**Global Maritime Distress Safety System (GMDSS)**

**Equipment Class:** Fishing technology  
**Equipment Type:** Wheelhouse

**Characteristics**

*Global Maritime Distress and Safety System (GMDSS)* is an international system that uses terrestrial and satellite technology and ship-board radio systems to ensure rapid, automated alerting of shore-based communication and rescue authorities, in addition to ships in the immediate vicinity, in the event of a marine distress.

Under the GMDSS, all cargo ships of 300 gross registered tonnes and upwards, and all passenger ships engaged on international voyages, must be fitted with radio equipment that conforms to international standards as set out in the system. The basic concept is that search and rescue authorities ashore, as well as vessels in the immediate vicinity of the ship in distress, will be rapidly alerted through satellite and terrestrial communication techniques so that they can assist in a co-ordinated search and rescue operation with the minimum of delay.

Ships fitted with GMDSS equipment are safer at sea - and more likely to receive assistance in the event of a distress - because the GMDSS provides for automatic distress alerting and locating when ship's staff do not have time to send out a full distress call. The GMDSS also requires ships to receive broadcasts of maritime safety information which could prevent a distress from happening, and requires ships to carry satellite *Emergency Position Indicating Radio Beacons (EPIRBs)*, which float free from a sinking ship and alert rescue authorities with the ship's identity and location.

The GMDSS was adopted by the International Maritime Organisation (IMO), a United Nations specialized agency responsible for ship safety and the prevention of marine pollution. The GMDSS was adopted through amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974. The amendments, contained in Chapter IV of SOLAS on Radiocommunications, were adopted in 1988 and entered into force on 1 February 1992 but provided for a phase-in period until 1 February 1999.

Implementation of the GMDSS requirements is the responsibility of Contracting Governments to SOLAS - that is the Administrations of individual countries that have ratified the GMDSS requirements into their national law. In practice, it also means that individual shipowners are responsible for ensuring their ships meet GMDSS requirements, since they must obtain certificates from their flag State certifying conformity with all relevant international regulations.

All ships subject to SOLAS Chapter IV have to fit GMDSS equipment. In general, this means all cargo ships over 300 gross registered tonnes and all passenger vessels on international voyages. However, many national administrations have made it compulsory for their larger fishing vessels to carry GMDSS compliant equipment.

The Inmarsat Maritime Safety Services department liaises with all entities involved in the operation of the GMDSS to ensure that they function without any problems.

Specific equipment requirements for ships vary according to the sea area (or areas) in which the ship operates. The GMDSS combines various subsystems - all of which have different limitations with respect to coverage - into one overall system, and the oceans are divided into four sea areas: A1 - A4. A1 is close to the shore generally within VHF range (20-30 nautical miles); A2 within range of MF coastal stations (about 150 miles); A3 within range of Inmarsat provisions and A4 the remaining areas (those not covered by Inmarsat, mainly Arctic areas).

Coastal vessels, for example, only have to carry minimal equipment if they do not operate beyond the range of shore-based VHF radio stations, but they may also carry satellite equipment. However, some coasts do not have shore-based facilities so, although the ship is close to shore, the area...
counts as Area A2 or A3. Ships that do go beyond Sea Area A1 have to carry MF equipment as well as VHF - or Inmarsat satellite equipment. Ships that operate beyond MF range have to carry Inmarsat satellite equipment in addition to VHF and MF. Ships that operate in area A4 have to carry HF, MF and VHF equipment.

If ships are travelling only in coastal areas served by VHF coast stations with continuous digital selective calling (DSC) available, they need only carry VHF equipment. However, they may use satellite communication in addition to or instead of terrestrial radio links.

One of the main reasons for false distress alerts is improper use of GMDSS equipment by untrained or inadequately trained personnel. They are probably also caused by the lack of practical experience of GMDSS equipment onboard ships by trained personnel. IMO has issued guidelines on avoidance of false alerts and has introduced a standard button design, which means that the distress button has to be protected and must be held down for at least 3 seconds to be activated. There are problems with equipment design and poor training. EPIRBs have to be sensitive, because they have to be able to float free, and this sensitivity can sometimes lead to false alerts. But information from manufacturers and coastal states indicate that, on average, there is only one false alert every 50 years from each of the alarms now available.

At the same time, the GMDSS system makes it possible for the ship in distress to be contacted, to check whether the alert is real or false, before search and rescue operations begin.