SKIPPER ES 1025 / ES 2025

10 INCH ECHO SOUNDER

OPERATION AND INSTALLATION MANUAL

5177N.Sept.98.

CONTENTS

NOTES TO USERS

Thank you very much for purchasing the ES–1025/ES–2025.

Before operating this unit, please read this manual thoroughly and understand the operation enoughly to prevent any trouble and injury in advance.

INTRODUCTION

NOTATION

◎The following notations are used in this manual. Before using these units, make sure to understand the meaning of the followings.

ES-1025 · ES-2025	: This manual provides the operation method for the two models, ES-1025 and ES-2025. Indicating either one of the marks left means that function is related only the model indicated.
⚠ DANGER	:indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNINGS	:indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTIONS	:indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	:indicates the contents for the user's reference.

NOTES FOR THE OPERATION MANUAL

◎Keep this operation manual in a place where it is easy to take.
When you give these models, ES-1025 and ES-2025, to someone else, make sure to give this manual, too.

◎The safety for the using way which is not mentioned in this manual is not guaranteed.

◎The contents in this manual are subject to change without notice or obligation.

HOW TO TURN ON THE POWER

◎To turn on the power, press the │ ON │ key.
◎To turn off the power, keep pressing the │OFF│ key until the unit's operation stops.
It is impossible to turn the power off by only pressing the │OFF│ key.

KEY OPERATION EXPLANATION

◎One short beep sounds when the correct operation is achieved.
Three short beeps sound when the wrong operation is achieved.

PRECAUTIONS

INSTALLATION POSITION

⚠ WARNINGS ◎Do not use in the place there is flammable gas.
It could cause fire.

⚠ CAUTIONS ◎Bad environment may cause fire, get hurt and cause
electric shock.
The unit should be installed in a place away from the
followings.
· Equipment which transmits or is effected by magnetic
field.
· High temperatures. Eg direct sunlight.
· Moisture. Eg rain, sea spray or heavy condensation.
· Heavy vibration.

INSTALLATION

⚠ WARNINGS ◎Do not install in a slant/unstable place.
Make sure to fix the unit.
Do not use the unit while tentatively installed.

◎For wireing, pay attention to the followings. Wrong
wireing could cause fire/get hurt.
· Do not disturb steering and walking.
· Do not touch the revolving thing.
· Do not bend, twist and stretch by force.
· Do not put heavy thing on cable.

⚠ CAUTIONS ©When taking out/putting in cable, make sure to turn the
power off and hold the plug. Otherwise, cable may be
damaged and fire and electric shock may cause.

POWER SUPPLY

⚠WARNINGS ◎The power requirement of these units are DC10.5V~40V.
Please use correct voltage, otherwise, it could cause
fire/electric shock.

⚠CAUTIONS ◎Make sure to turn off the power by the power "ON/OFF" key
on the control panel. Turning on/off the power by the
switch on the switchboard may cause a serious problem or
wrong operation.

◎When starting the engine, make sure the power of this
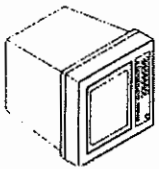unit is turned off.

HANDLING

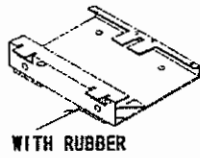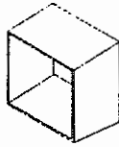**⚠CAUTIONS** ◎Do not control the unit while steering.
It may cause wrecks.

◎Never open the main unit case.
There is a high voltage component inside, and it will
result in death or serious injury.
For inspection/adjustment/parts installation/repairment,
please ask to your dealer.

◎When installing the transducer through an opening in the
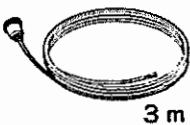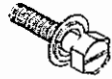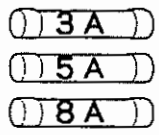hull bottom, pay attention to intensity and
waterproofing.
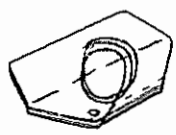
⚠WARNINGS ◎Please use correect fuse.
If not, it could result in serious trouble or fire.

◎Please use the specified power supply cable.
If not, it could result in fire.

◎For battery handling, pay attention to the followings.
Wrong battery handling could result in injury, fire and
damage.
  · Do not insert in the opposite pole direction.
  · Do not heat, decompose and put into fire water.
  · Do not use the battery which the liquid leaks.
    When you attach the liquid, wash it off.

COMPOSITION

ES-1025

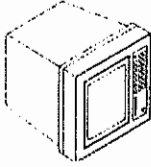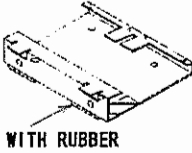| CODE		**EU110	**EU130		
ITEM	MAIN UNIT	MOUNT BRACE WITH RUBBER	HOOD		
PARTS#	—	31006B	33634C		
QTY	1	1	1		
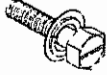
CODE	**EU010				
ITEM	POWER CABLE 3 m	BOLT	SCREW	3P PLUG	TD ETC.
PARTS#	33282D	31169D	M6×30	HS21P-3	TD & related parts when required.
QTY	1	2	4	1	
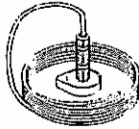
CODE	**EU121				
ITEM	FUSE 3 A 5 A 8 A	UNIT COVER	MANUAL		
PARTS#	—	1025-COV	1025-OPM-E		
QTY	3 EACH	1	1		
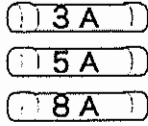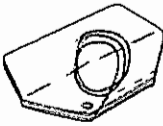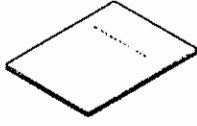
NOTE, the code number is shown on the packaging. However, ** indicates the lot management number.

ES-2025

CODE		**EV110	**EV130		
ITEM	MAIN UNIT	MOUNT BRACE WITH RUBBER	HOOD		
PARTS#	—	31006B	33634C		
QTY	1	1	1		

CODE	**ET021				
ITEM	POWER CABLE 3 m	BOLT	SCREW	5P PLUG	3P PLUG
PARTS#	33282D	31169D	M6×30	HS21P-5	HS21P-3
QTY	1	2	4	1	1

CODE					
ITEM	TD ETC.				
PARTS#	TD & related parts when required.				
QTY					

CODE	**ET121				
ITEM	FUSE 3A 5A 8A	UNIT COVER	MANUAL		
PARTS#	—	2025-COV	2025-OPM-E		
QTY	3 EACH	1	1		

NOTE, the code number is shown on the packaging. However, ** indicates the lot management number.

INSTALLATION

MAIN UNIT MOUNTING
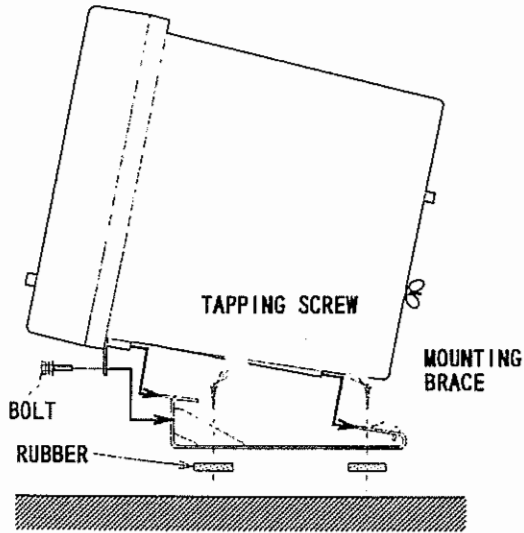
After fixing the mounting brace in place, insert the main unit and fix it with bolts(31169D) as per the drawing left.

⚠WARNINGS

Do not install in a slant/unstable place. And, make sure to fix the unit. Using under the tentative installation could result in injury.

⚠CAUTIONS

◎This equipment should be installed in a place away from the following.

* Equipment which transmits or is effected by magnetic field.

* High temperatures. Eg direct sunlight.

* Moisture. Eg rain, sea spray or heavy condensation.

* Heavy vibration.

DIMENSIONS

ES-1025   ES-2025   ES-1025 ES-2025

INTER CONNECTION

ES-1025

POWER SUPPLY INPUT

No1:BLACK　　　No.2:WHITE

OPTIONAL
INPUT/OUTPUT
TERMINALS

EARTH TERMINAL

BATTERY

TRANSDUCER(3P)

No.2:SHIELD

WHITE:
POSITIVE

No.3:WHITE　　No.1:BLACK

GND

BLACK:NEGATIVE

Not available.

TRANSDUCER

⚠ WARNINGS

◎The power requirement of the unit is DC10.5V～40V.
　Please use correct voltage, otherwise, it could cause fire electric shock.
◎Please use the specified power supply cable.
　If not, it could result in fire.
◎When taking out putting in cable, make sure to turn the power off and hold
　the plug. Otherwise, cable may be damaged and fire and electric shock may
　cause.
◎When wiring, do not disturb steering and walking. Do not bend, twist and
　streach by force. And, do not put a heavy thing on cable. Wrong wiring could
　result in fire and injury.

POWER SUPPLY INPUT

No1:BLACK   No.2:WHITE

WHEN CONNECTING TWO (SINGLE FREQ.) TRANSDUCERS

OPTIONAL INPUT/OUTPUT TERMINALS

EARTH TERMINAL

BATTERY

WHITE: POSITIVE

GND

BLACK:NEGATIVE

TRANSDUCER(3P)
For high freq.(200KHz)

No.2:SHIELD

No.3:WHITE   No.1:BLACK

◎IN THE CASE OF PIN NO.1 AND PIN NO.3, CONTRARY CONNECTING IS O.K.(NO.1:WHITE NO.3:BLACK)
◎IN SOME CASES, THE COLORS OF THE WIRES IN THE TRANSDUCER CABLE DIFFER ACCORDING TO THE TYPE OF TRANSDUCER.
◎EACH CABLE CONSISTS OF TWO LEAD WIRES AND SHIELD WIRE. THE COLOR OF THE TWO LEAD WIRES MAY DIFFER. HOWEVER, EITHER LEAD WIRE MAY BE CONNECTED TO PIN NO.1 OR NO.3.

TRANSDUCER(5P)
For low freq.(50KHz)

PIN	50KHz TD	
No.1	NC	
No.2	NC	
No.3	SHIELD	
No.4	BLACK	50KHz
No.5	WHITE	

WHEN CONNECTING A (DUAL FREQ.) TRANSDUCER

TRANSDUCER (5P)

No.3
No.2
No.1
No.4   No.5

PIN	50/200KHz TD	
No.1	GREEN	200KHz
No.2	RED	
No.3	SHIELD	
No.4	BLACK	50KHz
No.5	WHITE	

DUAL FREQ. TD

SINGLE FREQ. TD
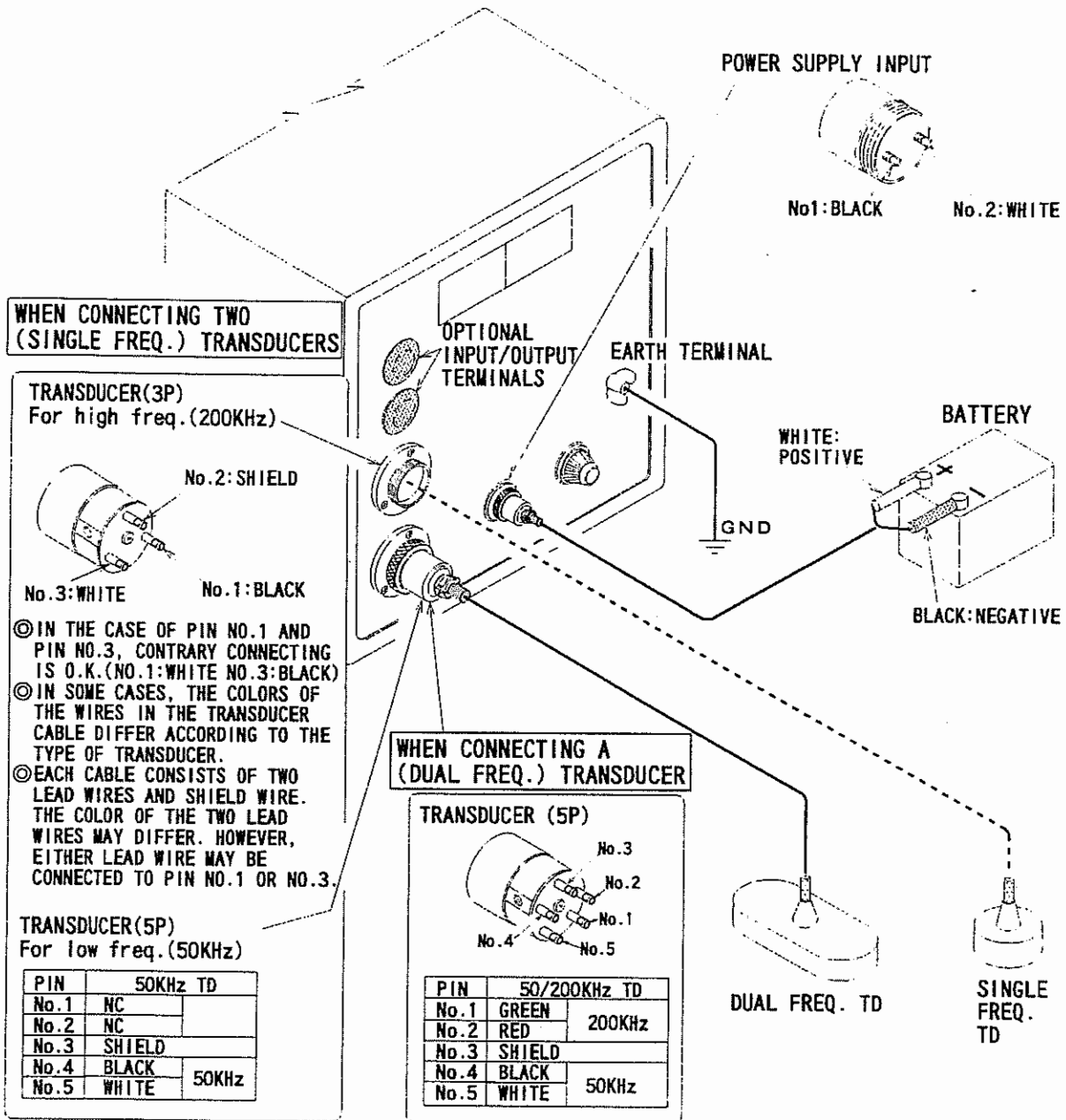
⚠ WARNINGS

◎The power requirement of the unit is DC10.5V~40V.
  Please use correct voltage, otherwise, it could cause fire/electric shock.
◎Please use the specified power supply cable.
  If not, it could result in fire.
◎When taking out putting in cable, make sure to turn the power off and hold the plug. Otherwise, cable may be damaged and fire and electric shock may cause.
◎When wiring, do not disturb steering and walking. Do not bend, twist and streach by force. And, do not put a heavy thing on cable. Wrong wiring could result in fire and injury.
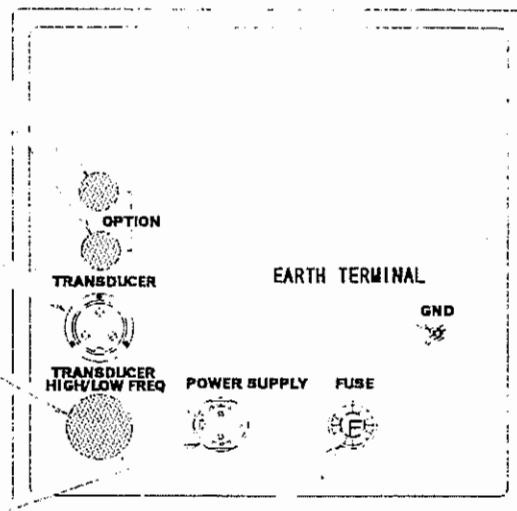
REAR PANEL

ES-1025

INPUT/OUTPUT TERMINALS FOR OPTIONAL KITS
To connect the optional cable kit
descrived below.

3 PIN TRANSDUCER TERMINAL
To connect the transdcuer.

Not available.

2 PIN POWER SUPPLY TERMINAL
To connect the power source:10.5～40V.

FUSE HOLDER
Please use fuses as follows:
12V→8A   24V→5A   32V→3A
When changing the voltage, please
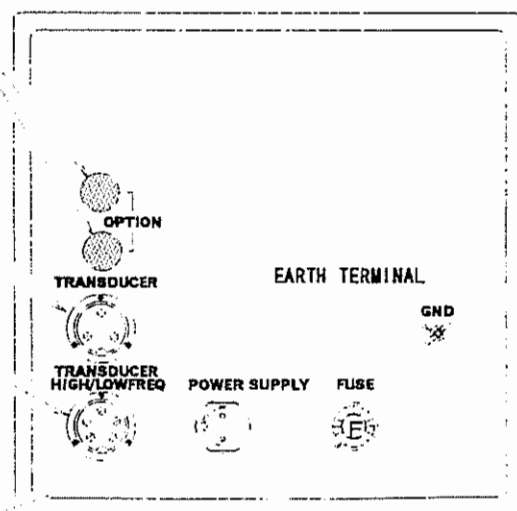change to the correct fuse.

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INPUT/OUTPUT TERMINALS FOR OPTIONAL KITS
To connect the optional cable kit
descrived below.

3 PIN TRANSDUCER TERMINAL
 To connect the high frequency(200KHz) TD
 when the two TDs are used.

5 PIN TRANSDUCER TERMINAL
To connect the low frequency(50KHz) TD
 when the two TDs are used.
To connect the dual frequency(50/200KHz)
 TD.

2 PIN POWER SUPPLY TERMINAL
To connect the power source:10.5～40V.

FUSE HOLDER
Please use fuses as follows:
12V→8A   24V→5A   32V→3A
When changing the voltage, please
change to the correct fuse.

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OPTIONAL INPUT/OUTPUT KITS

In accordance with use, optional input/output terminals can be added.

This kit is for connection of the equipment's internal PCB to the rear panel and to carry the signal from externally connected equipment to the internal PCB. Please note external devices or connection cables between this unit and external device are not included.

PART NO	DESCRIPTION	U S E	CONNECTION
OP-253 (33800D)	CABLE FOR SPEED SENSOR	To set the input terminal for Speed sensor.	No1:GND No2:SIGNAL No3:5V OUTPUT
OP-234 (33672D)	CABLE FOR TEMPERATURE SENSOR	To set the input terminal for Temperature sensor (OP-102).	No1:WHITE No2:SHIELD No3:SHIELD No4:BLACK
OP-235 (33673D)	CABLE FOR NAVIGATOR INPUT	To set the input terminal for signal of External Navigator.	No1:SIGNAL INPUT + No2:SIGNAL INPUT - No3:SHIELD No4:NC No5:NC
OP-256 (33801D)	CABLE FOR NMEA OUTPUT	To set the output terminal for NMEA-0183 signal.	No1:NC No2:NC No3:SHIELD No4:SIGNAL OUTPUT + No5:SIGNAL OUTPUT - No6:SHIELD

CONTROL PANEL KEYS

POWER SUPPLY KEY: PG 3
To turn the power supply on/off.

MENU KEY: PG 18
To display function sett- ing menu.

VRM KEY: PG 30
To display and move the variable range marker.

ALARM KEYS: PG 31
To set the alarm ranges.

THRESHOLD KEY: PG 33
To display and erase colors from the color scale.

TVG CONTROL DIAL: PG 38
To suppress unnecessary echoes near the water surface such bubbles/ floating matter.

NOISE SUPPRESSION DIAL:39
To suppress echoes in the case of light interference on the full screen.

ALARM/INPUT KEY: PG 32
To input settings to set alarms.

BASIC RANGE KEYS: PG 29
To select the basic range.

PHASED RANGE KEYS: PG 29
To select the depth that the display starts from at the top of the screen

EXPANSION RANGE KEYS:P30
To select the expansion range for Normal/Bottom- lock expansion mode.

PICTURE FEED KEY: PG 33
To select the picture feed rate.

GAIN CONTROL DIAL: PG 39
To control the level of sensitivity of the received echo signal.

BRIGHNESS CONTROL DIAL: PG 38
Turning the knob clock- wise increases the brightness.
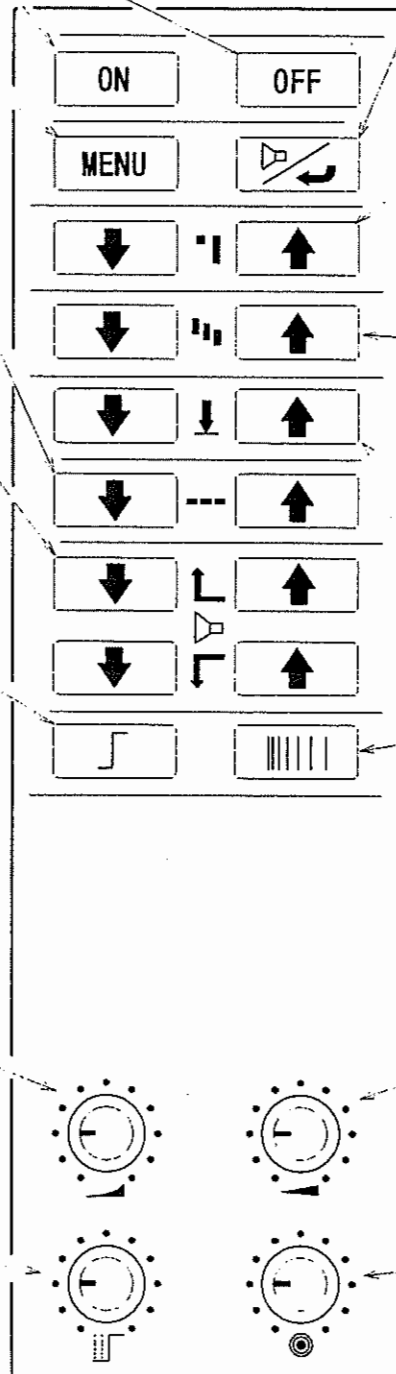
⚠ **CAUTIONS**

To turn the power supply off, be sure to use the "ON OFF" keys on the main unit's control panel. Turning the power supply off by the key on the switchboard may cause trouble.

ES-2025

POWER SUPPLY KEY: PG 3
To turn the power supply on/off.

MENU KEY: PG 18
To display function setting menu.

VRM KEY: PG 30
To display and move the variable range marker.

ALARM KEYS: PG 31
To set the alarm ranges.

THRESHOLD KEY: PG 33
To display and erase colors from the color scale.

MODE SELECTION KEY: PG 34
To select the display mode

TVG CONTROL DIAL: PG 38
To suppress unnecessary echoes near the water surface such bubbles floating matter.

NOISE SUPPRESSION DIAL:P39
To suppress echoes in the case of light interference on the full screen.

ALARM/INPUT KEY: PG 32
To input settings to set alarms.

BASIC RANGE KEYS: PG 29
To select the basic range.

PHASED RANGE KEYS: PG 29
To select the depth that the display starts from at the top of the screen

EXPANSION RANGE KEYS:P30
To select the expansion range for Normal Bottom-lock expansion mode.

PICTURE FEED KEY: PG 33
To select the picture feed rate.

NOISE REJECT KEY: PG 36
To select the noise reject level.

High frequency
GAIN CONTROL DIAL: PG 39
To control the level of sensitivity of the received echo signal.
Low frequency

BRIGHNESS CONTROL DIAL:
PG 38
Turning the knob clockwise increases the brightness.
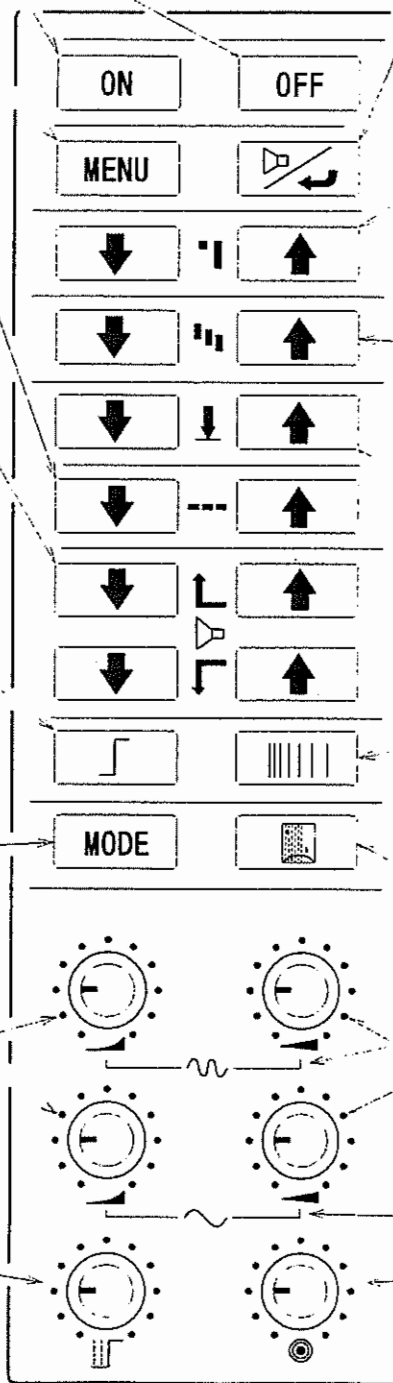
⚠CAUTIONS

To turn the power supply off, be sure to use the "ON/OFF" keys on the main unit's control panel. Turning the power supply off by the key on the switchboard may cause trouble.

MODE EXAMPLE

WITH NAVIGATION MODE "OFF"

ALARM:
Indiactes alarm setting.
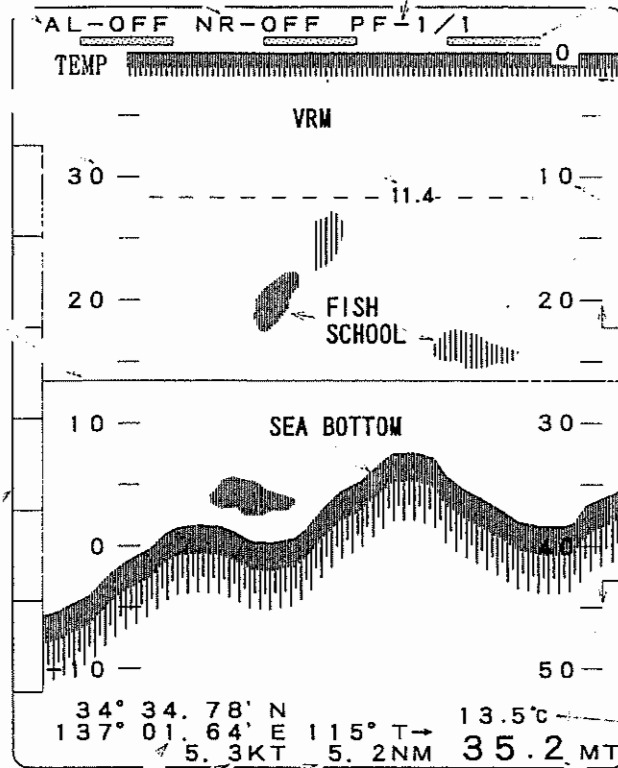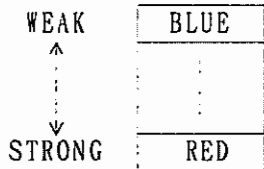
NOISE REJECT FUNCTION:
Indiactes NR setting.

PICTURE FEED:
Indicates PF rate.

TIME MARKER:
30 second elapsed time mark.

TEMPERATURE SCALE:
The scale of water temp.

TEMPERATURE GRAPH*
Indicates the water temp. with a line.

COLOR SCALE:
Indicates the level of the echo's strength.

WEAK	BLUE
∧ ⋮ ∨	⋮ ⋮ ⋮
STRONG	RED

```
 AL-OFF  NR-OFF  PF-1/1          0
TEMP ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓
                   VRM
  30 —                        1 0 —
       — — — — — — -11.4- - - -
       —                         |||
                                 |||
  20 —           FISH      . 20 —
               SCHOOL  ⁻ıllllllllllıı·

  1 0 —        SEA BOTTOM    30 —
       —
   0 —
  †10 —                      50 —
     34° 34. 78' N        13.5℃
    137° 01. 64' E  115° T→
        5. 3KT    5. 2NM  35.2 MT
```

SURFACE LINE:
Indicates the position of the TD face.

DEPTH SCALE:
Indiactes echo depth.

ALARM MARK:
For shallow alarm.

ALARM MARK:
For deep alarm

WATER TEMP. *:
Indicates water temp.

SHIP'S POSITIONAL DATA:
Indicates lat/lon*·ship speed*·course*·distance travelled**.

DEPTH:
Indicates the current bottom depth.

WITH NAVIGATION MODE "ON"

Ship's lat/lon*

Course*

Ship speed*
Distance travelled**

Water temperature*

Depth

```
              SEA BOTTOM      30 —
             ıllllllllllıı
    ·34° 34. 78' N
   137° 01. 64' E
   ——————115° T→
   ——————5. 3KT
   ——————5. 2NM      50
   ——————13. 5° C
    35. 2 MT
```
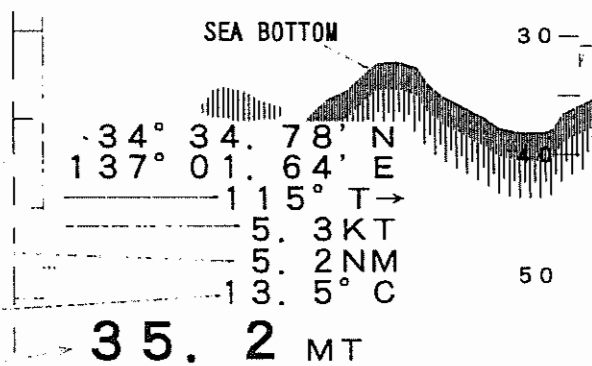
NOTE 1) The display marked * indicates when the optional equipment is connected.
NOTE 2) The display marked ** indicates whent the speed sensor is connected.

FUNCTION SETTING

This chapter prvides you the explanation for setting the user setting/sounder functions.

For making good use of this model, please set each function before using.

INITIAL FUNCTION SETTING

FACTORY SETTING

◎The equipment is shipped from the factory with the functions under the following settings.

The user is able to reset these functions to the most convenient settings with the user setting operation.

FUNCTION	FACTORY SETTING	SETTING MENU
NAVIGATION INFORMATION	OFF · ON	
TX OUTPUT	MIN · MED1 · MED2 · **MAX**	
NOISE REJECT (ES-1025)	OFF · LOW · HIGH	
WHITE LINE	OFF · ON	
DEPTH UNIT	**MT** · to · FM · BR · FT	
TEMPERATURE UNIT	OFF · ℃ · °F	
TEMPERATURE GRAPH	OFF · ON	MENU DISPLAY
SPEED INPUT	**SENSOR** · NAVIGATOR	ES-1025 --- PG 18
SPEED UNIT	**OFF** · KT(NM) · KM/H(KM)	ES-2025 --- PG 19
SCALE POSITION	OFF · **RIGHT** · CENTER	
DUAL FREQUENCY (ES-2025)	HIGH | **LOW** · LOW | HIGH	
ALARM (ES-2025)	**LOW** · HIGH	
COLOR SELECT	**A-1** · A-2	
DISPLAY AREA	200 · **240**	
NMEA INPUT	OFF · 0182 · 0183	
LANGUAGE	① **ENGLISH** · CHINESE · THAI	
	② **ENGLISH** · HUNGLE	
BASIC RANGE	0～5MT	
PHASED RANGE	0	
BOTTOM EXPANSION	OFF	
AUTO RANGE	OFF	
AUTO SHIFT	OFF	CONTROL PANEL
THRESHOLD	0	
PICTURE FEED	1/1	
MODE SELECTION (ES-2025)	DUAL FREQ. MODE (HI | LO)	
NOISE REJECTION	OFF	

RETURN TO FACTORY SETTING

◎Ensure the power supply switch is truned off. Then while pressing the [▷◿] key press the [ON] key. Keep pressing them until the beep stops (about 1 sec.). All functions will return to the settings mentioned above.

NOTICE

If the keys are released before the beep stops. the returen to factory setting function may not operate.

MENU DISPLAY

◎Before first using the equipment, set each function on the function set menu.

Press the [MENU] key. The following menu will be displayed.
Shift the arrow (➡) with the [⬇]'1[⬆] keys to the function to be set.
Set the function setting with the [⬇]'1[⬆] keys.

To memorize the setting press the [▷⟋] key.
Pressing the [MENU] key instead will return to sounder display without memorizing the setting.

OPERATION PROCEDURE

[MENU] ———→ [MENU ▒▒▒] ———→ [Setting] ———————————→ [▷⟋]

SHIFT: SET
[⬇]'1[⬆] [⬇]'1[⬆]
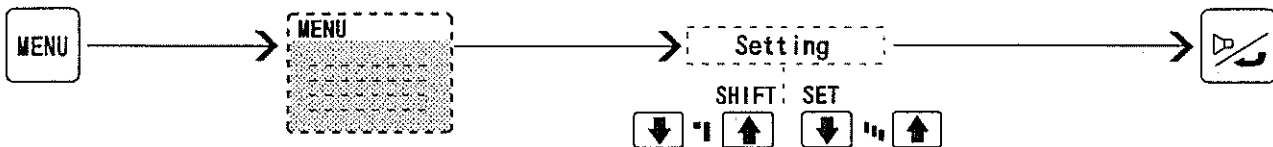
ES-1025

MENU	VER 2.0	------ MAIN ROM VERSION
➡ NAVIGATION INFO	OFF	
TX OUTPUT	MAX	
NOISE REJECT	OFF	
WHITE LINE	OFF	
DEPTH UNIT	MT	
TEMP. UNIT	OFF	
TEMP. GRAPH	OFF	------ Use [⬇]'1[⬆] keys to select
SPEED INPUT	SENSOR	the setting.
SPEED UNIT	OFF	
SCALE POSITION	RIGHT	
COLOR SELECT	A-1	
DISPLAY AREA	240	
NMEA INPUT	OFF	
LANGUAGE	ENGLISH	

Use [⬇]'1[⬆] keys to shift the arrow.

ES-2025

```
┌─────────────────────────────────────────────┐
│  MENU                    VER 2.0  ------┼--- MAIN ROM VERSION
│  ➡ NAVIGATION INFO       OFF     ┐
│    TX OUTPUT             MAX      │
│    WHITE LINE            OFF      │
│    DEPTH UNIT            MT       │
│    TEMP. UNIT            OFF      │
│    TEMP. GRAPH           OFF      │
│    SPEED INPUT           SENSOR   │
│    SPEED UNIT            OFF      ├----┼--- Use  [⬇] �" [⬆]  keys to select
│    SCALE POSITION        RIGHT    │          the setting.
│    DUAL FREQUENCY        LOW | HIGH│
│    ALARM                LOW       │
│    COLOR SELECT          A-1      │
│    DISPLAY AREA          240      │
│    NMEA INPUT           OFF       │
│    LANGUAGE             ENGLISH  ┘
└─────────────────────────────────────────────┘
```

Use [⬇] "I [⬆] keys to shift the arrow.

* For more detailed explanation, refer to the following pages.

NOTICE

The ES-1025 and ES-2025 are shipped from the factory with the menu language
setting under English. Before using, first select your desired language under
menu language setting. PG 27.

NAVIGATION INFORMATION

◎Display data (depth·water temperature*·latitude/longitude*·course*·ship speed*
·distance travelled*) may be selected large or small.

```
 MENU

➡NAVIGATION INFO      OFF
```
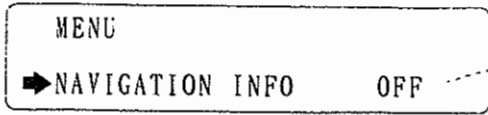
···· Each press of either one of [⬇] "ı [⬆]
keys changes the setting, "OFF - ON -".
⌈OFF: small size
⌊ON: large size

```
OFF                              ON
```

DEPTH

OWN SHIP LAT/LON

COURSE

```
34° 36. 51' N   211° T↓          34° 36. 51' N
137° 01. 25' E  13. 5° C         137° 01. 25' E
      16. 9KT                          211° T↓
                                       14. 9KT
         WATER TEMP.                   13. 5° C

         SHIP SPEED
```
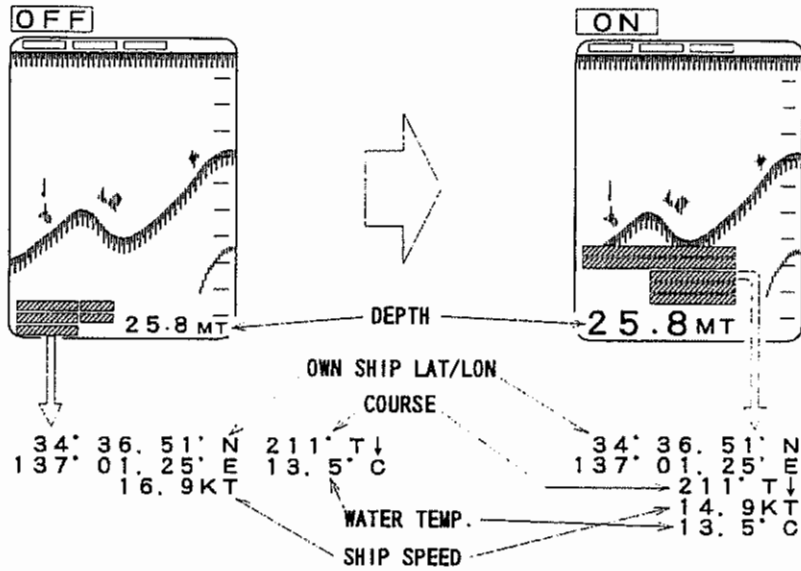
NOTICE

◎Display data types marked with an asterick * are only available with optional
equipment(speed/temp. sensor or navigator).
The data, total distance travelled, is displayed only when the speed sensor
is connected.
◎When "ON" is selected, the depth scale will be displayed in right edge and
the temp. graph will not be displayed automatically.

TX OUTPUT

◎To avoid interference to other echo sounders.
Transmission power may be reduced in 4 steps from maximum to minimum.

```
 MENU

➡TX OUTPUT         MAX
```

Each press of either one of [⬇] "ı [⬆]
keys changes the setting, "MIN   MED1 -
MED2   MAX -".

NOISE REJECT

◎To reject noise interference from nearby fishing vessels.

```
┌─────────────────────────────────┐
│  MENU                           │
│                                 │
│ ➡NOISE REJECT        OFF        │
└─────────────────────────────────┘
```
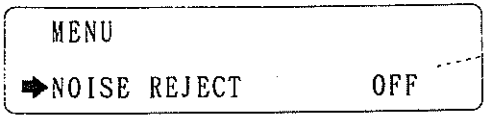
---- Each press of either one of [⬇] ''' [⬆]
keys changes the setting, "OFF - LOW -
HIGH - ".
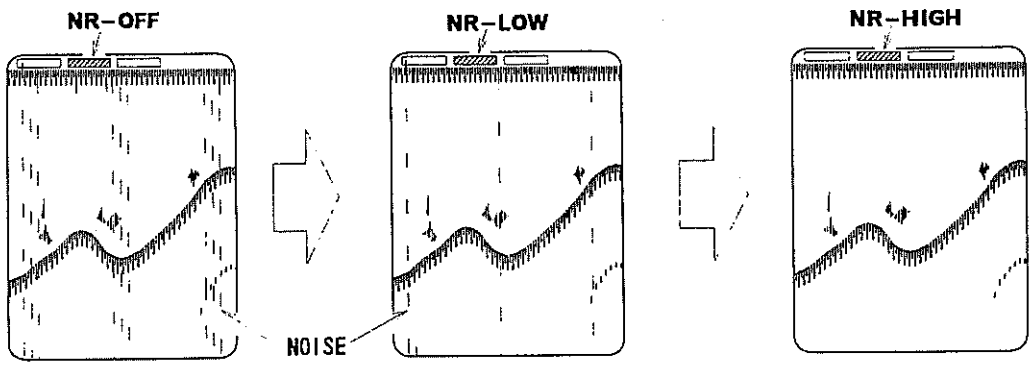
NR-OFF　　　　　　**NR-LOW**　　　　　　**NR-HIGH**

NOISE

⚠CAUTIONS

Some types of noise interference may not be rejected.

WHAT IS NOISE ?

Noise appears like rain on the screen, as shown above, when the sounder received sound waves from a neighboring ship's equipment.

WHITE LINE

◎To display the sea bottom highlighted against the display background making
it easier to see fish on, or just above, the bottom.

```
┌─────────────────────────────────┐
│  MENU                           │
│                                 │
│ ➡WHITE LINE          OFF        │
└─────────────────────────────────┘
```
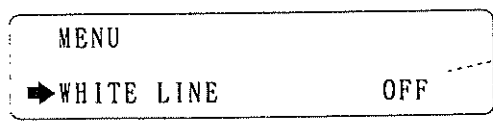
---- Each press of either one of [⬇] ''' [⬆]
keys changes the setting, "OFF - ON - ".

⌈OFF: displays the bottom with a belt.
⌊ON: displays the bottom with a line.

OFF　　　　　　ON

21
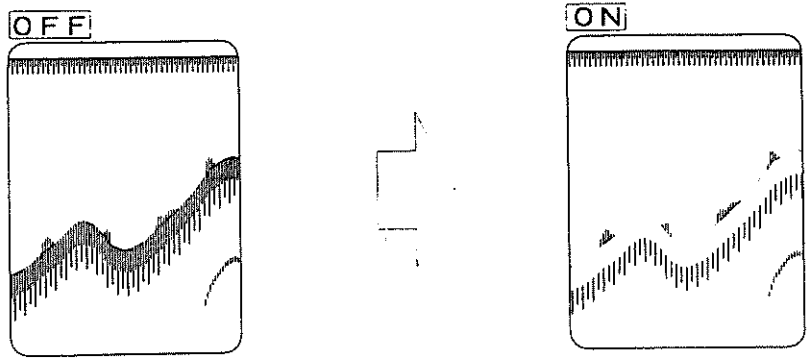
DEPTH UNIT

◎To display the depth unit for the depth scale and the depth display.

```
  MENU
➡DEPTH UNIT        MT
```
---- Each press of either one of ⬇ ᵗᵗₗ ⬆
keys changes the setting, "MT ᴇ□ - FM
- BR - FT - ".

MT	ᴇ□	FM	BR	FT
25.8 ᴍᴛ	25.8 ᴇ□	25.8 ꜰᴍ	25.8 ʙʀ	25.8 ꜰᴛ
Meters	Hiro 1HR=1.5m	Fathom 1FM=1.8288m	Braccia 1BR=1.65m	Feet 1FT=0.3048m
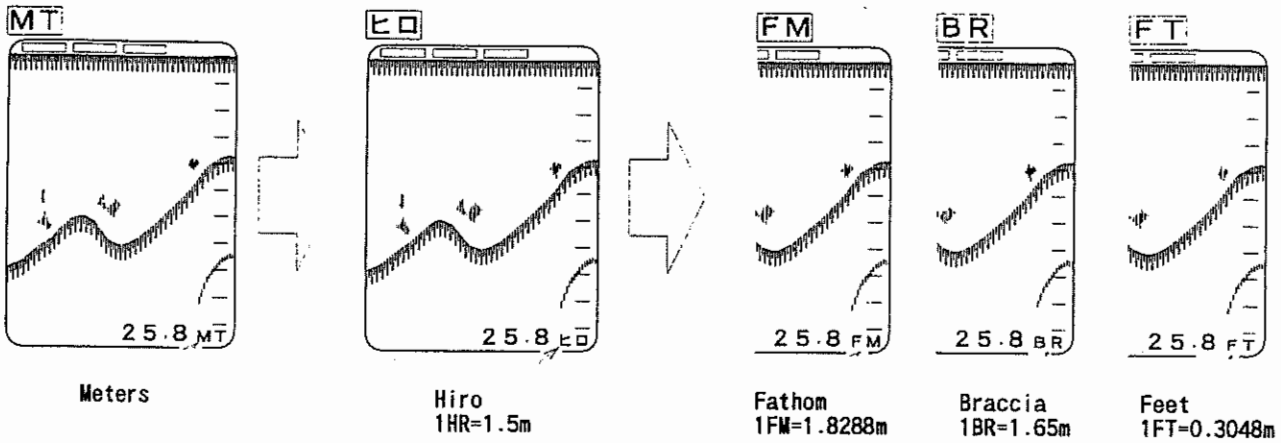
TEMPERATURE UNIT

◎To select the water temperature measurement unit from degrees Fahrenheit.
degrees Celsius or OFF(no display).
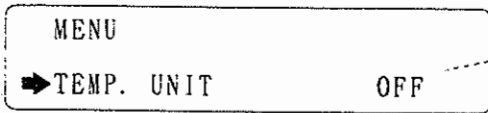
```
  MENU
➡TEMP. UNIT        OFF
```
---- Each press of either one of ⬇ ᵗᵗₗ ⬆
keys changes the setting, "OFF - ℃ -
° F ".

OFF	°C	°F
	13.5° C	13.5° F
No display		
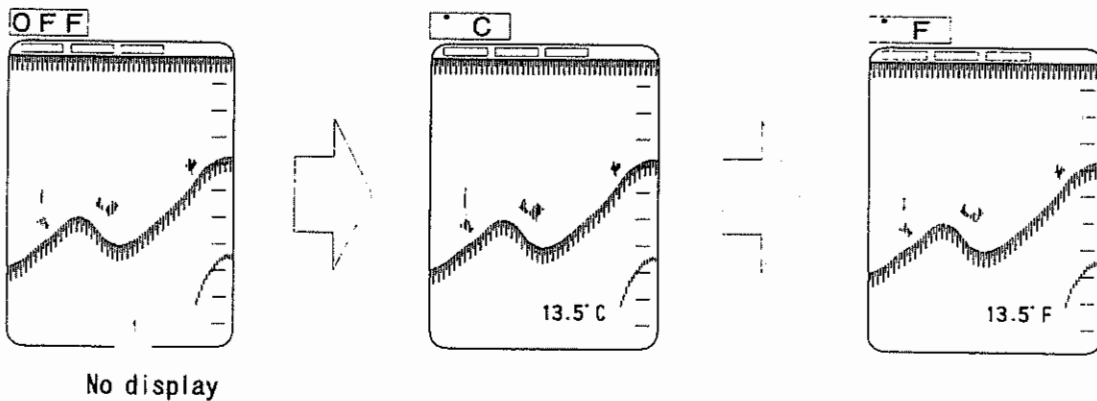
NOTICE

◎When the water temp. sensor is not connected. select "OFF".
◎The optional water temp. sensor(OP 102) must be connected to the rear panel
for temp. display. To connect OP 102. the optional cable (OP 234) is needed.
PG 12.

TEMPERATURE GRAPH

◎To select the water temp. scale/graph display's ON/OFF.
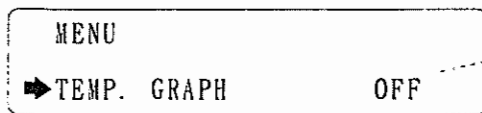
```
 MENU
➡TEMP. GRAPH          OFF
```
······ Each press of either one of [⬇]'ılı[⬆]
keys changes the setting. "OFF - ON - "
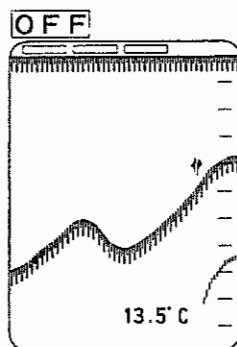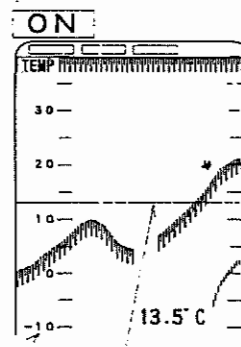
WATER TEMP. SCALE   WATER TEMP. GRAPH

NOTICE

◎When the water temp. sensor is not connected, select "OFF".
◎When "ON" is selected for "NAVIGATION INFO (PG 20)" on the menu mode, the
water temp. graph may not be displayed even though "ON" is selected for
"TEMP. GRAPH".
◎The optional water temp. sensor(OP-102) must be connected to the rear panel
for displaying the temp. graph. To connect OP-102, the optional cable (OP-234)
is needed. PG 12.

SPEED INPUT

◎To select the ship's speed input information source from Speed sensor or
Navigator.
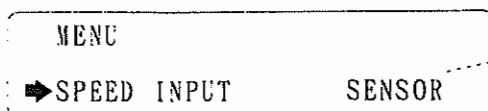
```
 MENU
➡SPEED INPUT        SENSOR
```
····· Each press of either one of [⬇]'ılı[⬆]
keys changes the setting, "SENSOR -
NAVIGATOR -".

⎧SENSOR: To show the ship speed using the signal from the speed sensor.
⎩NAVIGATOR:To show the ship speed using the signal from the external navigator.
          (Total distance travelled may not be displayed when "NAVIGATOR" is
          selected. To display it, select "SENSOR".)

SPEED UNIT

◎To select the ship's speed measurement unit from kilometers per hour, nautical miles or OFF(no display).

```
  MENU
➡SPEED UNIT          OFF
```

Each press of either one of [⬇] "₁ [⬆] keys changes the setting. "OFF - KT(NM) - KM/H(KM) - ".

OFF: No display
KT(NM):   Knots
KM/H(KM): Kilometer(s) per hour

OFF

No display

KT (NM)

5.3KT

KM/H (KM)

5.3KM/H
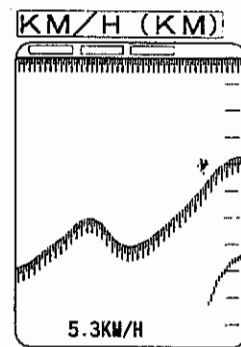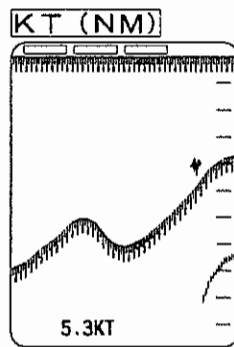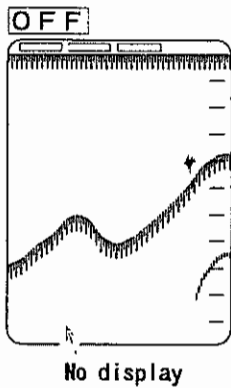
NOTICE

◎When the optional speed sensor or navigator is not connected, select "OFF".
◎The speed display is available only when the optional equipments (speed sensor or navigator) is connected.

SCALE POSITION

◎To select the depth scale's position from right, center or OFF(no display).

```
  MENU
➡SCALE POSITION    RIGHT
```

Each press of either one of [⬇] "₁ [⬆] keys changes the setting. "OFF - RIGHT - CENTER -".

OFF

RIGHT

10
20
30
40
50

CENTER

10
20
30
40
50
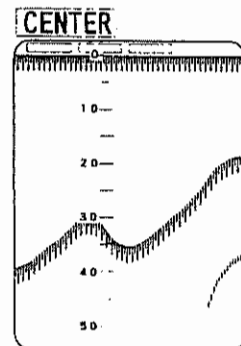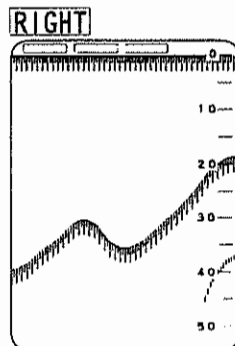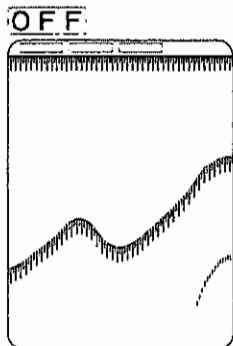
DUAL FREQUENCY

◎To select the position of the dual frequency displays under dual frequency mode.

```
┌─────────────────────────────────────┐
│  MENU                                │ ------- Each press of either one of [⬇]ᵒʳ[⬆]
│                                      │         keys changes the setting, "HIGH ¦ LOW -
│  ➡DUAL FREQUENCY    HIGH ¦ LOW       │         LOW ¦ HIGH -".
└─────────────────────────────────────┘
```

⌈HIGH ¦ LOW: High freq. display on the left half and the low freq. display on
│   the right half of the screen.
⌊LOW ¦ HIGH: Low freq. display on the left half and the high freq. display on
             the right half of the screen.
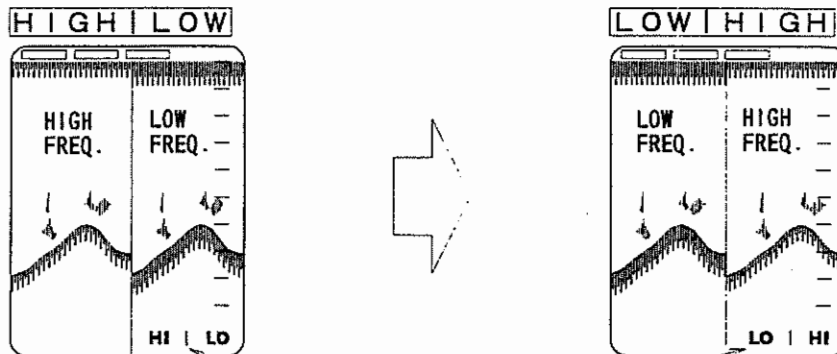
Displays the position.

ALARM

◎Under dual frequency mode, to set to sound from either high frequency or low frequency echoes.

```
┌─────────────────────────────────────┐
│  MENU                                │ ------- Each press of either one of [⬇]ᵒʳ[⬆]
│                                      │         keys changes the setting, "LOW - HIGH -"
│  ➡ALARM              LOW             │
└─────────────────────────────────────┘
```

⌈LOW: The alarm will sound in response
│   to low freq. echoes.
⌊HIGH: The alarm will sound in response
       to high freq. echoes.

COLOR SELECT

◎To select the background color either from black or blue.
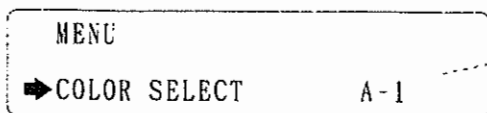
```
  MENU
➡COLOR SELECT      A-1
```
------ Each press of either one of ⬇ "" ⬆
keys changes the setting, "A-1   A-2 - "

{ A-1: Blue background
  A-2: Black background

DISPLAY AREA

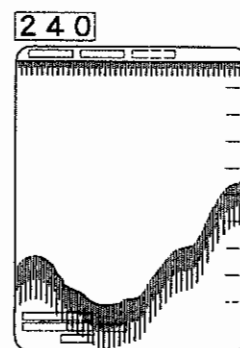◎To select the sounder display area for easier viewing of the digital
information.

```
  MENU
➡DISPLAY AREA      200
```
------ Each press of either one of ⬇ "" ⬆
keys changes the setting, "200 - 240 - "

{ 200: The sounder display covers only
       5/6 of the screen. For easy
       viewing of digital information.
  240: The sounder display covers the
       whole screen.
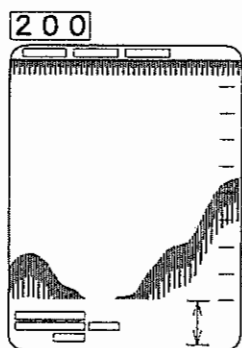
The sounder display
does not cover this area.

NMEA INPUT

◎To select the NMEA input format from NMEA0182, NMEA0183 or OFF(no input).
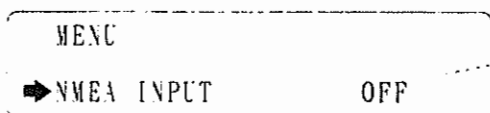
```
  MENU
➡NMEA INPUT       OFF
```
-- Each press of either one of ⬇ "" ⬆
keys changes the setting, "OFF - 0182 -
0183 - ".

OFF: Select when the navigator is not connected.
0182: Select when the input signal is NMEA0182 format. Note, when this signal
      is received, ship's speed and course data may not be displayed.
0183: Select when the input signal is NMEA0183 format.

LANGUAGE

◎To select the language of the menu display. There are two versions, English &
Hungle, or English & Chinese & Thai.

```
┌─────────────────────────────┐
│  MENU                       │
│                             │
│ ➡LANGUAGE         ENGLISH   │
└─────────────────────────────┘
```

Each press of either one of ⬇ ⁱₗ ⬆
keys changes the setting. "ENGLISH -
HANGUL - " or "ENGLISH - CHINESE -
THAI - ".

ENGLISH

MENU

➡

HANGUL

메뉴

ENGLISH

MENU

➡

CHINESE

菜单

➡

THAI

เมนู
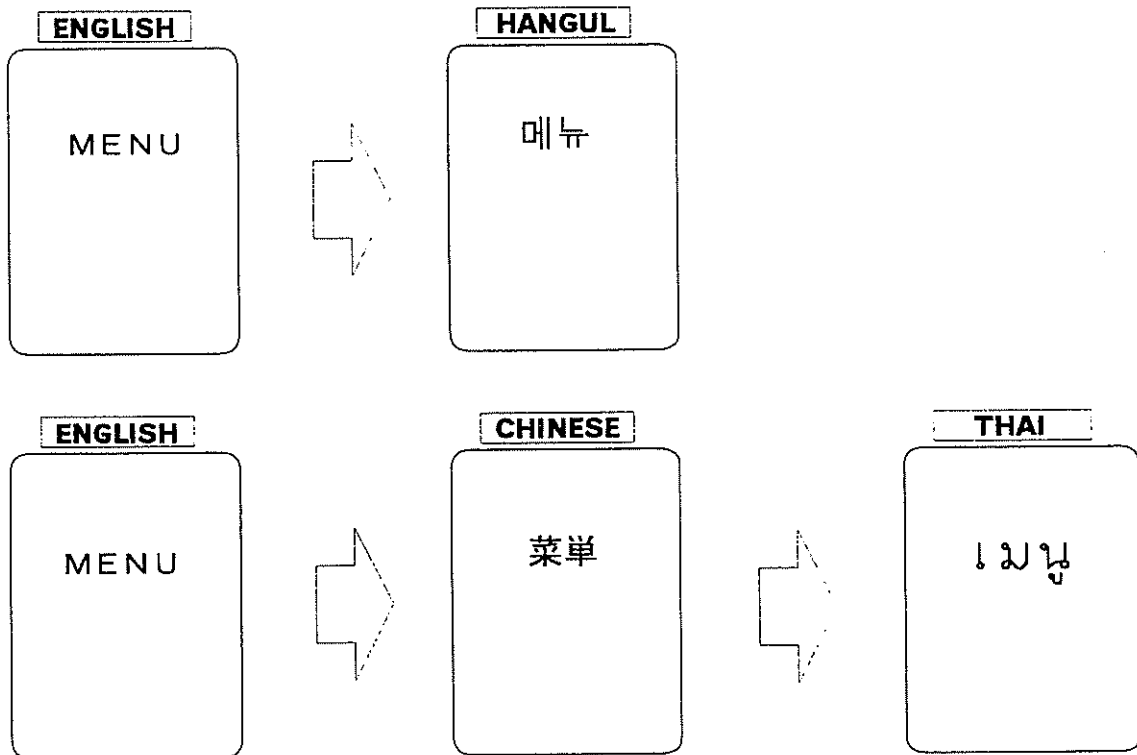
NOTICE

◎The equipment is shipped from the factory with the menu language setting
under English. Before using the equipment, first specify your desired one.

AFTER FUNCTION SETTING

◎After setting each function, press the ⊡ key to memorize the setting.

If the MENU key is pressed instead, the unit will return to the sounder

display but the function changes will not be memorized.

HOW TO USE FUNCTION

This chapter prvides you how to use Echo Sounder function.
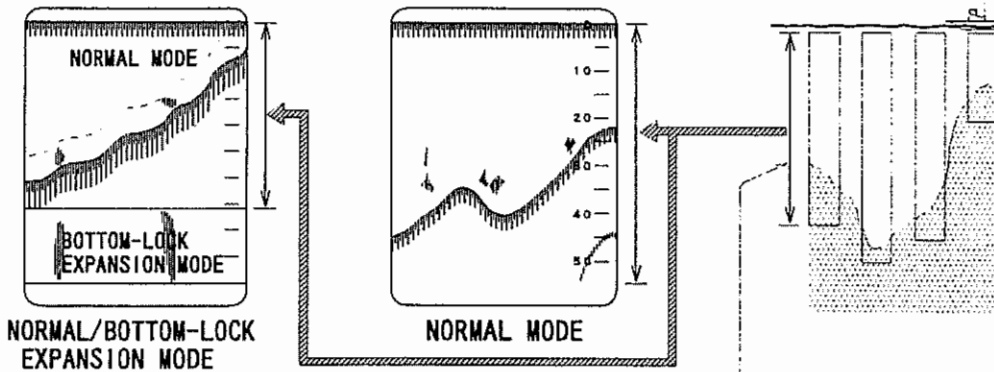
MAIN UNIT KEYS AND DIALS

⬇⬆ BASIC RANGE KEYS

◎To select the basic range for the Normal mode.

A total 17 basic range is available as follows.
0～5～10～15～20～30～40～50～60～80～100～150～200～300～500～1000～1500～
2000 Meters, Fathoms, Braccia.
0～15～20～30～40～50～60～80～100～150～200～300～500～1000～1500～2000～
3000～5000 Feet

NORMAL/BOTTOM-LOCK   NORMAL MODE
EXPANSION MODE

Changes this range.

Press this key to ⬇ ⬆ Press this key to
widen the range.   shorten the range.

⬇⬆ PHASED RANGE KEYS
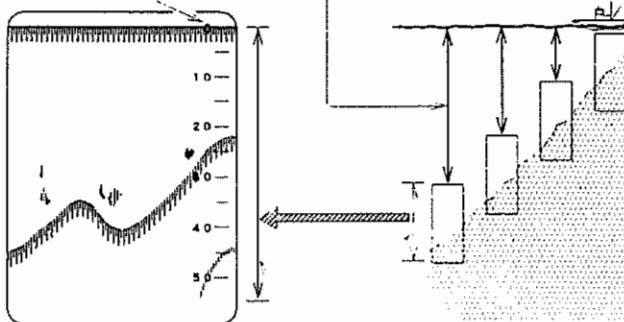
◎To change the depth at the top of the display to show the range therefrom on
the screen.

Press this key to ⬇ ⬆ Press this key to
deepen the phased   make the phased
range.   range shallower.

Changes this depth.

Changes the depth
here.

This range is selected by
the basic range keys.

· The phased range is shifted in
11 steps. Each step is 2/5 of
the basic range (full range of
the screen) selected by the
basic range keys.
However, the available phased
range are from 0 to 999 in steps
of meters, fathoms, braccia or
feet.

· By shifting the phased range,
the desired area expanded in the
specific range can be seen.
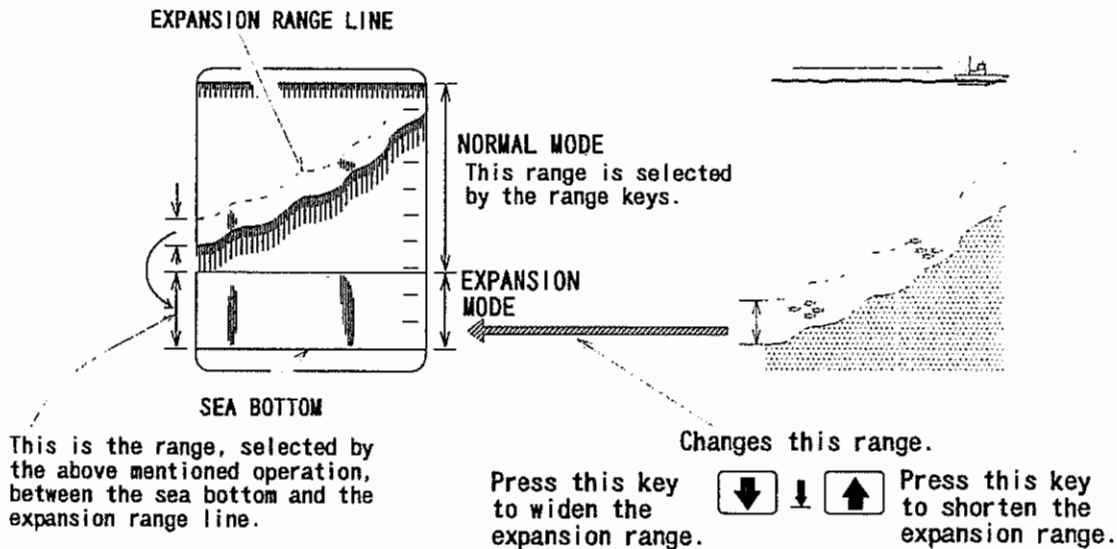
29

⬇ ↓ ⬆ EXPANSION RANGE KEYS

◎To display the Normal mode in the upper 2/3 area of the screen and the Bottom-lock Expansion mode in the lower 1/3 area.
And to select the range for the Bottom-lock Expansion mode.

· Pressing ⬇ ↓ key displays the Normal/Bottom-lock Expansion mode.

Each press of ⬇ ↓ key changes the setting. "1 - 2.5 - 5 - 10 - 20 - 50 - 100 - 250 (MT, BR, FM)" or " 5 - 10 - 20 - 50 - 100 - 250 - 500 - 1000 (FT)".

On the contrary, each press of ↓ ⬆ key changes the setting in reverse order.

EXPANSION RANGE LINE

NORMAL MODE
This range is selected by the range keys.

EXPANSION MODE

SEA BOTTOM

This is the range, selected by the above mentioned operation, between the sea bottom and the expansion range line.

Changes this range.

Press this key to widen the expansion range.

⬇ ↓ ⬆

Press this key to shorten the expansion range.

⬇ --- ⬆ VRM(Variable Range Marker) KEYS

◎To display and shift the VRM to measure the desired depth.

· Pressing either one of the ⬇ --- ⬆ keys displays the VRM.

VRM
13.2
10
20
30
40
50

Press this key to shift the VRM down.

⬇ --- ⬆

Press this key to shift the VRM up.
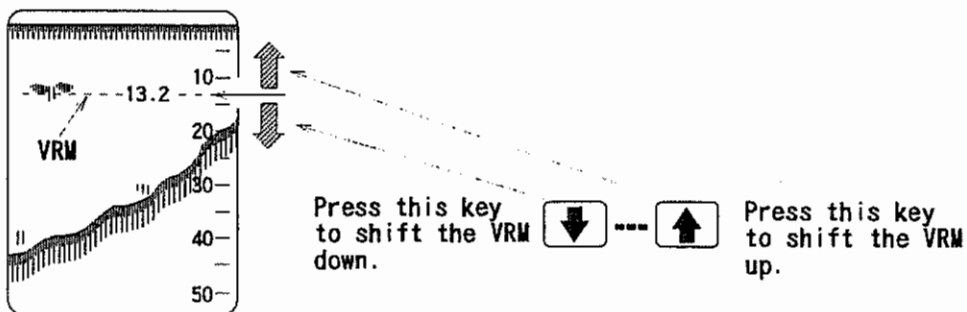
NOTICE

◎When the VRM is displayed, pressing ⬇ --- ⬆ keys at the same time erases the VRM from the display, however, it's position is retained in the memory.

To redisplay it, press either one of the ⬇ --- ⬆ keys.
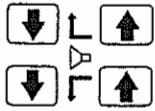
 ALARM KEYS

◎The alarm will sound when the water becomes deeper than the set alarm (deep alarm), shallower than the set alarm (shallow alarm) as well as when the echoes are recorded within the set area (zone, fish alarm).

1. SHALLOW ALARM

◎It start buzzing when the sea bottom becomes shaller than the set depth.
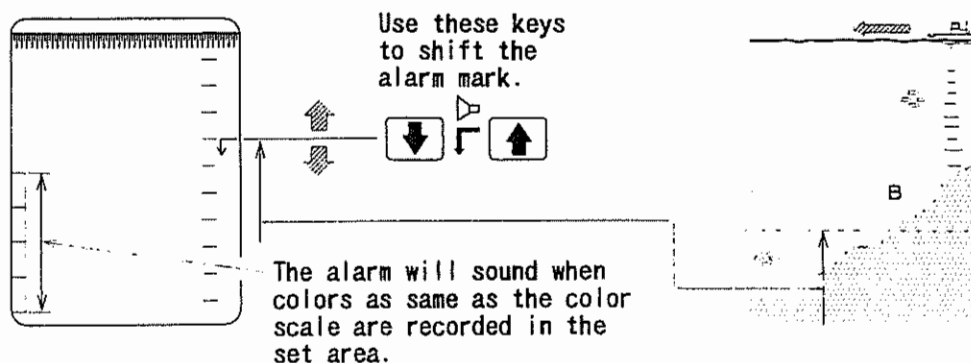
· Use the keys to shift the alarm mark(⌐) to the desired depth and press the key, and the alarm will sound (at point A on the picture below) when the sea bottom becomes shallower than the alarm mark.

Use these keys to shift the alarm mark.

The alarm will sound when colors as same as the color scale are recorded in the set area.
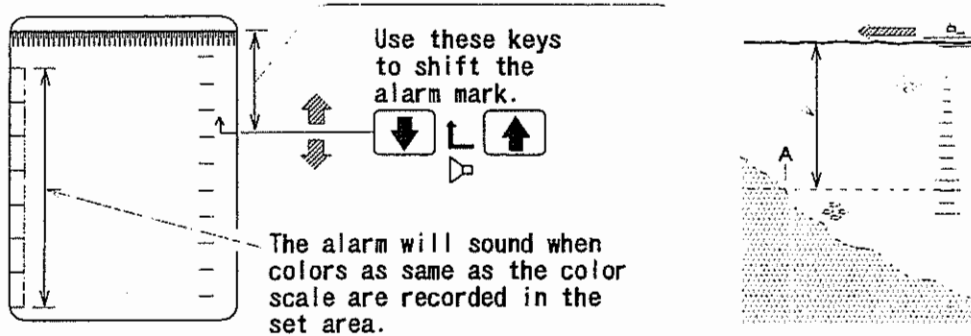
2. DEEP ALARM

◎It starts buzzing when the sea bottom becomes deeper than the set depth.

· Use the keys to shift the alarm mark(√⁻) to the desired depth and press the key, and the alarm will sound (at point B on the picture below) when the sea bottom becomes deeper than the alarm mark.


Use these keys to shift the alarm mark.

The alarm will sound when colors as same as the color scale are recorded in the set area.

NOTICE

◎It is able to start buzzing when the echoes corresponding with the color scale are recorded with this function. Refer to next page.

3. ZONE/FISH ALARM

◎It starts buzzing when the echoes are recorded within the set area (between the depth set for "SHALLOW ALARM" and the depth set for "DEEP ALARM".

· Use the ⬇L⬆ · ⬇Γ⬆ keys to shift the alarm mark (⌞·Γ) to the desired depths to make the zone and press the 🔲 key, and the alarm will sound (at point C on the picture below) when echoes enter the zone specified.

Use these keys to shift the alarm mark.
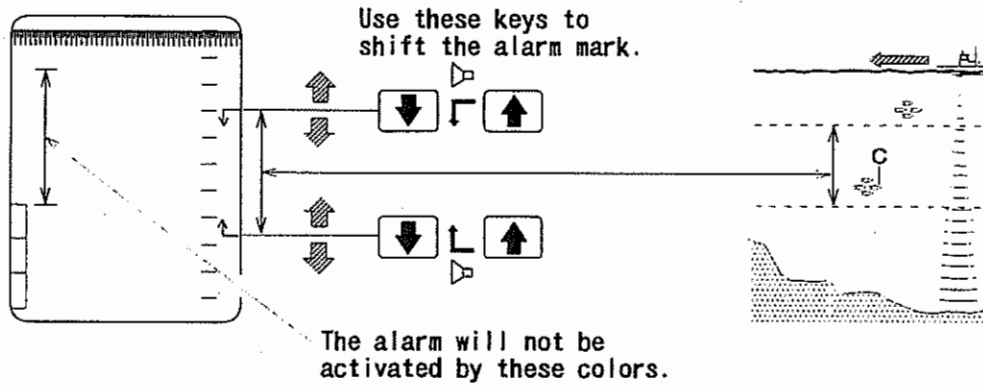
The alarm will not be activated by these colors.

NOTICE

◎It is able to start buzzing when the echoes corresponding with the color scale are recorded with this function. In this case, the setting will not be changed as long as the alarm mark is shifted.
For more details, refer to PG 33.

🔲 ALARM/INPUT KEY

◎For setting the alarm after the alarm depth/zone has been specified.

The alarm set condition is displayed at the top left of the screen.

When the alarm is set, pressing the 🔲 key cancels the setting.

|ALARM OFF|

"AL-OFF"
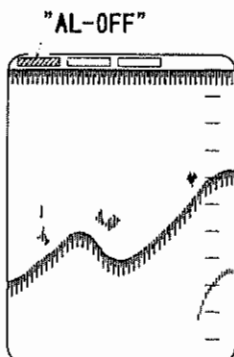
|ALARM ON|
ES-1025: "AL-ON"
ES-2025: "AL-HI" or "AL-LO".
The display differs depending on the freq. setting for "ALARM". PG 25.

⌐ THRESHOLD KEY

◎To erase and recall weaker echoes from the color scale.

Unwanted echoes, such as noise and plankton, may be erased for clearer definition of the target echoes.

Each time the key is pressed the weakest color will be erased. On the sixth press all colors will be recalled.

Each press of this key
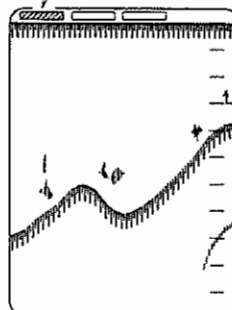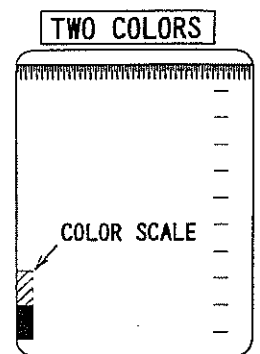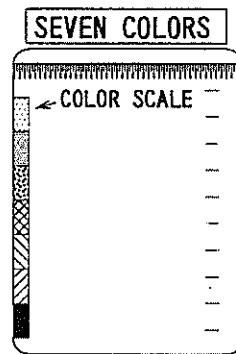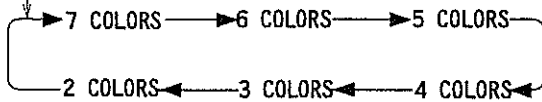changes the setting
as follows.

►7 COLORS──►6 COLORS──►5 COLORS─┐
└─2 COLORS◄──3 COLORS◄──4 COLORS◄┘

SEVEN COLORS

◄COLOR SCALE

TWO COLORS

COLOR SCALE

WHAT IS "THRESHOLD" ?

The ES-1025/2025 may pick up and display unwanted echoes from small objects in the water. With the threshold function it is possible to eliminate these unwanted ehoes.

▥ PICTURE FEED KEY

FEED RATE
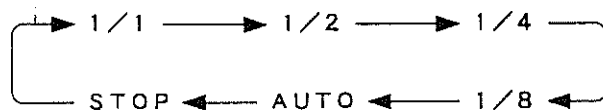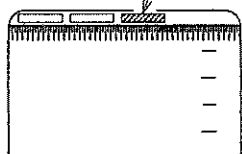
►1/1 ──► 1/2 ──► 1/4 ─┐
└─ STOP ◄── AUTO ◄── 1/8 ◄┘

◎Picture feed rate may be selected from 1/1, 1/2, 1/4, 1/8, AUTO and STOP.

AUTO   : Available when the speed sensor is connected.
1/1 ～ 1/8 : Feeds the picture at the rate selected.
STOP   : Stops the picture.

WHAT IS "PICTURE FEED" ?

Picture feed rate refers to the speed the picture travels from right to left on the screen. 1/1 refers to 1 vertical line of picture per 1 sound transmission, 1/2 refers to 1 line of picture per 2 sound transmissions etc.
There is no relation to ship speed.

MODE MODE SELECTION KEY

©To select the display mode.

Each time the MODE key is pressed, the display mode will change as follows:

DUAL FREQ. MODE	SMALL TARGET MODE	HIGH FREQ. SINGLE MODE	LOW FREQ. SINGLE MODE
HIGH LOW HI | LO	HIGH SMALL TARGET HI | TS	HIGH HI-FREQ	LOW LO-FREQ

Displays the
frequency position.

MODE Each press of this
key changes the
setting as follows.

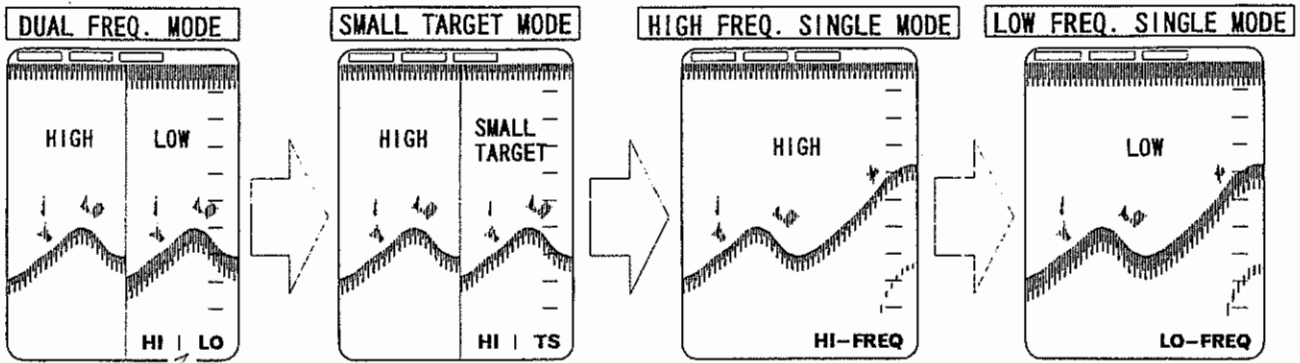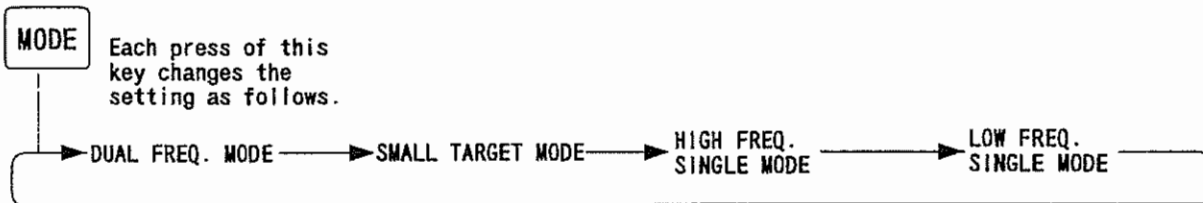►DUAL FREQ. MODE ──► SMALL TARGET MODE ──► HIGH FREQ. SINGLE MODE ──► LOW FREQ. SINGLE MODE

The position of the frequency may be selectd on the menu from "DUAL FREQUENCY" function. PG 25.

Under small target mode, the small target display will always be to the right of the screen, the left side display (high or low frequency) may be selected on the menu from "DUAL FREQUENCY" function. PG 25.

1. DUAL FREQUENCY MODE

DUAL FREQUENCY: HIGH | LOW	DUAL FREQUENCY: LOW | HIGH
HIGH LOW HI | LO	LOW HIGH LO | HI
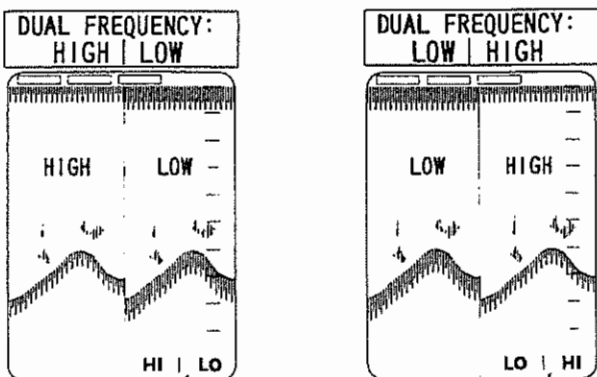
Frequency position
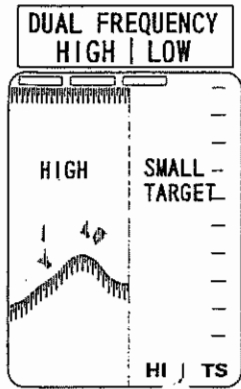HI: High freq. on left
LO: Low freq. on right

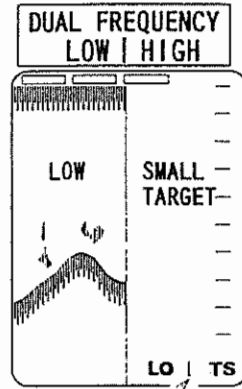Frequency position
LO: Low freq. on left
HI: High freq. on right

©Dual frequency mode is that the screen is vertically devided into two, and the high frequency display and the low frequency display are displayed side by side.

The position for the high freq. and the low freq. differs depending on the selection for "DUAL FREQUENCY" on the menu mode. PG 25.

2. SMALL TARGET MODE

Display position
HI: High freq. on left
TS: Small target on right

Display position
LO: Low freq. on left
TS: Small target on right

◎ Small target mode is that the screen is vertically devided into two, and the small target display is displayed on the right side and the high or low frequency display is displayed on the left side.

The frequency which is displayed on the left side differs depending on the selection for "DUAL FREQUENCY" on the menu mode PG 25.

WHAT IS "SMALL TARGET MODE" ?

For the detection of small fish targets, eg baby sardines.

Because of the properties of the sound wave frequencies small fish targets are more easily seen with high frequency 200KHz and more difficult to locate with the low frequency 50KHz.
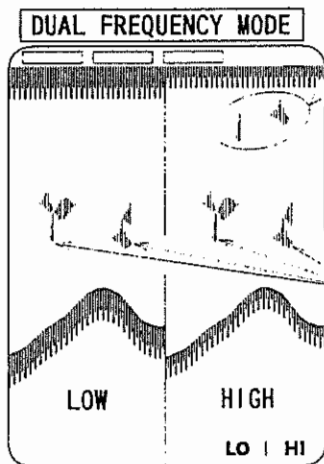
FISH SCHOOL DISPLAYED ONLY ON THE HIGH FREQ. MODE

Small fish target will be displayed with this color.

FISH SCHOOL DISPLAYED ON BOTH FREQ. MODES.
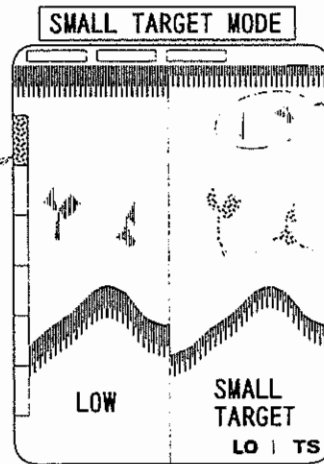
Fish school, displayed only on the high freq. mode, may be displayed on the small target mode with the same color as on the high freq. mode.

Fish school, displayed on the both high & low freq. modes as left, may be displayed with the color on top of the color scale.

- In the above high/low frequency display, only the high frequency display is able to distinguish the small fish. In order to make the small fish targets easier to see. the Small target function displays targets detected by high frequency only in normal colors but other echoes are displayed in a lighter color.

- Under the condition of the gain, the small fish target may be displayed on both high freq. and low freq. modes.

- The samll target may be displayed with the color indicated on top of the color scale.

3.HIGH OR LOW FREQUENCY SINGLE MODE
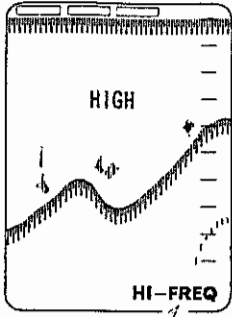
Frequency display
HI: High freq.
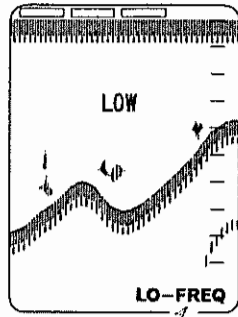
Frequency display
LO: Low freq.

◎Displays the high or low freq. single mode on the full screen.

ES-2025

🔲 NOISE REJECT KEY

◎To reject noise interference from nearby fishing vessels.

Each press of the 🔲 key changes the ability for rejecting the interference as follows;
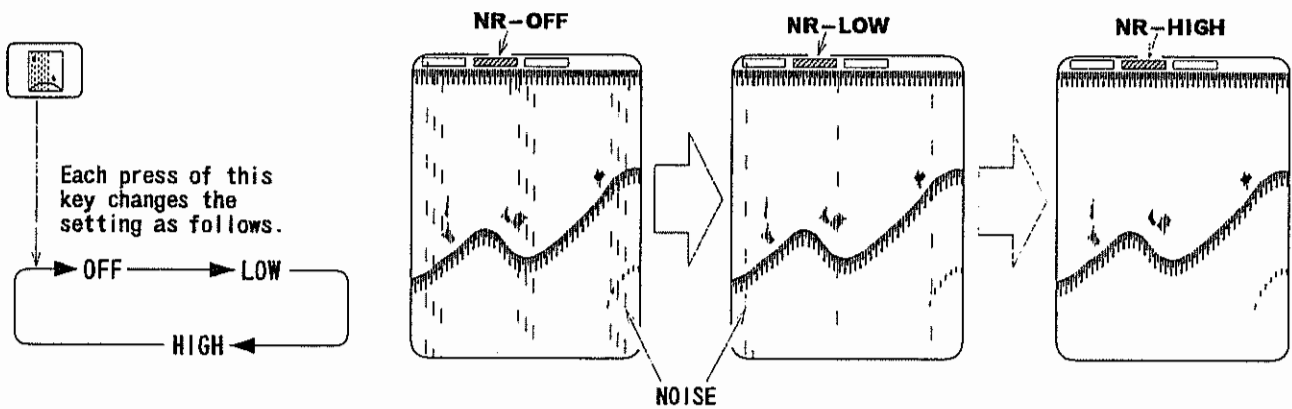
Each press of this key changes the setting as follows.

► OFF ───► LOW ─
└─── HIGH ◄─

NR-OFF   NR-LOW   NR-HIGH

NOISE

⚠CAUTIONS

Some types of noise interference may not be rejected.

WHAT IS NOISE ?

Noise appears like rain on the screen, as shown above, when the sounder received sound waves from a neighboring ship's equipment.

AUTO RANGE FUNCTION

◎The basic range will change automatically to always show the full depth from transducer face to sea bottom regardless of changes in depth.

Pressing the [⬇]·l[⬆] keys at the same time starts the auto range function and indicates "AT-RNG" on the screen's upper right.

Pressing either one of the [⬇]·l[⬆] keys cancels this function.

"AT-RNG" display

[⬇]·l[⬆]

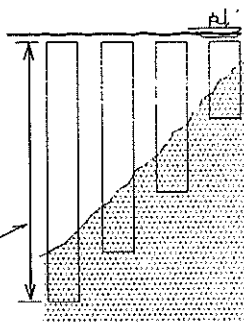Press these keys
at the same time.

This range changes
automatically.
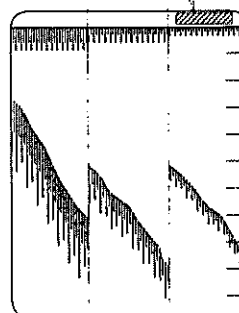
AUTO SHIFT FUNCTION

◎The phased range (upper range limit) will change automatically to always track the bottom in the specified range.

Pressing the [⬇]ıl[⬆] keys at the same time starts the auto shift function and indicates "AT-SFT" on the screen's upper right.

Pressing either one of the [⬇]ıl[⬆] keys cancels this function.

"AT-SFT" display

[⬇]ıl[⬆]

Press these keys
at the same time.
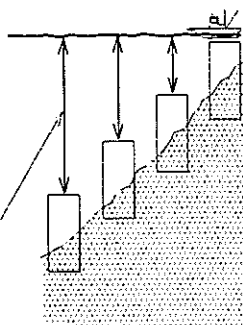
This range changes
automatically.
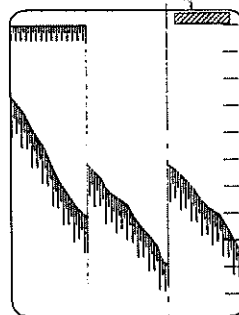
NOTICE

1. For Auto range and Auto shift functions to work successfully, the sea bottom echo must be in red or orange. (The two strongest scale colors.)

2. Even when the sea bottom echo is in red or orange, if there is interference due to bubbles etc. the function may not be able to track the bottom. In this case, if the bottom is not located after 16 transmissions, the depth scale will return to 0 and start searching again. If the function is unable to locate the bottom the scale will continue to fluctuate.

DISTANCE TRAVELLED RESET

◎To return the distance travelled display to zero.
  Distance travelled may be displayed when the optional speed sensor is
  connected.

Press these keys
at the same time.
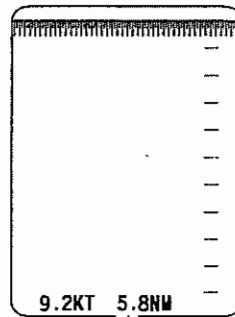
resets this distance display to 0NM.

BRIGHTNESS CONTROL DIAL
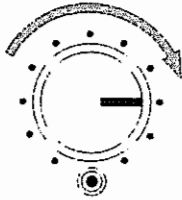
◎Turning the dial clockwise increases the brightness of
  the screen.

TVG CONTROL DIAL

◎The TVG function suppresses unnecessary echoes near the water surface such as
  bubbles and floating matter.
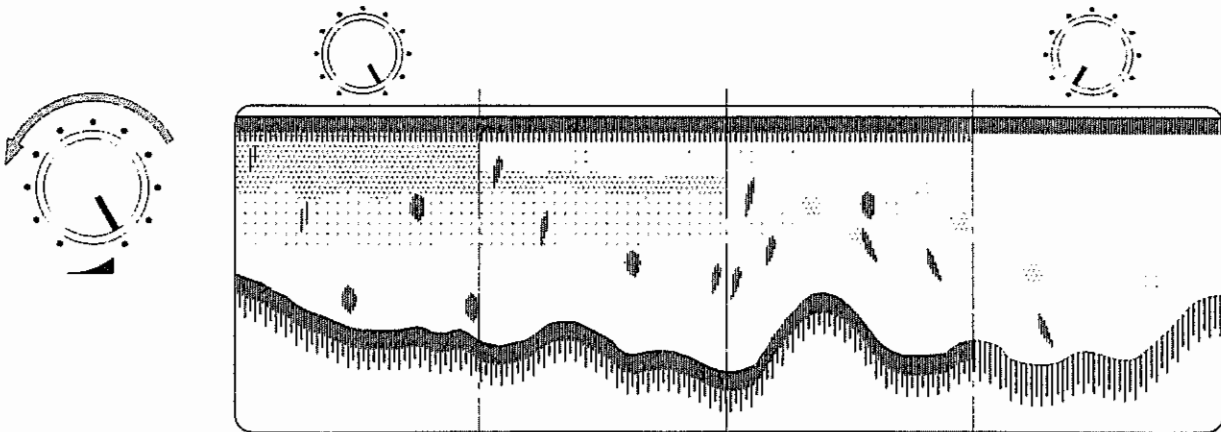
No TVG function.	Turning the dial counterclockwise increases the level of TVG.	Excessive increasing. Fish and bottom echoes have been suppressed.

⚠CAUTIONS

◎Turning the dial counter clockwise increases the suppression level.
◎Excessive turning may suppress fish school echo and bottom echo.

NOISE SUPPRESSION DIAL

◎ To suppress mild interference covering the whole screen.

No noise suppression function.	Turning the dial clockwise increases the level.	Excessive increasing. Fish and bottom echoes have been erased.
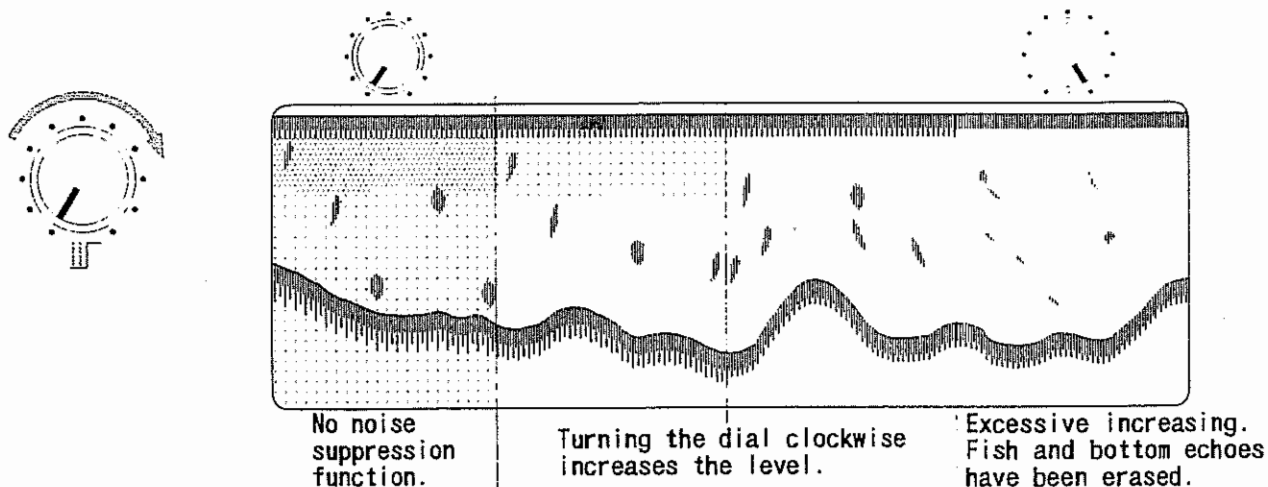
GAIN CONTROL DIAL

◎ To adjust the level of sensitivity of the received echo signal.
Turning the dial clockwise increases the level of the gain, keep turning the dial until the sea bottom is shown in red.

FISH SCHOOL

DOUBLE ECHO

The gain level is too low.	This picture shows the correct level of gain.	This picture is at the correct gain level but the water is full of unwanted echoes (dirt).	The level of gain is too high.
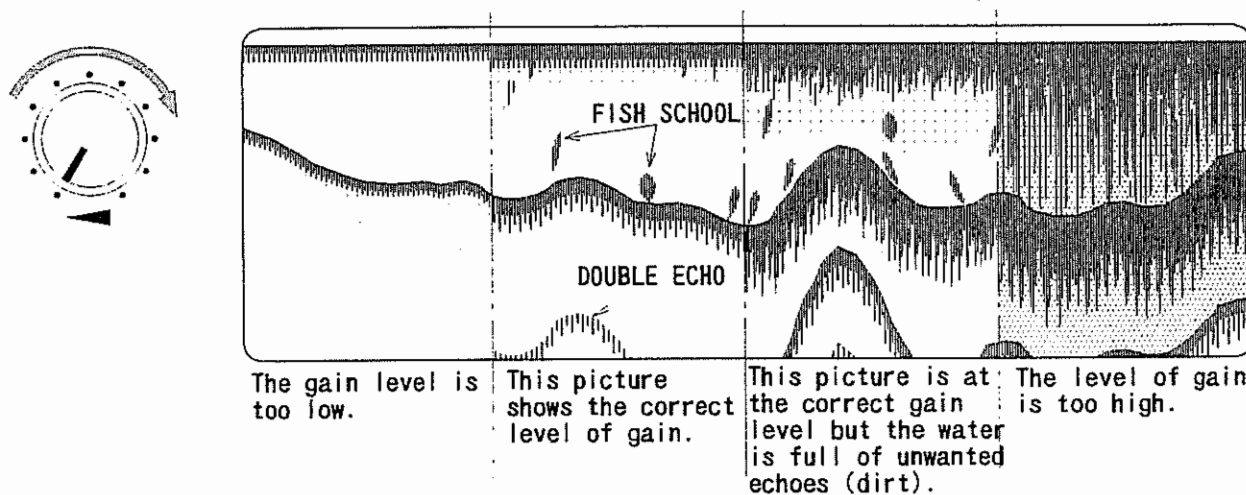
- The strongest echo appears in red, and the next strongest echo is in Orange → Yellow → Green → Yellow-green → Cyan → Light blue.

- In the case of detecting the sea bottom only, as the sea bottom is very reflective, it can be seen at a low gain level.

- For detecting fish schools, the gain level has to be slightly increased. However, increasing the gain will pick up other floating matter in the water too.

- When it is difficult to get the bottom echo due to the bad sea bottom condition, for example, sludge and too much seaweed, increase the gain level.

- When passing over the transducer face, bubbles may reflect the sound wave and appear as echoes on the screen.

OPTION

This chapter provides you the explanation related to the optional equipment.

ITEM	NAME	REMARKS
OP-253	CABLE FOR SPEED SENSOR	
OP-234	CABLE FOR WATER TEMPERATURE SENSOR	
OP-235	CABLE FOR NAVIGATOR	
OP-256	CABLE FOR NMEA OUTPUT	

CABLE CONNECTION

Before installing optional terminal kits (PG 12), be sure to turn off the power supply switch and remove the power cord from the main unit.

Because there is high voltage portion, ask the dealer to install.

①Remove the total 17 bolts which fasten the case cover and remove the case cover in the direction the big arrow shows.
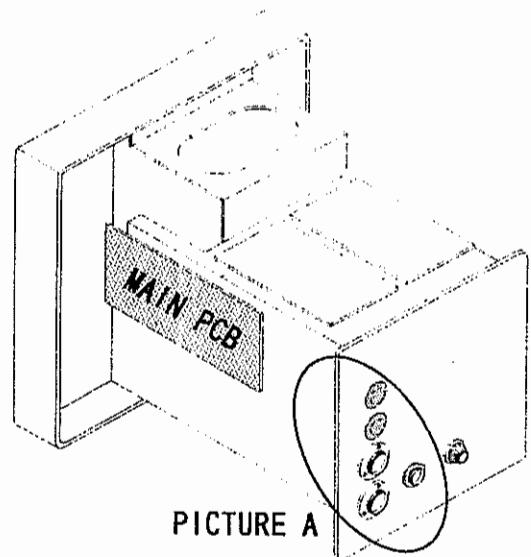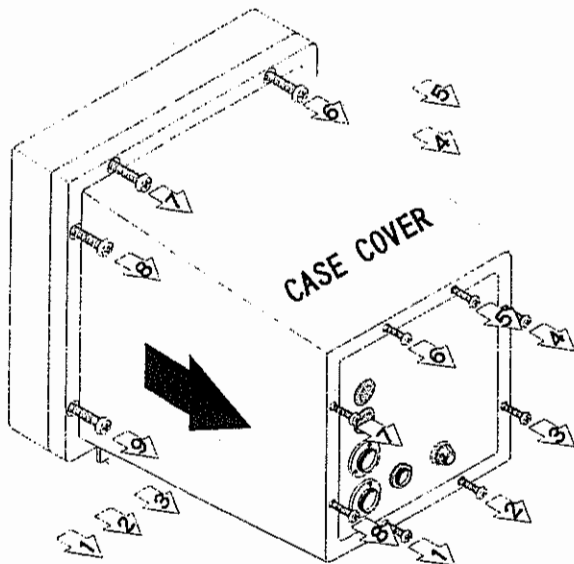
②Remove the cap where the cable kit is installed.

③Insert the receptacle of cable kit from inside of the main unit and fix it with nut.

④Insert the connector to the specified terminal on the main PCB (see below).
   OP-235→J6   OP-256→J7
   OP-234→J8   OP-253→J9

⑤In the cable kit with lug terminal case, fasten the lug terminal to the bolt A.

⑥Fasten the bolts removed to fix the case cover as usual.
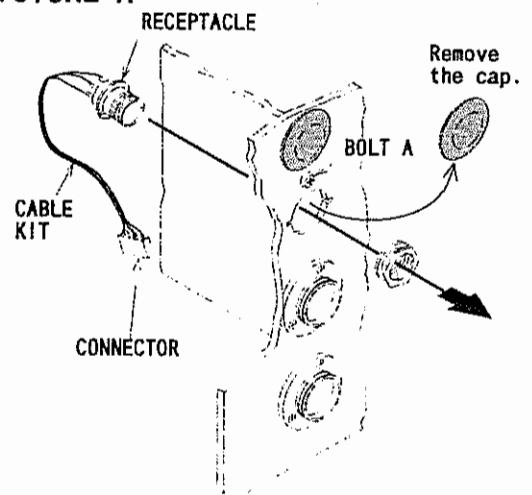
⚠ DANGER

Do not open the case cover.
There is high voltage portion inside and
it may make a person die or serious injury.
The terminals must be installed by your
supplier.

PICTURE A

PICTURE A
RECEPTACLE

Remove
the cap.

BOLT A

CABLE
KIT

CONNECTOR

MAIN PCB
No.620

J9

J8

J6   J7
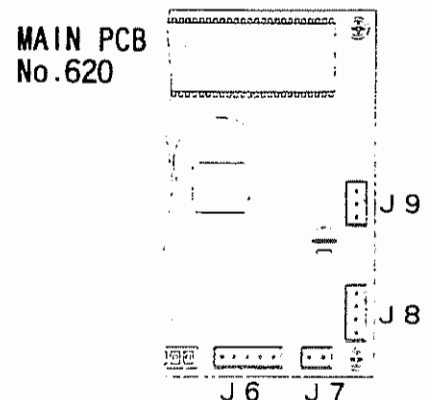
* The above pictures are for the ES-2025. In case of the ES-1025, the receptacle located bottom is capped.

SPECIFICATIONS

ES-1025

1. PHASED RANGE	The upper range limit may be set in 11 steps per 2/5 of the basic range between 0~999.
2. BASIC RANGE	0~5·10·15·20·30·40·50·60·80·100·150·200·300·500·1000·1500·2000 meters, fathoms, braccia. 0~15·20·30·40·50·60·80·100·150·200·300·500·1000·1500·2000·3000·5000 feet.
3. PARTIAL EXPANSION	Available as a combination of the Basic range & Phased range.
4. BOTTOM-LOCK EXPANSION	0~1·2.5·5·10·20·50·100·250 meters, fathoms, braccia. 0~5·10·20·100·250·500·1000 feet.
5. FREQUENCY	50KHz or 200KHz
6. DISPLAY MODES	(1)Normal mode (2)Partial expansion mode (3)Bottom-lock expansion mode
7. DISPLAY DATA	(1)Digital Depth Scale (2)Depth (3)Water Temperature Scale* (4)VRM depth (5)Water temperature* (6)Ship speed* (7)Total distance travelled* (8)Latitude/Longitude* (9)Course*
8. FUNCTION DISPLAY	Picture feed·Noise reject·Auto Range ON/OFF· Auto Shift ON/OFF·Alarm
9. ADDITIONAL DISPLAY	Color Scale·30 Seconds Time Marker· Water Temperature Graph*·Alarm set marker
10. ADDITIONAL FUNCTIONS	TVG·Threshold·White line·Noise reject·Noise suppression· Auto range·Auto shift·Display area·Scale position(2types)· Background color(2 types)·Output power reduction· Shallow alarm·Deep alarm·Zone/fish alarm· Auto demagnetization·Picture feed rate(stop + 4 speeds)· Keyboard backup

■ OTHERS

1. INPUT DATA	Water temperature*·Ship speed* Navigation data(NMEA-0182, 0183)**
2. OUTPUT DATA	Depth(NMEA-0183)*
3. SCREEN	10 inch high resolution color CRT 240×256 pixels
4. POWER REQUIREMENT	DC10.5~40V·Power consumption 45W
5. OPTIONAL EQUIPMENT	Water temperature sensor·SUZUKI GPS

NOTE 1) * ····· Optional equipment is required.
    2) ** ····· Accepting data NMEA-0182, 0183 format.

ES-2025

1. PHASED RANGE	The upper range limit may be set in 11 steps per 2 5 of the basic range between 0~999.
2. BASIC RANGE	0~5·10·15·20·30·40·50·60·80·100·150·200·300·500·1000·1500·2000 meters, fathoms, braccia. 0~15·20·30·40·50·60·80·100·150·200·300·500·1000·1500·2000·3000·5000 feet.
3. PARTIAL EXPANSION	Available as a combination of the Basic range & Phased range.
4. BOTTOM-LOCK EXPANSION	0~1·2.5·5·10·20·50·100·250 meters, fathoms, braccia. 0~5·10·20·100·250·500·1000 feet.
5. FREQUENCY	50KHz & 200KHz dual frequency
6. DISPLAY MODES	(1)50KHz single frequency mode (2)200KHz single frequency mode (3)Samll target (dual display) (4)Dual frequency (vertical split) (5)Bottom-lock expansion mode
7. DISPLAY DATA	(1)Digital Depth Scale (2)Depth (3)Water Temperature Scale* (4)VRM depth (5)Water temperature* (6)Ship speed* (7)Total distance travelled* (8)Latitude/Longitude* (9)Course*
8. FUNCTION DISPLAY	Picture feed·Noise reject·Auto Range ON/OFF· Auto Shift ON/OFF·Alarm
9. ADDITIONAL DISPLAY	Color Scale·30 Seconds Time Marker· Water Temperature Graph*·Alarm set marker
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