FURUNO

OPERATOR'S MANUAL

DSC/WATCH RECEIVER

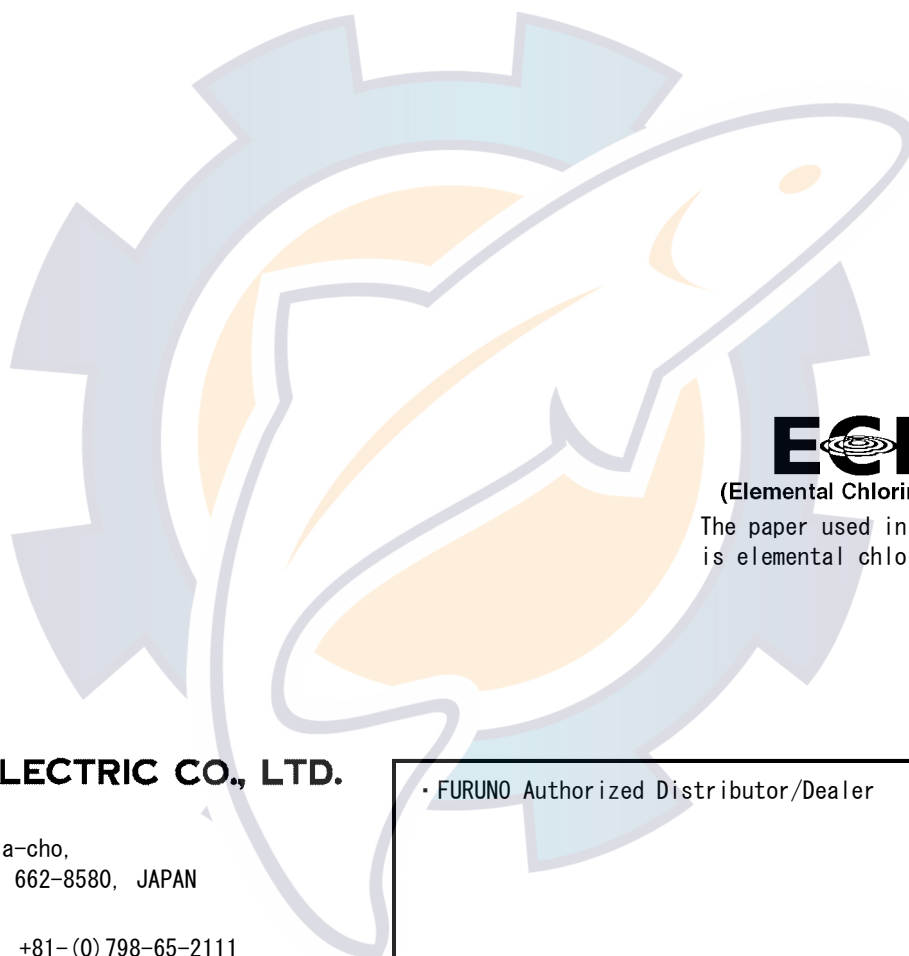MODEL DSC-60

FURUNO ELECTRIC CO., LTD.

www.furuno.co.jp

ECF
(Elemental Chlorine Free)
The paper used in this manual
is elemental chlorine free.

·FURUNO Authorized Distributor/Dealer

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(TATA) DSC-60

00080894011

DISTRESS Call Procedure

Do the following when a life-endangering situation arises on your vessel:

1. Open the DISTRESS button cover and press the [DISTRESS] button more than three seconds to show the following display, then release the [DISTRESS] button.

```
Distress
call in progress!

NATURE: UNDESIGNATED
POS: 12˚34N 123˚45E AT 12:34
TELEPHONE          2182.0 KHZ

DSC FREQ    :      2187.5 KHZ
TIME TO GO :          38S
```

2. After the distress call is transmitted the following displays appear in order.

```
Wait for distress
acknowledgement.

NATURE: UNDESIGNATED
POS: 12˚34N 123˚45E AT 12:34
TELEPHONE          2182.0 KHZ

DSC FREQ   :       2187.5 KHZ
TIME TO GO:          3M10S
```

When distress call is acknowledged by coast station (within 1 min to 2 min. 45 sec).

```
Distress acknowledge
call received.

FROM COAST: 001234567
SHIP IN DIST: 123456789
NATURE: UNDESIGNATED
POS: 12˚34N 123˚45E AT 12:34
TELEPHONE          2182.0 KHZ
                    STOP ALARM
```

3. The audio alarm sounds; press the [CANCEL] key to silence the alarm.

4. Communicate with the coast station via radiotelephone as follows:

   a) Say MAYDAY three times.
   b) Say "This is … " name of your vessel and your call sign three times.
   c) Give nature of distress and assistance needed.
   d) Give description of your vessel (type, number of persons onboard, etc.) and any other information which may aid in rescue.

For detailed information see page 3-1.

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⚠ SAFETY INSTRUCTIONS

⚠ WARNING

**ELECTRICAL SHOCK HAZARD
Do not open the equipment.**

Only qualified personnel should work inside the equipment.

Immediately turn off the power at the switchboard if water leaks into the equipment or something is dropped in the equipment.

Continued use of the equipment can cause fire or electrical shock. Contact a FURUNO agent for service.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Do not place liquid-filled containers on the top of the equipment.

Fire or electrical shock can result if a liquid spills into the equipment.

Immediately turn off the power at the switchboard if the equipment is emitting smoke or fire.

Continued use of the equipment can cause fire or electrical shock. Contact a FURUNO agent for service.

Make sure no rain or water splash leaks into the equipment.

Fire or electrical shock can result if water leaks in the equipment.

⚠ WARNING

Keep heater away from equipment.

A heater can melt the equipment's power cord, which can cause fire or electrical shock.

Do not operate the equipment with wet hands.

Electrical shock can result.

IN CASE OF ACCIDENTAL TRANS-MISSION OF THE DISTRESS ALERT

If the distress is accidentally transmitted, contact the nearest coast station and inform them of the accidental transmission as follows:

a) Ship's name
b) Ship's call sign and DSC number
c) Position at time of transmission
d) Time of transmission

⚠ CAUTION

A warning label is attached to the equipment. Do not remove the label. If the label is missing or illegible, contact a FURUNO agent or dealer.

⚠ WARNING ⚠
To avoid electrical shock, do not remove cover. No user-serviceable parts inside.
⚠   ⚠
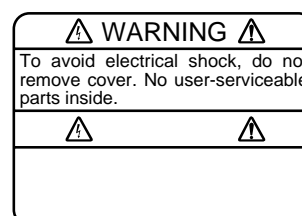
Name: Warning Label (1)
Type: 86-003-1011-0
Code No.: 100-236-230

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FOREWORD

Thank you for purchasing this DSC/Watch Receiver. We are confident you will discover why FURUNO has become synonymous with quality and reliability.

Dedicated in the design and manufacture of marine electronics equipment for half a century, FURUNO Electric Company has gained an unrivaled reputation as a world leader in the industry. This is the result of our technical excellence as well as our worldwide distribution and service network.

Please carefully read and follow the safety information and operating and maintenance instructions set forth in this manual before attempting to operate the equipment and conduct any maintenance. Your DSC/Watch Receiver will perform to the utmost of its ability only if it is operated and maintained in accordance with the correct procedures.

Features

Connected to an SSB radiotelephone, the DSC-60 generates and receives digital selective calls for quick and efficient establishment of distress, urgency, safety and routine communications with other ships and coast stations that install any MF/HF DSC facilities. Data is displayed on a large, easy-to-read backlit LCD. Operation is simplified by the use of few keys and easy-to-follow menus.

The main features are

- DSC Terminal, DSC Watch Receiver, DSC General Watch Receiver (option) and MF/HF Radiotelephone Remote Station all contained in a compact and light-weight cabinet.

- Fully meets GMDSS carriage requirements. Large LCD of 160-character indication.

- Conforms to the following standards and regulations:
  IMO A. 694(17)
  IMO A. 806(19)
  IMO A. 813(19)
  IMO MSC 68(68)
  IEC-61097-3/8/9
  IEC-60945 (3rd edition)
  IEC-61162-1 Edition 2
  ETS-300/338
  ITU-R M.493-9, M.541-8, M.1082-1

- Scan watch feature scans operator-programmed DSC frequencies.

- Remote operation optionally available.

- Automatic position and time input and update with connection of EPFS (Electronic Position-Fixing Equipment).

- Optional printer can automatically print out received messages and test results.

- Log stores 50 each of latest ordinary, distress and transmitted messages, in separate memory blocks.

- Built-in intercom function provides voice communications between the DSC-60 and SSB radiotelephone.

- Optional built-in receiver board for DSC ship's business/routine frequencies.

- One-touch testing facility.

Program number

MAIN CPU   0550201003
MODEM   0550202001

SYSTEM CONFIGURATION

PREAMP FAX-5

PREAMP FAX-5

PRINTER PP-510

RX Board

See note below.

DISTRIBUTOR DB-120/DB-500

SSB RADIOTELEPHONE FS-75/2550 FS-5000/8000

NBDP TERMINAL DP-6

NAVIGATOR

DSC/WATCH RECEIVER DSC-60

TELEX DISTRESS ALERT BUTTON IC-302-DSC

OR

INCOMING INDICATOR IC-303-DSC

DISTRESS MESSAGE CONTROLLER DMC-5

LOUDSPEAKER MX910-X01

HANDSET HSC701K-B20

AC/DC POWER SUPPLY UNIT PR-300

.... : OPTION

SHIP'S MAINS

24 VDC   100-115/200-220 VAC
            1ϕ, 50/60 Hz

Note: DISTRIBUTOR DB-120/DB-500 not necessary
when using FS-5000 series radiotelephone.

1. DSC SYSTEM OVERVIEW

1.1 What is DSC?

DSC is an acronym meaning Digital Selective Calling. It is a digital distress and general calling system in the MF, HF and VHF bands used by ships for transmitting distress alerts and general calls and by coast stations for transmitting the associated acknowledgements.

For DSC distress and safety calling in the MF and HF bands the frequencies are (kHz) 2187.5, 4207.5, 6312.0, 8414.5, 12577.0, and 16804.5.

The DSC-60 is a combination MF/HF DSC Terminal and Watch Receiver. Connected to an SSB radiotelephone, the DSC-60 sends and receives calls via the SSB radiotelephone. The built-in remote control permits control of a FURUNO radiotelephone from the DSC-60.
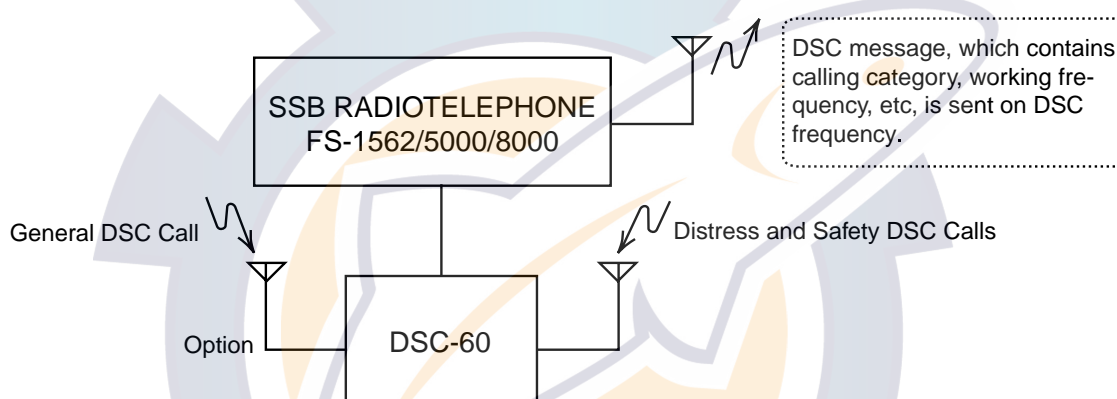
1.2 DSC Call

DSC calls are roughly divided in two categories: distress and safety calls, and routine calls. Below are the types of DSC calls and the pages on which their descriptions and procedures appear.

- All Ships (page 4-1)
- Distress (your ship is in distress) (page 3-1)
- Distress relay all (all ships) (page 3-18)
- Distress relay sel (coast station) (page 3-15)
- Geographical Area (page 4-20)
- Group (page 4-17)
- Individual (page 4-4)
- Medical Transport (page 4-26)
- Neutral Craft (4-24)
- Polling (page 4-28)
- Position (page 4-33)
- PSTN (page 4-39)
- Test (page 8-4)

Contents of a DSC call

Calling category

Call category	Call
Individual	Individual, PSTN, Test, Position, Polling, Relay Sel (specific coast station)
All Ships	All Ships, Neutral, Medical, Relay All
Group	Group
Geographical Area	Area

Station ID

Own ship ID and sending station ID. Coast station ID begins with 00; Group ID begins with 0.

Priority

Distress: Grave and imminent danger and request immediate assistance.

Safety: A station is about to transmit a message containing an important navigational or meteorological warning.

Urgency: A calling station has a very urgent message to transmit concerning safety of ship, aircraft or other vehicle or safety of person.

Business: Communication related to the navigation, movements and needs of ships and aircraft.

Routine: General calling

Communication type

Telephone: telephone (J3E) by SSB

NBDP-ARQ: Telex (J2B) mode ARQ via NBDP Terminal

NBDP-FEC: Telex (J2B) mode FEC via NBDP Terminal

Communication frequency

Working frequency used to call by telephone or NBDP. The sending station may have the receiving station (ship or coast station) assign the frequency to use.

Position

Position can be automatically or manually input.

DSC frequency

DSC frequency to use. If the order of communications priority is SAFETY, URGENCY and DISTRESS, select a DSC distress frequency.

End code

The end of a DSC message is denoted by ACK RQ (Acknowledge Request), ACK BQ (Acknowledge Back) or EOS (End of Sequence).

1.2.1   Distress alert call and reply

This type of call is sent by own ship in the event of distress, by pressing the [DISTRESS] button more than three seconds as follows:

1. The LED in the button initially flashes, and lights when the button is pressed more than three seconds. (If the button is pressed less than three seconds the distress alert is not sent. Once the alert is sent it cannot be cancelled.)

> ⚠ **WARNING**
>
> **IN CASE OF ACCIDENTAL TRANS-MISSION OF THE DISTRESS ALERT**
>
> If the distress is accidentally transmitted, contact the nearest coast station and inform them of the accidental transmission as follows:
>
> a) Ship's name
> b) Ship's call sign and DSC number
> c) Position at time of transmission
> d) Time of transmission

2. The DSC-60 sets the DSC distress frequency on the SSB radiotelephone and it transmits the distress alert.

3. After the distress alert is transmitted (about 40 seconds) the DSC-60 waits for the DIST ACK call from a coast station. This usually takes less than 3 minutes and is accompanied with an audio alarm. (If it is not received within 4.5 minutes the distress alert is re-transmitted.)

4. The SSB sets the DSC distress frequency to use to communicate with the coast station. With the optional handset you can communicate through the DSC-60.
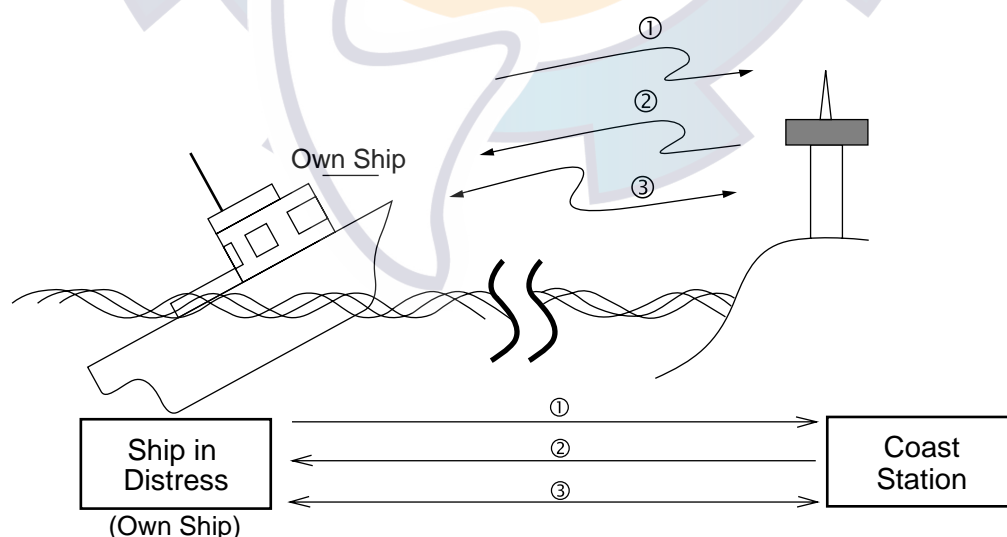
① Ship in distress sends Distress Alert.

② Coast station sends distress acknowledgement (DIST ACK).

③ Voice or telex communications between ship in distress and coast station

1.2.2   Individual call

The individual call is for sending a call to a specific station.

Own Ship	① DSC Message [Called Acknowledge Request (ACK RQ) Signal] →	Coast Station
	② Acknowledge Back (ACK BQ) Signal ←	
	③ Voice or telex communication ← →	
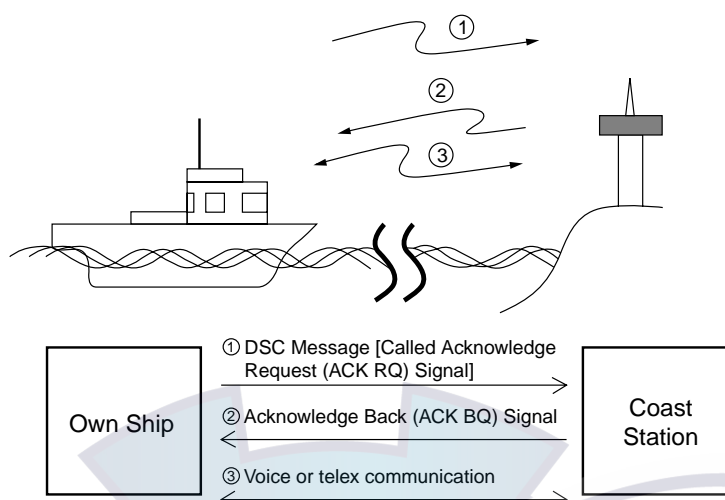
Basic procedure

1. Prepare message and transmit it by pressing the [CALL] key. The DSC-60 then awaits acknowledgement of the call.

2. Receive acknowledge back (ACK BQ) signal from receiving station (coast station or ship station) within about five minutes. The audio alarm sounds at this time; press the [CANCEL] key to silence it.

3. After receiving ACK BQ signal, communicate with coast station; the FURUNO SSB radiotelephone sets the working frequency and class of emission specified by your ship.

1.3   Audio Alarms

When you receive a distress alert or routine call addressed to your ship the audio and visual alarms are released. For the distress or urgent call, the audio alarm sounds until the [CANCEL] key is pressed. For other calls, the audio alarm sounds for one second and then automatically goes off.

The tone of the alarm depends on the call received. By becoming accustomed to the tone you can know which type of call you have received.

Alarm	Frequency (interval)
Safety message received	1300 Hz and 0 Hz (250 ms)
Routine, Ship's Business message received	880 Hz and 440 Hz (500 ms)
While DISTRESS button is pressed for three seconds	2200 Hz and 0 Hz (125 ms)
Distress alert is being sent	2200 Hz, continuous
Own ship position not updated	2200 Hz (50 ms), three beeps every two seconds

1.4   Remote Control and Automatic Acknowledge

1.4.1   Remote control

The DSC-60 and a FURUNO SSB radiotelephone communicate with each other by means of the MIF (FURUNO Radio Interface) protocol, a unique handshaking type signal exchange system developed by FURUNO. The DSC-60 can also communicate with other makes of radiotelephones which incorporate data format IEC-61162-1. The remote control feature allows the DSC-60 to automatically set the DSC and working frequencies and class of emission on a FURUNO SSB radiotelephone.

1.4.2   Automatic acknowledge

The automatic acknowledge feature, when turned on, automatically transmits the acknowledge back signal to the sender when an individual, position or polling call is received. With the automatic acknowledge feature turned on the remote control is also turned on.

Automatic acknowledge is alternately enabled or disabled with the [5/ACK] key.

1.4.3   Both remote control and automatic acknowledge ON

The illustration and table below outline the sequence of events in an individual call when both remote control and automatic acknowledge are turned on.

AUTO ACK (own ship)   AUTO ACK (other station)

* FURUNO SSB radiotelphone
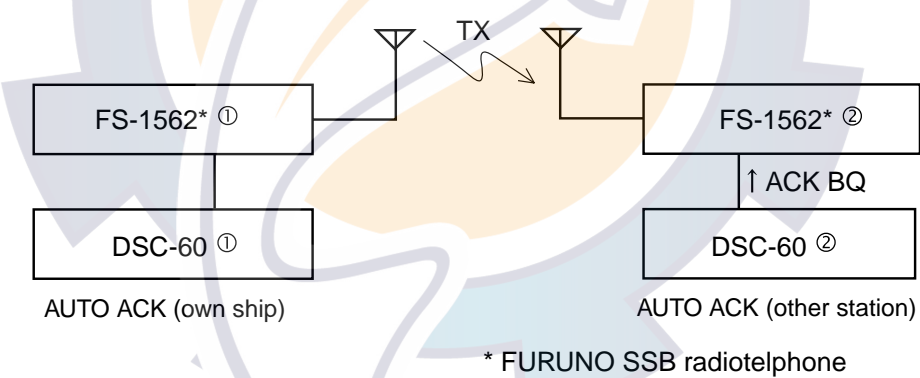
DSC operation	Radiotelephone frequency ①	Radiotelephone frequency②
1. DSC-60① [CALL] key pressed.	DSC frequency changed; call sent.	Scans DSC frequencies.
2. DSC-60② receives via radiotelephone.		Sets DSC frequency received.
3. DSC-60② automatically sends acknowledge back (ACK BQ) signal.		DSC frequency set; ACK BQ sent. Then, working frequency and class of emission specified at DSC-60① are set.
4. DSC-60① receives acknowledge back signal via radiotelephone.	Working frequency and class of emission specified at DSC-60① are set.	
Both communication frequency and class of emission are already set on the FS-1562 ① and FS-1562②, so you may begin communications.		

1.5 Interpreting Call Displays

This paragraph provides the information necessary for interpreting receive and send calls.

1.5.1 Receive calls

Below are sample distress and individual receive calls. Content of other receive calls is similar to that of the individual call.

<u>Distress call</u>

```
*  Received message  *
JUL-23-1999-23:59       ECC: OK
DISTRESS CALL
SHIP IN DIST:  123456789
NATURE: UNDESIGNATED
POS: 12˚34N 123˚45E AT 12:34
TELEPHONE            2182.0 KHZ
ANSWER ◄      ► ALL VIEW
```

— Date and time of message
— ECC (Error Check Character): OK or NG (No Good)
— Category (Distress call)
— Ship in Distress (ID No. of ship in distress)
— Nature of Distress (Undesignated, Fire, Flooding, Collision, Grounding, Listing, Sinking, Disable, Abandoning, Piracy, Man Overboard, EPIRB emission)
— Position of ship in distress
— Working frequency to use

[ENT] to switch.

```
*  Received message  *
▲

END OF SEQUENCE: EOS
ERROR-CHECK: OK


DSC FREQUENCY        : 2187.5 KHZ
GO TO EASY VIEW
```

— End of sequence (EOS for distress)
— Error check (OK or NG)
— DSC frequency used to transmit distress call

▲ or ▼ to switch.

```
*  Received message  *
FORMAT          : DISTRESS
SELF-IDENTITY    : 123456789
NATURE OF DISTRESS:
        UNDESIGNATED DISTRESS
DISTRESS COORDINATES:
   12˚34N 123˚45E AT 12:34
TELECOMMAND: J3E TELEPHONE
▼
```

— Format (distress)
— ID no. of ship in distress
— Nature of distress (problem with ship in distress, see above)
— Distress coordinates (position of ship in distress)
— Telecommand (class of emission)

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Individual call

```
 ∗ Received message ∗

 JUL-23-1999-23:59      ECC: OK
 INDIVIDUAL REQUEST
 FROM SHIP:       123456789
 ROUTINE
 TELEPHONE        2182.0 KHZ

 ANSWER ◂        ▸ ALL VIEW
```

┌─ Date and time of message
└─ ECC (Error Check Character): OK or NG (No Good)

◂─── Able acknowledge ("Unable acknowledge" and reason if unable)

◂─── ID No. of sending station

◂─── Category (Routine, Business, Safety, Urgency)

◂─── Working frequency to use

Note: ANSWER is for replying to message.

↕ [ENT]
to switch.

```
 ∗ Received message ∗
 ▲
 WORKING FREQUENCY  : 2182 KHZ

 END OF SEQUENCE: ACK. RQ
 ERROR-CHECK: OK
 DSC FREQUENCY   TX:  2189.5 KHZ
                 RX:  2177.0 KHZ

       GO TO EASY VIEW
```

◂─── Working frequency to use

◂─── End of sequence (ACK. BQ or ACK. RQ)

◂─── Error check (OK or NG)

◂─── DSC frequency used

↕ ▼ or ▲
to switch.

```
 ∗ Received message ∗
 FORMAT          : INDIVIDUAL
 ADDRESS         : 987654321
 CATEGORY        : ROUTINE
 SELF-IDENTITY   : 123456789
 1ST TELECOMMAND: J3E TELEPHONE
 2ND TELECOMMAND : NO INFORMATION
 ▼
```

◂─── Format (individual)

◂─── ID of your station

◂─── Category (Routine, Business, Safety, Urgency)

◂─── ID of sending station

◂─── 1st Telecommand (class of emission)

◂─── 2nd Telecommand (class of emission)

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1.5.2   Send calls

Below are sample distress and individual send calls. Content of other send calls is similar to that of the individual call.

Distress call

```
┌─────────────────────────────┐
│  ┌───────────────────────┐▐ │
│  │ Distress              │▐ │
│  │ call in progress!     │  │
│  └───────────────────────┘  │
│ NATURE: UNDESIGNATED        │
│ POS: 12°34N 123°45E AT 12:34│
│ TELEPHONE         2182.0 KHZ│
│ ─────────────────────────── │
│ DSC FREQ  :       2187.5 KHZ│
│ ─────────────────────────── │
│  TIME TO GO :         38S    │
└─────────────────────────────┘
```

◄─── Nature of Distress (Undesignated, Fire, Flooding, Collision, Grounding, Listing, Sinking, Disable, Abandoning, Piracy, Man Overboard)

◄─── Position of ship in distress (your ship)

─── DSC frequency used to send distress call

─── Time remaining until transmission of distress call is completed

Individual call

```
┌─────────────────────────────┐
│    ✳✳✳ Send message ✳✳✳      │
│ ─────────────────────────── │
│  CALL TYPE:    INDIVIDUAL    │
│  STATION ID:   123456789     │
│  PRIORITY    : ROUTINE       │
│  COM. TYPE   : TELEPHONE     │
│  COM. FREQ   : CH 1234       │
│ ─────────────────────────── │
│  DSC FREQ    : 2M-INTL       │
│ ─────────────────────────── │
│      GO TO ALL VIEW          │
└─────────────────────────────┘
```

◄─── Call type (Individual)
◄─── ID of station where message is to be sent
◄─── Priority (Routine, Safety, Urgency, Business)
◄─── Mode of communication (Telephone)
◄─── Working frequency
◄─── DSC frequency

Press ▼ to select GO TO ALL VIEW and press [ENT] key to view.

```
┌─────────────────────────────┐
│    ✳✳✳ Send message ✳✳✳      │
│ ─────────────────────────── │
│ ▲                           │
│ WORKING FREQ.    : CH 1234   │
│                             │
│ END OF SEQUENCE: ACK. RQ     │
│ ─────────────────────────── │
│ DSC FREQUENCY  TX: 2189.5 KHZ│
│                RX: 2177.0 KHZ│
│ ─────────────────────────── │
│      GO TO EASY VIEW         │
└─────────────────────────────┘
```

◄─── Working frequency

◄─── End of sequence (Acknowledge request)
─── DSC frequency used

1.6   Remote Control of SSB Radiotelephone

<u>SSB output power at transmission of distress alert</u>

When the [DISTRESS] button is pressed, the output power of the FURUNO SSB radiotelephone is automatically set to maximum, even if it is set for minimum.

<u>Keyboard lock at the SSB radiotelephone</u>

The keyboard of the FURUNO SSB radiotelephone is automatically locked while a DSC message is being transmitted.

- Distress alert or distress relay transmitted (transmission time about 40 seconds)
  The keyboard is locked until the transmission of the distress alert or distress relay is completed.

- Call other than distress is transmitted (transmission time about 8 seconds)
  Press the [CANCEL] key to unlock the keyboard.

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2. OPERATIONAL OVERVIEW

2.1　Controls, LED Description

Cursor Pad
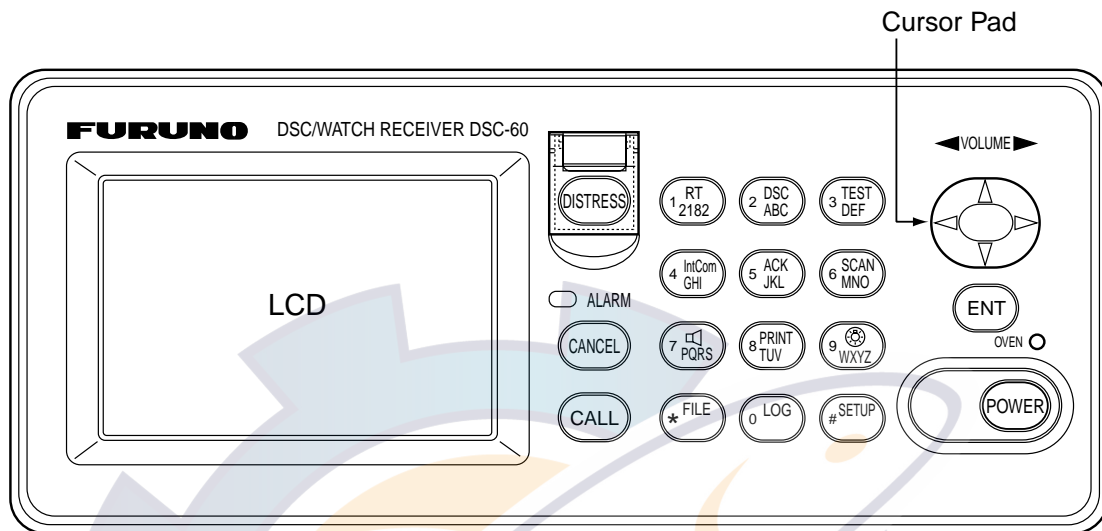
Control, LED description

Control	Function
POWER switch	Turns the power on/off.
DISTRESS button	Press and hold down the button more than three seconds to transmit the distress alert. When pressed it initially flashes, and lights up if the button is pressed more than three seconds. It stays lit until your ship receives the distress acknowledge message. The distress alert will not be transmitted if the button is pressed less than three seconds.
CALL key	Transmits calls other than distress.
Cursor Pad	Selects items on menus; adjusts loudspeaker volume (64 levels) on the DSC standby screen. (The distress and urgency alarms are received at maximum volume regardless of current loudspeaker volume setting.)
ENT key	Registers key input.
CANCEL key	- Cancels wrong data. - Restores previous menu. - Returns to DSC standby screen from other screen. - Silences audio alarm (distress or routine). - Cancels transmission, printing. - Erases error message.
1/ RT/2182 key	- Switches from the DSC standby screen to the radiotelephone setting screen. - Switches to 2182.0 kHz/J3E on radiotelephone setting screen by pressing more than two seconds.
2/DSC key	Switches from the radiotelephone setting screen to the DSC standby screen.
3/TEST key	Executes daily test.
4/IntCom key	Turns intercom with radiotelephone on/off, from the radiotelephone setting screen.
5/ACK key	Switches automatic and manual acknowledge alternately at the DSC standby screen.
6/SCAN key	Starts/stops scanning of DSC routine frequencies at the DSC standby screen.
7/◁ key	- Turns loudspeaker on/off. - Silences buzzer. Note that this key does not silence the distress or urgency alarm.
8/PRINT key	Prints communications log files, current screen (except DSC standby screen and radiotelephone setting screen) and test results.
9/❀ key	Adjusts keyboard/LCD backlighting and LCD contrast.
*/FILE key	- Opens the send message file from the DSC standby screen, to send stored message. - Selects station or coast ID when preparing an individual message.
0/LOG key	Opens the Tx/Rx log file from the DSC standby screen.
#/SETUP key	Opens the Setup menu from the DSC standby screen.
ALARM lamp	- Flashes in red for distress or urgency call. - Flashes in green (more rapidly) for safety or routine call.
OVEN lamp	Lights (in green) when oven power is on.

2.2 Turning the Power On/Off

Press the [POWER] switch at the right-hand side of the equipment to turn the power on or off. Whenever the power is applied the DSC standby screen appears.

2.3 DSC Standby Screen, Radiotelephone Setting Screen and Their Indications

2.3.1 DSC standby screen

The DSC standby screen appears by pressing the [2/DSC] key. This is where you begin all calling operations.

AUTO ACK (Automatic Acknowledge) or
MAN ACK (Manual Acknowledge)

WATCH KEEPING   **AUTO ACK**
  DISTRESS

| 2187.5 | 4207.5 | 6312.0 |
| 16804.5 | 12577.0 | **8414.5** |

ROUTINE

| 2177.0 | 4219.5 | 6331.0 |
| 16903.0 | 12657.0 | **8436.5** |

35°00.000N 135°00.000E 23:59 **M**
VOLUME ▮▮▮▮▮▮▮▯▯▯ 32

DSC Distress/Safety Frequencies (Frequencies scanned in clockwise direction, and frequency currently being scanned is highlighted. One cycle is completed in less than two seconds.)

DSC Routine Frequencies (Frequencies scanned in clockwise direction, and frequency currently being scanned is highlighted.)

Current Position, Time "M" appears when ship's position is input manually.

Loudspeaker Volume Setting (By graphic and figure)

DSC standby screen

2.3.2 Radiotelephone setting screen

The radiotelephone setting screen appears by pressing the [1/ RT/2182] key. This is where you set up the radiotelephone.

MODE: **TELEPHONE**
CH: 12034

Tx: 12329.0   KHZ

Rx: 13176.00   KHZ

POWER: HIGH
TUNE
VOLUME ▮▮▮▮▮▮▯▯▯▯ 32

Communications Mode
Channel in Use
Tx Frequency
Rx Frequency
Tx Power
Tuning Status (OK or NG (No Good) appears after tuning)
Loudspeaker Volume Setting

Radiotelephone setting screen
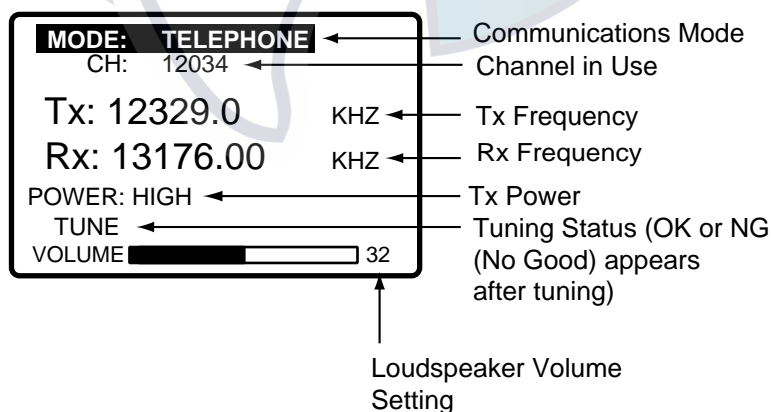
Note: "Tx" pops out when the radiotelphone is transmitting.

2.4 Panel Backlighting, LCD Contrast and Brightness

1. At the DSC standby screen or radiotelephone setting screen, press the [9/✹] key. The following display appears.

```
┌─────────────────────────────┐
│ DIMMER (1~8)                │
│ ▼ ▢▬▬▬▬▬▬▬▬▬▬▬▬ ▲ 8         │
│ CONTRAST (0~63)             │
│ ◀ ▢▬▬▬▬▬▬      ▶ 29         │
│                   EXIT:[ENT] │
└─────────────────────────────┘
```
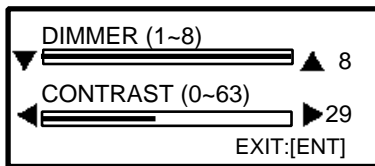
2. Use ▲ to increase the panel backlighting, LCD brightness; ▼ to lower it. Current backlighting setting is shown in both digital and analog indications below DIMMER.

3. Use ◀ to lower the LCD contrast; ▶ to raise it. Current contrast setting is shown in both digital and analog indications below CONTRAST.

4. Press the [ENT] key to finish and return to the screen previously in use.

2-4

2.5   Loudspeaker, Buzzer On/Off

1. Display the DSC standby screen or radiotelephone setting screen.

2. Press the [7/⬚] key to turn the loudspeaker and the alarm generated for ordinary messages (others than distress and urgency) on/off. The message SOUND: ON or SOUND: OFF appears with each pressing of the key. The indication OFF appears at the lower-right side of the DSC standby and radiotelephone setting screens when the loudspeaker is turned off.

```
MODE   : TELEPHONE
CH:12034
    TX  : 12 329.0        KHZ
    RX  : 13 176.00       KHZ
POWER   : HIGH
    TUNE
VOLUME ▓▓▓▓▓▓▓▓▓░░░  32
```
— Speaker ON

Press [7/⬚].

```
MODE   : TELEPHONE
CH:12034
    T│ SOUND : OFF │ KHZ
    R│             │ KHZ
POWER   : HIGH
    TUNE
VOLUME ▓▓▓▓▓▓▓▓▓░░░  32
```

About two seconds later

```
MODE   : TELEPHONE
CH:12034
    TX  : 12 329.0        KHZ
    RX  : 13 176.00       KHZ
POWER   : HIGH
    TUNE
VOLUME ▓▓▓▓▓▓▓▓▓░  OFF
```
— Speaker OFF

Press [7/⬚].

```
SOUND : ON
```

About two seconds later
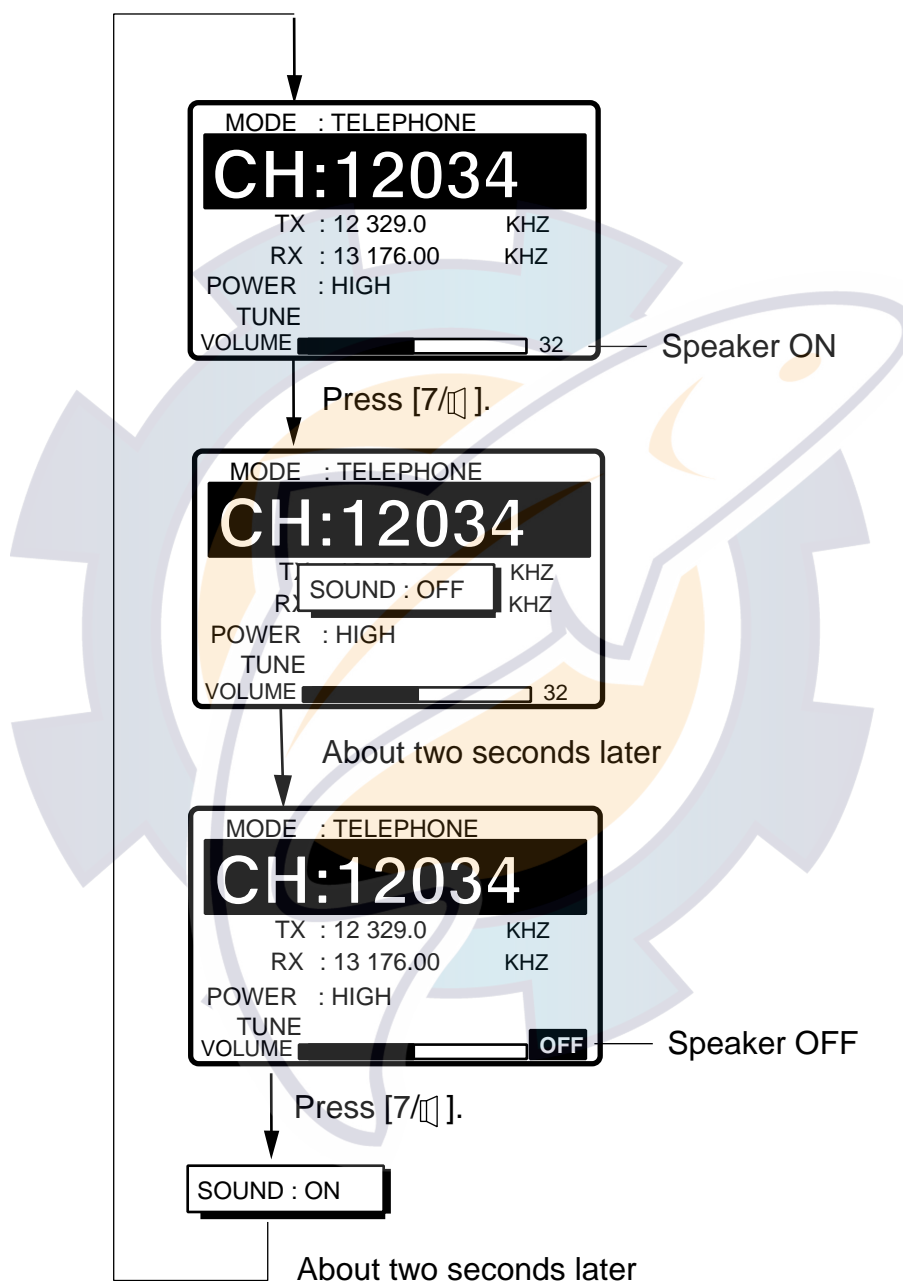
3. When the loudspeaker is on, press ◄ to lower the volume; ► to raise it. The setting range is 0 to 63. Current volume setting is shown by both bar graph and numeric at the bottom of the display.

Note: The volume setting is set to 5 and the loudspeaker is ON whenever the unit is powered on.

2.6   Starting, Stopping Scanning DSC Routine Frequencies

Press the [6/SCAN] key at the DSC standby screen to start or stop scanning DSC routine frequencies. The DSC routine frequencies to scan can be selected through the menu. Note that scanning of DSC distress frequencies cannot be stopped.

DSC routine frequency currently being scanned is highlighted. →

WATCH KEEPING		AUTO ACK
DISTRESS		
2187.5	4207.5	6312.0
6804.5	12577.0	8414.5
ROUTINE		
2177.0	4219.5	6331.0
16903.0	12657.0	8436.5

35˚00.000N 135˚00.000E 23:59
VOLUME ▨▨▨▨▨▨▨▨▨▨▨▨ 32

← DSC distress frequency currently being scanned is highlighted.

Note: DSC routine frequencies may not be received when optional receiver board (for receiving DSC routine frequencies) is installed and you receive a distress signal when you are close to the sender of the frequency.

2.7 Automatic Acknowledge On/Off

The automatic acknowledge feature, when turned on, automatically transmits the acknowledge back (ACK BQ) signal to the sender when an individual, position, or polling call is received. (For position and polling calls, respective item on the AUTO ACK menu must be turned on to enable automatic acknowledge.) It can be turned on or off at the DSC standby screen by pressing the [5/ACK] key. The message AUTO ACK or MANUAL ACK appears at the top-right corner of the DSC standby screen with each press of the key.
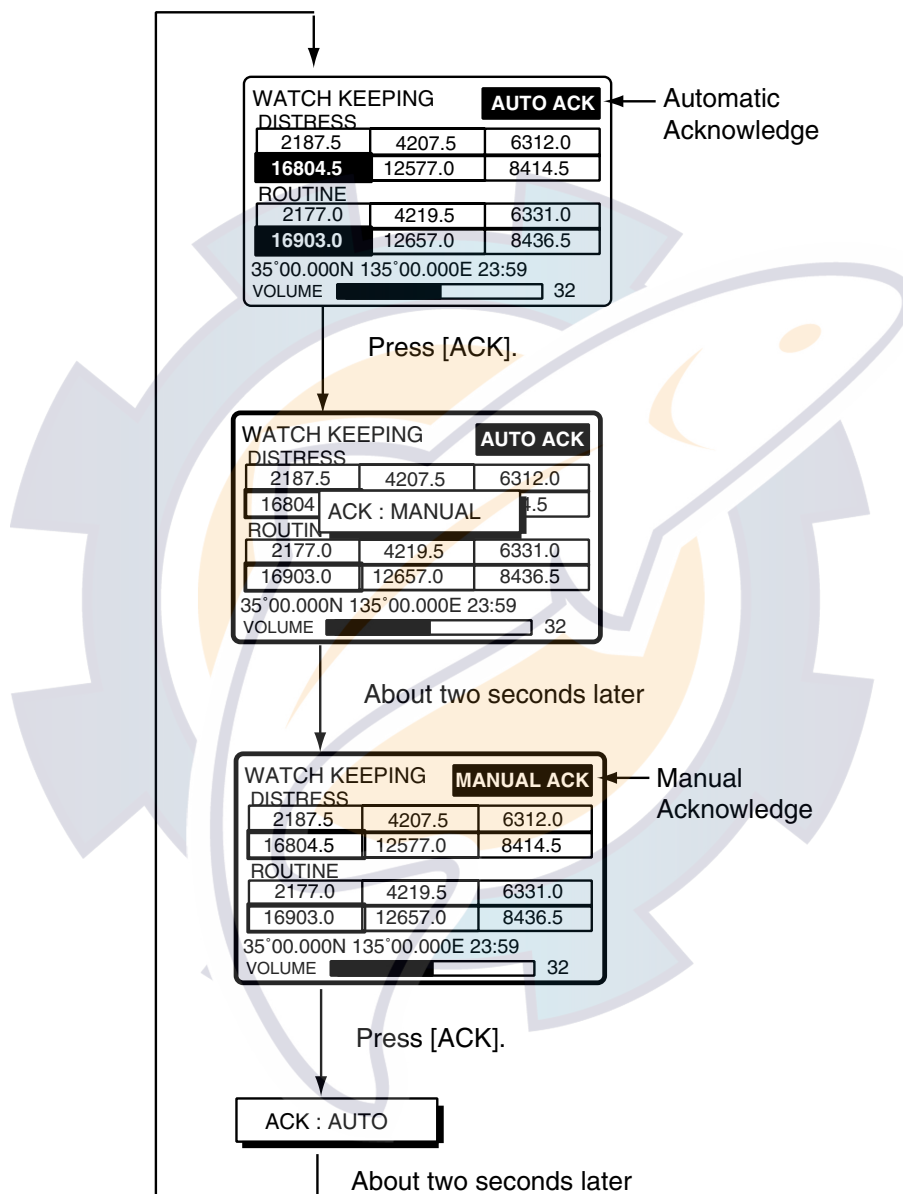
Note 1: To give communications priority to own ship's communications while own ship is communicating, select MANUAL ACK.

Note 2: Automatic acknowledge is not possible under the following conditions:
    Priority: Distress, Urgency or Safety
    Com Type: Morse, Fax, Data, No Info
    Com Freq: No Info
    Off Hook

2.8   Intercom On/Off

The built-in intercom permits voice communications between the DSC-60 and the SSB radiotelephone to which it is connected.

1. Display the radiotelephone setting screen.

2. Off hook the handset.

3. Press the [4/IntCom] key. You can begin communications with the SSB radiotelephone.

Press [4] key.

MODE: TELEPHONE		MODE: TELEPHONE
CH: 12034	→	CH: 12034
Tx: 12329.0 KHZ		Tx: 12329.0 KHZ
Rx: 13176.00 KHZ		Rx: 13176.00 KHZ
POWER: HIGH		POWER: INTERCOM
TUNE		TUNE
VOLUME ▮▮▮▮▯ 32		VOLUME ▮▮▮▮▯ 32

INTERCOM Off   INTERCOM On
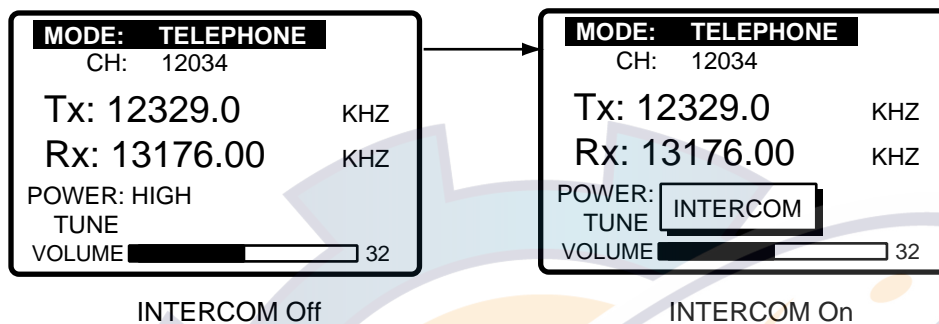
4. Hang up the handset when finished with communications to turn the intercom off. The indication INTERCOM disappears from the radiotelephone setting screen when the intercom is turned off.

Note: If you are called from other onboard SSB radiotelephone, a beep sounds. Off hook the handset and begin communications.

2.9   Selection of On-screen Items

Menu and calling operations are executed by selecting on-screen items. The example below shows how to select items and options from the Alarm menu.

1. Press the [#/SETUP] key to display the Setup menu.

```
****    Setup menu    ****

ALARM          SCAN  FREQ
AUTO  ACK      USER  CH
ERASE          VOLUME
MESSAGE
POSITION       TEST
PRINT OUT      SYSTEM
```
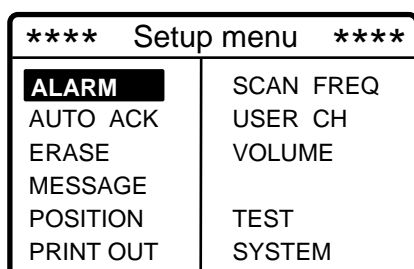
2. Use the Cursor Pad to select a menu and then press the [ENT] key. For example, select the ALARM menu.

```
****    Alarm setup   ***
 INTERNAL AUDIO ALARM
  RCVD CALL        : ON
  OLD POSITION     : ON
 POSITION OLDER    : 4.0 H

 EXT ALARM: DSTRS/URG
```
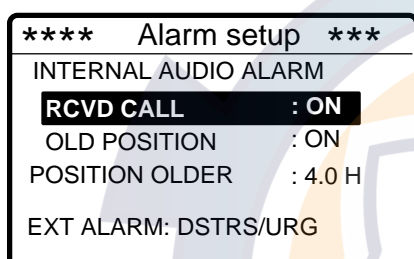
3. Use ▲ or ▼ to select menu item desired and press the [ENT] key. For example, select RCVD CALL. The following window appears, superimposed on the main window.

```
****    Alarm setup   ***
 INTERNAL AUDIO ALARM
  RCVD CALL        :  ON
  OLD POSITION     :  OFF
 POSITION OLDER    : 4.0 H

 EXT ALARM : DSTRS/URG
```
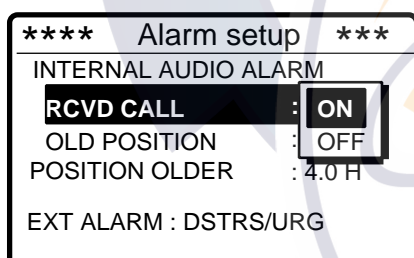
4. Use ▲ or ▼ to select option.

5. Press the [ENT] key to register your selection and the [CANCEL] key twice to return to the DSC standby screen.

2.10   Manual Entry of Position and Time

If there is no EPFS (Electronic Position-Fixing System) connected to the DSC-60 or the EPFS connected is inoperative, manually enter position and time as follows:

1.   At the DSC standby screen, press the [#/SETUP] key to display the Setup menu.

```
****   Setup menu   ****

ALARM          SCAN FREQ
AUTO ACK       USER CH
ERASE          VOLUME
MESSAGE
POSITION       TEST
PRINT OUT      SYSTEM
```

2.   Select POSITION and press the [ENT] key to display the Position menu.

```
**     Position setup     **

INPUT TYPE: AUTO
 LAT :  34° 41 NORTH
 LON : 135° 30 EAST
 TIME:  09: 00 UTC
```

3.   Press the [ENT] key to open the INPUT TYPE menu.

```
**     Position setup     **

INPUT TYPE: A   AUTO
 LAT :   34° 41  MANUAL
 LON : 135° 30
 TIME:  09: 00 UTC
```

Note 1: If, when AUTO is selected, input from the navigator is interrupted the message "EPFS error!" appears. If this occurs check the navigator.
Note 2: If, when MANUAL is selected, the message "Warning: Update position" appears at set intervals to ask you to update position. For further details see page 7-2.
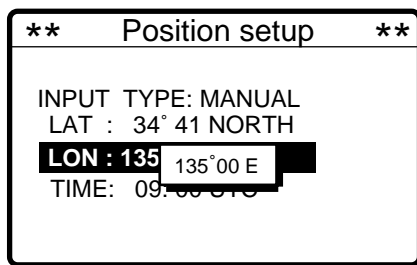
4.   Press ▾ to select MANUAL and press the [ENT] key.

5.   Press the [ENT] key to open the latitude entry window.

```
**     Position setup     **

INPUT TYPE: MANUAL
 LAT :  34      1
 LON : 135  34° 41 N
 TIME:  09: 00 UTC
```

Note: Use ▾ to switch from North to South and vice versa.
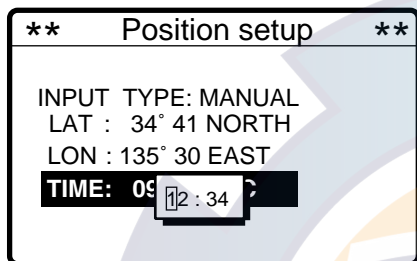
6. Enter latitude in four digits and press the [ENT] key.

7. Press the [ENT] key to open the longitude entry window.

```
**      Position setup      **

  INPUT  TYPE: MANUAL
   LAT :   34˚ 41 NORTH
  LON : 135  135˚00 E
   TIME:   09:00 UTC
```

Note: Use ⌄ to switch from East to West and vice versa.

2-11

8. Enter longitude in five digits and press the [ENT] key.

9. Press the [ENT] key to open the time entry window.

```
**      Position setup      **

  INPUT  TYPE: MANUAL
   LAT :   34˚ 41 NORTH
  LON : 135˚ 30 EAST
   TIME:  09  12 : 34  C
```

10. Enter UTC time and press the [ENT] key. The Setup menu appears.

2.11 Remote Control of FURUNO SSB Radiotelephone

A FURUNO SSB radiotelephone can be controlled from the radiotelephone setting screen, which may be displayed by pressing the [1/ RT/2182] key. You can enter desired frequency by designating channel as below or entering Tx and Rx frequencies as on the next page. The handset may be ON HOOK or OFF HOOK.

Note1: To set the SSB radiotelephone to 2182 kHz/J3E, press the [1/ RT/2182] key more than 2 sec.

Note2: In RT screen, "INCOMING" appears at lower left-hand side of the RT screen when the DSC message is received.

Mode selection

1. Press the [1/ RT/2182] key to display the radiotelephone setting screen.

2. Select the MODE field with the Cursor Pad and press the [ENT] key.

3. Select mode desired and press the [ENT] key.

   TELEPHONE: Telephone
   NBDP/DSC: NBDP Terminal, DSC Terminal
   FAX: Facsimile
   AM RADIO: AM radio
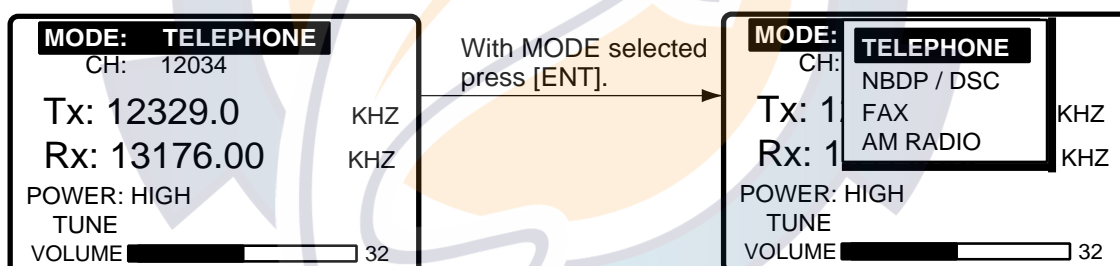
Channel selection

Channel cannot be selected when the MODE is FAX.

1. Select the CH field and press the [ENT] key.
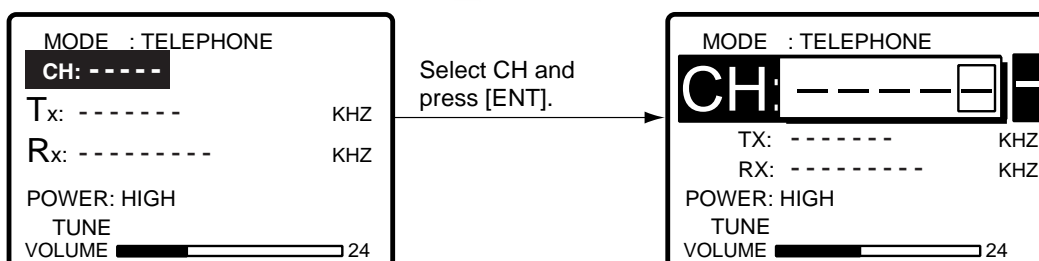
2. Channel can be entered directly with the numeric keys, or with the cursor pad.

   By numeric keys

   Use the numeric keys to enter band and channel and then press the [ENT] key.

By Cursor Pad

a) Press ◀ to shift the cursor to the band entry location.

b) Use ▲ or ▼ to set band. Band is displayed in the following sequence.

```
 ┌→ 2↔4↔6↔8↔12↔16↔18↔22↔25 ↔001↔002-----↔029←┐
 │                                             │
 └──────── ITU band ──────────  ──── User channel ────┘
```
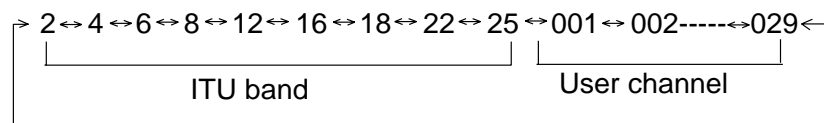
c) Press ▶ .

d) Use ▲ or ▼ to set channel.

e) Press the [ENT] key. The Tx and Rx frequencies of the channel entered appear.

Setting Range
ITU Band: 2/4/6/8/12/16/18/24/25
User Band: 01-029
ITU Channel: XX001 - XX193
User Channel: XXX01 - XXX99

Tx/Rx frequency selection

Select the Tx or Rx field and press the [ENT] key. Enter desired frequency with the numeric keys. Press the [ENT] key to finish.

Note: If you enter the Tx frequency, the same frequency is entered to the Rx frequency.

Select Tx (or Rx) and press [ENT].
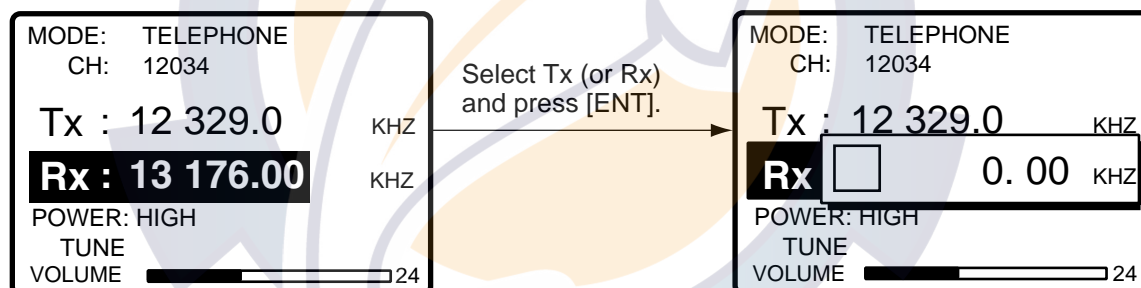
Power selection

Select the POWER field with the Cursor Pad and press the [ENT] key. Select power desired among HIGH, MID and LOW with the Cursor Pad and press the [ENT] key.

Select POWER and press [ENT].
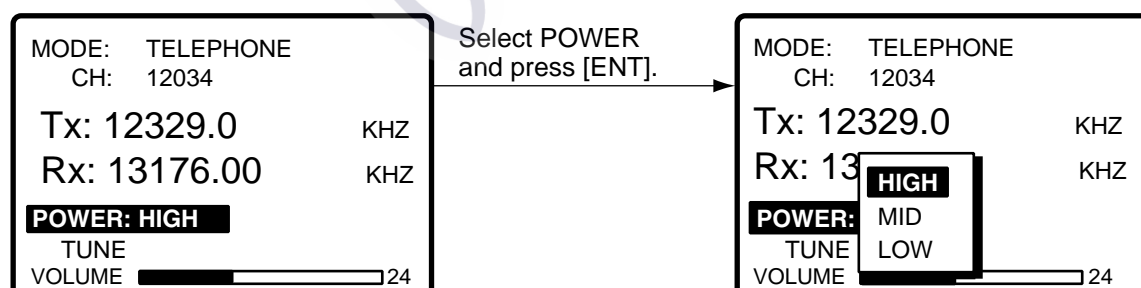
Note: Some FURUNO SSB radiotelephones do not provide the power selection HIGH, MID or LOW.

2-13

Tuning

Select the TUNE field with the Cursor Pad and press the [ENT] key. Tuning is automatically executed, showing TUNING while tuning. The results are shown as TUNE: OK or TUNE: NG (No Good).
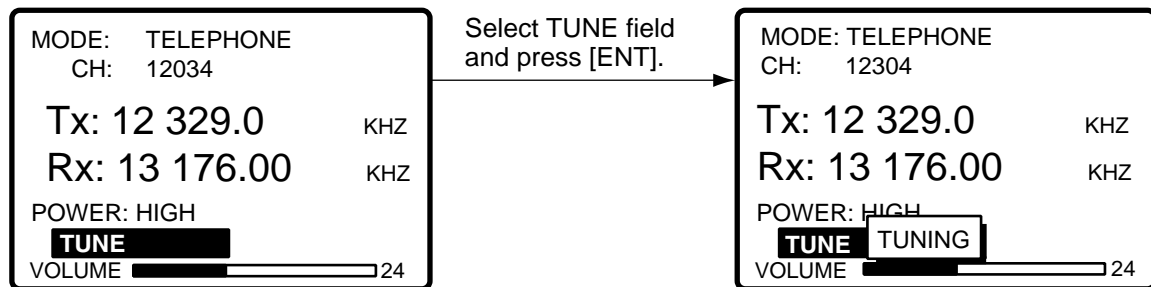
Note: When receiving distress and safety calls with the radiotelephone ON HOOK, specified distress and safety frequency is selected automatically. When receiving distress and safety call during with the radiotelephone OFF HOOK, only a corresponding message appears. To answer the call, press the [5/ACK] key. To return to the radiotelephone setting screen, press the [CANNEL] key.

3. DISTRESS OPERATIONS

3.1   Sending Distress Alert

3.1.1   Sending distress alert by DISTRESS button

GMDSS ships carry a DSC terminal with which to transmit the distress alert in the event of a life endangering situation onboard ship. A coast station receives the distress alert and sends the distress alert acknowledge message to the ship in distress. Then, voice or telex communications between the ship in distress and coast station begins, via the radiotelephone.

This equipment comes in two versions, International (default) and Russian, and the procedure for sending the distress alert is different for each version.

Russian version

1) Alarm is released continuously after transmitting distress alert.

2) The [CANCEL] key can be used during the transmission of distress alert. The transmission sequence is stopped at the end of the fifth transmission.

Transmission of the distress alert and receiving of distress alert acknowledgement are completely automatic - simply press the [DISTRESS] button to initiate the sequence.

1. Open the DISTRESS button cover and press and hold down the [DISTRESS] button more than three seconds. The button flashes in red and the buzzer sounds rapidly. The display shows the contents of the distress alert call: your ship's nature of distress and position, time, and DSC frequency used to transmit the alert.

    The number of seconds to continue pressing the [DISTRESS] button appear at the bottom of the display. The buzzer sounds continuously and the lamp in the button lights when the button has been pressed three seconds. You can release the button at that time.

Nature of Distress ⟶
Position, Time ⟶

DSC Distress ⟶
Frequency used
to transmit the
distress alert

```
┌────────────────────────────────┐
│  Distress button                │
│  pressed!                       │
├────────────────────────────────┤
│ NATURE: UNDESIGNATED            │
│ POS: 12˚34N 123˚45E AT 12:34    │
│ TELEPHONE          2182.0 KHZ   │
├────────────────────────────────┤
│ DSC FREQ    :      2187.5 KHZ   │
├────────────────────────────────┤
│    KEEP PRESSED FOR 3S          │
└────────────────────────────────┘
```

Displays number of seconds to continue
pressing the DISTRESS button to
transmit the distress alert.
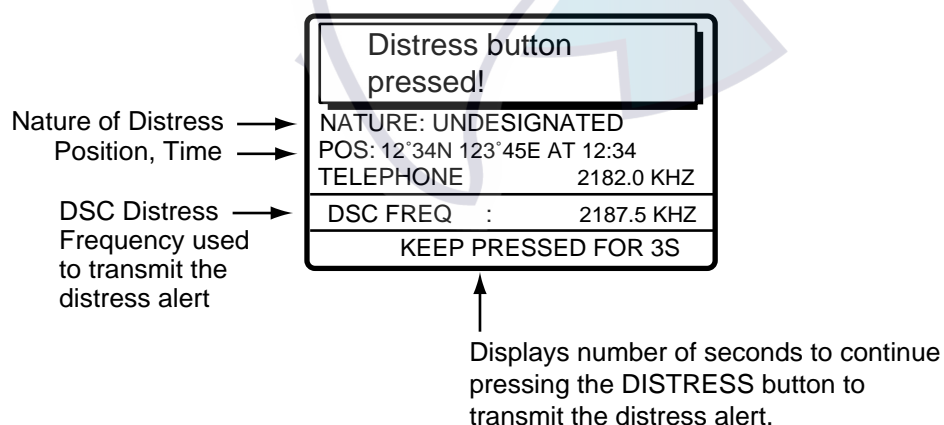
2. The display changes as below. It takes about 40 seconds to complete transmission of the distress alert, and the number of seconds until transmission is completed is shown at the bottom of the display.

   At this time the output power of the radiotelephone is automatically set to maximum.

```
┌──────────────────────────┐
│ ┌──────────────────────┐ │
│ │ Distress             │ │
│ │ call in progress!    │ │
│ └──────────────────────┘ │
│ NATURE: UNDESIGNATED     │
│ POS: 12°34N 123°45E AT 12:34│
│ TELEPHONE      2182.0 KHZ│
│ ─────────────────────────│
│ DSC FREQ   :   2187.5 KHZ│
│ TIME TO GO :        38S  │
└──────────────────────────┘
```

Time to go until distress
alert transmission is completed.

3. After the distress alert has been sent the display changes as below. This is where the equipment waits to receive the distress acknowledge message from a coast station, which usually takes about one minute to three minutes. (The [DISTRESS] button remains lit until the DSC-60 receives the distress acknowledge message from a coast station.) The timer counts down the number of minutes to wait, from 3.5 to 4.5 minutes, randomly set.

   At this time the DSC-60 cannot receive any messages except the distress alert acknowledge message. Distress message is recorded in the Tx log.

```
┌──────────────────────────┐
│ ┌──────────────────────┐ │
│ │ Wait for distress    │ │
│ │ acknowledgement.     │ │
│ └──────────────────────┘ │
│ NATURE: UNDESIGNATED     │
│ POS: 12°34N 123°45E AT 12:34│
│ TELEPHONE      2182.0 KHZ│
│ ─────────────────────────│
│ DSC FREQ   :   2187.5 KHZ│
│ TIME TO GO:      3M10S   │
└──────────────────────────┘
```

4. When the distress acknowledge call is received the audio alarm sounds and the display changes as below.

```
┌──────────────────────────┐
│ ┌──────────────────────┐ │
│ │ Distress acknowledge │ │
│ │ call received.       │ │
│ └──────────────────────┘ │
│ FROM COAST: 001234567    │
│ SHIP IN DIST: 123456789  │
│ NATURE: UNDESIGNATED     │
│ POS: 12°34N 123°45E AT 12:34│
│ TELEPHONE      2182.0 KHZ│
│            ███STOP ALARM███│
└──────────────────────────┘
```

Note: If you do not receive the distress alert acknowledge call, the DSC-60 re-transmits the distress alert and then awaits the distress alert acknowledge call. This is repeated until the distress alert is acknowledged.

5. Silence the alarm with the [CANCEL] or [ENT] key. The receive message appears as in the figure below.

```
*  Received message  *
JUL-23-1999-23:59        ECC: OK
DISTRESS ACKNOWLEDGE
FROM COAST: 001234567
SHIP IN DIST: 123456789
NATURE: UNDESIGNATED
POS: 12˚34N 123˚45E AT 12:34
TELEPHONE           2182.0 KHZ

          GO TO ALL VIEW
```

6. Communicate with the coast station via radiotelephone, which is automatically set to working frequency and class of emission (telephone) specified in the distress acknowledge message.

   a) Say MAYDAY three times.

   b) Say "This is … " name of your vessel and call sign three times.

   c) Give nature of distress and assistance needed.

   d) Give description of your vessel (type, color, number of persons onboard, etc.).

3.1.2 Sending distress alert with nature of distress specified

If you have the time to designate the nature of distress, send the distress alert as follows:

1. Open the DISTRESS button cover and press the [DISTRESS] button with a touch-and-release action. The following display appears.

```
*** Send message ***          Use ▼ to scroll
                              menu.
CALL T  UNDESIGNATED
        FIRE                     ▲
NATU    FLOODING                SINKING
POS.    COLLISION               DISABLE
        GROUNDING               ABANDONING
COM.T   LISTING                 PIRACY
DSC F   ▼                       MAN OVERBOARD
```

2. Use ▲ or ▼ to select nature of distress and press the [ENT] key.

3. Press the [ENT] key to open the POS. menu. This is where you enter your position, automatically or manually. If the positioning device is connected, INPUT TYPE is AUTO and the position is correct, press the [ENT] key twice and go to step 12. Note that "INPUT TYPE: MANUAL" appears when position is input manually.

```
**      Position setup      **

INPUT  TYPE: AUTO
  LAT  :  34˚ 41 NORTH
  LON : 135˚ 30 EAST
  TIME:   09: 00 UTC
```

Note: If the message "NO POSITION DATA" appears when you change INPUT TYPE from MANUAL to AUTO, confirm the navigation device and select AUTO again.

3-3

4. Press the [ENT] key to open the INPUT TYPE menu.

```
**      Position setup      **

INPUT  TYPE: ┌─────────┐
  LAT  :  34˚ 41│ AUTO    │
  LON : 135˚ 30 │ MANUAL  │
  TIME:   09: 00│ NO INFO │
              └─────────┘
```

5. Press ▾ to select MANUAL and press the [ENT] key. If you cannot confirm your position, select NO INFO, press the [ENT] key and then go to step 10.

6. Press the [ENT] key to open the latitude entry window.

```
**      Position setup      **

INPUT  TYPE: MANUAL
  LAT :  34 ┌─────────┐H
  LON : 135 │ 34 ˚ 41 N│
  TIME:   09: 00 UTC
           └─────────┘
```

Note: Use ▾ to switch from North to South and vice versa.

7. Key in latitude in four digits and press the [ENT] key.

8. Press the [ENT] key to open the longitude entry window.

```
**      Position setup      **

INPUT  TYPE: MANUAL
  LAT :  34˚ 41 NORTH
  LON : 135 ┌──────────┐
  TIME:   09:│ 135˚00 E │
            └──────────┘
```

Note: Use ▾ to switch from East to West and vice versa.

9. Key in longitude in five digits and press the [ENT] key.

10. Press the [ENT] key to open the time entry window.

```
**      Position setup      **

INPUT  TYPE: MANUAL
  LAT :  34˚ 41 NORTH
  LON : 135˚ 30 EAST
  TIME:  09┌─────────┐
           │ 12 : 34 │
           └─────────┘
```

11. Key in UTC time and press the [ENT] key.

Note: If you cannot confirm time, enter 88:88 to input NO INFO as the time in the distress alert.

12. The SEND MESSAGE screen is redisplayed. Press the [ENT] key to open the COM. TYPE menu.

```
*** Send message ***
CALL TYPE:    DISTRESS
NATURE: FLOODING
POS: 35°N 13    TELEPHONE
COM. TYPE: T    NBDP-FEC
DSC FREQ :  2187.5 KHZ
                    GO TO ALL VIEW
```

13. Select TELEPHONE and press the [ENT] key. (Telephone is the usual mode, however NBDP may also be used.)

14. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send        AUTO      ***
CALL TYPE:      2187.5
NATURE: FLO     4207.5
POS: 35°N 135   6312.0
COM. TYPE: T    8414.5
               12577.0
DSC FREQ :     16804.5   HZ
                GO TO ALL VIEW
```

15. Select a DSC frequency (normally 2187.5 kHz) and press the [ENT] key. (AUTO retransmits the distress alert on 2 MHz, 8 MHz, 16 MHz, 4 MHz, 12 MHz and 6 MHz in sequence if the distress alert is not acknowledged. The frequency and mode of emission should be set manually on the radiotelephone when there is "No response: RT"

DSC	SSB radiotelephone	NBDP-FEC
2187.5 kHz	2182.0 kHz	2174.5 kHz
4207.5 kHz	4125.0 kHz	4177.5 kHz
6312.0 kHz	6215.0 kHz	6268.0 kHz
8414.5 kHz	8291.0 kHz	8376.5 kHz
12577.0 kHz	12290.0 kHz	12520.0 kHz
16804.5 kHz	16420.0 kHz	16695.0 kHz

16. The display changes as below.

```
*** Send message ***
CALL TYPE:    DISTRESS
NATURE: FLOODING
POS: 35°N 135°00E AT 23:25
COM. TYPE    :    TELEPHONE
DSC FREQ     :    2187.5 KHZ
              GO TO ALL VIEW
```

3-5

17. Press the [DISTRESS] button more than three seconds to send the distress alert.

```
┌─────────────────────────────┐
│  Distress                   │
│    call in progress!        │
├─────────────────────────────┤
│ NATURE: FLOODING            │
│ POS: 12˚34N 123˚45E AT 12:34│
│ TELEPHONE        2182.0 KHZ │
├─────────────────────────────┤
│ DSC FREQ    :    2187.5 KHZ │
├─────────────────────────────┤
│ TIME TO GO :        38S     │
└─────────────────────────────┘
```

18. Follow steps 3-6 on page 3-2 and 3-3.

3-6

3.2   Receiving a Distress Alert

When you receive a distress call from a ship in distress the audio alarm sounds and the message "Distress call received." appears on the display. Press the [CANCEL] key to silence the audio alarm. Wait for the distress acknowledge from a coast station. If you do not receive the distress acknowledge from a coast station, which usually takes about five minutes from reception of a distress alert, follow the appropriate flow chart in this section.

Note: An asterisk (*) appearing in a distress alert messages indicates error at asterisk location.

Russian Version

If another distress alert or urgent message is received just after pressing the [CALL] key (for distress alert relay and distress acknowledgement), the most recently received message has priority.

3.2.1   Distress alert received on MF band

Do the following:

- Continue watching on 2182 kHz. Wait for coast station to acknowledge the distress call. Distress communications continues until "SEELONCE FINI" is announced.

- If further DSC alerts are received from the same source and the ship in distress is beyond doubt in vicinity, a DSC acknowledgement may, after consultation with an RCC or Coast Station, be sent to terminate the call.

- In no case is a ship permitted to transmit a DSC distress relay call on receipt of a DSC distress alert on either VHF channel 70 or MF channel 2187.5 kHz.

Action for ship receiving MF distress alert

```
        ┌─────────────────────────┐
        │ DSC Distress alert received. │
        └─────────────────────────┘
                     │
                     ▼
        ┌─────────────────────────┐
        │ Press [CANCEL] key to    │
        │ silence alarm.           │
        └─────────────────────────┘
                     │
                     ▼
        ┌─────────────────────────┐
        │ Listen on VHF CH16/      │
        │ 2182 kHz for 5 minutes.  │
        └─────────────────────────┘
                     │
                     ▼
```

Did you receive acknowledge from CS and/or RCC? — No → Is distress traffic in progress? — No → Is the DSC distress call continuing? — No

Is distress traffic in progress? — Yes → Is own vessel able to assist?

Is the DSC distress call continuing? — Yes → Acknowledge the alert by radiotelphony to the ship in distress on VHF CH16/ 2182 kHz.

Did you receive acknowledge from CS and/or RCC? — Yes → Is own vessel able to assist?

Is own vessel able to assist? — Yes → Acknowledge the alert by radiotelphony to the ship in distress on VHF CH16/ 2182 kHz.

Is own vessel able to assist? — No → Enter details in log.

CS = Coast Station
RCC = Rescue Co-ordination Center

Enter details in log. ← Inform CS and/or RCC.

Acknowledge the alert ... → Inform CS and/or RCC.

Sending the distress acknowledge to ship in distress on MF band

Transmit the distress acknowledge signal to the ship in distress only when you do not receive it from a coast station and you are able to aid the ship in distress. First, transmit the distress acknowledge to the ship in distress by telephone. This will stop transmission of the distress alert.

1. The audio alarm sounds and the display shows the message "Distress call received." When your ship receives a distress call.

```
┌────────────────────────────────┐
│        Distress                 │
│        call received.           │
├────────────────────────────────┤
│ SHIP IN DIST:      123456789    │
│ NATURE: UNDESIGNATED            │
│ POS:  12˚34N 123˚45E AT 12:34   │
│ TELEPHONE           2182.0 KHZ  │
│        ████ STOP ALARM ████     │
└────────────────────────────────┘
```

3-8

2. Press the [CANCEL] key to silence the audio alarm, and the display changes as below.

```
   * Received message *
JUL-23-1999-23:59        ECC: OK
DISTRESS CALL
 SHIP IN DIST:      123456789
 NATURE: UNDESIGNATED
 POS:   12°34N 123°45E AT 12:34
 TELEPHONE          8414.5 KHZ

ANSWER ◄        ►  ALL VIEW
```

3. **If you do not receive the distress acknowledge from a coast station and you have received the distress alert more than twice,** press ◄ to choose ANSWER and press the [ENT] key to send the distress acknowledge signal to the ship in distress.

4. Press the [ENT] key to open the CALL TYPE menu.

```
  *** Send message ***
CALL TYPE: INDIVIDUAL
 DIS  RELAY ALL
 COAS RELAY COAST
 SHIP ACKNOWLEDGE

DSC FREQ   :     2187.5 KHZ
       GO TO ALL VIEW
```

The option ACKNOWLEDGE does not appear in the following cases:
a) Distress alert received on HF band.
b) If, on MF band, more than 2 min. 45 sec. elapses after the distress alert is received.

5. Select ACKNOWLEDGE and press the [ENT] key. The following display appears.

```
  *** Send message ***
 CALL TYPE    : ALL SHIPS
   DISTRESS ACKNOWLEDGE
 SHIP IN DIST :    123456789

 DSC FREQ    :    2187.5 KHZ
       GO TO ALL VIEW
```

6. Press the [CALL] key to send the distress acknowledge call to the ship in distress. Note that the distress acknowledge is immediately sent when the time elapsed between reception and transmission of it is more than one minute. If the [CALL] key is pressed before one minute has elapsed a timer appears and counts down the time remaining before the call is sent.

```
Distress acknowledge
call in progress!

 SHIP IN DIST :    123456789

 DSC FREQ   :   2187.5 KHZ
       GO TO ALL VIEW
```

3-9

3.2.2   Distress alert received on HF band

If you receive a distress signal on HF band, the ALARM lamp lights and the audio alarm sounds. Press the [CANCEL] key to silence the audio alarm. Wait for the distress acknowledge from a coast station. If you do not receive it within five minutes do one of the following:

- Watch on the distress frequency.
- Relay the distress alert in the following cases.
  - You do not receive distress acknowledge call from coast station within five minutes after receiving distress call.
  - You have not received distress relay from other ship.
  - You cannot receive distress communications from other ship over radiotelephone.
  - If it is clear the ship or persons in distress are not in the vicinity and/or other crafts are better placed to assist, superfluous communications which could interfere with search and rescue activities should be avoided. Details should be recorded in the appropriate log book.
  - The ship should establish communications with the station controlling the distress as directed and render such assistance as required and appropriate.

Action for ships receiving HF distress alert

HF DSC RTF AND NBDP CHANNELS (kHz)		
DSC	RTF	NBDP
4207.5	4125	4177.5
6312.0	6215	6268
8414.5	8291	8376.5
12577.0	12290	12520
16804.5	16420	16695

CS = Coast Station
RCC = Rescue Co-ordination Center
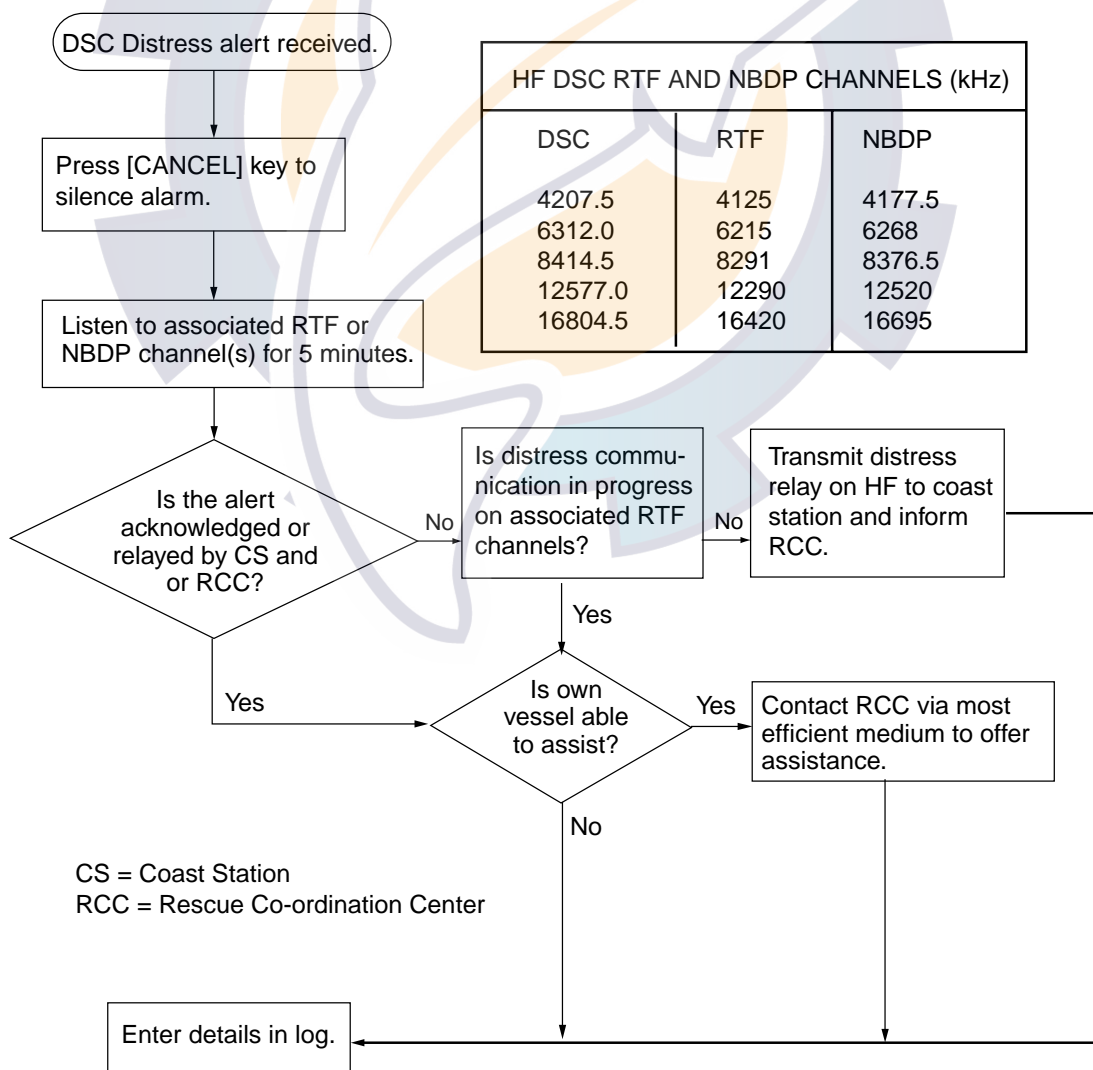
Sending the distress relay to coast station on HF band

1. The audio alarm sounds and the display changes as below when a distress call is received.

```
┌─────────────────────────────┐
│    Distress                 │
│    call received.           │
├─────────────────────────────┤
│ SHIP IN DIST:     123456789 │
│ NATURE: UNDESIGNATED        │
│ POS:  12˚34N 123˚45E AT 12:34│
│ TELEPHONE         8291.0 KHZ │
│            ███STOP ALARM███  │
└─────────────────────────────┘
```

2. Press the [CANCEL] key to silence the audio alarm, and the display changes as below.

```
┌─────────────────────────────┐
│   * Received message *      │
│ JUL-23-1999-23:59     ECC: OK│
│ DISTRESS CALL               │
│ SHIP IN DIST:     123456789 │
│ NATURE: UNDESIGNATED        │
│ POS:   12˚34N 123˚45E AT 12:34│
│ TELEPHONE         8291.0 KHZ │
│ ANSWER ◀     ▶   ███ALL VIEW███│
└─────────────────────────────┘
```

3. Press ◀ to choose ANSWER and press the [ENT] key.

4. Press the [ENT] key to open the CALL TYPE menu.

```
┌─────────────────────────────┐
│   *** Send message ***      │
│ CALL TYPE* INDIVIDUAL       │
│   DIS │███RELAY ALL███│      │
│   SHIP│  RELAY COAST  │      │
│       │               │      │
│ DSC FREQ  :      2187.5 KHZ  │
│         GO TO ALL VIEW       │
└─────────────────────────────┘
```

5. Select RELAY COAST (if you know the ID of the nearest coast station) and press the [ENT] key.

```
┌─────────────────────────────┐
│   *** Send message ***      │
│ CALL TYPE    : INDIVIDUAL   │
│       DISTRESS RELAY        │
│ █COAST ID│ 000000000 │      │
│ SHIP IN DIST:               │
│ DSC FREQ   :     2187.5 KHZ │
│         GO TO ALL VIEW       │
└─────────────────────────────┘
```

6. Key in ID of coast station where to send the distress relay and press the [ENT] key.

3-11

7. Press the [ENT] key to open the DSC FREQ. menu.

```
*** Send message ***
CALL TYPE    2187.5
        DISTR 4207.5
COAST ID:    6312.0
             8414.5
SHIP IN DIST 12577.0
DSC FREQ     16804.5   KHZ
             MANUAL     VIEW
```

MANUAL: For manual selection of frequency at the radiotelephone when there is "remote control error."

8. Select appropriate frequency and press the [ENT] key. You should first select 8414.5 kHz.

9. Press the [CALL] key to relay the distress call.

   Note: If a coast station acknowledges the distress alert call before the timer counts to zero, press the [CANCEL] key to cancel your call. Further, If the call key is pressed before five minutes has elapsed the time to wait until the distress relay is sent is shown at the bottom of the display.

10. While the distress relay sel (to coast station) call is being sent the display shows the following.

```
Distress relay sel
call in progress!

SHIP IN DIST: 123456789

DSC FREQ   :        2 187.5 KHZ
TIME TO GO :           25S
```

11. After the call is transmitted the message "Wait for distress relay acknowledge!" appears. When you receive distress acknowledgement from the coast station communicate with the coast station by telephone, over the DSC frequency specified. If you do not receive the distress acknowledgement from a coast station after the timer counts down to zero, repeat the transmission on a different frequency.

3-12

3.3 Sending Distress Relay on Behalf of a Ship in Distress

3.3.1 Sending distress relay to coast station

You may send the distress relay to a coast station on behalf of a ship in distress in the following cases:

• You are near the ship in distress and the ship in distress cannot transmit the distress alert.
• Another vessel requests you to transmit the distress relay.

In these cases never use the [DISTRESS] button to transmit the distress relay.

Russian Version

If another distress alert or urgent message is received just after pressing the [CALL] key (for distress alert relay and distress acknowledgement), the most recently received message has priority.

1. Press the [CALL] key and press the [ENT] key.

```
*** Send   INDIVIDUAL    **
                PSTN CALL
CALL TYPE       TEST CALL
STATION ID      ALL SHIPS
PRIORITY        GROUP CALL
COM. TYPE       AREA CALL
COM. FREQ       POSITION
DSC FREQ        ▼
```

If this part of the menu appears, use ▲ to scroll the menu.

```
▲
POLLING
NEUTRAL
MEDICAL

RELAY ALL
RELAY SEL
DISTRESS
```

2. Select RELAY SEL and press the [ENT] key. Press the [ENT] key to open the COAST ID entry window.

```
*** Send message ***
CALL TYPE: RELAY SEL

COAST ID
ID IN DIST   00┤------
NATURE: UN
POS: 34˚45N 13
COM. TYPE     :   TELEPHONE
DSC FREQ.     :   8414.5 KHZ
        GO TO ALL VIEW
```

3. Key in COAST ID and ID and press the [ENT] key.
4. Press the [ENT] key to open the ID IN DIST window.

```
***Send message ***
CALL TYPE     : RELAY SEL
COAST ID:
ID IN DIST    ┤---------
NATURE  : UNDESIGNATED
POS.:         : --˚--N ---˚--E
COM.TYPE  :    TELEPHONE
DSC FREQ  :    8414.5 KHZ
        GO TO ALL VIEW
```

5. Key in ID of ship in distress and press the [ENT] key. If you do not know the ID leave the window blank.

3-13

6. Press the [ENT] key to open the NATURE menu.

```
*** Send message ***
CALL       UNDESIGNATED
COAST      FIRE
ID IN D    FLOODING
           COLLISION
NATUI      GROUNDING
POS:       LISTING
COM.T      ▼
DSC F
```

Use ▼ to scroll
menu.

```
▲
SINKING
DISABLE
ABANDONING
PIRACY
MAN OVERBOARD
EPIRB EMISSION
```

7. Select nature of distress and press the [ENT] key. (If you do not know the nature of distress, select UNDESIGNATED.) Press the [ENT] key to open the POS. menu.

```
*** Send message ***
C        ALL SHIPS
C        INPUT TYPE: AUTO
ID       LAT :  34°45  NORTH
N/       LON : 135°22  EAST
P        TIME:  10:00   UTC
C
DSC FREQ       :   2187.5 KHZ
           GO TO ALL VIEW
```

8. Enter position following 1), 2) or 3) below.

   1) For automatic input, press the [ENT] key twice.

   2) For manual input, press the [ENT] key to open the INPUT TYPE menu, select MANUAL and press the [ENT] key. Enter latitude, longitude of ship in distress and time as follows:

   a) Press ▼ to select LAT and press the [ENT] key. Enter latitude and press the [ENT] key.
   b) Press ▼ to select LONG and press the [ENT] key. Enter longitude and press the [ENT] key.
   c) Press ▼ to select TIME and press the [ENT] key. Enter UTC time and press the [ENT] key.
   Note: If you cannot confirm time, enter 88:88 to input NO INFO as the time.

   3) If you cannot confirm ship in distress position, press the [ENT] key to open the INPUT TYPE menu, select NO INFO and press the [ENT] key.

9. Press the [ENT] key to open the COM. TYPE menu.

```
***   Send message   ***
CALL TYPE  : RELAY SEL
COAST ID: 001234567
ID IN DIST : 123456789
NATURE   : UNDESIGNATED
POS: 35° 00N  135° 00E  AT 14:00
COM. TYPE    TELEPHONE
DSC FREQ     NBDP-FEC
           GO TO ALL VIEW
```

10. Select TELEPHONE and press the [ENT] key. (NBDP may also be used.) Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
CALL TYPE      2187.5
COAST ID:      4207.5
ID IN DIST:    6312.0
 NATURE:       8414.5
POS:           12577.0
COM. TYPE:     16804.5
 DSC FREQ   :  MANUAL    HZ
            GO TO ALL VIEW
```

MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

DSC	SSB radiotelephone	NBDP-FEC
2187.5 kHz	2182.0 kHz	2174.5 kHz
4207.5 kHz	4125.0 kHz	4177.5 kHz
6312.0 kHz	6215.0 kHz	6268.0 kHz
8414.5 kHz	8291.0 kHz	8376.5 kHz
12577.0 kHz	12290.0 kHz	12520.0 kHz
16804.5 kHz	16420.0 kHz	16695.0 kHz

11. Select appropriate DSC frequency and press the [ENT] key. The display now looks something like the one below.

```
*** Send message ***
CALL TYPE :     RELAY SEL
COAST ID   :    001234567
ID IN DIST : NO INFO
NATURE        : SINKING
POS           : 12°34N 123°45
COM. TYPE     : TELEPHONE
DSC FREQ   :    2187.5 KHZ
            GO TO ALL VIEW
```

12. Press the [CALL] key to send the call.

```
Distress relay sel
call in progress!
TO COAST   :    001234567
SHIP IN DIST : NO INFO
POS :   12°34N 123°45 AT 12:34
TELEPHONE     2182.0 KHZ
DSC FREQ   :   2187.5 KHZ
TIME TO GO   :    8S
```

13. The equipment then waits for acknowledgement of the distress relay, showing the following message. If the distress relay is not acknowledged within five minutes the message "No response. Try relay again." appears. If this occurs send the relay again.

```
Wait for distress
relay acknowledge.
FROM COAST: 001234567
SHIP IN DIST: NO INFO
POS: 12°34N 123°45 AT 12:34
TELEPHONE: 2182.0 KHZ
DSC FREQ       : 2187.5 KHZ
TIME TO GO :   4M59S
```

14. The audio alarm sounds and the display looks something like the one below when the distress relay acknowledge call is received.

```
Distress relay ack
 call received.
---------------------------------
FROM COAST  :     001234567
SHIP IN DIST : NO INFO
NATURE       : SINKING
POS :  12°34N 123°45 AT 12:34
TELEPHONE       2187.5 KHZ
                    STOP ALARM
```

15. Press the [CANCEL] key to silence the alarm. The following display appears.

```
    * Received message *
JUL-23-1999-23:59        ECC:OK
DISTRESS RELAY ACK
FROM COAST  :     001234567
SHIP IN DIST : NO INFO
NATURE       : SINKING
POS :  12°34N 123°45 AT 12:34
TELEPHONE       2187.5 KHZ
          GO TO ALL VIEW
```

3.3.2   Sending distress relay to all ships

This procedure sends the distress relay to all ships

1.   Press the [CALL] key .

```
*** Send   INDIVIDUAL    **
           PSTN CALL
CALL TYPE  TEST CALL
STATION ID ALL SHIPS
PRIORITY   GROUP CALL
COM. TYPE  AREA CALL
COM. FREQ  POSITION
DSC FREQ     ▼
```

If this part of the menu appears, use ▲ to scroll the menu.

```
    ▲
POLLING
NEUTRAL
MEDICAL

RELAY ALL
RELAY SEL
DISTRESS
```

2.   Select RELAY ALL and press the [ENT] key.

3.   Press the [ENT] key to open the ID IN DIST menu.

```
    *** Send message ***
CALL TYPE: RELAY ALL
 ID IN DIST
            [?- - - - - - - -
NATURE: UN
POS: 34°45N 13
COM. TYPE    :    TELEPHONE
DSC FREQ.    :    2187.5 KHZ
          GO TO ALL VIEW
```

4.   Key in ID of ship in distress (if known) and press the [ENT] key. (If you do not know the ID enter leave the ID menu as it is.

5.   Press the [ENT] key to open the NATURE menu.

3-16

```
*** Send message ***
CALL ┌─────────────────┐
     │ UNDESIGNATED    │
ID IN│ FIRE            │
     │ FLOODING        │
NATU │ COLLISION       │
POS: │ GROUNDING       │
COM. │ LISTING         │
DSC  │  ▼              │
     └─────────────────┘
```

Use ▼ to scroll menu.

```
┌──────────────────┐
│ ▲                │
│ SINKING          │
│ DISABLE          │
│ ABANDONING       │
│ PIRACY           │
│ MAN OVERBOARD    │
│ EPIRB EMISSION   │
└──────────────────┘
```

6. Select nature of distress (if known) and press the [ENT] key. (If you do no the nature of distress, select UNDESIGNATED.)

7. Press the [ENT] key to open the POS. menu, where you enter the position of the ship in distress and time, manually or automatically.

```
*** Send message ***
C┌──────────────────────┐
 │ INPUT TYPE: AUTO     │
I│ LAT :  34°45 NORTH   │
 │ LON : 135°22 EAST    │
N│ TIME: 10:00  UTC     │
PO└──────────────────────┘
C
DSC FREQ        :  2187.5 KHZ
          GO TO ALL VIEW
```

8. Enter position following 1), 2) or 3) below.

   1) For automatic input, press the [ENT] key twice.

   2) For manual input, press the [ENT] key to open the INPUT TYPE menu, select MANUAL and press the [ENT] key. Enter latitude, longitude of ship in distress and time as follows:

   a) Press ▼ to select LAT and press the [ENT] key. Enter latitude and press the [ENT] key.

   b) Press ▼ to select LONG and press the [ENT] key. Enter longitude and press the [ENT] key.

   c) Press ▼ to select TIME and press the [ENT] key. Enter UTC time and press the [ENT] key.

   Note: If you cannot confirm time, enter 88:88 to input NO INFO as the time.

   3) If you cannot confirm ship in distress position, press the [ENT] key to open the INPUT TYPE menu, select NO INFO and press the [ENT] key.

9. Press the [ENT] key to open the COM. TYPE menu.

```
*** Send message ***
CALL TYPE:  RELAY ALL
ID IN DIST: 123456789
NATURE :  ┌──────────────┐
          │ TELEPHONE    │
POS: 34°45N│ NBDP-FEC    │
COM. TYPE └──────────────┘
DSC FREQ    :    2187.5 KHZ
        GO TO ALL VIEW
```

10. Select TELEPHONE and press the [ENT] key.

11. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
CALL TYPE      ┌─────────┐
ID IN DIST:    │ 2187.5  │
NATURE:        │ 4207.5  │
               │ 6312.0  │
POS: 34˚45N  : │ 8414.5  │
COM. TYPE    : │ 12577.0 │
               │ 16804.5 │
DSC FREQ     : │ MANUAL  │ HZ
               └─────────┘
        GO TO ALL VIEW
```

MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

12. Select appropriate frequency and press the [ENT] key. The display now looks something like the one below.

```
*** Send message ***
─────────────────────────────
CALL TYPE:   RELAY ALL
ID IN DIST:   123456789
NATURE:  UNDESIGNATED
POS: 34˚50N 135˚45E AT 09:30
COM TYPE    :      TELEPHONE
DSC FREQ    :      2187.5 KHZ
─────────────────────────────
        GO TO ALL VIEW
```

13. Press the [CALL] key to send the distress relay call (transmission time: about 40 sec.). The display shows the message "Distress relay all call in progress!".

    Note: If a coast station acknowledges the distress alert call before the timer counts to zero, press the [CANCEL] key to cancel your call.

```
┌─────────────────────┐
│ Distress relay all   │
│ call in progress!    │
└─────────────────────┘
 SHIP IN DIST: 123456789
 POS: 34˚50N 135˚45E AT 09:30

 TELEPHONE          2182.0 KHZ
 DSC FREQ  :        2187.5 KHZ
 TIME TO GO:            29S
```

14. After the call is sent the DSC standby screen automatically appears.

3.4   Receiving Distress Relay All Ships from Ship

When you receive a distress relay continue monitoring distress and safety frequencies over the SSB radiotelephone.

1. The audio alarm sounds and the display looks like the one below when a distress relay all ships call is received.

```
 Distress relay all
 call received.
FROM SHIP:        234567890
SHIP IN DIST:      123456789
NATURE: UNDESIGNATED
POS: 12 34N 123 45E AT 12:34
TELEPHONE              NO INFO
                STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm, and the display changes as below.

```
    * Received message *
JUL-23-1999-23:59          ECC: OK
DISTRESS RELAY ALL
FROM SHIP:        234567890
SHIP IN DIST:       123456789
NATURE: UNDESIGNATED
POS: 12 34N 123 45E AT 12:34
TELEPHONE              NO INFO
               GO TO ALL VIEW
```

3. Watch distress/safety frequency.

3.5   Receiving Distress Relay from Coast Station

When you receive a distress relay continue monitoring distress and safety frequencies over the SSB radiotelephone.

1. The audio alarm sounds and the display looks like the one in the left-hand figure below when a distress relay is received from a coast station. Press the [CANCEL] key to silence the alarm, and the display changes as in the right-hand figure below.

```
 Distress relay all
 call received.
FROM COAST:        001234567
SHIP IN DIST:       123456789
NATURE: UNDESIGNATED
POS: 12 34N 123 45E AT 12:34
TELEPHONE              NO INFO
                STOP ALARM
```

Press the [CANCEL] key. →

```
    * Received message *
JUL-23-1999-23:59          ECC: OK
DISTRESS RELAY ALL
FROM COAST:        001234567
SHIP IN DIST:       123456789
NATURE: UNDESIGNATED
POS: 12 34N 123 45E AT 12:34
TELEPHONE              NO INFO
               GO TO ALL VIEW
```

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4. CALLING

This chapter provides the information necessary for general calling.

4.1 All Ships Call

When an urgent but not life endangering situation arises on your ship, for example, engine trouble, send an all ships call to request assistance.

After sending the message, you can communicate by voice over the radiotelephone. Do the following before beginning actual communications:

URGENCY priority: Say PAN three times followed by your call sign.
SAFETY priority: Say SECURITE three times followed by your call sign.

4.1.1 Sending all ships call

1. At the DSC standby screen, press the [CALL] key followed by the [ENT] key to display the CALL TYPE menu.

2. Use ▲ or ▼ to select ALL SHIPS and press the [ENT] key.

3. Press the [ENT] key to display the PRIORITY menu.

```
*** Send message ***
CALL TYPE:    ALL SHIPS
PRIORITY    SAFETY
            URGENCY
COM. TYPE   DISTRESS    NE

DSC FREQ  :      2187.5 KHZ
        GO TO ALL VIEW
```

4. Select SAFETY, URGENCY or DISTRESS as appropriate and press the [ENT] key.

5. Press the [ENT] key to open the COM. TYPE menu.

```
*** Send message ***
CALL TYPE:    ALL SHIPS
PRIORITY  :   SAFETY
COM. TYPE   TELEPHONE

            NBDP-FEC

DSC FREQ   :  2187.5 KHZ
        GO TO ALL VIEW
```

6. Select communication type desired and press the [ENT] key.

7. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send       2187.5     ***
               4207.5
CALL TYPE      6312.0
PRIORITY       8414.5
COM TYPE       12577.0          E
               16804.5
DSC FREQ     MANUAL        KHZ
        GO TO ALL VIEW
```

MANUAL: For manual selection of frequency at radiotelephone when there is "remote control error."

8. Select frequency and press the [ENT] key.

9. Press the [CALL] key to send the call (transmission time: about 7 sec.). The display shows "All ships call in progress!" while the call is being sent.

```
All ships
call in progress!

SAFETY

TELEPHONE          2182.0 KHZ
DSC FREQ  :        2187.5 KHZ
TIME TO GO:            5S
```

10. The DSC standby screen automatically appears after the call is sent (timer counts down to zero). The equipment is set up for telephone (or NBDP) and safety or urgency priority, using DSC safety/urgency pair frequencies.

4.1.2   Receiving all ships call

1. When an all ships call is received the audio alarm sounds and the display looks something like the one shown below.

```
┌─────────────────────────────────┐
│ ┌─────────────────────────────┐ │
│ │  All ships                  │ │
│ │  call received.             │ │
│ └─────────────────────────────┘ │
│   FROM SHIP:     123456789       │
│   SAFETY                         │
│   TELEPHONE      2182.0 KHZ      │
│ ───────────────────────────────  │
│                  STOP ALARM      │
└─────────────────────────────────┘
```

2. Press the [CANCEL] key to silence the alarm. The display shows partial contents of the all ships call as below.

```
┌─────────────────────────────────┐
│      * Received message *        │
│   JUL-23-1999-23:59     ECC: OK  │
│   ALL SHIPS CALL                 │
│   FROM SHIP:         123456789   │
│   SAFETY                         │
│   TELEPHONE       2182.0 KHZ     │
│ ───────────────────────────────  │
│            GO TO ALL VIEW        │
└─────────────────────────────────┘
```

3. Press the [CANCEL] key again to return to the DSC standby screen. Watch for communications about all ships call on the DSC-60 or SSB radiotelephone.

4-3

4.2   Individual Call

The individual call is for sending a message to a specific station. After sending an individual message, called ACK RQ transmission, wait to receive the acknowledge back (ACK BQ) signal from the receiving station.

① DSC Message [Called Acknowledge Request (ACK RQ) Signal]
② Acknowledge Back (ACK BQ) Signal
③ Voice Communication

Own Ship

Coast Station
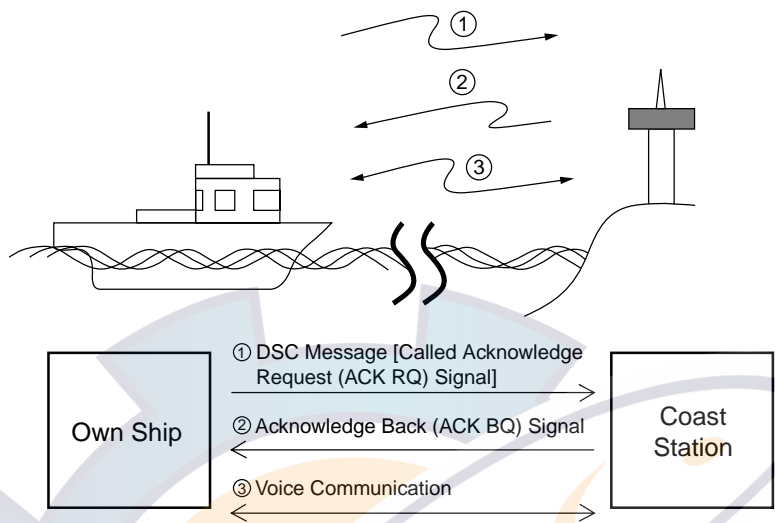
4.2.1   Sending individual call

1.   At the DSC standby screen, press the [CALL] key followed by the [ENT] key to open the CALL TYPE menu.

```
*** Send   INDIVIDUAL
CALL TYPE  PSTN CALL
STATION ID TEST CALL
PRIORITY   ALL SHIPS
COM. TYPE  GROUP CALL
COM. FREQ  AREA CALL
DSC FREQ   POSITION
```

If this part of the menu appears use ▲ to scroll menu.

```
▲
POLLING
NEUTRAL
MEDICAL

RELAY ALL
RELAY SEL
DISTRESS
```

2.   Use ▲ or ▼ to select INDIVIDUAL and press the [ENT] key.

3.   Press the [ENT] key to open the STATION ID menu.

```
*** Send message ***
CALL TYPE   : INDIVIDUAL
STATION ID  □- - - - - - - -
PRIORITY    : ROUTINE
COM. TYPE   : TELEPHONE
COM. FREQ   : NO INFO
DSC FREQ    : 2M-INTL
            GO TO ALL VIEW
```
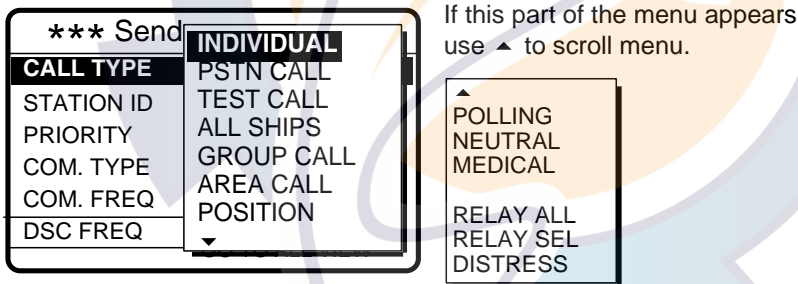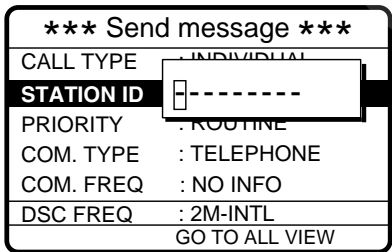
How to input station ID automatically

If you have registered some station IDs (see page 6-1), you can insert them into your message as follows:

1. Press the [FILE] key after completing step 2 in the above procedure. The following display appears.

```
Select ID file
COAST STATION
SHIP STATION
```
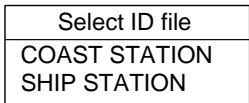
Note: You can print the Select ID file list by pressing the [8/PRINT] key.

2. Select COAST STATION or SHIP STATION and press the [ENT] key.
3. Select file which contains ID you want to use (press ▶ to show ID number).
4. Press the [ENT] key to insert ID number in message.

4. Key in ID of station where to send the message and then press the [ENT] key.

5. Press the [ENT] key to open the PRIORITY menu.

```
*** Send message ***
CALL TYPE        INDIVIDUAL
STATION ID   ROUTINE
PRIORITY     BUSINESS
COM. TYPE    SAFETY
COM. FREQ    URGENCY
DSC FREQ      : 2M-INTL
             GO TO ALL VIEW
```

6. Select appropriate priority (normally ROUTINE) and press the [ENT] key.

7. Press the [ENT] key to open the COM. TYPE menu.

```
                              Routine or              For Safety or
                              Business Priority       Urgency Priority

*** Send message ***         ▲ MAIN                  TELEPHONE
CALL TYPE   TELEPHONE        TTY RCV                  NBPD-ARC
STATION ID  NBDP-ARQ         TTY                      NBDP-FEC
PRIORITY    NBDP-FEC         MORSE KEY
COM. TYPE   ▼ SPECIAL        MORSE TAPE               For SPECIAL items, the radiotelepho
COM. FREQ                    FACSIMILE                is not controlled automatically. Set
DSC FREQ                     DATA                     frequency, class of emission, etc. at
                                                      the radiotelephone.
                                      Press [ENT]
                                      to display.

                            * MODEM TYPE *
                            V21        V26 BIS
                            V22        V26 TER
                            V22 BIS    V27 TER
                            V23        V32
```

8. Select communications type desired and press the [ENT] key.

9. Press the [ENT] key to open the COM. FREQ menu.

```
*** Send message ***
CALL TYPE    : INDIVIDUAL
STATION ID   : 123456789
PRIORITY     NO INFO
COM. TYPE    FREQUENCY
COM. FREQ    CHANNEL
DSC FREQ     POSITION*
             GO TO ALL VIEW
```

* POSITION is displayed if a coast
station is specified at step 3.

To select a user channel

If you have previously registered user channels (see page 7-10),
you can insert one into your message as follows:

1. Press the [FILE] key after completing step 8 in the
above procedure. The following display appears.

```
User channel file
00201. TX: 2301.0 RX: 2701.0
00202. TX: 2302.0 RX: 2702.0
00301. TX: 3301.0 RX: 3701.0
00302. TX: 3302.0 TX: 3702.0
▼ UP  ▲ DOWN
```

Note: You can print the
User channel file list by pressing
the [8/PRINT] key.

2. Select file and press the [ENT] key to insert channel no.
in message.

10. Select item desired and press the [ENT] key. For FREQUENCY and CHANNEL see "How to
Set Working Frequency" on the next page. NO INFO and POSITION lets the receiving
station set the working frequency. Select NO INFO or POSITION to send message to a coast
station. Select FREQUENCY or CHANNEL to send message to ship station.

4-5

How to set working frequency

When you send a call set the working frequency as below to communicate with the receiver of the message. The working frequency can be entered by Tx and Rx and frequencies as below or channel no. as in "Channel" on the next page.

Routine or ship's business priority

For FREQUENCY or CHANNEL follow one of the sections below.

Frequency

a) Select FREQUENCY and press the [ENT] key.

```
TX:       0. 0  KHZ
RX:       0. 0  KHZ
```

b) Key in Tx frequency in five or six digits with the numeric keys and press ▼ . For example, enter 12329.0 kHz. If you make a mistake, press the [CANCEL] key and then reenter data.

```
TX: 12329.0  KHZ
RX:       0. 0  KHZ
```

> **Note:** Working TX and RX frequencies in the message can be selected to 0.0 kHz so that no information about frequencies is sent out.

c) Enter Rx frequency and press the [ENT] key. The Tx frequency entered appears in the COM. FREQ field.

```
      *** Send message ***
CALL TYPE:    INDIVIDUAL
STATION ID:   123456789
PRIORITY    : ROUTINE
COM. TYPE   : TELEPHONE
COM. FREQ     TX:12329.0 KHZ
DSC FREQ    : 12M-INTL
             GO TO ALL VIEW
```

Channel

a)   Select CHANNEL and press the [ENT] key.

b)   Key in channel no. in four or five digits and press the [ENT] key. For example, enter CH 1201. Note that to enter user channel registered at Setup-user ch menu (page 7-11), press the [FILE] key at the COM. FREQ field and select a desired channel from the user channel file.

```
CH:            0              CH:  1201
```
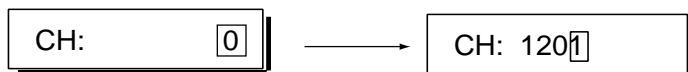
c)   The channel entered appears in the COM. FREQ field.

```
*** Send message ***
CALL TYPE:    INDIVIDUAL
STATION ID:   123456789
PRIORITY    : ROUTINE
COM. TYPE   : TELEPHONE
COM. FREQ   : CH 1234
DSC FREQ    : 12M-INTL
              GO TO ALL VIEW
```

Safety or urgency priority

For safety or urgency priority the communication frequency cannot be selected; it is automatically set to the pair frequency as set for the DSC frequency.

4-7

11. Press the [ENT] key to open the DSC FREQ menu. (The display below appears when routine or business priority is selected.)

```
*** Send message ***
CALL TYPE    ┌─────────┐ CALL
GROUP ID     │ 2 MHZ   │
PRIORITY     │ 4 MHZ   │ E
COM. TYPE    │ 6 MHZ   │ ONE
COM. FREQ    │ 8 MHZ   │
─────────────│ 12 MHZ  │──────
DSC FREQ     │   ▼     │ TL
             └─────────┘
             GO TO ALL VIEW
```

```
┌──────────┐
│ ▲        │
│ 16 MHZ   │
│ 18 MHZ   │
│ 22 MHZ   │
│ 25 MHZ   │
│ OTHER    │
│ MANUAL   │
└──────────┘
```

Use ▼ to scroll menu.

OTHER: Special, private channels.
MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

12. Select DSC frequency following the section below.

How to set DSC frequency

Routine or ship's business priority

a) Select DSC FREQ and press the [ENT] key.

```
*** Send message ***
CALL TYPE    ┌─────────┐ DUAL
STATION ID   │ 2 MHZ   │ 89
PRIORITY     │ 4 MHZ   │ E
COM. TYPE    │ 6 MHZ   │ ONE
COM. FREQ    │ 8 MHZ   │ O
─────────────│ 12 MHZ  │──────
DSC FREQ     │   ▼     │ TL
             └─────────┘ VIEW
```

```
┌──────────┐
│ ▲        │
│ 16 MHZ   │
│ 18 MHZ   │
│ 22 MHZ   │
│ 25 MHZ   │
│ OTHER    │
│ MANUAL   │
└──────────┘
```

Use ▼ to scroll menu.

OTHER: Special, private channel
MANUAL: Manual setting at radiotelephone

b) Select appropriate DSC band and press the [ENT] key. One of the menus shown on the next page appears depending on the band selected here.

4-8

```
*** Send message ***

CALL TYPE       2 MHz

INTL     : T12577.5/R12657.0
LOCAL1   : T12578.0/R12657.5
LOCAL2   : T12578.5/R12658.0

   ▾
```

Use ▾ to scroll
menu if user channels
are registered.

```
   ▲
USER CH1 :T12345.0/R12345.0
USER CH2 :T12345.5/R12345.5
USER CH3 :T12346.0/R12346.0
USER CH4 :T12346.5/R12346.5
```

LOCAL = Local channel

18MHz menu
INTL   :T18898.5/R19703.5
LOCAL1   :T18899.0/R19704.0
LOCAL2   :T18899.5/R19704.5

2MHz menu
INTL   :T 2189.5/R 2177.0

8MHz menu
INTL   :T 8415.0/R 8436.5
LOCAL   :T 8415.5/R8437.0
LOCAL   :T 8416.0/R8437.5

22MHz menu
INTL   :T22374.5/R22444.0
LOCAL1   :T22375.0/R22444.5
LOCAL2   :T22375.5/R22445.0

4MHz menu
INTL   :T 4208.0/R 4219.5
LOCAL1   :T 4208.5/R 4220.0
LOCAL2   :T 4209.0/R 4220.5

12MHz menu
INTL   :T12577.5/R12657.0
LOCAL1   :T12578.0/R12657.5
LOCAL2   :T12578.5/R12658.0

25MHz menu
INTL   :T25208.5/R26121.0
LOCAL1   :T25209.0/R26121.5
LOCAL2   :T25209.5/R26122.0

6MHz menu
INTL   :T 6312.5/R 6331.0
LOCAL1   :T 6313.0/R 6331.5
LOCAL2   :T 6313.5/R 6332.0

16MHz menu
INTL   :T16805.0/R16903.0
LOCAL1   :T16805.5/R16903.5
LOCAL2   :T16806.0/R16904.0

Other menu
INTL   :T 458.5/R 458.5

c) Select DSC frequency with ▲ or ▾ and press the [ENT] key. The display shows the DSC
    frequency band selected.

```
*** Send message ***

CALL TYPE:  INDIVIDUAL
STATION ID: 123456789
PRIORITY    : ROUTINE
COM. TYPE   : TELEPHONE
COM. FREQ   : NO INFO

DSC FREQ    : 2M-INTL

            GO TO ALL VIEW
```

Safety or urgency priority

For safety or urgency priority the field COM. FREQ is automatically set to the same pair frequency as the DSC frequency.

a)   Select DSC FREQ and press the [ENT] key.

```
*** Send message ***
CALL TYPE:    2187.5
STATION ID:   4207.5
              6312.0
PRIORITY      8414.5
COM. TYPE    12577.0   E
COM. FREQ    16804.5
DSC FREQ     MANUAL
         GO TO ALL VIEW
```

b)   Select appropriate frequency with ▼ or ▲ and press the [ENT] key.

13. Press the [CALL] key to send the message (transmission time: about 7 sec.). The display shows the message "Individual request call in progress!" while the message is being sent.

```
Individual request
call in progress!

TO SHIP:      123456789
ROUTINE
TELEPHONE      2189.5 KHZ
DSC FREQ  :    2187.5 KHZ
TIME TO GO:         7S
```

Note: When the channel is in use, "CH BUSY" appears at the lower left-hand side of the screen. Press [CALL] key for forced transmission.

14. After the message is sent, the equipment waits for acknowledgement of the message, showing the display below.

```
Waiting for
acknowledgement.

FROM SHIP:    123456789
ROUTINE
TELEPHONE      2189.5 KHZ
DSC FREQ  :    2187.5 KHZ
TIME TO GO:      4M30S
```

15. The timer starts counting down the maximum time to wait for acknowledgement, 3.5-4.5 minutes, randomly set. One of the following three messages appears. ("No response! Try calling again." appears after the timer counts down to zero. It means the station called did not respond.)

```
Able acknowledge
call received.

FROM SHIP:      123456789
ROUTINE
TELEPHONE       2189.5 KHZ

          STOP ALARM
```

```
Unable acknowledge
call received.
NO REASON GIVEN

FROM SHIP:      123456789
ROUTINE

          STOP ALARM
```

```
No response!
Try calling again?
FROM SHIP:      123456789
ROUTINE
TELEPHONE       2189.5 KHZ
DSC FREQ   :    2187.5 KHZ
          RE-SEND
```

Able acknowledge call received   Unable acknowledge call received   No response from station

16. Do one of the following depending on the message shown in step 15.

4-10

Able acknowledge call received

The audio alarm sounds; press the [CANCEL] key to silence it. The display changes as below. Press the [CANCEL] key to return to the DSC standby screen. If you are using a FURUNO SSB radiotelephone the working frequency is automatically set; you may start communications. For other makes of radiotelephone set communication frequency and class of emission.

```
 * Received message *
JUL-23-1999-23:59        ECC: OK
ABLE ACKNOWLEDGE
FROM SHIP:          123456789
ROUTINE
TELEPHONE           NO INFO

            GO TO ALL VIEW
```

Unable acknowledge call received

The alarm sounds; press the [CANCEL] key to silence the alarm, and the display looks something like the one below. Send the call again later. If the coast station sends the message "QUEUE INDICATION," wait until your turn arrives.

```
 * Received message *
JUL-23-1999-23:59        ECC: OK
NO REASON GIVEN


FROM SHIP:          123456789
ROUTINE
            GO TO ALL VIEW
```

Reason for unable to acknowledge:
NO REASON GIVEN
CONGESTION AT SWITCHING CENTRE*
BUSY
QUEUE INDICATION*
STATION BARRED*
NO OPERATOR AVAILABLE*
OPERATOR TEMPORARILY UNAVAILABLE*
EQUIPMENT DISABLED
MODE NOT USABLE
CHANNEL NOT USABLE

* Coast station use

No response! Try calling again?

Re-send call: Press the [ENT] key (the display shown in step 12 appears) followed by the [CALL] key
Cancel call: Press the [CANCEL] key to return to the DSC standby screen.

4.2.2　Receiving individual call

Sending automatic acknowledge (ACK BQ) with comply type "ABLE"

When own ship receives an individual call you may or may not be able to receive the call depending on the comply type setting (on the Auto Ack menu) as below. The relationship between comply type and automatic/manual acknowledge is as below.

Comply type, automatic acknowledge	ABLE	UNABLE
AUTO ACK	Can send acknowledge automatically	Can send UNABLE automatically.
MANUAL ACK	Can send acknowledge manually	Can send UNABLE manually.

Note: The handset must be on hook to enable automatic acknowledge.

1. When an individual call is received and the automatic acknowledge feature is active and comply type is "ABLE", the display shown below appears, indicating the auto acknowledge call (ACK BQ) call is being sent.

```
Able acknowledge
call in progress!
TO SHIP:          123456789
ROUTINE
TELEPHONE         CH 201
DSC FREQ  :       2177.0 KHZ
TIME TO GO:            6S
```

2. It takes about 7 sec. to transmit the call, after which the audio alarm sounds and the following message appears.

```
Able acknowledge
call transmitted.
TO SHIP:          123456789
ROUTINE
TELEPHONE         CH 201

                  STOP ALARM
```

3. Press the [CANCEL] key to silence the alarm and the following display appears.

```
    * Xmitted message *
JUL-23-1999-23:01
ABLE ACKNOWLEDGE
TO SHIP:          123456789
ROUTINE
TELEPHONE         CH 201


RE-SEND ◄      ►  ALL VIEW
```

4. You can now communicate with party over frequency specified.

5. If you want to re-send the message press ◀ to select RE-SEND and press the [ENT] key.

```
*** Send message ***
─────────────────────────
CALL TYPE  : INDIVIDUAL
SHIP ID    : 123456789
PRIORITY   : ROUTINE
COM. TYPE  : TELEPHONE
COM. FREQ  : NO INFO
─────────────────────────
DSC FREQ   : 2M-INTL
─────────────────────────
          GO TO ALL VIEW
```

6. Press the [CALL] key to re-send the call.

Sending automatic acknowledge (ACK BQ) with comply type "UNABLE"

1. When an individual call is received and the automatic acknowledge feature and comply type is "UNABLE," the display shown below appears, indicating the auto acknowledge call with UNABLE (ACK BQ) call is being sent.

```
┌─────────────────────────┐
│ Unable acknowledge      │
│ call in progress!       │
└─────────────────────────┘
 BUSY

 TO SHIP      : 121234567
 ROUTINE
─────────────────────────
 DSC FREQ  : 12577.5 KHZ
─────────────────────────
 TIME TO GO : 6S
```

2. It takes about 7 sec. to transmit the call, after which the audio alarm sounds and the following message appears.

```
┌─────────────────────────┐
│ Unable acknowledge      │
│ call transmitted.       │
└─────────────────────────┘
 BUSY

 TO SHIP   :   121234567
 ROUTINE

          STOP ALARM
```

3. Press the [CANCEL] key to silence the alarm and the following display appears.

```
    * Xmitted message *
─────────────────────────
 JUL-23-1999-23:01
 UNABLE ACKNOWLEDGE
 BUSY

 TO SHIP :   121234567
 ROUTINE

  RE-SEND ◀    ▶ ALL VIEW
```

4. If you want to send a proposal, press ◀ to select RE-SEND and press the [ENT] key.

```
*** Send message ***
CALL TYPE  : INDIVIDUAL
STATION ID : 001234567
PRIORITY   : ROUTINE
COM. TYPE  : TELEPHONE
COM. FREQ  : NO INFO
DSC FREQ   : 12M-INTL
         GO TO ALL VIEW
```

5. Prepare individual message and press the [CALL] key to send. If the receiving station accepts your proposal, you can begin communications.

Manually acknowledging individual call with "ABLE"

1. When an individual call is received, the alarm sounds and the display looks like the one below.

```
Individual request
call received.

FROM COAST:    001234567
ROUTINE
TELEPHONE         CH 12034
         STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm, and the display changes as shown below.

```
* Received message *
JUL-23-1999-23:00:00      ECC: OK
INDIVIDUAL REQUEST
FROM COAST:      001234567
ROUTINE
TELEPHONE      CH 12034
ANSWER ◀      ▶  ALL VIEW
```

3. Press ◀ to select "ANSWER" and then press the [ENT] key.

```
*** Send message ***
CALL TYPE : ABLE
        ACKNOWLEDGEMENT
TO COAST     ABLE      7
COM. TYPE            ONE
            UNABLE
COM. FREQ     : NO INFO
DSC FREQ     : 12M-INTL
         GO TO ALL VIEW
```

4-14

4. Select ABLE and press the [ENT] key. The display changes as below. (IF ABLE is sent, working frequency is automatically set specified by other party.)

```
*** Send message ***
CALL TYPE:   ABLE
             ACKNOWLEDGEMENT
TO COAST:    121234567
COM. TYPE:   TELEPHONE
COM. FREQ:   CH12034
DSC FREQ:    12577.5 KHZ

             GO TO ALL VIEW
```

5. Press the [CALL] key to send the call, and the display changes as below.

```
Able acknowledge
call in progress!

TO COAST    : 121234567
ROUTINE
TELEPHONE            CH 12034
DSC FREQ  :         12577.5 KHZ
TIME TO GO:              7S
```

6. After the call is sent (transmission time: 7 sec.), you can begin voice communications as soon as the message is completely transmitted.)

Manually acknowledging individual call with "UNABLE"

1. When an individual call is received the alarm sounds and the display shows the message "Individual request call received."

```
Individual request
call received.

FROM SHIP:       121234567
ROUTINE
TELEPHONE         CH 12034

        STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm, and the display changes as below.

```
* Received message *
JUL-23-1999-23:00:00      ECC: OK
INDIVIDUAL REQUEST
FROM SHIP:       121234567
ROUTINE
TELEPHONE         CH 12034

ANSWER ◄      ►  ALL VIEW
```

3. Press ◄ to select ANSWER and press the [ENT] key.

4. Press the [ENT] key to open the CALL TYPE menu.

```
*** Send message ***
CALL TYPE : ABLE
         ACKNOWLEDGEMENT
TO SHIP          7
              ABLE
COM. TYPE          ONE
              UNABLE
COM. FREQ    : CH12034
DSC FREQ:    12577.5 KHZ
         GO TO ALL VIEW
```

5. Select UNABLE and press the [ENT] key.

6. Press the [ENT] key. The display then prompts you for the reason you are unable to acknowledge.

```
*** Send message ***
CALL TYPE   : UNABLE
      AC  NO REASON
REASON      BUSY
            EQUIP DISABLED
TO SHIP     MODE NOT USABLE
DSC FRE     CH NOT USABLE
```

7. Select suitable reason and press the [ENT] key.

8. Press the [ENT] key to open the DSC FREQ menu. Select appropriate frequency and press the [ENT] key. The display changes as below.

```
*** Send message ***
CALL TYPE    : UNABLE
        ACKNOWLEDGEMENT
REASON       : CHANNEL
                NOT USABLE
TO SHIP      : 121234567
DSC FREQ     : 12577.5 KHZ
         GO TO ALL VIEW
```

9. Press the [CALL] key to send the call. The display shows "Unable acknowledge call in progress!" while the call is being sent.

```
Unable acknowledge
call in progress!

CHANNEL NOT USABLE

TO SHIP:          121234567
ROUTINE
DSC FREQ  :       12577.5 KHZ
TIME TO GO:           6S
```

10. The timer counts down the time remaining until the message is sent (transmission time: about 7 sec.). The DSC standby screen automatically appears upon completion of transmission.

4-16

4.3   Group Call

A group call is for calling a specific group by entering its group ID.

4.3.1   Sending a group call

1. Press the [CALL] key at the DSC standby screen, and press the [ENT] key to open the CALL TYPE menu.

```
*** Send message ***
CALL TYPE      INDIVIDUAL
GROUP ID       PSTN CALL
PRIORITY       TEST CALL
COM. TYPE      ALL SHIPS
COM. FREQ      GROUP CALL
               AREA CALL
DSC FREQ       POSITION
                 ▼
```

If this part of the menu appears use ▲ to scroll the menu.

```
       ▲
POLLING
NEUTRAL
MEDICAL

RELAY ALL
RELAY SEL
DISTRESS
```

2. Use ▲ or ▼ to select GROUP CALL and press the [ENT] key.

3. Press the [ENT] key to open the GROUP ID menu.

```
*** Send message ***
CALL TYPE   : GROUP CALL
GROUP ID    000000000
PRIORITY    : ROUTINE
COM. TYPE   : TELEPHONE
COM. FREQ   : NO INFO
DSC FREQ    : 2M-INTL
            GO TO ALL VIEW
```

How to input group ID automatically

If you have registered some group IDs (see page 6-4), you can insert them into your message as follows:

1. Press the [FILE] key after completing step 2 in the above procedure. The following display appears.

```
Group ID file
004. FURUNO       ▶
500.  MARINE      ▶
777. ELECTRIC     ▶
▲ UP  ▼ DOWN
```

Note: You can print the Group ID file list by pressing the [8/PRINT] key.

2. Select file which contains ID you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert ID number in message.

4. Key in group ID (nine digits) where to send the message and press the [ENT] key.

5. Press the [ENT] key to open the PRIORITY menu.

```
*** Send message ***
CALL TYPE   : GROUP CALL
GROUP ID
PRIORITY    ROUTINE
COM. TYPE   SAFETY
COM. FREQ   URGENCY
            NO INFO
DSC FREQ    : 2M-INTL
            GO TO ALL VIEW
```

6. Select priority desired and press the [ENT] key.

7. Press the [ENT] key to open the COM. TYPE menu.

```
*** Send message ***
CALL TYPE
GROUP ID        TELEPHONE
PRIORITY        NBDP-FEC
COM. TYPE       ▼ SPECIAL
COM. FREQ
DSC FREQ
           GO TO ALL VIEW
```

For Routine

Use ▼ to
scroll menu.

```
 ▲ MAIN
TTY RCV
TTY
MORSE KEY
MORSE TAPE
FACSIMILE
```

For Safety or Urgency

```
TELEPHONE
NBDP-FEC
```

8. Select communication type desired and press the [ENT] key.

9. Press the [ENT] key to open the COM. FREQ menu.

```
*** Send message ***
CALL TYPE    : GROUP
GROUP ID     : 012345678
PRIORITY     NO INFO
COM. TYPE
COM. FREQ    FREQUENCY
             CHANNEL
DSC FREQ
           GO TO ALL VIEW
```

To select a user channel

If you have previously registered user channels (see page 7-10), you can insert one into your message as follows:

1. Press the [FILE] key after completing step 8 in the above procedure. The following display appears.

```
     User channel file
00201. TX: 2301.0 RX: 2701.0
00202. TX: 2302.0 RX: 2702.0
00301. TX: 3301.0 RX: 3701.0
00302. TX: 3302.0 TX: 3702.0

 ▼ UP  ▲ DOWN
```

Note: You can print the User channel file list by pressing the [8/PRINT] key.

2. Select file and press the [ENT] key to insert channel no. in message.

10. Select communication frequency desired and press the [ENT] key. (See page 4-6 for details.)

11. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
CALL TYPE               CALL
GROUP ID     2 MHZ
PRIORITY     4 MHZ      E
COM. TYPE    6 MHZ      ONE
COM. FREQ    8 MHZ
             12 MHZ
DSC FREQ       ▼        TL
           GO TO ALL VIEW
```

```
 ▲
16 MHZ
18 MHZ
22 MHZ
25 MHZ
OTHER
MANUAL
```

Use ▼ to scroll menu.

OTHER: Special, private channels.
MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

12. Select DSC band and then press the [ENT] key. Select DSC frequency and press the [ENT] key. (See page 4-8 for details.)

4-18

```
*** Send message ***
CALL TYPE    : GROUP
GROUP ID     : 012345678
PRIORITY     : ROUTINE
COM. TYPE    : TELEPHONE
COM. FREQ    : 2164.0 KHZ
DSC FREQ     : 2177.0 KHZ
             GO TO ALL VIEW
```

13. Press the [CALL] key to send the group call (transmission time: about 7 sec.). The display shows "Group call in progress" while the call is being sent.

```
Group
call in progress!

GROUP ID   :        012345678
ROUTINE
TELEPHONE           2164.0 KHZ
DSC FREQ   :        2177.0 KHZ
TIME TO GO :               6S
```

14. The DSC standby screen automatically appears after the message is sent.

4.3.2   Receiving a group call

Group ID must be registered in order to receive a group call. See note on page 6-4.

1. The audio alarm sounds and the display shows "Group call received" when a group call is received.

```
Group
call received.

FROM SHIP:          123456789
ROUTINE
TELEPHONE           2164.0 KHZ

             STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm, and the display changes as below.

```
* Received message *
JUL-23-1999-23:59        ECC: OK
GROUP CALL
FROM SHIP :         123456789
ROUTINE
TELEPHONE           2164.0 KHZ
             GO TO ALL VIEW
```

3. Press the [CANCEL] key to return to the DSC standby screen. Watch on the working frequency.

4.4   Geographical Area Call

The geographical area call sends a call to all ships within a specific area you designated in your geographical area call message. In the figure below, for example, the call will be sent to all ships within 10°S and 5°E of 34°N, 135°W.
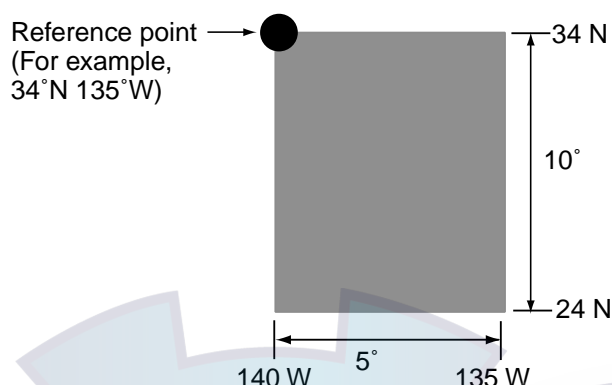
4.4.1   Sending a geographical area call

1. Press the [CALL] key at the DSC standby screen, and press the [ENT] key to open the CALL TYPE menu.

If this part of the menu appears use ▲ to scroll.
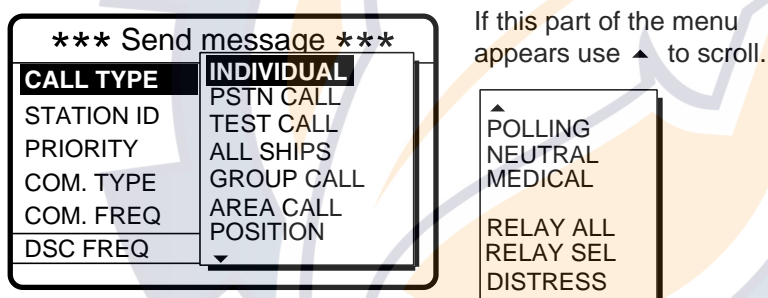
2. Use ▲ or ▼ to select AREA CALL and press the [ENT] key.

3. Press the [ENT] key to open the AREA menu.
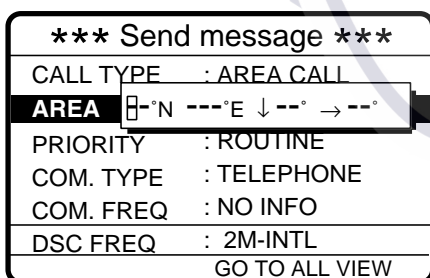
4. Enter latitude, longitude, southerly degrees and easterly degrees of area with the numeric keys and press the [ENT] key. Use ▲ or ▼ to switch from North to South latitude and vice versa and East to West longitude and vice versa.

5. Press the [ENT] key to open the PRIORITY menu.

```
*** Send message ***
CALL TYPE    : AREA CALL
AREA :  12°N 12  ROUTINE
PRIORITY        SAFETY
COM. TYPE       URGENCY
COM. FREQ    : NO INFO
DSC FREQ     : 2M-INTL
             GO TO ALL VIEW
```

6. Select priority desired and press the [ENT] key.

7. Press the [ENT] key to open the COM. TYPE menu.

```
*** Send message ***
CALL TYPE    : TELEPHONE
AREA :  12°N 123°  NBDP-FEC
PRIORITY     :   ▼ SPECIAL
COM. TYPE
COM. FREQ    :
DSC FREQ     :
             GO TO ALL VIEW
```

For ROUTINE

```
TELEPHONE
NBDP-FEC
▼ SPECIAL
```

```
▲ MAIN
TTY RCV
TTY
MORSE KEY
MORSE TAPE
FACSIMILE
```

For SAFETY or URGENCY

```
TELEPHONE
NBDP-FEC
```

8. Select communication type desired and press the [ENT] key.

9. Press the [ENT] key to open the COM. FREQ menu.

```
*** Send message ***
CALL TYPE      : AREA CALL
AREA: 12°N 123°W  12°  → 12°
PRIORITY       NO INFO
COM. TYPE      FREQUENCY
COM. FREQ      CHANNEL
DSC FREQ
             GO TO ALL VIEW
```

To select a user channel

If you have previously registered user channels (see page 7-10), you can insert one into your message as follows:

1. Press the [FILE] key after completing step 8 in the above procedure. The following display appears.

```
User channel file
00201. TX: 2301.0 RX: 2701.0
00202. TX: 2302.0 RX: 2702.0
00301. TX: 3301.0 RX: 3701.0
00302. TX: 3302.0 TX: 3702.0
▼ UP  ▲ DOWN
```

Note: You can print the User channel file list by pressing the [8/PRINT] key.

2. Select file and press the [ENT] key to insert channel no. in message.

10. Select communication frequency desired and press the [ENT] key. (See page 4-6 for details.)

11. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
CALL TYPE:    |  2 MHZ
AREA:         (  4 MHZ
PRIORITY   :     6 MHZ
COM. TYPE  :     8 MHZ
COM. FREQ  :    12 MHZ
DSC FREQ   :    ▼         TL
                      EW
```

```
▲
16 MHZ
18 MHZ
22 MHZ
25 MHZ
OTHER
MANUAL
```

Use ▼ to scroll menu.

OTHER: Special, private channels.
MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

12. Select DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key. (See page 4-8 for details.) Your display should now look something like one below.

```
*** Send message ***
CALL TYPE      : AREA CALL
AREA : 12˚N 123˚W ↓12˚ → 12˚
PRIORITY       : ROUTINE
COM. TYPE      : TELEPHONE
COM. FREQ      : 2164.0 KHZ
DSC FREQ       : 2177.0 KHZ
        GO TO ALL VIEW
```

13. Press the [CALL] key to send the geographical area call (transmission time: about 7 sec.). The display shows "Geographical area call in progress!" while the call is being sent.

```
Geographical area
call in progress!
AREA:      12˚N 123˚W ↓12˚ → 12˚
ROUTINE
TELEPHONE           2164.0 KHZ
DSC FREQ    :       2177.0 KHZ
TIME TO GO  :           7S
```

14. After the call is sent (timer counts down to zero), the DSC standby screen automatically appears. You can now communicate with other party.

4.4.2 Receiving a geographical area call

1. The alarm sounds and the display shows "Geographical area call received" when a geographical area call is received.

4-23

```
┌─────────────────────────────┐
│ Geographical area           │
│ call received.              │
├─────────────────────────────┤
│ FROM SHIP:        123456789 │
│ ROUTINE                     │
│ TELEPHONE       12264.0 KHZ │
├─────────────────────────────┤
│            STOP ALARM       │
└─────────────────────────────┘
```

2. Press the [CANCEL] key to silence the alarm. The display changes as below.

```
┌─────────────────────────────┐
│    ∗ Received message ∗      │
├─────────────────────────────┤
│ JUL-23-1999-23:59    ECC: OK │
│ GEOGRAPHICAL AREA           │
│ FROM SHIP :       123456789 │
│ ROUTINE                     │
│ TELEPHONE       12264.0 KHZ │
├─────────────────────────────┤
│        GO TO ALL VIEW       │
└─────────────────────────────┘
```

3. Press the [CANCEL] key at any time to return to the DSC standby screen. Watch on the working frequency specified in the geographic area call.

4.5   Neutral Craft Call

This type of call informs all ships that your ship is not a participant in armed conflict, and position and own ship ID are contained in the message. Send the call before entering an area of armed conflict.

4.5.1   Sending a neutral craft call

1.   Press the [CALL] key followed by the [ENT] key to display the CALL TYPE menu.

```
*** Send m ▲
CALL TYPE    POLLING
STATION ID   NEUTRAL
PRIORITY     MEDICAL
             RELAY ALL
             RELAY SEL
DSC FREQ     DISTRESS
```

If this part of the menu appears use ▼ to scroll the menu.

```
INDIVIDUAL
PSTN CALL
TEST CALL
ALL SHIPS
GROUP CALL
AREA CALL
POSITION
▼
```

2.   Use ▲ or ▼ to select NEUTRAL and press the [ENT] key.

3.   Press the [ENT] key to open the PRIORITY menu.

```
*** Send message ***
CALL TYPE    : NEUTRAL
             SAFETY
PRIORITY     URGENCY
COM. TYPE    : TELEPHONE
DSC FREQ     :    2187.5 KHZ
          GO TO ALL VIEW
```

4.   Select appropriate priority and press the [ENT] key.

5.   Press the [ENT] key to open the COM. TYPE menu.

6.   Select communication type desired and press the [ENT] key.

7.   Press the [ENT] key to open the DSC FREQ menu.

```
*** Send    2187.5   ***
            4207.5
CALL TYPE   6312.0
            8414.5
PRIORITY    12577.0
            16804.5
COM. TYPE   MANUAL
DSC FREQ            KHZ
          GO TO ALL VIEW
```

MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

8.   Select appropriate frequency and press the [ENT] key.

9. The display changes as below. You are now ready to send the neutral craft call.

```
*** Send message ***
─────────────────────────────
CALL TYPE    : NEUTRAL
               CRAFT
PRIORITY     : SAFETY
COM. TYPE    : TELEPHONE
─────────────────────────────
DSC FREQ     : 2187.5 KHZ
─────────────────────────────
        GO TO ALL VIEW
```

4-25

10. Press the [CALL] key to send the neutral craft call (transmission time: approx. 7 sec.).

```
Neutral craft
call in progress!
─────────────────────────────
SAFETY

TELEPHONE          2182.0 KHZ
─────────────────────────────
DSC FREQ  :        2187.5 KHZ
─────────────────────────────
TIME TO GO:             7S
```

11. After the call is sent (timer counts down to zero), the DSC standby screen automatically appears. Inform all ships (by radiotelephone) that your ship is not a participant in armed conflict.

4.5.2   Receiving a neutral craft call

1. When a neutral craft call is received the alarm sounds and the display changes as below.

```
Neutral craft
call received.
─────────────────────────────
 FROM SHIP:         123456789
 SAFETY
 TELEPHONE         2182.0 KHZ
─────────────────────────────
        STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm. The display changes as below.

```
* Received message *
─────────────────────────────
JUL-23-1999-23:59       ECC: OK
NEUTRAL CRAFT
─────────────────────────────
FROM SHIP:          123456789
SAFETY
TELEPHONE          2182.0 KHZ
─────────────────────────────
        GO TO ALL VIEW
```

4-25

4.6   Medical Transport Call

The medical transport call informs all ships, by using the priority "urgency", that own ship carries medical supplies.

4.6.1   Sending a medical transport call

1. Press the [CALL] key followed by the [ENT] key to open the CALL TYPE menu.

```
*** Send message ***
            ▲
CALL TYPE   POLLING
            NEUTRAL
STATION ID  MEDICAL
PRIORITY
            RELAY ALL
            RELAY SEL
DSC FREQ    DISTRESS
```

```
INDIVIDUAL
PSTN CALL
TEST CALL
ALL SHIPS
GROUP CALL
AREA CALL
POSITION
  ▼
```

If the part of the menu appears, use ▼ to scroll menu.

2. Use ▲ or ▼ to select MEDICAL and press the [ENT] key.

   Note: PRIORITY is automatically selected to URGENCY.

3. Press the [ENT] key to open the COM. TYPE menu.

4. Select communication type desired and press the [ENT] key.

5. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
            2187.5
CALL TYPE   4207.5
            6312.0
PRIORITY    8414.5
            12577.0
COM. TYPE   16804.5
DSC FREQ    MANUAL    KHZ
         GO TO ALL VIEW
```

MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

6. Select appropriate frequency and press the [ENT] key. The display changes as below.

```
*** Send message ***
CALL TYPE   : MEDICAL
              TRANSPORT
PRIORITY    : URGENCY
COM. TYPE   : TELEPHONE
DSC FREQ    :    2187.5 KHZ
         GO TO ALL VIEW
```

7. Press the [CALL] key to send the call (transmission time: about 7 sec.). The display shows "Medical transport call in progress!" while the message is being sent.

```
┌─────────────────────────────┐
│  Medical transport          │
│  call in progress!          │
│                             │
│ URGENCY                     │
│                             │
│ TELEPHONE        2182.0 KHZ │
│ DSC FREQ   :     2187.5 KHZ │
│ TIME TO GO :           7S   │
└─────────────────────────────┘
```

8. After the message is sent (timer counts down to zero) the DSC standby screen automatically appears. Inform all ships that your ship is transporting medical supplies.

4.6.2   Receiving a medical transport call

1. When a medical transport call is received, the alarm sounds and the display looks as below.

```
┌─────────────────────────────┐
│  Medical transport          │
│  call received.             │
│                             │
│ FROM SHIP:       123456789  │
│ URGENCY                     │
│ TELEPHONE        2182.0 KHZ │
│                             │
│      STOP ALARM             │
└─────────────────────────────┘
```

2. Press the [CANCEL] key to silence the alarm. The display changes as below.

```
┌─────────────────────────────┐
│   * Received message *      │
│ JUL-23-1999-23:59    ECC: OK│
│ MEDICAL TRANSPORT           │
│ FROM SHIP:       123456789  │
│ URGENCY                     │
│ TELEPHONE       2182.0 KHZ  │
│      GO TO ALL VIEW         │
└─────────────────────────────┘
```

4.7   Polling Call

Polling means confirming if own station is within communicating range with other station. This function only provides affirmative or negative response; it does not provide position information. Note that simultaneous polling to more than one station is not possible.

① Polling
② Acknowledge
③ Polling
④ Acknowledge
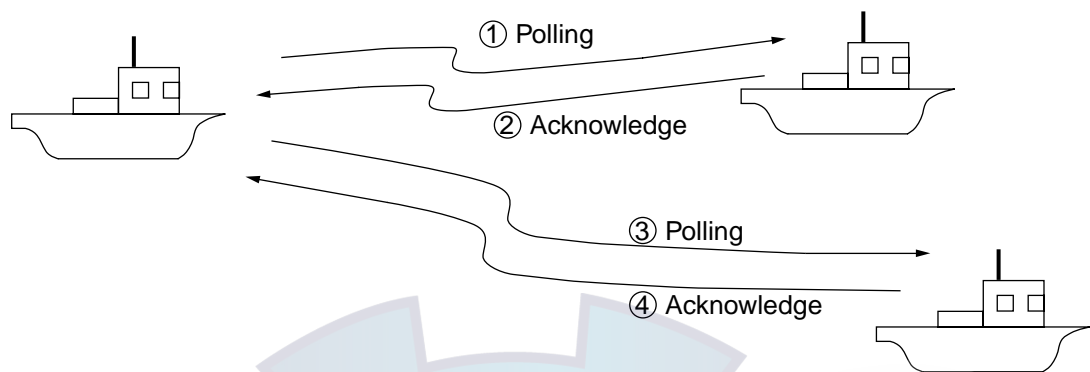
4.7.1   Sending a polling call

1.   Press the [CALL] key followed by the [ENT] key to open the CALL TYPE menu.

```
*** Send m...          ▲
                  POLLING
CALL TYPE         NEUTRAL
STATION ID        MEDICAL
PRIORITY
                  RELAY ALL
                  RELAY SEL
DSC FREQ          DISTRESS
```

If the part of the menu appears, use ▼ to scroll menu.

```
INDIVIDUAL
PSTN CALL
TEST CALL
ALL SHIPS
GROUP CALL
AREA CALL
POSITION
   ▼
```

2.   Use ▲ or ▼ to select POLLING and press the [ENT] key.

3.   Press the [ENT] key to open the STATION ID menu.

```
*** Send message ***

CALL TYPE    : POLLING
STATION ID    ▯ - - - - - - - -
PRIORITY     : ROUTINE

DSC FREQ      : 2M-INTL
             GO TO ALL VIEW
```

4.   Key in ID of station where to send call and press the [ENT] key.

5. Press the [ENT] key to open the PRIORITY menu.

```
*** Send message ***

CALL TYPE    ┌─────────┐
STATION ID   │ ROUTINE │
─────────    │ BUSINESS│
PRIORITY     │ SAFETY  │
             │ URGENCY │
DSC FREQ     └─────────┘

        GO TO ALL VIEW
```

6. Select priority desired (usually ROUTINE) and press the [ENT] key.

7. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***        ┌────────┐   Use ▼ to scroll
                            │   ▲    │   menu.
CALL TYPE    ┌────────┐     │ 16 MHZ │
STATION ID   │ 2 MHZ  │     │ 18 MHZ │
PRIORITY     │ 4 MHZ  │     │ 22 MHZ │
             │ 6 MHZ  │     │ 25 MHZ │   OTHER: Special, private channels.
             │ 8 MHZ  │     │ OTHER  │   MANUAL: For selection of frequency at
             │ 12 MHZ │     │ MANUAL │   radiotelephone when there is "remote control
DSC FREQ     │   ▼    │ TL  └────────┘   error."
             └────────┘
```

8. Select appropriate DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key. The display changes as below.

```
*** Send message ***

CALL TYPE    : POLLING
STATION ID   : 123456789
PRIORITY     : ROUTINE


DSC FREQ     : 2M-INTL
        GO TO ALL VIEW
```

9. Press the [CALL] key to send the call (transmission time: about 7 sec.), and the display changes as below.

```
Polling request
call in progress!

TO SHIP:           123456789
ROUTINE

DSC FREQ  :        2177.0 KHZ
TIME TO GO:              7S
```

10. After the call is sent (timer counts down to zero) the following display appears.

```
┌─────────────────────────────┐
│ ┌─────────────────────────┐ │
│ │ Waiting for polling     │ │
│ │ acknowledgement.        │ │
│ └─────────────────────────┘ │
│ FROM SHIP:       123456789  │
│ ROUTINE                     │
│                             │
│ DSC FREQ  :      2177.0 KHZ │
│ TIME TO GO:         4M59S   │
└─────────────────────────────┘
```

11. The timer counts down the time remaining to wait for acknowledgment of the call. One of the following displays appears. ("No response! Try calling again?" appears when there is no response from receiving station; timer counts down to zero.)

```
┌─────────────────────────────┐   ┌─────────────────────────────┐
│ ┌─────────────────────────┐ │   │ ┌─────────────────────────┐ │
│ │ Polling acknowledge     │ │   │ │ No response!            │ │
│ │ call received.          │ │   │ │ Try calling again?      │ │
│ └─────────────────────────┘ │   │ └─────────────────────────┘ │
│ FROM SHIP :      123456789  │   │ FROM SHIP:       123456789  │
│ ROUTINE                     │   │ ROUTINE                     │
│ NO INFORMATION              │   │                             │
│                             │   │ DSC FREQ    :    2177.0 KHZ │
│              STOP ALARM     │   │              CALL AGAIN     │
└─────────────────────────────┘   └─────────────────────────────┘
```

Polling acknowledge   No response
call received

12. Do one of the following depending on the message shown in step 11.

Polling acknowledge call received

The audio alarm sounds; press the [CANCEL] key to silence the alarm. The display changes as below. You can confirm if called party is within communicating range.

```
┌─────────────────────────────┐
│   * Received message *      │
│ JUL-23-1999-23:59   ECC: OK │
│ POLLING  ACKNOWLEDGE        │
│ FROM SHIP:       123456789  │
│ ROUTINE                     │
│ NO INFORMATION              │
│                             │
│        GO TO ALL VIEW       │
└─────────────────────────────┘
```

No response! Try calling again?

Re-send call: Press the [ENT] key (the display shown in step 8 appears), followed by the [CALL] key to re-send the call.
Cancel call: Press the [CANCEL] key to return to the DSC standby screen.

4.7.2   Receiving a polling call

<u>Automatic reply</u>

1. The display changes as follows and the audio alarm sounds when a polling request call is received and the status of the [5/ACK] key is AUTO ACK and the setting of POLLING CALL on the Auto ack menu is ON.

```
 Polling auto ack
 call in progress!

TO SHIP :            123456789
ROUTINE

DSC FREQ   :      2177.0 KHZ
TIME TO GO :             7S
```

2. After the call is transmitted the following display appears and the audio alarm sounds.

```
 Polling auto ack
 call transmitted.

 TO SHIP :            123456789
 ROUTINE


              STOP ALARM
```

3. Press the [CANCEL] key to silence the alarm. The display changes as below.

```
 ** Xmitted message **
 JUL-23-1999-23:00:09
 POLLING  ACKNOWLEDGE
 TO SHIP :    123456789
 ROUTINE

           GO TO ALL VIEW
```

4. Press the [CANCEL] key to return to the DSC standby screen.

<u>Manual reply</u>

1. The display changes as follows and the audio alarm sounds when a polling request call is received and the status of the [5/ACK] key is MANUAL ACK.

```
Polling request
call received.

FROM SHIP :    987654321
ROUTINE


            STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm. The display changes as below.

```
  * Received message *
JUL-23-1999-23:01
POLLING  REQUEST CALL
FROM SHIP :    987654321
ROUTINE


ANSWER    ◄    ►  ALL VIEW
```

3. Press ◄ to select ANSWER and press the [ENT] key. The display changes as below.

```
  *** Send message ***
CALL TYPE    : POLLING
               ACKNOWLEDGE
TO SHIP      : 987654321
PRIORITY     : ROUTINE
DSC FREQ     : 2M-INTL
       GO TO ALL VIEW
```

4. Press the [CALL] key to send polling acknowledge call. The display changes as below.

```
Polling acknowledge
call in progress!

TO SHIP    :        987654321
ROUTINE

DSC FREQ  :      2177.0 KHZ
TIME TO GO:              7S
```

After the call is sent the DSC standby screen appears.

4.8   Position Call

There are two types of position calls: you send your position to other stations and your ship requests position of another ship.

Sending own ship's position to other stations

① Position Information

Own Ship
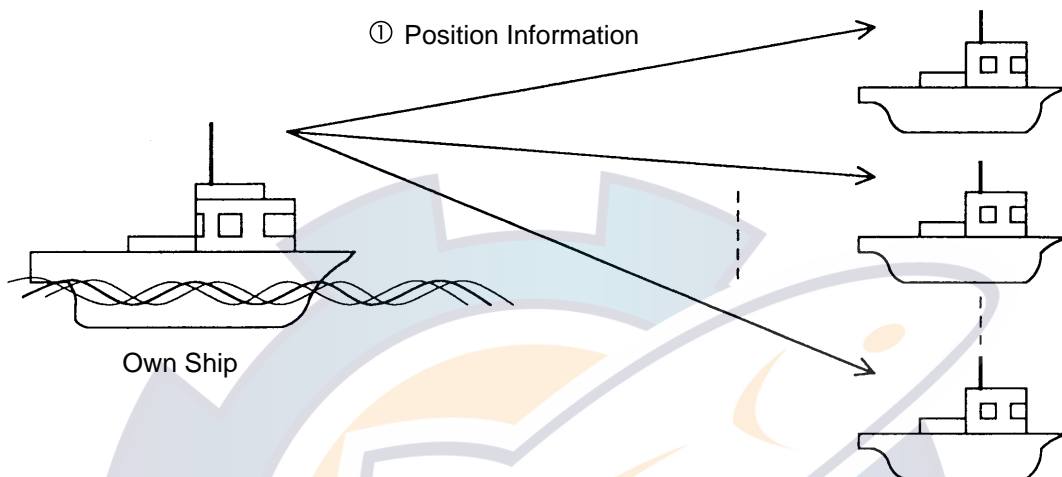
Finding position of other station

② Position Information
① Other Station

Own Station
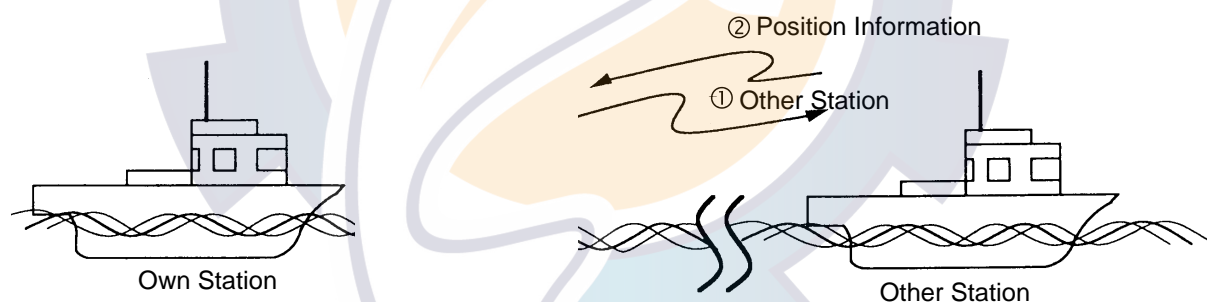
Other Station

4.8.1   Position call: requesting other ship's position

1. Press the [CALL] key, and press the [ENT] key to open the CALL TYPE menu.

```
*** Send message ***          If this part of menu appears,
                              use ▲ to scroll menu.
CALL TYPE    INDIVIDUAL
             PSTN CALL         ▲
             TEST CALL         POLLING
             ALL SHIPS         NEUTRAL
STATION ID   GROUP CALL        MEDICAL
PRIORITY     AREA CALL
             POSITION          RELAY ALL
DSC FREQ     ▼                 RELAY SEL
                               DISTRESS
```

2. Use ▲ or ▼ to select POSITION and press the [ENT] key.

3. Press the [ENT] key to open the STATION ID menu.

```
*** Send message ***

CALL TYPE:     POSITION
               REQUEST
STATION ID     [0]--------
PRIORITY     : ROUTINE
DSC FREQ     :2M-INTL
               GO TO ALL VIEW
```

4. Key in ID of station (nine digits) of which you want their position and press the [ENT] key.

5. Press the [ENT] key to open the PRIORITY menu.

```
*** Send message ***

CALL TYPE
               ROUTINE
               BUSINESS
STATION ID     SAFETY
PRIORITY       URGENCY
DSC FREQ
               GO TO ALL VIEW
```

6. Select priority desired (usually ROUTINE) and press the [ENT] key.

7. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***          ▲            Use ▼ to scroll
                              16 MHZ        menu.
CALL TYPE    2 MHZ    ON      18 MHZ
             4 MHZ            22 MHZ
             6 MHZ    ST      25 MHZ        OTHER: Special, private channels.
             8 MHZ    21      OTHER         MANUAL: For selection of frequency at
STATION ID   12 MHZ          MANUAL        radiotelephone when there is "remote control
PRIORITY     ▼       E                     error."
DSC FREQ             TL
                     VIEW
```

8. Select appropriate DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key. (See page 4-8 for details.)

9. The display now looks something like the following.

```
*** Send message ***
────────────────────────────
CALL TYPE:      POSITION
                REQUEST
STATION ID    : 123456789
PRIORITY      : ROUTINE
─────────────────────────────
 DSC FREQ     : 2177.0 KHZ
─────────────────────────────
              GO TO ALL VIEW
```

10. Press the [CALL] key to send the call (transmission time: about 7 sec.). The following display appears.

```
┌─────────────────────────┐
│ Position request        │
│ call in progress!       │
└─────────────────────────┘
STATION ID :   123456789
ROUTINE
─────────────────────────────
DSC FREQ  :      2177.0 KHZ
TIME TO GO:             7S
```

11. After the call has been sent (the timer counts down to zero) the following display appears.

```
┌─────────────────────────┐
│ Waiting for pos         │
│ acknowledgment.         │
└─────────────────────────┘
STATION ID :   123456789
ROUTINE
─────────────────────────────
DSC FREQ  :      2177.0 KHZ
TIME TO GO:         4M30S
```

12. One of the following messages appears. ("No response! Try calling again?" appears after the time has counted down to zero, meaning there is no response from the receiving station.)

```
┌─────────────────────────┐
│ Pos acknowledge         │
│ call received.          │
└─────────────────────────┘
FROM SHIP :    123456789
ROUTINE
POS :    12°34N 123°45E AT 12:34
─────────────────────────────
              STOP ALARM
```

Position acknowledge call received

```
┌─────────────────────────┐
│ No response!            │
│ Try calling again?      │
└─────────────────────────┘
STATION ID :    123456789
ROUTINE
─────────────────────────────
DSC FREQ   :    2177.0 KHZ
─────────────────────────────
              CALL AGAIN
```

No response

13. Do one of the following depending on the message displayed at step 12.

Acknowledge call received

The audio alarm sounds; press the [CANCEL] or [ENT] key to silence the alarm. The display looks as below. You can now confirm position of other ship.

```
┌─────────────────────────────────┐
│     * Received message *        │
├─────────────────────────────────┤
│ JUL-23-1999-23:59      ECC: OK  │
│ POSITION  ACKNOWLEDGE           │
│ FROM SHIP :        123456789    │
│ ROUTINE                         │
│ POS :    12˚34N 123˚45E AT 12:34│
├─────────────────────────────────┤
│             ▐GO TO ALL VIEW▌    │
└─────────────────────────────────┘
```

No response! Try calling again?

Re-send call: Press the [ENT] key (the display shown in step 9 appears) followed by the [CALL] key.
Cancel call: Press the [CANCEL] key.

4.8.2   Position call: other ship requests your position

Automatic reply

1. The display changes as below when another ship requests your position and the status of the [5/ACK] key is AUTO ACK and the setting of POSITION CALL on the Auto ack menu is ON.

```
┌─────────────────────────────────┐
│ ┌─────────────────────────┐     │
│ │ Position auto ack       │     │
│ │ call in progress!       │     │
│ └─────────────────────────┘     │
│ TO SHIP :         123456789     │
│ ROUTINE                         │
├─────────────────────────────────┤
│ DSC FREQ   :      2177.0 KHZ    │
│ TIME TO GO :           7S       │
└─────────────────────────────────┘
```

2. After the call is sent (transmission time: approx. 7 sec.) the audio alarm sounds and the display below appears.

```
┌─────────────────────────────────┐
│ ┌─────────────────────────┐     │
│ │ Position auto ack       │     │
│ │ call transmitted.       │     │
│ └─────────────────────────┘     │
│ TO SHIP:          123456789     │
│ ROUTINE                         │
│                                 │
├─────────────────────────────────┤
│          ▐STOP ALARM▌           │
└─────────────────────────────────┘
```

3. Press the [CANCEL] key to silence the alarm, and the display changes as below.

```
** Xmitted message **
JUL-23-1999-23:59:09
POSITION  ACKNOWLEDGE
TO SHIP :    987654321
ROUTINE
POS :  35°00N 135°00E AT 23:59

              GO TO ALL VIEW
```

4. Press the [CANCEL] key to return to the DSC standby screen.

Manual reply

1. When a position request call is received and the status of the [5/ACK] key is MANUAL ACK the audio alarm sounds and the display changes as below.

```
Position request
call received.

FROM SHIP:      123456789
ROUTINE

               STOP ALARM
```

2. Press the [CANCEL] key to silence the alarm. The display changes as below.

```
* Received message *
JUL-23-1999-23:00:01        ECC: OK
POSITION  REQUEST
FROM SHIP :              123456789
ROUTINE

ANSWER ◄        ►  ALL VIEW
```

3. If you want to send your position to another ship, press ◄ to select ANSWER and press the [ENT] key. Your display should now look something like the one below.

```
*** Send message ***
CALL TYPE:    POSITION
                  ACKNOWLEDGE
POSTION      : 35°00N 135°00E
UTC TIME      : 23:01

 DSC FREQ  :         2177.0 KHZ
          GO TO ALL VIEW
```

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4. Confirm your position and then press the [CALL] to send the call (transmission time: approx. 7 sec.). The display changes as below.

```
Pos acknowledge
call in progress!
TO SHIP :    123456789
ROUTINE
POS:  35˚00N 135˚00E AT 23:01
DSC FREQ    :        2177.0 KHZ
TIME TO GO:              7S
```

5. The DSC standby screen automatically appears after the call is sent.

5. Press the [ENT] key to open the TEL NO. menu.

```
*** Send message ***
CALL TYPE:    PSTN CALL
COAST ID     : 001234567
TEL NO.    ▯ - - - - - - - - - - - - - - -

DSC FREQ     :12M-INTL
             GO TO ALL VIEW
```

How to input telephone no. automatically

If you have registered some coast IDs (Chapter 6), you can insert them into your message as follows:

1. Press the [FILE] key after completing step 4 in the above procedure. The following display appears.

```
Telephone no. file
300. FURUNO      ▶
500.  MARINE     ▶
777. ELECTRIC    ▶
▲ UP   ▼ DOWN
```

Note: You can print the Telephone no. file list by pressing the [8/PRINT] key.

2. Select file which contains no. you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert no. in message.

6. Enter telephone no. (16 digits max.) and press the [ENT] key.

7. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
CALL TYPE   2 MHz    LL
COAST ID    4 MHz    9
            6 MHz
TEL NO.     8 MHz    9012345
            12 MHz
DSC FREQ    ▼
                     VIEW
```

```
▲
16 MHz
18 MHz
22 MHz
25 MHz
OTHER
MANUAL
```

Use ▼ to scroll menu.

OTHER: Special, private channel
MANUAL: Manual tuning of
        radiotelphone

8. Select DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key. The display changes as below.

```
*** Send message ***
CALL TYPE : PSTN CALL
COAST ID  : 001234567
TEL NO.   : 1234567890123456

DSC FREQ  : 12577.5 KHZ
            GO TO ALL VIEW
```

9. Press the [CALL] key to send the PSTN call (transmission time: about 7 sec.). The display shows the following message.

```
PSTN request
call in progress!
TO COAST  : 001234567
TEL NO.   : 1234567890123456

DSC FREQ  :      12577.5 KHZ
TIME TO GO:           7S
```

10. One of the following three displays appears. ("No response. Try calling again." appears if there is no response from the receiving station - the timer counts down to zero.)

```
Waiting for
acknowledgement.

FROM COAST : 001234567
TEL NO.   : 1234567890123456

DSC FREQ :      12577.5 KHZ
TIME TO GO:           25S
```

```
Unable acknowledge
call received.

BUSY

FROM COAST : 001234567
TEL NO.   : 1234567890123456
              STOP ALARM
```

```
No response!
Try calling again?

FROM COAST : 001234567
TEL NO.   : 1234567890123456

DSC FREQ   : 12577.5 KHZ
              RE-SEND
```

11. Do one of the following depending on the message shown at step 10.

Waiting for acknowledgement

1) If the PSTN call is accepted, the PSTN connection call is sent (transmission time: about 7 sec.), showing the display below.

```
PSTN connection
call in progress!

TO COAST  : 001234567
TEL NO.   : 1234567890123456
TELEPHONE    CH 12001
DSC FREQ :      12230.0 KHZ
TIME TO GO:           7S
```

2) After the call is sent (timer counts down to zero) one of the following message appears.

```
Waiting for
acknowledgement.

FROM COAST : 001234567
TEL NO.   : 1234567890123456
TELEPHONE    CH 12001
DSC FREQ :      12230.0 KHZ
TIME TO GO:           25S
```

```
PSTN connection
call in progress!

TO COAST :  001234567
TEL NO.   : 1234567890123456
TELEPHONE    CH 16001
DSC FREQ  :      16360.0 KHZ
TIME TO GO:           8S
```
— New channel

Waiting for acknowledgement   Request for new Tx assignment

3) One of the follow displays appears.

```
PSTN call connected.

TO COAST  : 001234567
TEL NO.    : 1234567890123456
TELEPHONE    CH 12001
DSC FREQ  :      12230.0 KHZ
```

```
Waiting for
acknowledgement.

FROM COAST : 001234567
TEL NO.   : 1234567890123456
TELEPHONE    CH 12001
DSC FREQ  :      12230.0 KHZ
TIME TO GO:           25S
```

```
PSTN end of call
in progress!

TO COAST : 001234567
TEL NO.   : 1234567890123456

DSC FREQ  :      12230.0 KHZ
TIME TO GO:           8S
```

PSTN call connected   Waiting for acknowledgement   PSTN end of call

4) Follow the instructions below depending on the message shown in 3) above.

PSTN call connected: Your phone rings; pick up the handset and communicate with called party.

Waiting for acknowledgement: If the call is acknowledged the message "PSTN call connected." appears. Follow "PSTN call connected" above.

PSTN end of call in progress: This means channel could not be used. After the timer counts down to zero repeat this procedure to re-send the call.

Unable acknowledge

1) The audio alarm sounds; press the [CANCEL] or [ENT] key to silence the alarm. The display shown in the figure below appears.

```
┌─────────────────────────────────┐
│      * Received message *        │
│ JUL-23-1999-23:01        ECC: OK │
│ UNABLE ACKNOWLEDGE               │
│ BUSY                             │
│                                  │
│ FROM COAST :    001234567        │
│ TEL NO.     : 1234567890123456   │
│                                  │
│           GO TO ALL VIEW         │
└─────────────────────────────────┘
```

2) Press the [CANCEL] key to return to the DSC standby screen.

No response! Try calling again?

Re-send call: Press the [ENT] key followed by the [CALL] key.
Cancel call: Press the [CANCEL] key to return to the DSC standby screen.

4.9.2 Sending PSTN call, receiving acknowledge back (QUEUE indication), ring back

1. Press the [CALL] key followed by the [ENT] key to open the CALL TYPE menu.

```
*** Send message ***
              INDIVIDUAL
CALL TYPE     PSTN CALL
COAST ID      TEST CALL
TEL NO. :     ALL SHIPS
DSC FREQ      GROUP CALL
              AREA CALL
              POSITION
              ▼
```

If this part of the menu appears use ▲ to scroll menu.

```
▲
POLLING
NEUTRAL
MEDICAL

RELAY ALL
RELAY SEL
DISTRESS
```

2. Select PSTN CALL and press the [ENT] key.

3. Press the [ENT] key to open the COAST ID menu.

```
*** Send message ***
CALL TYPE:    PSTN CALL
COAST ID      00000000
TEL NO. :     - - - - - - - - -

DSC FREQ      :12M-INTL
              GO TO ALL VIEW
```

How to input coast ID automatically

If you have registered some coast IDs (Chapter 6), you can insert them into your message as follows:

1. Press the [FILE] key after completing step 2 in the above procedure. The following display appears.

```
PSTN ID file
300. FURUNO      ▶
500. MARINE      ▶
777. ELECTRIC    ▶
▲ UP  ▼ DOWN
```

Note: You can print the PSTN ID file list by pressing the [8/PRINT] key.

2. Select file which contains ID you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert ID number in message.

4. Key in ID of coast station (nine digits) to where to send the call and press the [ENT] key.

5. Press the [ENT] key to open the TEL NO. menu.

```
*** Send message ***
CALL TYPE:    PSTN CALL
COAST ID      : 001234567
TEL NO.       ▯ - - - - - - - - -

DSC FREQ      :12M-INTL
              GO TO ALL VIEW
```

How to input telephone no. automatically

If you have registered some coast IDs (Chapter 6), you can insert them into your message as follows:

1. Press the [FILE] key after completing step 4 in the above procedure. The following display appears.

```
Telephone no. file
300. FURUNO      ▶
500. MARINE      ▶
777. ELECTRIC    ▶
▲ UP  ▼ DOWN
```

Note: You can print the Telephone no. file list by pressing the [8/PRINT] key.

2. Select file which contains no. you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert no. in message.

6. Enter telephone no. (16 digits max.) and press the [ENT] key.

7. Press the [ENT] key to open the DSC FREQ menu.

```
*** Send message ***
CALL TYPE   [2 MHz]  LL
COAST ID     4 MHz   9
             6 MHz
TEL NO.      8 MHz   9012345
            12 MHz
DSC FREQ     ▼
                     VIEW
```

```
▲
16 MHz
18 MHz
22 MHz
25 MHz
OTHER
MANUAL
```

Use ▼ to scroll menu.

OTHER: Special, private channel
MANUAL: Manual tuning of radiotelphone

8. Select DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key. The display changes as below.

```
*** Send message ***
CALL TYPE  : PSTN CALL
COAST ID   : 001234567
TEL NO.    : 1234567890123456

DSC FREQ   : 12577.5 KHZ
        GO TO ALL VIEW
```

9. Press the [CALL] key to send the PSTN call (transmission time: about 7 sec.). The display shows the following message.

```
PSTN request
call in progress!
TO COAST   : 001234567
TEL NO.    : 1234567890123456

DSC FREQ  :        12577.5 KHZ
TIME TO GO:             7S
```

10. After the call is sent one of the following messages appears.

```
Waiting for
acknowledgement.
FROM COAST : 001234567
TEL NO.   : 1234567890123456

DSC FREQ  :        12577.5 KHZ
TIME TO GO:            25S
```

```
Unable acknowledge
call received.
QUEUE INDICATION

FROM COAST : 001234567
TEL NO.   : 1234567890123456
               STOP ALARM
```

11. Do one of the following depending on the message shown at step 10.

Waiting for acknowledge

1) After the timer counts down to zero the following message appears.

```
┌─────────────────────────────┐
│ PSTN  connection            │
│ call in progress!           │
├─────────────────────────────┤
│ FROM COAST : 001234567      │
│ TEL No.    : 1234567890123456 │
│                             │
│ DSC FREQ  :      12577.5 KHZ │
│ TIME TO GO:          25S     │
└─────────────────────────────┘
```

2) After the connection call is sent the following message appears.

```
┌─────────────────────────────┐
│ Waiting for                 │
│ acknowledgement.            │
├─────────────────────────────┤
│ FROM COAST :  001234567     │
│ TEL NO.   : 1234567890123456 │
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ  │
│ TIME TO GO:       25S         │
└─────────────────────────────┘
```

   Waiting for acknowledgement

3) After the timer counts down to zero one of the following messages appears.

```
┌─────────────────────────────┐
│ PSTN call connected.        │
├─────────────────────────────┤
│ TO COAST  : 001234567       │
│ TEL NO.   : 1234567890123456 │
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ  │
│                             │
└─────────────────────────────┘
```
   PSTN call connected

```
┌─────────────────────────────┐
│ PSTN  connection            │
│ call in progress!           │
├─────────────────────────────┤
│ FROM COAST : 001234567      │
│ TEL NO.    : 1234567890123456 │
│                             │
│ DSC FREQ  :     12577.5 KHZ  │
│ TIME TO GO:       25S         │
└─────────────────────────────┘
```
   PSTN connection call in progress

```
┌─────────────────────────────┐
│ PSTN end of call            │
│ in progress!                │
├─────────────────────────────┤
│ TO COAST :  001234567       │
│ TEL NO.   :  1234567890123456 │
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ  │
│ TIME TO GO:        7S         │
└─────────────────────────────┘
```
   PSTN end of call

PSTN call connected: Your phone rings; pick up the handset and communication with receiving station.

PSTN connection call in progress!: This means coast station has switched DSC frequency. (If the channel cannot be used the message "PSTN end of call in progress!" appears. In this case, start this procedure again.) If the channel assigned is OK the message "Waiting for acknowledgment." appears.

PSTN end of call in progress!: The channel could not be used. Press the [CANCEL] key to return to the DSC standby screen. Repeat this procedure to send the call again.

Unable to acknowledge call received

1) The alarm sounds; press the [CANCEL] or [ENT] key to silence the alarm. The display
   changes as below, waiting for the ring back call.

```
┌─────────────────────────────┐
│ Waiting for                 │
│ ring-back call.             │
├─────────────────────────────┤
│ FROM COAST :    001234567   │
│ TEL NO.     : 1234567890123456 │
│                             │
│ DSC FREQ  :      12577.5 KHZ │
│ TIME TO GO:         15M00S  │
└─────────────────────────────┘
```

2) One of the following displays appears. (For "No response. Try calling again?", press the
   [ENT] key followed by the [CALL] key to re-send the call, or press the [CANCEL] key to
   cancel the call and return to the DSC standby screen.)

```
┌─────────────────────────────┐   ┌─────────────────────────────┐
│ Able acknowledge            │   │ No response!                │
│ call in progress!           │   │ Try calling again?          │
├─────────────────────────────┤   ├─────────────────────────────┤
│ TO COAST  :     001234567   │   │ FROM COAST :    001234567   │
│ TEL NO.    : 1234567890123456 │ │ TEL NO.     : 1234567890123456 │
│ TELEPHONE       CH121001    │   │                             │
│ DSC FREQ  :    12577.5 KHZ  │   │ DSC FREQ  :     12577.5 KHZ │
│ TIME TO GO:           8S    │   │              RE-SEND        │
└─────────────────────────────┘   └─────────────────────────────┘
```

3) After the acknowledge able call is sent one of the displays shown below appears. For
   "Pick up the handset or press the CALL key!", pick up the handset or press the [CALL]
   key within one minute. (If the handset is not picked up or the [CALL] key is not pressed
   within one minute the message "PSTN call canceled. Try calling again?" appears. In this
   case, press the [ENT] key to re-send the call.) For "No response! Try calling again?" you
   may re-send the call by pressing the [ENT] key followed by the [CALL] key, or cancel the
   call by pressing the [CANCEL] key.

```
┌─────────────────────────────┐   ┌─────────────────────────────┐
│ Pick up the handset         │   │ No response!                │
│ or press CALL key!          │   │ Try calling again?          │
├─────────────────────────────┤   ├─────────────────────────────┤
│ FROM COAST :    001234567   │   │ FROM COAST :    001234567   │
│ TEL NO.    : 1234567890123456 │ │ TEL NO.     : 1234567890123456 │
│ TELEPHONE    CH 12001       │   │                             │
│ DSC FREQ  :    12577.5 KHZ  │   │ DSC FREQ   : 12577.5 KHZ    │
│ TIME TO GO:          60S    │   │              RE-SEND        │
└─────────────────────────────┘   └─────────────────────────────┘
```

4) The message "PSTN call in progress!" appears after you press the [CALL] key. Follow
   from 2) above.

4.9.3 Receiving PSTN call, sending acknowledge back (ACK BQ)

1. The following display appears when a PSTN call is received.

```
┌─────────────────────────────┐
│ ┌─────────────────────────┐ │
│ │ Able acknowledge        │ │
│ │ call in progress!       │ │
│ └─────────────────────────┘ │
│ TO COAST : 001234567        │
│ TEL NO.   : 1234567890123456│
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ │
│ TIME TO GO:          8S     │
└─────────────────────────────┘
```

2. The timer counts down to zero and the following display appears.

```
┌─────────────────────────────┐     ┌─────────────────────────────┐
│ ┌─────────────────────────┐ │     │ ┌─────────────────────────┐ │
│ │ Pick up the handset     │ │     │ │ PSTN call canceled.     │ │
│ │ or press CALL key.      │ │     │ │ Try calling again.      │ │
│ └─────────────────────────┘ │     │ └─────────────────────────┘ │
│ FROM COAST : 001234567      │     │ FROM COAST : 001234567      │
│ TEL NO.   : 1234567890123456│     │ TEL NO.   : 1234567890123456│
│ TELEPHONE    CH 12001       │     │ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ │     │ DSC FREQ  : 12577.5 KHZ     │
│ TIME TO GO:         60S     │     │                   RE-SEND   │
└─────────────────────────────┘     └─────────────────────────────┘
```

3. Pick up the handset or press the [CALL] key within one minute. (If this not done within one minute the call is canceled, displaying the message "PSTN call canceled. Try calling again.". Press the [ENT] key to call followed by the [CALL] key to re-send the call.)

```
┌─────────────────────────────┐
│ ┌─────────────────────────┐ │
│ │ PSTN connection         │ │
│ │ call in progress!       │ │
│ └─────────────────────────┘ │
│ TO COAST : 001234567        │
│ TEL NO.   : 1234567890123456│
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ │
│ TIME TO GO:          7S     │
└─────────────────────────────┘
```

4. When the timer counts down to zero the following message appears.

```
┌─────────────────────────────┐
│ ┌─────────────────────────┐ │
│ │ Waiting for             │ │
│ │ acknowledgement.        │ │
│ └─────────────────────────┘ │
│ FROM COAST : 001234567      │
│ TEL NO.   : 1234567890123456│
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :     12577.5 KHZ │
│ TIME TO GO:         25S     │
└─────────────────────────────┘
```

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5. One of the following messages appears.

```
┌─────────────────────────────┐
│ ┌──────────────────────────┐│
│ │ PSTN call connected.     ││
│ └──────────────────────────┘│
│                             │
│ TO COAST  : 001234567       │
│ TEL NO.   : 1234567890123456│
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :      12577.5 KHZ│
└─────────────────────────────┘
```
PSTN call connected

```
┌─────────────────────────────┐
│ ┌──────────────────────────┐│
│ │ PSTN  connection         ││
│ │ call in progress!        ││
│ └──────────────────────────┘│
│  FROM COAST : 001234567     │
│  TEL NO.   : 1234567890123456│
│                             │
│  DSC FREQ  :     12577.5 KHZ│
│  TIME TO GO:            25S  │
└─────────────────────────────┘
```
PSTN connection call in progress

```
┌─────────────────────────────┐
│ ┌──────────────────────────┐│
│ │ PSTN end of call         ││
│ │ in progress!             ││
│ └──────────────────────────┘│
│ TO COAST :  001234567       │
│ TEL NO.   :  1234567890123456│
│ TELEPHONE    CH 12001       │
│ DSC FREQ  :      12577.5 KHZ│
│ TIME TO GO:             7S   │
└─────────────────────────────┘
```
PSTN end of call

6. Do one of the following depending on the message shown at step 5.

PSTN call connected: Your phone rings; pick up the handset and communication with receiving station.

PSTN connection call in progress!: This means coast station has switched DSC frequency. (If the channel cannot be used the message "PSTN end of call in progress!" appears. In this case, start this procedure again.) If the channel assigned is OK the message Waiting for acknowledgment." appears.

PSTN end of call in progress!: The channel could not be used. Press the [CANCEL] key to return to the DSC standby screen. Repeat this procedure to send the call again.

4.9.4 PSTN call disconnection, receiving charge information (ship disconnects line)

1. After hanging up the handset or pressing the [CANCEL] key to complete your call the display shows the following message.

```
┌─────────────────────────────┐
│ ┌──────────────────────────┐│
│ │ PSTN end of call         ││
│ │ in progress!             ││
│ └──────────────────────────┘│
│ TO COAST  : 001234567       │
│ TEL NO.   : 1234567890123456│
│                             │
│ DSC FREQ  :     12230.0 KHZ │
│ TIME TO GO:           8S     │
└─────────────────────────────┘
```

2. After the call is sent one of the following messages appears. (For time out the message "PSTN end of call in progress!" appears. After the timer counts down to zero "Waiting for charge information." appears.)

```
┌─────────────────────────────┐
│ ┌──────────────────────────┐│
│ │ Waiting for              ││
│ │ charge information.      ││
│ └──────────────────────────┘│
│ FROM COAST :   001234567    │
│ TEL NO.   : 1234567890123456│
│                             │
│ DSC FREQ  :     12230.0 KHZ │
│ TIME TO GO:           20S    │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ ┌──────────────────────────┐│
│ │ PSTN end of call         ││
│ │ in progress!             ││
│ └──────────────────────────┘│
│ TO COAST  : 001234567       │
│ TEL NO.   : 1234567890123456│
│                             │
│ DSC FREQ   :     12230.0 KHZ│
│ TIME TO GO :           8S    │
└─────────────────────────────┘
```

3. When the timer counts down to zero one of the following displays appear.

```
┌─────────────────────────────┐
│ Charge information          │
│ call received.              │
├─────────────────────────────┤
│ CHARGE TIME :    00H 12M 34S │
│ FROM COAST :    001234567    │
│ TEL NO.     : 1234567890123456 │
│                             │
│              STOP ALARM     │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│  No response!               │
│  charge information.        │
├─────────────────────────────┤
│ FROM COAST :    001234567    │
│ TEL NO.     : 1234567890123456 │
│                             │
│                             │
└─────────────────────────────┘
```

4. **For "No response! charge information.",** the equipment reverts to step 2 in this procedure to await charge information. **For "Charge information call received."** the audio alarm sounds; press the [CANCEL] key or [ENT] key to silence the audio alarm. The display shown below appears.

```
┌─────────────────────────────┐
│   * Received message *      │
├─────────────────────────────┤
│ JUL-23-1999-23:59    ECC: OK │
│ CHARGE INFORMATION          │
│ CHARGE TIME :    00H 12M 34S │
│ FROM COAST :    001234567    │
│ TEL NO.     : 1234567890123456 │
│                             │
│          GO TO ALL VIEW     │
└─────────────────────────────┘
```

4-49

4.9.5 PSTN call disconnection, receiving charge information (coast station disconnects line)

1. The PSTN line is disconnected by the coast station when it finds no evidence of communications or the land subscriber hangs up. The coast station then sends charge information as below.

```
∗ Received message ∗
JUL-23-1999-23:59          ECC: OK
CHARGE INFORMATION
CHARGE TIME : 00H 12M 34S
FROM COAST : 001234567
TEL NO.     : 1234567890123456

                   GO TO ALL VIEW
```

2. For no charge information the display looks as below.

```
∗ Received message ∗
JUL-23-1999-23:59          ECC: OK
CHARGE INFORMATION
CHARGE TIME : NO INFO
FROM COAST : 001234567
TEL NO.       1234567890123456

                   GO TO ALL VIEW
```

5.   LOG FILE

The log file stores routine received messages (messages other than Distress), received distress messages and transmitted messages, each in its own separate log.

5.1   Log File Description

Three memory banks are provided for storage of messages: received ordinary log, received distress log and transmitted log. Each memory bank stores 50 messages, on a first-in, first-out basis. This means that a latest message is saved as log no.1 and the log no. of all previous messages in that memory bank increments by one. When the storage capacity is exceeded the oldest message is deleted to make room for the latest. An asterisk (*) marks unread or unacknowledged Rx messages, unacknowledged Tx messages and unread distress messages. Received distress messages are automatically deleted 48 hours after being read.

5.2   Opening a Log File

5.2.1   Distress log

1.   Press the [0/LOG] key to open the Log file menu.

```
WAT
DIST    Select log file
   21  RECEIVED ORDINARY
  168   RECEIVED DISTRESS
ROU     TRANSMITTED
   21
  16903.0   12657.0    8436.5
35˚00.000N 135˚00.000E 23:59
VOLUME ▮▮▮▮▮▯▯▯▯▯▯▯▯▯  22
```
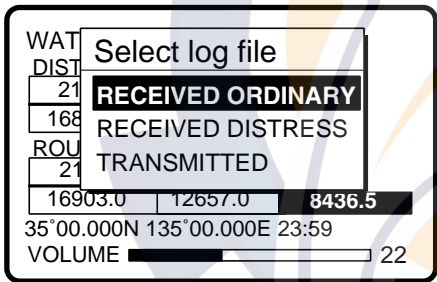
2.   Select RECEIVED DISTRESS and press the [ENT] key. Use ▲ or ▼ to scroll the log as desired. To print all received distress messages, press the [8/PRINT] key.

```
  * Rcvd distress log *              * Rcvd distress log *
01.JUL-23-19:58  ACKNOWLED      45.JUL-01-23:45   *RELAY  ALL
02.JUL-23-19:56  DISTRESS       46.JUN-29-19:56   *RELAY  ALL
03.JUL-23-13:45  *RELAY  ALL    47.JUN-29-19:48   *DISTRESS
04.JUL-23-11:52  RELAY  AREA    48.JUN-29-19:44   *DISTRESS
05.JUL-23-11:43  RELAY  GRP     49.JUN-26-12:36   *ACKNOWLED
06.JUL-22-21:18  RELAY  INDV    50.JUN-26-12:34   *DISTRESS
▼ OLD  ▲NEW      ►DELETE        ▼ OLD  ▲NEW       ►DELETE
```
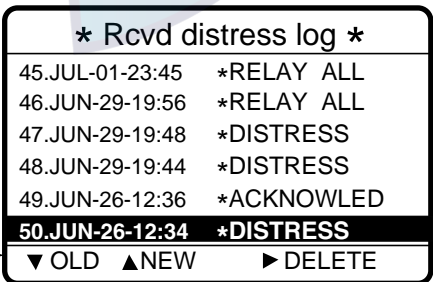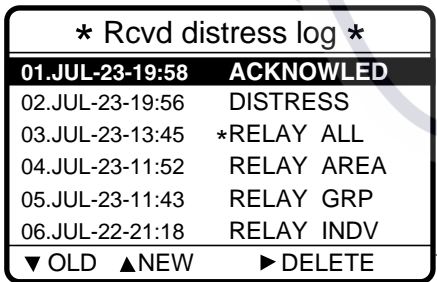
Scroll with
▲ or ▼.

3.   To view a file, select it and press the [ENT] key. To print file, display it and press the [8/PRINT] key. To return to the distress log, press the [CANCEL] key.

```
    * Rcvd distress log *                    * Received message *
45.JUL-01-23:45   *RELAY  ALL       JUN-26-1999-12:34:56        ECC: OK
46.JUN-29-19:56   *RELAY  ALL       DISTRESS CALL
47.JUN-29-19:48   *DISTRESS         SHIP IN DIST : 987654321
48.JUN-29-19:44   *DISTRESS         NATURE : UNDESIGNATED
49.JUN-26-12:36   *ACKNOWLED        POS : 12˚34N 123˚45E AT 12:34
50.JUN-26-12:34   *DISTRESS         TELEPHONE        2182.0 KHZ
▼ OLD  ▲NEW     ►DELETE            ANSWER ◄      ► ALL VIEW
```

Select file,
press [ENT]
to view.

4. To delete a file, select it, press ▶ to select DELETE, and press the [ENT] key. The log files
    are renumbered to reflect the deletion.

    Note: Unread files cannot be deleted.

```
    * Rcvd distress log *                    * Rcvd distress log *
45.JUL-01-23:45   *RELAY  ALL       44.JUL-01-12:34   *RELAY  ALL
46.JUN-29-19:56   *RELAY  ALL       45.JUL-01-23:45   *RELAY  ALL
47.JUN-29-19:48   *DISTRESS         46.JUN-29-19:56   *RELAY  ALL
48.JUN-29-19:44   *DISTRESS         47.JUN-29-19:48   *DISTRESS
49.JUN-26-12:36   *ACKNOWLED        48.JUN-29-19:44   *DISTRESS
50.JUN-26-12:34   *DISTRESS         49.JUN-26-12:36   *ACKNOWLED
▼ OLD  ▲NEW     ► DELETE           ▼ OLD  ▲NEW     ►DELETE
```

Select file to delete,
press ▶ to select
DELETE, press
[ENT] to delete.

5.2.2 Ordinary log

1. Press the [0/LOG] key to open the Log file menu.

```
WAT┌─────────────────────────┐
DIST│ Select log file         │
  21│ ┌─────────────────────┐ │
 168│ │ RECEIVED ORDINARY   │ │
ROU │ RECEIVED DISTRESS      │
  21│ TRANSMITTED            │
 16903.0 │ 12657.0 │ 8436.5 │
35˚00.000N 135˚00.000E 23:59
VOLUME ■■■■■■□□□□□ 22
```
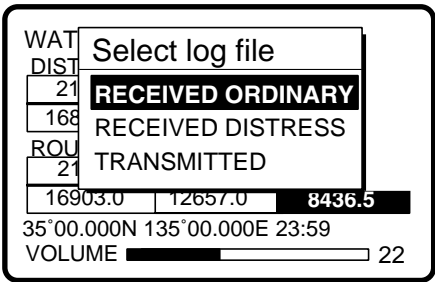
2. Press the [ENT] key to open the received ordinary log. To print all ordinary received messages, press the [8/PRINT] key.
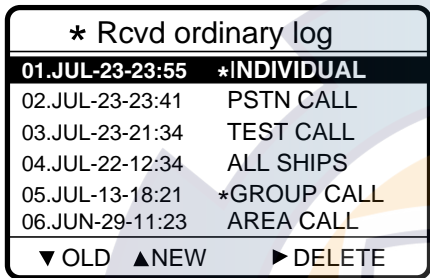
```
      ∗ Rcvd ordinary log
01.JUL-23-23:55   ∗INDIVIDUAL
02.JUL-23-23:41    PSTN CALL
03.JUL-23-21:34    TEST CALL
04.JUL-22-12:34    ALL SHIPS
05.JUL-13-18:21   ∗GROUP CALL
06.JUN-29-11:23    AREA CALL
  ▼ OLD   ▲NEW      ▶ DELETE
```

3. Use ▼ or ▲ to scroll the log.

4. To view the contents of a file, select it and press the [ENT] key. To print a file, display it and press the [8/PRINT] key. To return to the received ordinary log, press the [CANCEL] key.

```
      ∗ Rcvd ordinary log                    ∗ Received message ∗
45.JUN-29-20:49   ∗POLLING                JAN-11-1999-11:23:45      ECC: OK
46.MAY-12-03:31    NEUTRAL               ALL SHIPS CALL
47.APR-24-01:54    MEDICAL     [ENT] to  FROM SHIP : 234567890
48.MAR-27-22:09   ∗INDIVIDUAL  view file. SAFETY
49.FEB-13-18:17    INDIVIDUAL            TELEPHONE       2182.0 KHZ
50.JAN-11-11:23   ∗ALL SHIPS
  ▼ OLD   ▲NEW      ▶ DELETE               GO TO ALL VIEW
```

5. To delete a file, select it, press ▶ to select DELETE, and press the [ENT] key. The log files are renumbered to reflect the deletion.

   Note: Unread files cannot be deleted.

```
      ∗ Rcvd ordinary log                        ∗ Rcvd ordinary log
45.JUN-29-20:49   ∗POLLING                   44.JUL-01-23:45    INDIVIDUAL
46.MAY-12-03:31    NEUTRAL    Select file,    45.JUN-29-20:49   ∗POLLING
47.APR-24-01:54    MEDICAL    press ▶ to      46.MAY-12-03:31    NEUTRAL
48.MAR-27-22:09   ∗INDIVIDUAL select [DELETE],47.APR-24-01:54    MEDICAL
49.FEB-13-18:17    INDIVIDUAL and press [ENT[. 48.MAR-27-22:09   ∗INDIVIDUAL
50.JAN-11-11:23    ALL SHIPS                  49.FEB-13-18:17    INDIVIDUAL
  ▼ OLD   ▲NEW      ▶ DELETE                    ▼ OLD   ▲NEW      ▶ DELETE
```

5.2.3   Transmitted log

1. Press the [LOG] key to open the Log file menu.

```
WAT ┌─────────────────────────┐
DIST│   Select log file       │
 21 │  ┌───────────────────┐  │
168 │  │RECEIVED ORDINARY  │  │
ROU │  │RECEIVED DISTRESS  │  │
 21 │  │TRANSMITTED        │  │
    └──┴───────────────────┴──┘
 16903.0 │ 12657.0 │  8436.5
35°00.000N 135°00.000E 23:59
VOLUME ■■■■■□□□□□□ 22
```

2. Select TRANSMITTED and press the [ENT] key. To print all transmitted messages, press the [8/PRINT] key.

```
       ** Transmitted log *
01.JUL-23-23:55   *INDIVIDUAL
02.JUL-23-23:41   PSTN CALL
03.JUL-23-21:34   TEST CALL
04.JUL-22-12:34   ALL SHIPS
05.JUL-13-18:21   *GROUP CALL
06.JUN-29-11:23   AREA CALL
  ▼ OLD   ▲NEW     ► DELETE
```

3. Use ▼ or ▲ to scroll the log.

4. To view the contents of a file select it and press the [ENT] key. To print a file, display it and press the [8/PRINT] key.

```
       ** Transmitted log *                    *  Xmitted message  *
01.JUL-23-23:55   *INDIVIDUAL                 MAY-12-1999-03:31:45
02.JUL-23-23:41   PSTN CALL     Select file,   UNABLE ACKNOWLEDGE
03.JUL-23-21:34   TEST CALL     press [ENT]    NO REASON GIVEN
04.JUL-22-12:34   ALL SHIPS     to view.       TO  SHIP : 234567890
05.JUL-13-18:21   *GROUP CALL                  ROUTINE
06.JUN-29-11:23   AREA CALL
  ▼ OLD   ▲NEW     ► DELETE                     RE-SEND◄      ► ALL VIEW
```

5. To delete a file, select it, press ▶ to select DELETE, and press the [ENT] key. The log files are renumbered to reflect the deletion.

    Note: Unread files cannot be deleted.

6. To re-send a file do the following:

    a) Do steps 1-4 above to select file to re-send.

    b) Press ◀ to select RE-SEND.

    c) Press the [ENT] key.

    d) Press the [CALL] key.

6. PREPARING SEND MESSAGES

In Chapter 4 you learned how to prepare and send individual, group, geographical area and PSTN calls. In this chapter you will learn how to prepare and store them (including test calls) for future transmission. 150 such files can be stored.

6.1   Preparing Individual Call Messages

1. Press the [#/SETUP] key to open the Setup menu.

2. Select MESSAGE and press the [ENT] key.

3. Press the [ENT] key to open the CALL TYPE menu.

```
┌─────────────────────────────┐
│  * Message file entry        │
├─────────────────────────────┤
│ CALL  TYPE   INDIVIDUAL      │
│ STATION ID   PSTN CALL       │
│ COM. TYPE    GROUP CALL      │
│ COM. FREQ    AREA CALL       │
│ DSC  FREQ    TEST CALL       │
│ ▼                            │
└─────────────────────────────┘
```

4. Use ▲ or ▼ to select INDIVIDUAL and press the [ENT] key.

5. Press the [ENT] key to open the STATION ID entry window.

```
┌─────────────────────────────┐
│  * Message file entry        │
├─────────────────────────────┤
│ CALL  TYPE   : INDIVIDUAL    │
│ STATION ID    -─────────     │
│ COM. TYPE    : TELEPHONE     │
│ COM. FREQ    : NO  INFO      │
│ DSC  FREQ    : 2M-INTL       │
│ ▼                            │
└─────────────────────────────┘
```

How to input station ID automatically

If you have previously registered some station IDs, you can insert them into your message as follows:

1. Press the [FILE] key after completing step 4 in the above procedure. The following display appears.

```
┌──────────────────┐
│   Select ID file  │
│  COAST STATION    │
│  SHIP STATION     │
└──────────────────┘
```

Note: You can print the Select ID file list by pressing the [8/PRINT] key.

2. Select COAST STATION or SHIP STATION and press the [ENT] key.
3. Select file which contains ID you want to use (press ▶ to show ID number).
4. Press the [ENT] key to insert ID number in message.

6. Key in ID of coast station or ship station which is to receive the call and press the [ENT] key.

7. Press the [ENT] key to open the COM. TYPE window.

```
 * Message file entry
─────────────────────────
CALL  TYPE:    INDIVIDUAL
STATION ID   :
COM. TYPE      TELEPHONE
COM. FREQ      NBDP-ARQ
DSC  FREQ      NBDP-FEC
▼
```

8. Select communication type desired and press the [ENT] key.

9. Press the [ENT] key to open the COM. FREQ window.

```
 * Message file entry
─────────────────────────
CALL  TYPE:    INDIVIDUAL
STATION ID   : 123456789
COM. TYPE    : NO INFO
COM. FREQ    : FREQUENCY
DSC  FREQ    : CHANNEL
▼              POSITION*
```

* POSITION appears when coast station ID is entered in the field STATION ID.

10. Choose appropriate item and press the [ENT] key.
    To coast station: NO INFO or POSITION.
    To ship station: FREQUENCY or CHANNEL. Enter appropriate frequency or channel, referring to page 4-6.

11. Press the [ENT] key to open the DSC FREQ menu.

```
 * Messa    2 MHZ
            4 MHZ
CALL  TYPE  6 MHZ
STATION ID  8 MHZ
COM. TYPE   12 MHZ  E
COM. FREQ   ▼
DSC  FREQ        L
▼
```

```
▲          Use ▼ to scroll
16 MHZ     menu.
18 MHZ
22 MHZ
25 MHZ     OTHER: Special, private channels.
OTHER      MANUAL: For selection of frequency at
MANUAL     radiotelephone when there is "remote control
           error."
```

12. Select appropriate DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key.

13. Enter file name and file number as shown on the next page.

How to Enter File Name and Number

1. Press the [ENT] key to open the file name entry window.

```
┌─────────────────────────────────┐
│    * Message file entry         │
│                                 │
│  ▲                              │
│  FILE NAME                      │
│    ┌─────────────────────────┐  │
│    │ -                       │  │
│    └─────────────────────────┘  │
│  FILE NUMBER : ---              │
│                                 │
│                 FILE ENTRY      │
└─────────────────────────────────┘
```

2. Use the numeric keys and cursor pad to enter file name (max. 16 characters) and press the [ENT] key. For example, enter FURUNO as the file name.

```
┌───────────────────────────────┐
│ How to assign file name       │
│ [1_] key : 1→_→1              │
│ [2ABC]   : 2→A→B→C→2          │
│ [3DEF]   : 3→D→E→F→3          │
│ [4GHI]   : 4→G→H→I→4          │
│ [5JKL]   : 5→J→K→L→5          │
│ [6MNO]   : 6→M→N→O→6          │
│ [7PQRS]  : 7→P→Q→R→S→7        │
│ [8TUV]   : 8→T→U→V→8          │
│ [9WXYZ]  : 9→W→X→Y→Z→9        │
│ [0_]     : 0→_→0              │
│                               │
│ 1. Press ◄ or ► to select     │
│    location.                  │
│ 2. Press appropriate key.     │
└───────────────────────────────┘
```

```
┌───────────────────────────────┐
│  How to enter "FURUNO" as     │
│  file name                    │
│                               │
│ 1. Press the [3] key to       │
│    display F.                 │
│ 2. Press ► .                  │
│ 3. Press the [8] key to       │
│    select U.                  │
│ 4. Press ► .                  │
│ 6. Press the [7] key to       │
│    select R.                  │
│ 7. Press ► .                  │
│ 8. Press the [8] key to       │
│    select U.                  │
│ 7. Press ► .                  │
│ 8. Press the [6] key to       │
│    select N.                  │
│ 9. Press ► .                  │
│ 10. Press the [6] key to      │
│     select O.                 │
└───────────────────────────────┘
```

3. Press the [ENT] key to open the file number entry window. Key in file number in three digits with the numeric keys, and press the [ENT] key. For example, press [0] [0] [1] [ENT] to enter file number 001.

```
┌─────────────────────────────────┐
│    * Message file entry         │
│                                 │
│  ▲                              │
│  FILE NAME                      │
│    : FURUNO                     │
│  FILE NUMBER  000               │
│                                 │
│                 FILE ENTRY      │
└─────────────────────────────────┘
```

Note: The available file number is 001-799 and 900-999. Do not use "8" as the first digit of a file number.

4. Press the [ENT] key. The display shows the name and file number entered.

```
┌─────────────────────────────────┐
│    * Message file entry         │
│                                 │
│   ┌─────────────────────────┐   │
│   │ FURUNO                  │   │
│   │ NO001 file entered      │   │
│   └─────────────────────────┘   │
│                                 │
│        GO TO NEXT FILE          │
└─────────────────────────────────┘
```

If the file name or number exists the message "Duplicate name (number) ! Overwrite OK?" appears. Press [ENT] to write over the name, or press the [CANCEL] key to escape.

5. Press the [ENT] key to continue.

6.2   Preparing Group Call Messages

1. Press the [#/SETUP] key to open the Setup menu.

2. Select MESSAGE and press the [ENT] key.

3. Press the [ENT] key to open the CALL TYPE menu.

```
  ∗ Message file entry

 CALL  TYPE   INDIVIDUAL
 STATION ID   PSTN CALL
 COM. TYPE    GROUP CALL
 COM. FREQ    AREA CALL
 DSC  FREQ    TEST CALL

 ▼
```

4. Use ▲ or ▼ to select GROUP CALL and press the [ENT] key.

5. Press the [ENT] key to open the GROUP ID entry window.

```
  ∗ Message file entry

 CALL  TYPE:    GROUP CALL
 GROUP ID      000000000
 COM. TYPE    : TELEPHONE
 COM. FREQ    : NO  INFO
 DSC  FREQ    : 2M-INTL

 ▼
```

How to input group ID automatically

If you have previously registered some group IDs, you can insert them into your message as follows:

1. Press the [FILE] key after completing step 4 in the above procedure. The following display appears.

```
      Group ID file

 004. FURUNO      ▶
 500. MARINE      ▶
 777. ELECTRIC    ▶

 ▲ UP  ▼ DOWN
```

Note: You can print the Group ID file list by pressing the [8/PRINT] key.

2. Select file which contains ID you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert ID number in message.

6. Key in ID of group which is to receive the call and press the [ENT] key.

7. Press the [ENT] key to open the COM. TYPE menu.

```
  ∗ Message file entry

 CALL  TYPE:    GROUP CALL
 GROUP ID     : 012345678
 COM. TYPE    : TELEPHONE
 COM. FREQ    : NBDP-FEC
 DSC  FREQ    : 2M-INTL

 ▼
```

8. Select appropriate communications type and press the [ENT] key.

9. Press the [ENT] key to open the COM. FREQ menu.

```
┌─────────────────────────────┐
│  * Message file entry        │
├─────────────────────────────┤
│ CALL  TYPE:   GROUP CALL     │
│ GROUP ID  : 012345678        │
│ COM. TYPE : ┌──────────────┐ │
│            │ FREQUENCY    │ │
│ COM. FREQ :│ CHANNEL      │ │
│            │              │ │
│ DSC  FREQ :│              │ │
│            └──────────────┘ │
│ ▼                           │
└─────────────────────────────┘
```

10. Choose appropriate item and press the [ENT] key. (See page 4-6 for details for how to enter frequency and channel.)

11. Press the [ENT] key to open the DSC FREQ menu.

```
┌──────────────────────┐   ┌──────────┐   Use ▼ to scroll
│  * Messag┌────────┐   │   │ ▲        │   menu.
│          │ 2 MHZ  │   │   │ 16 MHZ   │
│ CALL TYPE│ 4 MHZ  │   │   │ 18 MHZ   │
│          │ 6 MHZ  │   │   │ 22 MHZ   │   OTHER: Special, private channels.
│ GROUP ID │ 8 MHZ  │   │   │ 25 MHZ   │   MANUAL: For selection of frequency at
│ COM. TYPE│ 12 MHZ │ E │   │ OTHER    │   radiotelephone when there is "remote control
│ COM. FREQ│ ▼      │   │   │ MANUAL   │   error."
│ DSC  FREQ│        │TL │   └──────────┘
│          └────────┘   │
│ ▼                     │
└──────────────────────┘
```

12. Select appropriate DSC band and press the [ENT] key. Select appropriate DSC frequency and press the [ENT] key.

13. Follow "How to Enter File Name and Number" on page 6-3 to enter file name and number.

Note: Your ship's group ID will be as registered as entered in step 6 of this procedure.

6.3   Preparing Geographical Area Call Messages

1. Press the [#/SETUP] key to open the Setup menu.

2. Select MESSAGE and press the [ENT] key.

3. Press the [ENT] key to open the CALL TYPE menu.

```
┌─────────────────────────────┐
│  * Message file entry        │
├─────────────────────────────┤
│ CALL  TYPE ┌──────────────┐ │
│            │ INDIVIDUAL   │ │
│ STATION ID │ PSTN CALL    │ │
│ COM. TYPE  │ GROUP CALL   │ │
│            │ AREA CALL    │ │
│ COM. FREQ  │ TEST CALL    │ │
│ DSC  FREQ  └──────────────┘ │
│ ▼                           │
└─────────────────────────────┘
```

4. Use ▲ or ▼ to select AREA CALL and press the [ENT] key.

5. Press the [ENT] key to open the AREA entry window.

```
┌─────────────────────────────┐
│   * Message file entry      │
│                             │
│  CALL  TYPE:    AREA CALL   │
│  AREA :  [ ]°N ----°E ↓--° →--° │
│  COM. TYPE   : TELEPHONE    │
│  COM. FREQ   : NO  INFO     │
│  DSC  FREQ   : 2M-INTL      │
│  ▼                          │
└─────────────────────────────┘
```

6. Enter latitude, longitude, southerly degrees and easterly degrees of area with the numeric keys and press the [ENT] key. Use ▲ or ▼ to switch from North to South latitude and vice versa and East to West longitude and vice versa.

7. Press the [ENT] key to open the COM. TYPE menu.

```
┌─────────────────────────────┐
│   * Message file entry      │
│                             │
│  CALL  TYPE:    INDIVIDUAL  │
│  AREA: 34°N 135°W ↓10° →10° │
│  COM. TYPE   :│TELEPHONE │  │
│  COM. FREQ   :│NBDP-FEC  │  │
│  DSC  FREQ   : 2M-INTL      │
│  ▼                          │
└─────────────────────────────┘
```

8. Select appropriate item and press the [ENT] key.

9. Press the [ENT] key to open the COM. FREQ menu.

```
┌─────────────────────────────┐
│   * Message file entry      │
│                             │
│  CALL  TYPE:    AREA CALL   │
│  AREA : 34°N 135°E ↓05° →05° │
│  COM. TYPE   :│FREQUENCY │  │
│  COM. FREQ   :│CHANNEL   │  │
│  DSC  FREQ   :│          │  │
│  ▼                          │
└─────────────────────────────┘
```

9. Select appropriate item and press the [ENT] key. (See page 4-6 for how to enter channel and frequency.)

10. Press the [ENT] key to open the DSC FREQ menu.

```
┌──────────────────────┐    ┌──────────┐   Use ▼ to scroll
│  * Messag │2 MHZ │ * │    │  ▲       │   menu.
│           │4 MHZ │   │    │ 16 MHZ   │
│  CALL TYPE│6 MHZ │   │    │ 18 MHZ   │
│  AREA : 34°N 1│8 MHZ │→ 05°│ 22 MHZ   │   OTHER: Special, private channels.
│  COM. TYPE │12 MHZ│ E │    │ 25 MHZ   │   MANUAL: For selection of frequency at
│  COM. FREQ │ ▼    │   │    │ OTHER    │   radiotelephone when there is "remote control
│  DSC  FREQ │      │   │    │ MANUAL   │   error."
│  ▼         │      │   │    └──────────┘
└────────────┴──────┴───┘
```

11. Select appropriate DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key.

12. Follow "How to Enter File Name and Number" on page 6-3 to enter file name and number.

6-6

6.4 Preparing PSTN Call Messages

1. Press the [#/SETUP] key to open the Setup menu.

2. Select MESSAGE and press the [ENT] key.

3. Press the [ENT] key to open the CALL TYPE menu.

```
 ∗ Message file entry
 ┌─────────────────────────────┐
 │ CALL  TYPE  INDIVIDUAL       │
 │ STATION ID  PSTN CALL        │
 │ COM. TYPE   GROUP CALL       │
 │ COM. FREQ   AREA CALL        │
 │ DSC  FREQ   TEST CALL        │
 │ ▼                            │
 └─────────────────────────────┘
```

4. Select PSTN CALL and press the [ENT] key.

5. Press the [ENT] key to open the COAST ID entry window.

```
 ∗ Message file entry
 ┌─────────────────────────────┐
 │ CALL  TYPE  : PSTN CALL      │
 │ COAST ID    000000000        │
 │ TEL NO. :   ---------------- │
 │                              │
 │ DSC  FREQ   : 2M-INTL        │
 │ ▼                            │
 └─────────────────────────────┘
```

How to input coast ID automatically

If you have previously registered some coast IDs, you can insert them into your message as follows:

1. Press the [FILE] key after completing step 4 in the above procedure. The following display appears.

```
 ┌──────────────────────┐
 │ PSTN ID file         │
 │ 300. FURUNO      ▶   │
 │ 500. MARINE      ▶   │
 │ 777. ELECTRIC    ▶   │
 │ ▲ UP  ▼ DOWN         │
 └──────────────────────┘
```

Note: You can print the PSTN ID file list by pressing the [8/PRINT] key.

2. Select file which contains ID you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert ID number in message.

6. Key in ID of coast station (seven digits) to send the call to and press the [ENT] key.

7. Press the [ENT] key to open the TEL. NO. entry window.

```
 ∗ Message file entry
 ┌─────────────────────────────┐
 │ CALL  TYPE:   PSTN CALL      │
 │ COAST ID    : 001234567      │
 │ TEL NO. :   |--------------- │
 │                              │
 │ DSC  FREQ   : 2M-INTL        │
 │ ▼                            │
 └─────────────────────────────┘
```

How to input telephone no. automatically

If you have previously registered some coast IDs, you can insert them into your message as follows:

1. Press the [FILE] key after completing step 6 in the above procedure. The following display appears.

```
 ┌──────────────────────┐
 │ Telephone no. file   │
 │ 300. FURUNO      ▶   │
 │ 500. MARINE      ▶   │
 │ 777. ELECTRIC    ▶   │
 │ ▲ UP  ▼ DOWN         │
 └──────────────────────┘
```

Note: You can print the Telephone no. file list by pressing the [8/PRINT] key.

2. Select file which contains no. you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert no. in message.

8. Key in telephone no. (max. 16 digits) and press the [ENT] key.

9. Press the [ENT] key to open the DSC FREQ menu.

```
  * Message ...          ┌─────────┐        Use ▼ to scroll
                         │ ▲       │        menu.
  CALL  TYPE:   ┌─────────┤ 16 MHZ  │
  COAST ID      │ 2 MHZ   │ 18 MHZ  │
  TEL NO. :     │ 4 MHZ   │ 22 MHZ  │
                │ 6 MHZ   │ 25 MHZ  │        OTHER: Special, private channels.
                │ 8 MHZ   │ OTHER   │        MANUAL: For selection of frequency at
  ───────────── │ 12 MHZ  │ MANUAL  │        radiotelephone when there is "remote control
  DSC  FREQ  :  │ ▼       └─────────┘        error."
  ─────────────┤         │ TL
       ▼       └─────────┘
```

10. Select appropriate DSC band and press the [ENT] key. Select DSC frequency and press the [ENT] key.

11. Follow "How to Enter File Name and Number" on page 6-3 to enter file name and number.

6.5   Preparing Test Call Messages

3. Press the [#/SETUP] key to open the Setup menu.

4. Select MESSAGE and press the [ENT] key.

5. Press the [ENT] key to open the CALL TYPE menu.

```
  ┌──────────────────────────────────┐
  │    * Message file entry           │
  ├─────────────┬────────────────────┤
  │ CALL  TYPE  │ INDIVIDUAL         │
  │ STATION ID  │ PSTN CALL          │
  │ COM. TYPE   │ GROUP CALL         │
  │ COM. FREQ   │ AREA CALL          │
  │ DSC  FREQ   │ TEST CALL          │
  ├─────────────┴────────────────────┤
  │ ▼                                 │
  └──────────────────────────────────┘
```

4. Select TEST CALL and press the [ENT] key.

5. Press the [ENT] key to open the COAST ID menu.

```
  ┌──────────────────────────────────┐
  │   *  Message file entry           │
  ├──────────────────────────────────┤
  │  CALL TYPE     : TEST             │
  │  COAST ID    ┌────────────┐       │
  │              │ 000000000  │       │
  │  PRIORITY      : SAFETY           │
  │                                   │
  │  DSC FREQ   :        2187.5 KHZ   │
  │          GO TO ALL VIEW           │
  └──────────────────────────────────┘
```

How to input coast ID automatically

If you have previously registered some coast IDs, you can insert them into your message as follows:

1. Press the [FILE] key after completing step 4 in the above procedure. The following display appears.

```
  ┌─────────────────────┐
  │    Test ID file     │
  ├─────────────────────┤
  │  300. FURUNO      ▶ │
  │  500.  MARINE     ▶ │
  │  777. ELECTRIC    ▶ │
  ├─────────────────────┤
  │  ▲ UP   ▼ DOWN      │
  └─────────────────────┘
```

Note: You can print the Test ID file list by pressing the [8/PRINT] key.

2. Select file which contains ID you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert ID number in message.

6. Press the [ENT] key to open the DSC FREQ menu.

```
╭──────────────────────────╮
│  * Message file entry    │
├────────────┬─────────────┤
│ CALL TYPE  │  2187.5     │
│ COAST ID   │  4207.5     │
│ PRIORITY   │  6312.0     │
│            │  8414.5     │
│            │  12577.0    │
│            │  16804.5    │
│ DSC FREQ   │ MANUAL  KHZ │
╰────────────┴─────────────╯
```

MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

7. Select appropriate DSC frequency and press the [ENT key.

8. Follow "How to Enter File Name and Number" on page 6-3 to enter file name and number.

6.6   Sending Prepared Messages

1. Press the [*/FILE] key at the DSC standby screen to show the send message file list. Below is an example of the send message file list.

```
╭──────────────────────────────────╮
│       * Send message file *       │
├──────────────────────────────────┤
│ 001 - FURUNO JAPAN                │
│ 002 - FURUNO USA                  │
│ 003 - FURUNO UK                   │
│ 004 - FURUNO DENMARK              │
│ 005 - FURUNO NORWAY               │
│ 006 - FURUNO SPAIN                │
│ 007 - FURUNO FRANCE               │
├──────────────────────────────────┤
│ ▲ UP   ▼ DOWN   ▶ DELETE          │
╰──────────────────────────────────╯
```

2. Select file with ▲ or ▼ . (You can also select a file by entering its number with the numeric keys and pressing the [ENT] key.)

3. Press the [CALL] key to send the file.

Note: You can delete a file by selecting it, pressing ▶ followed by the [ENT] key.

6.7 Printing List of Send Message Files

You can print a list of send message files as follows:

1. Press the [*/FILE] key to open the Send message file list.

2. Press the [8/PRINT] key.

3. Press ◄ to select YES and press the [ENT] key.

```
********** Send message file **********
001. FURUNO JAPAN     INDIVIDUAL CALL
002. FURUNO USA       INDIVIDUAL CALL
003. FURUNO UK        PSTN CALL
004. FURUNO DENMARK   GROUP CALL
005. FURUNO NORWAY    INDIVIDUAL CALL
006. FURUNO SPAIN     ALL SHIPS CALL
007. FURUNO FRANCE    INDIVIDUAL CALL
```

Note: Message not framed in actual printout.

7.   SETUP MENU

7.1   Setup Menu Overview

The Setup menu, consisting of 11 menus, provides for set up of the equipment according to expected usage and user's preferences.

1. At the DSC standby screen, press the [#/SETUP] key to display the Setup menu.

```
**** Setup menu ****
ALARM           SCAN FREQ
AUTO ACK        USER CH
ERASE           VOLUME
MESSAGE
POSITION        TEST
PRINT OUT       SYSTEM
```
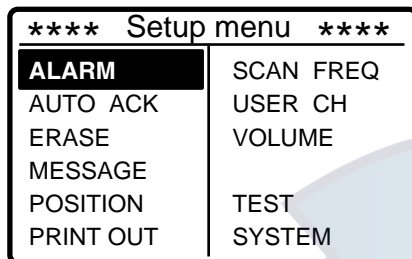
2. Use the Cursor Pad to select a menu and press the [ENT] key. For example, select the Volume menu.

```
*** Volume setup ***

KEY CLICK        : ON
HANDSET          : 40
ORDINARY ALARM   : 30
DISTRESS ALARM   : 63
```
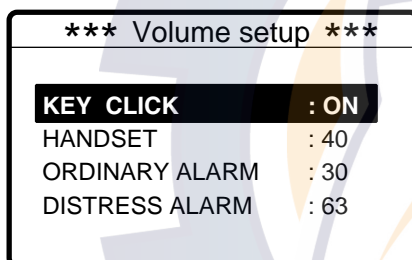
3. Use the Cursor Pad to choose item and press the [ENT] key. For example, select KEY CLICK. A pop-up window showing choices appears.

```
*** Volume setup ***

KEY CLICK        :  ON
HANDSET          :  OFF
ORDINARY ALARM   :
DISTRESS ALARM   : 63
```
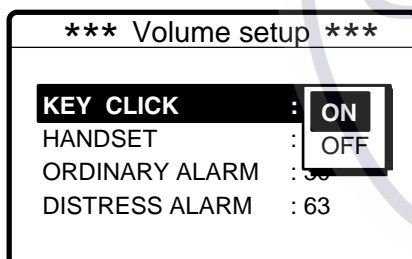
4. Use ▲ or ▼ to choose option desired and press the [ENT] key.

5. Press the [CANCEL] key twice to close the menu and return to the DSC standby screen.

7.2   Alarm Menu

The Alarm menu enables/disables internal and external alarms. Note that the Distress/Urgency alarm cannot be disabled. Press the [#/SETUP] key, select ALARM and press the [ENT] key to display the Alarm menu.

Default: ON

| ON |
| OFF |

▲ or ▼
to set.

Disables/enables alarm for received Safety, Ship's Business and Routine messages.

> **Note:** Alarm for Distress and Urgency messages cannot be disabled, and its decibel level is fixed at 75-85 dB.

Default: ON

| ON |
| OFF |

▲ or ▼
to set.

Disables/enables old position alarm in manual position entry mode, which alerts the operator when position data is older by the number of hours or minutes set in the Position Older field.

```
WATCH KEEPING          AUTO ACK
DISTRESS
  2187.5    4207.5    6312.0
  168    Warning:
  ROU    Update position
   21
  16903.0   12657.0   8436.5
35°00.000N 135°00.000E 23:59
VOLUME ▬▬▬▬▬▬▬▬▬      22
```

Message shown when position is older than preset on the Alarm setup menu.

```
**** Alarm setup ***
INTERNAL AUDIO ALARM
  RCVD CALL        : ON
  OLD POSITION     : ON
POSITION OLDER     : 4.0 H

EXT ALARM : DSTRS/URG
```
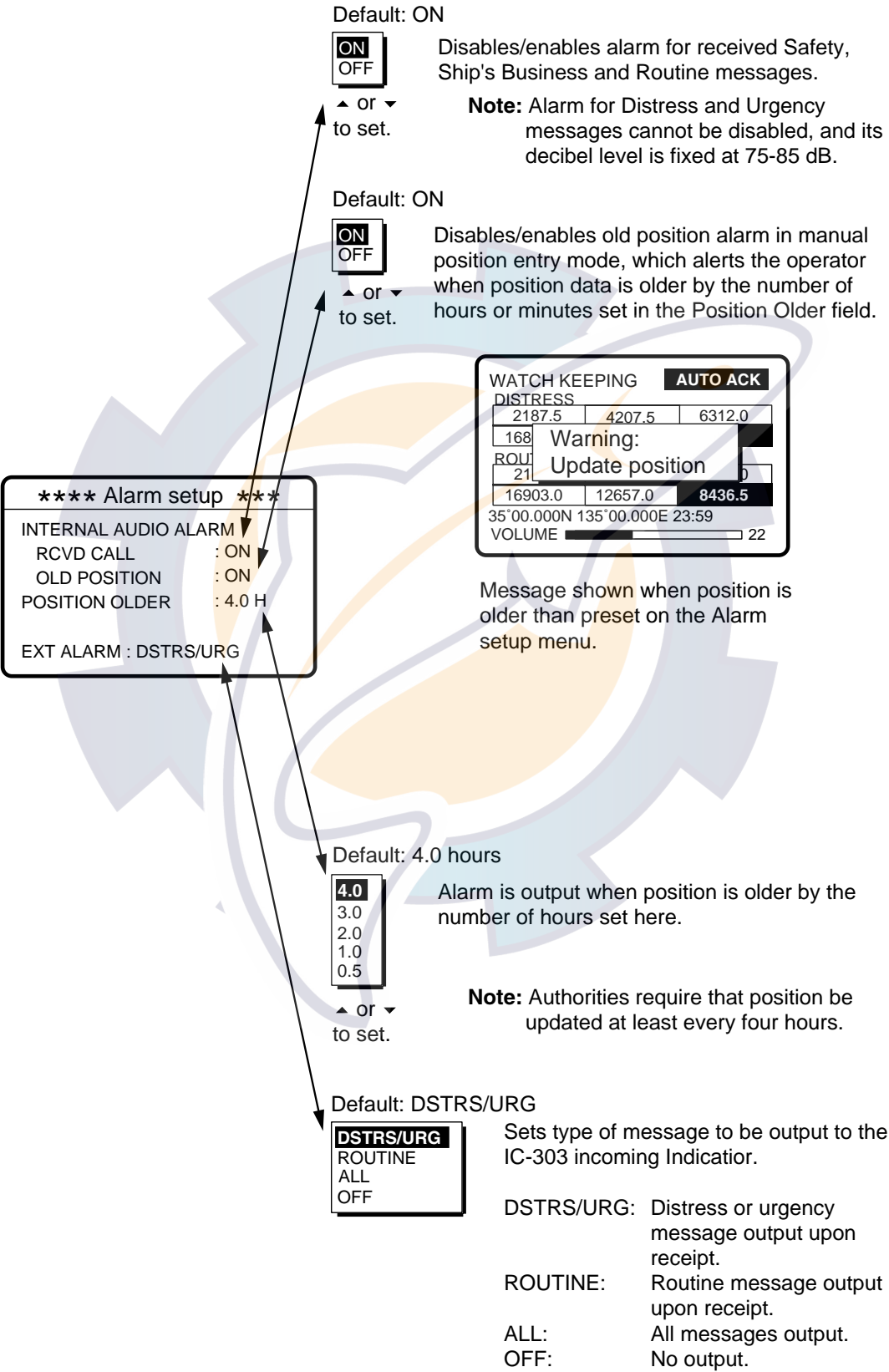
Default: 4.0 hours

| **4.0** |
| 3.0 |
| 2.0 |
| 1.0 |
| 0.5 |

▲ or ▼
to set.

Alarm is output when position is older by the number of hours set here.

> **Note:** Authorities require that position be updated at least every four hours.

Default: DSTRS/URG

| **DSTRS/URG** |
| ROUTINE |
| ALL |
| OFF |

Sets type of message to be output to the IC-303 incoming Indicatior.

DSTRS/URG:	Distress or urgency message output upon receipt.
ROUTINE:	Routine message output upon receipt.
ALL:	All messages output.
OFF:	No output.

7.3 Auto Ack Menu

The Auto Ack menu enables/disables automatic acknowledgement of individual, position and polling calls. Press the [#/SETUP] key, select AUTO ACK and press the [ENT] key to display the Auto Ack setup menu. See the next page for the Auto Ack menu.

Comply type, automatic acknowledge	ABLE	UNABLE
AUTO ACK	Can send acknowledge automatically	Can send UNABLE automatically
MANUAL ACK	Can send acknowledge manually	Can send UNABLE manually

Default: ABLE

ABLE
UNABLE

▲ or ▼ to set.
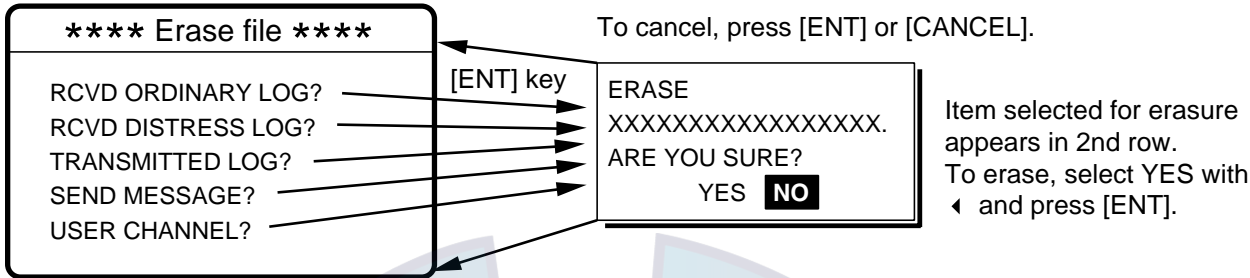
Choose ABLE or UNABLE as automatic acknowledgement reply to Individual, Position and Polling messages.

Note: Automatic acknowledge is automatically disabled when Rx message contains error, as required by law. Further, automatic acknowledge is disabled in case of OFF HOOK.

Automatic acknowledge of Position or Polling request is not available when UNABLE is selected.

[ENT] key

Default: NO REASON

NO REASON
BUSY
EQUIP DISABLED
MODE NOT USABLE
CH NOT USABLE

▲ or ▼ to set.

Sets reason for UNABLE.

Note: This menu is the same as manual acknowledgement. EQUIPMENT DISABLED is shown in messages when EQUIP DISABLED is selected.

```
∗∗ Auto ack setup ∗∗

COMPLY TYPE    : ABLE
UNABLE REASON :
     NO REASON GIVEN

POSITION CALL  : OFF
POLLING CALL   : ON
```

[ENT] key

Default: ON

ON
OFF

▲ or ▼ to set.

Overrides/follows AUTO ACK setting in case of position.
OFF: Disables automatic acknowledgement of position request.
ON: Enables automatic acknowledgement of position request.

[ENT] key

Default: ON

ON
OFF

▲ or ▼ to set.

Overrides/follows AUTO ACK setting in case of polling.
OFF: Disables automatic acknowledgement of polling request.
ON: Enables automatic acknowledgement of polling request.

7.4 Erase File Menu

The Erase file menu separately erases the entire contents of the received ordinary log, received distress log, transmitted log, send messages and user channels. Press the [#/SETUP] key, select ERASE FILE and press the [ENT] key to display the Erase file menu. Select the item to erase and press the [ENT] key.

```
**** Erase file ****

   RCVD ORDINARY LOG?
   RCVD DISTRESS LOG?
   TRANSMITTED LOG?
   SEND MESSAGE?
   USER CHANNEL?
```

[ENT] key

To cancel, press [ENT] or [CANCEL].

```
ERASE
XXXXXXXXXXXXXXXXX.
ARE YOU SURE?
          YES   NO
```

Item selected for erasure appears in 2nd row.
To erase, select YES with ◄ and press [ENT].

Note: The contents of the "SEND MESSAGE" and "USER CHANNEL" are kept until turning off the power.
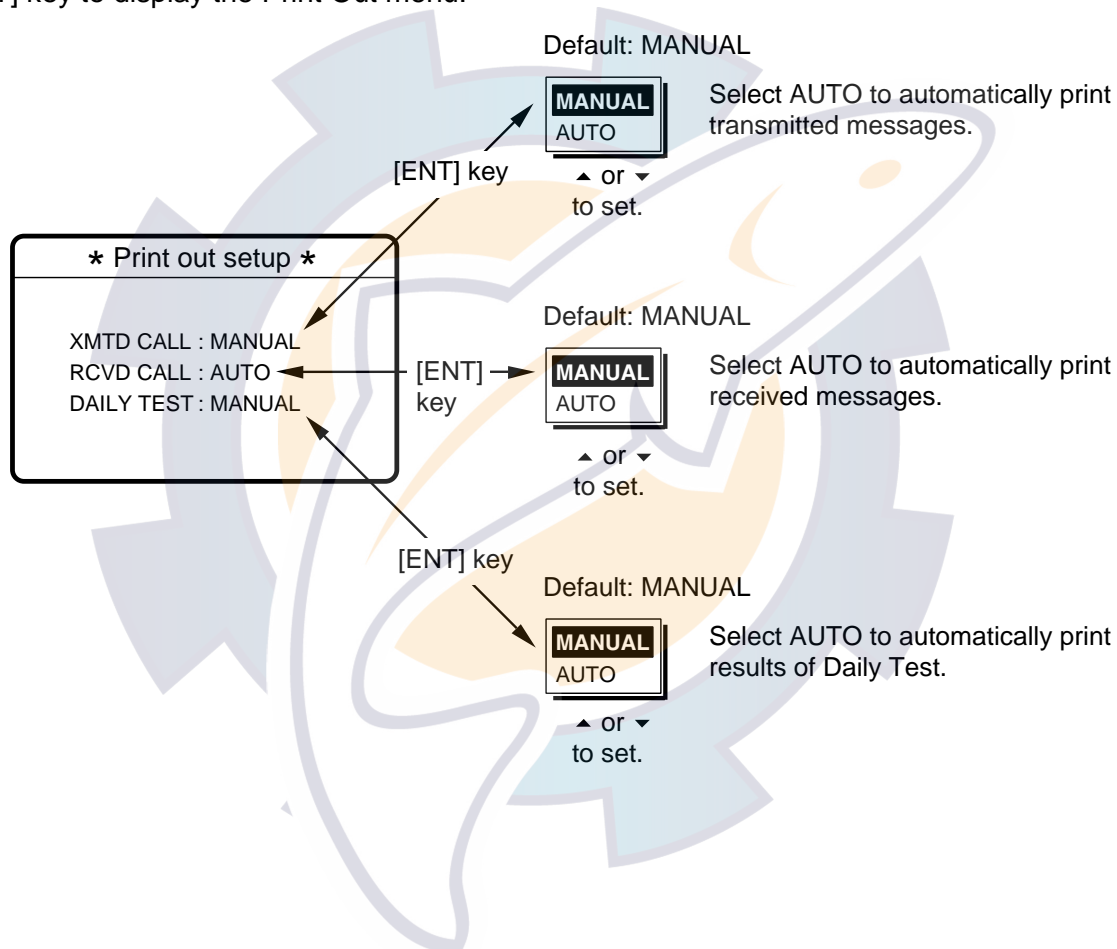
7.5 Message Menu

The Message menu prepares and stores messages for later transmission. Press the [#/SETUP] key, select MESSAGE and press the [ENT] key to display the Message menu. For further details see Chapter 6.

7.6   Position Menu

Position and time are entered (automatically or manually) on the Position menu. Manually enter position and time when the DSC-60 is not interfaced with EPFS or the EPFS is not working. Press the [#/SETUP] key, select POSITION and press the [ENT] key to display the Position menu. For further details see Paragraph 2.10 "Manual Input of Position and Time" on page 2-10.

7.7   Print Out Menu

The Print Out menu enables/disables automatic printing of transmitted and received messages and the results of the daily test. Press the [#/SETUP] key, select PRINT OUT and press the [ENT] key to display the Print Out menu.

Default: MANUAL

MANUAL
AUTO

Select AUTO to automatically print transmitted messages.

[ENT] key

▲ or ▼
to set.

* Print out setup *

XMTD CALL : MANUAL
RCVD CALL : AUTO
DAILY TEST : MANUAL

[ENT]
key →

Default: MANUAL

MANUAL
AUTO

Select AUTO to automatically print received messages.

▲ or ▼
to set.

[ENT] key

Default: MANUAL

MANUAL
AUTO

Select AUTO to automatically print results of Daily Test.

▲ or ▼
to set.

7.7.1   Sample printouts

Printing can be done automatically or manually. For manual printing, press the [8/PRINT] key. Note that messages comprised of more than one page (for example, received messages) are printed out in their entirety.

```
 * Received message at JAN-08-1999-16:10:12 *
FORMAT             : DISTRESS CALL
SELF-IDENTITY      : 987654321
NATURE OF DISTRESS : UNDESIGNATED DISTRESS
DISTRESS COORDINATES: NO INFORMATION
DISTRESS TELECOMAND: J3E TELEPHONE
END OF SEQUENCE    : EOS
ERROR-CHECK        : OK

DSC FREQUENCY    TX: 2187.5 kHz
                 RX: 2187.5 kHz
```

Sample Received Message Printout (Distress)

```
 * Received message at JAN-08-1999-16:10:12 *
FORMAT             : INDIVIDUAL CALL
ADDRESS            : 111660000
CATEGORY           : ROUTINE
SELF-IDENTITY      : 987654321
1st TELECOMMAND    : J3E TELEPHONE
2nd TELECOMMAND    : NO INFORMATION
WORKING FREQUENCY  : NO INFORMATION
END OF SEQUENCE    : ACK. RQ
ERROR-CHECK        : OK

DSC FREQUENCY    TX: 2177.0 kHz
                 RX: 2177.0 kHz
```

Sample Received Message Printout (Individual)

```
 *************** Send message *************
FORMAT             : INDIVIDUAL CALL
ADDRESS            : 111660000
CATEGORY           : ROUTINE
SELF-IDENTITY      : 987654321
1st TELECOMMAND    : J3E TELEPHONE
2nd TELECOMMAND    : NO INFORMATION
WORKING FREQUENCY  : NO INFORMATION
END OF SEQUENCE    : ACK. RQ


DSC FREQUENCY    TX: 2177.0 kHz
                 RX: 2177.0 kHz
```

Sample Send Message Printout (Individual)

```
 *Transmitted message at JAN-08-1999-16:10:12 *
FORMAT             : INDIVIDUAL CALL
ADDRESS            : 987654321
CATEGORY           : ROUTINE
SELF-IDENTITY      : 111660000
1st TELECOMMAND    : J3E TELEPHONE
2nd TELECOMMAND    : NO INFORMATION
WORKING FREQUENCY  : NO INFORMATION
END OF SEQUENCE    : ACK. RQ

DSC FREQUENCY    TX: 2177.0 kHz
                 RX: 2177.0 kHz
```

Sample Transmitted Message Printout (Individual)

Note: Messages are not framed in actual printouts.

7.8   Scan Freq Menu

The Scan freq menu determines which DSC routine and distress frequencies to scan. Follow the instructions below to select/deselect DSC routine and distress frequencies to scan.

7.8.1   Distress frequencies

1. Press the [#/SETUP] key, select SCAN FREQ and press the [ENT] key to display the SCAN FREQ menu.

```
** Scan freq setup *
ROUTINE          DISTRESS
F1 : 2M-INTL      2M : FIXED
F2 : 4M-INTL      4M : ON
F3 : 6M-INTL      6M : ON
F4 : 8M-INTL      8M : FIXED
F5 :16M-INTL     12M : ON
F6 :25M-INTL     16M : OFF
```

2. Press ▶ to shift the cursor to the DISTRESS column.

3. Select the frequency to process and press the [ENT] key. For example, select 4 MHz.

```
** Scan freq setup *
ROUTINE          DISTRESS
F1 :  2M-INTL     2M : FIXED
F2 :  2M-USR3     4M : ON
F3 :  4M-INTL     6M : OFF
F4 :  8M-INTL     8M : FIXED
F5 : 16M-LCL1    12M : ON
F6 : 25M-LCL2    16M : OFF
```

4. Select ON or OFF as appropriate and press the [ENT] key.

5. Press the [CANCEL] key twice to return to the DSC standby screen.

Note: Regulations require that 2 MHz and 8 MHz be watched continuously. These frequencies cannot be turned off. Maximum three bands may be turned off.

7.8.2   Routine frequencies

1. Press the [#/SETUP] key, select SCAN FREQ and press the [ENT] key to display the Scan freq menu.

```
** Scan freq setup *
ROUTINE           DISTRESS
F1 :  2M-INTL      2M :  FIXED
F2 :  4M-INTL      4M :  ON
F3 :  6M-INTL      6M :  ON
F4 :  8M-INTL      8M :  FIXED
F5 : 16M-INTL     12M :  ON
F6 : 25M-INTL     16M :  OFF
```

2. Select the frequency to process and press the [ENT] key. For example, select 2 MHz.

```
** Scan freq setup *
ROU  OFF          DISTRESS
F1 : 2 MHZ         2M :  FIXED
F2 : 4 MHZ    3    4M :  ON
F3 : 6 MHZ         6M :  ON
F4 : 8 MHZ         8M :  FIXED
F5 :              12M :  ON
F6 :              16M :  OFF
```

Use ▼ to scroll the menu.

```
▲
12 MHZ
16 MHZ
22 MHZ
25 MHZ
OTHER
```

3. Press the [ENT] key, and the display looks something like the one below.

```
** Scan freq setup *
ROUTINE           DISTRESS
INTL      :T12577.5/R12657.0
LOCAL1  :T12578.0/R12657.5
LOCAL2  :T12578.5/R12658.0
▼
F6 : 25M-LOL2    16M :  OFF
```

4. Select frequency desired and press the [ENT] key. INTL are international channels and LOCAL1/LOCAL2 are local channels. Pressing ▼ selects USER CH, for entry of user channels (where permitted). Note that selecting OTHER at step 2 displays "**M".

5. Press the [CANCEL] key twice to return to the DSC standby screen.

7.9 User CH Menu

The User ch menu allows registration of user Tx and Rx channels, where permitted by the Authorities. Follow the instructions below to register user channels.

⚠ **CAUTION**

FURUNO will assume no responsibility for the disturbance caused by the unlawful or improper setting of user channels.

1. Press the [#/SETUP] key, select USER CH and press the [ENT] key to display the User ch entry menu.

```
✱✱✱ User ch entry ✱✱
◀ MODE:  TEL      ▶ CH:   2-01
  0201.  TX: 2111.5  RX: 2111.5
  0202.  TX: 2222.0  RX: 2222.0
  0203.  TX: 2333.5  RX: 2333.5
  0204.  TX: 2444.0  RX: 2444.0
  0205.  TX: 2555.5  RX: 2555.5
▲ UP ▼ DOWN
```

2. Press ◀ to select MODE and press the [ENT] key.

```
✱✱✱ User ch entry ✱✱
◀ MODE:  ┌─────┐  CH:   2-01
         │ TEL │
  0201.  T│NBDP │ RX: 2111.5
  0202.  T│DSC  │ RX: 2222.0
  0203.  TX: 2333.5  RX: 2333.5
  0204.  TX: 2444.0  RX: 2444.0
  0205.  TX: 2555.5  RX: 2555.5
▲ UP ▼ DOWN
```

3. Select appropriate mode and press the [ENT] key.

4. Press ▶ to select CH and press the [ENT] key.

```
✱✱✱ User ch entry ✱✱
◀ MODE:  NBDP   ┌───────────┐
                │ CH:0-00   │
  0201.  TX: 2101.5   RX: 2101.5
  0202.  TX: 2202.0  RX: 2202.0
  0203.  TX: 2303.5  RX: 2303.5
  0204.  TX: 2404.0  RX: 2404.0
  0205.  TX: 2505.5  RX: 2505.5
▲ UP ▼ DOWN
```

256 channels may be registered.

Band no. setting range is 0-29 and band channel no. range is 01-99.

For DSC, four channels can be registered per band (2, 4, 6 8, 12, 16, 18, 22, 25).

"0" band is for DSC frequencies only, and they are registered under "OTHER."

5. Key in channel no. and press the [ENT] key. For example, press [1], [2], [3], [4] and [ENT] to enter channel 1234. The channel selected is shown in black on white characters at the top of the screen.

```
*** User ch entry **
◀ MODE: NBDP    ▶ CH: 12-34
01234.  TX:       0.0   RX:       0.0
01240.  TX: 12666.0   RX: 13666.0
01241.  TX: 12777.5   RX: 13777.5
01242.  TX: 12999.5   RX: 13999.5
01250.  TX: 12100.0   RX: 13100.0
▲ UP ▼ DOWN
```

6. Press the [ENT] key Enter Tx and press ▼ . Enter Rx frequency and press the [ENT] key. For example, enter 12345.5 kHz as the Tx frequency and 13456.0 kHz as the Rx frequency.
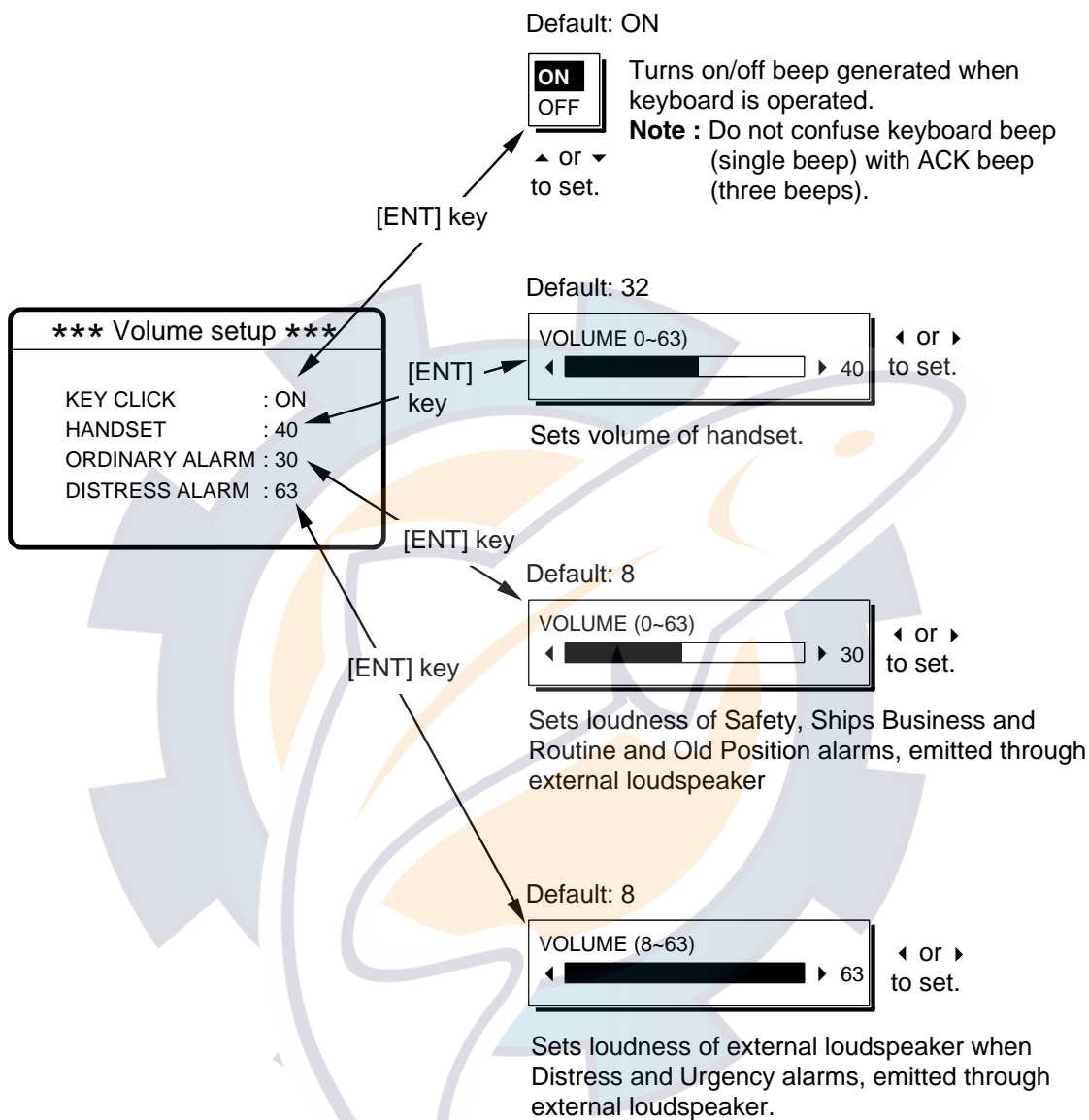
```
** User ch entry **
◀ MODE : NBDP    ▶ CH : 12-34
01234.  TX:       0.0   RX:       0.0
01240.  TX: 12666.0   RX: 13666.0
01241.  TX:  ┌ TX  :    0.0 KHZ ┐
01242.  TX:  │ RX  :    0.0 KHZ │
01250.  TX:  └                  ┘
▲ UP ▼ DOWN
```

7. The display shows the information entered. Using the examples mentioned in this procedure, Tx frequency 12345.5, Rx frequency 13456.0 are registered to channel 1234.

```
*** User ch entry **
◀ MODE: NBDP    ▶ CH: 12-34
01234.  TX: 12345.5   RX: 13456.0
01240.  TX: 12666.0   RX: 13666.0
01241.  TX: 12777.5   RX: 13777.5
01242.  TX: 12999.5   RX: 13999.5
01250.  TX: 12100.0   RX: 13100.0
▲ UP ▼ DOWN
```

7.10   Volume Menu

The Volume menu enables/disables key beep (acknowledges correct key input) and adjusts the volume of the handset, ordinary alarm and distress/urgency alarm. Press the [#/SETUP] key, select VOLUME and press the [ENT] key to display the Volume menu.
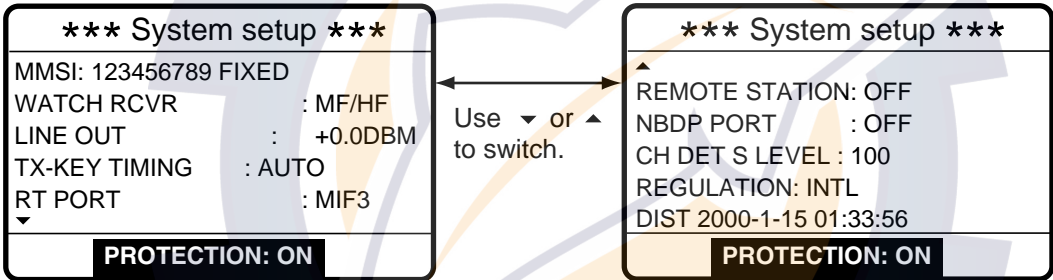
Default: ON

```
┌─────┐
│ ON  │
│ OFF │
└─────┘
```

▲ or ▼
to set.

Turns on/off beep generated when keyboard is operated.
Note : Do not confuse keyboard beep (single beep) with ACK beep (three beeps).

[ENT] key

```
┌─────────────────────────────┐
│  ∗∗∗ Volume setup ∗∗∗        │
│                             │
│   KEY CLICK      : ON        │
│   HANDSET        : 40        │
│   ORDINARY ALARM : 30        │
│   DISTRESS ALARM : 63        │
│                             │
└─────────────────────────────┘
```

[ENT] key

Default: 32

```
┌──────────────────────────┐
│ VOLUME 0~63)             │
│ ◄ █████████    ► 40      │
└──────────────────────────┘
```

◄ or ►
to set.

Sets volume of handset.

[ENT] key

Default: 8

```
┌──────────────────────────┐
│ VOLUME (0~63)            │
│ ◄ ██████▲     ► 30       │
└──────────────────────────┘
```

◄ or ►
to set.

Sets loudness of Safety, Ships Business and Routine and Old Position alarms, emitted through external loudspeaker

[ENT] key

Default: 8

```
┌──────────────────────────┐
│ VOLUME (8~63)            │
│ ◄ ████████████  ► 63     │
└──────────────────────────┘
```

◄ or ►
to set.

Sets loudness of external loudspeaker when Distress and Urgency alarms, emitted through external loudspeaker.

7.11 Test Menu

The Test menu provides test facilities for the service technician. This menu cannot be accessed by the operator.

```
┌─────────────────────────────┐
│    *** Test function **      │
├──────────────┬──────────────┤
│ TONE         │ AF PCB       │
│ BK           │ CONT PCB     │
│ REMOTE       │ PANEL PCB    │
│ EXT ALARM    │ RX PCB       │
│ EXT ALERT    │ TA TEST      │
├──────────────┴──────────────┤
│      PROTECTION: ON          │
└─────────────────────────────┘
```

7.12 System Menu

The System menu sets up the equipment and is for use by service technicians. This menu cannot be accessed by the operator. However the operator can view the settings by using ▲ and ▼ .

```
┌──────────────────────────────┐          ┌──────────────────────────────┐
│     *** System setup ***      │          │     *** System setup ***      │
├──────────────────────────────┤          ├──────────────────────────────┤
│ MMSI: 123456789 FIXED         │          │ ▲                            │
│ WATCH RCVR        : MF/HF     │  Use ▼ or ▲  │ REMOTE STATION: OFF          │
│ LINE OUT       :   +0.0DBM    │  to switch.  │ NBDP PORT         : OFF      │
│ TX-KEY TIMING   : AUTO        │          │ CH DET S LEVEL : 100          │
│ RT PORT           : MIF3      │          │ REGULATION: INTL              │
│ ▼                            │          │ DIST 2000-1-15 01:33:56       │
├──────────────────────────────┤          ├──────────────────────────────┤
│      PROTECTION: ON           │          │      PROTECTION: ON           │
└──────────────────────────────┘          └──────────────────────────────┘
```

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8. CHECKING, MAINTENANCE

> ⚠ **WARNING**
>
> **Do not open the equipment.**
>
> Hazardous voltage which can cause electrical shock exists inside the equipment. Only qualified personnel should work inside the equipment.

8.1 Daily Test

Authorities require that the equipment be checked daily for proper operation to ensure that it will function properly in the event of distress. Execute the daily test as below.

1. At the DSC standby screen or radiotelephone setting screen, press the [3/TEST] key to start the test.
2. After several seconds the test results appear followed by the audio alarm. OK denotes normal operation, and NG (No Good), error. For NG (No Good) contact your dealer for advice.

```
**DSC-60 daily test **
JAN-01-2000-15:24
  MAIN CPU     :OK VER.XX*
  MODEM        :OK VER.XX*
  RCVR1        :OK
  RCVR2        :OK
  REMOTE RT  :OK FS1562
  REMOTE DP  :OK DP-6
```

MAIN CPU:	ROM/RAM test executed and version no. displayed.
MODEM:	DSP ROM and DSC signal loop back tests executed and version no. displayed.
RCVR1:	Distress/safety watch received tested.
RCVR2:	Routine watch receiver (option) tested.
REMOTE RT:	CAID of MIF command sent and received. Name of equipment connected (if FURUNO make) and result appear.(System setting RP PORT must be set for RT or MIF otherwise nothing appears.)
REMOTE DP:	CAID of MIF command sent and received. Name of equipment connected (if FURUNO make) and result appear.(Nothing appears when system setting NBDP PORT is OFF.)
Alarm:	Distress alarm sounds for two seconds after completion of test.

* XX = Version number

3. If auto printing is active the test results are printed. To manually print results, press the [8/PRINT] key. Below is a sample test results printout.

```
* DSC-60 DAILY TEST *
JAN-01-2000-15:24
MMSI:      123456789
MAIN CPU:  OK VER.XX#
MODEM:     OK VER.XX#
RCVR1:     OK
RCVR2:     OK
REMOTE RT: OK FS1562
REMOTE DP: OK DP-6
```

XX = Program Version No.

4. Press the [CANCEL] key to quit the test and return to the previously used screen.

8.2   Maintenance

Regular maintenance is necessary for continued performance. Following the procedures below will help keep the equipment in top operating condition.

8.2.1   Preventive maintenance

- Check the following points periodically to ensure proper performance.
- Check that each connector is firmly connected and is clean.
- Check the earth terminal for corrosion. If corroded, clean.

8.2.2   Cleaning

Dust on the display unit and display screen may be removed with a soft cloth. Do not use commercial cleaners to clean the display unit - they can remove paint and markings.

8.3   Simple Troubleshooting

The table below provides common problems and the means with which to restore normal operation. If normal operation cannot be restored do not attempt to check inside the equipment. Any servicing should be referred to a qualified technician.

Problem	Probable cause	Remedy
Power cannot be turned on.	• Mains switchboard may be off. • DC overvoltage input. • Battery may have discharged, or poor contact at terminals.	• Turn on the mains switch • Check supply voltage. • Recharge battery and tighten battery terminals.
Display indications do not appear but key lamps are lit.	• Contrast is too low.	• Press the [9/✲] key followed by ◂ or ▸ to adjust the contrast.
Power is on but no sound from loudspeaker.	• Loudspeaker is off.	• Operate the [7/◁] key to turn on the loud-speaker.

8.4   Error Messages

The table below shows error messages and their meanings.

Error messages

Error message	Meaning	Remedy
Busy: RT	Radiotelephone is in operation.	Wait till the radiotelephone is free.
Channel Busy	You attempted to transmit on a channel which is currently busy. Routine and Business priority only.	Message is automatically erased when the channel becomes clear.
EPFS error	No position data from navigator for one minute.	Press the [CANCEL] key to silence alarm. Check the navigator. If it is malfunctioning manually enter position.
Incoming	Incoming DSC signal detected.	Message is automatically cleared when DSC signal is gone.
No position data	You attempted to enter position automatically when there is no position data.	Check the navigator. See the note at the bottom of page 3-3 for details.
No response: RT	Radiotelephone not powered or has been disconnected.	Check radiotelephone.
Printer not ready	Appears if printer is not powered or has been disconnected and automatic printing is selected.	Check printer.
Warning: Update position	Position data is older by the amount of time preset on the Alarm menu.	Press the [CANCEL] key to silence alarm. Reenter position on the Position menu.
Watchdog error. Please Power OFF	Internal error (such as CPU trouble) detected. Accompanied with alarm, same type as for distress.	Turn the power off and on to restore normal operation. If normal operation cannot be restored, request service.

8.5   Test Call

This function sends a test signal over one of six distress and safety frequencies to a coast station. For that reason, it should not be executed unnecessarily.

1. Press the [CALL] key at the DSC standby screen, and press the [ENT] key to open the CALL TYPE menu.

```
*** Send message ***
                 INDIVIDUAL
CALL TYPE        PSTN CALL
STATION ID       TEST CALL
PRIORITY         ALL SHIPS
COM TYPE         GROUP CALL
COM TYPE         AREA CALL
DSC FREQ         POSITION
                 ▼
```

If this part of the menu appears, use ▲ to scroll.

```
▲
POLLING
NEUTRAL
MEDICAL

RELAY ALL
RELAY SEL
DISTRESS
```

2. Use ▲ or ▼ to select TEST CALL and press the [ENT] key.

3. Press the [ENT] key to open the COAST ID menu.

```
*** Send message ***

CALL TYPE     · TEST
COAST ID      000000000
PRIORITY      : SAFETY

DSC FREQ   :      2187.5 KHZ
           GO TO ALL VIEW
```

How to input coast ID automatically

If you have previously registered some coast IDs, you can insert them into your message as follows:

1. Press the [FILE] key after completing step 2 in the above procedure. The following display appears.

```
     Test ID file
300. FURUNO       ▶
500.  MARINE      ▶
777. ELECTRIC     ▶
▲ UP  ▼ DOWN
```

Note: You can print the Test ID file list by pressing the [8/PRINT] key.

2. Select file which contains ID you want to use (press ▶ to show ID number).
3. Press the [ENT] key to insert ID number in message.

4. Key in the ID of the coast station ID (seven digits) to where to send the test call and press the [ENT] key.

5. Press the [ENT] key to open the DSC FREQ menu. (Note that PRIORITY is automatically selected to SAFETY.)

```
*** Send message ***

CALL TYPE     2187.5
COAST ID      4207.5
PRIORITY      6312.0
              8414.5
              12577.0
              16804.5
DSC FREQ      MANUAL    KHZ
```

MANUAL: For selection of frequency at radiotelephone when there is "remote control error."

6. Select an appropriate frequency and press the [ENT] key, and the display changes as below.

```
*** Send message ***

CALL TYPE    : TEST
COAST ID     : 001234567
PRIORITY     : SAFETY


DSC FREQ     :       2187.5 KHZ
                  GO TO ALL VIEW
```

7. Press the [CALL] key to send the test call (transmission time: about 7 sec.). The display shows "Test call in progress!" while the test call is being transmitted.

```
Test
call in progress!

TO COAST     :       001234567
SAFETY

DSC FREQ     :    2187.5 KHZ
TIME TO GO   :         7S
```

8. After the test call has been sent, the following message appears.

```
Waiting for test
acknowledgement.

FROM COAST : 001234567
SAFETY

DSC FREQ     :    2187.5 KHZ
TIME TO GO   :    4M12S
```

9. One of the following displays appears. ("No response! Try calling again?" appears when the timer counts down to zero, meaning no response from coast station.)

```
Test acknowledge
call received.

FROM COAST:         001234567
SAFETY
NO INFORMATION

                  STOP ALARM
```

Test acknowledge received

```
No response!
Try calling again?

FROM COAST:         001234567
SAFETY

DSC FREQ     :    2187.5 KHZ
                  CALL AGAIN
```

No response to test call

10. Do one of the following depending on the message shown in step 9.

<u>Test acknowledge call received</u>

The audio alarm sounds; press the [CANCEL] key to silence the alarm. The display changes as below.
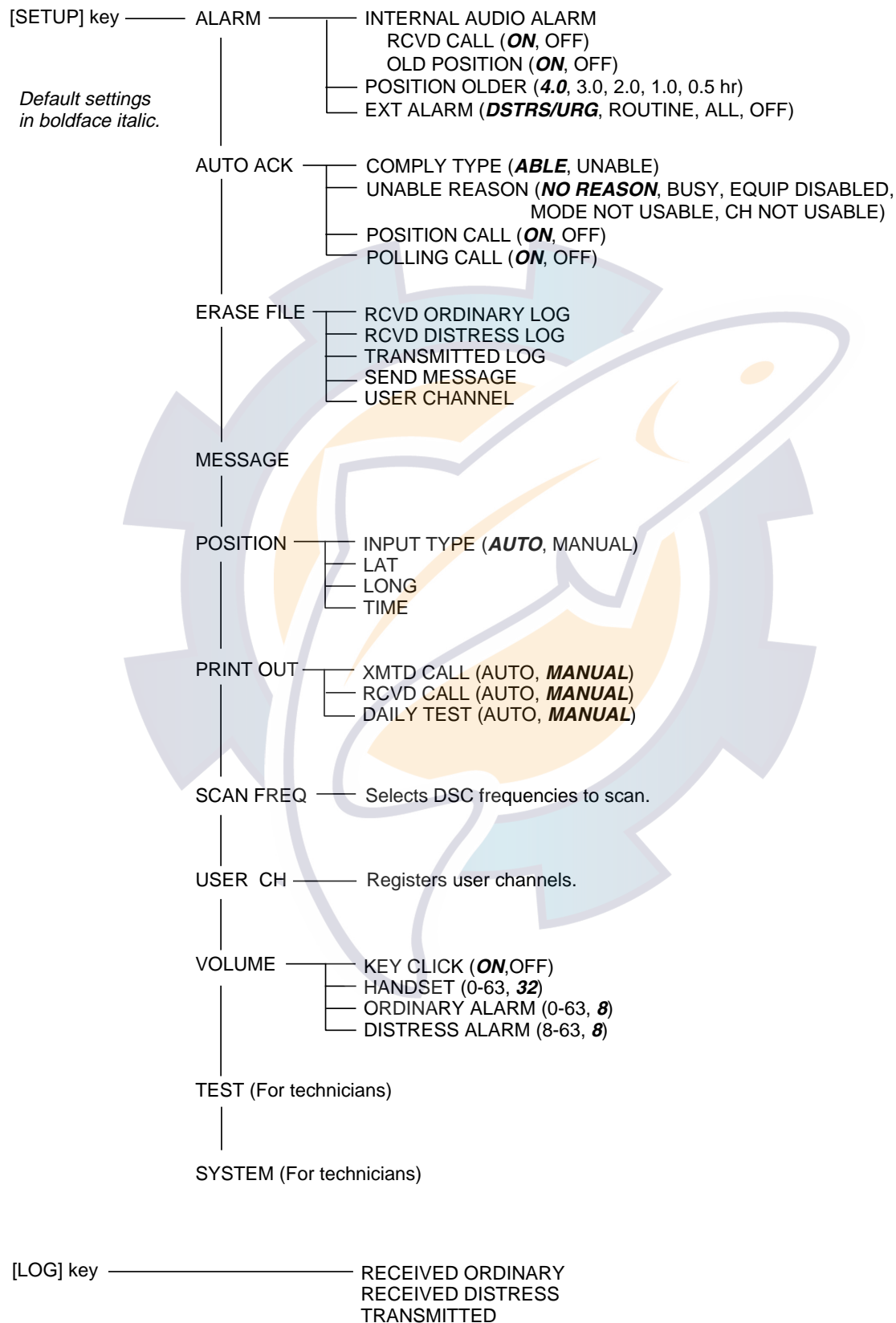
```
┌─────────────────────────────────┐
│     * Received message *          │
│ ┌─────────────────────────────┐ │
│ │ JUL-23-1999-23:59    ECC : OK │ │
│ │ TEST  ACKNOWLEDGEMENT         │ │
│ │ FROM COAST :    001234567     │ │
│ │ SAFETY                        │ │
│ │ NO INFORMATION                │ │
│ ├─────────────────────────────┤ │
│ │          GO TO ALL VIEW       │ │
│ └─────────────────────────────┘ │
└─────────────────────────────────┘
```

<u>No response! Try calling again?</u>

Re-send call: Press the [ENT] key (the display shown in step 6 appears) followed by the [CALL] key to re-send the test call.
Cancel call: Press the [CANCEL] key to return to the DSC standby screen.

8-6

APPENDIX

Menu Tree

[SETUP] key ─── ALARM ─── INTERNAL AUDIO ALARM
            RCVD CALL (**ON**, OFF)
             OLD POSITION (**ON**, OFF)
        ── POSITION OLDER (**4.0**, 3.0, 2.0, 1.0, 0.5 hr)
        ── EXT ALARM (**DSTRS/URG**, ROUTINE, ALL, OFF)

      AUTO ACK ─── COMPLY TYPE (**ABLE**, UNABLE)
          ── UNABLE REASON (**NO REASON**, BUSY, EQUIP DISABLED,
                    MODE NOT USABLE, CH NOT USABLE)
          ── POSITION CALL (**ON**, OFF)
          ── POLLING CALL (**ON**, OFF)

      ERASE FILE ─── RCVD ORDINARY LOG
           ── RCVD DISTRESS LOG
           ── TRANSMITTED LOG
           ── SEND MESSAGE
           ── USER CHANNEL

      MESSAGE

      POSITION ─── INPUT TYPE (**AUTO**, MANUAL)
         ── LAT
         ── LONG
         ── TIME

      PRINT OUT ─── XMTD CALL (AUTO, **MANUAL**)
          ── RCVD CALL (AUTO, **MANUAL**)
          ── DAILY TEST (AUTO, **MANUAL**)

      SCAN FREQ ─── Selects DSC frequencies to scan.

      USER CH ─── Registers user channels.

      VOLUME ─── KEY CLICK (**ON**, OFF)
         ── HANDSET (0-63, **32**)
         ── ORDINARY ALARM (0-63, **8**)
         ── DISTRESS ALARM (8-63, **8**)

      TEST (For technicians)

      SYSTEM (For technicians)

[LOG] key ────────────── RECEIVED ORDINARY
                RECEIVED DISTRESS
                TRANSMITTED

DSC Frequency Table

Tx (kHz)	Rx (kHz)	Remarks	File Name
2187.5	2187.5	Distress and Safety Frequencies	
4207.5	4207.5		
6312.0	6312.0		
8414.5	8414.5		
12577.0	12577.0		
16804.5	16804.5		
458.5	455.5	International Frequencies	INTL-0.4M
2189.5	2177.0		INTL-2M
4208.0	4219.5		INTL-4M
6312.5	6331.0		INTL-6M
8415.0	8436.5		INTL-8M
12577.5	12657.0		INTL-12M
16805.0	16903.0		INTL-16M
18898.5	19703.5		INTL-18M
22374.5	22444.0		INTL-22M
25208.5	26121.0		INTL-25M
4208.5	4220.0	Local-1 Frequencies	LOCAL1-4M
6313.0	6331.5		LOCAL1-6M
8415.5	8437.0		LOCAL1-8M
12578.0	12657.5		LOCAL1-12M
16805.5	16903.5		LOCAL1-16M
18899.0	19704.0		LOCAL1-18M
22375.0	22444.5		LOCAL1-22M
25209.0	26121.5		LOCAL1-25M
4209.0	4220.5	Local-2 Frequencies	LOCAL2-4M
6313.5	6332.0		LOCAL2-6M
8416.0	8437.5		LOCAL2-8M
12578.5	12658.0		LOCAL2-12M
16806.0	16904.0		LOCAL2-16M
18899.5	19704.5		LOCAL2-18M
22375.5	22445.0		LOCAL2-22M
25209.5	26122.0		LOCAL2-25M

Digital Interface (IEC 61162-1 Edition 2)

Input sentences

GGA, GLL, RMA, RMC, ZDA

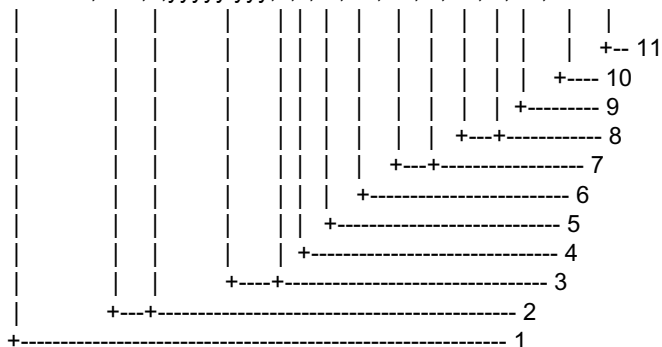## Schematic diagrams

NAV IN port (listener)

IEC1162-1 (NMEA)
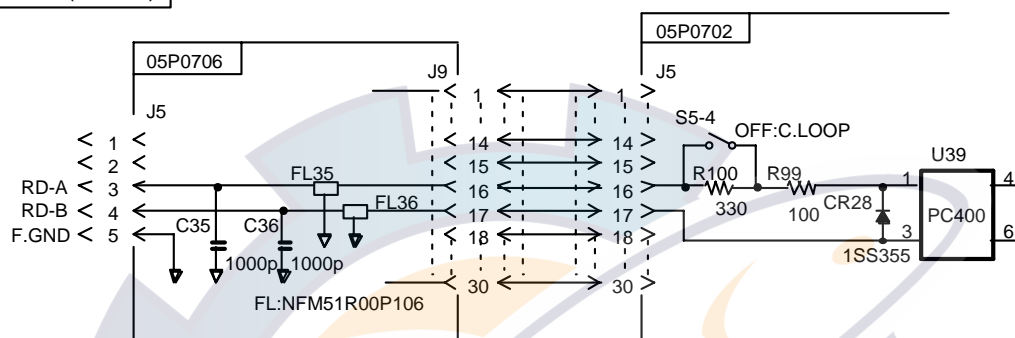
Load requirements as listner

Isolation	Optocoupler
Input impedance	430 ohms
Max.Voltage	±15V
Threshold	4mA

GGA-Global Positioninh system (GPS) fix data

```
$--GGA,hhmmss.ss,llll.lll,a,yyyyy.yyy,a,x,xx,x.x,x.x,M,x.x,M,x.x,xxxx*hh<CR><LF>
         |        |      |      |     | | |   |   |   |  |   |  |   |    |
         |        |      |      |     | | |   |   |   |  |   |  |   |    +-- 11
         |        |      |      |     | | |   |   |   |  |   |  |   +---- 10
         |        |      |      |     | | |   |   |   |  |   |  +--------- 9
         |        |      |      |     | | |   |   |   |  +---+----------- 8
         |        |      |      |     | | |   |   +---+----------------- 7
         |        |      |      |     | | |   +----------------------- 6
         |        |      |      |     | | +------------------------- 5
         |        |      |      |     | +--------------------------- 4
         |        |      |      |     +----------------------------- 3
         |        |      +----+----------------------------------- 2
         +------------------------------------------------------- 1
```

1. UTC of position
2. Latitude, N/S
3. Longitude, E/W
4. GPS quality indicator (see note)
5. Number of satllite in use,00-12, may be different from the number in view
6. Horizontal dilution of precision
7. Antenna altitude above/below mean sealevel, m
8. Geoidal separation, m
9. Age of differential GPS data
10. Differential reference station ID, 0000-1023
11. Checksum

NOTE

0 = fix not available or invalid
1 = GPS SPS mode, fix valid
2 = differential GPS, SPS mode, fix valid
3 = GPS PPS mode, fix valid
4 = Real Time Kinetic. Satellite system used in RTK mode with fixed integers
5 = Float RTK. Satellite system used in RTK mode with floating fingers
6 = Estimated (dead reckoning) mode
7 = Manual input mode
8 = Simulator mode
The GPS quality indicator shall not be a null field.

A-4

GLL-Geographic position-latitude and longitude

```
$--GLL,llll.lll,a,yyyyy.yyy,a,hhmmss.ss,A,a*hh<CR><LF>
        |  |     |    |        |     | | |  |
        |  |     |    |        |     | | |  +------- 6
        |  |     |    |        |     | | +--------- 5
        |  |     |    |        |     | +---------- 4
        |  |     |    |        |     +--------------- 3
        |  |     +------+--------------------- 2
        +---+--------------------------------- 1
```
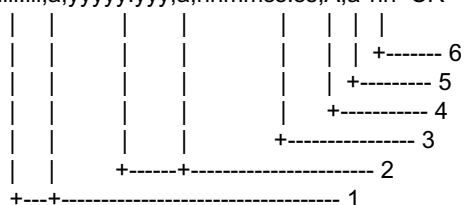
1. Latitude, N/S
2. Longitude, E/W
3. UTC of position
4. Status: A=data valid, V=data invalid
5. Mode indicator(see note)
6. Checksum

NOTE Positioning system Mode indicator:
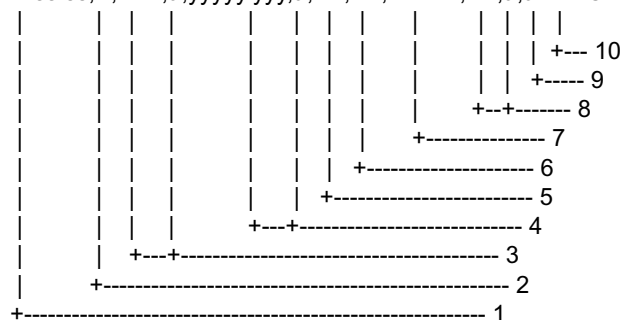   A = Autonomous
    D = Differential
    E = Estimated (dead reckoning)
    M = Manual input
    S = Simulator
    N = Data not valid

The Mode indicator field supplements the Status field. The Status field shall be set to V=invalid for all values of Operating Mode except for A=Autonomous and D=Differential. The positioning system Mode indicator and Status field shall not be null fields.

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RMA-Recommemded minimum navigation information-Loran C data

```
$--RMA,A,llll.lll,a,yyyyy.yy,a,x.x,x.x,x.x,x.x,x.x,a,a*hh<CR><LF>
         |  |  |     |    |  |  |   |   |   |    |   |  | | |
         |  |  |     |    |  |  |   |   |   |    |   |  | | +------- 10
         |  |  |     |    |  |  |   |   |   |    |   |  +--------- 9
         |  |  |     |    |  |  |   |   |   |    +---+----------- 8
         |  |  |     |    |  |  |   |   +----------------- 7
         |  |  |     |    |  |  |   +---------------------- 6
         |  |  |     |    |  |  +------------------------ 5
         |  |  |     |    |  +-------------------------- 4
         |  |  |     +----+----------------------------- 3
         |  +---+----------------------------------------- 2
         +------------------------------------------------- 1
```
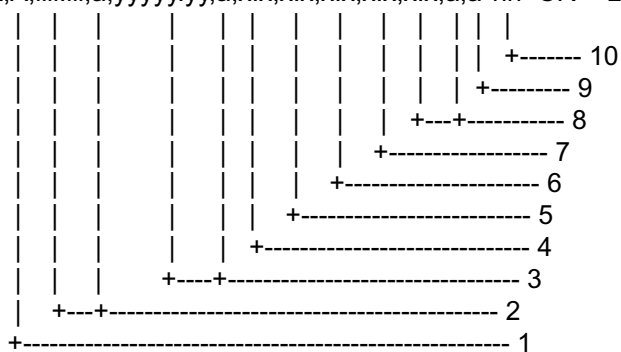
1. Status: A=data valid, V=blink, cycle or SNR warning
2. Latitude, degrees N/S
3. Longitude, degrees E/W
4. Time difference A, microseconds
5. Time difference B, microseconds
6. Speed over ground, knots
7. Course over ground, degrees true
8. Magnetic variation(see note 1),degree E/W
9. Mode indicator(see note 2)
10. Checksum

NOTE 1 - Easterly variation(E) subtracts from true course
        Westerly variation(W) adds to true course
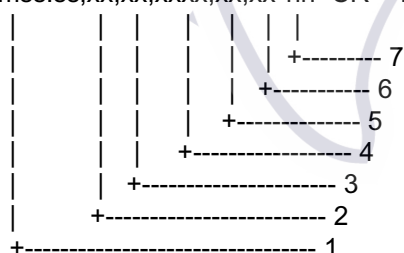
NOTE 2 Positioning system Mode indicator:
        A = Autonomous
        D = Differential
        E = Estimated (dead reckoning)
        M = Manual input
        S = Simulator
        N = Data not valid

The Mode indicator field supplements the Status field. The Status field
shall be set to V=invalid for all values of Operating Mode except for
A=Autonomous and D=Differential. The positioning system Mode indicator
and Status field shall not be null fields.

RMC - Recommended minimum specific GPS/TRANSIT data

```
$--RMC,hhmmss.ss,A,llll.lll,a,yyyyy.yyy,a,x.x,x.x,xxxxxx,x.x,a,a*hh<CR><LF>
          |      | |    | |     | |   |   |    | | |
          |      | |    | |     | |   |   |    | | | +--- 10
          |      | |    | |     | |   |   |    | | +----- 9
          |      | |    | |     | |   |   |    +--+------ 8
          |      | |    | |     | |   |   +-------------- 7
          |      | |    | |     | |   +-------------------- 6
          |      | |    | |     | +----------------------- 5
          |      | |    | |     +--+------------------------ 4
          |      | +---+------------------------------------- 3
          |      +--------------------------------------------- 2
          +----------------------------------------------------- 1
```

1. UTC of position fix
2. Status: A=data valid, V=navigation receiver warning
3. Latitude, N/S
4. Longitude, E/W
5. Speed over ground, knots
6. Course over ground, degrees true
7. Date: dd/mm/yy
8. magnetic variation, degrees E/W
9. Mode indicator(see note)
10. Checksum

NOTE Positioning system Mode indicator:
    A = Autonomous
    D = Differential
    E = Estimated (dead reckoning)
    M = Manual input
    S = Simulator
    N = Data not valid

The Mode indicator field supplements the Status field. The Status field
shall be set to V=invalid for all values of Operating Mode except for
A=Autonomous and D=Differential. The positioning system Mode indicator
and Status field shall not be null fields.

ZDA-Data and time

```
$--ZDA,hhmmss.ss,xx,xx,xxxx,xx,xx*hh<CR><LF>
          |       |  |   |  |  | |
          |       |  |   |  |  | +--------- 7
          |       |  |   |  |  +----------- 6
          |       |  |   |  +-------------- 5
          |       |  |   +----------------- 4
          |       |  +--------------------- 3
          |       +------------------------ 2
          +------------------------------- 1
```

1. UTC
2. Day, 01 to 31(UTC)
3. Month, 01 to 12(UTC)
4. Year(UTC)
5. Local zone hours, 00h to +-13h
6. Local zone minutes, 00 to +59
   as local hours
7. Checksum

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SPECIFICATIONS OF DSC/WATCH RECEIVER
DSC-60

1. DSC TERMINAL

    (1) Line Out: 0 dBm (adjustable between −10 dBm and +10 dBm),
                                  600 ohms, balanced

    (2) Line In: -10 to +10 dBm, 600 ohms, balanced

    (3) Frequency Shift: Mark; 1615 Hz, Space; 1785 Hz

    (4) Baud Rate: 100 baud's ±30 x 10^{-6}

    (5) Protocol: Complies with ITU-R Rec.493-9, 541-8, 1082-1

2. GMDSS DSC WATCH KEEPING RECEIVER

    (1) Receiving Frequency
         For MF spec: 2187.5 kHz
         For MF/HF spec: 2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz,
                                 12577 kHz and 16804.5 kHz

    (2) Class of Emission: F1B, J2B

    (3) Frequency Stability: Within ±10 Hz

    (4) Intermediate Frequency: 1st: 54455 kHz,   2nd: 455 kHz

    (5) Selectivity: -6 dB : 270 Hz or more

                                 -30 dB: within ±380 Hz

                                 -60 dB: within ±550 Hz

    (6) RF Input Impedance: 50 ohms

    (7) Receiving Sensitivity: Better than 0 dBµ (at error rate within 1%)

    (8) Warming-up Time: 1 minute (oven 30 minutes)

3. GENERAL WATCH KEEPING RECEIVER (option)

    (1) Receiving Frequency   1.6 MHz to 27.5 MHz

    (2) Class of Emission: F1B, J2B

    (3) Frequency Stability: Within ±10Hz

    (4) Intermediate Frequency: 1st: 54455 kHz,   2nd: 455 kHz

    (5) Selectivity: -6 dB : 270 to 300Hz

                                 -30 dB: within ±380Hz

                                 -60 dB: within ±550Hz

    (6) RF Input Impedance: 50 ohms

    (7) Receiving Sensitivity: Better than 0 dBµ (at error rate within 1%)

    (8) Warming-up Time: 1 minute (oven 30 minutes)

4.   MF/HF SSB TRANSCEIVER REMOTE STATION

    (1)   Line Out: 0 dBm, 600 ohms, balanced

    (2)   Line In: 0 dBm, 600 ohms, balanced

    (3)   AF Input (Microphone):   -46 dBm, 600 ohms, unbalanced

    (4)   AF Output (Loudspeaker):   3 W, 4 ohms

           (Handset):   1 mW, 200 ohms

5.   DISPLAY

    (1)   LCD Unit: 120 x 64 dots

    (2)   Characters   20 characters x 8 lines (1 character: 5 x 7 dot) max.

                        20 characters x 10 lines (1 character: 5 x 5 dot) max.

    (3)   Back-light: Yellow, 8 tones

    (4)   Contrast: 64 tones

6.   I/O DATA

    (1)   Nav. Data Input: IEC61162-1, current loop; 1 pair/port

    (2)   DMC: IEC61162-1/RS232C or

                        DMC OUT/IN/CTR H/C; 3 pairs/port

    (3)   Received Call Output: RCV BZ OUT/IN/CTR; 3 pairs/port

    (4)   NBDP: IEC61162-1/RS232C

    (5)   Printer: Centronics (parallel)

    (6)   RT (MF/HF Transceiver):   IEC61162-1/RS232C,

                        Line in: 0dBm, 600 ohms,

                        Line out: 0dBm, 600 ohms,

                        and other control signals

7. ENVIRONMENTAL CONDITION

    (1)   Temperature: -15°C to +55°C

    (2)   Relative Humidity: 93% (40°C)

    (3)   Category of Equipment Unit

        Display Unit: Protected from the weather

8. POWER SUPPLY

        24VDC (backed up by battery), 1 A, less than 24 W

9. COLOR

        Panel: N3.0 (not changeable)

        Cabinet: 2.5GY5/1.5

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FURUNO

FURUNO ELECTRIC CO., LTD.
9-52 Ashihara-Cho, Nishinomiya City, 662-8580, Hyogo, Japan
Tel: +81 798-65-2111 Fax: +81 798-65-4200

Pub NO. DOC-953

Declaration of conformity 0560

We   FURUNO ELECTRIC CO., LTD.

(Manufacturer)

9-52 Ashihara-Cho, Nishinomiya City, 662-8580, Hyogo, Japan

(Address)

hereby declare under our sole responsibility that the product

 MF/HF DSC watchkeeping receiver Type DSC-60 consisting of Printer PP-510, Remote distress
 button IC-302, Incoming indicator IC-303, Handset HSC701K-B20, AC-power supply PR-300,
 AC-power supply PR-240, External loudspeaker MX910-X01 and Second receiver board (routine)
05P0703

(Model names, type numbers)

to which this declaration relates conforms to the following standard(s) or normative document(s)

Standards   Test standards
IMO Resolutions MSC.36(63), MSC.97(73)   EN 300 338: 1999-04 V1.2.1, EN 301 033: 1998-08 V1.1.1
IMO Resolution A.806(19)   EN 60945: 1997-01 (IEC 60945 Ed.03: 1996-11)
IMO Resolution A.694(17)   EC 61162-1: 2000-07
IMO MSC Circular MSC/Circ.862
ITU-R Recommendations M.1082-1, M.1173, M.476-5, M.493-10, M541-8

(title and/or number and date of issue of the standard(s) or other normative document(s))

For assessment, see

• EC type-examination certificate (Module B) N°: 99212022/AA/03 of 02 May 2007 issued by Telefication,
   The Netherlands
• Product Quality System (Module D) certificate No. P 112 of 20 May 2005 issued by Telefication, The
   Netherlands
• Test report 98540530 of 23 November 1999 issued by KTL, The Netherlands
• Test report FLI 12-99-037 of October 26, 1999 issued by Furuno Labotech International Co., Ltd., Japan
   authorized by KCS Certification, The Netherlands

This declaration is issued according to the provisions of European Council Directive 96/98/EC on
marine equipment modified by Commission Directive 2002/75/EC.

On behalf of Furuno Electric Co., Ltd.

Hiroaki Komatsu
Manager,
Nishinomiya City, Japan   International Rules and Regulations
May 07, 2007
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(Place and date of issue)   (name and signature or equivalent marking of authorized person)