: “COPY” prints the data displayed on the present screen. “HISTORY” prints all the saved data graphically. “LOG” prints a specific period of the saved data.
(see figure C for example)

Log length: Choose a log length for “LOG” which explained just above.

Speed: Choose a baud rate of the printer port.

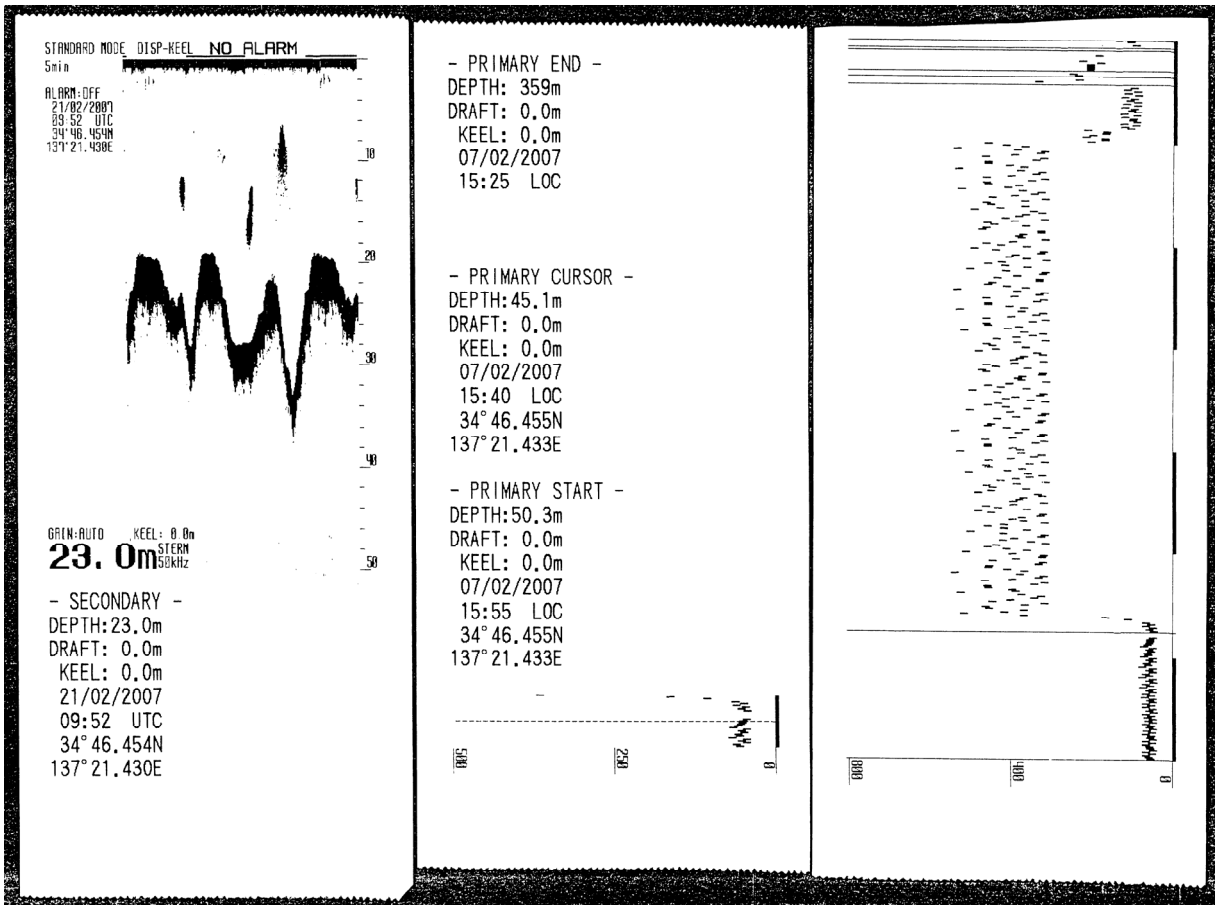


Figure C

Setting Format for Depth Data Output

DEPTH
Ver1.5
Ver2.3
ALL

Display the window shown above. The format changes each time you press the up or downward-arrow key.

Notes:
1. There are three output formats: NMEA0183V2.3, NMEA0183V1.5, or ALL.
2. In the case of NMEA0183V2.3, only "SDDPT" sentences are output.

$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.)

3. In the case of NMEA0183V1.5, the output sentence varies according to the depth display mode setting.

• When DISP-SURF is set, only the "SDDBS" sentence is output.
$SDDBS, xxx.x, f, xxx.x, M, xxx.x, F(CR)(LF)
(1) (2) (3)
• When DISP-TRANS is set, only the "SDDBT" sentence is output.
$SDDBT, xxx.x, f, xxx.x, M, xxx.x, F(CR)(LF)
(1) (2) (3)
• When DISP-KEEL is set, only the "SDDBK" sentence is output.
$SDDBK, xxx.x, f, xxx.x, M, xxx.x, F(CR)(LF)
(1) (2) (3)

The field values are the same in each of the three sentence types:
(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

Setting Output Alarm Signal

Display the window shown above. Use the arrow keys to select OFF or ON.

When OFF is selected, ALR sentence is not output.

When ON is selected, ALR sentence is output according to the depth and system alarm setting.

Notes:
ALR(Set Alarm State)
$SDALR,hhmmss.ss,xxx,A,A,c--c*hh<CR><LF>
(1) (2) (3)(4)(5)
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 recording paper is not good
   357 printer connection is not good
   360 primary output data is not good
   361 primary input data is not good
   362 primary input sensitivity data is not good
   363 secondary output data is not good
   364 secondary input data is not good
   365 secondary input sensitivity data 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

Setting Output System Signal

SYSTEM
OFF
ON

Display the window shown above. Use the arrow keys to select OFF or ON.

When OFF is selected, a cyclical PJRC is not output.

When ON is selected, PJRC, PJRCL, and PJRCM is output to the depth output port.

Setting Output Printer Port Out Signal

PRINTER PORT OUT
PRINTER
PC

Display the window shown above. The mode switches each time you press the up or downward-arrow key.

When PRINTER is selected, a printer control signal is output.

When PC is selected, PJRCP is output according to the print mode setting. PJRCM is output after PJRCP.

Notes:
1. Any settings output PJRCU every 1 second.
2. Output sentence and source
   PJRCU depth, offset, selected range
   PJRCL maintenance
   PJRCM system data
   PJRCP print data

Memory Test

SELF TEST	>
CONTROL UNIT	>
LCD UNIT	>
KEY UNIT	>
PRINTER TEST	>
ALARM TEST	>

Display the window shown above. Use the up or downward-arrow key to select CONTROL UNIT.

Press the ENT key to start the memory test.

The results of the memory test are shown on the screen.
• During testing, nothing is shown on the screen.
• The results are shown for each PROM, SRAM, and VRAM.
If OK : OK
If no good : NG
If NG is displayed, the Transducer Controller is faulty and requires servicing. (See the list of offices at the end of this manual.)

LCD Check

SELF TEST	>
CONTROL UNIT	>
LCD UNIT	>
KEY UNIT	>
PRINTER TEST	>
ALARM TEST	>

Display the window shown above. Use the up or downward-arrow key to select color.

Press the CLR key to exit.

This test fills the whole screen with colors, which are black, red, green, blue, and white. The color changes each time you press the up or downward-arrow key. If there is any dropout, the Panel or Transducer Controller may be faulty. Please contact JRC or its agent. (See the list of offices at the end of this manual.)

Panel Circuit Operation Check

```
KEY UNIT
  BRILL
```

Display the window shown above.

Press each location on the panel.
- If operation is OK, a key name is displayed in the key unit window. In the figure at above, the result of that the BRILL key is pressed.
- If operation is NG, nothing remains.

If faulty, the Panel or Transducer Controller may be faulty and may require servicing. (See the list of offices at the end of this manual.)

Printer Test

```
SELF TEST          >
   CONTROL UNIT    >
   LCD UNIT        >
   KEY UNIT        >
   PRINTER TEST    >
   ALARM TEST      >
```

Display the window shown above. Use the up or downward-arrow key to select PRINTER TEST.

Press the ENT key to start the recording paper surface check.

This check prints a test pattern on the recording paper. (See figure B for example) If the printing is blurred, it may be faulty and may require servicing. Please contact JRC or its agent. (See the list of offices at the end of this manual.)

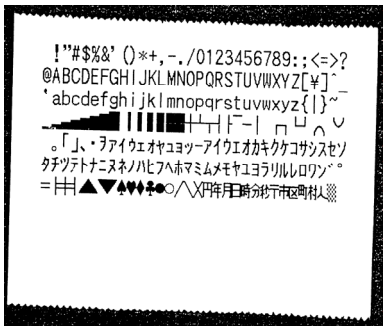


Figure B

Alarm Test

“OFF” disables the alarm test. “DEPTH ALARM” displays the center of the depth scale. “SYSTEM ALARM” enables the preset depth lost alarm.

Maintenance Functions

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

Alarm log: Displays the alarm log by pressing the ENT key. Pressing the CLR key brings up the Maintenance Menu window.

Alarm log out: Outputs the alarm log to the normal port, the printer, or the printer port by pressing the ENT key.

Alarm log deletion: Deletes all the alarm log by pressing the ENT key.

Line monitor: “NAV/DEPTH” displays the Input/output data of navigation and depth by pressing the ENT key. “ALR” displays the Input/output data of ALR by pressing the ENT key. “PRINTER” displays the Input/output data of the printer port by pressing the ENT key. Pressing the CLR key brings up the Maintenance Menu window.

RX monitor: Displays the present status of the receiver by pressing the ENT key.

Program Version No.

```
SYSTEM No.
   07/09/2006
   Ver 00.03
```

The program version No. is displayed on the system number window.

5.3 Master Reset

Executing Standard Default Settings

Turn OFF the power, then turn ON the power while simultaneously pressing and holding both the MENU and CLR keys.

After resetting the equipment to the standard defaults, the frequency setting menu window, which said please do connection setting of transducers, appears on the screen.

You cannot abort this operation after the frequency setting menu window appeared on the screen. You have to select the frequency to switch to normal operation.

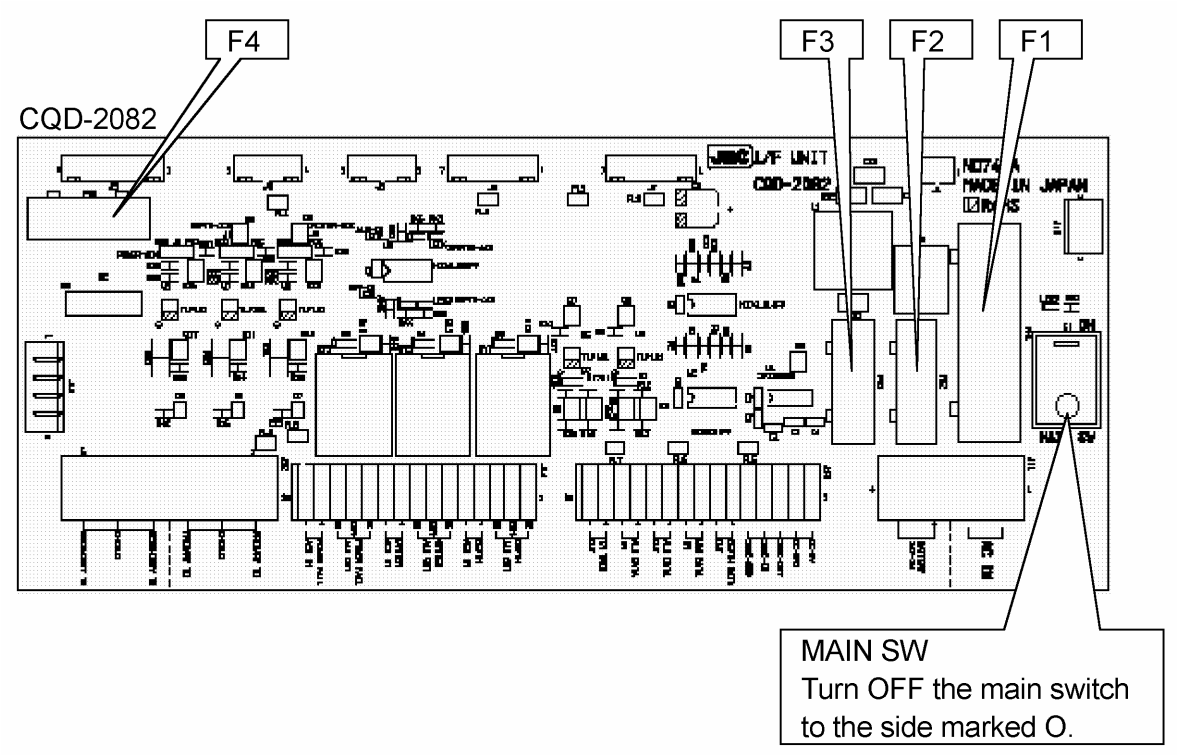
Note:
See Menu tree for the standard defaults.

6. Replacing the Fuses

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.

No.	Type No.	Spec.	Part Code	Remarks
F1	250V 1A TLC 5A	250V 1A	5ZFCA00147	
F2	MF51NR 250V 0.5	250V 0.5A	5ZFGD00019	
F3	MF51NR 250V 2	250V 2A	5ZFGD00022	
F4	MF51NR 250V 2	250V 2A	5ZFGD00022	

Fuse Positions



(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 overcurrent 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.)

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. Troubleshooting

The table below provides simple troubleshooting procedures which you may follow to restore normal operation. If you cannot restore normal operation, contact your dealer.

SYMPTOM	PROBABLE CAUSES	REMEDY
No picture	The power cord is not plugged	Plug the power cord
	The power cord is damaged	Repair the cord
	The breaker of your ship is off	Turn on the breaker
	High or low power supply	Check the supply voltage
	Fuse blown	Replace the fuse
No echo sounding picture	Transducer cable is not connected	Connect the cable
	Transducer cable damaged	Repair the cable
	Transducer is not connected	Connect the transducer
	Wrong installation of the transducer	Check the transducer
	Frequency setting is wrong	Check the frequency setting
Irregular display	Low sensitivity	Increase the gain
	Muddy seabed	Increase the gain
	Marine life on the transducer	Remove marine life from the transducer.
	The transducer is damaged	Replace the transducer
	Draft value is not collect	Adjust draft value
	Suspect dirty water	Decrease the gain
Heavy noise	Noise from generator	Check the generator
	Wrong installation of the ground wire	Relocate the ground wire
	The transducer cable is damaged	Repair the transducer cable
	The transducer cable and the power code are placed too close.	Relocate the transducer cable and the power code not too close.
The printer won't start	Fuse blown	Replace the fuse

9. After-sales Service

9.1 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.)

9.2 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.

10. Disposal

10.1 Disposal of this equipment

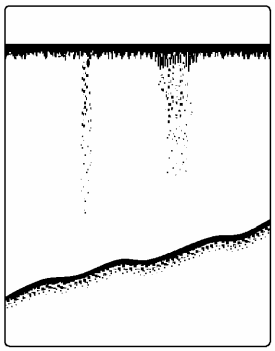
Please dispose of this equipment following the guidelines of the local body governing the location at which the equipment is disposed of.

11. Specifications

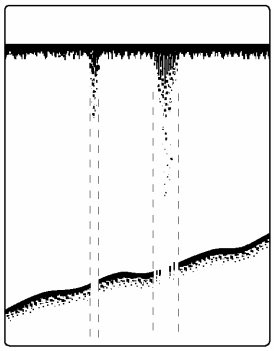
Display	6.5 inch TFT LCD (640 x 480 pixels)
Frequency	200kHz / 50kHz
Echo color	8 colors or 8 level monochrome
Digital depth	4 digit (0.1m)
Range	10, 20, 50, 100, 200, 500, 800m
Depth accuracy	±2.5%
Minimum sounding depth	200kHz : 1.0m, 50kHz : 2m
Draft adjust	50m in 0.1m steps
TX pulse repetition rate	171PRR (10, 20, 50m)
	86PRR (100, 200m)
	43PRR (500, 800m)
Presentation 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	24hour
Transducer	200kHz : UT-200ND
	50kHz : UT-50MD
Power supply	100-115/200-230VAC±15%, 50Hz/60Hz±5%
	24VDC (only use for power fail monitoring)
Power consumption	Less than 20W
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)
Ambient temperature	–15°C to 55°C / operating –25°C to 70°C / storage
Relative humidity	less than 93%RH under 40°C condition (non-condensing) / operating less than 93%RH under 40°C condition (non-condensing) / storage

Appendix

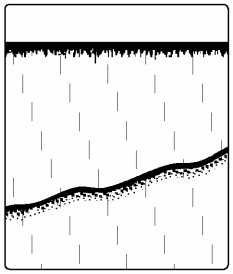
Noise

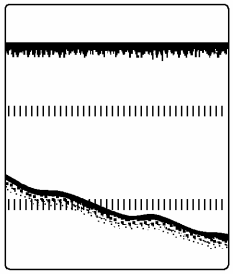


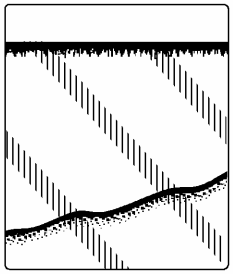
Bubble Noise



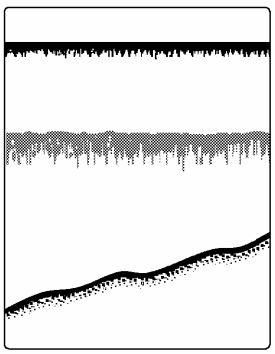
Bubble Interruption





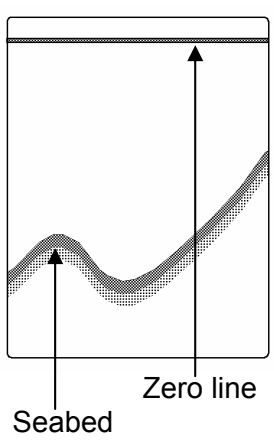


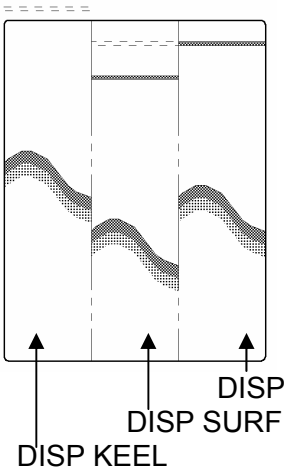
Interference Noise from other ship



Plankton layer

Actual Pictures





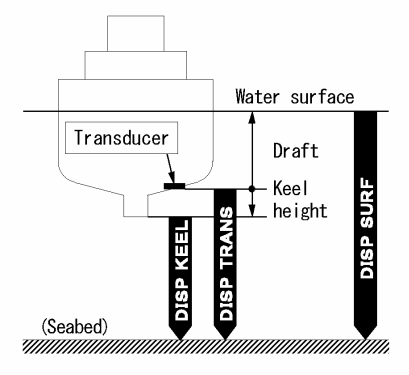
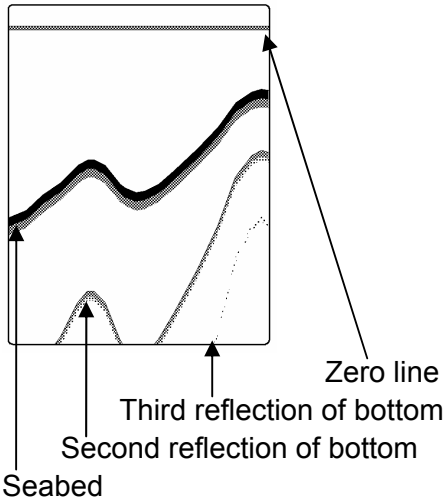


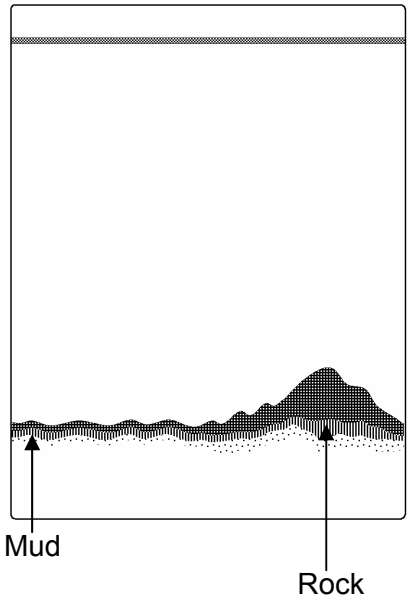
figure A

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 multireflection.

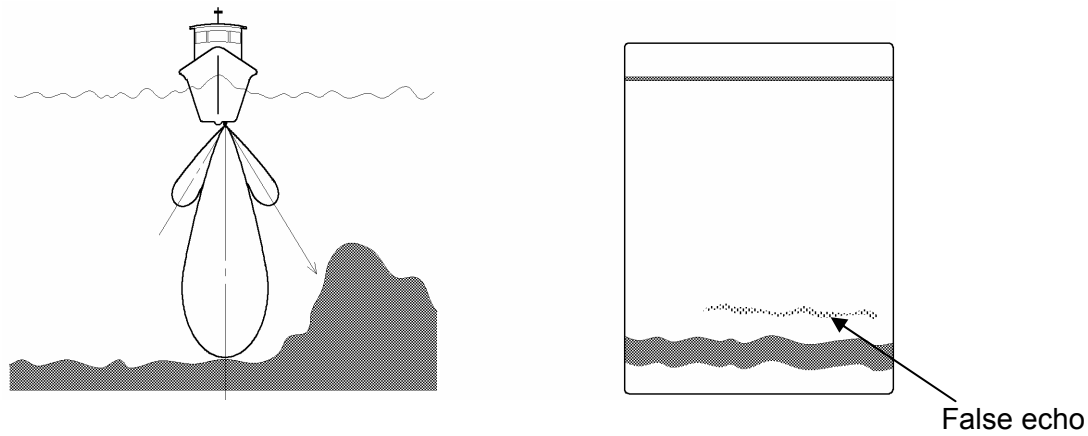
Seabed Quality Change



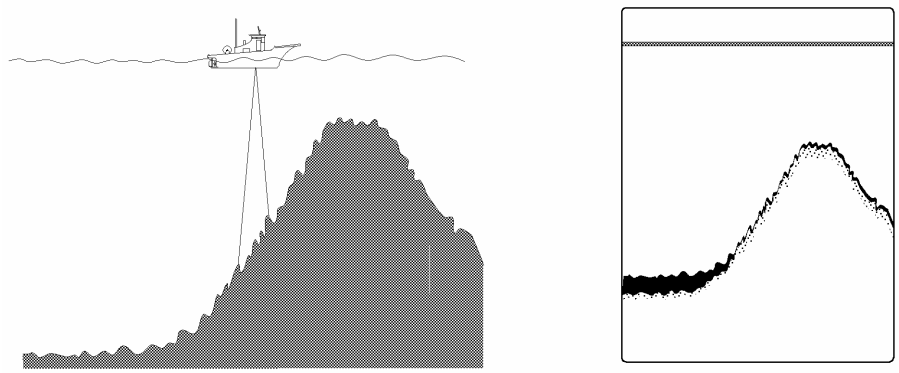
In case of a hard seabed composed of rocks etc., its return trails long, as shown in right chart.
In case of a soft seabed made of mud, seaweed, etc., they poorly reflect an ultrasonic wave to result in thin recording of the seabed with short trail.
The seabed quality can be more sufficiently identified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

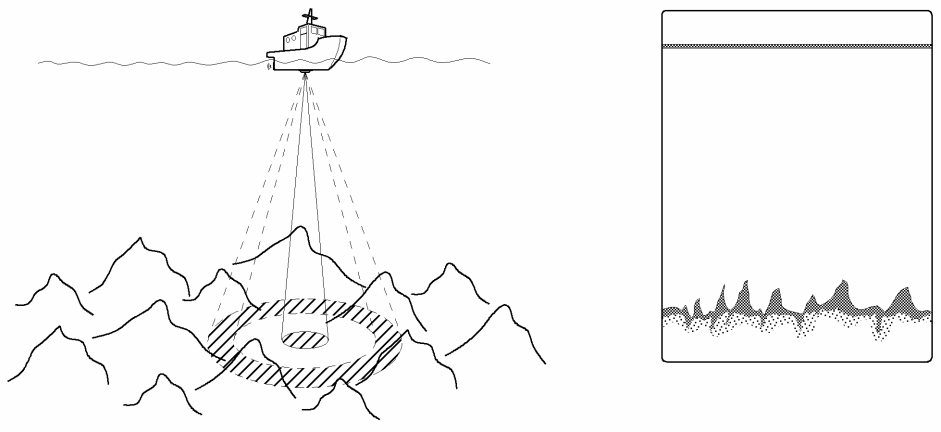
Abrupt-Sloped Seabed

Sidelobe



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

○: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. : 7ZPNA2002

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CODE No.7ZPNA2002

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