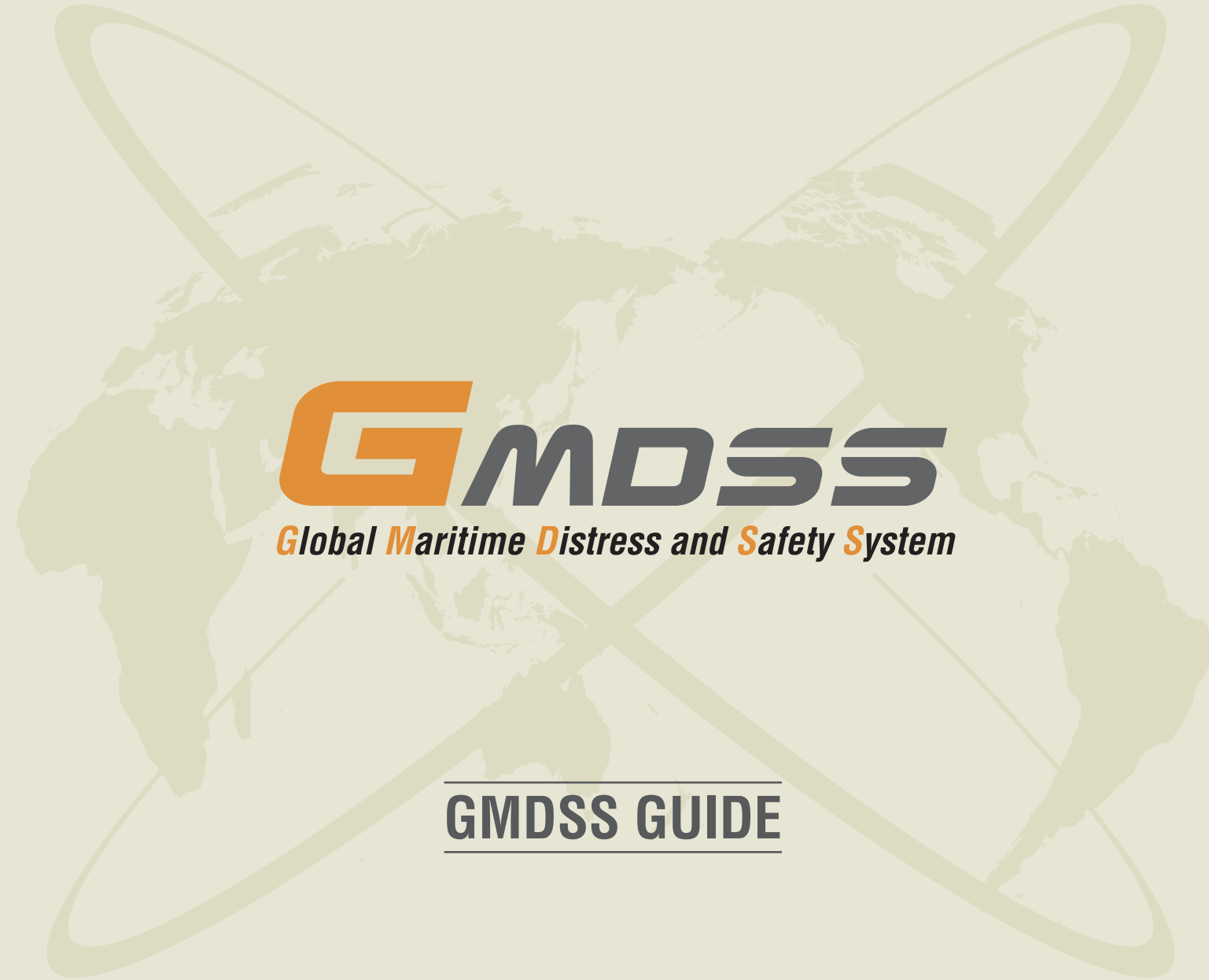
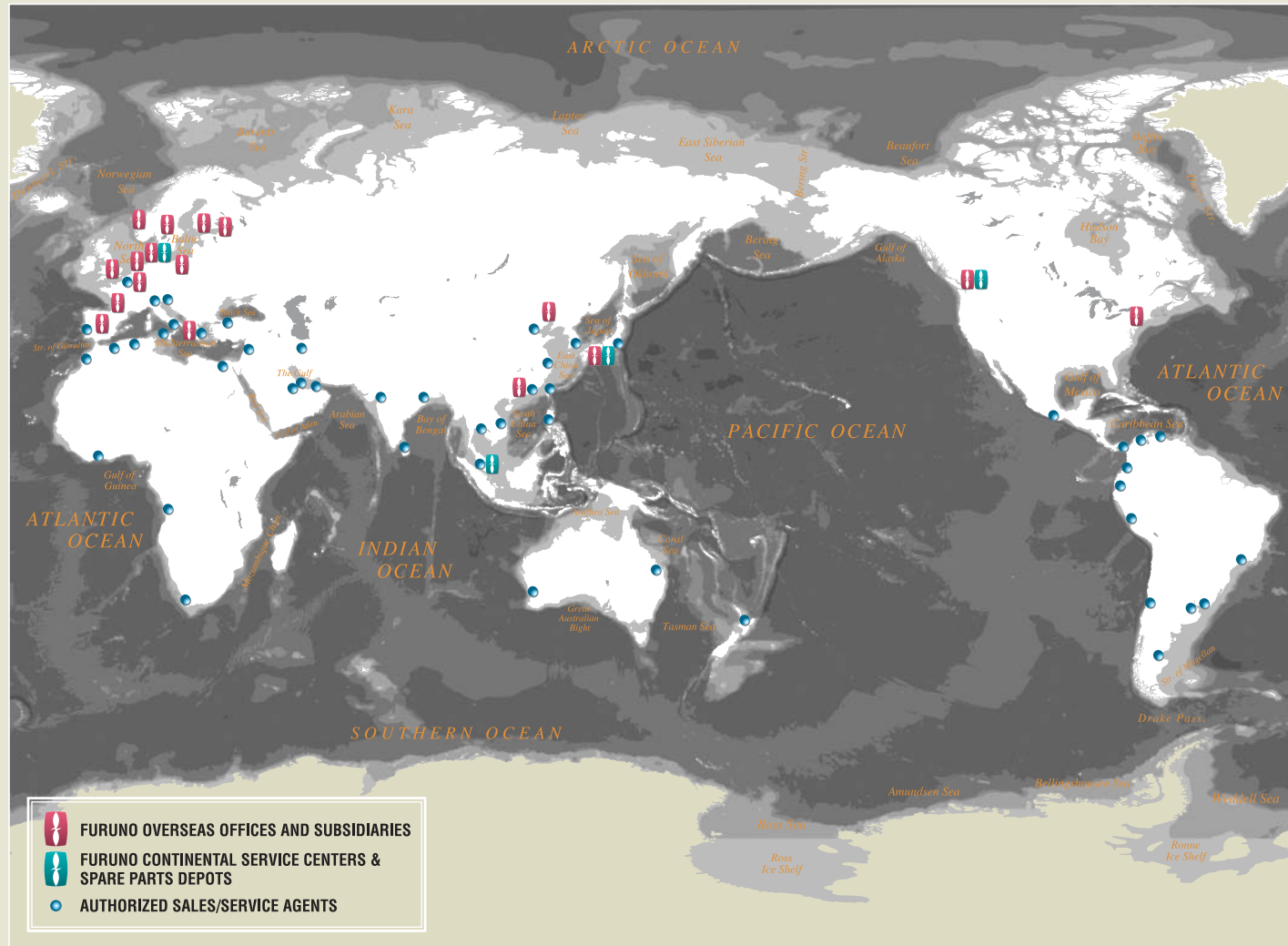


**WORLDWIDE SERVICE NETWORK**

FURUNO's Worldwide Service Network provides spare parts and professional technical support/service to DEEPSEA vessels. The Service Network is composed of four Continental Service Centers located in Denmark, the US, Singapore and Japan together with over 40 national agents. These agents are in charge of coordination and arrangement of service for FURUNO equipment onboard vessels at DEEPSEA ports in their territory.



TRADE MARK REGISTERED MARCA REGISTRADA  
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

- |  |   |   |   |
|--|---|---|---|
| <p><b>FURUNO U.S.A., INC.</b><br/>Camas, Washington, U.S.A.<br/>Phone: +1 360-834-9300<br/>Fax: +1 360-834-9400</p>    | <p><b>FURUNO ESPAÑA S.A.</b><br/>Madrid, Spain<br/>Phone: +34 91-725-90-88<br/>Fax: +34 91-725-98-87</p>  | <p><b>FURUNO SVERIGE AB</b><br/>Västra Frölunda, Sweden<br/>Phone: +46 31-7098940<br/>Fax: +46 31-497093</p>    | <p><b>FURUNO DEUTSCHLAND GmbH</b><br/>Rellingen, Germany<br/>Phone: +49 4101 838 0<br/>Fax: +49 4101 838 111</p>              |
| <p><b>FURUNO (UK) LIMITED</b><br/>Havant, Hampshire, U.K.<br/>Phone: +44 2392-441000<br/>Fax: +44 2392-484316</p>      | <p><b>FURUNO DANMARK AS</b><br/>Hvidovre, Denmark<br/>Phone: +45 36 77 45 00<br/>Fax: +45 36 77 45 01</p> | <p><b>FURUNO FINLAND OY</b><br/>Espoo, Finland<br/>Phone: +358 9 4355 670<br/>Fax: +358 9 4355 6710</p>         | <p><b>LLC "FURUNO EURUS"</b><br/>St. Petersburg, Russian Federation<br/>Phone: +7 812 767 15 92<br/>Fax: +7 812 766 55 52</p> |
| <p><b>FURUNO FRANCE S.A.</b><br/>Bordeaux-Mérignac, France<br/>Phone: +33 5 56 13 48 00<br/>Fax: +33 5 56 13 48 01</p> | <p><b>FURUNO NORGE A/S</b><br/>Ålesund, Norway<br/>Phone: +47 70 102950<br/>Fax: +47 70 102951</p>        | <p><b>FURUNO POLSKA Sp. z o.o.</b><br/>Gdynia, Poland<br/>Phone: +48 58 669 02 20<br/>Fax: +48 58 669 02 21</p> |   |

PRINTED WITH SOYINK 06000U Printed in Japan



The future today with FURUNO's electronics technology.  
**FURUNO ELECTRIC CO., LTD.**  
9-52 Ashihara-cho, Nishinomiya City, Japan Phone: +81 (0)798 65-2111  
Fax: +81 (0)798 65-4200, 66-4622 URL: www.furuno.co.jp

Catalogue No. 0-000

TRADE MARK REGISTERED  
MARCA REGISTRADA

Global Maritime Distress and Safety System (GMDSS) has been developed by the maritime nations in the International Maritime Organization (IMO) and is the result of their adoption of amendments made in 1988 to the 1974 International Convention on the Safety of Life at Sea (SOLAS).

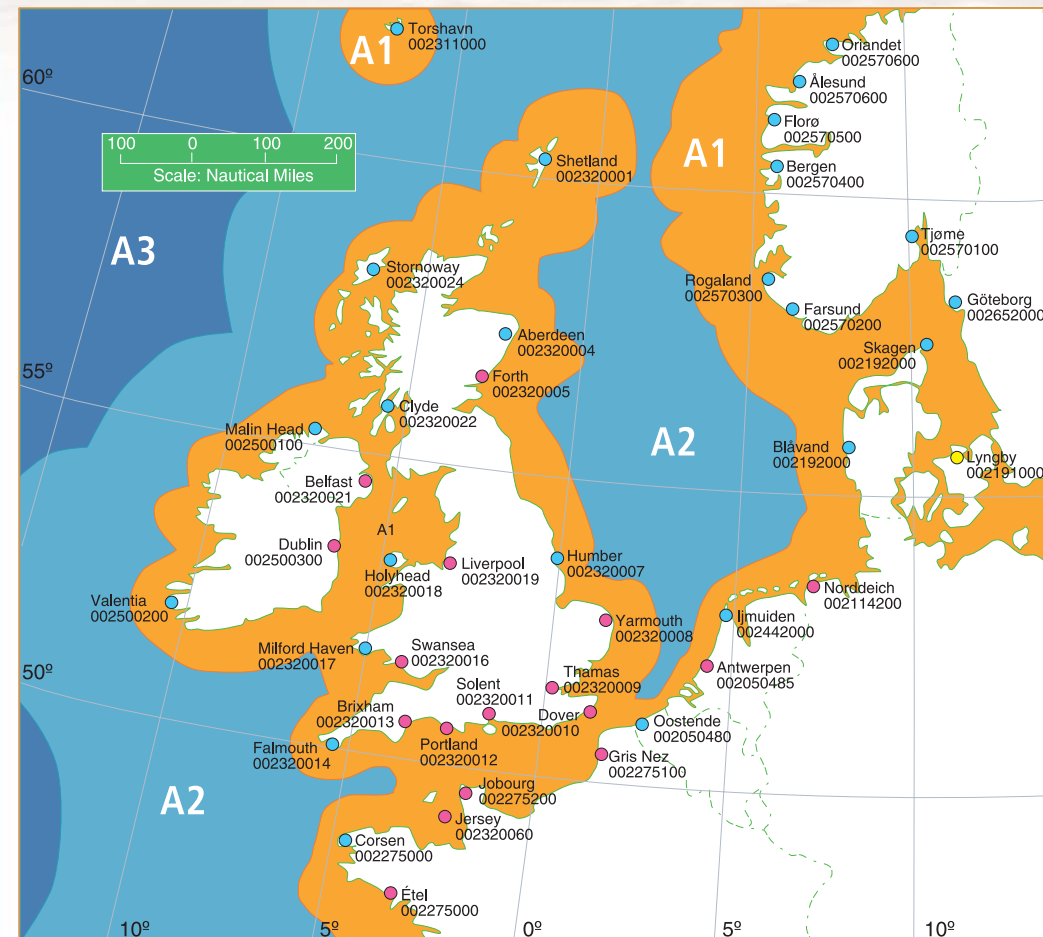
Based on recent developments in maritime communications, such as satellites and digital technology, GMDSS is designed to ensure maximum availability of safety-related communication for all passenger ships as well as for cargo vessels of 300 GT and upwards engaged in international voyages.

The goal of GMDSS is to virtually guarantee that complying vessels will be able to communicate with an onshore station at any time, from any location, in case of distress or to exchange safety-related information.

### SEA AREAS

GMDSS defines four sea areas based upon the location and capability of onshore-based communication facilities. The definition of the Sea Areas for GMDSS is outlined below. Please refer to the illustrated layout of the European area indicating the sea areas and coastal stations for quick reference.

#### Example: European GMDSS SEA AREAS



#### GMDSS Sea Areas

- Medium Frequency (MF), High Frequency (HF) and Very High Frequency (VHF) Coast Radio Station
- Medium Frequency (MF) and Very High Frequency (VHF) Coast Radio Station
- Very High Frequency (VHF) Coast Radio Station

**Sea Area A1**  
The radiotelephone coverage of VHF coast stations in which continuous alerting by Digital Selective Calling (DSC) is available.

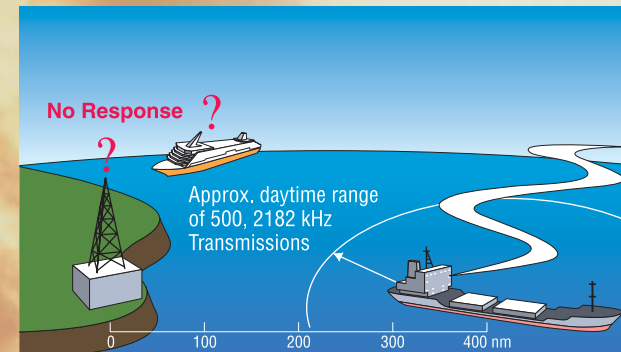
**Sea Area A2**  
The radiotelephone coverage of MF coast stations in which continuous alerting by Digital Selective Calling is available.

**Sea Area A3**  
The coverage of Inmarsat geostationary satellites.

**Sea Area A4**  
Area outside A1, A2 and A3, mostly sea area around polar areas

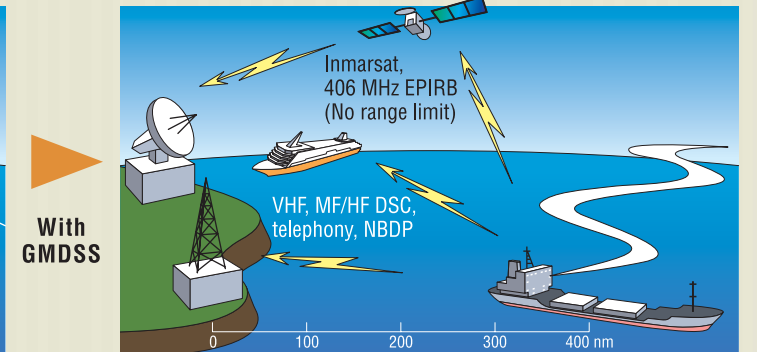
### Comparison between old distress system and GMDSS

#### Reliance on ships in vicinity



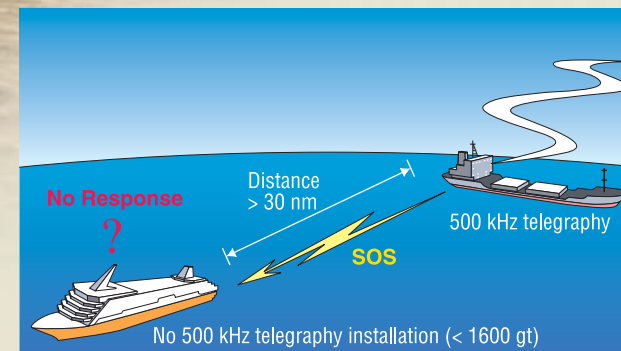
Because of the inherently limited range of transmission on the distress and calling frequencies of 500 and 2182 kHz, which were commonly used for that purpose, there was a possibility that a call for assistance would not be heard if other vessels and coastal stations were outside the range.

#### Worldwide coverage

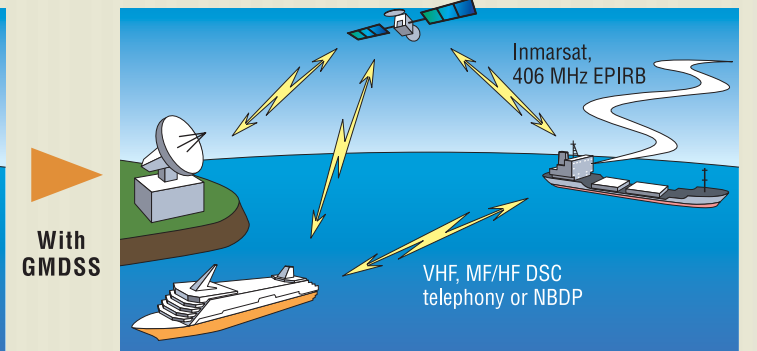


GMDSS vessels carry the communications equipment appropriate for the Sea Area they are operating, and have the means to transmit long-range communication whenever necessary. This means that a call for assistance can reach a coastal station, and other ships at a far distance.

#### Equipment compatibility



It was only possible for a vessel in distress to ask other vessels in the vicinity for assistance, due to the limited range of communication means. Worse, the communication incompatibility between a telegraphy vessel and a telephony vessel hindered subsequent Search and Rescue operations.



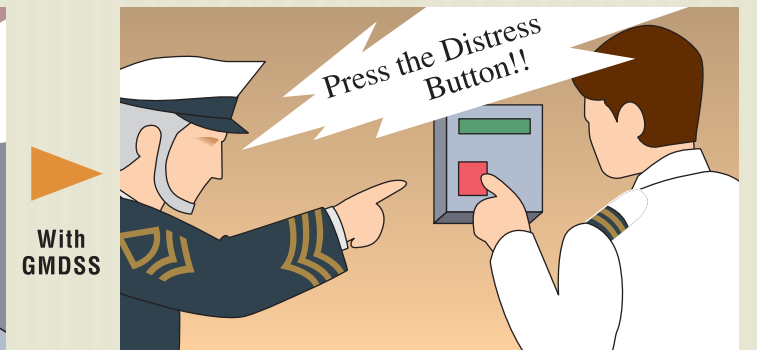
Since all GMDSS vessels carry standardized equipment for the Sea Area, and they are operating in the same frequencies, the compatibility between the SAR coordinator at a coastal station and a vessel is assured.

#### Special skill to operate



Radio officers had to send distress calls in Morse Code on 500 kHz through complicated operations, which include: switching and/or adjusting the transmitters. A successful distress attempt relied heavily on the skill of the radio officers.

#### Simple and automatic operation



GMDSS equipment, on the other hand, provides straightforward operation in time of emergency simply by pressing the distress button on the VHF, MF/HF DSC or Inmarsat MES. If this cannot be done, a float-free EPIRB can transmit a distress alert.

# SYSTEM SUGGESTIONS FOR GMDSS

Sea Areas **A1** **A2**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



Photo: FS-2570  
MF/HF Radiotelephone w/DSC/Watch Receiver  
**FS-1570 or FS-2570**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



Photo: FS-2570  
MF/HF Radiotelephone w/DSC/Watch Receiver  
**FS-1570 or FS-2570**

**DUPLICATION**

Sea Areas **A1** **A2** **A3**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



Photo: FS-2570  
MF/HF Radiotelephone w/DSC/Watch Receiver  
**FS-2570 or FS-5070**



NBDP Terminal Unit  
**IB-583**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



INMARSAT-C Mobile Earth Station  
**FELCOM 15**

**DUPLICATION**

or



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



Photo: FS-5070  
MF/HF Radiotelephone w/DSC/Watch Receiver  
**FS-2570 or FS-5070**



INMARSAT-C Mobile Earth Station  
**FELCOM 15**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



INMARSAT-C Mobile Earth Station  
**FELCOM 15**

**DUPLICATION**

Sea Areas **A1** **A2** **A3** **A4**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



INMARSAT-C Mobile Earth Station  
**FELCOM 15**



MF/HF Radiotelephone w/DSC/Watch Receiver  
**FS-5070**



NBDP Terminal Unit  
**IB-583**



VHF Radiotelephone with built-in DSC  
**FM-8800S/D**



Photo: FS-5070  
MF/HF Radiotelephone w/DSC/Watch Receiver  
**FS-2570 or FS-5070**



NBDP Terminal Unit  
**IB-583**

**DUPLICATION**



## Availability of Communications by Duplication of Equipment

Sea Areas **A1** and **A2**

Either of the following:

1. Duplication of equipment (VHF, MF/HF radiotelephone, DSC)
2. Shore-based maintenance
3. At-sea maintenance

Sea Areas **A3** and **A4**

Combination of at least two of the following:

1. Duplication of equipment (VHF, MF/HF radiotelephone DSC)
2. Shore-based maintenance
3. At-sea maintenance

If availability is ensured by using a combination of the methods including duplication of equipment, the following equipment should be made available in addition to the shore-based maintenance requirements:

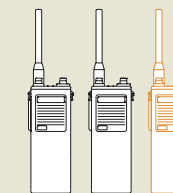
Sea Area **A3**

A VHF radiotelephone (VHF + DSC) and either MF/HF radiotelephone (MF/HF + DSC + NBDP) or an Inmarsat Maritime MES

Sea Area **A4**

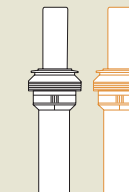
A VHF radiotelephone (VHF + DSC) and a MF/HF radiotelephone (MF/HF + DSC + NBDP). For ships in A4 only occasionally but mostly in A3, the additional MF/HF radiotelephone may be substituted by an Inmarsat Maritime MES.

## All Ships Irrespective Sea Area



**2-way VHF Radiotelephone Apparatus**

2 sets required for cargo ships 300-500 gt  
3 sets required for all passenger ships and cargo ships over 500 gt

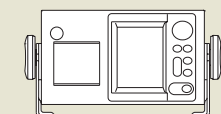


**SART (Search and Rescue Transponder)**

1 set required for cargo ships 300-500 gt  
2 sets required for all passenger ships and cargo ships over 500 gt



**406 MHz EPIRB**  
(Emergency Position Indicating Radio Beacon)



**NAVTEX receiver**  
NX-700

# FURUNO GMDSS EQUIPMENT FOR RELIABLE COMMUNICATION

## VHF Radiotelephone FM-8800S (Semi-duplex) FM-8800D (Full-duplex)



A high quality, all-in-one marine 25 W VHF radiotelephone FM-8800S/D is designed to comply with the GMDSS carriage requirements. All the necessary facilities including a Class A DSC modem and a CH 70 watch receiver are incorporated into this compact transceiver unit.



## MF/HF Radiotelephone FS-1570 (150 W) FS-2570 (250 W)



## FS-5070 (500 W)



The MF/HF Radiotelephone FS-1570/2570/5070 facilitates both general and GMDSS communication. It can operate as a DSC transceiver and as a DSC Watch Receiver on all distress and safety frequencies in MF and HF bands. A NBDP modem can be incorporated into the transceiver unit for maritime telex operation and distress message/maritime safety information handling, satisfying the carriage requirements for GMDSS A3-A4 sea areas.

## Dual-channel NAVTEX Receiver NX-700A (message display and a printer) NX-700B (message display unit only)



The NX-700, dual-channel NAVTEX receiver, complies with the NAVTEX performance standard MSC. 148 (77) implemented on and after the 1st of July 2005. The NX-700 can receive the international NAVTEX messages as well as domestic or local NAVTEX messages at the same time. Its H-field antenna, which requires no grounding for ease of installation, incorporates a high-performance preamp to provide reliable and uninterrupted reception.



The IB-583 displays messages at 72 characters/line with 25 lines/screen. File management, text editor and utility programs ensure straightforward operation.

**NBDP Terminal Unit  
IB-583**

## GMDSS Radio Console RC-1800T



The RC-1800T contains all the necessary radio equipment for ships operating in the GMDSS sea areas A1, A2 and A3. The availability of radio communications is assured by the equipment duplication as specified in the previous page. The package delivers the operation scheme that is straightforward in addition to quick installation time for retrofitting as well as for installation on new builds.



## Inmarsat-C Mobile Earth Station FELCOM 15



The Inmarsat-C system provides a high quality two-way telex data link between ships and other parties. FELCOM 15 delivers all functions and services that the Inmarsat-C service provides: EGC, E-mail, distress message handling, polling, data reporting, etc. Full GMDSS compliance is achieved when a printer and AC/DC power supply are added onto the system.

