



Maritime &
Coastguard
Agency



The Workboat Code

Edition 2

The Safety of Small Workboats and Pilot Boats – a Code of Practice
applicable to small workboats operating in commercial use to sea and all pilot boats.

(The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998
(SI 1998 No.1609), as amended)

Note:

This Code must, from the date of publication (*[insert date]*), be used for new workboats and pilot boats. Existing workboats and pilot boats may also use the Workboat Code Edition 2, as an updated standard to the requirements of:-

- “The Safety of Small Workboats and Pilot Boats – A Code of Practice”, published by the Maritime and Coastguard Agency in 1998, in accordance with Regulation 8 of the Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 (SI 1998 No.1609); or,
- The technical Annex of MGN 280.

If this option is chosen, such existing vessels must comply fully with the requirements for construction, equipment and operation set out in the Workboat Code Edition 2.

Alternatively, such existing vessels may continue to be operate and issued with Certification under the previous standards mentioned above.

Please note that the “Workboat Code Industry Group Technical Standard”, published in 2014, is no longer recognized, and must not be used after the end of the relevant phase-in period, as described in the MSN that gives legal force to this Code.

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Safer Lives, Safer Ships, Cleaner Seas

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1 Foreword

- 1.1 This Code applies to small workboats that operate to sea, and to pilot boats of any size operating either at sea or in categorised (i.e. inland) waters. It applies to such vessels that are United Kingdom (UK) vessels wherever they may be, and to non-United Kingdom vessels in UK waters or operating from UK ports.
- 1.2 The Code applies to such vessels in commercial use, other than when in use for recreational, sport or pleasure use, for which there are more appropriate codes.
- 1.3 The Code is applied in accordance with the Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998, SI 1998 No. 1609, as amended (“the enabling Regulations”). It is therefore applied as an equivalent standard to full compliance with Merchant Shipping regulations covering Load Line and other safety and operational matters, and operators have the right to comply – in full – with those other standards instead of this Code. However the National Workboat Association and other representatives on the Industry Working Group that developed this Code consider that it will be easier to apply and understand a Code of Practice than the many separate regulations that would otherwise have to be consulted and complied with. Vessels that comply with the Code may additionally be issued with a UK Load Line Certificate.
- 1.4 This second edition of the Code amends the original Code, “The Safety of Small Workboats and Pilot Boats – A Code of Practice” introduced in 1998, and applies to small workboats and pilot boats, the keels of which are laid, or are at a similar stage of construction, on or after **1 December 2018**. This is defined in the Merchant Shipping Notice issued in accordance with the regulation 3(1) of the enabling regulations. From that date, this code supersedes the original Code, and also the use of Marine Guidance Note MGN 280(M)¹ “Small Commercial Vessels and Pilot Boat Code of Practice” for small workboats and pilot boats and the Workboat Code Industry Working Group Technical Standard published in June 2014.
- 1.5 Small workboats are vessels of less than 24 metres in Load Line length or, in the case of a vessel the keel of which was laid or was at a similar stage of construction before 21st July 1968, of less than 150 gross registered tons (measured in accordance with the regulations in force at that time).
- 1.6 The Code applies to vessel carrying their crew and not more than an aggregate 12 passengers and industrial personnel. Such ships are treated, by both UK and international law, as a type of cargo ship and the level of safety and protection for those on board – particularly passengers and trainees – is considered to be commensurate with the current expectations of the general public for such vessels. It should be noted, however, that the class of vessel – i.e. passenger or non-passenger – depends very much on the terms on which those persons forming the crew have been engaged and the duties they are performing.
- 1.7 Compliance with the Code in no way obviates the need for vessels and/or Masters to comply with relevant bylaws made by either the local/navigation authority or the port/harbour authority for the area in which the vessel operates. Local authorities may, for instance, have powers to require vessels to have passenger liability and third-party insurance cover, and to set the level of that cover. Additionally, recognising that some vessels operate both at sea and on inland waterways, attention is drawn to the common

¹ MGN 280(M) Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards

approach to vessel safety adopted by the major UK Inland Navigation Authorities. Owners/managing agent(s) of such vessels should also comply with any applicable requirements of any relevant authority for the area of operation. It should also be noted that local authorities may also have powers over the use of the foreshore and landing places, and to issue licenses for their use.

- 1.8 The code can be applied to any small vessel that comes within the limits of paragraphs 1.1 and 1.2. Section 25 provides specific requirements for particular uses.
 - 1.8.1 Seagoing police boats should be surveyed and certificated in accordance with the "Police Boat Codes, Amendment 3 (PBC 3)", the MCA's Marine Guidance Note MGN518(M)² refers.
 - 1.8.2 This Code applies to all UK Pilot Boats. There is no equivalent Merchant Shipping legislation.
 - 1.8.3 Independent rescue boats, when engaged in commercial use, may use the Rescue Boat Code instead of this Code, in accordance with the MCA's Marine Guidance Note MGN 466(M)³.
 - 1.8.4 The Code can also be used for barges, pontoons, and similar small vessels when under tow, as specified in section 25.
 - 1.8.5 Vessels where bulk cargo⁴ is loaded into and carried in the vessels hold or tanks are considered to be small tankers or bulk carriers and shall not be certified under the provisions of this Code.
- 1.9 The following organisations participated in the Industry Working Group that drafted this Code, under the co-ordination of the UK National Workboat Association:

BMT Nigel Gee
British Marine Federation
British Sub-Aqua Club
Bureau Veritas
Burness Corlett Three Quays
Canals and Rivers Trust
DNV-GL
International Institute of Marine Surveyors
International Jack-Up Barge Owners Association
Lloyd's Register
Maritime and Coastguard Agency
Mecal
National Workboat Association
Port of London Authority
Professional Boatman's Association
Royal Yachting Association
Society of Consulting Marine Engineers and Ship Surveyors
UK Maritime Pilot's Association
Yacht Designers and Surveyors Association

² MGN 518(M) Police Boat Codes, Amendment 3 (PBC 3)

³ MGN 466(M) The Rescue Boat Code (The Code of Practice for Open Rescue Boats of Less than 15 Metres in Length)

⁴ Dredging spoil is not deemed "cargo", it is not bulk cargo. But dredging e.g. gravel for bringing back to shore for commercial exploitation is cargo.

- 1.10 This Code aims to provide, in a single document, all the information needed for the design, construction, engineering, electrical systems, hull systems, fire protection, and provision of fire-fighting, life-saving, navigation and radio equipment. It also deals with the equally important subject of manning and of the qualifications needed for the senior members of the crew.
- 1.11 In addition, designers, builders, owners and repairers of vessels, as appropriate, will need to pay special regard to the intended area of operation and the weather and working conditions to which a vessel will be subjected when developing the design and selecting the materials and equipment to be used in its construction and maintenance.
- 1.12 In accordance with Directive 1998/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations, any requirement for goods or materials to comply with a specified standard shall be satisfied by compliance with:
- 1) a relevant standard or code of practice of a national standards body or equivalent body of any European Economic Area (EEA) State; or
 - 2) any relevant international standard recognised for use in any EEA State; or
 - 3) any relevant technical regulation with mandatory or *de facto* mandatory application for marketing or use in any EEA State
- in so far as the standard, code of practice, technical regulation or process in question enables the requirements for safety and fitness for purpose of this Code to be met in an equivalent manner.
- 1.13 It is important to stress that, whilst all reasonable measures have been taken to develop standards which will result in the production of safe and seaworthy vessels, total safety at sea can never be guaranteed. As a consequence, owners/managing agents of a vessel are encouraged to take out a policy of insurance for all persons who are part of the vessel's complement. It is advised such insurance provide cover against any foreseeable claims that may arise. It is advised that, if a policy of insurance is in force, a copy of the Certificate of Insurance be either displayed or available for inspection by persons on board the vessel.
- 1.14 It should be noted that United Kingdom registered vessels to which this Code applies, when operating outside of United Kingdom waters, may be subject to additional requirements of the port state or overseas administration, over and above this Code of Practice. Owners/managing agents should contact the administration controlling these waters for further information.
- 1.15 This Code may be applied voluntarily by operators of non-UK vessels based abroad. Such vessels may be issued with documents indicating compliance with the standards of the Code, but cannot have UK certificates.
- 1.16 How to Use This Code**
- 1.17 The Code consolidates all applicable requirements into a single document. Some of these requirements are made mandatory by the Merchant Shipping (Small Workboat and Pilot Boat) Regulations 1998 (SI 1998 No.1609). Other requirements are given legal effect by other legislation. A list of regulations that were considered to be applicable to Workboats at the time of the drafting of this revised Code are provided in

Appendix 14.

1.18 This Code also provides information on many of those requirements that are applied by those other regulations, in order to provide a comprehensive single reference point, but this information may not be definitive. This information is provided in italics. The owner, manager, operator or Master may need to consult those regulations and the associated guidance to ensure they are compliant. This Code does not provide information on Statutory Instruments coming into force after the date of its publication which are required to be complied with. Statutory Instruments, Merchant Shipping Notices, Marine Guidance Notes and Marine Information Notes can be found on the MCA website.

1.19 The safety requirements which are made mandatory by the enabling regulations are those contained in the following sections (and their associated Appendices):

- 2. Definitions
- 3. Application and Interpretation
- 4. Construction and Structural Strength
- 5. Weathertight Integrity
- 6. Water Freeing Arrangements
- 7. Machinery
- 8. Electrical arrangements
- 9. Steering Gear, Rudder and Propulsion systems
- 10. Bilge pumping
- 11. Intact Stability
- 12. Freeboard and Freeboard Marking
- 13. Life Saving Appliances (except 13.6.3, 13.17)
- 14. Fire Safety
- 15. Fire Appliances
- 16. Radio Communications Equipment (except 16.12.1)
- 18. Navigational Equipment
- 19. Miscellaneous Equipment (except 19.1.3)
- 20. Anchors and Cables
- 21, 21A, 21B Accommodation and Recreational Facilities
- 22.2, 22.4 Protection of Personnel
- 24. Tenders and Daughter Craft
- 25. Requirements Specific to the Use of the Vessel (except for 25.2.2, 25.2.3, 25.2.4, 25.4.1.3 – 25.4.1.4, 25.4.1.6 – 25.4.1.7, 25.4.1.10, 25.4.2.1, 25.4.2.4 – 25.4.2.6, 25.4.2.9, 25.9.8)
- 26.1 - 26.10, 26.13 Manning
- 27. Procedures, Certification, Examination, Maintenance and Reporting of Accidents
- 30. Safety Management

1.20 The following sections (which are highlighted by italic text in the code) are made mandatory by other Statutory Instruments. This Code does not amend the detail of that legislation, it is included within the Code to allow all applicable requirements to be identified in a single comprehensive document:

- 13.6.3, 13.17 Life-Saving Appliances
- 16.12.1 Radio Communications Equipment
- 17 Navigation Lights, Shapes and Sound Signals
- 19.1.3 Miscellaneous Equipment
- 22.1, 22.3 Protection of Personnel
- 23 Medical Care
- 25.2.2 – 25.2.4, 25.4.1.3 – 25.4.1.4, 25.4.1.6 – 25.4.1.7, 25.4.1.10, 25.4.2.1,

	25.4.2.4 – 25.4.2.6, 25.4.2.9, 25.9.8
	Requirements specific to the Use of the Vessel
26.11, 26.12, 26.14 - 26.21	Manning
28	Prevention of Pollution
29	Carriage and Transfer of Cargoes, including Dangerous Goods

1.21 Authorisation of Survey and Certification to Certifying Authorities

- 1.22 The MCA is an Executive Agency of the Department for Transport, and has responsibility and accountability for the UK Merchant Shipping Regulations and their enforcement. The Agency has authorised to Certifying Authorities the examination (survey) and certification of vessels to which this Code applies, and the Certifying Authorities and the MCA have a written agreement which defines this relationship. The MCA, however retains the enforcement duties of the Code and is responsible for auditing the Certifying Authorities, as well as being an active Certifying Authority itself.
- 1.23 The authorisation of Certifying Authorities has been influenced by the requirement to have a local capability for the efficient handling of the needs of owners/operators of vessels. Authorised Certifying Authorities are permitted to charge for undertaking Code of Practice examination and certification processes as a provision of their authorisation. Arrangements for charges will be made directly between the CA (or a CA's authorised person) and the party requesting such services.

1.24 Health and Safety Regulations

- 1.25 The owner/Master of a vessel is responsible for the health and safety of workers and others on the vessel. The Merchant Shipping and Fishing Vessel (Health and Safety at Work) Regulations (SI 1997 No. 2962) apply when persons are employed on board, see section 22 of this Code.
- 1.26 Every employer is to be aware of any risks affecting workers and ensure that appropriate measures are taken to minimise them through improving procedures or equipment where necessary. Employers must instruct those affected about the risks and how to ensure their own health and safety and the health and safety of others.

2

Definitions

In this Code:

“*A* class” divisions are those divisions formed by bulkheads and decks which comply with the criteria described in SOLAS Chapter II-2 Regulation 3;

“Accommodation space” means any space, enclosed on all sides by solid divisions, provided for the use of persons on-board;

“Administration” means the Government of the State whose flag the ship is entitled to fly;

“Annual examination” means a general or partial examination of the vessel, its machinery, fittings and equipment, as far as can readily be seen, to ascertain that it had been satisfactorily maintained as required by the Code and that the arrangements, fittings and equipment provided are as documented in the Compliance Examination and Declaration report form SWB2. The hull, shell fittings, external steering and propulsion components of the vessel should be examined out of the water at intervals not exceeding 5 years. The Certifying Authority may stipulate a lesser interval in consideration of hull construction material or the age or the type and service of the vessel;

“Approved” means approved by or acceptable to the MCA under Merchant Shipping legislation, unless otherwise specified in the Code;

“as amended” refers to any other document that replaces, revokes or amends the document that the term “as amended” follows;

“Authorised person” means a person who by reason of relevant professional qualifications, practical experience or expertise is authorised by the Certifying Authority chosen by the owner/managing agent from those listed in the Code to carry out examinations required under section 27 of the Code;

“*B* class” divisions are those divisions formed by bulkheads, decks, ceilings or linings which comply with the criteria described in SOLAS Chapter II-2 Regulation 3;

“Bare boat charter” means a charter for which the charterer provides the Master and the crew;

“Boats fitted with a buoyant collar” means a rigid inflatable vessel, or a vessel of similar hull form, where the inflatable tubes are replaced by solid, or hollow, buoyant sections;

“Cargo” for the purpose of the Code means all items which are transported by the vessel except fuel for the vessel, ballast (either solid or liquid), consumables to be used on board, permanent outfit and equipment of the vessel, stores and spare gear for the vessel, crew and their personal baggage, passengers and their personal baggage, industrial personnel and their equipment and personal baggage;

“Category C waters” means waters designated category C waters in the Merchant Shipping (Categorisation of Waters) Regulations 1992, (SI 1992 No.

2356), as amended, and Merchant Shipping Notice MSN 1837(M) – Categorisation of Waters;

“Category D waters” means waters designated category D waters in the Merchant Shipping (Categorisation of Waters) Regulations 1992, (SI 1992 No. 2356), as amended, and Merchant Shipping Notice 1837(M) – Categorisation of Waters;

“Certificate” means the certificate appropriate to a vessel to which the Code is applied which the Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 (SI 1998 No. 1609), as amended, require to have been issued. See section 1.1;

“Certifying Authority¹” means either the MCA or one of the organisations authorised by the MCA to:

- a) appoint persons for the purpose of examining vessels and issuing and signing Declarations of Examinations; and
- b) issue Certificates.

The organisations so authorised by the MCA are identified in a Marine Information Note⁵;

“Charter” means an agreement between the owner/managing agent and another party which allows that other party to operate the vessel, and the “Charterer” is that other party;

“Code” means this Code unless another Code is specified;

“Compartment” means all living and working spaces within the watertight or fire-resisting boundaries on any one level which have inter-communicating access;

“Competent harbour authority” has the same meaning as it has in the Pilotage Act 1987;

“Competent Authority” in respect of manning qualifications (Appendix 3) means either the MCA or an organisation that issues Certificates of Competence which has applied for and been granted recognition by the MCA as having the appropriate technical and administrative expertise;

“Competent Person” in respect of fire extinguisher servicing (section 15) has the same meaning as it does in BS 5306 : Part 3⁶ ; 2003 which is a person with the necessary training, experience, with access to the relevant tools, equipment and information, manuals and knowledge of any special procedures recommended by the manufacturer of the portable fire extinguisher, to carry out the relevant maintenance procedures;

“Competent person” with respect to LOLER and PUWER Regulations is intended to mean a person possessing the knowledge or experience necessary for the performance of the duties under the LOLER and PUWER Regulations;

⁵ A full list of MCA approved Certifying Authorities can be found in a Marine Information Note (MIN), issued annually by the MCA: “Codes of Practice – Authorisation of Certifying Authorities”.

⁶ See Appendix 13

“Compliance examination” means an examination of the vessel, its machinery, fittings and equipment, by an authorised person, to ascertain that the vessel’s structure, machinery, fittings and equipment comply with the requirements of the Code. Part of the examination should be conducted when the vessel is out of the water. Part of the examination should be conducted when the vessel is in the water;

For simple vessels (e.g. RHIBs) of a design, with no through hull fittings below the water line the Certifying Authority may exercise discretion in carrying out the compliance examination entirely out of the water;

“Control position” means a conning position which is continuously manned whilst the vessel is under way;

“Cooker” means a galley stove designed for cooking that makes use of burners, an oven, a broiler or any combination of these items;

“Coxwain” has the same meaning as Master within the code;

“Crew” means a person employed or engaged in any capacity on-board a vessel on the business of the vessel;

“Critical Downflooding” is deemed to occur when openings having an aggregate area, in square metres, greater than:

$$\frac{\text{vessel's displacement in tonnes}}{1500}$$

are immersed. Moreover, it is the angle at which the lower edge of the actual opening which results in critical flooding becomes immersed. All openings regularly used for crew access and for ventilation should be considered when determining the downflooding angle. Air pipes to tanks can, however, be disregarded. Where an appropriate ISO standard is used, the definition should be taken from those standards as applicable;

“Daylight ” means one hour before sunrise until one hour after sunset. In tropical waters this is to be from sunrise to sunset;

“Decked vessel” means a vessel with a continuous watertight weather deck which extends from stem to stern and has positive freeboard throughout, in any condition of loading of the vessel. Where an appropriate ISO standard is used, the definition should be taken from those standards as applicable;

“Design Category” means a description of the wind and sea conditions for which a vessel is considered suitable under the EC Directive 94/25/EC of 16th June 1994, as amended by 2003/44/EC, on the approximation of the laws, regulations and administrative provisions of the Member States relating to recreational craft, and used for the application of relevant ISO and CEN standards. See table below;

Design category	Wind force (Beaufort scale)	Significant wave height (H 1/3, metres)
A - 'Ocean'	Exceeding 8	Exceeding 4
B- 'Offshore'	Up to, and including, 8	Up to, and including 4
C - 'Inshore'	Up to, and including, 6	Up to, and including, 2
D - 'Sheltered waters'	Up to, and including, 4	Up to, and including, 0.5

“DfT” means the UK Government’s Department for Transport;

“Diesel” means Marine Gas Oil and refers to gas oil, diesel fuel and heating oil, light which are categorised under UN 1202;

“Efficient” in relation to a fitting, piece of equipment or material means that all reasonable and practicable measures have been taken to ensure that it is suitable for the purpose for which it is intended. See 1.17;

“Existing vessel” means a vessel which is not a new vessel;

"Favourable weather" with respect to a small vessel means conditions existing throughout a voyage or excursion in which the effects either individually or in combination of swell, height of waves, strength of wind and visibility cause no hazard to the safety of the vessel, including handling ability.

In making a judgement on favourable weather, the Master should have due regard to official weather forecasts for the service area of the vessel or to weather information for the area which may be available from the Coastguard or similar coastal safety organisation;

“*Float-free launching*” is that method of launching a liferaft or EPIRB whereby the raft or EPIRB is automatically released from a sinking ship and is ready for use.

In the context of a vessel in commercial use, “automatically released” means release from the liferaft / EPIRB stowage location and release of the painter line through use of a weak link or similar.

In the context of a vessel in commercial use, “ready for use” means: in the case of a liferaft the raft is inflated and ready for embarkation.

“Freeboard” means the distance measured vertically downwards from the lowest point of the upper edge of the weather deck to the waterline in still water or, for an open vessel, the distance measured vertically downwards from the lowest point of the gunwale to the waterline;

“FTP Code” means the International Code for Application of Fire Test Procedures (Resolution MSC.61(67)) including fire test procedures referred to in and relevant to the FTP Code, published by the International Maritime Organization;

“GNSS” means global navigation satellite systems, including GLONAS, GPS and Galileo systems;

“Heater” and “Heating appliance” means an appliance designed to heat air or water or a solid medium by means of combusting liquid fuel;

“Height of Side” with respect to an open boat means the distance between the waterline and the lowest point of the gunwale. The clear height should be measured to the top of the gunwale or capping or to the top of the wash strake if one is fitted above the capping;

“High Holding Power (HHP) Anchor” means an anchor that can be shown to have holding powers of at least twice those of a standard stockless anchor of the same mass;

“High Speed” means an operating speed of 20 knots or more;

“IMDG Code” means the International Maritime Dangerous Goods Code, as amended, published by the International Maritime Organization;

“Immersion Suit” means a protective suit which reduces the body heat-loss of a person wearing it in cold water and complies with the requirements of the Marine Equipment Directive (MED);

“IMO” means the International Maritime Organization;.

“Industrial Personnel” means all persons other than the crew or passengers or children of under one year of age, on board for transport or accommodation:

- .1 are transported or accommodated on board for the purpose of offshore industrial activities⁷;
- .2 are able bodied and meet appropriate medical standards⁸;
- .3 have received basic safety training, according to relevant industry standards⁹;
- .4 have an understanding of the layout of the ship and the handling of the ship's safety equipment before departure from port (e.g. through a safety briefing); and
- .5 are equipped with appropriate personal safety equipment suitable for the risks to safety such personnel are likely to experience on the forthcoming voyage (e.g. immersion suits).

“Inflatable Boat” means a vessel which attains its form through inflatable tubes only, which are not attached to a solid hull;

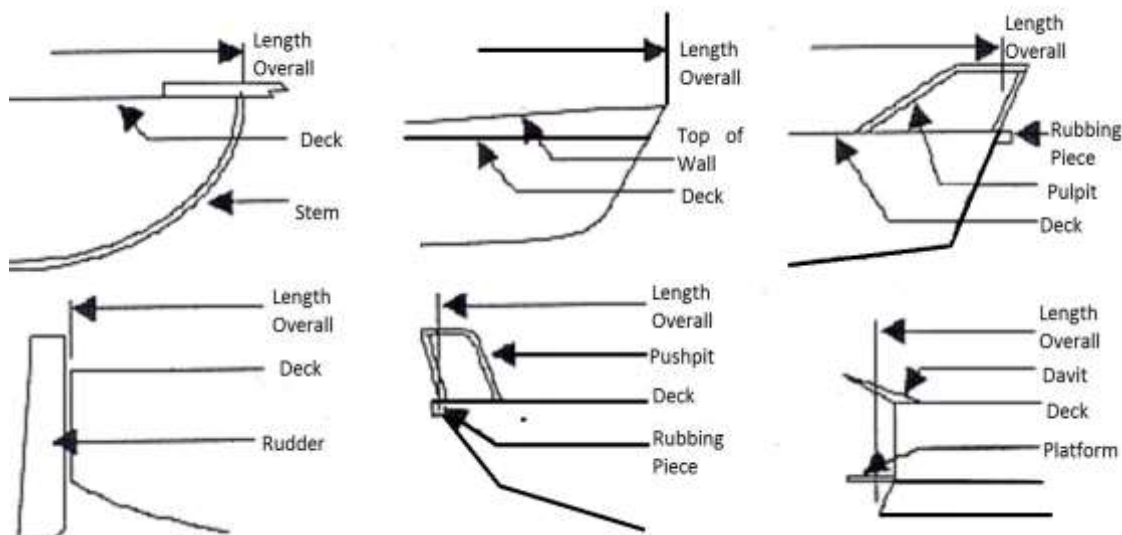
“Land” means the sea shore above the line of mean high water mark;

⁷ Examples of such activities may include safe transfer of personnel to or from offshore wind farm structures or vessels involved in their construction or maintenance, with other examples referred to under offshore operations in paragraph 6.2.2.11 of resolution A.1079(28).

⁸ Appropriate standards are those recognised and published by the MCA. See paragraph 7.2 of Marine Guidance Note MGN 515(M) (Special Purpose Ships (SPS) Code - Offshore Vessels) for those considered appropriate for industrial personnel in the context of this Code and as an alternative to STCW I/9.

⁹ Industry standards e.g. Global Wind Organisation (GWO), Offshore Petroleum Industry Training Organisation (OPITO), Basic Offshore Safety Induction and Emergency Training (OPITO accredited) are accepted alternatives to STCW A-VI/1 paragraph 2. An example for personnel undergoing transfer from ship to foundation, or vice versa, will require specific transfer training.

“Length” means the overall length from the foreside of the foremost fixed permanent structure to the aft side of the aftermost fixed permanent structure of the vessel. With regard to inflatable, rigid inflatable boats, or boats fitted with a buoyant collar, length should be taken from the foremost part of tube or collar, to the aft most part of the tube or collar.



“Light Duty Workboat” - means a vessel that is certificated under the Small Commercial Vessel codes or complying with another acceptable standard described in 25.10, which can also be issued with a “Light Duty Workboat” certificate under the conditions stated in section 25.10;

“Liquid fuel” means fuel that is liquid at atmospheric pressure and used for heating or for a cooker;

“Load Line Assigning Authority” means an Authorised Organisation listed in MSN 1672 (M+F) Amendment 3 Ship Inspection and Survey Organisations and European Directive 2009/15/EC, as amended.

"Load line length" in relation to a ship means the greater of the following distances -

- (a) 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or
- (b) the length from the fore-side of the stem to the axis of the rudder stock on that waterline.

Where the stem contour is concave above the waterline at 85% of the least moulded depth, both the forward terminal of the total length and the fore-side of the stem respectively shall be taken at the vertical projection to that waterline of the aftermost point of the stem contour (above that waterline). In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline;

"Load-bearing division" is a deck or bulkhead including stiffeners, pillars, stanchions and other structural members which, if eliminated, would adversely affect the designated structural strength of the ship.

“Long international voyage” means any voyage where a vessel is more than 200 miles from a safe haven, or the length of the voyage from departure to arrival more than 600 miles;

“Machinery space” means any space which contains propelling machinery, boilers, oil fuel units, steam, internal combustion engines, generators and liquid fuelled heating appliances. Spaces containing machinery of a unique or novel design may be subject to special consideration;

“Marine Information Note” (MIN) means a Note described as such and issued by the MCA, and reference to a specific Merchant Shipping Notice includes reference to any Marine Information Note amending or replacing that Note which is considered by the Secretary of State to be relevant from time to time;

“Marine Guidance Note” (MGN) means a Note described as such and issued by the MCA, and reference to a specific Marine Guidance Note includes reference to any Marine Guidance Note amending or replacing that Note which is considered by the Secretary of State to be relevant from time to time;

“Maritime and Coastguard Agency” means the Maritime and Coastguard Agency (MCA), an executive agency of the Department for Transport, and any superseding and preceding organisation;

“MARPOL” means The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, as amended, published by the International Maritime Organization;

“Master” has the same meaning as “master” provided by section 313 of the Merchant Shipping Act 1995 (Ch. 21)¹⁰;

“Maximum permissible weight” means the maximum total permissible weight of persons and their effects, cargo, and activity related equipment, i.e. diving equipment;

“MED” means European Council Directive 96/98/EC of 20 December 1996 on Marine Equipment, as amended, or 2014/90/EU after 18 September 2016;

“Member State of the European Economic Area” means a State which is a contracting party to the Agreement on the European Economic Area signed at Oporto on 2 May 1992, as adjusted by the Protocol signed at Brussels on 17 May 1993 and subsequently by the 2004 EEA Enlargement Agreement, and subsequently by the 2007 EEA Enlargement Agreement;

“Merchant Shipping Act”, “Merchant Shipping Order”, “Merchant Shipping Regulations” and “Merchant Shipping Rules” referred to in the Code mean the reference specified and includes the document issued under the appropriate statutory power which either amends or replaces the reference specified;

“Merchant Shipping Notice” (MSN) means a Notice described as such and issued by the MCA, and reference to a specific Merchant Shipping Notice includes reference to any Merchant Shipping Notice amending or replacing that

¹⁰ Section 313 of the Merchant Shipping Act 1995 provides that "master" includes every person (except a pilot) having command or charge of a ship and, in relation to a fishing vessel, means the skipper.

Notice which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice;

“Mile” means a nautical mile of 1852 metres;

“Modification” means any material change to the vessel or its equipment that would affect the vessel’s compliance with statutory requirements, or that would require an amendment to its statutory certification, including the WB2;

“Motor vessel” means a power driven vessel which is not a sailing vessel;

“Multihull vessel” means any vessel which in any normally achievable operating trim or heel angle, has a rigid hull structure which penetrates the surface of the sea over more than one separate or discrete area;

"New vessel" means a vessel to which this Code applies, the keel of which was laid or the construction or lay-up was started on or after the first day on which this revised Code came into force or any vessel where there has not been a valid certificate for the previous five years;

“Nominated departure point(s)” means the designated point(s) of departure of the vessel, as specified on the vessels certificate. Where this point lies within Category C or Category D waters, it is to be taken as the seaward boundary of these waters.

“Officer”, in relation to a body corporate, means:

- (a) a director, manager, secretary or other similar officer of the body corporate, or a person purporting to act in any such capacity; or
- (b) an individual in accordance with whose directions or instructions the directors of that body corporate, or of any other body corporate which is its controller, are accustomed to act;

“Open boat” for the application of the Code means a vessel which within its length is:

- .1 not fitted with a watertight weather deck; or
- .2 is fitted with a watertight weather deck over part of its length; or
- .3 is fitted with a watertight weather deck over the whole of its length but the freeboard to the deck does not meet the minimum requirement for freeboard (section 12);

“Owner/managing agent” means the registered owner, or the owner or managing agent of the registered owner or owner, or owner ipso facto, as the case may be, and “Owners/managing agents” should be construed accordingly;

"Passenger" means any person carried on a ship except:

- (a) a person employed or engaged in any capacity on the business of the vessel,
- (b) a person on board the vessel either in pursuance of the obligation laid upon the Master to carry shipwrecked, distressed

or other persons, or by reason of any circumstance that neither the Master nor the owner nor the charterer (if any) could have prevented or forestalled,

- (c) a child of under one year of age

“Pilot boat” means a boat employed or intended to be employed in pilotage services, and “Dedicated pilot boat” means a pilot boat of whatever size which is primarily employed in pilotage services and other occasional services undertaken such as the carriage of personnel, mail, and / or small quantities of stores to or from vessels in the pilotage district;

“Plastic(s)” means both thermoplastic and thermosetting plastic materials, with or without reinforcement, such as uPVC and fibre reinforced plastics(FRP). The definition includes synthetic rubber and materials of similar thermo/mechanical properties.

"Pleasure vessel" as defined in the Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998 (SI 1998 No. 2771), as amended, means:

- (a) *any vessel which at the time it is being used is:*
- (i)(aa) *in the case of a vessel wholly owned by an individual or individuals, used only for the sport or pleasure of the owner or the immediate family or friends of the owner; or*
- (bb) *in the case of a vessel owned by a body corporate, used only for sport or pleasure and on which the persons on board are employees or officers of the body corporate, or their immediate family or friends; and*
- (ii) *on a voyage or excursion which is one for which the owner does not receive money for or in connection with operating the vessel or carrying any person, other than as a contribution to the direct expenses of the operation of the vessel incurred during the voyage or excursion; or*
- (b) *any vessel wholly owned by or behalf of a members' club formed for the purpose of sport or pleasure which, at the time it is being used, is used only for the sport or pleasure of members of that club or their immediate family, and for the use of which any charges levied are paid into club funds and applied for the general use of the club; and*
- (c) *in the case of any vessel referred to in paragraphs (a) or (b) above no other payments are made by or on behalf of users of the vessel, other than by the owner.*

In this definition “immediate family” means-

In relation to an individual, the spouse or civil partner of the individual, and a relative of the individual's spouse or civil partner; and “relative” means brother, sister, ancestor or lineal descendant;

“Protected Waters” means waters not categorised in Merchant Shipping (Categorisation of Waters) Regulations 1992 (SI 1992 No. 2356), as amended,

and Merchant Shipping Notice MSN 1837(M), but the location of which are explicitly defined and accepted as protected by the Administration, having regard for the safety of the small vessels which operate in those waters;

"Recess" means an indentation or depression in a deck and which is surrounded by the deck and has no boundary common with the shell of the vessel. Where an appropriate ISO standard is used, the definition should be taken from those standards as applicable;

"Renewal examination" means a similar examination to the Compliance examination.

For simple vessels (e.g. RHIBs) of a design, with no through hull fittings below the water line, the Certifying Authority may exercise discretion in conducting the compliance and renewal surveys while the vessel is out of the water;

"Rigid inflatable boat" means a vessel with inflatable tubes, attached to a solid hull. The tubes are inflated during normal craft operation;

"Safe haven" means a harbour or shelter of any kind which affords safe entry and protection from the force of weather;

"Seafarer" means any person, including the Master, who is employed or engaged or works in any capacity on board a ship on the business of the ship and whose normal place of work is on a ship;

"Similar stage of construction" means a stage at which:

- (a) construction identifiable with a specific vessel begins; and
- (b) assembly of that vessel, comprising at least 1% of the estimated mass of all structural material, has commenced;

"Skipper" has the same meaning as "Master" within the Code;

"Small vessel" means a vessel of less than 24 metres in load line length, or in the case of a vessel the keel of which was laid or which was at a similar stage of construction before 21st July 1968, less than 150 tons and in this definition –

- (a) "Similar stage of construction" means a stage at which
 - (i) construction identifiable with a specific vessel begins; and
 - (ii) assembly of that vessel, comprising at least 1% of the estimated mass of all structural material, has commenced; and
- (b) "Tons" means gross tons, measured in accordance with the regulations for measuring tonnage in force on 20th July 1968;

"SOLAS" means the International Convention for the Safety of Life at Sea, 1974, and it's Protocol of 1988, as amended;

"Standards" means those recognised such as BS (British Standard), EN (European Standard accepted by the European Committee for Standardization, CEN), IEC (International Electrotechnical Commission) and ISO (International Organization for Standardization) identified in the Code should include any standards which amend or replace them;

"Steel or other equivalent material" means any non combustible material which, by itself or due to insulation provided, has structural and integrity properties

equivalent to steel at the end of the applicable exposure to the standard fire test (e.g., aluminium alloy with appropriate insulation being such that the temperature of the core does not rise more than 200°C above the ambient temperature in 30 minutes or 60 minutes as determined by the fire endurance.)

"To sea" means, for the purpose of this Code, beyond Category D waters, or Category C waters if there are no Category D waters, as defined in Merchant Shipping Notice 1827 (M) – "Categorisation of Waters";

"United Kingdom ship" has the same meaning as in section 85(2)¹¹ of the Merchant Shipping Act 1995 (Ch.21). "United Kingdom vessel" has the same meaning;

"up to" means, for the purposes of this Code, up to but not including the maximum value, e.g. up to 20 miles means to just less than 20 miles;

"vessel" means any ship¹² to which the Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 (SI 1998 No. 1609), as amended applies;

"vessel in commercial use" includes any vessel, including any "pleasure vessel", while it is in possession of a broker, ship repairer or other such person for the purposes of his business;

"Void space" is any space, having no practical function on board the vessel, not capable of readily collecting water under normal operating circumstances;

"Watertight" means capable of preventing the passage of water in either direction;

"Weather deck" means the main deck which is exposed to the elements;

"Weathertight" means capable of preventing the admission of a significant quantity of water into the vessel when subjected to a hose test;

"Workboat" in the Code means a small vessel in commercial use for purposes other than sport or pleasure, including a dedicated pilot boat.

¹¹ Section 85(2) of the Merchant Shipping Act 1995 provides that in section 85(1) of the Merchant Shipping Act 1995 "United Kingdom ship" means a ship which—

(a) is registered in the United Kingdom; or
(b) is not registered under the law of any country but is wholly owned by persons each of whom is—

(i) a British citizen, a British Dependent Territories citizen or a British Overseas citizen,
or

(ii) a body corporate which is established under the law of a part of the United Kingdom and has its principal place of business in the United Kingdom.

¹² "The definition of "ship" provided in section 313 of the Merchant Shipping Act 1995 is – "Ship" includes every description of vessel used in navigation.

3 Application and Interpretation

3.1 Application

- 3.1.1 This Code applies to small workboats that operate to sea, and to all pilot boats, carrying cargo and / or not more than 12 passengers or industrial personnel. It applies to such vessels that are United Kingdom (UK) vessels wherever they may be, and to non-United Kingdom vessels in UK waters or operating from UK ports.
- 3.1.2 The Code applies to all such vessels in commercial use, other than when in use for recreational, sport or pleasure use, for which there are more appropriate codes. Vessels need to comply with the applicable requirements of Edition 2 of this Code unless they are existing vessels that are eligible for the Saving and Transitional Provisions set out in Appendix 16.
- 3.1.3 Small workboats are vessels of less than 24 metres in Load Line length or, in the case of a vessel the keel of which was laid or was at a similar stage of construction before 21st July 1968, of less than 150 gross registered tons (measured in accordance with the regulations in force at that time).
- 3.1.4 It is the responsibility of the owner/managing agent to ensure that a vessel is properly maintained, examined, certified and manned in accordance with the Code. The Code applies whether the owner/managing agent is corporate, private or of a charitable nature.
- 3.1.5 At the date of application of the Code, any vessel that is in possession of a valid Small Workboat Certificate, issued under the Codes of Practice named in sections 1.4 above, may continue to be certificated provided they comply with the standards under which they were examined, unless specifically stated otherwise within this Code, including at Appendix 16.
- 3.1.6 For a vessel that has been certificated under the Codes of Practice named in section 1.4 above for which the certification has lapsed, or has been suspended, for no longer than 5 years, certification may be re-issued provided it complies with the standards under which it was originally examined. Documentary evidence of the previous certification should be presented and any modifications during the uncertified period should be declared. A survey will be required, the level of which will be determined by the Certifying Authority, taking into account the condition of the vessel, and the period for which the certification has lapsed, or has been suspended.
- 3.1.7 When any existing vessel has new equipment installed, or undergoes modification, the standards of this Code relevant to the change, are to be applied as far as is practicable.
- 3.1.8 A vessel certificated under sections 3.1.5 or 3.1.6 above, that changes to a more onerous mode or category of operation, must comply with the section(s) of this Code applicable to that change of mode or category of operation.
- 3.1.9 The Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998, (SI 1998 No. 1609), as amended, under which this Code is applied, state that “any provision of the Code which is expressed in the conditional (i.e. “should”)

shall be a requirement". Where the phrase "less than" is used in this code, this is intended to mean "less than but not including" and "not more than" is intended to include the number quoted.

- 3.1.10 A vessel to which this Code applies, but which exceeds the speed/displacement ratio as defined within the 'The Merchant Shipping (High Speed Craft) Regulations 2004, (SI 2004 No. 302), as amended, need not be considered under those High Speed Craft Regulations, if certificated to the requirements of this Code, provided that it carries not more than 12 passengers or industrial personnel. For the avoidance of doubt this code is not applicable to hovercraft.

3.2 Areas of Operation

- 3.2.1 A vessel may be considered for the issue of a Small Workboat and Pilot Boat Certificate allowing it to operate in one of the following areas:

Area Category 6 - within 3 miles of land and not more than 3 miles radius from either the point of departure to sea or the seaward boundary of protected waters (see definition of "protected waters"), in favourable weather and daylight;

Area Category 5 - within 3 miles of land and not more than 3 miles radius from either the point of departure to sea or the seaward boundary of protected waters (see definition of "protected waters") in favourable weather;

Area Category 4 - Up to 20 miles from a safe haven, in favourable weather and in daylight;

Area Category 3 - Up to 20 miles from a safe haven;

Area Category 2 - Up to 60 miles from a safe haven;

Area Category 1 - Up to 150 miles from a safe haven;

Area Category 0 – Unrestricted service.

- 3.2.2 Depending on the nature of the vessel and its use, a vessel may be restricted to less than the above specified limits. Such a restriction should be recorded on the Small Work Boat Certificate for the vessel and should be limited to operations within Area Categories 3, 4, 5 and 6 only.

- 3.2.3 A pilot boat should have a valid Pilot Boat Certificate (or Pilot Boat Endorsement of a valid Small Workboat Certificate) allowing it to operate in the area(s) in which it provides a pilotage service, including areas which are not to sea.

3.3 Certification

- 3.3.1 To be issued with a certificate for a particular area of operation, a vessel must comply with all of the requirements of the Code for that operating area to the satisfaction of the Certifying Authority.

- 3.3.2 A certificate is to be valid for not more than five years.

3.4 Water Based Commercial Activities

3.4.1 The Code deals with safety of the vessel and its occupants but the commercial activities other than normal seamanship duties are not considered under the Code e.g. commercial diving.

3.5 Interpretation

3.5.1 Where a question of application of the Code, or an interpretation of a part of the Code arises, the owner/managing agent of the vessel concerned should in the first instance seek clarification from the Certifying Authority. In situations where it is not possible to resolve an issue of interpretation a decision may be obtained on written application to the Vessel Standards Branch of the MCA, who may consult with others as deemed appropriate.

3.6 Certifying Authorities

3.6.1 The MCA is itself an active Certifying Authority. However, other organisations which are so authorised by the MCA may appoint persons for the purpose of examining vessels, and may issue certificates.

3.7 Updating of the Code

3.7.1 In addition to the guidance on application and interpretation in section 3.5, the Code requirements will be regularly reviewed by an Industry Working Group, comprising representatives from the organisations listed in section 1 and any other members as necessary. Amendments will be promulgated and a formal review of the Code will be conducted at suitable intervals dependant on necessity.

3.7.2 When new standards are developed and finalised by the British Standards Institution (BSI), European Committee for Standardization (CEN), International Maritime Organization (IMO), International Organization for Standardization (ISO) or any other international body, which impact upon the requirements of the Code, amendment of the Code may be considered immediately. In the interim period, draft standards may be applied where the MCA have accepted them as an equivalent standard.

3.7.3 The enabling regulations provide for, from time to time, any document amending the Code which is considered relevant to be specified by the Secretary of State in a Merchant Shipping Notice.

3.8 Vessels Operating in Protected Waters and/or a Restricted Service - Alternative Safety Standards

3.8.1 When the owner/managing agent of a vessel which operates in protected waters and/or a restricted service (according to 3.2.2) considers that full application of the Code would be inappropriate because other safety provisions have been made, the owner/managing agent may request the Vessel Standards Branch of the MCA, via the Certifying Authority, to consider certification of the vessel in compliance with alternative safety standards. See also Appendix 4.

3.9 Equivalent Standards

3.9.1 When the Code requires that a particular piece of equipment or machinery should be provided or carried in a vessel or that any particular provision should be made,

to a specified standard, the Administration may permit any other piece of equipment or machinery to be provided or carried, or any other provision to be made, provided the Administration is satisfied by trials or otherwise that the alternative is at least as effective as that required by the Code.

- 3.9.2 Where an owner or managing agent wishes to use an equivalent means of compliance to the Code, that should be applied for formally to the Administration, via the Certifying Authority, using the appropriate documentation. All equivalencies that have been agreed by the Administration should be recorded on the SWB2 form, and copy of the agreement should be kept by the Certifying Authority on the vessel file.

3.10 Carriage of Additional Equipment

- 3.10.1 Equipment on board which is expected to be relied on in situations affecting safety or pollution prevention must be in an operational condition. If such equipment is inoperative and is in excess of the equipment required by this Code it should either be repaired, removed or if removal is not practicable, clearly marked as inoperative and secured¹³.

3.11 Risk Assessment of Operations

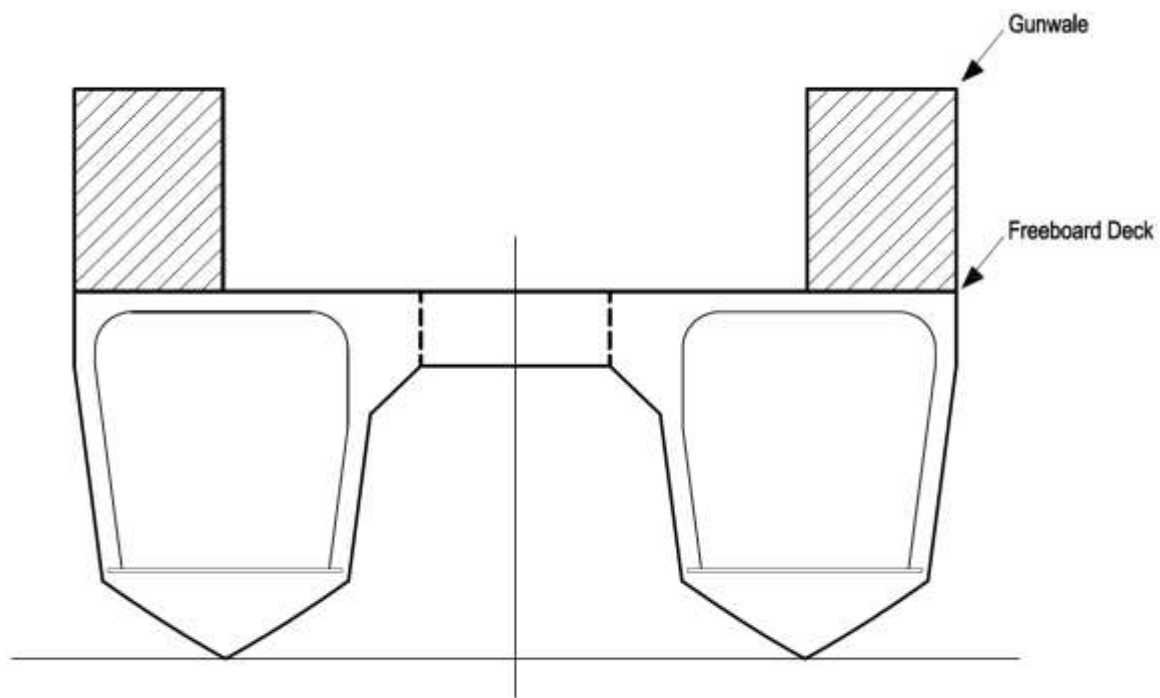
- 3.11.1 While every effort has been made to ensure this Code is suitable for generic work boats / pilot boats operating, there may be local conditions or circumstances or equipment not taken into account within the Code which require additional measures to be put in place to mitigate known risks. Prior to plan approval taking place, a risk assessment shall be carried out by the owner / managing agent to ensure that any circumstances, local conditions or equipment not covered by the provisions of the Code are adequately considered and all known risks are mitigated. This should be presented to the Certifying Authority(s) conducting the surveys prior to plan approval so that they too may take account of the risks identified.
- 3.11.2 If a workboat / pilot boat is moved from one area of operation to another area, is converted for a change in operational use, or has an additional piece of equipment fitted, a new risk assessment required by 3.11.1 should be conducted. Such a risk assessment should include the assessment of any previously accepted equivalent arrangements to ensure that they will continue to provide an equivalent level of safety in the new circumstance.

¹³ Further guidance can be found in MGN 79 (M+F) "Safety Equipment and Pollution Prevention Equipment Carried in Excess of Statutory Requirements".

4 Construction and Structural Strength

4.1 General Requirements

- 4.1.1 A vessel which operates in Area Category 0, 1, or 2 should be fitted with a watertight weather deck over the length of the vessel, satisfying the requirements of section 4.3.1, and be of adequate (see 4.2.1) structural strength to withstand the sea and weather conditions likely to be encountered in the intended area of operation.
- 4.1.2 A vessel which is not fitted with a watertight weather deck in accordance with section 4.1.1 should be restricted to Area Category 3, 4, 5 or 6. An open boat should be restricted to service in Area Categories 4, 5 and 6, however compliance with the guidance in 4.5.2 may allow operation in Area Category 3. Sections 4.1.3 and 4.1.4 apply to a vessel referred to in section 4.1.2. Both types of boats shall be provided with adequate reserves of buoyancy and stability for the vessel to survive the consequences of swamping when loaded with all the vessel's equipment, fuel, cargo, activity related equipment (e.g. diving equipment) and the number of persons for which it is to be certificated. See sections 11 & 12 for applicable standard.
- 4.1.3 An open boat should not carry cargo, or a combination of passengers, industrial personnel and cargo, for which the cargo element is in excess of 1000 kilogrammes (kg) (refer to section 11 - Stability, and 12 - Freeboard). Such a vessel may not be fitted with a lifting device, or be engaged in towing operations.
- 4.1.4 A motor vessel fitted with a watertight weather deck, which does not meet the freeboard requirements of section 12.2, but which possesses adequate reserves of buoyancy (>10%) above the weather deck, may be considered for the operations defined in section 4.1.3 above, provided the following conditions are satisfied:-
- .1 Freeboard to the gunwale edge should meet that required by section 12.2.2.3. Freeboard to the weather deck should be positive in all loading conditions.
 - .2 The recess bounded by the reserve buoyancy and gunwales should meet the standard for quick-draining cockpits for Category A vessels, within ISO 11812 – 'Small Craft – Watertight Cockpits and Quick-draining Cockpits', or equivalent.
 - .3 The vessel should comply with the relevant intact stability criteria for transverse stability, and should display positive longitudinal stability, for the duration of the drain time.
- 4.1.5 Figure 4.1.5 shows a suitable type of arrangement for the purposes of section 4.1.4. Shaded areas show buoyancy above the watertight deck, in this case at the vessel sides, but which may equally be fore and aft.



4.2 Structural Strength

4.2.1 General

- 4.2.1.1 The design of hull structure and construction should provide strength and service life for the safe operation of a vessel, at its service draught and maximum service speed, to withstand the sea and weather conditions likely to be encountered in the intended area of operation.
- 4.2.1.2 All vessels for operation in Area Category 0, 1 or 2 should be designed and built in accordance with the hull construction standards of a recognised Classification Society or equivalent standard e.g. Seafish design, or to first principles.
- 4.2.1.3 All vessels for operation in category 3 - 6 should be designed and built to a recognised standard¹⁴ satisfactory to the Certifying Authority for their intended use.

¹⁴ ISO 12215-5 should be used with caution where the vessels' hull or superstructure is fabricated of fibre reinforced plastic, or where the vessel is subject to impact loading from contact with fixed structures such as offshore wind farm turbine towers, or the vessel is a multihull, until such time that it is updated with respect to commercial vessels.

4.2.1.4 The vessel structure and the equipment fitted to that structure should be verified¹⁵ by the Certifying Authority as being of suitable strength to withstand the loads that are likely to be imposed when operating at the maximum capacity of any lifting appliance (including diver lifts), cleats, windlass, winches, bollards etc. See also Section 25 for particular applications. This should also be verified by the Certifying Authority where any modifications are undertaken. PUWER¹⁶, MGN 331(M+F)¹⁷ and Code of Safe Working Practices for Merchant Seafarers (CoSWP) Chapter 18, 19, 26 and note for lifting equipment should be referred to. The builder of the workboat should provide information on the breaking strength of the strong points. Equipment manufacturers' instructions on installation, operation and maintenance should be followed as required by LOLER¹⁸ and PUWER Regulations. Where equipment standards are not specified in the Code the Certifying Authority should agree an appropriate standard.

The breaking strength of lines/chains shall in general not exceed 80 % of the breaking strength of the respective strong point.

4.2.2 Construction

4.2.2.1 A vessel's hull and superstructure may be constructed of wood, fibre reinforced plastic (FRP), aluminium alloy, steel or combinations of such materials. Requirements for materials used for the construction of inflatable and rigid inflatable boats are given in section 4.5.2.

4.2.2.2 Proposals to use any other material should be submitted to the Certifying Authority for consideration and approval. When a Certifying Authority considers it does not have the necessary expertise to deal with vessels of the hull material proposed, the Administration should be consulted with regard to the procedures to be adopted.

4.2.2.3 The hull of a vessel which has been surveyed and certificated by an UK Load Line Assigning Authority should be acceptable, subject to presentation of a Certificate of Construction.

4.2.2.4 UK Load Line Assigning Authorities, in addition to the MCA, are American Bureau of Shipping, Bureau Veritas, DNV GL, Lloyd's Register, Nippon Kaiji Kyokai and Registro Italiano Navale.

4.2.2.5 A vessel which has not been built under the survey of an UK Load Line Assigning Authority will be considered to be of adequate strength after a satisfactory examination by an authorised person and if it has been built:

¹⁵ Certifying Authorities should verify that the owner has employed a competent person to prepare structural analysis and drawings. Owners or owners consultant to provide drawings and documents and proof of analysis to a recognised standard (class), safety factors used, maximum permissible combined stress, actual calculated stress. Certifying Authority should check that those plans and calculations are representative of the ship and are reasonable. Responsibility for accuracy to remain with consultant.

¹⁶ PUWER – SI 2006 No. 2183. Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006

¹⁷ MGN 331 - Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006

¹⁸ LOLER – SI 2006 No. 2184. The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006

- .1 in accordance with the hull certification standards for small vessels, published by one of the Load Line Assigning Authorities; or
 - .2 in accordance with the hull certification standards¹⁹ for small vessels provided in Appendix 13;
- 4.2.2.6 A vessel not built in accordance with either section 4.2.2.3 or 4.2.2.5 may be specially considered, provided that full information (including calculations, drawings, details of materials and construction) is presented to and approved by the Certifying Authority.
- 4.2.2.7 A vessel with an existing certificate at the date of coming into force of the Code, or in possession of a valid Load Line Certificate or Load Line Exemption Certificate appropriate to the operational category shall continue to be considered of adequate strength for its existing equivalent category.
- 4.3 Decks**
- 4.3.1 Weather Deck**
- 4.3.1.1 A watertight weather deck referred to in section 4.1.1 should extend from stem to stern and have positive freeboard throughout, in any condition of loading of the vessel. (Minimum requirements for freeboard are given in section 12.)
- 4.3.1.2 A weather deck may be stepped, recessed or raised provided the stepped, recessed or raised portion is of watertight construction.
- 4.3.2 Recesses**
- For water freeing arrangements generally, see section 6 and, for freeboard requirements, see section 12.
- 4.3.2.1 For motor vessels, a recess in a weather deck complying with section 4.3.1.1, should be of watertight construction and have means of drainage capable of efficient operation when the vessel is heeled to angle of 10 degrees (°). Such drainage is to have an effective area, excluding grills and baffles, of at least 20 square centimetres (cm²) for each cubic metre of volume of recess below the weather deck.
- 4.3.2.2 Alternative arrangements for the size and drainage of a recess may be accepted provided it can be demonstrated that, with the vessel upright and at its deepest draught, the recess drains from a swamped condition within 3 minutes; or the cockpit or recess should comply with ISO 11812 (Small Craft – Watertight and Quick Draining Cockpits) for the relevant design category. See Appendix 13.
- 4.3.2.3 If a recess is provided with a locker which gives direct access to the interior of the hull, the locker should be fitted with weathertight cover(s). In addition the cover(s) to the locker should be permanently attached to the vessel's structure

¹⁹ ISO 12215-5 should be used with caution where the vessels' hull or superstructure is fabricated of fibre reinforced plastic, or where the vessel is subject to impact loading from contact with fixed structures such as offshore wind farm turbine towers, or the vessel is a multihull, until such time that it is updated with respect to commercial vessels.

and fitted with efficient locking devices to secure the cover(s) in the closed position.

4.4 Watertight Bulkheads

4.4.1 The strength of a watertight bulkhead and the effectiveness of any alternative means should be adequate for the intended purpose and to the satisfaction of the Certifying Authority.

4.4.2 When pipes, cables, etc. penetrate watertight bulkheads, they should be provided with valves and/or watertight glands, as appropriate.

4.4.3 A doorway fitted in a watertight bulkhead should be constructed so as to be watertight from both sides and be kept closed at sea, unless opened for access only, at the discretion of the Master. A notice should be fitted to both sides of the door "To be kept closed at sea, open for access only". Sliding watertight doors, where fitted, are to be provided with suitable safety provision to avoid injury to personnel by closure of the door.

4.4.4 For vessels with a waterline length greater than 15m and operating in Area category 0, 1, or 2, a collision bulkhead should be fitted. The collision bulkhead is to be positioned within the forward 20% of the vessel length from the bow.

4.5 Open Boats, Inflatable and Rigid Inflatable Boats

4.5.1 General

The following requirements should apply to an inflatable or rigid inflatable boat, other than a tender (dinghy) covered by section 24.

4.5.2 Rigid Inflatable Boats and Open Boats in Area Categories 2 and 3

Generally, a rigid inflatable boat which is intended to operate as an independent vessel in Area Category 2 or 3 (and is not a tender operating from a vessel) should be of a design and construction which would meet the requirements of Chapter III of the 1974 SOLAS Convention, as amended, and the parts of the Annex to IMO Resolution MSC.48(66) – "International Life-Saving Appliance Code", as amended, and MSC.81(70) – "Testing and Evaluation of Life-Saving Appliances", as amended – which are appropriate to the type of boat and subject to the variations which are given in the Code. Inflatable boats are not considered appropriate for operation in Area Categories 2 and 3. An open boat which is intended to operate as an independent vessel (and is not a tender operating from a vessel) may operate in Category 3 (e.g. not category 2) provided that it is of a design and construction which would meet the requirements ISO 12215²⁰ and is either RCD Design Category A or B (see EC Directive 94/25/EC as amended by 2003/44/EC) which are appropriate to the type of boat.

²⁰ ISO 12215-5 (see Appendix 13 of this code) should be used with caution where the vessels' hull or superstructure is fabricated of fibre reinforced plastic, or where the vessel is subject to impact loading from contact with fixed structures such as offshore wind farm turbine towers, or the vessel is a multihull, until such time that it is updated with respect to commercial vessels. Where this standard is applied to fibre reinforced plastic (FRP) vessels, Annex C FRP Laminate Properties and Calculations should also be referred to. This Annex is intended to support the ISO standard and is part of the scantling requirements of that standard.

4.5.2.1 A rigid inflatable boat may only be considered for operations in Area Category 2, if it has a permanent accommodation space for all persons on board which has a steering position for the vessel within it.

4.5.2.2 A rigid inflatable boat or open boat may only be considered for operations in Area Category 3 or 5 (night time operations), if fitted with a substantial enclosure for the protection of persons on board and purpose designed, subject to approval by the Certifying Authority. A substantial enclosure can be a permanently secured solid structure, or one that can be removed in harbour, provided when in place it is through bolted to the deck and adequately constructed to meet the designed vessel limitations. Portable canopies that are secured by lines or by fabric hook and loop fastening are not acceptable.

4.5.2.3 For Area Category 3 and 5 operation only, alternative provision for enclosures to that in 4.5.2.2 may be considered, with operational/seasonal limitations. Such cases should be to the satisfaction of the Certifying Authority using the provisions of Appendix 8.

4.5.2.4 **Inflatable and Rigid Inflatable Boats in Area Categories 4, 5 and 6.**

4.5.2.5 An inflatable boat or rigid inflatable boat, of less than 8 metres in length, which is intended to operate as an independent vessel in Area Category 4, 5 or 6 should be of a design and construction which would meet the requirements of ISO 6185 Part 2 or 3. Inflatable boats or rigid inflatable boats meeting the requirements of ISO 6185 Part 1 are not suitable for operation under the Code of Practice. Vessels over 8 metres in length should be assessed in accordance with section 4.2.2. See Appendix 13.

4.5.2.6 The structure of the rigid hull of a rigid inflatable boat may alternatively be assessed in accordance with section 4.2.2.

4.5.2.7 When the production of boats is covered by an approved quality system and boats are built in batches to a standard design, prototype tests on one boat may be accepted for a boat of the same design submitted for compliance with the Code.

4.5.2.8 A boat should be of strength to withstand the sea and weather conditions likely to be encountered in the intended area of operation.

4.5.3 **Construction**

4.5.3.1 For boats complying with section 4.5.2.1 (except open boats), materials should satisfy the requirements of Chapter III of the 1974 SOLAS Convention, as amended, (including ISO 15372:2000 Ships and marine technology. Inflatable rescue boats. Coated fabrics for inflatable chambers), except that fire-retarding characteristics are not required for the hull material.

4.5.3.2 For boats complying with section 4.5.2.2 and 4.5.2.3, materials should satisfy the requirements of ISO 6185, Part 2 or Part 3 as appropriate to the engine size.

4.5.3.3 A new boat of a type certified as a rescue boat under the Merchant Shipping (Marine Equipment) Regulations 1999 (SI 1999 No. 1957), as amended, or provided with a letter of compliance for use as a fast rescue boat for offshore

stand-by vessels, or any equivalent certification or compliance, should be accepted as complying with the construction requirements of the Code.

4.5.3.4 A new boat which is not built in accordance with either section 4.5.2.1, 4.5.2.2 or 4.5.2.3 may be specially considered, provided that full information (including calculations, drawings, details of materials and construction) is presented to and approved by the Certifying Authority.

4.5.3.5 A permanent shelter provided for the protection of persons on-board should be of construction adequate for the intended purpose and the intended area of operation.

4.5.4 Testing

4.5.4.1 In addition to the survey regime in accordance with section 27 the following should be applied during the life of the certificate:

.1 Annually (by the owner/managing agent) – An airtightness test as follows;

- Inflate each compartment of the boat individually to 120% of the safe working pressure.
- Check Integrity of tubes and seams for each compartment with soapy water and, in the case of a rigid inflatable boat, the integrity of the joints between the tubes and the hull.
- Check that after 30 minutes the pressure is still at 120%.
- Inflate all compartments to the safe working pressure, and record the ambient temperature. After 24 hours in this condition, pressures should be rechecked and the ambient temperature retaken and then check that the pressure is not less than 100% of working pressure.
- A declaration should be sent to the Certifying Authority on completion.

.2 At the renewal survey, testing shall be conducted to the satisfaction of the Certifying Authority by a competent person in accordance with the manufacturer's recommendations.

4.6 Vessels which are Workboats Launched and Recovered from Mother Vessels or Shore/Platform Based Facilities.

4.6.1 Vessels certified under this Code which are required to be launched and recovered by lifting should meet appropriate hull construction standards for that purpose. When vessels are lifted to enable launch and recovery they should also be fitted with lifting points that correspond with the construction of the vessel.

4.6.2 Where a vessel certified under this Code is launched or recovered on a ramp, the vessel should meet appropriate hull construction standards for that purpose.

- 4.6.3 Further to 24.5 it is expected that a daughter craft and crew should be safely recoverable. Where the workboat certification specifies defined conditions to allow safe launch and recovery, these conditions should be noted on the certificate and met, then the mother vessel or shore or platform facility can be considered as a safe haven for the purpose of assigning an Area Category. Also refer to section 24 requirements for Type 1 Tenders.
- 4.6.4 Where those persons on board such a vessel cannot be safely transferred to the mother vessel or platform facility, the vessel certified under this Code should be certified appropriately for the area it is being operated in to allow it to return to a safe haven ashore. In effect this vessel cannot be considered as a daughter craft. See also section 24.5 and 24.6 requirements for Type 1 Tenders.

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5 Weathertight Integrity

5.1 General

5.1.1 A vessel should be designed and constructed in a manner which will prevent the ingress of sea water and in particular comply with the following requirements. For strength and watertightness of closing appliances only, the requirements of ISO 12216 are considered acceptable. See Appendix 13.

5.2 Hatchways and Hatches

5.2.1 General Requirements

5.2.1.1 A hatchway which gives access to spaces below the weather deck should be of efficient construction and be provided with efficient means of weathertight closure. For cargo hatchways, reference should be made to section 25.3.

5.2.1.2 A cover to a hatchway should be hinged, sliding, or permanently secured by other equivalent means to the structure of the vessel and be provided with sufficient locking devices to enable it to be positively secured in the closed position.

5.2.1.3 A hatchway with a hinged cover which is located in the forward half of the vessel should have the hinges fitted to the forward side of the hatch, as protection of the opening from boarding seas, except where it is not possible to do so, due to the shape of the hatch or the moulding it is in. A hatch with the hinges on the after side of the hatch should be secured closed at sea, and be provided with a suitable blank. This is not intended to apply to small technical spaces drained directly overboard, e.g. anchor lockers.

5.2.1.4 Hatches which are used for escape purposes should be capable of being opened from both sides.

5.2.1.5 Hatches in recessed or stepped decks of vessels described in 4.3.1.2, that provide access to sea inlet valves, should have access openings at least 300 millimetres (mm) above the minimum freeboard to deck (see 12.2.2), or the sea inlet valves fitted with remote closing devices.

5.2.2 Hatchways which are Open at Sea

In general, hatches should be kept secured closed at sea. However, a hatch which is to be open at sea for lengthy periods should be:

- .1 kept as small as practicable, but never more than 1 square metre (m²) in plane area at the top of the coaming;
- .2 located on the centre line of the vessel or as close thereto as practicable;
- .3 fitted such that the access opening is at least 300mm above the top of the adjacent weather deck at side.

5.3 Doorways and Companionways

5.3.1 Doorways Located Above the Weather Deck

5.3.1.1 A doorway located above the weather deck which gives access to spaces below should be provided with a weathertight door. The door should be of efficient construction, permanently attached to the bulkhead, not open inwards, and sized such that the door overlaps the clear opening on all sides, and has efficient means of closure which can be operated from either side.

5.3.1.2 A doorway should be located as close as practicable to the centre line of the vessel. However, if hinged and located in the side of a house, the door should be hinged on the forward edge.

5.3.1.3 A doorway which is either forward or side facing should be provided with a coaming, the top of which is at least 300mm above the weather deck. A coaming may be portable provided it can be permanently secured to the structure of the vessel and can be locked in position whilst at sea.

5.3.2 Companion Hatch Openings

5.3.2.1 A companion hatch opening from a cockpit or recess which gives access to spaces below the weather deck should be fitted with a coaming or washboard, the top of which is at least 300mm above the sole of the cockpit or recess.

5.3.2.2 When washboards are used to close a vertical opening they should be so arranged and fitted that they will not become dislodged.

5.3.2.3 The maximum breadth of the opening of a companion hatch should not exceed 1 metre.

5.4 Skylights

5.4.1 A skylight should be of efficient weathertight construction and should be located on the centre line of the vessel, or as near thereto as practicable, unless it is required to provide a means of escape from a compartment below deck.

5.4.2 When a skylight is an opening type it should be provided with efficient means whereby it can be secured in the closed position.

5.4.3 A skylight which is provided as a means of escape should be capable of being opened from both sides.

5.4.4 Unless the glazing material and its method of fixing in the frame is equivalent in strength to that required for the structure in which it is fitted, a portable "blank" should be provided which can be efficiently secured in place in event of breakage of the glazing. The blank should be of suitable material and strength to the satisfaction of the Certifying Authority.

5.5 Portlights and Windows

5.5.1 A portlight or window to a space below the weather deck or in a step, recess, raised deck structure, deckhouse or superstructure protecting openings leading below the weather deck should be of efficient construction which provides

weathertight integrity (and be of strength compatible with size) for the intended area of operation of the vessel.

- 5.5.2 A portlight or window should not be fitted in the main hull below the weather deck, unless the glazing material and its method of fixing in the frame are equivalent in strength, with regard to design pressure, to that required for the structure in which it is fitted.
- 5.5.3 An opening portlight should not be provided to a space situated below the weather deck.
- 5.5.4 Portlights, windows and their frames should meet the appropriate Marine Standards defined in equivalent British, European, National or International Standards or standards of a recognised Classification Society (see MSN 1672(M+F)(Amendment 3), as amended).
- 5.5.5 A portlight fitted below the weather deck and not provided with an attached deadlight should be provided with a "blank" (the number of blanks should be sufficient for at least half of the number of such portlights of each different size in the vessel), which can be efficiently secured in place in the event of breakage of the portlight. The blank should be of suitable material and strength to the satisfaction of the Certifying Authority. Such a "blank" is not required for a non-opening portlight which satisfies section 5.5.2.
- 5.5.6 An opening portlight should not exceed 250mm in diameter or equivalent area.
- 5.5.7 A window fitted in the main hull below the weather deck should meet the requirements of section 5.5.2, or be provided with a blank meeting the requirements of section 5.5.8.
- 5.5.8 In a vessel which operates more than 60 miles from a safe haven, portable "blanks" for windows should be provided (the number of blanks should be sufficient for at least half of the number of such windows of each different size in the vessel) which can be efficiently secured in place in the event of breakage of a window.
- 5.5.9 For the wheelhouse:
- .1 windows and their frames should meet the requirements of section 5.5.4, having due regard to the increased thickness of windows comprising one or more laminations in order to achieve equivalent strength; and
 - .2 polarised or tinted glass should not be used in windows provided for navigational visibility (although portable tinted screens may be provided for nominated windows).
 - .3 wheelhouse visibility – see sect 9.1.2 and 19.6

5.6 Ventilators and Exhausts

- 5.6.1 A ventilator should be of efficient construction and, where situated on the weather deck and not complying with section 5.6.3, should be provided with a readily available means of weathertight closure, consideration should be given to requirements of Fire Protection (section 14).

5.6.2 A ventilator should be kept as far inboard as practicable and the height above the deck of the ventilator opening should be sufficient to prevent the ready admission of water when the vessel is heeled (see sections 11.3, 11.4, 11.6 and 11.8).

5.6.3 A ventilator which must be kept open, e.g. for the supply of air to machinery or for the discharge of noxious or flammable gases, should be specially considered with respect to its location and height above deck having regard to section 5.6.2 and the downflooding angle (see sections 11.3, 11.4, 11.6 and 11.7).

5.6.4 Vessels which are fitted with engine air intakes in the hull side, which do not satisfy the requirements of 5.6.1, 5.6.2 and 5.6.3, may be accepted by a Certifying Authority, but the risk of fire in the machinery space or downflooding should be taken into consideration and restrictions on operations will be necessary.

Such an air intake must be capable of being remotely closed before the activation of a fixed fire extinguishing system for the machinery space, as required by 15.6.3.

5.6.5 An engine exhaust outlet which penetrates the hull below the weather deck should be provided with means to prevent backflooding into the hull through the exhaust system. The means may be provided by system design and/or arrangement, built-in valve or a portable fitting which can be applied readily in an emergency.

5.7 Air Pipes

5.7.1 When located on the weather deck, an air pipe should be kept as far inboard as possible and have a height above deck sufficient to prevent inadvertent downflooding when the vessel is heeled (see sections 11.3, 11.4, 11.6 and 11.7).

5.7.2 An air pipe, of greater than 10mm inside diameter, serving a fuel or other tank should be provided with a permanently attached means of weathertight closure. Means of closure may be omitted if it can be shown that the open end of the air pipe is afforded adequate protection by other means, which will prevent the ingress of water.

5.7.3 An air pipe serving a fuel tank (also see section 7.4.) or other tank, where provided with a closing appliance, should be of a type which will prevent excessive pressure on the tank boundaries. Provision should be made for relieving a vacuum when tanks are being drawn from or emptied.

5.8 Sea Inlets and Discharges

5.8.1 An opening below the weather deck should be provided with a positive means of closure. The number of inlets and discharges should be kept to an operational minimum.

5.8.2 When an opening is for the purpose of an inlet or discharge below the waterline it should be fitted with a seacock, valve or other effective means of closure

which is either remotely operated or readily accessible in an emergency. Discharge lines should also have an automatic non-return valve.

- 5.8.3 When an opening is for a log or other sensor, which is capable of being withdrawn, it should be fitted in an efficient watertight manner and provided with an effective means of closure when such a fitting is removed. A non-metallic, or non-flush metallic fitting, log or sensor should not be fitted in machinery spaces or in any spaces in vessels that operate at high speed unless located in small cofferdams designed for the purpose and with any access panels and service transits made watertight. If access is designed to be opened at sea, a test cock should be provided.
- 5.8.4 Inlet and discharge pipes from marine toilets should be provided with shell fittings as required by section 5.8.2. When the rim of a marine toilet is less than 300mm above the deepest waterline of the vessel, unless otherwise indicated by manufacturer's recommendations, anti - syphon measures should be provided.
- 5.8.5 Observation glasses fitted in sea water systems below the deepest anticipated waterline, including any trim or heel, shall be so protected as to minimise the risk of mechanical damage, failure and consequential flooding.

5.9 Materials for Valves and Associated Piping

- 5.9.1 A valve or similar fitting attached to the side of the vessel below the waterline, within a machinery space or other high fire risk area, and essential system piping should be normally of steel, bronze, copper, or other non-brittle fire resistant material or equivalent.
- 5.9.2 When plastic²¹ piping or flexible²² pipe is used it should not contribute any additional risks or spread of fire, be of good quality and of a type suitable for the intended purpose. Plastic / non-metallic piping should only be allowed where consideration has been given to the usage of the pipe, e.g. with respect to system type (open or closed loop), system pressure, system temperature, system pipe internal fluid, location etc., using class requirements and IMO A.753(18) as amended for guidance. Plastic pipes should not be used for cargo pipes carrying flammable liquids, described in 7.9.
- 5.9.3 Materials readily rendered ineffective by heat must not be used for fire main, hydrants, valves or cocks. Materials with a melting point above 1000 °C may normally be accepted as meeting the above. Fittings which incorporate low melting point components may be accepted, provided they have passed a fire test in accordance with ISO 10497. It should be taken into account in the test that it cannot be guaranteed that the fire main will be flooded at all times.

²¹ Plastic(s) as used in this code refers to both thermoplastic and thermosetting plastic materials, with or without reinforcement, such as uPVC and fibre reinforced plastics (FRP). Plastic includes synthetic rubber and materials of similar thermo / mechanical properties.

²² Flexible pipes, hoses and hose assemblies – which are flexible hoses with end fittings attached – should be in as short lengths as practicable, but should not, in general, exceed 1.5 m in length, and only be used where necessary to accommodate relative movement between fixed piping and machinery parts. Where a flexible section of piping is provided, connections should be of a screw type or equivalent approved type. Flexible pipes and end attachments shall be of approved fire-resisting materials.

- 5.9.4 Any Flexible or non-metallic piping, and engine room bulkhead and deck penetrations, where failure would present a risk of flooding, which contribute any additional risk of spread of fire, fitted in a machinery space or fire risk area should be of fire resistant material in accordance with ISO Standard 15540 or IMO A.753(18)²³ as amended, and the pipes are used in accordance with the fire endurance requirements matrix in Appendix 4 of the Res A.753(18), or exhaust quality rubber hosing for exhaust systems where applicable (see Appendix 13), and a means should be provided to stop the ingress of water in the event of the pipe being damaged, operable from outside the space. (See section 5.9.1 for valve requirements).
- 5.9.5 Where a vessel is a multihull (i.e. comes under section 7.1.5 or a complex workboat described in 14.10.1), and where bilge pumping and fire main are provided in excess of the code requirements this may be taken into consideration by the Certifying Authority in any risk assessment of the suitability of use of non-metallic pipes in these systems, subject to 5.9.2 above.

²³ Note: IMO Resolution A.753(18) places limits on the extent to which rigid plastic piping can be used.

6 Water Freeing Arrangements

6.1 When a deck is fitted with bulwarks such that shipped water may be trapped behind them, the bulwarks should be provided with efficient freeing ports that will ensure the deck can be effectively drained. This section is not intended to apply to inflatable boats or boats fitted with a buoyant collar, as these requirements are dealt with in other parts of the Code.

6.2 The area of freeing ports should be at least 4% of the bulwark area and be situated in the lower third of the bulwark height, as close to the deck as practicable.

6.3 A vessel of less than 12 metres in length, having a well deck aft which is fitted with bulwarks all round and which is intended to operate no more than 60 miles from a safe haven (Area Categories 2, 3, 4, 5 and 6), should be provided with freeing ports required by section 6.2 or may be provided with a minimum of two ports fitted (one port and one starboard), which may be in the transom, each having a clear area of at least 225cm² (0.0225m²). Ports may only be fitted in the transom on vessels where under all foreseeable conditions water will drain.

6.4. Smaller ports may however be accepted in a vessel having only small side deck areas in which water can be trapped, the reduced area being based on the volume of water which is likely to become so trapped. The following correction to the required freeing port area may be applied:-

$$FP_{REQ} = FP_{MAX} * (A_{ACT} / A_{MAX})$$

Where

FP_{REQ} = Freeing port area required

FP_{MAX} = Maximum freeing port area required

A_{ACT} = Actual area of deck fitted with enclosed bulwarks, excluding superstructure or deckhouse area

A_{MAX} = Area of maximum sized well (0.7L x B) where L and B are the dimensions of the vessel

6.5 When a non-return shutter or flap is fitted to a freeing port it should have sufficient clearance to prevent jamming and any hinges should have pins or bearings of non-corrodible material.

6.6 Structures and spaces considered to be non-weathertight should be provided with efficient drainage.

6.7 Where cargo is to be stowed on deck, the stowage arrangement should be such as to not impede the free flow of water from the deck.

6.8 A vessel intended to operate in sea areas where ice accretion can occur should be specially considered with regard to water freeing arrangements (also see section 11.1.1.4).

6.9 Where independent self-contained wheelhouses are fitted, provisions are to be made so that such wheelhouses can drain quickly, typically in the event of wheelhouse window failure and consequential flooding.

7 Machinery

7.1 General Requirements

- 7.1.1 Generally, machinery installations should comply with the requirements given below. Other installations proposed may be specially considered, provided that full information is presented to and approved by the Administration.
- 7.1.2 The main propulsion machinery and all auxiliary machinery essential to the propulsion and the safety of the vessel should be designed to operate when the vessel is upright and when inclined at any angle of heel and trim up to and including 15 degrees and 7.5 degrees respectively either way under static conditions.
- 7.1.3 Requirements relating to Air Emissions from engines are addressed in 28.2.5.
- 7.1.4 A vessel fitted with either a petrol or diesel engine should be provided with an engine suitable for marine use and with sufficient fuel tankage for its area of operation.
- 7.1.5 A vessel fitted with twin / multiple engine rooms should also be fitted with separate fuel systems and separate electrical and control systems.
- 7.1.6 A vessel should be provided with sufficient fuel for its intended area of operation, spare portable petrol containers must not be carried on board (containers intended for refuelling a tender are excluded from this, see Chapter 24) unless it is judged to be essential to assure the safe completion of a particular voyage or excursion (see section 7.8).
- 7.1.7.1 Fuel tanks should be built of steel / stainless steel or other suitable metal to a suitable standard, see Appendix 13. Other materials may be used if they demonstrate equivalent fuel and corrosion resistance and fire resistance to the same standard as that required for the machinery space boundary, where the space is not protected, the tank should be protected against the effect of fire in the machinery space.
- 7.1.7.2.1 Where a rigid aluminium fuel tank is fitted, it should be built to a suitable standard (see Appendix 13) and it should not normally be installed within the machinery space, nor are they to form part of the boundary of such a space. They should be located in a dedicated, suitably ventilated space.–Where fitting inside the machinery space is unavoidable then it should not contribute any additional fire risk e.g. through the fitting of additional structural fire protection.
- 7.1.7.2.2 Where a rigid plastic fuel tank is necessary it should not contribute any additional fire risk, it should be built to a suitable standard (see Appendix 13), should not be installed within the machinery space, nor are they to form part of the boundary of such a space. They should be located in a dedicated, suitably ventilated space to prevent the build-up of explosive gases with suitable electrical equipment; NOTE Thermoplastic tanks and components may be affected by high return fuel temperature. It is therefore important for designers and operators to understand the engine installation manual.

7.1.7.3 Fuel spaces shall be ventilated to prevent the build-up of explosive gases. Where petrol tanks are fitted, the requirements of ISO 11105²⁴ shall be fulfilled. See Appendix 13 and 7.3.1.2.

7.1.8.1 Where it is proposed to use low flash point fuels (other than petrol or diesel), the operator should contact the Administration for guidance early in the project and the proposal shall be supported by a detailed risk assessment. Consideration should be given to safe storage and use of the fuel on board in approved containers using approved pipe systems where appropriate.

7.1.8.2 The operator will need to satisfy the Administration that an appropriate level of safety is provided, which shall include the machinery installation being verified against UK authorised Classification Society standards and being in general compliance with national standards.

7.1.8.3 The operator should take consideration of fuel transportation, carriage, storage ashore, and refuelling operations which shall be in accordance with Health and Safety Executive requirements.

7.2 Diesel Engines

7.2.1 A vessel may be fitted with either an inboard or an outboard diesel engine.

7.3 Petrol Engines

7.3.1 A petrol engine may be accepted provided that the engine is a suitable outboard type.

7.3.1.1 A vessel of any type may be fitted with a small engine (usually less than 4.5 kW) manufactured with an integral fuel tank, provided a safety warning sign is displayed with details of appropriate precautions to be taken when filling the fuel tank.

7.3.1.2 Vessels other than inflatable boats should supply fuel to the engine from either:

.1 permanently installed fuel tank/s constructed to an appropriate standard (see Standards Appendix 13) and in the case of vessels fitted with a watertight weather deck shall have arrangements such that spillage during fuel handling will drain into a suitable receptacle to prevent it draining overboard. A vessel's permanently installed tank/s should not form part of the hull; or

.2 if the vessel is less than 8m length or is a vessel with a total power rating of less than 75kW, a separate tank of 55 litres or less with a handle, or two tanks of 27 litres or less, where two outboard engines are fitted, in capacity complying to an appropriate standard (see Standards Appendix 13), provided that the portable tank arrangement is of a suitable proprietary design where the tank meets the securing, ventilation and filling arrangements in 7.5. The tank/s must be fitted with the standard quick connection to the outboard engine without the risk of any spillage and the batteries should be linked by an emergency link isolator or other means of cross-connecting to allow the starting of an engine with a flat battery.

²⁴ ISO 11105 Small craft — Ventilation of petrol engine and/or petrol tank compartments

7.3.1.3 Inflatable boats less than 8 m length overall, with engines of less than 15 kW power rating, that do not have an integral fuel tank, should supply fuel to the engine from a separate tank of 27 litres or less in capacity complying with an appropriate standard (see Standards Appendix 13). The tank must be fitted with the standard quick connection to the outboard engine without the risk of any spillage. The securing, ventilation and filling arrangement of this tank should meet the requirements of 7.5.

7.3.2 In locations where an accumulation of hydrocarbon vapours is likely to occur, a suitable hydrocarbon gas detector should be fitted under or adjacent to the tank (located in a safe place). The detector components and any other electrical equipment residing in the vapour area should not be capable of causing ignition.

7.3.3 Attention is drawn to the electrical arrangement requirements (section 8.6).

7.4 Installation

7.4.1 The machinery, fuel tank(s) and associated piping systems and fittings should be of a design and construction adequate for the service for which they are intended, see Appendix 13. These should be installed and protected so as to reduce to a minimum the danger to persons during normal movement about the vessel, with due regard being paid to moving parts, hot surfaces and other hazards.

7.4.2 Special consideration should be given to the design and installation of high pressure fuel pipe systems on diesel machinery to reduce the risk of oil mist fires through failure of the pipes or associated fittings, particularly where they are exposed to excessive temperatures and vibrations.

Mitigations could include the use of double-skinned pipes, shielding, insulation of hot surfaces, proximity and protection of electrical apparatus, anti-vibration measures and fuel oil mist detection or a combination of these measures.

7.4.3 Means should be provided to isolate a source of fuel which may feed a fire in a machinery space. A valve or cock, which is capable of being closed from a position outside the machinery space, should be fitted in the fuel feed pipe as close as possible to the fuel tank.

7.4.4 The recommended material for fuel pipes is stainless steel or equivalent.

7.4.5 Fuel filling and venting pipes should be constructed of fuel compatible, fire resistant, non-kinking material and of sufficient dimensions to prevent spillage during filling.

7.4.6 Fuel pipes should be adequately supported along their entire length especially in way of pipe connections. Consideration should be given for vibrations and the movement of fuel tanks or machinery.

7.4.7 In a fuel supply system, short lengths of flexible fuel pipes may be used where necessary to allow for relative movements and vibration between fuel tanks and fixed fuel pipes or fuel consumers and fixed fuel pipes. Where flexible fuel pipes are introduced, they should be fire resistant/metal reinforced or otherwise protected from fire (see applicable Standards in Appendix 13) and be suitable for the carriage of the chosen fuel. Flexible fuel pipes shall be secured by either metal hose clamps of a non-worm drive type or permanently attached end

fittings (e.g. swaged sleeve or sleeve and threaded insert). Where hose clamps are used, the fitting to which the flexible fuel pipe attaches should have a bead, flare, annular grooves or other means of preventing slippage, the anti-slippage arrangement shall not provide a path for fuel leakage.

7.4.8 When flexible fuel pipes are fitted in accordance with 7.4.7 they shall be renewed according to the pipe manufacturer's instructions. Records of date of fitting and date for renewal shall be kept on board and ashore, where practicable.

7.4.9 Where lengths of conductive materials are used in pipework, consideration should be given to the requirements of Section 8.1.1.

7.4.10 A venting pipe should be led to the open atmosphere, terminating in a position level with or higher than the fuel filling mouth and its open end protected against:-

- .1 water ingress – by a goose neck or other efficient means; and
- .2 where there is a risk from flame ingress – by a suitable gauze diaphragm (which can be detached for cleaning).

7.4.11 Fuel filling and ventilation pipes should be arranged to prevent over pressure of the fuel tank systems during filling. As a general guide, a ventilation pipe from a fuel tank intended to be filled by on board transfer pumps or a pressurised system should have a diameter of not less than 1.25 times the diameter of the filling pipe. Small tanks intended to be filled directly by shore fuel line and nozzle may be accepted with a minimum 11mm diameter vent pipe at the top of the tank, if the filling line runs directly and near vertically to the top of the tank and has inside diameter of at least 32mm (solid pipe) or 38mm (hose).

7.4.12 Any fuel vent pipe opening should be not less than 400mm from any ventilation opening through which fuel vapour may enter the vessel.

7.4.13 When the main engine(s) oil fuel system is provided with water separator filter(s) of a type which has plastic or glass bowl(s), it should be located so that it can be easily seen and protected against heat and accidental damage.

7.5 Securing, Ventilation and Filling Arrangements of Petrol Tanks

7.5.1 A separate petrol tank (see section 7.3.1.2.2 and 7.3.1.3) or a spare portable petrol container (see section 7.8) should be secured to the weather deck, in such a way that prevents its movement in a seaway and is able to be quick released in case of a need to jettison. The securing arrangement should also mitigate any risks associated with damage to the tank that could be caused by loose cargo or other equipment. It should also be ventilated and drained into a suitable receptacle to prevent any leakage overboard. The tank/s must not be filled on board or decanted by other means whilst the vessel is at sea.

7.6 Engine Starting and Stopping

7.6.1 An engine should be provided with either mechanical starting, air starting, hand starting or electric starting with independent batteries, or other means of starting acceptable to the Certifying Authority.

7.6.2 When the sole means of starting is by battery, the battery should be in duplicate and connected to the starter motor via a 'change over switch' so that either

battery can be used for starting the engine. Charging facilities for the batteries should be available. Under normal circumstances it should not be possible to discharge both batteries in parallel.

7.6.3 For air start systems there should be 2 air receivers each with sufficient capacity to allow 6 consecutive starts of a cold engine. Design, maintenance, inspection and test of compressed air start systems should be according to an appropriate Class standard.

7.6.4 All internal combustion machinery, associated ventilation fans, oil transfer pumps, centrifuges etc. should have a secure means of remote stopping from outside the machinery space.

7.6.5 All inflatable boats, boats fitted with a buoyant collar, and open boats that achieve planing speed, including tenders, should be fitted with a kill-cord, to be used at all times during navigation and whilst the engine is on. A spare kill cord should also be carried on board or the kill system should be capable of override to facilitate the rescue of the person going overboard with the cord attached. A vessel that is either fitted with a throttle that is sprung loaded to return to idle or is fitted with a permanent substantial enclosure (see 4.5.2.2) in way of the control position is excluded from the use of kill cords. See also Section 24.

7.7 Portable Equipment

7.7.1 When portable equipment powered by a petrol engine is provided, the unit, unless fully drained of fuel, should normally be stored on the weather deck.

7.7.1.1 Alternatively it may be stowed in a deck locker or protective enclosure which is to the satisfaction of the Certifying Authority and meets the following requirements:

- .1 vapour tight to the vessel's interior;
- .2 not openable from the vessel's interior; and
- .3 adequately drained overboard and ventilated to atmosphere.

7.7.1.2 A safety warning sign should be displayed with details of appropriate precautions to be taken when filling the fuel tank.

7.7.2 Gas welding and cutting equipment bottles, if carried, should be stowed in a secure manner on the open deck at a safe distance away from any potential source of fire and should have the capability of being readily jettisoned overboard if necessary.

7.8 Stowage of Spare Petrol

7.8.1 When spare petrol is carried on-board in a portable container/s, for any purpose for use on board the vessel (see 7.1.6), the quantity should be kept to a maximum of two 5 litre containers, the containers should be approved and clearly marked and should normally be stowed on the weather deck where they can readily be jettisoned, where they are ventilated and where spillage will drain directly overboard (see 7.8.2). Any spare portable petrol container/s should meet the securing requirements of 7.5. This section 7.8 does not apply to the carriage of a cargo (as defined in Chapter 29).

7.8.2 In small vessels where section 7.8.1 is not practicable, an approved 5 litre container of petrol may be stowed in a deck locker which meets the requirements of 7.7.1.1.

7.9 Cargo Pipes Carrying Flammable Liquids

7.9.1 Cargo, venting and filling pipes carrying flammable liquids should not pass through accommodation spaces. Where this is unavoidable it may be permitted on the proviso that:

- Seamless steel pipe is used and it should be as short as possible,
- Pipe runs within the accommodation space are without joints. However where joints are absolutely necessary for the design of the system, such joints are to be via fully welded sleeves on pipes over 25 mm OD and steel compression fittings approved for the intended service on pipes less than 25 mm OD, the number of compression couplings should be kept to a minimum,
- Pipes running within accommodation spaces which may be subject to a pressure head should be provided with a means of isolation from tanks providing the pressure head or stopping of supply pumps. The means of isolation or pump stops should be easily accessible from locations within and outside the space,
- Pumps, piping and associated equipment, which by design are required to be located below a false floor or deck within the accommodation space, are to be separated from the accommodation space by a vapour-proof enclosure or cofferdam which is suitably ventilated and drained with leakage indication providing an audible alarm fitted to the drain. If mechanical ventilation is used, Ex rated²⁵ fans should be such as to avoid the possibility of the ignition of flammable vapour/air mixtures,
- After installation on board, pipe systems are to be tested at 1.5 times the working pressure, but not less than 3.5 bar to the satisfaction of the Certifying Authority,
- Hydrocarbon (HC) gas/vapour detection is fitted within the vapour-proof enclosure or cofferdam,
- Where pipes are required to pass through bulkheads, decks or deckheads, these penetrations are to be sealed with an approved bulkhead gland with the penetration insulated in accordance with the required bulkhead division or class, and
- Pipes behind linings may be considered as acceptable provided they are within a vapour-proof enclosure.

7.10 Air Receivers

7.10.1 Where a vessel is fitted with air receivers in machinery spaces or other high fire risk areas, the system should be arranged such that any release of air through the pressure relief valves or bursting discs, that may occur during a fire, is vented to the open air and not within that space, unless the volume of free air which could be released is taken into account in the calculation for

²⁵ Ex is the mark for ATEX certified electrical equipment for explosive atmospheres. The ATEX directive consists of two EU directives describing what equipment and work environment is allowed in an environment with an explosive atmosphere. The ATEX 95 equipment directive 94/9/EC, Equipment and protective systems intended for use in potentially explosive atmospheres; 94/9/EC is replaced by a new ATEX directive 2014/34/EU from 20 April 2016.

quantity of firefighting medium required. Installation of any fixed fire fighting system should be fitted in accordance with 15.6.3. See also 7.6.3.

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8 Electrical Arrangements

8.1 General

- 8.1.1 Electrical arrangements for workboats certificated under this code should comply with the requirements given below and be in compliance with international or national standards for marine electrical installations or the standards published by the UK authorised Classification Societies and appropriate for workboats <24M Load line length.
- 8.1.2 The design and installation of electrical systems and equipment should be appropriate for the vessel's particular duties and the environment in which it operates. Electrical equipment should be suitable for use in a marine environment with due consideration of humidity, temperature, degradation due to salt water and vibration. Special consideration should be given to the choice and installation of electrical equipment that could be subjected to large vibration and shock loadings e.g. Offshore Service Vessels.
- 8.1.3 For general guidance, a number of the most common standards which are appropriate to a small vessel are listed in the Appendix 13 (other standards which are considered more appropriate and safe for a particular application may be used, provided they are acceptable to the Certifying Authority). MGN 359²⁶ also refers.

8.2 Electrical Requirements

- 8.2.1 The electrical equipment and installations (including any electrical means of propulsion) shall be such that the vessel and all persons on board are protected against electrical hazards.
- 8.2.2 The electrical equipment and installations shall be maintained to ensure that the vessel is in an operational and habitable condition.
- 8.2.3 Multihulls and vessels fitted with multiple engine rooms should refer to Section 7.1.5.

8.3 Lighting

- 8.3.1 For lighting distribution in common accommodation areas, it is recommended that the lighting is distributed on different final circuits to maintain a level of lighting in case of failure of a single distribution circuit.
- 8.3.2 Consideration should be given to the design and placement of lighting in order to preserve the night vision of Navigation Watchkeepers.

8.4 Batteries

8.4.1 Battery System Requirements

- 8.4.1.1 Batteries and battery systems should be provided to satisfy, as a minimum, the back up requirements of sections 7, 16, 18 and 19 regarding propulsion

²⁶ MGN 359 (M) Electrical Equipment and Installation

machinery starting systems, radio communication systems, electronic navigation and electronic charts.

8.4.1.2 The battery terminals should be protected against accidental contact with metallic objects.

8.4.1.3 Battery charging systems should be fitted with circuitry to prevent overcharging and over-voltage, and should have a charge indicator.

8.4.1.4 A battery disconnect switch should be provided to simultaneously isolate all non earthed poles.

8.4.2 Battery Stowage

8.4.2.1 All batteries should be secured firmly to avoid movement when the vessel is subjected to sudden acceleration or deceleration, a large angle of heel or trim.

8.4.2.2 Ventilated batteries should be installed with drip trays to collect any electrolyte spillage.

8.4.3 Ventilation

8.4.3.1 To ensure that any evolved hydrogen released by ventilated batteries under normal operation or valve regulated batteries under charger fault condition is expelled, battery compartments, lockers and containers should be supplied with air at a level below the top of the batteries, and should be exhausted from the highest point of the space directly to the open air with bends of no more than 45° to ensure no trapped pockets of hydrogen.

8.4.3.2 Particular installation and ventilation arrangements should follow national standards, and standards of a recognised Classification Society appropriate for battery installations on small workboats and including any necessary provisions for electrical apparatus in hazardous areas.

8.5 Cables

8.5.1 Electric cables should be constructed to a recognised standard (see 8.1 and Appendix 13) for marine use in small vessels.

8.5.2 Note that when selecting cables, particular attention should be given to environmental factors such as temperature and contact with damaging substances, e.g. polystyrene, which degrades PVC insulation or for example the effect of salt laden atmosphere on un-tinned exposed copper conductors.

8.5.3 Adequate provision should be made for securing electrical connections, e.g. by use of locking washers.

8.5.4 Cables should be secured and protected against chafe. For example, where they enter and exit cable pipes or bulkhead transits or battery boxes.

8.5.5 Cables for different applications should be installed to provide the necessary separation and other safeguards to minimise electromagnetic interference (EMI), as detailed in the referenced standards and guidance.

8.6 Hazardous Spaces

8.6.1 Where practicable, electrical equipment should not be installed in a space where petroleum vapour or other hydrocarbon gas is likely to accumulate. When equipment is installed in such a space it must comply with a recognised standard for prevention of ignition of a flammable atmosphere.

8.6.2 Any compartment which contains a gas consuming appliance or any compartment into which flammable gas may leak or accumulate, should be provided with a hydrocarbon gas detector and alarm. The detector and alarm should be designed to comply with a recognised standard relating to electrical equipment in hazardous areas.

8.6.3 Where explosion proof electrical equipment is fitted on board a vessel, it must be maintained in accordance with the manufacturers' requirements and serviced appropriately to maintain its certified explosion proof characteristics.

8.6.4 Vessels in which the carriage of Dangerous Goods is intended, should comply with the additional requirements indicated in Section 29.

8.7 Lightning Protection

8.7.1 Where a considerable risk of lightning strike is identified, it is recommended that attention is paid to lightning strike protection. For information on lightning protection, reference should be made to ISO 10134 "Small Vessels - Electrical Devices - Lightning Protection Systems" and other guidance referenced in Appendix 13.

8.8 Emergency Supplies

8.8.1 Emergency Lighting

8.8.1.1 When general lighting within a vessel is provided by a centralised electrical system, an alternative source of lighting (which may be a suitable portable battery operated lamp(s) if practical, taking into consideration the size and complexity of the vessel) should be provided. This alternative source of lighting should be sufficient to:-

- .1 enable persons to make their way to the open deck;
- .2 illuminate survival craft launching and embarkation;
- .3 illuminate man-overboard rescue equipment and rescue areas;
- .4 permit work on essential machinery;
- .5 illuminate emergency control and communication centres.

8.8.1.2 This alternative source of lighting should be capable of operation for a period of time sufficient to deal with emergency situations and to enable the safe mustering and evacuation of all persons on board.

8.8.2 Emergency Radio

8.8.2.1 Emergency supplies to GMDSS radio equipment should be designed and installed to supply the equipment for a minimum of 3 hours in the event of failure of the main electrical supply.

8.8.3 Navigational Supplies

8.8.3.1 Emergency power should be readily available to supply navigation lights and navigation equipment for a minimum of 3 hours. The navigation equipment to be supplied by emergency power should include Global Navigation Satellite System (GNSS), echo sounder and Automatic Identification System (AIS).

8.8.4 Emergency Batteries

8.8.4.1 Batteries supplying essential services (emergency lighting, steering systems, navigation and communications equipment) should be located in a position not likely to flood in normal operations or in the event of minor damage.

8.10 Earthing and Bonding

8.10.1 The purpose of earthing and bonding of non-current carrying parts of an electrical system is to reduce the danger of shock to personnel and to minimise damage to equipment and corrosion from the effects of earth currents. These can occur from failures of insulation of live conductors, induced voltages and currents.

8.10.2 All exposed non-current carrying conductive parts of both fixed and portable electrical machines or equipment which are liable under fault conditions to become live and similar parts inside non-metallic enclosures are to be connected to earth unless the machines or equipment are:

- a) supplied at a voltage not exceeding 50 V direct current or 50 V root mean square between conductors, achieved without the use of auto-transformers, or;
- b) supplied at a voltage not exceeding 250 V by safety isolating transformers supplying only one consuming device, or;
- c) constructed in accordance with the principle of double insulation (Class II) as per IEC 61440 or equivalent insulation intended to prevent the appearance of dangerous voltages on its accessible parts due to a fault in the basic insulation.

9 Steering Gear, Rudder and Propeller Systems

9.1 Steering

9.1.1 A vessel should be provided with efficient means of steering.

9.1.2 The control position should be located so that the person conning the vessel has a clear view for safe navigation in all normal conditions of loading and especially directly ahead.

9.1.3 When steering gear is fitted with remote control, arrangements should be made for emergency steering in the event of failure of the control. Arrangements may take the form of the following, and be to the satisfaction of the Certifying Authority:

- .1 a tiller to fit the head of the rudder stock; or
- .2 a rod attachment which may be fitted to a Z-drive framework; or
- .3 a steering oar; or
- .4 in the case of twin screw vessels manipulation of power distribution between the drives. In the case of twin stern-drive arrangements, means should be provided to lock the drives in the midships position; or
- .5 in the case of a vessel fitted with outboard engine(s), a means to control the direction of thrust.

9.1.4 If emergency steering is impractical, alternative safety measures and/or procedures to deal with any steering failure situation should be agreed with the Certifying Authority. (The Certifying Authority may consider the application of restrictions to the service area of the vessel.)

9.1.5 Steering systems should comply with an appropriate standard for small craft steering systems (see Appendix 13).

9.2 Rudder System

9.2.1 As appropriate to the vessel, the rudder and rudder stock construction materials, design in total (including tiller head attachments, bearings and pintles) and the supporting structures should be adequate for the operating conditions of the vessel. Recognised design standards should be used.

9.2.2 Construction and fittings should be to an appropriate standard, to the satisfaction of the Certifying Authority.

9.3 Propeller System

9.3.1 As appropriate to the vessel, propeller line shaft(s) construction materials and design in total (including shaft brackets, propeller securing, bearings, sterntube and thrust block) and supporting structures should be adequate for the operating conditions for the vessel. Recognised design standards should be used.

- 9.3.2 Construction and fittings should be to an appropriate standard, to the satisfaction of the Certifying Authority.
- 9.3.3 Refer to section 25.9.3 for drivetrain foundations and reinforcement for Offshore Energy Service Vessels (OESV) and similar operations.

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10 Bilge Pumping

10.1 General System Requirements

- 10.1.1 A vessel should have an efficient bilge pumping system, with suction pipes so arranged that any compartment (other than a tank permanently used for the carriage of liquids which is provided with efficient means of pumping or drainage) can be drained.
- 10.1.2 Provided the safety of a vessel is not impaired, the Certifying Authority may permit dispensation from the means of pumping or drainage of particular compartments.
- 10.1.3 A bilge pump (other than a portable pump) should be self-priming and be capable of being operated with all hatchways and companionways closed.
- 10.1.4 When considered necessary to protect the bilge suction line from obstruction, an efficient strum box should be provided.
- 10.1.5 When considered necessary, to prevent back flooding, bilge suction valves should be of non-return type.
- 10.1.6 Means of providing efficient bilge pumping other than those described in this text may be considered provided that full information is submitted to and approved by the Certifying Authority.
- 10.1.7 Reference should be made to section 28.2 which contains requirements for prevention of pollution of the sea.
- 10.1.8 All compartments shall be able to be drained when the vessel is heeled to an angle of 10 degrees.

10.2 Vessels Carrying 16 or More Persons or Operating in Area Categories 0 or 1

- 10.2.1 A vessel should be provided with at least two bilge pumps situated in not less than two separate spaces, one of which should be hand operated with a capacity of not less than 70 litres per minute. Where two pumps are fitted in this arrangement, the hand operated pump may be omitted in favour of a second powered pump providing the two pumps draw power from independent power sources. All pumped spaces should be capable of being drained after the failure of one pump.
- 10.2.2 The bilge pumps should have a combined capacity of not less than 210 litres per minute. One pump should be power driven with a capacity not less than 140 litres per minute.

10.3 Vessels Carrying 15 or Fewer Persons and Operating in Area Categories 2 to 6

- 10.3.1 Unless otherwise specified in section 10.4, a vessel should be provided with at least two bilge pumps, one of which should be hand operated with a capacity of not less than 70 litres per minute, situated in two separate spaces. Where two pumps are fitted in this arrangement, the hand operated pump may be

omitted in favour of a second powered pump providing the two pumps draw power from independent power sources. All pumped spaces should be capable of being drained after the failure of one pump. The bilge pumps should have a combined capacity of not less than 140 litres per minute.

10.4 Open Boats, Inflatable Boats and Boats with a Buoyant Collar

10.4.1 All open boats, of 6 metres in length and over, should carry a hand bailer or bucket in addition to the bilge pumping requirements in section 10.2 or 10.3.

10.4.2 For vessels of less than 6 metres in length, operating in Category 6, a minimum of one hand powered bilge pump or a bailer or a bucket is to be provided.

10.4.3 Buckets required for this section may also be counted in any requirements for buckets given in section 15.4.

10.5 Bilge Alarms

10.5.1 A bilge alarm should be fitted;

- .1 in any watertight compartment containing propulsion machinery; and
- .2 in any other compartment likely to accumulate bilge water, i.e. where a skin fitting is present, excluding void spaces.
- .3 This is not required where the bilge level can be readily seen on a boat with open bilges.

10.5.2 To prevent pollution, compartments containing potential pollutants, including machinery spaces, should not be fitted with auto-start bilge pumps.

10.5.3 An auto-start bilge pump serving a clean compartment where a significant quantity of water could accumulate unnoticed, should be fitted with an audible alarm at the control position(s). Should a number of such locations/alarms be present, then visual alarm indication should also be fitted to enable rapid location of the source of the alarm.

10.5.4 The alarm should provide an audible warning capable of being heard at all the control positions in all anticipated weather and operational conditions, and preferably a visual warning also, at the control position.

11 Stability

11.1 All Vessels

11.1.1 General

11.1.1.1 The standard of stability to be achieved by a new vessel should be dependent on the maximum number of persons permitted to be carried and the intended area of operation. For the purposes of this code a person is taken to weigh 82.5Kg.

11.1.1.2 The following vessels are required to be provided with a stability information booklet which is approved by the Certifying Authority (and should refer to section 11.3):

- .1 vessels operating in Category 0 or 1; or
- .2 vessels carrying 16 or more persons; or
- .3 vessels carrying cargo greater than 1,000kg; or
- .4 vessels fitted with a lifting device as defined in 11.6; or
- .5 vessels towing where the towed object's displacement is greater than twice the displacement of the towing vessel. See section 11.7 (and 25.2); or
- .6 seagoing pilot boats;

For guidelines on the minimum Form and Content of a stability book and guidance on the stability assessment see 11.8.4.

11.1.1.3 A vessel other than one for which 11.1.1.2 applies should either comply with section 11.3 or be subject to a simplified assessment of stability in 11.4, and is not required to be provided with approved stability information.

11.1.1.4 In winter there is a risk of icing up in more Northern waters, including the North Atlantic, the sea areas north of Europe, Asia, and the northern and north-eastern coasts of North America (as far south as 45° North), The Bering and Okhost Seas and the Straits of Tartary, as well as the Southern Ocean south of 60° South.

Vessels operating in these areas should either have stability booklets including conditions with icing allowances approved by the Certifying Authority, or avoid operating in these areas in winter (1 November to 30 April inclusive for northern areas, 15 April to 15 October for southern). Guidance on appropriate icing allowances may be found in MGN281 Annex 1 Part 1 section 21. Vessels that are not approved to operate in icing areas should have this noted in their approved stability booklet and certificates.

11.1.1.5 For stability requirements for an inflatable vessel or a vessel fitted with a buoyant collar, see section 11.5. For stability requirements for a decked vessel fitted with a lifting device, see section 11.6 and for a decked vessel engaged in towing, see section 11.7.

11.1.1.6 All vessels, other than those vessels deemed unsuitable for carriage of the booklet by the Certifying Authority (i.e. vessels with no cabin or shelter), are required to carry the relevant copy of the MCA Stability Guidance Booklet (Motor). Where a booklet is not carried on board a copy is to be made available to crew ashore. These booklets are available free of charge from the MCA or Certifying Authority. Although they contain generic safety advice, the stability and freeboard data already generated during the survey process should be appended to the booklet in the relevant section. It is the responsibility of the Certifying Authority to supply this information, and the owner/managing agent is to ensure this data is included.

11.2 Damage Survivability

11.2.1 This section applies to all vessels carrying 16 or more persons and those operating in Area Category 0 and 1, with 7 or more persons, subject to minimum safe manning levels being agreed by the Certifying Authority.

11.2.1.2 Multihull vessels should be fitted with engine rooms that are separated by a watertight bulkhead.

11.2.1.3 In assessing survivability, the following standard permeabilities should be used:-

Space	Permeability %
Appropriated for stores	60
Appropriated for stores but not by a substantial quantity thereof	95
Appropriated for accommodation	95
Appropriated for machinery	85
Appropriated for liquids	0 or 95 whichever results in the more onerous requirements

Other methods of assessing floodable volume may be considered, to the satisfaction of the Certifying Authority.

11.2.1.4 In assessing survivability the vessel should meet the damage stability criteria for one of two methods. The first (denoted Option 1) considers minor hull damage scenarios with limited equilibrium trim and heel angles after damage. This has historically been used by monohulls and some catamarans. The second method (denoted Option 2) considers minimum length single compartment damage scenarios with more onerous residual stability, combined with increased allowable equilibrium angles after damage. This Option 2 has been developed to address particular stability issues raised by low waterplane area vessels

with deep hulls which typically have large intact freeboards such as catamarans.

11.2.2 Damaged Stability, Option 1

11.2.2.1 Vessels should be so arranged that after minor hull damage or failure of any one hull fitting in any one watertight compartment, it will satisfy the residual stability criteria below. This may be achieved by fitting water-tight subdivision or alternative methods to the satisfaction of the Certifying Authority. Minor damage should be assumed to occur anywhere in the vessel but not on a watertight subdivision.

11.2.2.2 In the damaged condition, the residual stability should be such that:

- .1 the angle of equilibrium does not exceed 7 degrees from the upright,
- .2 the resulting righting lever curve has a range to the downflooding angle of at least 15 degrees beyond the angle of equilibrium,
- .3 the maximum righting lever within that range is not less than 100mm,
- .4 the area under the curve is not less than 0.015 metre radians.
- .5 this damage should not cause the vessel to float at a waterline less than 75mm from the weatherdeck at any point.

11.2.3 Damaged Stability, Option 2 :

11.2.3.1 Damaged Stability should be calculated with any one compartment flooded. The extent of damage should be:

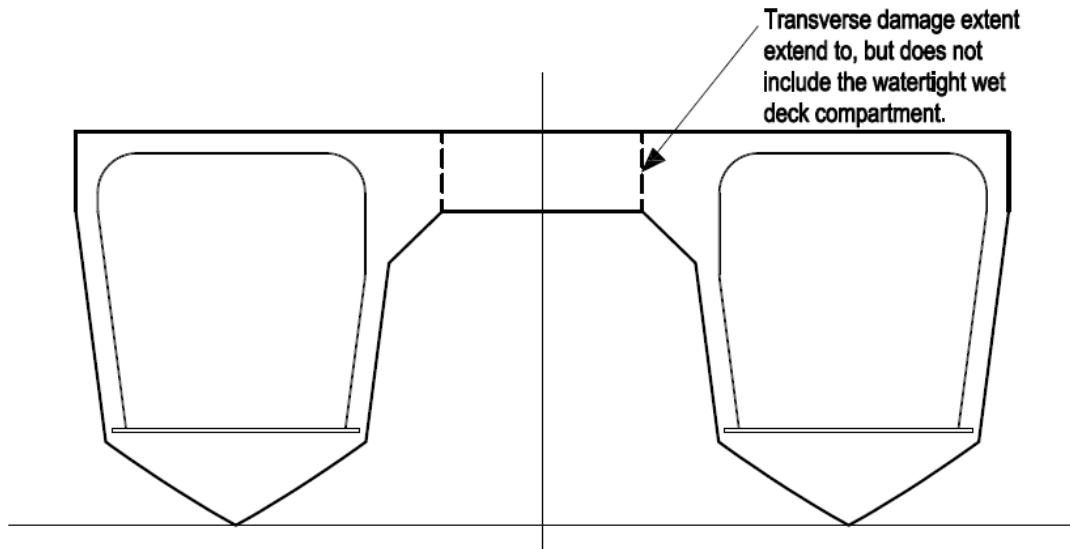
- .1 A damage length of 10% Length should be considered in the calculations. Where the distance between two transverse watertight bulkheads is less than the damage length, one or more bulkheads should be disregarded in the damage stability calculations, such that the compartment length considered is equal or above the damage length. The damage length given above need not be applied within the forepeak and aftpeak compartment/s.
- .2 The transverse extent of damage should be up to and including the centreline of the vessel. A catamaran need only be considered to have damaged the full extent of one hull, provided the two hulls are totally independent, and that there are not cross connections that, if damaged would flood the other hull and wet deck compartment. See Figure 11.2.3.1. Trimarans should be considered to have damaged wing and centre compartments up to the centre line of the vessel.
- .3 The vertical extent of damage should be taken for the full vertical extent of the vessel, and
- .4 The shape of the damage should be assumed to be a rectangular block.

Watertight compartments aft of the transom that do not form part of the hull length and do not extend below the design waterline (such as

overhangs and appendages) need not be considered in the damaged length assessment.

If any damage of lesser extent than that required in 12.2.3 would result in a more severe condition, such damage shall be assumed.

Figure 11.2.3.1



11.2.3.2 Spaces that are normally occupied at sea are to be provided with at least two independent means of escape preferably at opposite sides / ends of the superstructure that allow positive freeboard independent of its location.

11.2.3.3 Any weathertight doors or openings leading from undamaged spaces, that are normally occupied at sea, to the weatherdeck should be regarded as downflooding points for the purposes of the damage stability calculation.

11.2.3.4 A damage scenario which considers damage to all the forward compartments of each hull of a multihull that fall within 5%L from the forward extremity of the watertight hull measured on vessel centreline shall be assessed to ensure that these do not result in a more onerous damaged stability condition.

11.2.3.5 In the damaged condition, the residual stability and damaged waterline should be such that:

1. the angle of equilibrium (combined heel and trim) does not exceed 15 degrees from the upright, sufficient non-slip deck surfaces and suitable holding points e.g. rails, grab bars etc., are provided along escape routes and accessing escape routes. Additionally, practical consideration should be given to the means of accessing, launching and embarking liferafts (see also 13.2.1.1.4).

2. the resulting righting lever curve has a range to the downflooding angle of at least 20 degrees beyond the angle of equilibrium,
3. the maximum righting lever within that range is not less than 200mm, and
4. the area under the curve is not less than 0.045 metre radians.
5. the final equilibrium waterline should be below the lowest point of any opening which is not closed by an approved watertight closure. This includes air pipes, hatch covers, doors and any other weathertight closure.
6. this damage should not cause the vessel to float at a waterline less than 75mm from the weatherdeck. This may be relaxed on application to the Administration, provided that all of the following are met:
 - .1 the immersed portion of the weather deck is not a life saving appliance storage area;
 - .2 it is not part of an assembly station, evacuation point or part of an evacuation route; and
 - .3 that no more than 10% L of the deck edge on the damaged side is immersed in the process, and that negative freeboard measured from the deck edge is limited to a maximum of 300 mm.

11.3 Intact Stability: Vessels Requiring a Stability Information Booklet (see 11.1.1.2)

11.3.1 The lightship weight, vertical centre of gravity (KG) and longitudinal centre of gravity (LCG) of a monohull vessel should be determined from the results of an inclining experiment. Guidelines for the procedure on carrying out of an inclining experiment can be found in the Instructions for the Guidance of Surveyors on Load Line (MSIS 1), Part 6²⁷. Where it is considered impracticable to adopt the procedures given in MSIS1 any deviations to the number of pendulums should be agreed by the Certifying Authority and consideration should be given by the Certifying Authority to conducting the test more than once. There should be a minimum of 8 weight movements. The use of an electronic inclinometer²⁸ is an acceptable alternative to the second pendulum if it is calibrated (where this provision exists) and readings are recorded.

11.3.2 An inclining experiment may not produce satisfactory results for vessels such as multihulls where the VCG is less than one third of the GM over the range of standard operating conditions. In such cases the LCG should be obtained by displacement check or by weighing with two gauges (e.g. one fore and one aft). The lightship VCG may be obtained by an accurate weight estimate calculation with a suitable margin added, in no case should the lightship VCG be taken below main deck

²⁷https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/287966/loli_pt6.pdf. Note that it is planned to update the Load Line Instructions for the Guidance of Surveyors.

²⁸ Where an electronic device is used it should be demonstrable that the output resolution and tolerance is suitable for the application.

level. Details of the estimated lightship weight, LCG and VCG should be submitted to the Certifying Authority at an early stage for verification.

- 11.3.3 The lightship weight may include a margin for growth, up to 5% of the lightship weight at the discretion of the Certifying Authority, positioned at the LCG and vertical centre of the weather deck amidships or the lightship KG, whichever is higher. (The lightweight margin should not be used in practice to increase maximum cargo-deadweight.)
- 11.3.4 Curves of static stability (GZ curves) should be produced for:-
- .1 Loaded departure, 100% consumables;
 - .2 Loaded arrival, 10% consumables;
 - .3 Anticipated service conditions; and
 - .4 Conditions involving lifting appliances (when appropriate).
- 11.3.5 In addition, where the vessel is approved to carry cargo more than 1,000 kg, simplified stability information in the form of Maximum KG data should be provided, including a worked example to illustrate its use.
- 11.3.6 Maximum free surface moments should be included within the Loaded Departure condition, and as a minimum, factored according to tank percentage fill for all other conditions.
- 11.3.7 Generally, buoyant structures intended to increase the range of positive stability should not be provided by fixtures to superstructures, deckhouse, masts or rigging.
- 11.3.8 The curves of static stability for the loaded conditions should meet the following criteria:
- .1 the area under the righting lever curve (GZ curve) should be not less than 0.055 metre-radians up to 30 degrees angle of heel and not less than 0.09 metre-radians up to 40 degrees angle of heel or the angle of downflooding if this angle is less;
 - .2 the area under the GZ curve between the angles of heel of 30 and 40 degrees or between 30 degrees and the angle of downflooding if this less than 40 degrees, should be not less than 0.03 metre-radians;
 - .3 the righting lever (GZ) should be at least 0.20 metres at an angle of heel equal to or greater than 30 degrees;
 - .4 the maximum GZ should occur at an angle of heel of not less than 25 degrees; and
 - .5 after correction for free surface effects, the initial metacentric height (GM) should not be less than 0.35 metres.

11.3.9

If a vessel with broad beam in relation to depth, such as a catamaran or multihull type does not meet the stability criteria given in section 11.3.8, the vessel should meet the following criteria:-

- .1 the area under the righting lever curve (GZ Curve) should not be less than 0.085 metre radians up to θ_{GZmax} when $\theta_{GZmax} = 15^\circ$ and 0.055 metre-radians up to θ_{GZmax} when $\theta_{GZmax} = 30^\circ$.
When the maximum righting lever, GZ_{max} , occurs between $\theta = 15^\circ$ and $\theta = 30^\circ$ the required area under the GZ Curve up to θ_{GZmax} should not be less than:
 $A = 0.055 + 0.002(30^\circ - \theta_{GZmax})$ metre-radians
where: θ_{GZmax} is the angle of heel in degrees at which the righting lever curve reaches its maximum.
- .2 the area under the righting lever curve between $\theta = 30^\circ$ and $\theta = 40^\circ$ or between $\theta = 30^\circ$ and the angle of downflooding θ_f , if this angle is less than 40° , should not be less than 0.03 metre-radians;
- .3 the righting lever GZ should not be less than 0.2 metre at an angle of heel of 30 degrees;
- .4 the maximum righting lever should occur at an angle not less than 15 degrees; and
- .5 the initial metacentric height GM_0 should not be less than 0.35 metre.

11.3.10

Barges or pontoons with the following characteristics may use the stability criteria below (taken from the IMO International Code of Intact Stability, 2008) in lieu of either 11.3.8 or 11.3.9:

- a) Vessel is non self-propelled; and
 - b) Vessel is un-manned; and
 - c) Vessel is carrying deck cargo only; and
 - d) Vessel had a block coefficient of 0.9 or greater; and
 - e) Vessel has a breadth to depth ratio of more than 3; and
 - f) Vessel has no hatchways in the deck except small manholes closed with gasketed covers.
- (i) The area under the righting lever curve up to the angle of maximum righting lever should not be less than 0.08 metre-radians.
 - (ii) The static angle of heel due to a uniformly distributed wind load of 540 Pa (wind speed 30 m/s) should not exceed an angle corresponding to half the freeboard for the relevant loading condition, where the lever of the wind heeling moment is measured from the centroid of the windage area to half the draft.
 - (iii) The maximum range of stability should be at least 20 degrees.

11.3.11

For any newly built ship with known differences from a sister ship, a detailed weights and centres calculation to adjust the lead ship's lightship properties should be carried out.

The lightship properties for the new ship may be assessed by carrying out a lightweight check. The deviation in lightship displacement should not exceed 2% of the lightship displacement of the sister ship. In addition, the deviation in lightship LCG should not exceed 1% of the LBP of the sister ship LCG. Where the deviation is within these limits

the actual lightship weight and LCG derived from the lightship check should be used in conjunction with the higher of either the lead ship's VCG or the calculated value.

Subject to the agreement of the Certifying Authority, the requirement for an inclining test may be dispensed with in cases where the margins on intact and damage stability are sufficient to permit minor changes in VCG, e.g. a minimum of 10% margin on intact and damage stability criteria requirements, and the weight difference can be accurately assessed to the satisfaction of the Certifying Authority. In addition the vessel must be similar in all respects and the Certifying Authority must be satisfied with the procedure and accuracy of the original inclining. Small modifications, for which an accurate assessment by calculation may be taken into account, are acceptable. Where lightship particulars of a vessel are based on a lightship check the inclining report for the 'lead' sister vessel should be included in the stability information of the subsequent sister/s.

Where the deviation exceeds either of these limits, an inclining test should be carried out.

A sister ship is defined as a ship built under the survey of a Certifying Authority, by the same yard from the same plans and within five years of the new ship.

11.4 Intact Stability: Vessels Complying with Simplified Stability Assessment (see 11.1.1.3)

11.4.1 A vessel should be tested in the fully loaded conditions (which should correspond to the freeboard assigned) to ascertain the angle of heel and the position of the waterline which results when all persons which the vessel is to be certificated to carry are assembled along one side of the vessel (the helmsman may be assumed to be at the helm). Each person may be substituted by a mass of 82.5kg for the purpose of the test.

11.4.2 The vessel will be judged to have an acceptable standard of stability if the test shows that;

.1 the angle of heel does not exceed 7 degrees and in the case of a vessel with a watertight weather deck extending from stem to stern, as described in section 4.1.1, the freeboard to deck is not less than 75mm at any point; or

.2 if unable to meet the criteria in 11.4.2.1 the angle of heel may exceed 7 degrees, but should not exceed 10 degrees, if the freeboard in the heeled condition is in accordance with that required by section 12 in the upright condition.

11.4.3 Additionally for vessels over 15 metres in length the heeling moment applied during the test described in 11.4.1 should be calculated. Using the formula below the vessel should attain a value of initial GM not less than 0.5m if using an estimated displacement or 0.35m if the displacement of the vessel is known and can be verified by the Certifying Authority.

11.4.3.1 Where displacement of the vessel is known and can be verified:

$$GM = \frac{57.3 \times HM}{\theta \times \Delta}$$

where HM = No. of persons x weight per person (kg) x distance from CL (m)

θ = heel angle (degrees) obtained from the test defined in 11.4.1 and 11.4.2

Δ = full displacement including passengers, industrial personnel, crew, equipment and cargo (kg)

GM must exceed 0.35m

Note: Weight per person must be taken as no less than 82.5 kg
Cargo weight must not exceed 1,000 kg

11.4.3.2 Where displacement of the vessel is estimated:

$$GM = \frac{57.3 \times HM}{\theta \times \Delta}$$

where HM = No. of persons x weight per person (kg) x distance from CL (m)

θ = heel angle (degrees) obtained from the test defined in 11.4.1 and 11.4.2

Δ = full displacement including passengers, industrial personnel, crew, equipment and cargo (kg)

$\Delta = C_B \times LOA \times Moulded\ Beam \times Load\ Draught \times 1.025$

The Certifying Authority is to approve the value of C_B used; in the case of doubt C_B of 0.9 can be used (for pontoons etc.) or 0.67 for others.

GM must exceed 0.50m

Note: Weight per person must be taken as no less than 82.5 kg
Cargo weight must not exceed 1,000 kg

11.4.4 For vessels carrying a combination of passengers, industrial personnel, activity related equipment and cargo, for which the cargo element does not exceed 1000kg (see definitions), the test defined in section 11.4.1 should be carried out with the maximum permissible weight, and additionally with passenger plus industrial personnel weight only. For the purposes of these tests the cargo and activity related equipment may be assumed to be retained at its normal stowage position.

11.4.5 In all cases, the maximum permissible weight derived from the tests conducted should be recorded on the certificate. Vessel loading will be restricted by the position of the freeboard mark and the maximum permissible weight, and thus for the purposes of this test, attention should be paid to any activity related equipment where this may be significant, e.g. diving equipment.

11.4.6 Vessels complying with ISO 12217 Part 1 'Small craft - Stability and buoyancy assessment and categorisation - Non-sailing boats of hull length greater than or equal to 6 metres' (see Appendix 13), assessed using any Option of section 5.3 – 'Test and calculations to be applied', may as an alternative, after verification of the stability assessment by

the Certifying Authority, be assigned an area of operation in accordance with the following Table 11.4:

Table 11.4

Permitted Area of Operation	MCA Code Area Category	ISO 12217 Design Category
Up to 60 miles from a safe haven	2	B
Up to 20 miles from a safe haven	3	B
Up to 20 miles from a safe haven in favourable weather and daylight	4	C
Up to 3 miles from a point of departure in favourable weather	5	C
Up to 3 miles from a point of departure in favourable weather and daylight	6	C

11.5 Stability and Survivability of Open Boats, Inflatable Boats, Rigid Inflatable Boats or Boats Fitted With a Buoyant Collar

11.5.1 General

11.5.1 These requirements apply to an open boat, inflatable boat, rigid inflatable boat or those vessels with a buoyant collar. Unless a boat to which the Code applies is completely in accordance with a standard production type, for which the Certifying Authority is provided with a certificate of approval for the tests which are detailed below, the tests required to be carried out on a boat floating in still water are shown below. In all cases, the maximum permissible weight derived from the tests conducted should be recorded on the certificate. Vessel loading will be restricted by the maximum permissible weight, and thus for the purposes of this test, attention should be paid to any activity related equipment where this may be significant, e.g. diving equipment.

11.5.2 Stability Tests

11.5.2.1 The tests should be carried out with all the vessel's equipment, fuel, cargo, activity related equipment (e.g. diving equipment) and number of persons for which it is to be certificated, on-board. The engine, equipment and cargo may be replaced by an equivalent mass. Each person may be substituted by a mass of 82.5kg for the purpose of the tests.

11.5.2.2 The maximum number of persons for which a boat is certified should be crowded to one side, with half this number seated on the buoyancy tube / gunwale. This procedure should be repeated with the persons seated on the other side and at each end of the open boat, inflatable boat, rigid inflatable boat or vessel with a buoyant collar. For the purposes of these tests the cargo, or equivalent alternative mass, should be retained at its normal stowage position. In each case the freeboard to the top of the buoyancy tube / gunwale should be recorded. Under these conditions the freeboard should be positive around the entire periphery of the boat.

11.5.3 Damage Tests – Inflatable Boats

11.5.3.1 The tests should be carried out with all of the vessel's equipment, fuel, cargo, activity related equipment (e.g. diving equipment) and the number of persons for which it is to be certificated, on board. The engine, equipment and cargo may be replaced by an equivalent mass. Each person may be substituted by a mass of 82.5kg for the purpose of the tests.

11.5.3.2 The tests will be successful if, for each condition of simulated damage, the persons for which the inflatable boat or rigid inflatable boat is to be certificated are supported within the inflatable boat or rigid inflatable boat. The conditions are:

- .1 With forward buoyancy compartment deflated (both sides if appropriate);
- .2 With the entire buoyancy compartment, from the centreline at the stem to the transom, on one side of the inflatable boat or rigid inflatable boat deflated.

11.5.4 Swamp Test

11.5.4.1 It should be demonstrated by test or by calculation that a vessel, when fully swamped, is capable of supporting its full outfit of equipment, cargo and activity related equipment, the total number of persons and equivalent mass of cargo for which it is to be certificated, and a mass equivalent to its engine and a full tank of fuel, with a reserve of buoyancy of 10%.

11.5.4.2 In the swamped condition the open boat, inflatable boat, rigid inflatable boat or vessel with a buoyant collar, should not be seriously deformed.

11.5.4.3 An adequate means of draining the boat should be demonstrated at the conclusion of this test.

11.5.5 Person Recovery Stability Test

11.5.5.1 Two persons should recover a third person from the water into the vessel. The third person should feign to be unconscious and be back towards the inflatable boat or rigid inflatable boat so as not to assist the rescuers. The third person should also, where the water temperature in the operating region requires it, wear suitable anti-exposure clothing (e.g. dry suit or immersion suit). Each person involved should wear an approved lifejacket. The vessel should remain stable throughout the operation, and should not capsize.

11.6 Stability of Vessels Fitted with a Deck Crane or Other Lifting Device

11.6.1 For the purposes of section 11 only, a lifting device does not include a person retrieval system, the vessel's own anchor handling equipment, or davits for tenders, where judged by the Certifying Authority not to have a detrimental effect on the stability of the vessel.

- 11.6.2 Reference should be made to section 25.4 for requirements for safety standards other than stability for a vessel fitted with a deck crane or other lifting device.
- 11.6.3 A vessel fitted with a deck crane or other lifting device should be a decked vessel (or assessed in accordance with section 4.1.3.2) and comply with the general requirements of section 11, which are appropriate to it.
- 11.6.4 In addition, with the vessel in the worst anticipated service condition for lifting operations, compliance with the following criteria should be demonstrated by a practical test or by calculations:
- .1 With the crane or other lifting device operating at its maximum load and heeling moments, with respect to the vessel, the angle of heel generally should not exceed 7 degrees or that angle of heel which results in a freeboard to deck edge anywhere on the periphery of the vessel of 250mm, whichever is the lesser angle (consideration should be given to the operating performance of cranes or other lifting devices of the variable load-radius type and the load moment with respect to the vessel for lifting devices situated off centreline).
 - .2 When an angle of heel greater than 7 degrees but not exceeding 10 degrees occurs, the Certifying Authority may accept the lifting condition providing that all the following criteria are satisfied when the crane or other lifting device is operating at its maximum load moment;
 - .1 the range of stability from the angle of static equilibrium to downflooding or angle of vanishing stability, whichever is the lesser, is equal to or greater than 20 degrees;
 - .2 the area under the curve of residual righting lever, up to 40 degrees from the angle of static equilibrium or the downflooding angle, if this is less than 40 degrees, is equal to or greater than 0.1 metre-radians;
 - .3 the minimum freeboard to deck edge at side, measured at A.P. and F.P. throughout the lifting operations should not be less than half the assigned freeboard to deck edge at side amidships. For vessels with less than 1000mm assigned freeboard to deck edge amidships the freeboard at A.P. or F.P. at deck edge should not be less than 500mm; and
 - .4 the freeboard to deck edge anywhere on the periphery of the vessel is at least 250mm.
- 11.6.5 Information and instructions to the Master on vessel safety when using a deck crane or other lifting device should be included in the Stability Information Booklet. The information and instructions should include;
- .1 the maximum permitted load and outreach which satisfy the requirements of section 11.6.2, or the Safe Working Load (SWL), whichever is the lesser (operating performance data for a crane or

other lifting device of variable load-radius type should be included as appropriate);

- .2 details of all openings leading below deck which should be secured weathertight; and
- .3 the need for all personnel to be above deck before lifting operations commence.

11.6.6 Requirements for a lifting system which incorporates counterbalance weight(s), counter ballasting or a vessel that cannot comply with the requirements of section 11.6.4 but is otherwise deemed to have adequate residual stability may be specially considered by the Administration. See also 25.4.1.8.

11.6.7 Vessels fitted with stern (or bow) gantries or fitted with lifting devices over the ship's side are not required to have a stability book, having consideration for the exclusions in 11.6.1, provided it can be demonstrated to the satisfaction of the Certifying Authority that:

.1 The lifting device is not of a variable load radius type (e.g. knuckle boom crane), and

.2 The SWL of the lifting device does not exceed 1% of the vessel's displacement, or 200 kg whichever is the greater. Where the displacement of the vessel is not known it may be estimated from the following formula:

$$\Delta = C_B \times LOA \times Moulded\ Beam \times Load\ Draught \times 1.025$$

The Certifying Authority is to approve the value of C_B used; in the case of doubt C_B of 0.9 can be used (for pontoons etc.) or 0.67 for others, and

.3 A practical test is conducted with the gantry/lifting device at the maximum rated load/radius, when the crew are represented in their operational positions to operate the crane to handle the load, which demonstrates the maximum heel angle of 4 degrees and minimum heeled freeboard of 250mm around the periphery of the vessel are achieved.

11.6.8 Vessels that are fitted with a stern (or bow) gantry / centre line lift that are required to have a stability booklet (e.g. those not excluded by 11.6.7) should meet the following criteria. All the following criteria should be satisfied when the A frame or other lifting device is operating at its maximum vertical moment;

.1 the range of stability from the angle of static equilibrium to downflooding or angle of vanishing stability, whichever is the lesser, is equal to or greater than 15 degrees;

.2 the area under the curve of residual righting lever, up to 40 degrees or the downflooding angle, if this is less than 40 degrees, is equal to or greater than 0.10 metre-radians;

.3 GM should be positive and greater than or equal to 0.05m.

- .4 the minimum freeboard to deck edge at bow, side or transom, measured at A.P. and F.P. throughout the lifting operations should not be less than half the assigned freeboard to deck edge at side amidships or at the transom. For vessels with less than 1000mm assigned freeboard to deck edge amidships the freeboard at A.P. or F.P. at deck edge should not be less than 500mm; and
- .5 the freeboard to deck edge anywhere on the periphery of the vessel is at least 250mm.

11.7 Stability of Vessels Engaged in Towing

- 11.7.1 Vessels engaged in towing that are not required to have a stability information booklet (section 11.1.1.2.5) and those that are required to have a stability information booklet should meet the requirements of this section. Reference should be made to section 25.2 for requirements for safety standards other than stability for a vessel engaged in towing.
- 11.7.2 Generally, a vessel engaged in towing should be a decked vessel (or assessed in accordance with section 4.1.2.2) and comply with the general requirements of section 11 which are appropriate to the vessel.
- 11.7.3 The danger to safety of deck edge immersion makes an open boat (other than those assessed in accordance with section 4.1.2.2) unsuitable for towing other vessels or floating objects. Open boats may only tow vessels of less than twice their displacement in harbour areas and in area categories 5 and 6, in favourable weather.
- 11.7.4 For vessels with stability information booklets, the book should include loading conditions for towing.
- 11.7.5 Stability for towing conditions may be deemed satisfactory if the heeling lever (defined below) does not exceed 0.5 times the maximum GZ for the most critical loading condition.

Heeling Lever =

$$\frac{(0.6 \times \text{Max. Bollard Pull} \times \text{Vertical Distance between Hawser and Centre of the Propeller(s)})}{\text{Displacement}}$$

The height of the hawser should be measured at:

- the fixed gog, or the side rails if higher, if a fixed gog is always used; or
- the top of the winch drum (with no towline deployed), or the side rails if higher, if a fixed gog is not always used.

If the maximum GZ occurs at an angle greater than 30 degrees of heel then the GZ value for 30 degrees of heel should be used instead of the angle of maximum GZ

11.7.6 In lieu of compliance with 11.7.5 the vessel should be shown to comply with section 2.8 of Part B of the IMO's amended Intact Stability Code²⁹ (2008 IS Code) in its entirety.

11.7.7 The stability of vessels without stability information booklets can be deemed satisfactory if –

- in the normal working condition, the freeboard is such that the deck edge is not immersed at an angle of less than 10 degrees; and
- The results of the heel test indicate that –

$$\frac{wd}{LBT \tan(\theta)} \geq \frac{0.076 K}{f}$$

Where: $K = 1.524 + 0.08L - 0.45r$

L = Length of vessel between perpendiculars (metres)

r = Length of radial arm of towing hook (metres)

f = Freeboard (metres)

ρ = Density of sea water

θ = Heel angle from heel test

w = Weight moved for heel test

d = transverse distance moved by weight for heel test.

11.7.8 Where the simplified stability calculation for vessels without stability information booklets described in 11.7.7 is not appropriate for the vessel then a more comprehensive stability analysis should be completed using appropriate criteria to satisfy the owners' responsibility to provide a safe working environment under Health and Safety general duties.

11.7.9 The heel test should be carried out in small increments in both directions, and the average resultant heel angle noted for the average heeling moment wd.

11.8 Approval and Carriage of Stability Information

11.8.1 A Vessel Not Required to have an Approved Stability Information Booklet.

A vessel for which stability is assessed on the basis of practical tests or simplified methods, defined in section 11 of the Code, conducted by a competent person(s), should be approved by the Certifying Authority. In order to give approval, the Certifying Authority should be satisfied that the requirements have been met, accepting the results obtained and keeping a detailed record of the procedure of the tests or calculations and the results which were accepted.

The Certifying Authority should retain the details in the records maintained for the vessel, and these details are to be entered on the certificate. See section 11.1.1.6 for requirements for the carriage of a Stability Guidance Booklet.

²⁹ IMO International Code on Intact Stability, 2008, Resolution MSC.267(85), as amended.

11.8.2 A Vessel Required to have an Approved Stability Information Booklet.

11.8.2.1 The owner(s) should be responsible for the inclining test of a vessel to be undertaken by competent persons and for the calculation of the lightship particulars, which are used in the stability calculations.

11.8.2.2 A person, independent of the owner / managing agent, competent to the satisfaction of the Certifying Authority should witness the inclining test of a vessel and be satisfied as to conditions and the manner in which the test is conducted.

11.8.2.3 The owner(s) of a vessel should be responsible for the submission of the Stability Information Booklet, based on the Administration's model booklet prepared by a competent person(s), the content and form in which stability information is presented, its accuracy and its compliance with the requirements of section 11 for the standard required for the vessel. The owner(s) should either submit three (3) hard copies of the booklet to the Certifying Authority for approval or an electronic copy as agreed with the Certifying Authority.

11.8.2.4 When satisfied with the form and content of the Stability Information Booklet (including satisfaction with the competency of the person(s) who produced the booklet, methods and procedures used for calculations, the stability standard achieved and instructions which may be given to the Master but excluding accuracy of hull form data), the Certifying Authority should stamp the booklet with an official stamp which contains the name of the Certifying Authority, the date of approval, a file (or record) reference, number of pages in the booklet and "APPROVED FORM AND CONTENT".

Two (2) copies of the approved booklet should be returned to the owner(s). The owners should be instructed to confirm that one (1) copy has been placed on the vessel and will be retained on the vessel at all times for use by the Master. The second booklet is for the record of the owner(s).

The Certifying Authority should retain the third copy of the approved booklet in the records kept for the vessel.

11.8.2.5 It will be necessary to keep a hard copy of the approved Stability Information Booklet on board the vessel for use and reference, however any electronic stability software (which has been validated, to the satisfaction of the Certifying Authority, against the approved Stability Information Booklet) may additionally be used.

11.8.2.6 Seagoing Pilot Boats should have a simplified set of guidance, based on the approved stability information booklet, available for the coxswain to use. The guidance shall include information on permitted loading conditions which consider the condition of tanks, number of persons on board and where they may be seated and the position and mass of any cargo carried. Conditions of operation which are not permitted shall also be clearly included in the guidance.

11.8.3 A Vessel Required to Have Approved Damage Stability Information

11.8.3.1 The owner(s) of a vessel should be responsible for the submission of the damage stability calculations prepared by a competent person(s), their accuracy (including methods and procedures used for calculations) and compliance with the requirements of section 11.2.

The owner(s) should submit two (2) copies of the calculations to the Certifying Authority for approval.

11.8.3.2 The Certifying Authority should approve the results of the damage stability cases provided that the results meet the standard defined in section 11.2.

Approval (of the results but not the accuracy of the calculations) should be given in a formal letter from the Certifying Authority to the owner(s) and a copy of the calculations returned marked with the name of the Certifying Authority, the date and "RESULTS APPROVED".

11.8.4 Guidance on Stability Assessment

Guidelines on the minimum Form and Content of a stability book and guidance on minimum levels of checking for Certifying Authorities leading to approval are contained in Appendix 11.

It should be noted that the Certifying Authority may require a full stability analysis for a vessel which has been modified from the original design, particularly if the freeboard has been significantly reduced or the modification has involved the addition of an item of equipment which may have caused the position of the vertical centre of gravity to be situated at a higher level than that intended by the designer.

A full assessment, as opposed to a form and content check (see Appendix 11), may be requested by the Certifying Authority for any vessel where there is concern with regard to the vessel's stability.

12 Freeboard and Freeboard Marking

12.1. General

12.1.1 Section 12.2 defines the requirements for minimum freeboard for a motor vessel whose stability has not been assessed using ISO 12217³⁰ (see Appendix 13). Section 12.3 defines how the freeboard mark and deck line should be applied. Requirements for an inflatable boat or boat fitted with a buoyant collar, not requiring an approved Stability Information Booklet, are contained within section 12.4.

12.1.2 It should be noted that vessels whose freeboard is determined using section 12.2 which are not provided with an approved stability information booklet are required to be marked with a freeboard mark or alternative. In such cases the loading of the vessel is governed by the maximum permissible weight, in accordance with section 11, as identified on the vessel's certificate, or appropriate to the load test at which the heel test was conducted, or in the condition to which the ISO 12217 is assigned.

12.2. Minimum Freeboard

12.2.1 The freeboard, for a motor vessel whose stability has not been assessed in conjunction with section 11.4.6, should be not less than that determined by the following requirements:

12.2.2 The vessel should be operated and freeboard calculated at a normal trim.

12.2.3 Vessels which carry cargo or a combination of passengers, industrial personnel and cargo for which the cargo element does not exceed 1000kg.

A vessel, other than an inflatable or rigid inflatable boat covered by section 12.5, when fully loaded with cargo and non-cargo deadweight items certificated to be carried (each person taken as 82.5kg) should be upright and;

.1 in the case of a vessel with a continuous watertight weather deck in accordance with section 4.3.1.1, which is neither stepped or recessed or raised, have a freeboard measured down from the lowest point of the weather deck of not less than 300 mm for vessels of 7 metres in length or under and not less than 750 mm for vessels of 18 metres in length or over. For a vessel of intermediate length the freeboard should be determined by linear interpolation;

.2 in the case of a vessel with a continuous watertight weather deck in accordance with section 4.3.1.2, which may be stepped, recessed, or raised, have a freeboard measured down from the lowest point of the weather deck, of not less than 200mm for

³⁰ ISO 12217 'Small craft - Stability and buoyancy assessment and categorisation' Part 1

vessels of 7 metres in length or under and not less than 400mm for vessels of 18 metres in length or over. For a vessel of intermediate length the freeboard should be determined by linear interpolation. The raised portion(s) of the watertight weather deck should extend across the full breadth of the vessel and the average freeboard over the length of the vessel should comply with 12.2.2.1 above for a vessel with a continuous watertight weather deck;

.3 in the case of an open boat, have a clear height of side (i.e. the distance between the waterline and the lowest point of the gunwale³¹) of not less than 400mm for vessels of 7 metres in length or under and not less than 800mm for vessels of 18 metres in length or over. For a vessel of intermediate length the clear height should be determined by linear interpolation;

12.2.4 Vessels which carry cargo or a combination of passengers, industrial personnel and cargo for which the cargo element exceeds 1000kg.

12.2.4.1 Freeboard should be assigned in accordance with the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), as amended. See MSN 1752³², as amended, Schedule 5 Table B and calculation for ships <24m and noting the corrections for Type B ships "other than timber freeboards" that are required for lack of superstructure, lack of sheer, block coefficient, depth and bow height shown in Schedule 4.

Such vessels should have a scale of draught marks marked clearly at the bow and stern.

12.2.5 A vessel required to be provided with an approved Stability Information Booklet should be assigned a freeboard which corresponds to the draught of the vessel in sea water when fully loaded (each person taken as 82.5kg), but which in no case should be less than the freeboard required by section 12.2.3 or 12.2.4, nor that corresponding to the scantling draught.

12.3 Freeboard Mark and Loading

12.3.1 A vessel assigned a freeboard in accordance with section 12.2.4 should be marked with a freeboard mark in accordance with the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), as amended, and have a scale of draught marks marked clearly at the bow and stern, on both sides of the vessel. The longitudinal position of the draught marks, relative to the longitudinal datum for the hydrostatic data, should be recorded in the Stability Information Booklet, where provided.

12.3.2 Where it is considered that the addition of a scale of draught marks is neither practicable nor meaningful, for example, due to restricted loading variations, application for special consideration should be made to the Administration.

³¹The clear height of the side should be measured to the top of the gunwale or capping or to the top of the wash strake if one is fitted above the capping.

³² MSN 1752 (M) The Merchant Shipping (Load Line) Regulations 1998, as amended by the Merchant Shipping (Load Line) (Amendment) Regulations 2000

- 12.3.3 Additionally, where the line of the deck is not immediately discernible, a vessel should be provided with a deck line. The deck line and freeboard mark should be permanent and painted on a contrasting background.
- 12.3.4 The freeboard mark shall consist of a ring 300mm in outside diameter and 25mm wide, intersected by a horizontal line 450mm long and 25mm wide the upper edge of which passes through the centre of the ring. The top of the intersecting line should be positioned at the waterline corresponding to the assigned freeboard to deck edge amidships.
- 12.3.5 No mark should be applied for fresh water allowance.
- 12.3.6 The assigning letter marking on the bar of the ring and bar should be D on the left and T on the right when the MCA is the Certifying Authority. In the case of any other Certifying Authority, the assigning letters should be U on the left and K on the right.
- 12.3.7 The freeboard mark for a vessel required to be provided with an approved Stability Information Booklet, other than a vessel complying with section 12.2.4 and for a vessel not required to be provided with an approved Stability Information Book, other than inflatable boats and boats fitted with a buoyant collar, should be a bar of 300mm in length and 25mm in depth.
- 12.3.8 The marking should be permanent and painted black on a light background or in white or yellow on a dark background. No assigning letter marking should be placed on the bar marking.
- 12.3.9 The top of the mark should be positioned at the waterline corresponding to the draught referred to in section 12.2.5, at amidships.
- 12.3.10 Additionally, where the line of the deck is not immediately discernible, a vessel should be provided with a deck line. The deck-line shall be marked amidships on each side of the ship so as to indicate the position of the freeboard deck. The mark need not be of contrasting colour to the surrounding hull.
- 12.3.11 Where the design of the vessel, or other circumstances, render it impracticable to mark the deck line, the Certifying Authority may direct that it be marked by reference to another fixed point as near as practicable to the position described above.
- 12.3.12 A vessel should not operate in a condition which will result in its freeboard marks being totally submerged when it is at rest and upright in calm sea water.
- 12.4 Inflatable Boats and Boats Fitted with a Buoyant Collar**
- 12.4.1 The freeboard of an inflatable boat or boat fitted with a buoyant collar should be not less than 300mm measured from the upper surface of the buoyancy tubes and not less than 250mm at the lowest part of the transom with all its equipment, fuel, cargo, activity related equipment (e.g. diving equipment) and the number of persons for which it is to be certificated on board, with the boat re-trimmed as necessary to

represent a normal operating condition, and with the drainage socks, if fitted tied up.

12.4.2 A freeboard mark is not required, except where the vessel is certified to carry more than 1000kg of cargo in accordance with section 12.2.4 when a load line is required. The minimum freeboards recorded during the tests of section 12.2.5.1 should be recorded on the SWB2 and the permissible maximum weight which can be carried should be recorded on the certificate for the vessel.

12.4.3 For boats operating in Area Category 6 only, which do not meet the freeboard requirement of section 12.4.1 at the transom, may still be accepted by the Certifying Authority provided it can be demonstrated that the boat is self-draining when moving ahead, and has a substantial reserve of buoyancy (>10%). The Certifying Authority should record such an acceptance in its report for the vessel (report form SWB2).

DRAFT

13 Life-Saving Appliances

13.1 General

13.1.1 All life-saving equipment must be marked in accordance with the guidelines in MGN 105 (M+F)³³.

13.1.1.1 The minimum required life-saving equipment is indicated in Table 13.1 below.

TABLE 13.1

Carriage Requirements for Life-saving Appliances

Area of Operation Category		6	5	4	3	2	1	0
m=nautical miles		<3m from departure point in daylight & favourable weather	<3m from departure point in favourable weather	<20m daylight & favourable weather	<20m	≥ 20m & < 60m	≥ 60m & < 150m	Unrestricted
Liferafts (see 13.2)		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total Number of Lifebuoys (see 13.3)	<16 persons	2	2	2	2	2	2	2
	≥ 16 persons	4	4	4	4	4	4	4
Lifebuoy With light (see 13.3)	<16 persons	NA	1	NA	1	1	1	1
	≥ 16 persons	NA	2	NA	2	2	2	2
Lifebuoy with buoyant line (see 13.3)	<16 persons	1	1	1	1	1	1	1
	≥ 16 persons	1	1	1	1	1	1	1
Lifebuoys without attachments (see 13.3)	<16 persons	1	1	1	0	0	0	0
	≥ 16 persons	3	3	3	1	1	1	1
Additional Buoyant Line (see 13.3)	<16 persons	0	0	0	0	0	0	0
	≥ 16 persons	1	1	1	1	1	1	1
Lifejacket (see 13.4)		100%	100%	100%	100%	100%	100%	100%
Thermal protective aids (TPA) (see 13.5)		See 13.5.4	100%	100%	100%	100%	100%	100%
Portable ³⁴ VHF (see 13.6)		1	1	1	1	1	1	1
EPIRB ³⁴ (see 13.7)		None	None	None	None	1	1	2

³³ MGN 105 (M+F) "Use and Fitting of Retro-reflective Material on Life-saving Appliances"

³⁴ The carriage of Portable VHF, EPIRB and SART / AIS-SART in this section may also be used to fulfil the carriage requirements of any carriage requirements indicated in Section 16 – Radio communications.

SART ³⁶ or AISSART, Search and Rescue Locating Device (see 13.8)	None	None	None	None	1	1	1
Personal Emergency Radio Devices ³⁵ (see 13.9)	None	None	None	R	R	R	R
General Alarm ≥ 16 persons (see 13.11)	None	None	None	None	Yes	Yes	Yes
General Alarm > 750 kW installed power (see 13.11)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parachute Flares (see 13.12)	None	4	None	4	4	6	12
Red hand Flares (see 13.12)	2	6	2	6	6	6	6
Smoke Signals (see 13.12)	2 buoyant or hand held	2 buoyant or hand held	2 buoyant or hand held	2 buoyant or hand held	2 buoyant or hand held	2 buoyant	2 Buoyant
Means of Recovery of Persons from the water (see 13.13)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Training Manual (see 13.14)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Instruction Manual (for on board maintenance) (see 13.15)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Table of International Life-saving Signals 1 x SOLAS No. 1, or 2 x SOLAS No. 2. (see 13.16)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

R= Strongly Recommended.

13.2 Liferafts

13.2.1 Vessels Operating in Area Category 0

13.2.1.1 Vessels Operating in Area Category 0;

- .1 should be provided with liferafts of such number and capacity that, in the event of any one liferaft being lost or rendered unserviceable, there is sufficient capacity remaining for all on board; and

The liferafts provided should;

- .2 be constructed to SOLAS standard and MED approved or MCA DfT approved, have insulated floor and insulated canopy and be equipped with a "SOLAS A PACK"³⁶; and
- .3 the stowage of liferafts should be on the weather deck or in an external open space, and shall ensure that they are accessible in all anticipated weather conditions.

³⁵ Strongly recommended also for any Single Handed Operations in Category 3 to 6, see 26.9.5.9

³⁶ SOLAS "A" PACK requirements can be found in MSN 1676 (M+F), Schedule 4, Part 6.

- .4 liferafts should be fitted with float free arrangements³⁷ so that the liferafts float free, inflate and break free automatically. See sections 13.2.4 and 13.10 for details of stowage, float free arrangements, weak links and attachments of raft painters. Other stowage and release mechanisms may be considered if they can be demonstrated, to the satisfaction of the Administration, to provide an equivalent level of safety.
- .5 The owner / managing agent should demonstrate to the Certifying Authority by physical deployment that each raft can be moved from its stowed position and stowed state to launched in the water³⁸ in the shortest practicable time³⁹. This demonstration should be carried out at compliance examination and when there are any changes to the liferaft or modifications to the liferaft stowage arrangements.
- .6 See 13.2.4.1 for servicing requirements.

13.2.2 Vessels Operating in Area Category 1

13.2.2.1 The following are the requirements for vessels operating in Area Category 1:

- .1 The liferaft carriage requirements apply as they do in section 13.2.1.1.1.

Where the vessel is certificated to carry fewer than 16 persons, the liferaft requirement may be satisfied by a single liferaft. The liferaft capacity should accommodate at least the total number of persons on board.

- .2 The liferaft acceptable construction standard requirements apply as they do in section 13.2.1.1.2 except that, the liferaft need not have an insulated floor or insulated canopy where the vessel operates exclusively in waters having a temperature of 10 degrees centigrade or higher (see Note 1). The certification shall clearly show this limitation, or;

liferafts built to the ISO 9650⁴⁰ – Small Craft Inflatable Liferafts, Part 1, Type 1, Group A standard, are acceptable, provided the liferaft(s) are fitted with a boarding ramp; are equipped to the level of “SOLAS A PACK⁴¹”, which may, where necessary, include a “grab bag” to supplement the equipment integral to the liferaft; and are certificated as compliant with Part 1, Group A and Part 3 of ISO 9650 from March 2005 onwards.

³⁷ The liferaft retaining strap must be capable of being released quickly and easily, e.g. by senhouse slip.

³⁸ During the test the Certifying Authority need only witness the raft being moved to the side of the vessel, adjacent to any guard wires, e.g. getting to a suitable launch site.

³⁹ The MCA is preparing guidance which will define suitable maximum demonstration time.

⁴⁰ This standard currently provides for a maximum capacity of 12 man liferafts

⁴¹ SOLAS “A” PACK requirements can be found in MSN 1676 (M+F), Schedule 4, Part 6.

Compliance certification issued by one of the EC notified bodies responsible for approval of life saving appliances, described in the Marine Equipment directive (www.MARED.org), will be recognised as full third party verification of compliance.

- .3 The stowage of liferafts should be on the weather deck or in an external open space, and shall ensure that they are accessible in all anticipated weather conditions.
- .4 Liferafts should be contained in fibre reinforced plastic (FRP) containers.
- .5 Liferafts should be fitted with float free arrangements⁴² so that the liferafts float free, inflate and break free automatically. See sections 13.2.4 and 13.10 below for details of stowage, float free arrangements, weak links and attachments of raft painters. Other stowage and release mechanisms may be considered if they can be demonstrated, to the satisfaction of the Administration, to provide an equivalent level of safety.
- .6 The owner / managing agent should demonstrate to the Certifying Authority by physical deployment that each raft can be moved from its stowed position and stowed state to launched in the water⁴³ in the shortest practicable time⁴⁴. This demonstration should be carried out at compliance examination and when there are any changes to the liferaft or modifications to the liferaft stowage arrangements.
- .7 See 13.2.4.1 for servicing requirements.

13.2.3 Vessels Operating in Area Categories 2, 3, 4, 5 and 6

13.2.3.1 Vessels operating in Area Categories 2, 3, 4, 5 and 6;

- .1 should be provided with liferaft capacity to accommodate at least the total number of persons on board;
- .2 the liferaft(s) provided should be;
 - i) in accordance with section 13.2.1.1.2 except that the liferaft(s) should be equipped with "SOLAS B PACK"; or
 - ii) built to the ISO 9650⁴⁵ – Small Craft Inflatable Liferafts, Part 1, Type 1, Group A standard, provided the liferaft(s) are fitted with a boarding ramp; are equipped to the level of "SOLAS B PACK", which may, where necessary, include a "grab bag" to supplement the equipment integral to the liferaft, and are certificated as compliant

⁴² The liferaft retaining strap must be capable of being released quickly and easily, e.g. by senhouse slip.

⁴³ During the test the Certifying Authority need only witness the raft being moved to the side of the vessel, adjacent to any guard wires, e.g. getting to a suitable launch site.

⁴⁴ The MCA is preparing guidance which will define suitable maximum demonstration time.

⁴⁵ This standard currently provides for a maximum capacity of 12 persons.

with Part 1, Group A and Part 3 of ISO 9650 from March 2005 onwards;

- iii) Liferafts carried in vessels which operate in Area Categories 2 and 3 outside the UK Search and Rescue Region, where the sea temperature is less than 10 degrees centigrade, shall have an insulated floor and insulated canopy. (See Note 1 below);
 - iv) Vessels operating in Area Category 6 only, may utilise open reversible liferafts, constructed to IMO High Speed Craft Code 2000 standard and MED approved ("Wheelmarked") or DfT approved. Liferaft(s) should be equipped to a level equivalent to a "DfT E Pack⁴⁶". This may, where necessary, include a "grab bag" to supplement the equipment integral to the liferaft.
- .3 The stowage of liferafts should generally (i.e. except those fitted as per 13.2.3.1.4.2) be on the weather deck or in an external open space, and shall ensure that they are accessible in all anticipated weather conditions.
- .4.1 In general, liferafts should be contained in FRP containers and be subject to .5 below.
- .4.2 If a raft in an FRP container without float free, or a valise raft is fitted it should be stowed⁴⁷ in readily accessible and dedicated (i.e. stowage space is to be for liferafts only) weathertight lockers opening directly to the weather deck. ISO valise rafts should also note 13.2.4.1.
- .5 Liferafts should be fitted with float free arrangements⁴⁸ (except those fitted as per 13.2.3.1.4.2) so that the liferafts float free, inflate and break free automatically. See sections 13.2.4 and 13.10 below for details of stowage, float free arrangements, weak links and attachments of liferaft painters.
- .6 The owner / managing agent should demonstrate to the Certifying Authority by physical deployment that each raft can be moved from its stowed position and stowed state to launched in the water⁴⁹ in the shortest practicable time⁵⁰. This demonstration should be carried out at compliance examination and when there are any changes to the liferaft or modifications to the liferaft stowage arrangements.

⁴⁶ DfT "E" PACK requirements can be found in MSN 1676 (M+F), Schedule 4, Part 4.

⁴⁷ A strong point must be identified for attachment of the painter which is suitably located for embarkation of the liferaft. In the event of launching a liferaft the painter must be made fast to a strong point before release of the liferaft.

⁴⁸ The liferaft retaining strap must be capable of being released quickly and easily, e.g. by senhouse slip.

⁴⁹ During the demonstration test the Certifying Authority need only witness the raft being moved to the side of the vessel, adjacent to any guard wires, e.g. getting to a suitable launch site.

⁵⁰ The MCA is preparing guidance which will define suitable maximum demonstration time.

.7 See 13.2.4.1 for servicing requirements.

Note 1: Sea temperature data may be found in sources such as the Admiralty Pilot for a given sea area and period.

To facilitate rapid abandonment in an emergency, where a liferaft 'grab bag' is provided, it should be in an accessible position known to all on board.

Equipment carried in the 'grab bag' does not count towards the equipment the vessel itself must ordinarily carry, with the exception of TPAs described in 13.5.

13.2.4 General Requirements for Liferafts

13.2.4.1 All liferafts should be serviced at a service station approved by the manufacturer and at the manufacturer's recommended intervals. See either MGN 548⁵¹ or MGN 553⁵² which provide further guidance on the servicing of inflatable liferafts, inflatable lifejackets and hydrostatic release units (HRU). However, where the liferaft(s) are stored in valises this should be at least annually.

13.2.4.2 Operators / managing agents should inspect liferafts frequently for damage e.g. to the container. If it is damaged it needs to be checked by an approved service station.

13.2.4.3 Inflatable liferaft hydrostatic release units⁵³ (other than the types which have a date limited life and are test fired prior to disposal⁵⁴) should be serviced annually at a service station approved by the manufacturer. Also see section 13.10.

13.2.4.4 Some rafts have more than one line coming from the canister. In these cases the manufacturer's literature must be consulted to establish which line is which.

13.2.4.5 Key Points on stowage of liferafts and HRUs

Owners / managing agents should ensure that liferafts:

- are stowed as described in 13.2.1.1.3 & .4, 13.2.2.1.3 to .5 or 13.2.3.1.3 to .5;
- have launching instructions displayed;
- be lit by emergency lighting at the stowage position and launch area if the vessel is operated at night;
- clear any projections and belting when launched;

⁵¹ MGN 548 (M+F) - Life-Saving Appliances - Inflatable SOLAS Certificated Liferafts, Lifejackets, Marine Evacuation Systems, and repair of Inflated Rescue Boats - Servicing Requirements and Approved Service Stations

⁵² MGN 553 (M+F) - Life-Saving Appliances - Inflatable Non-SOLAS Liferafts, Lifejackets, Marine Evacuation Systems, Danbuoys and Lifebuoys - Technical Standards and Servicing Requirements

⁵³ See 13.2.4.5 and 13.10.

⁵⁴ Disposable types do not normally need servicing during the working life indicated by the manufacturer

- be secured through an approved and compatible HRU, if fitted with a float free arrangement;
- have the correct painter length. See also 13.10.2.2
- ensure that the risk of the painter snagging on obstructions, that might prevent it from deploying fully, is minimised.

Owner / Managing agents should:

- Ensure that the stowage, launching and embarking locations (if different) should be clear of propellers and thrusters;
- preferably stow rafts longitudinally in horizontally fixed cradle;
- stow to give protection from weather, smoke, soot, oil, flooding and accidental damage;
- when more than one liferaft is fitted, consideration should be given for distributing these around the vessel (port/starboard and fore/aft) in order to provide redundancy in the event of an incident such as fire or collision;
- where a liferaft does not have float free arrangements, ensure liferaft can be manually released easily in an emergency by operating the senhouse slip or other release mechanism, and does not need tools or a knife;
- stow containers with drain holes at the bottom;
- consider if it will be able to float free and clear;
- consider interference with other liferafts;
- consider effects of icing;
- consider effects on ships compass;
- carefully identify and remove transport lashings.

Owner / Managing agent should not:

- lash liferafts in cradles;
- stow liferafts fitted with float free arrangements under overhanging decks or awnings;
- allow liferafts to have contact with materials containing copper or copper compounds;
- use bottle screws instead of slips;
- concentrate all life-saving appliances in one place;
- hose down the liferaft.

Owner / managing agents should consider:

- the ability to transfer liferafts to either side of the vessel;
- height above waterline – should be as near to waterline as safe and practicable;

13.3 Lifebuoys

13.3.1 Lifebuoys should be marked with the vessel's name and one other means of identification, e.g. Port of Choice, Small Ships Register (SSR) number, home port if not registered, etc.

13.3.2 Vessels certified to operate in Area Categories 4 and 6 need not carry lifebuoys fitted with lights.

13.3.3 Buoyant lines, where fitted, should not be less than 18 metres in length. Guidance on lifebuoy buoyant lines and grablines can be found in MGN 106 (M+F)⁵⁵.

13.3.4 Where light-weight lifebuoys (e.g. horseshoe type) are used, if not fitted with a buoyant line, they shall be fitted with a drogue (the drogue is required to prevent the lifebuoy being blown across the sea surface at speed).

13.3.5 Inflatable lifebuoys are not acceptable.

13.4 Lifejackets

13.4.1 Lifejackets should be MCA (DfT) or SOLAS standard and MED approved ("Wheelmarked"); or should comply with BS EN 396 or BS EN ISO 12402, Part 3 or Part 6, for lifejackets of 150 Newtons; or BS EN 399 or BS EN ISO 12402, Part 2, for lifejackets of 275 Newtons (see Appendix 13) or equivalent ISO/CEN standard.

13.4.2 All lifejackets should be fitted with a whistle, retro-reflective materials and, if operating in Area Categories 0, 1, 2, 3 or 5, a light.

13.4.3 If the lifejackets are the inflatable type, an additional 10% or 2 lifejackets, whichever is the greater, should be provided.

13.4.4 Inflatable lifejackets for new vessels and new inflatable lifejackets for existing vessels are to be of the compressed gas inflation type, with either manual or automatic inflation, and fitted with oral top up valves. Lifejackets which are inflated orally only are not considered appropriate.

13.4.5 Compressed gas inflatable lifejackets should be serviced to manufacturers' recommendations within a maximum of one month either side of the Compliance, Renewal and Intermediate examination. In the intervening years they are to be examined annually to the manufacturer's recommendation. Certification or declaration of servicing must be available for inspection by the Certifying Authority/Administration. As far as is reasonable and practicable, visual examinations should be carried out weekly by the owner/managing agent to determine whether they are safe to use⁵⁶.

13.4.6 Where a lifejacket is serviced annually this is acceptable as an alternative to the servicing regime prescribed in 13.4.5.

13.4.7 A suitable lifejacket should be provided for each person on board less than 32kg.

13.4.8 It is most strongly recommended that no more than two different types of lifejacket are permitted on any vessel, to limit any confusion in use.

⁵⁵MGN 106 (M+F) – "Natural and Synthetic Fibre Cordage for Life-saving Appliances.

⁵⁶ Items particularly identified as being important to inflatable lifejackets, include but not limited to: (a) inspection of straps, buckles and outer cover, (b) safety harness, its stitching and buckles, (c) abrasion damage to the inflatable lung, (d) gas inflation cylinder for signs of corrosion, (e) gas inflation cylinder for tightness of connection to inflation mechanism.

13.4.9 It is strongly recommended that donning instructions for the types of lifejackets carried are posted in a position(s) that is clearly visible to all persons on board the vessel.

13.5 Thermal Protective Aids (TPAs)

13.5.1 TPAs should be approved as meeting the standards of the MED.

13.5.2 TPAs may be stowed in the 'grab bag'.

13.5.3 When immersion suits are provided for all on board, as part of the vessel's equipment (see section 22 including 22.1.2.7, 22.2.8), only 2 TPAs need to be provided for the use of injured persons.

Immersion suits;

- .1 may be of the non-insulated type.
- .2 are to be compatible with the lifejackets provided.
- .3 may be provided to satisfy the personnel clothing requirements of section 22.2.8.

13.5.4 Vessels operating in Area Category 6 where the sea surface temperature is 10 degrees centigrade or less, using open reversible liferaft(s) in accordance with section 13.2.5, should carry TPAs for all persons on board. Vessels operating in Area Category 6 where sea surface temperatures are above 10 degrees centigrade, or those fitted with a canopied liferaft, need not carry any TPAs.

13.6 Portable VHF Radio

13.6.1 Each vessel should carry a portable Very High Frequency (VHF) radio fitted with a Digital Selective Calling (DSC) facility⁵⁷, and charging facilities for the radio battery or batteries, or a spare battery or batteries to provide at least 8 hours operation after deploying to the liferaft. Arrangements should be made to protect the portable VHF and spare battery or batteries from water damage e.g. waterproof cover. Other portable VHF radiotelephones may be with or without DSC, those without DSC shall be of a recognised survival craft type. Where the radio is a DSC type, operating instructions must be readily available by printing on the case.

13.6.2 Each vessel should carry a portable Very High Frequency (VHF) radio capable of operation on Channel 16 and at least one other voice channel in the international VHF marine band and operable by the gloved hand of an immersion suit. (Note particular attention should be paid to push to talk (PTT) button). The radio and spare batteries should be protected against water damage by design or by a waterproof cover to a depth of 1 metre for 5 minutes. The construction shall not have any sharp projections that might damage a survival craft. The radio shall have a means to attach to clothing or a lanyard with a low breaking

⁵⁷ Ofcom require that such radios are licensed.

strain safety link. These requirements may be met by a Survival Craft Radio conforming to EN 300 225. The vessel shall also carry an appropriate sealed primary battery or batteries able to provide at least 8 hours operation. The battery or seal shall be marked with an expiry date by manufacturer and shall be in date. See Standards Appendix 13.

13.6.3 *It is recommended that, where practicable, vessels carrying more than one liferaft carry one portable VHF per liferaft.*

13.7 406 MHz EPIRB

13.7.1 The 406 megahertz (MHz) Emergency Position Indicating Radio Beacon (EPIRB) should be installed in a location so that it is capable of floating free and activating automatically if the vessel sinks. This location should also be easily accessible so that it can be manually released and placed in a liferaft. See Standards Appendix 13. Also refer to Section 16.8 for further details of carriage requirements and recommendations taking consideration of GMDSS Sea Areas.

13.7.2 The second EPIRB required for a Category 0 vessels should be stowed in an accessible place, where it is capable of being placed readily in a liferaft and need not be capable of floating free.

13.7.2 All EPIRBs should be maintained in accordance with the manufacturer's recommendations. Batteries should be replaced as required by a manufacturers approved service station. Additionally, it is a requirement that all EPIRBs are registered with the Administration. Further guidance on this can be found in MSN 1816 (M+F)⁵⁸, as amended.

13.8 Search and Rescue Locating Device

13.8.1 In areas covered by dedicated Search and Rescue (SAR) assets (e.g. 60 n.m. around U.K. coast) and the EPIRB provided has a 121.5 MHz locator beacon and is of the non-float free type for placing in a liferaft an additional Search and Rescue Transponder (SART) is not required. Outside these areas; a Radar SART; or AIS-SART; or an EPIRB-AIS beacon as part of the EPIRB; is required. See Standards Appendix 13.

13.9 Personal Emergency Radio Devices

13.9.1 It is strongly recommended, on a small workboat operating Cat 0 to 3 voyages, that at least one crew member wear a 406 MHz personal locator beacon (PLB)^{59, 60} with GPS and a light whilst on the open deck at sea. Other crew are strongly recommended to wear a Class M VHF

⁵⁸ MSN 1816 (M+F) – Mandatory Registration of Emergency Position Indicating Radio Beacons (EPIRBs)

⁵⁹ This has a global range and alerts the nearest Coastguard Station to a Man Overboard situation. It will typically take 5 minutes for the Coastguard to be aware of your position and they can then locate a casualty in the water to an accuracy of 100m.

⁶⁰ Registration of Devices. 406MHz PLBs should be registered with the EPIRB Registry, details of which are given in MSN 1816 (M+F) – Mandatory Registration of Emergency Position Indicating Radio Beacons (EPIRBs). VHF DSC devices should be registered with Ofcom, details of which are also given in MSN 1816(M+F).

DSC MOB (Man Overboard) with AIS⁶¹, and equipped with a light. This fitment is particularly useful when undertaking group working activities. See Standards Appendix 13 and below Notes i, ii, iii.

Note i: A Class M VHF DSC MOB will only inform the Coastguard if the nearest station is in VHF range. Therefore it is considered unsuitable for use on single handed vessels and it is prudent at least one other person on board vessels to have a 406 MHz PLB with GPS to ensure they alert Coastguard if they enter the water alone or with others.

Note ii: When registering a PLB consideration should be made to scheduled crew changes and to providing a 24 hour contact if the vessel operates 24 hours.

Note iii: MCA have published an information leaflet (entitled 'Personal Emergency Radio Devices') on PLBs giving guidance on attributes of different types of PLB and training, including how to respond if the PLB accidentally goes off. See:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/633925/10672-MCGA-Personal-Emergency-Radio-Devices.pdf

13.9.2 For PLB's fitment during single handed vessel operations see 26.9.5.9.

13.10 Float Free Arrangements, Weak Links and attachment of Liferaft Painters

13.10.1 Owner / managing agents should consult manufactures instructions for fitting of HRUs, where they are fitted;

13.10.2 Ships operating in shallow waters or in favourable weather

13.10.2.1 On vessels, which operate only in 'favourable weather' it may be practicable or preferable to arrange for liferafts to float free from their stowage without the need for HRU to hold them in place. A weak link with the correct breaking load will still be required to secure the painter to the ship so that the inflation system is activated and the inflated liferaft is then able to break free.

13.10.2.2.1 In shallow water there is a danger that a sinking vessel will touch bottom before the HRU has released or the liferaft has pulled enough painter/ firing line from the canister to activate the inflation system. Arrangements without HRUs should be considered, bearing in mind the possibility of accidental launching if the ship is likely to roll.

13.10.2.2.2 It is the owner / managing agents responsibility to ensure that when fitting a liferaft to a vessel that it should be obtained with the correct painter lengths matched for the vessel operational depth, the liferaft stowage height on the deck above the waterline and method of inflating the liferaft. A painter may be many meters long and must be deployed

⁶¹ The MMSI number can be programmed into this device so that the first alert is sent immediately to the vessel, alerting crew to the Man Overboard situation and also potentially reducing the possibility of false alerts. If the VHF/DSC is not responded to by someone on the vessel within a designated time period, other vessels in the area will be alerted. The inbuilt AIS will enable other vessels in the area equipped with AIS to locate any casualty in the water. A casualty can be located to an accuracy of 100m.

to its full length before the liferaft will inflate. Excessively short painters may result in a liferaft inflating before it enters the water. Excessively long painters which are attached to a firing line may require the manual handling of many metres of painter before the liferaft inflates. Owners should ensure that the arrangements give the best chance of successful manual and automatic release in the circumstances and plying area. If excess length of the painter line is provided, this may be folded, however this is the responsibility of the owner / managing agent to ensure that there are no obstacles in order to avoid entanglement and any potential failure to deploy the liferaft. It should also be noted that the painter line must not be cut, this will invalidate the Approval Certificate.

13.10.2.3 On Open Reversible Liferafts (ORLs) the firing is typically arranged to operate after 1 – 1.5 m of line is pulled out, but this must be checked with the service station which prepared the liferaft. Where ORLs are stowed on cabin tops etc, the short firing line on ORLs may enable the liferaft to inflate before it hits the water. Where the liferafts are stowed closer to the water operational procedures should cover the possibility that manual intervention may be needed to activate the inflation system. Easy access to the firing line should be available in these cases. Owners should ensure that the arrangements give the best chance of successful manual and automatic release in the circumstances and plying area.

13.10.3 Multiple liferafts on a single HRU

13.10.3.1 Prototype testing of HRUs is carried out in accordance with the LSA Code which only requires that the tests are carried out with a single liferaft. Approval for use of the HRU normally only applies to its use to hold down one liferaft.

13.10.3.2 Trials have been carried out to test the effectiveness of HRUs holding more than one liferaft to operate when submerged to a depth of 4 m. In some cases, the additional up thrust from the liferafts has been sufficient to prevent the HRU opening and releasing the liferafts.

13.10.3.3 When considering whether to accept a situation where more than one liferaft is held down by a strap attached to a single HRU, the following should be taken into account:

- when multiple liferafts are to be secured on a single HRU, owners must show that the HRU used is approved for this use;
- the arrangements should be checked to ensure that the painters are not lead or connected in such a way as to inhibit release of the liferafts eg., painters running through and fouling the cradle. Each painter should have its own weak link;
- that there is sufficient other LSA available so that in the event of a single HRU not operating, there would still be adequate liferaft capacity to accommodate the persons on the vessel;

13.10.4 Tensioning of HRUs

- 13.10.4.1 Over tensioning can lead to the HRU failing to operate. Similar problems can occur when there is insufficient load on the HRU. Securing straps should be taut but not over tight.
- 13.10.5 Vessels carrying liferafts which are not approved under the Maritime Equipment Directive (MED)
- 13.10.5.1 Vessels carrying non-MED liferafts, including ISO 9650 liferafts, should check the compatibility between the liferaft and the HRU. MED approved HRUs are not necessarily compatible with smaller liferafts (less than 6 people) as these may not have enough buoyancy to break the weak link. Some manufactures offer special HRUs for low buoyancy liferafts.
- 13.10.6 HRU and weak links
- 13.10.6.1 Where a vessel carries non-SOLAS and non-MED approved liferafts that are stowed using float free HRU units the Certifying Authority and operator should be aware that there may be some doubt as to whether or not the hydrostatic release units supplied for SOLAS size liferafts are appropriate for non-SOLAS liferafts.
- 13.10.6.2 Additionally, there is the issue of the availability of weaker weak links which some manufacturers are marketing for use with non-SOLAS and MED approved smaller liferafts. Weaker weak links referred to below are not appropriate for liferafts approved in accordance with SOLAS.
- 13.10.6.3 There are essentially two concerns with the weaker weak link that the Owner and Certifying Authority should consider:
- 1) Are the weaker weak links strong enough to survive the tension generated by the buoyancy of the liferaft prior to activation of the inflation mechanism?
 - 2) Following activation of the inflation mechanism, can a smaller liferaft generate sufficient buoyancy to break the weak link which has been fitted?
- 13.10.6.4 In cases where non-SOLAS liferafts are fitted, and there is any doubt with respect to the compatibility of HRU and the liferaft itself, then confirmation is to be sought from manufacturers and/or equipment suppliers that the breaking strength of the weak link and the size of the liferaft are compatible.
- 13.10.6.5 Reduced Strength HRUs are available. Those with a Green weak link are the extra weak model. Those with a red weak link are the standard SOLAS models.

13.11 General/Fire Alarm

- 13.11.1 The General/Fire Alarm may be a bell or Klaxon, or consist of the vessel's whistle or siren, providing it can be heard in all parts of the vessel. A General Alarm is required for vessels with 16 or more persons on board operating in Area Categories 0, 1 or 2, and for all vessels

where total installed power (propulsion and electrical generation) is greater than 750 kW.

13.12 Pyrotechnics⁶²

13.12.1 Parachute flares, red hand flares, smoke signals, and other pyrotechnics should be MED approved (“Wheelmarked”) or should comply with MSN 1676 (M)⁶³, as amended.

Note: - Hand held smoke signals need not be approved to the MED or MSN 1676 (M)).

13.13 Recovery of Persons from the Water

13.13.1 An efficient means to enable the recovery of an unconscious person from the water should be provided to the satisfaction of the Certifying Authority. Practical use of this equipment/means should be demonstrated to the Certifying Authority by the owner /skipper/Master at renewal/initial surveys. Refer to MGN 544⁶⁴.

13.14 Training Manual

13.14.1 A training and instruction manual should contain instructions and information on the life-saving appliances provided in the vessel, and also contain information on the best methods of survival.

13.14.2 It may take the form of instructions from the manufacturers of the life-saving equipment provided, as a minimum, with the following explained in detail:

- .1 donning of lifejackets;
- .2 boarding, launching, and clearing the survival craft from the vessel;
- .3 illumination in launching areas;
- .4 use of all survival equipment;
- .5 use of all aids to location;
- .6 use of sea anchors;
- .7 recovery of persons from the water;
- .8 hazards of exposure and the need for warm clothing;
- .9 best use of the survival craft facilities in order to survive;

⁶² Further guidance can be found in MGN 287 (M+F) – “Disposal of Out of Date Pyrotechnics.

⁶³ MSN 1676 (M) - The Merchant Shipping (Life-Saving Appliances for Ships Other Than Ships of Classes III to VI(A)) Regulations 1999

⁶⁴ MGN 544 (M) Life-saving Appliances – Means of Recovery of Persons from the Water by Ships and Boats – Acceptance of Recovery Equipment.

- .10 methods of retrieval, including the use of helicopter rescue gear (slings, baskets, stretchers), breeches-buoy and shore life-saving apparatus;
- .11 instructions for emergency repair of the life-saving appliances; and
- .12 "Personal Survival at Sea" booklet, e.g. MCA Booklet MCA/075.

13.15 Instruction Manual (on board maintenance)

13.15.1 The manual should contain instructions for on board maintenance of the life-saving appliances and should include, as a minimum, the following where applicable:

- .1 a check list for use when carrying out the required inspections;
- .2 maintenance and repair instructions;
- .3 schedule of periodic maintenance;
- .4 list of replaceable parts;
- .5 list of sources for spare parts; and
- .6 log of records of inspection.

13.15.2 The manual may be kept ashore by the owner/managing agent in the case of an open boat.

13.15.3 Vessels operating on bare-boat charter should be provided with the manual whether an open boat or otherwise.

13.15.4 Fire and Safety Plan. Attention is drawn to the recommendation in section 14.10.

13.16 Table of International Life-Saving Signals

13.16.1 Every vessel shall carry a Table of International Life-Saving Signals⁶⁵. This shall be in the form of either one SOLAS No. 1 poster, or two SOLAS No. 2 posters.

13.17 Drills, Training and Recording of Drills

13.17.1 *Owner / managing agents are reminded that on board training, practice fire and abandon ship drills should be carried out regularly by the crew and recorded in the Official Log Book (see 19.1.3) in accordance with the requirements of SI. 1999 No.2722⁶⁶ (see also MGN 71⁶⁷). Means of*

⁶⁵ Alternatively, MCA Leaflet MCA/099 "Life Saving Signals" may be posted in the wheelhouse. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/222597/dg_185583.pdf

⁶⁶ The Merchant Shipping (Musters, Training and Decision Support Systems) Regulations 1999

⁶⁷ MGN 71(M), Musters, drills, on-board training and instructions, and Decision Support Systems

recovery of persons from the water drills should also be carried out and recorded, see MGN 544. The owner / managing agent should undertake a regular training drill of the physical deployment of each liferaft as described in 13.2.1.1.5, 13.2.2.1.5 and 13.2.3.1.6.

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14 Fire Safety

14.1 General

14.1.1 The boundary of the machinery space should, with special consideration given to fire flaps, be arranged to contain the fire extinguishing medium, i.e. the machinery space should be capable of being closed down in order that the fire extinguishing medium cannot escape. Any fans located within, or feeding a machinery space, together with fuel and oil transfer pumps, centrifuges etc. should be capable of being stopped from outside the space in the event of a fire. Systems comprising of automatic stopping of fans in the event of a fire should be supplemented with a manual override.

14.1.2 Where it is not practical to have a machinery space, the engine should be enclosed in a box. The box should perform the same function as the machinery space boundaries in section 14.1.1 above.

14.1.3 Combustible materials and liquids should not be stowed in the machinery space. If non-combustible materials are stowed in the machinery space, they should be adequately secured against falling on machinery, and cause no obstruction to access to or from the space.

14.1.4 Portlights, windows or skylights should not be fitted in the boundary of the machinery space, except that an observation port having a maximum diameter of 150mm may be fitted in an internal boundary bulkhead, provided that the port is of the non-opening type, the frame is constructed of steel or other equivalent material, and the port is fitted with a permanently attached cover with securing arrangements. Only fire rated toughened safety glass, rated A-0 in accordance with the FTP Code, should be used in an observation port.

14.1.5 Linkages forming part of emergency means for the remote operation for flaps, cut-offs and similar devices, must be executed in materials or assemblies which will not themselves fail or become inoperable in all such emergency circumstances.

14.2 **Vessels Operating in Area Categories 0 and 1, and in any Other Area Category Where the Total Installed Power Exceeds 750 kW per machinery space, or in any Area Category Where the Vessel is Carrying 16 or More Persons.**

14.2.1 Steel Construction:

14.2.1.1 Vessels which have their machinery space boundaries constructed of steel require no additional fire protection. However, surfaces on the opposite side of the machinery space should only be coated with finishes which have a Class 1 surface spread of flame rating when tested in accordance with Appendix 13. Also, due consideration should be given to insulation of steel machinery space boundaries where contiguous with accommodation, stores or other fire risk/sensitive spaces.

- 14.2.2 Aluminium construction:
- 14.2.2.1 Vessels constructed in aluminium should be insulated in way of the hull, bulkheads and deck boundaries in machinery spaces and areas of high fire risk to B-15 standard and prevent the passage of smoke and flame for 15 minutes when tested in accordance with the procedure shown in the IMO International Code for application of Fire Test Procedures⁶⁸, FTP Code Annex 1 Part 3.
- 14.2.2.2 Where insulation is fitted to provide an equivalent level of fire protection, the insulation should be fitted to the hull, bulkheads and decks in their entirety and need not be fitted on the hull sides lower than 300mm below the waterline.
- 14.2.2.3 Insulation that has been approved to meet A-15 standards (with steel) will be considered to meet this standard.
- 14.2.2.4 Builders of aluminium vessels should pay particular attention to areas of the hull / decks / bulkheads where high heat items pass through (e.g. exhaust outlet) that may lead to cracking or hardening of the structure due to the increased ambient temperature which leads to changes to the structure on a molecular level.
- 14.2.2.5 It is known that painting aluminium can lead to problems with pitted corrosion below the paint.
- 14.2.3 Fibre Reinforced Plastic (FRP) Construction:
- 14.2.3.1 Vessels constructed in FRP should have hull, bulkheads and deck boundaries in machinery spaces and other high risk fire areas that prevent the passage of smoke and flame for 15 minutes and tested in accordance with the procedure shown in the IMO International Code for application of Fire Test Procedures⁶⁹, FTP Code Annex 1 Part 3; except that in para. 3.3, for load bearing divisions, the structural core temperature should not exceed the heat deflection temperature (HDT) of the resin in the laminate; and that in para. 3.5.1 this does not have to be a non-combustible material).
- 14.2.3.2 Where insulation is fitted to provide an equivalent level of fire protection, the insulation should be fitted to the hull, bulkheads and decks in their entirety and need not be fitted on the hull sides lower than 300mm below the waterline.
- 14.2.3.3 Fire resistance of FRP may be achieved by the use of woven roving glass layers or additives, which must be added strictly in accordance with the manufacturer's requirements, to the resin. Intumescent polyester, epoxy, vinyl ester or phenolic resin surface coatings may also be used provided that it can be demonstrated that the coating can protect the structural integrity of the bulkhead or structure. Solvent borne intumescent paints are not acceptable.

⁶⁸ IMO International Code for application of Fire Test Procedures, 2010, Resolution MSC.307(88)

⁶⁹ IMO International Code for application of Fire Test Procedures, 2010, Resolution MSC.307(88)

- 14.2.3.4 Refer to MCA guidance on fire testing of structural boundaries for use with composite and wooden construction⁷⁰.
- 14.2.3.5 The Certifying Authority may waive the requirement for the testing described in 14.2.3.1 and 14.2.3.4 if the construction complies with the equivalent standard provided in Appendix 9 (Fire Test).
- 14.2.3.6 Where insulation is fitted to provide an equivalent level of fire protection to that required in section 14.2.3.1, 14.2.3.4 or 14.2.3.5 the insulation need not be fitted lower than 300mm below the waterline. It should be noted that insulation approved by the Administration as satisfying the requirements of an "A" or "B" Class division for the construction material, and division scantlings, will exceed these requirements.
- 14.2.3.8 Alternative Arrangements
- 14.2.3.8.1 Where it is not possible for the vessels described in 14.2.3.1 to meet the fire test prescribed in FTP Code (see Standards Appendix 13), or those vessels described in 14.2.3.4 or 14.2.3.5 to meet an equivalent level of fire protection, such vessels may be fitted with insulation which provides an equivalent level of fire protection to the machinery space boundaries. Insulation that has been approved to meet A-15 standards (with steel) will be considered to meet this standard. The insulation need not be fitted lower than 300mm below the light waterline on the hull sides. Where insulation is required for FRP structure, if an A-15 equivalent standard is required an acceptable alternative is Annex 1 Part 11 of the FTP Code 2010 – Test for fire resisting divisions for HSC. Acceptable insulations will have the notation of 'Fire-resisting divisions 60'. The approval shall state the orientation of the division and whether the division is load bearing or non-load bearing. The insulation need not be fitted lower than 300mm below the light waterline on the hull sides.
- 14.2.3.9 The use of intumescent materials is not acceptable for use as 'A' Class insulations for the following reasons:
- their performance under smoke and toxicity tests within the FTP Code, and the knock-on effect this might have on escape and abandonment;
 - they may not be non-combustible;
 - they intumesce at temperatures in excess of the mean temperature limitation of 139°C. This temperature could be considerably exceeded before they became effective;

⁷⁰ "A metallic bulkhead conducts heat very well, and the main reason for the fitting of structural fire protection is to stop the spread of fire from one compartment to the next. It is worth remembering that (aluminium aside) the survival of the structure is not of primary concern. However, where wood and composites are concerned, the opposite is true. In this case, the structure is an insulator. The downside of these materials is that they have relatively poor structural response to heat. It is for this reason that insulation is required to be fitted to these structures. So in effect, we are not concerned with spread of fire through conduction, more with the collapse of the structure. In this regard, assuming that the structure has been sufficiently protected to ensure no collapse we are then interested to know what represents a 'worst case' thermally for the bulkhead."

- they may lose their intumescent properties in spaces having high ambient temperatures such as machinery spaces or in low temperature fires;
- there is no guarantee that the materials would intumesce at any stage during the life of a ship and there is no means of knowing if materials have lost their ability to intumesce;
- they are unrecognisable from ordinary paints and coatings and any deteriorating material may be removed and inadvertently replaced by an ordinary paint or coating;
- they may deteriorate unknowingly in concealed spaces; and
- they may be affected by water or hydrocarbons.

14.2.4 Wood Construction: Machinery space boundaries should have an equivalent level of fire protection when compared to FRP construction.

14.2.5 For multi-hull vessels with separate machinery spaces, each space can be considered separately in interpretation of total installed power provided that any common connecting service duct is fitted with a structural fire barrier to prevent the passage of smoke and flame in either direction for a period of 15 minutes.

14.2.6 Vessels that carry Dangerous Goods should note section 29.3.2 and 29.4.3.

14.3 Insulation

14.3.1 Thermal or acoustic insulation fitted inside the machinery space should be of non-combustible material.

14.3.2 The thermal or acoustic insulation will be considered as being a non-combustible material if it complies with BS EN ISO 4589 Part 3, and the material has an Oxygen Index greater than 21, or if it fulfils the requirements of Appendix 10 or the IMO International Code for application of Fire Test Procedures (FTP Code 2010), Part 1, Non Combustibility Test (see Appendix 13).

14.3.3 Insulation should be protected against impregnation by flammable vapours and liquids. Where insulation is cut, the edges should be protected against such impregnation, e.g. by the use of non-combustible tape. Where the insulation is vulnerable to damage it should be protected.

14.4 Cleanliness and Pollution Prevention

14.4.1 Provision should be made to retain any oil leakage within the confines of the machinery space.

14.4.2 In a vessel constructed of wood, measures should be taken to prevent absorption of oil into the structure.

14.4.3 When it is impracticable to fit a metal drip tray in way of the engine, the use of the engine bearers as a means of containment of the oil may be accepted when they are of sufficient height and have no limber holes.

Provision should be made for the clearing of spillage and drainage collected in the machinery space.

14.4.4 Efficient means should be provided to ensure that all residues of persistent oils are collected and retained on-board for discharge to collection facilities ashore. Reference should also be made to section 28, Pollution Prevention

14.4.5 The machinery space should be kept clean and clear of oily waste, except when oily waste kept in a dedicated stowage tank.

14.4.6 Where petrol engines are carried on board, reference should be made to section 7.3

14.5 Open Flame Appliances and Gas Installations

14.5.1 Open flame gas appliances provided for cooking, heating or any other purposes, should comply with the requirements of EC Directive 2009/142/EC⁷¹ ("Council Directive of 30 November 2009 on the approximation of the laws of the Member States relating to appliances burning gaseous fuels"), so far as the requirements of the Directive apply to any particular appliance, and be suitable for marine use and installation in boats.

14.5.2 Installation of a gas appliance should be in accordance with a recognised standard listed in the Standards Appendix 13, or equivalent, and Appendix 5 - Gas Installations.

14.5.3 Materials which are in the vicinity of open flame cooking or heating appliances should be non-combustible, except that these materials may be faced with any surface finish having a Class 1 surface spread of flame rating when tested in accordance with a recognised standard, see Standards Appendix 13.

14.5.4 Combustible materials, and other surfaces, which do not have a surface spread of flame rating, should not be left unprotected within the following distances of a standard cooker:

- .1 400mm vertically above the cooker, for horizontal surfaces, when the vessel is upright;
- .2 125mm horizontally from the cooker, for vertical surfaces.

14.5.5 Curtains, or any other suspended textile materials, should not be fitted within 600mm of any open flame cooking, heating or other appliance.

14.5.6 With regard to section 14.5.4 and 14.5.5 above, ISO 9094 will be considered as acceptable. See Appendix 13.

14.5.7 Where open flame cooking or heating appliances are installed in or adjacent to accommodation areas, efficient carbon monoxide (CO) detector(s) should be fitted. It is strongly recommended that CO detection is provided in accommodation and other accessible spaces

⁷¹ 2009/142/EC "the Gas Appliances Directive" was replaced by 2016/426/EC "the Gas Appliances Regulation" on 21/4/18

where there is a possibility of exhaust gas penetration in the event of an exhaust leak.

- 14.5.8 Newly installed gas installations should be inspected by a 'Gas Safe Marine' qualified technician (or equivalent if outside the UK) and issued with a safety certificate. It is strongly recommended that such inspections are carried out annually on all gas installations.

14.6 Liquid Fuelled Galley Cookers and Heating Appliances

- 14.6.1 The space within which a (diesel) heater installation is fitted should be treated as an area of risk from fire. The heater should preferably be located in the machinery space, if the heater is not located in the machinery space there should be capability to discharge extinguishing medium into the space without entering the space. There should be a procedure in place to avoid asphyxiation of personnel especially if it is in an accommodation space.

- 14.6.2 Diesel is the only fuel with a flashpoint under 60deg C which is permitted for use in cookers or heating appliances. The use of petrol is not permitted for cookers or heating appliances.

- 14.6.3 Fuel tanks shall not be fitted in spaces which contain heating appliances.

- 14.6.4 Fuel pipes for Liquid Fuelled Galley Cookers and Heating Appliances should comply with sections 7.4.4 to 7.4.12.

- 14.6.5 The supply of oil shall be capable of being controlled outside that space (i.e. a remote operated valve should be fitted).

- 14.6.6 Cookers and heaters should be installed and any modifications made in accordance with the instructions supplied by the appliance manufacturer and in conformity with this section. In addition heaters should be designed and constructed to meet the following general requirements:

- be suitable for marine use;
- be able to operate at angles of 15 degrees in any direction;
- have overheat control devices;
- have a flame failure device if the fuel supply is pressurized, unless it is a wick type burner.

- 14.6.7 Heaters and their exhaust systems should be installed outside spaces where flammable vapours can accumulate.

- 14.6.8 Exhaust systems should be installed in accordance with appliance manufacturers' guidance and such that the surrounding structure is suitably protected from it and arranged to allow the required dissipation of heat.

- 14.6.9 Design and installation of the appliance should consider the use in the marine environment, for example vibration, vessel movements, temperatures, humidity and corrosion.

- 14.6.10 Appliances operating controls should be located to be accessible, and to minimise possible injury from burners when not in use.
- 14.6.11 Heaters should be installed so that the outgoing products of combustion pass through sealed ductwork terminating outside the vessel.
- 14.6.12 Where user awareness for the safe operation of an appliance is required, a durable, permanently legible sign covering the operation, including refuelling procedure if applicable, and any unique hazards involved with its use, shall be provided on it in the immediate vicinity.
- 14.6.13 Where liquid fired cooking or heating appliances are installed in or adjacent to accommodation areas, efficient CO detector(s) should be fitted. It is strongly recommended that CO detection is provided in accommodation and other accessible spaces where there is a possibility of exhaust gas penetration in the event of an exhaust leak.
- 14.6.14 Reference should be made to Appendix 5.B and Appendix 13.

14.7 Furnishing Materials

- 14.7.1 Combustion Modified High Resilient (CMHR) foams should be used in upholstered furniture and mattresses.
- 14.7.2 Upholstery covering fabrics should satisfy the cigarette and butane flame tests of a recognised standard see Appendix 13, or see Appendix 10, or equivalent.

14.8 Fire Detection

- 14.8.1 In all vessels efficient fire detectors should be fitted in the machinery space(s), galley areas and spaces containing heaters or open flame devices, areas of concentrated electrical equipment and other areas at risk from fire.
- 14.8.2 On any vessel, where an area is identified by the Certifying Authority as posing a fire risk to either passengers, industrial personnel or crew (e.g. sleeping accommodation), fire detection equipment shall be installed to protect that area.
- 14.8.3 The fire detectors should be appropriate to the hazard identified and should give an audible warning that can be heard in the space concerned, and in the control position, when the vessel is in operation. Fire detectors in machinery spaces should detect smoke and heat, or flame.
- 14.8.4 Efficient fire detectors may be required in order to comply with section 14.9.3.
- 14.8.5 CO detection is not required when heating or cooking is undertaken using electrical cookers or heaters. It is strongly recommended that CO detection (with audible alarm) is provided in accommodation and other accessible spaces where there is a possibility of exhaust gas penetration in the event of an exhaust leak. See Appendix 13. Additional CO detection should be installed as per 14.5.7 and 14.6.13.

14.9 Means of Escape

- 14.9.1 Two means of escape should be provided in;
- .1 accommodation spaces used for sleeping or rest; and
 - .2 other accommodation spaces affected by a fire risk; and
 - .3 machinery spaces affected by a fire risk except;
 - .1 those spaces visited only occasionally, or unmanned during normal operation, and where the single access gives ready escape, at all times, in the event of fire; or
 - .2 those spaces where any person entering, and moving about the space, is within 5 metres of the single entrance, at all times.
- 14.9.2 The means of escape should be such that a single hazardous event will not cut-off both escape routes. Only in the exceptional case, such that the overall safety of the vessel would be diminished, should means of escape contrary to section 14.9.1.1, 14.9.1.2 or 14.9.1.3 be accepted.
- 14.9.3 In the exceptional case where a single means of escape from accommodation spaces is accepted, efficient fire detectors should be provided, as necessary, to give early warning of a fire emergency which could cut off that single means of escape. Such detection should be located in the escape route and also in the spaces of high fire risk e.g. machinery and galley as appropriate. The alarm should be clearly audible in the accommodation space with cabin door(s) closed and under normal maximum ambient noise conditions. Detection in galley areas should be by heat detectors sited as close as practicable to the potential source of fire.
- 14.9.4 Means of escape should be clearly marked for their purpose on both sides, and the function of each escape route demonstrated by practical tests to the satisfaction of the Certifying Authority.
- 14.9.5 When considering a means of escape, 5.2.1.4 should also be considered.
- 14.9.6 When carrying dangerous goods (section 29) owners / managing agents / masters should ensure ready means of escape and means of safe access to survival craft in the event of a fire / explosion when carrying dangerous goods, under the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No. 2367), as amended.

14.10 Fire and Safety Plan

- 14.10.1 For complex workboats (those required to have a Stability Information Booklet or with a total installed power >750kW) it is recommended that a fire control and safety (general arrangement) plan(s) is prominently displayed on the vessel for the guidance of the Master and crew of the vessel. The content of the plan(s) should adequately show and describe

the principal fire prevention appliances, detection and protection equipment and materials, it should show the number, positions of stowage of the life-saving equipment, means of access and emergency escapes for compartments and decks, locations and means of control of systems and openings which should be closed down in a fire emergency.

- 14.10.2 As far as practical, symbols used on the plans should comply with a recognised international standard.
- 14.10.3 The plan(s) should be kept up to date.
- 14.10.4 Owners / managing agents should be aware that some foreign flag administrations may also require this plan to be verified by the Certifying Authority.

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15 Fire Appliances

15.1 General

15.1.1 A vessel should be provided with efficient fire fighting equipment in accordance with this section. All portable fire extinguishers are to be serviced, by a competent person in accordance with the servicing intervals in Table 1 of MGN 276 (M+F)⁷². All other fire appliances are to be maintained in accordance with the manufacturers' requirements.

15.1.2 Except where there is a risk of an electrical fire, portable carbon dioxide fire extinguishers should not be located or provided for use in accommodation spaces where the user or occupants may be affected by their use or leakage. Safety considerations should be given to the volume of carbon dioxide that could be released.

15.1.3 Where dangerous goods are carried or transfer of cargoes is undertaken in accordance with Chapter 29, refer to 29.6.2.

15.2 Vessels Less Than 6 Metres in Length Operating in Area Cat 6

15.2.1 In a vessel of less than 6 metres in length, which is not fitted, or is only partially fitted, with a watertight weather deck, and with no cooking appliances, a single extinguisher capable of discharging into the machinery space is to be fitted. The extinguisher should be suitably sized for the machinery space, but be a minimum of 34B.

15.3 Open Vessels, Inflatable Boats and Boats with a Buoyant Collar up to 8 Metres in Length Not Fitted with a Substantial Enclosure.

15.3.1 An open vessel, inflatable boat or boat with a buoyant collar, up to 8 metres in length, not fitted with a substantial enclosure, with no cooking appliances, should be fitted with a minimum of two fire extinguishers, each with a minimum rating of 5A/34B.

15.4 Vessels Less than 15 Metres in Length, and Carrying 15 or Fewer Persons, Not Covered by Sections 15.2 or 15.3

15.4.1 Vessels less than 15 metres in length, and carrying 15 or fewer persons, not covered by sections 15.2 or 15.3 should be fitted with;

- .1 a power driven self-priming fire pump(s)*, in a suitable arrangement which ensure that the fire main pressure and fire main availability can be maintained following the loss of an individual machinery space. It should be fitted with sea and hose connections, capable of delivering one jet of water to any part of the ship through hose and nozzle, and one fire hose of adequate length with a 10mm nozzle and a suitable spray nozzle. Fitment of a power driven pump is considered current best practice.

⁷²MGN 276 (M+F) – “Maintenance of Portable Fire Extinguishers”.

- .2 In lieu of 15.4.1.1 one hand fire pump (outside machinery space under consideration)* may be fitted, with sea and hose connections, capable of delivering one jet of water to any part of the ship through hose and nozzle, and one fire hose of adequate length, with a 10mm nozzle, and a suitable spray nozzle; or
 - .3 where the machinery space is less than 120kW installed power and the engine is powered by diesel, one multi-purpose fire extinguisher sized appropriately and to a recognised standard, see Appendix 13, may be fitted adjacent to the main entrance to each machinery space and for those vessels with an engine casing arrangement they should be arranged to discharge into the machinery space(s) through a fire port, with a minimum fire rating of 13A/113B, or a number of smaller extinguishers, giving the equivalent fire rating, in addition to that required in 15.4.2 below;
- 15.4.2 Not less than one multi-purpose fire extinguisher to a recognised standard, see Appendix 13, with a minimum fire rating of 5A/34B, provided at each exit from accommodation spaces to the open deck. In no case should there be less than two such extinguishers provided.
- 15.4.3 At least two fire buckets with lanyards long enough to reach the sea from the weather deck. Buckets may be of metal, plastic or canvas and should be suitable for their intended service.
- 15.4.4 One fire blanket of a recognised standard, see Appendix 13, in the galley or cooking area, where a fire risk can be identified.
- 15.5 Vessels of 15 Metres or More in Length, or Carrying 16 or More Persons**
- 15.5.1 Vessels of 15 metres or more in length, or carrying 16 or more persons should be fitted with;
- .1 a power driven self-priming fire pump(s)*, in a suitable arrangement which ensure that the fire main pressure and fire main availability can be maintained following the loss of an individual machinery space. It should be fitted with sea and hose connections, capable of delivering one jet of water to any part of the ship through hose and nozzle, and one fire hose of adequate length with a 10mm nozzle and a suitable spray nozzle. Fitment of a power driven pump is considered current best practice.
 - .2 In lieu of 15.5.1.1 one hand fire pump (outside machinery space under consideration) may be fitted, with sea and hose connections, capable of delivering one jet of water to any part of the ship through hose and nozzle, and one fire hose of adequate length with a 10mm nozzle and a suitable spray nozzle; or
 - .3 where the machinery space is less than 120kW installed power and the engine is powered by diesel, not less than two multi-purpose fire extinguishers sized appropriately and to a recognised standard, see Appendix 13, may be fitted outside each machinery space, each with a minimum fire rating of

13A/113B, or a number of smaller extinguishers giving the equivalent fire rating, in addition to that required in 15.5.2 below;

Note: * This may be one of the pumps required by Section 10 (Bilge Pumping), where two power pumps are fitted, when fitted with a suitable change over arrangement which is readily accessible. Such arrangement should not compromise the ability to remove accumulated fire extinguishing water from any space that could be detrimental to the vessel's stability or essential services, nor allow contaminated bilge water to be accidentally applied to a fire via the fire main. Where a dedicated power driven fire pump is fitted the fire main pressure and fire main availability must be maintained following the loss of an individual machinery space.

15.5.2 Not less than two multi-purpose fire extinguishers to a recognised standard, see Appendix 13, with a minimum fire rating of 13A/113B.

15.5.3 One fire blanket of a recognised standard, see Appendix 13, in galley or cooking area, where a fire risk is identified.

15.6.1 Provision for Fire Extinguishing in Machinery Spaces

15.6.1.1 Fire extinguishing, suitable for the volume of the machinery space, should be provided for vessels fitted with inboard engines. A person should not be required to enter the machinery space in order to extinguish a fire.

15.6.2 Portable Fire Extinguishers

15.6.2.1 The means of compliance with 15.6.1 may consist of a portable extinguisher suitably sized for the space being protected and arranged to discharge into that space. An additional extinguisher or one of the multi-purpose fire extinguishers required in 15.2, 15.3, 15.4 or 15.5, can also be the extinguisher required for discharge into the engine space, providing it is a suitable type (B), and suitably sized and stowed in a location appropriate to its dual use.

15.6.3 Fixed Fire Extinguishing Systems

15.6.3.1 When a fixed fire extinguishing system, which is not a portable extinguisher described in 15.6.2.1, is installed in a machinery space, it should be an MCA, or equivalent, approved type appropriate to the space to be protected, and be installed and maintained in accordance with the manufacturer's requirements.

15.6.3.2 The requirements for fixed fire extinguishing installations are detailed in the Merchant Shipping (Fire Protection – Small Ships) Regulations 1998 (SI 1998 No. 1011), as amended, and the "Fire Protection Arrangements" of the MCA Instructions for the Guidance of Surveyors⁷³, as amended.

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292107/msis012ch7rev1012.pdf

Further requirements for the installation of fixed fire fighting systems can be found in MSN 1666 (M)⁷⁴, as amended⁷⁵.

15.6.3.3 Fixed installations in machinery spaces covered by the references are;

- .1 medium expansion foam;
- .2 high expansion foam;
- .3 carbon dioxide⁷⁶;
- .4 pressure water spraying;
- .5 vaporising fluids (hydrofluorocarbons - HFCs); and
- .6 aerosols (solid pyrotechnic type).

15.7 Informative Notes

15.7.1 Multi-purpose fire extinguishers have a capability to deal with both Category A fires involving solid materials, and Category B fires involving liquids or liquefiable solids, and may be marked with the multipurpose rating, e.g. 13A/113B in section 15.4.1 above; and 5A/34B in section 15.4.2 above.

15.7.2 BS EN 3 is the MCA accepted national standard for- portable fire extinguishers.

15.7.3 BS EN 3 allows a zone of colour of up to 5% of the external area of the extinguisher body to be used to identify the extinguishing agent. Manufacturers have complied with this by printing the operating instructions in the appropriate extinguishing agent colour.

15.7.4 Manufacturers producing extinguishers certified and marked to BS EN 3 cannot revert to the colour schemes contained in the withdrawn BS 5423:1987. Owners of vessels must not overpaint red BS EN 3 extinguishers to the "old" colours.

15.7.5 EC Regulation 1059/2009, as amended, on ozone depleting substances prohibits the sale and use of Halons, including material that has been recovered or recycled. Therefore, no fire fighting equipment containing Halons must be placed on board any vessel. Marine Guidance Note MGN 191 (M+F) – "Use of Halon for Fire Extinguishing on Board Ships", provides further information.

⁷⁴ MSN 1666 (M)– "The Merchant Shipping (Fire Protection) Regulations 1998: Fixed fire detection alarm and extinguishing systems

⁷⁵ Amended by MSN 1733 (M) – "The Merchant Shipping (Fire Protection) (Amendment) Regulations 1999

⁷⁶ MGN 354 (M+F) – "Fishing and Small Vessels – Safe Operation of Fixed CO₂ Gas Fire Extinguishing Systems" provides further guidance.

16 Radiocommunications Equipment

16.1 All new vessels should comply with Section 16 – Radiocommunications Equipment in full. It is recommended that existing vessels comply with this section where practicable. For details on the standards, see Appendix 13.

16.2 The Global Maritime Distress and Safety System (GMDSS)

16.2.1 Unless otherwise stated in 16.2.2, each vessel should carry sufficient radio communications equipment⁷⁷ to perform the following distress and safety communications functions throughout its intended voyage:

- .1 Provide for the safety of the vessel by:-
 - i) transmitting ship-to-shore distress alerting by two independent means at least one of which is primary;
 - ii) transmitting ship-to-ship distress alerting;
 - iii) transmitting and receiving on-scene communications, including appropriate search and rescue co-ordinating communications; and
 - iv) transmitting locating signals;
- .2 Assist other vessels in distress by:-
 - i) receiving shore-to-ship distress alerting; and
 - ii) receiving ship-to-ship distress alerting; and
- .3 Receive navigational and meteorological warnings and urgent safety information (Maritime Safety Information (MSI)).

16.2.2 Exceptions to 16.2.1 are;

- .1 Where a vessel with an area of operation category 4, 5 or 6 can reliably obtain up to date navigation and weather information by other means it does not need to be able to receive MSI by a GMDSS compatible means. See also 19.4.1.
- .2 A vessel with area of operation category 6; because of its limited safety equipment, is only anticipated to provide assistance in local distress events, regardless of Sea Area may have a reduced functionality in 16.2.1.2.ii and 16.2.1.1.iii.
- .3 A vessel with area of operation category 6, where the visual means of distress alerting or another non-GMDSS is considered effective a second means of transmitting ship to shore distress alert in Sea Area A1 is not required.

⁷⁷ Radio equipment placed on the market under the Radio Equipment Directive (RED), 2014/53/EU, or Marine Equipment Directive (MED), may be installed. Appendix 13 identifies the minimum acceptable standards applicable to R&TTE equipment and the equipment type reference found on the MED approval certificate of MED equipment. The Radio Equipment Directive (RED), 2014/53/EU, replaced the R&TTE and some of the standards identified may no longer be valid. A Marine Guidance Note, providing further guidance, and replacing those R&TTE standards in Appendix 13, will be published. Where suitable equipment is not available on the market under the RED Directive, equipment with a current valid MED Approval certificate should be installed.

16.3 Radio Installation

16.3.1 Vessels should be fitted with the minimum radio equipment for the GMDSS Sea Area in which the vessel will operate, which fulfils the functional requirements specified in section 16.2.1. A chart of GMDSS Sea Areas around the UK can be found in Appendix 1. Where the vessels operational area changes the radio fitment should be reviewed by the Certifying Authority. The vessels Sea Area should be noted on the Workboat Certificate (see section 16.11). The GMDSS Sea Areas⁷⁸ are defined as follows:

- .1 “GMDSS Sea Area A1” means an area within the radio telephone coverage of at least one VHF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government;
- .2 “GMDSS Sea Area A2” means an area, excluding GMDSS Sea Area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government;
- .3 “GMDSS Sea Area A3” means an area, excluding GMDSS Sea Areas A1 and A2, within the coverage of an Inmarsat geostationary satellite in which continuous alerting is available.
- .4 “GMDSS Sea Area A4” means an area outside GMDSS Sea Areas A1, A2 and A3.

16.3.2 Further information on GMDSS Sea Areas worldwide may be found in the Admiralty List of Radio Signals, Volume 5.

16.3.3 VHF transmission and reception ranges are reliable only within the line of sight ranges of the aerials (see the MCA’s Marine Guidance Note MGN 324⁷⁹, as amended). Owner/Operator reminded that vessel should only operate within reliable range of GMDSS VHF shore stations. For small vessels or someone using a portable radio this is likely to be much less than 60 nm from land / Coast Radio station and the area implied on Sea Area A1 coverage Map shown in Appendix 1. See section 16.8.1 and MGN324, as amended, VHF Range diagrams. Iridium satellite phones do not fulfil GMDSS requirements.

16.3.4 Aerials should be mounted as high as is practicable to maximise performance. When the main aerial is fitted to a mast, which is equipped to carry sails, an emergency aerial should be provided.

16.3.5 Masters, owners and managing agents should be aware of VHF coverage in the intended area of operation. Where the certainty of good VHF coverage in the UK coastal area is in doubt, Masters owners and managing agents should seek advice from the MCA on whether Medium Frequency (MF) or other equipment with long range transmission capability should be carried. (i.e. Mobile Satellite Communications Systems, etc.).

⁷⁸Defined in SOLAS Chapter IV, Regulation 2.

⁷⁹ MGN 324(M+F) Amendment 1 Navigation: Watchkeeping Safety – Use of VHF Radio and AIS

16.3.6 A fixed radio installation should be clearly marked with the vessel's call sign, any other codes applicable to the use of the radio, and a Maritime Mobile Service Identity (MMSI). A card or cards giving a clear summary of the radio distress, urgency and safety procedures should be displayed in full view of the radio operating position(s).

16.3.7 Brief and clear operating instructions should also be provided for the portable VHF Radio required by section 13.6 and Table 13.1.

16.4 Operational Performance

16.4.1 All radio communication equipment should be of a type which is approved by the relevant authority. See footnote to section 16.2.1.

16.5 Installation

16.5.1 All radio installations should:

- .1 be so located to ensure the greatest possible degree of safety and operational availability;
- .2 be protected against the harmful effects of water, extremes of temperature and other adverse environmental conditions;
- .3 be clearly marked with the call sign, the vessel station identity, MMSI number where applicable and any other codes applicable to the use of the radio installation.

16.6 Sources of Energy

16.6.1 When the electrical supply to radio equipment is from a battery, charging facilities (which are capable of recharging batteries to minimum capacity requirements within 10 hours) or a duplicate battery of capacity sufficient for the voyage should be provided.

16.6.2 The battery electrical supply to radio equipment should be protected against flooding/swamping as far as practicable and arranged so that radio communications are not interrupted in adverse conditions. When the efficiency of the required protection against flooding/swamping cannot be guaranteed with batteries located below the freeboard deck, an efficiently protected battery electrical supply to the radio equipment should be provided above the freeboard deck.

16.6.3 When fully charged, the batteries should provide at least the minimum required hours of operation to ensure effective use of the GMDSS installation.

16.6.4 See also 8.8.2 and 8.8.4.

16.7 Test and maintenance

16.7.1 Radio equipment required under this code should be tested and confirmed as working normally before departure and on a routine basis while at sea, except for non-rechargeable portable equipment with fixed batteries; these must be tested according to the manufacturer's instructions. Equipment

should be maintained according to manufacturer's instructions. A record should be kept of tests and maintenance.

16.8 Carriage Requirements by GMDSS Sea Area

For information: A vessel operating around the UK coast and more than 20 n. miles from a safe haven will generally need to carry A1 and A2 equipment.

16.8.1 Area of operation: category 0, 1, 2, 3 and 4

	<i>Equipment</i>	GMDSS Sea Area			
		<i>A1</i> ⁸⁰	<i>A1+A2</i>	<i>A1+ A2+A3</i>	<i>A1+ A2+ A3+A4</i>
1	Fixed VHF radio installation with DSC	1	1	1	1
2	VHF Channel 70 DSC watch installation ⁸¹	1	1	1	1
3	MF radio installation with DSC		1 or		
4	INMARSAT – C or mini-C with Enhanced Group Call (EGC) ⁸²		1 or	1 or	
5	MF/HF radio installation with DSC with Narrow Band Direct Printing (NBDP)		1	1	1
6	EPIRB ⁸³	1 ^{Note A}	1	1	1
7	NAVTEX receiver	1 ^{Note B}	1	1	1

1 = Number required to be fitted.

Note A = This is recommended only in Sea Area A1 on category 3 and 4 operations where visual or other non-GMDSS means of alerting is considered to be ineffective.

Note B = This is recommendatory only in Sea Area A1 on category 4 operations, noting section 19.4.1 and that the vessel should be on a voyage of <12 hours, outside this duration a NAVTEX should be fitted.

⁸⁰ Sea Area A1 is defined by the ability of the vessel to make a VHF DSC distress alert to a coast station. The range of VHF communications depends upon antenna height and transmitted power. The extent of A1 describe in ALRS and others is based upon the vessel having a 25W fixed VHF DSC radio installation and an antenna 4m above sea level. The range is likely to be less for a portable radio or an antenna <4m above sea level. It is up to the vessel to ensure that the VHF distress alert to a coast station is continuously available. A vessel may be 3 nm from shore, but 20nm from the coast station receiving antenna.

⁸¹ This may be part of the fixed VHF equipment item 1

⁸² Note the general requirement in 16.2.1 for MSI

⁸³ Maybe fulfilled by EPIRB carried as part of LSA requirement.

16.8.2 Area of operation: category 5

	Equipment	GMDSS Sea Area			
		A1	A1+A2	A1+ A2+A3	A1+ A2+ A3+A4
1	Fixed VHF radio installation with DSC	1	1	1	1
2	VHF Channel 70 DSC watch installation ⁸⁴	1	1	1	1
3	MF radio installation with DSC		1 or		
5	INMARSAT – C or mini-C with EGC		1 or	1 or	
6	MF/HF radio installation with DSC with NBDP		1	1	1
7	PLB ⁸⁵	R or R	1 or		
8	EPIRB		1	1	1
9	NAVTEX	C1	C1	C1	C1
10	INMARSAT – C or mini-C with EGC		C1	C1	C1

C1= A carriage requirement where up to date navigation and weather information cannot be reliably obtained by other means as noted in 16.2.2.1. The vessel should be on a voyage of <12 hours, outside this duration a NAVTEX should be fitted.

R= Recommended for category 5 operations where visual or other non-GMDSS means of alerting is considered to be ineffective e.g. if a vessel is working in bays with high cliffs that may impede the operation of the VHF.

16.8.3 Area of operation: category 6

	Equipment	GMDSS Sea Area			
		A1	A1+A2	A1+ A2+A3	A1+ A2+ A3+A4
1	Portable VHF DSC radio	1 or	1 or	1 or	1 or
2	Fixed VHF radio installation with DSC	1	1	1	1

⁸⁴ This may be part of the fixed VHF equipment item 1

⁸⁵ A 406MHz Personal Locator Beacon with GPS which is buoyant and waterproof to a depth of 5m and designed for marine use.

3	VHF Channel 70 DSC watch installation ⁸⁶	1	1	1	1
4	PLB ⁸⁷ or EPIRB	C2	1	1	1
5	NAVTEX	C1	C1	C1	C1
6	INMARSAT – C or mini-C with EGC		C1	C1	C1

C1=Recommended where up to date navigation and weather information cannot be reliably obtained by other means as noted in 16.2.2.1. Note, if NAVTEX satisfies the requirement, then an Inmarsat terminal 6 is not required.

C2= Recommended where visual or other non-GMDSS means of alerting is considered to be ineffective.

16.9 Radio Watches⁸⁸

16.9.1 A vessel, while at sea, should maintain a continuous radio watch:

- .1 where practicable, on VHF Channel 16;
- .2 where practicable, on VHF Channel 13;
- .3 on VHF Digital Selective Calling (DSC), on Channel 70;
- .4 if fitted with a MF/HF DSC radiotelephone, on distress and safety DSC frequency 2187.5kHz;
- .5 for satellite shore-to-ship distress alerts, if fitted with a terminal for a recognised GMDSS satellite service⁸⁹; and
- .6 for broadcasts of Maritime Safety Information⁹⁰ on the appropriate frequency or frequencies on which such information is broadcast for the area in which the vessel is navigating; normally using the international NAVTEX service or an enhanced group call over a recognised GMDSS satellite service. (Further information may be obtained from the Admiralty List of Radio Signals, Volume 5.)

⁸⁶ This may be part of the portable or fixed VHF equipment items 1 or 2

⁸⁷ A 406MHz Personal Locator Beacon with GPS which is buoyant and waterproof to a depth of 5m and designed for marine use.

⁸⁸ For the most up to date guidance refer to ITU Radio Regulations 2016 and MGN 562 (M+F) Radio: Radio Regulations Amendments and GMDSS Radio Equipment Updates

⁸⁹ Recognised by the IMO under IMO Resolution A.1001(25) "Criteria for the Provision of Mobile Satellite Communications Systems in the Global Maritime Distress and Safety System (GMDSS).

⁹⁰ MGN 375 (M+F) – "Navigation: Maritime Safety Information (MSI)" provides guidance on the principle sources of relevant information.

16.10 Radio Personnel - Guidance

- 16.10.1 A vessel should carry at least one person qualified for distress and safety radio communication purposes, who should hold a certificate of competence acceptable to the relevant authority⁹¹.

16.11 Small Workboat Certification limits

- 16.11.1 A vessel should have its Small Workboat Certificate endorsed with the GMDSS Sea Area for which it carries equipment as a limiting area of operation. This includes those vessels phasing into the requirements.

16.12 Ships' Radio Licence - Guidance

- 16.12.1 *Owners/managing agents should be aware that a vessel with radio communications equipment on board is required to have a Ships' Radio Licence⁹² issued by the relevant authority.*

16.13 Ships Radio Survey

- 16.13.1 Owners / managing agents are recommended to undertake a survey (see MSIS 5⁹³) of the radio installation every 5 years, to ascertain that the equipment is in an effective condition, if the vessel has GMDSS radio equipment fitted. An organisation authorised by the Administration to perform a survey of code vessel radio equipment should be engaged for this. Upon successful completion of the radio survey a Statement of Compliance may be issued by the authorised organisation.

⁹¹ The issue and enforcement of these certificates of competency is the responsibility of OFCOM for UK vessels.

⁹² The issue and enforcement of these licences is the responsibility of OFCOM.

⁹³ MSIS 5 Instructions for the Guidance of Surveyors (Radio Installations on GMDSS Ships)

17 Navigation Lights, Shapes and Sound Signals

- 17.1 *A vessel should comply with the requirements of the Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996, (SI 1996 No. 75), as amended. A vessel which operates only between sunrise and sunset, and in favourable weather, is not required to carry navigation lights where it can be demonstrated that the vessel will not be caught in restricted visibility.*
- 17.2 *Sound signalling equipment should comply with the requirements of SI 1996 No. 75, as amended. A vessel of less than 12 metres in length is not obliged to carry the sound signalling equipment required by SI 1996, No. 75, provided that some other means of making an efficient sound signal is provided.*
- 17.3 *If it can be demonstrated to the Certifying Authority that, for a particular vessel, full compliance with the regulations is impracticable, then application should be made to the Administration via the Certifying Authority for consideration of equivalent arrangements, taking into account the nature of the operation of the vessel concerned.*
- 17.4 *Table 17.1 is a summary table of navigation lights, shapes and sound signalling appliances for vessels. This Table is for guidance only and does not cover all possible operations. Reference should be made to the regulations stated in section 17.1 for all operations not covered.*

TABLE 17.1 - Lights, shapes and sound appliances (see section 17.4)

Overall length	Power driven vessels when underway	At anchor ³	Not under command ⁶	Aground ⁸	Sound signalling appliances
Less than 7m	All round white + sidelights ^{1, 2}	Required ^{4, 5}	Not required	Not required	Means to make an efficient sound signal required
7m - 12m	All round white + sidelights ¹ OR Masthead (vis 2 miles) + sidelights ¹ + stern light OR (if lights have to be offset from centreline) combined lantern sidelights plus either all round white or masthead and stern light	Required ⁵	Not required	Not required	Means to make an efficient sound signal required
12m - 20m	Masthead (vis 3 miles) + sidelights + stern light	Required ⁵	Required ^{5, 7}	Required ^{5, 7}	Whistle required
20m - 24m	Masthead (vis 5 miles) + sidelights + stern light	Required	Required	Required	Whistle and bell required approved by UK nominated bodies

¹ Range of sidelight is 1 mile.

² Vessels not exceeding 7 knots maximum speed should show sidelights if practicable.

³ By night, all round white light where best seen; by day one black ball (0.6 metres in diameter) in the fore part.

⁴ Anchor light or day shape is not required when anchored not in or near a narrow channel, fairway or anchorage or where other vessels normally navigate.

⁵ Size of the daytime shapes and distances apart may be reduced commensurate with size of vessel.

- ⁶ *By night, two all round red lights in a vertical line two metres apart and the lowest not less than four metres above the hull (weatherdeck); by day two black balls (0.6 metres in diameters) in a vertical line, 1.5 metres apart. Vessels of less than 12 metres in length, except those engaged in diving operations, shall not be required to exhibit the lights and shapes prescribed.*
- ⁷ *The distances for the lights may be reduced to one metre apart and two metres above the hull (weather deck).*
- ⁸ *By night two all-round red lights in a vertical line 2 metres apart plus anchor light; by day three black balls (0.6 metres diameter) in a vertical line, 1.5 metres apart. A vessel of less than 12 metres in length, when aground, shall not be required to exhibit the lights or shapes prescribed.*

Notes

- a Sidelights, stern light and all round lights have range of 2 miles unless indicated otherwise.*
- b Range of all-round white or anchor or Not Under Command lights is 2 miles in all cases.*
- c Lights (and whistles and bells when they are required to be carried) must be suitable for the associated range of light, vessel size and type (together with its modes of operation), on which they are fitted.*
- d For vessels engaged in other activities i.e. towing, pilotage, attention should be paid to requirements for lights and shapes arrangements.*
- e In the case of open boats, vertical heights should be measured from gunwale, and in the case of inflatable boats, or boats fitted with a buoyant collar, from the top of the collar or tubes.*

18 Navigational Equipment

18.1 Compass

18.1.1 A vessel should be fitted with an efficient magnetic compass, or other means independent of the main power supply, for determining and displaying heading, as well as means of correcting heading and bearings to true at all times (e.g. a valid deviation card). Magnetic compasses should be properly adjusted and in a steel vessel it should be possible to correct a magnetic compass for coefficients B, C and D and heeling error.

18.1.2 Each magnetic compass should be properly adjusted and its deviation card available at all times. Magnetic compasses should be adjusted when:

- .1 they are first installed;
- .2 they become unreliable;
- .3 the vessel undergoes structural repairs or alterations that could affect its permanent and induced magnetism;
- .4 electrical or magnetic equipment close to the compass is added, removed or altered; or
- .5 a period of two years has elapsed since the last adjustment and a record of actual compass deviations has not been maintained, or the recorded deviations are excessive or when the compass shows physical defects.

It is strongly recommended that a 'Compass Error' record is maintained with regular compass errors taken and fully recorded as a proper record of the compass' reliability where the compass is not swung in accordance with the requirements.

18.1.3 Vessels operating in Area Category 6 need not comply with the requirements of 18.1.1, and 18.1.2 provided that a suitable marine magnetic compass with consistent deviation is carried on board, installed at the main steering position. For the purposes of this paragraph 'consistent deviation' is considered to be when there has been no appreciable change observed within the two years preceding the date of inspection by the Master.

18.1.4 The compass, alternative device or a repeater:

- .1 should be clearly readable at all times at the main steering position (including a light where by reason of operations in darkness or low natural light); and
- .2 means should be provided for taking bearings as nearly as practicable over an arc of the horizon of 360 degrees. (This requirement may be met by a pelorus or, in a vessel other than a steel vessel, a hand bearing compass).

18.2 Transmitting Magnetic Heading Device (TMHD)⁹⁴

18.2.1 A TMHD is acceptable as an alternative to the magnetic compass required in 18.1.1, 18.1.2 and 18.1.3, provided that a suitable back-up power supply is available to power the equipment in the event of failure of the main electrical supply.

⁹⁴ See IMO Resolution MSC.86(70).

18.2.2 Where a TMHD incorporates a capability to measure magnetic deviation by undertaking a calibration routine, and where the deviation figures are recorded and adequately compensated for within the device, a deviation card is not required.

18.3 Echo Sounder

18.3.1 All vessels should be fitted with an echo sounder, or other effective means to measure the available depth of water.

18.4 Other Navigational Equipment for vessels that are Certified to operate more than 20 miles from land (Area Category 0, 1 or 2)

18.4.1 An Electronic Position Fixing System that may be a global navigation satellite system (e.g. GPS) or a terrestrial radio-navigation system, or other means suitable for use at all times throughout the voyage to establish and update the vessel's position by automatic means.

18.4.2 A distance measuring log; except that this need not be provided where the navigational aid in section 18.4.1 provides reliable distance measurements in the area of operation of the vessel.

18.4.3 Consideration should be given to fitting a suitable Class "A" Automatic Identification System (AIS) transceiver to vessels that operate in areas that use AIS as part of the area safety management. Owners / managing agents should undertake AIS testing, if fitted, in accordance with the guidance in MGN 465⁹⁵ Annex 2. See also section 25.9.4.

18.4.4 A 3 cm Radar, complying with EN 62252⁹⁶ (Class A standard), EN 302 248 and the R&TTE Directive⁹⁷ should be fitted, except that radars for vessels designed to operate at speeds over 30 knots are to comply with the MED. Where radar is equipped with automatic target tracking then a suitable transmitting heading device shall be fitted.

18.4.5 Additionally, vessels that are operated at high speed are recommended to be provided with an electronic chart system to satisfy chart carriage requirements as in 19.1, complying at least with the specifications required by the SeaFish Industry Authority (SFIA), see also section 19.1.2 and MGN 319.

18.5 Electronic aids to navigation should be routinely tested and well maintained in accordance with the manufacturer's instructions.

⁹⁵ MGN 465 Navigation - Automatic Identification Systems (AIS) - Annual Testing

⁹⁶ EN62252 requires an open frame antenna to start and operate in 60kts relative wind (not applicable to enclosed radomes), therefore operators of RCD Design category A and B vessels or Code Cat 0, 1, 2, or 3 should be aware of this, especially if the vessel operates at higher speeds.

⁹⁷ Radio and Telecommunications Terminal Equipment Directive (2014/53/EC)

19 Miscellaneous Equipment

19.1 Nautical Publications

- 19.1.1 Charts⁹⁸ and other nautical publications to plan and display the vessel's route for the intended voyage and to plot and monitor positions throughout the voyage should be carried. The charts must be of such a scale and contain sufficient detail to show clearly all relevant navigational marks, known navigational hazards and, where appropriate, information concerning ship's routing and ship reporting schemes. Nautical publications may be contained within a consolidated publication. However, vessels operating in Area Category 6 need not carry publications.
- 19.1.2 An electronic chart plotting system, complying with the requirements detailed in Marine Guidance Note MGN 319 (M+F)⁹⁹, or ECDIS, with suitable back-up arrangements may be accepted as meeting the chart carriage requirements of this sub-paragraph.
- 19.1.3 *All vessels of 25GT and greater should carry and complete an Official Log Book.*

19.2 Signalling Lamp

A vessel should be provided with an efficient waterproof electric lamp suitable for signalling.

19.3 Radar Reflector¹⁰⁰

- 19.3.1 A radar reflector should be mounted on the vessel, either passive or active (powered), that meets the standards laid down in BS EN ISO 8729-1¹⁰¹ or BS EN 8729-2¹⁰² respectively. Where neither of the above is practicable a reflector that meets the standards in BS EN ISO 8729:2010 should be mounted. The reflector should be mounted in accordance with the manufacturer's instructions. If the radar cross sectional area of the boat is larger than the passive reflector standard then the carriage of a reflector is unnecessary. The standard for reflectors is -1 for passive and -2 for active (also known as Radar Target Enhancer).
- 19.3.2 For Category 6 vessels only, where it is not practicable for an efficient radar reflector to be fitted, they must not put to sea in fog, and if visibility starts to deteriorate they are to return to shore.

⁹⁸ MGN 293 (M+F) – "Alternative Arrangements for Meeting Paper Chart Carriage Requirements on MCA Code Vessels under 24 metres in Length and Fishing Vessels under 24 metres in Length" provides further guidance on acceptable chart carriage arrangements.

⁹⁹ MGN 319 (M+F) - "Acceptance of Electronic Chart Plotting Systems for Fishing Vessels Under 24 metres and Small Vessels in Commercial Use (Code Boats) Up To 24 Metres Load Line Length."

¹⁰⁰ MGN 349 (M+F) – "Carriage and Use of Radar Reflectors on Small Vessels" provides further guidance. SOLAS Chapter V, Regulation 19 para 2.7 requires radar reflectors to be carried, where practicable, by ships under 150GT, where radar enhancers or active systems are referred to as "other means".

¹⁰¹ BS EN ISO 8729-1 Ships and marine technology. Marine radar reflectors. Passive type

¹⁰² BS ISO 8729-2 Ships and marine technology. Marine radar reflectors. Active type

19.4 Barometer

- 19.4.1 Other than a dedicated pilot boat, a vessel operating in Area Category 0, 1, 2 or 3 should carry a barometer, or other means to forecast the weather conditions e.g. Navtex receiver. Refer also to section 16.8.

19.5 Searchlight for Use During Search and Recovery

Vessels operating in Area Category 0, 1, 2, 3 or 5 should be provided with either:-

- .1 the Signalling Lamp required by 19.2 above and a searchlight; or
- .2 an efficient portable¹⁰³ daylight signalling lamp with searchlight capability.

19.6 Wheelhouse Visibility

- 19.6.1 Sufficient horizontal and vertical arcs of visibility should be provided from the steering and control positions in the wheelhouse so as to avoid impeding the maintenance of a proper lookout as required by the International Regulations for the Prevention of Collisions at Sea. See also 9.1.2. Wheelhouse visibility should not be restricted by any cargo when in the secured stowed position.

19.7 Other SOLAS Chapter V Requirements¹⁰⁴

- 19.7.1 All vessels should comply with the requirements of SOLAS Chapter V below:
- .1 Regulations V/31, V/32 and V/33 – Assistance to other craft. This requires the Master to let the Coastguard and any other vessels in the vicinity know if they encounter anything that could cause a serious hazard to navigation, if it has not already been reported. This can be fulfilled by calling the Coastguard on VHF, at the earliest opportunity. The Coastguard will then warn other vessels in the area. It also requires the Master to respond to any distress signal and help anyone or any boat in distress as best as they can;
 - .2 Regulation V/34 - Safe Navigation and avoidance of dangerous situations. This requires the Master to have a passage plan¹⁰⁵ for the intended voyage from berth to berth; and
 - .3 Regulation V/35 – Misuse of distress signals. This prohibits the misuse of distress signals.

¹⁰³ With the capability including batteries, for not less than two hours operation.

¹⁰⁴ UK requirements for SOLAS V are The Merchant Shipping (Safety of Navigation) Regulations 2002 – SI. 2002 No. 1473 as amended.

¹⁰⁵ Guidance on passage planning can be found in MCA guidance on SOLAS Chapter V which can be found at <https://mcanet.mcga.gov.uk/public/c4/solasv/index.html>

20 Anchors and Cables

20.1 General

20.1.1 The requirements given in Tables 20.1 and 20.2 are for a vessel of normal form which may be expected to ride-out storms whilst at anchor. The anchors and cables are not designed to hold a vessel off exposed coasts in rough weather nor stop a vessel that is moving.

20.1.2 Provision is to be made for the secure storage of the anchor and its cable.

20.2 Anchors

20.2.1 The tabulated values for anchor masses refer to 'High Holding Power' anchors. Anchors of other designs may be accepted based on the stated holding power.

20.2.2 When a fisherman type of anchor is provided, the mass given in Table 20.1 or 20.2 should be increased by 33% but the diameter of the anchor cable need not be increased.

20.2.3 For vessels with an unusually high windage, due to high freeboard, a large rig, large deckhouses or superstructures, the mass of the anchor and the anchor cable diameter should be increased above that required in Table 20.1 or 20.2 to correspond to the increased wind loading. The increase in anchor mass and corresponding cable strength is to be to the satisfaction of the Certifying Authority.

20.2.4 For vessels of unusual or non-conventional ship form (including pontoon barges) or working under specified restricted coastal or inshore operations, the anchor and cable size and material should be to the satisfaction of the Certifying Authority in accordance with the appropriate certification standards for the vessel type recognised by one of the Load Line Assigning Authorities (4.2.2.4 refers). Any service restriction placed by the certification standards' reduction should be noted on the Small Workboat Certificate and the owner / managing agent should ensure that this equipment carried is commensurate with any voyage undertaken and with any specific local environmental conditions e.g. tidal strength.

20.2.5 Anchors are to be rigged ready for use. Only where the particular operating patterns dictate may the anchor be left unready, e.g. Pilot boat duties.

20.2.6 The design of the anchor is to be acceptable to the Certifying Authority.

20.2.7 Stainless steel and aluminium anchors will be separately considered dependent upon the test loads for which the anchor has been designed.

20.2.8 Where vessels are to be engaged in coastal towing Owners should give consideration to uplifting the size of the anchors and cables.

20.3 Cables¹⁰⁶

- 20.3.1 The length of anchor cable attached to an anchor should be appropriate to the area of operation but generally should be not less than 4 x the vessel's mean length or 30 metres, whichever is the longer, for each of the main and spare anchors. (For a definition of mean length see Note 4 of Tables 20.1 or 2).
- 20.3.2 The cable for main anchors and for spare anchors may be of chain, wire or rope, subject to section 20.3.3.
- 20.3.3 When the anchor cable is of fibre rope or wire, there should be not less than 10 metres or 20% of the minimum required cable length, whichever is the greater, of chain between the rope and the anchor. Where the anchor cable is wire then proposals to substitute the chain tail by an anchor and/or chain of enhanced mass will be considered to the satisfaction of the Certifying Authority, with special attention paid to the anchor performance, i.e. catenary.
- 20.3.4 The strength and form of the anchor cable and its attachments to the anchor and the vessel should be approved by the Certifying Authority. The material should be to the satisfaction of the Certifying Authority in accordance with the appropriate certification standards for the vessel type recognised by one of the Load Line Assigning Authorities (4.2.2.4 refers).
- 20.3.5 Anchoring systems incorporating a windlass should have the bitter end of the cable secured to the vessel's structure and capable of being released in an emergency.
- 20.3.6 Anchor steel wire rope is to be fitted with thimbles at both ends.

20.4 Tow Line

- 20.4.1 A vessel should be provided with a towline of not less than the length and diameter of the spare anchor cable. The towline may be the warp for the second anchor and in the case of Pilot Boats, the tow line may be the spare anchor rope. Where practicable, the towline should be buoyant.

20.5 Operations

- 20.5.1 When an anchor mass is more than 30 kilogrammes, an efficient mechanical means should be provided for handling the anchor.
- 20.5.2 There should be a strong securing point on the foredeck or equivalent structure and where appropriate a fairlead or roller at the stem head.

20.5.3 Operation in Area Category 0, 1, 2, 3 or 4

- 20.5.3.1 Vessels certificated to operate in Area Categories 0, 1, 2, 3 or 4 should be provided with at least two anchors (one main and one spare or two main) and cables, subject to section 20.1 and in accordance with the requirements of Table 20.1 or 2. Twin propulsion, high speed vessels that do not normally anchor as part of their operational procedures may carry a single larger anchor to a recognised Classification Society standards sizes, see 25.9.7.

¹⁰⁶ See Standards Appendix 13.

20.5.3.2 Anchors of equivalent holding power may be proposed and provided, subject to approval by the Certifying Authority.

20.5.4 Operation in Area Category 5 and 6

20.5.4.1 Vessels certificated to operate in Area Category 5 and 6 should have an anchor of sufficient mass for the size and type of vessel. Local conditions i.e. tide, currents etc. should also be considered when choosing the anchor.

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TABLE 20.1

ANCHORS AND CABLES – for vessels up to 15m

Length of vessel (metres)	Anchor Mass Note 3		Anchor Cable Diameter Note 1, 3			
	Main (kg)	Spare (kg)	Main Chain (mm)	Rope Note 2 (mm)	Spare Chain (mm)	Rope Note 2 (mm)
6	8	4	6	12	6	10
7	9	4	8	12	6	10
8	10	5	8	12	6	10
9	13	5	8	12	6	10
10	16	6	8	12	6	10
11	19	7	8	12	6	10
12	22	10	10	14	8	12
13	25	12	10	14	8	12
14	28	12	10	14	8	12
15	30	15	10	14	8	12

TABLE 20.2

ANCHORS AND CABLES – for Vessels over 15m

Loaded Displacement (Tonnes)	Anchor Main Note 3 (kg)	Anchor Spare Note 3 (kg)	Anchor Chain diameter. Note 1,3,5 (mm)
25	30	30	10
50	40	40	12
75	50	50	12
100	75	75	13.5
125	90	90	13.5
150	100	100	13.5
175	125	125	16
200	130	130	17.5
225	150	150	17.5
250	180	180	17.5
275	225	225	17.5
300	230	230	17.5
350	240	240	17.5
400	245	245	17.5
450	250	250	19
500	255	255	19
550	260	260	19
600	265	265	19
650	270	270	20
700	300	300	20
750	360	360	20

Notes:

Chain cable diameter given is for short link chain.

- 1 Chain cable diameter given is for short link chain. Chain cable should be sized in accordance with EN 24565 (covered by BS 7160), or equivalent.
- 2 The rope diameter given is for nylon construction. When rope of another construction is proposed, the breaking load should be not less than that of the nylon rope specified in the table.
- 3 When anchors and cables are manufactured to imperial sizes, the metric equivalent of the anchor mass and the cable diameter should not be less than the table value.
- 4 For the purposes of this section, mean length is defined as:-
$$(\text{Length} + \text{Length on waterline}) / 2$$
- 5 Where rope is used the breaking strength of the rope or wire should be equivalent to that of the chain specified in the Table.

21 Accommodation and Recreational Facilities (not MLC compliant)

This section applies to:

(1) vessels constructed before the date the Maritime Labour Convention, 2006 (MLC) came into force in the UK, which is a year after the UK ratified the MLC. The MLC came into force internationally on 20th August 2013. To minimise operational difficulties when operating overseas it is most strongly recommended that this section is only applied to vessels constructed before 20th August 2013; and

(2) vessels restricted to operating on domestic voyages within 60 miles of a UK safe haven which are constructed at any time. Such vessels are not permitted to go on international voyages.

21.1 General

21.1.1 Accommodation should provide decent living conditions and recreational facilities for those persons employed or engaged in any work capacity on board. The accommodation should also be adequate for others on board the vessel.

21.1.2 In order to provide decent living conditions and recreational facilities the following requirements are provided as minimum standards.

21.1.3 The materials used to construct internal bulkheads, panelling and sheeting, floors and joints shall be suitable for the purpose and conducive to ensuring a healthy environment.

21.1.4 Excessive noise and vibration should be limited within accommodation spaces, and as far as practicable in accordance with relevant international standards. Where the seafarers' exposure to noise and vibration is very limited in accommodation spaces, alternative arrangements may be accepted. Further guidance on noise and vibration standards can be found in section 22.

21.2 All Vessels

21.2.1 All vessels, should as a minimum, comply with the requirements of 21.2, but may also be required to comply with further requirements in 21.3 and 21.4.

21.2.2 Escape Arrangements

21.2.2.1 Means of escape from accommodation spaces should satisfy the requirements of section 5.2.1, 5.4.3 and 14.8.

21.2.3 Securing of Heavy Equipment

21.2.3.1 Heavy items of equipment such as batteries, cooking appliances etc. should be securely fastened in place to prevent movement due to severe motions of the vessel.

21.2.3.2 Stowage lockers containing heavy items should have lids or doors with secure fastenings.

21.2.4 Hand Holds and Grab-Rails

21.2.4.1 There should be sufficient hand holds and grab-rails within the accommodation to allow safe movement when the vessel is in a seaway.

21.2.5 Ventilation

21.2.5.1 There should be adequate ventilation in all accommodation spaces.

21.2.5.2 Where air conditioning systems are not fitted, mechanical ventilation should be provided to accommodation spaces which are situated completely below the level of the weather deck on vessels making long international voyages or operating in tropical waters, and which carry 9 or more berthed persons below deck. As far as practicable, such ventilation arrangements should be designed to provide at least 6 changes of air per hour when the access openings to the spaces are closed.

21.2.6 Hot Water Systems

21.2.6.1 Hot water supply systems should be designed, installed and maintained for the pressure and temperature at which they are to operate.

21.3 **Vessels Which are at Sea for More than 24 Hours**

All vessels which are at sea for more than 24 hours should comply with the requirements of this section in addition to those in section 21.2.

When a vessel is intended to be at sea for more than 24 hours, an adequate standard of accommodation for all on board should be provided. In considering such accommodation, primary concern should be directed towards ensuring the health and safety aspects of persons, e.g. the ventilation, lighting, water services, galley services and the access/escape arrangements.

21.3.1 Ventilation

21.3.1.1 Where air conditioning systems are not fitted, mechanical ventilation should be provided to accommodation spaces which are situated completely below the level of the weather deck on vessels making long international voyages or operating in tropical waters, and which carry 9 or more berthed persons below deck. As far as practicable, such ventilation arrangements should be designed to provide at least 6 changes of air per hour when the access openings to the spaces are closed.

21.3.2 Lighting

21.3.2.1 An electric lighting system should be installed which is capable of supplying adequate light to all enclosed accommodation and working spaces.

21.3.3 Water Services

21.3.3.1 An adequate supply of fresh drinking water should be provided and piped to convenient positions throughout the accommodation spaces.

21.3.3.2 In addition to 21.3.3.1, an emergency (dedicated reserve) supply of drinking water should be carried at the rate of 2 litres per person on board.

21.3.4 Sleeping Accommodation

21.3.4.1 A separate bunk or cot should be provided for each person on board and at least 50% of those provided should be fitted with lee boards or lee cloths.

21.3.5 Galley

21.3.5.1 A galley should be fitted with a means for cooking and a sink and have adequate working surface for the preparation of food.

21.3.5.2 When a cooking appliance is gimballed it should be protected by a crash bar or other means to prevent it being tilted when it is free to swing. A means should be provided to lock the gimbal mechanism to prevent movement.

21.3.5.3 A means should be provided to lock the gimbal mechanism to prevent movement.

21.3.5.4 There should be secure storage for food in the vicinity of the galley.

21.3.6 Toilet Facilities

21.3.6.1 Adequate toilet facilities, separated from the rest of the accommodation, should be provided for persons on board.

21.3.6.2 In general, there should be at least one flushing marine toilet and one wash hand basin for every 12 persons.

21.3.6.3 Due consideration should be given to the requirements of Section 28 Pollution Prevention.

21.3.7 Stowage Facilities for Personal Effects

21.3.7.1 Adequate stowage facilities for clothing and personal effects should be provided for each person on board.

21.A Accommodation and Recreational Facilities (MLC compliant <200GT)

This section applies to vessels which are less than 200GT and constructed on or after 7th August 2014. The Maritime Labour Convention, 2006 (MLC) came into force internationally on 20th August 2013 and came into force in UK legislation on 7th August 2014. Consideration should be given to MGN 490, as amended. To minimise operational difficulties when operating overseas it is most strongly recommended that this section is applied to such vessels constructed on or after 20th August 2013.

The purpose of this section is to implement the UK's substantially equivalent arrangements to the crew accommodation requirements of the MLC for small commercial vessels. The aim of the MLC is to provide a comprehensive set of global maritime labour standards for all seafarers, including accommodation standards.

21A.1 General

21A.1.1 Accommodation shall provide decent living conditions and recreational facilities for those persons employed or engaged in any work capacity on board. Due consideration shall be given to likely numbers of hotel and support staff on board.

21A.1.2 In order to provide decent living conditions and recreational facilities the following requirements are provided as minimum standards.

21A.1.3 The materials used to construct internal bulkheads, panelling and sheeting, floors and joinings shall be suitable for the purpose and conducive to ensuring a healthy environment.

21A.1.4 Excessive noise and vibration shall be limited within accommodation spaces, and as far as practicable in accordance with relevant international standards. Where the seafarers' exposure to noise and vibration is very time limited in accommodation spaces, alternative arrangements may be accepted.

21A.2. Access/Escape Arrangements

21A.2.1 Vessels under 24m load line length shall comply with the escape arrangements in the applicable sections of this Workboat Code of Practice.

21A.3. Headroom

21A.3.1 There shall be adequate and reasonable headroom for all seafarers on board taking into consideration the size and operation of vessel. Headroom provided should not result in discomfort to the seafarers on board.

21A.3.2 For spaces where seafarers are expected to stand for prolonged periods, the minimum headroom should be 190 centimetres. The Certifying Authority may allow reduced height in some locations if it does not result in discomfort to seafarers.

21A.4. Ventilation

21A.4.1 Effective means of ventilation shall be provided to all enclosed spaces which are entered by personnel.

21A.4.2 Mechanical ventilation shall be provided to all accommodation spaces on vessels which are intended to make long international voyages or operate in tropical waters. As a minimum, mechanical ventilation shall be capable of providing 6 changes of air per hour, when all access and other openings (other than ventilation intakes) to the spaces are closed.

21A.4.3 Air conditioning - recirculation of supply air may be permitted provided that sanitary accommodation is provided with mechanical exhaust ventilation and that the fresh air content of the supply to the accommodation is not less than:-

- (a) 25 cubic metres per hour for each person for whom accommodation is provided; or
- (b) the total capacity of the sanitary and any other accommodation exhaust fans, excluding the galley, in cubic metres per hour, whichever is the greater.

21A.4.4 Enclosed galleys are to be specially considered, and where air conditioning is not fitted shall have, as a minimum, a mechanical supply of 20 fresh air changes per hour and a mechanical exhaust of 30 changes.

21A.4.5 In spaces where sanitary facilities are provided there shall be ventilation that draws from the accommodation and extracts to the open air independent of the other parts of the accommodation.

21A.5. Heating and Insulation

21A.5.1 All accommodation spaces shall be adequately heated, taking into account climatic conditions. The accommodation shall be adequately insulated.

21A.6. Lighting

21A.6.1 An electric lighting system shall be installed which is capable of supplying adequate light to all enclosed accommodation and working spaces.

21A.6.2 Seafarer's sleeping rooms and mess rooms shall be lit by natural light and provided with adequate artificial light. Where the provision of natural light is impracticable, adequate artificial light may be acceptable in limited areas.

21A.7. Water Services and Provision

21A.7.1 Hot and cold running fresh water shall be available in all wash places.

21A.7.2 An adequate supply of fresh drinking water shall be provided and piped to convenient positions throughout the accommodation spaces.

21A.7.3 In addition, an emergency reserve supply of drinking water shall be carried, sufficient to provide at least 2 litres per person. The installation of fresh water making machines and disinfection arrangements are to be to the acceptance of the Administration (for this purpose silver ionisation or chlorination would be considered acceptable).

21A.8. Galley Facilities and Provision of Food

21A.8.1 Adequate food shall be provided for all seafarers on board free of charge. The provision of food shall take account of the seafarers' religious requirements and cultural practices, the nature and duration of the voyage, and shall be suitable in respect of quantity, nutritional value, quality and variety.

21A.8.2 The organisation and equipment of the catering department shall be such as to permit the provision to the seafarers of adequate, varied and nutritious meals prepared and served in hygienic conditions. This shall include as a minimum that the galley is fitted with a means of cooking and a sink and have adequate working surface for the preparation of food. The galley floor shall be provided with a non-slip surface and provide a good foothold.

21A.8.3 All furniture and fittings in the galley shall be made of a material which is impervious to dirt and moisture. All metal parts of furniture and fittings shall be rust resistant.

21A.8.4 The ventilation in the galley shall be arranged to ensure that there is an adequate supply of fresh air and for the efficient discharge of fumes into the open air (see also 21A 4.4).

21A.8.5 When a cooking appliance is gimballed it shall be protected by a crash bar or other means to prevent personal injury. Means shall be provided to lock the gimbaling mechanism.

21A.8.6 Secure and hygienic storage for food and garbage shall be provided.

21A.8.7 A messing area(s) shall be provided, each messing area shall be large enough to accommodate the greatest number of persons likely to use it at any one time.

21A.9. Hand Holds and Grab Rails

21A.9.1 There shall be sufficient hand holds and grab rails within the accommodation to allow safe movement around the accommodation at all times. Stairways shall be specially considered.

21A.10. Sleeping Accommodation

21A.10.1 Sleeping accommodation shall be of adequate size and properly equipped so as to ensure reasonable comfort and to facilitate tidiness.

21A.10.2 Wherever possible there shall be no direct access into sleeping rooms from spaces for machinery, galleys, storerooms, drying rooms, or communal sanitary areas. If seafarer sleeping rooms are situated next to any such space, the sleeping room and the other space shall have a bulkhead between them, with a door that may be locked.

21A.10.3 In seafarer accommodation, wherever possible, the maximum number of persons per sleeping room is to be two. Any increase in the maximum number of persons per sleeping room shall be agreed with the Administration.

21A.10.4 Sleeping accommodation shall be situated or equipped, as practicable, so as to provide appropriate levels of privacy for men and for women.

- 21A.10.5 Berths for seafarers must have a minimum inside dimension of either:
.1 not less than 190 centimetres by 70 centimetres, with no tapering, where it is satisfied that that this is reasonable and will not result in discomfort to the seafarers; or
.2 not less than 198 centimetres in length and not less than 80 centimetres in width over half the length of the berth. A taper is permitted from half the length of the berth towards the foot of the berth but under no circumstances is the berth permitted to be narrower at any point than 50 centimetres.
- 21A.10.6 Where considered appropriate, means for preventing the occupants from falling out, shall be provided.
- 21A.10.7 Except as permitted in 21A 10.8, sleeping rooms shall be situated above the load line/freeboard mark amidships or aft (or the maximum loaded displacement where no load line/freeboard mark is provided), but in no case forward of the collision bulkhead.
- 21A.10.8 Where it is not possible to provide sleeping accommodation above the load line/freeboard mark (or the maximum loaded displacement where no load line/freeboard mark is provided) as required by 21A 10.7, there shall be an alarm fitted to provide early warning of flooding that alerts occupants of the sleeping accommodation and provides them with sufficient time to escape from the accommodation.
- 21A.11. Sanitary Facilities
- 21A.11.1 There must be at least one set of sanitary facilities for each 6 seafarers on board, separated from the rest of the accommodation. Each set of sanitary facilities shall include one shower or one tub, one wash basin and one toilet. Each set of sanitary facilities must be provided with a door that is lockable. Where reasonable and practicable there shall be separate sanitary facilities provided for men and for women.
- 21A.11.2 In vessels where a sanitary system, including a holding tank, is provided, care shall be taken to ensure that there is no possibility of fumes from the tank finding their way back to a toilet, shall the water seal at the toilet be broken.
- 21A.12. Mess Rooms
- 21A.12.1 Mess rooms shall be of adequate size and comfort and properly furnished and equipped (including on-going facilities for refreshment), taking account of the number of seafarers likely to use them at any one time. It may be that the mess will be a shared facility for all persons on board; this shall be subject to agreement by the MCA or Certifying Authority, as appropriate.
- 21A.13. Recreational Facilities
- 21A.13.1 Appropriate seafarers' recreational facilities, amenities and services, as adapted to meet the special needs of seafarers who must live and work on board, shall be provided.
- 21A.13.2 All vessels shall have a space or spaces on open deck to which the seafarers can have safe access when off duty, which are of adequate area having regard to the size of the ship and the number of seafarers on board, and are protected

from the elements. Due consideration shall be given to any areas of deck which may be considered as posing a safety risk to seafarers. Such spaces may be shared with the passengers and industrial personnel on board.

21A.14. Stowage Facilities for Personal Effects

21A.14.1 Each seafarer shall be provided with adequate storage space for personal effects which must be a minimum of 125 litres per seafarer.

21A.15. Machinery Space Boundaries

21A.15.1 Where machinery spaces are adjacent to accommodation spaces, the boundaries shall be designed to be gas tight. The requirement to be gas-tight is taken to mean that bulkheads shall be so constructed as to prevent ingress of water and noxious gases into adjacent cabins as far as is reasonable and practicable to do so.

21A.15.2 Machinery space boundaries must retain any liquids which may leak from the equipment within the machinery space.

21A.16. Securing of Heavy Equipment

21A.16.1 All heavy items of equipment such as ballast, batteries, cooking stove, etc., shall be securely fastened in place. All stowage lockers containing heavy items shall have lids or doors which are capable of being securely fastened.

21A.17. Protection from Mosquitoes

21A.17.1 Vessels regularly trading to and within mosquito infested ports shall be fitted with appropriate devices to protect seafarers from mosquitoes, as agreed by the MCA or Certifying Authority, as appropriate.

21A.18. Master's Inspections

21A.18.1 There shall be weekly documented inspections carried out on board vessels, by or under the authority of the Master, with respect to:

- .1 supplies of food and drinking water;
- .2 all spaces and equipment used for the storage and handling of food and drinking water;
- .3 galley and other equipment used for the preparation and service of meals; and
- .4 that seafarer accommodation is clean, decently habitable and maintained in a good state of repair.

21A.18.2 The results of each inspection shall be recorded and made available for review.

21.B Accommodation and Recreational Facilities (MLC compliant over 200GT – less than 500GT)

The purpose of this section is to implement the UK's substantially equivalent arrangements to the crew accommodation requirements of the Maritime Labour Convention, 2006, to new vessels built after the UK's Merchant Shipping (Crew Accommodation) (Maritime Labour Convention) Regulations 2013 come into force. It is strongly recommended that designers and builders use the 20th August 2013 as the date from which all new vessels that need to be compliant with the MLC should be built as compliant with the MLC. Ratifying port States may require this in their waters.

21B.1 General Requirement

21B.1.1 All workboats of 200GT to less than 500GT shall comply with the seafarer accommodation requirements of the Maritime Labour Convention, 2006, transposed in the UK as The Merchant Shipping (Maritime Labour Convention) (Crew Accommodation) Regulations 2013, except as permitted below.

21B.2 Substantially equivalent standard

21B.2.1 Sleeping rooms may be provided below the reference load line if it can be shown that compliance with Standard A3.1, paragraph 6(c) of the MLC would compromise the functionality, safety or stability of the ship.

21B.2.2 The floor of the sleeping room may be up to 2000 mm below the reference load line provided that:

- .1 Adequate continuous climate control is provided, partly aimed at controlling of condensation and moisture related odours;
- .2 At least two adequate escape routes are present;
- .3 A bilge alarm which has its audible alarm in the watertight compartment of the sleeping room is available;
- .4 Adequate, adjustable lighting is provided; the lack of daylight shall be compensated according to the needs of the seafarer;
- .5 Appropriate materials and colours for wall and floor coverings are applied, which provide improved space perception;
- .6 A minimum of 203 cm headroom in the accommodation must be provided.

Further notes:

The reference load line is defined as follows:-

- For ships to which an International Load Line Certificate is issued: the minimum assignable summer freeboard as defined in the Load Line Convention, Annex I, Regulation 6.2.a.
- For ships to which no International Load Line Certificate is issued: a line parallel to the designed load waterline located at a distance of 20% of the depth of the ship, as defined in the International Load Line Convention Annex I, Regulation 3(5), with a maximum of 1000 mm below the freeboard deck as defined in the International Load Line Convention, Annex I, Regulation 3(9).

22 Protection of Personnel

22.1 Health and Safety at Work

22.1.1 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 (SI 1997 No. 2962), as amended, apply wherever “workers” are employed on ships. Further Guidance can be found in MGN 20 (M+F)¹⁰⁷ and MGN 175 (M+F)¹⁰⁸. This Code does not aim to provide definitive guidance on these Regulations, and it is the duty of the owner/manager and Master to ensure that they are familiar with the requirements which include carrying out risk assessments, which are the basis for mitigating measures under all of the regulations.*

22.1.2 *Other Merchant Shipping regulations apply similar principles in the context of particular areas of risk to both workers and others on board. It is the responsibility of the owner/managing agent and Master to ensure that they are familiar with the requirements of those regulations. These regulations are similar to land based legislation but are separately provided for under Merchant Shipping legislation. Such regulations include, but may not be limited to:*

- .1 control of noise at work¹⁰⁹;*
- .2 control of vibration at work^{110,111,112};*
- .3 provision and use of work equipment¹¹³;*
- .4 lifting operations and lifting equipment¹¹⁴;*
- .5 working at height¹¹⁵;*
- .6 manual handling¹¹⁶;*
- .7 personal protective equipment¹¹⁷;*
- .8 entry into dangerous spaces¹¹⁸;*
- .9 safe movement on board¹¹⁹;*

¹⁰⁷MGN 20 (M+F) – “Implementation of EC Directive 89/391.Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997”.

¹⁰⁸ MGN 175 (M+F) – “Health and Safety Regulations for Ships: Merchant Shipping and Fishing Vessel (Health and Safety at Work) (Amendment) Regulations”.

¹⁰⁹MGN 352 (M+F) – “The Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007”.

¹¹⁰ MGN 353 (M+F) – “The Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007”

¹¹¹MGN 436 (M+F) – ‘WHOLE-BODY VIBRATION: Guidance on mitigating against the effects of shocks and impacts on small vessels’.

¹¹² Refer also to Section 25.8 on workboats operating at speed.

¹¹³MGN 331 (M+F) – “The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006”.

¹¹⁴MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006”.

¹¹⁵MGN 410 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Work at Height) Regulations 2010”.

¹¹⁶MGN 90 (M+F) – “Implementation of EC Directive 90/269/EC Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998”.

¹¹⁷MSN 1731 (M+F) - The Merchant Shipping and Fishing Vessels Personal Protective Equipment Regulations 1999 - see also SI 1999 No.2205 of the same name.

¹¹⁸MGN 423 (M+F) – “Entry into Dangerous Spaces”.

¹¹⁹SI 1988 No. 1641 The Merchant Shipping (Safe Movement on Board Ship) Regulations 1998, as amended.

- .10 working with carcinogens and mutagens¹²⁰;
- .11 working with biological agents¹²¹;
- .12 working with chemical agents¹²²;
- .13 safe means of access¹²³;
- .14 employment of young persons¹²⁴;
- .15 new and expectant mothers¹²⁵;
- .16 artificial optical radiation¹²⁶;
- .17 asbestos¹²⁷; and
- .18 working with an electromagnetic field¹²⁸

22.1.3 *The requirements include provisions for an on board complaints procedure and a shoreside complaints procedure. If there are more than 5 seafarers on board then there is a requirement to have a designated safety official on board. Chapter 3 of The Code of Safe Working Practices for Merchant Seafarers (CoSWP) provides further information.*

22.2 Structural Requirements and the Carriage of Equipment

22.2.1 Section 22.2 provides minimum mandatory requirements which mitigate the common risks, but these may not be an exhaustive set of safety measures for any particular vessel, and further measures may be required as a result of the assessments made under the regulations highlighted in 22.1.

22.2.2 Deckhouses

22.2.2.1 A deckhouse used for the accommodation of persons must be constructed of adequate strength to withstand the forces of weather and sea to which it will be subjected in use.

22.2.3 Bulwarks, Guard Rails and Handrails

22.2.3.1 Bulwarks, guardrails and guard wires should be supported efficiently by stays or stanchions.

22.2.3.2 Where the requirements of 22.2.3 cannot be fully complied with, jackstays may be fitted in accordance with 22.2.4.4.

¹²⁰MGN 356 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Carcinogens and Mutagens) Regulations 2007”.

¹²¹MGN 408 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Biological Agents) Regulations 2010”.

¹²²MGN 409 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Chemical Agents) Regulations 2010”.

¹²³ MGN 337 (M+F) – “Provision of Safe Means of Access to Fishing and Other Small Vessels”

¹²⁴MGN 88 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Employment of Young Persons) Regulations 1998”.

¹²⁵ MGN 112 (M+F) – “New and expectant mothers: Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 and Merchant Shipping (Medical Examinations) Regulations 1983”

¹²⁶MGN 428 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Artificial Optical Radiation) Regulations 2010”.

¹²⁷MGN 429 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Asbestos) Regulations 2010”.

¹²⁸ MGN 559 (M+F) - Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016.

- 22.2.3.3 To protect persons from falling overboard, and when the proper working of the vessel is not impeded and there are persons frequently on the deck, bulwarks or three courses of rails or taut wires should be provided and the bulwark top or top course should be not less than 1000mm above the deck (in accordance with Load Line requirements). The distance between the lowest course and the deck should not exceed 230mm, and the distance between other courses should not exceed 380mm.
- 22.2.3.4 In a vessel fitted with a cockpit which opens aft to the sea, additional guardrails should be fitted so that there is no unprotected vertical opening (i.e. between vertical 'members') greater than 500mm in width.
- 22.2.3.5 For vessels operating in Category 6, where it is impractical and unnecessary to fit guardrails, alternative arrangements may be acceptable subject to the Certifying Authority being satisfied as to the adequacy of the proposed arrangements. For example, on small vessels with narrow side decks alongside a deck house, a handrail on the side of the deckhouse may be fitted. On the foredeck, a centreline handrail may be considered more workable.
- 22.2.3.6 Handrails should be provided for access stairways, ladders, passageways and for decks without bulwarks or guardrails. This provision should not be used in lieu of guardrails and bulwarks where required by the Code.
- 22.2.3.7 In an inflatable boat or a rigid inflatable boat, where it is not possible to fit bulwarks, handrails or guardrails, there should be handgrips, toeholds and handrails provided as necessary to ensure safety of all persons on board during transit and the worst weather conditions likely to be encountered in the intended area of operation.
- 22.2.3.8 **Alternative Arrangements for Bulwarks, Handrails and Guardrails.**
- 22.2.3.8.1 When application of measures described in 22.2.3.1 – 22.2.3.4 would impede the proper working of the vessel, alternative safety measures may be considered, using ISO 15085.
- 22.2.3.8.2 "Impede" should not be interpreted as "inconvenience". Certifying Authorities must be satisfied that the required height bulwarks, guardrails and handrails would "impede" rather than simply inconvenience the proper working of the vessel, and survey records should show why impedence was justified as a reason for acceptance of lower bulwarks, guardrails and handrails. See Standards Appendix 13.
- 22.2.3.8.3 This alternative provision is not available to vessels certified as "suitable for single handed operations".

22.2.4 Safety Harnesses

- 22.2.4.1 A vessel, other than a RHIB, should be provided with safety harnesses as necessary for all persons who may be required to work on deck, with a minimum number of 2.
- 22.2.4.2 Efficient means for securing the life lines of safety harnesses should be provided on exposed decks, and grabrails provided on the sides and ends of a deckhouse.

22.2.4.3 Fastening points for the attachment of safety harness life lines should be arranged having regard to the likely need for work on or above deck. In general, securing points should be provided in the following positions:

- .1 close to a companionway; and
- .2 on both sides of a cockpit.

22.2.4.4. When guard rails or wires are not otherwise provided, or do not meet the requirements of section 22.2.3, jackstays (which may be fixed or portable) secured to strong points, should be provided on each side of the vessel to enable crew members to traverse the length of the weather deck in bad weather.

22.2.4.5 Vessels with guardrails of a height less than that required by section 22.2.3.3 may be accepted for areas where passengers are not normally allowed. These areas should be restricted to crew use only and alternative arrangements provided on board for their protection. In such cases it should be made clear that passengers must not enter the restricted area,

22.2.5 Safe Location

22.2.5.1 In a non-decked vessel or rigid inflatable, it is the owner's/operator's responsibility to ensure that a safe location aboard the boat is provided for all persons.

22.2.6 Surface of Working Decks

22.2.6.1 The surface of a working deck should be non-slip.

22.2.6.2 Acceptable surfaces are: chequered plate, unpainted wood; a non-skid pattern moulded into FRP; non-slip deck paint; or an efficient non-slip covering.

22.2.6.3 Particular attention should be paid to the surface finish of a hatch cover when it is fitted on a working deck.

22.2.6.4 In an inflatable boat or rigid inflatable boat the upper surface of the inflatable buoyancy tube should be provided with a non-slip finish.

22.2.7 Personal Clothing

22.2.7.1 It is the responsibility of an owner/managing agent/Master to advise crew / passengers / industrial personnel that the following requirements for items of personal clothing should be met:

- .1 Each person on board a vessel should have protective clothing appropriate to the prevailing air and sea temperatures and that provides protection from precipitation and spray from the sea.
- .2 Each person on board a vessel should have footwear having non-slip soles, to be worn on board.

22.2.7.2 When a vessel certified to operate in Area Category 0, 1 or 2 is operating in waters of sea surface temperature of 10 degrees centigrade or less, it is the

responsibility of an owner/managing agent/Master to advise passengers / industrial personnel that they should have either an approved immersion suit, a dry suit or other efficient garment (such as a floatation suit meeting EN ISO 15027-1) to reduce the likelihood of cold water shock and hypothermia should the wearer enter the sea. Sea temperature data may be found in sources such as the Admiralty Pilot for a given sea area and period.

22.2.7.3 It is recommended that selection of protective clothing should be based on a risk assessment which considers:

- Manufacturer's performance data of the clothing to arrive at an estimated survival time in the expected worst case conditions, including sea temperature and wind chill,
- Estimated maximum time for recovery of the person from the sea.

22.3 The Code of Safe Working Practices for Merchant Seafarers

22.3.1 *Every vessel should carry on board an updated copy of the MCA's publication "The Code of Safe Working Practices for Merchant Seafarers"¹²⁹.*

22.3.2 *Where it is not practical to carry the publication on board the vessel due to its design, such as open boats without dry storage areas, The Code of Safe Working Practices for Merchant Seafarers may be kept ashore. In such cases it must be made available to be used by all members of the crew.*

22.4 Protection of Passengers and Industrial Personnel

22.4.1 Operators should carefully consider the design and layout of the vessel and whether it is suitable for its intended operation, and suitably protects those on board.

22.4.2 In addition to 22.4.1 operators should consider carefully the intended operation of the vessel and whether or not there may be certain passengers / industrial personnel which may be more susceptible to injury as a result of that intended operation. As part of the risk assessment required under the General Duties requirements of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 (SI 1997 No. 2962), as amended, (see section 22.1.1), the operator is required to carry out a risk assessment for all persons on board.

¹²⁹ MIN 561 (M+F) – "Code of Safe Working Practices for Merchant Seafarers: Amendment 2017" provides information on the latest amendment at the time of publication. Further amendments are likely.

23 Medical Care

23.1 Medical Stores

23.1.1 *Medical stores should be carried in accordance with the requirements set out in MSN 1768 (M+F)¹³⁰ which can be obtained from the MCA website at www.gov.uk/mca or from any MCA Marine Office. This requires medical stores according to the distance from shore that a vessel operates.*

- *For vessels in Area Categories 2, 3, 4, 5 and 6, **Category C stores** are required, as listed in Appendix 1 of the MSN 1768.*
- *For vessels in Area Category 1, **Category B stores** are required, and*
- *For vessels in Area Category 0, **Category A stores** are required as listed in Appendix 1 of the MSN 1768.*

Note: *All vessels should carry a full copy of MSN 1768 (M+F) with the medical stores.*

23.1.2 *The notes to the MSN explain the flexibility available, under the MSN, in terms of the selection of medicines and medical equipment to be carried. Where, because of the particular type of vessel or operation, and based on a risk assessment and professional medical advice, it is considered impractical or unsafe to carry a specific item, this may be omitted. Where any item is omitted, this should be stated on the medical stores, with a note indicating the specific item that is omitted and that its omission is based on risk assessment and medical advice.*

23.1.3 *If the vessel carries dangerous cargoes, the operator should ensure that the additional requirements in 29.6.3 are met, where necessary.*

23.2 Medical Care on Board Ship and Ashore

23.2.1 *Note should be made of the first aid training requirements in Appendix 3.*

23.2.2 *The owner should ensure that if the Master or crew require medical or dental treatment which cannot be provided on board, while employed or working on the vessel, they are able wherever practicable to seek medical attention ashore, and any treatment is provided at no cost to the individual. MGN 482 provides further information.*

23.3 Shipowner's Liability for Medical Care

23.3.1 *The owner is liable to pay for the medical care and any related expenses for accommodation or keep for up to 16 weeks, or until the seafarer has been repatriated if that is longer, for seafarers who are ill or injured during, or as a result of, employment on the vessel.*

23.3.2 *For further information and guidance on the owner's responsibility for medical care, see MGN 480 to be published during 2014. .*

¹³⁰MSN 1768 (M+F) – “Ship's Medical Stores - Application of the Merchant Shipping and Fishing Vessels (Medical Stores) Regulations 1995 (SI 1995 No.1802) and the Merchant Shipping and Fishing Vessels (Medical Stores)(Amendment) Regulations 1996 (SI 1996 No. 2821)”.

24 Tenders and Daughter Craft

- 24.1 This section of the Code addresses “Tenders and Daughter Craft” which are referred to as Type 1 and Type 2 Tenders. “Daughter craft” (Type 1) is a term more commonly used elsewhere but serves here to convey the nature of the use. There should be no confusion between the two types of vessel. The LOLER and PUWER Regulations apply to these vessels.
- 24.2 Type 1 Tenders are daughter craft provided (towed or carried) on board specifically for “off-ship” working on the business of the mother vessel or support thereof. See also 4.5 & 4.6. Guidance on daughter craft outwith the scope of the application in this Code are also available.
- 24.3 Type 2 Tenders are provided (towed or carried) solely for tendering persons or stores directly to and from the mother vessel and not for workboat duties. Such transits should be restricted to nearby shore facilities or vessels, either within harbour limits, categorised waters or no more than 0.5 n.m. from the mother vessel whilst at sea.
- 24.4 Type 1 Tenders may, when meeting the qualifying conditions below, treat the mother vessel as a safe haven (see Note 2). In order to do so, Type 1 tenders should:
- (a) be separately named; and
 - (b) be coded and certified independently of the mother vessel with the exceptions of Area Category 5 or 6 vessels, and when operating as a Type 1 Tender should also be subject to the limitations applied in (d) and (e) below, see also Note 1;
 - (c) The vessel’s Workboat Certificate should be endorsed “suitable for use as a daughter craft restricted to X miles from the mother vessel” to indicate that it is suitable for operation as a daughter craft.
 - (d) fit a kill cord and use it at all times during navigation and whilst the engine is on (as per section 7.6.5) if the tender is an inflatable boat, a boat fitted with an buoyant collar or an open boat that achieves planing speeds. A spare kill cord should also be carried on board or the kill system should be capable of override to facilitate the rescue of the person going overboard with the cord attached. See 7.6.5 for exclusions to the fitment and use of kill cords;
 - (e) regardless of a tender’s certified Area Category, be limited to operations no more than 10 miles from the mother vessel and to daylight hours in favourable weather; and
 - (f) additionally on communications including GMDSS:
 - i The crew of the Type 1 tender should be suitably qualified for the equipment on board e.g. if GMDSS is fitted;
 - ii Where GMDSS or an EPIRB are not carried, procedures should be in place for the mother vessel to continuously monitor the communication method and the daughter crafts location;
 - iii if not remaining in visual range and within 3 miles of the mother vessel, should be fully equipped and operated as per the certified Area Category (subject to 24.4(e) and Note 1);
 - iv if remaining in visual range and within 3 miles of the mother vessel, the Type 1 Tender need not carry GMDSS equipment or an EPIRB but all the tenders’ crew are recommended to wear PLB’s (meeting

the guidelines in 13.9.1) and the tender should be fitted with VHF radio equipment (in accordance with 16.8) suitable for the receiver heights (see 16.3.3 for details) and distance from the mother vessel, so as to enable effective communication between the mother vessel and the Type 1 tender at all times; and

- v The MMSI number of the type 1 tender should be registered under that of the mother vessel.

Note 1: Type 1 tenders should be operated, restricted and manned in accordance with the certified area category (subject to 24.4 (b), (c), (e) and (f) above). Operators of Type 1 tenders needing to operate outside these limitations should contact the Administration.

Note 2: Type 1 tenders should have a risk assessment of the operation and equipment carried as per the occupational Health and Safety responsibilities to the Type 1 tender under their permit to work scheme. Hence, amongst other considerations, where crew need to leave the vessel for some part of the work of that Type 1 tender consideration should be given to a means to remotely locate those persons (e.g. see 13.9.1) and be able to communicate with both the mother vessel and the Type 1 tender, if persons are left on board; and the crew of the Type 1 tender (if on board) should consider keeping visual safety watch on any off-ship working personnel.

24.5 Where a Type 1 tender relies on the mother vessel as its “safe haven” the lifting equipment must be capable of recovering the daughter craft in ALL anticipated operational weather and sea conditions during which times the daughter craft is permitted to be launched and operated. Also, the scantlings of the daughter craft must be such that the structure of the craft are adequate for both static and dynamic loading in such extreme conditions. Where a platform facility is relied upon as a “safe haven”, equivalent levels of safety for the recovery should be provided.

24.6 Certification of Type 1 Tenders shall take account of:

- “Man lifting” requirements. The LOLER Regulations¹³¹ should be followed where applicable;
- Static and dynamic lifting loads imposed on the craft structure;
- The operational restriction on any off-ship operation, and;
- The consequences particularly of dynamic loading on the recovery of the tender and the viability of considering the mother vessel as the safe haven for the purposes of certification. Reference should be made in particular to 4.6.3.

¹³¹ MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006.

24.7

In order to be able to consider Type 2 Tenders not as Workboats, then the following should be met:

- The mother vessel should be Coded, certified under Load Line or other equivalent arrangement and be fit for the purpose intended, or;
- if it is not certified under the Code of Practice or other as above it should be fit for the purpose intended, regularly inspected by the operator, owner or managing agent and maintained in a safe condition, or;
- it should be considered as work equipment under PUWER¹³²;
- It should be clearly marked “Tender to [**mother vessel name**]” and must be clearly marked with the permissible maximum weight which can be safely carried;
- Fit a kill cord and use it all times during navigation and whilst the engine is on (as per section 7.6.5) if the tender is an inflatable boat, a boat fitted with a buoyant collar or an open boat that achieves planing speeds. A spare kill cord should also be carried on board or the kill system should be capable of override to facilitate the rescue of the person going overboard with the cord attached. See 7.6.5 for exclusions to the fitment and use of kill cords;
- Personnel operating a Type 2 Tender should carry a hand held VHF at all times;
- If the vessel is being lifted or used on a ramp the strength of construction should also be fit for purpose, where necessary, it should also be fitted with lifting points that correspond with the construction of the vessel¹³³.

A Type 2 Tender is not required to meet the requirements for inflatable boats or rigid inflatable boats in 4.5.

It is not anticipated that it will be necessary for a Type 2 Tender to carry any more than a ready use fuel tank.

¹³² MGN 331 (M+F) – “The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2010.

¹³³MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006.

25 Requirements Specific to the Use of the Vessel

25.1 Introduction

This section covers additional requirements for vessels covered by this Code dependent upon their type of operation of equipment carried.

25.2 Vessels Engaged in Towing

25.2.1 General

25.2.1.1 The requirements of this section do not apply to vessels towing in an emergency situation (force majeure).

25.2.1.2 Reference should be made to section 11.7 for stability of vessels engaged in towing and to section 17 – Navigation Lights, Shapes and Sound Signals for requirements for towing and towed vessels.

25.2.1.3 The following are guidelines but should not be considered to replace, typically, Health and Safety at Work Regulations¹³⁴, the Lifting Operations and Lifting Equipment Regulations¹³⁵ (LOLER), the provisions and Use of Work Equipment Regulations¹³⁶ (PUWER) or similar.

25.2.1.4 Due consideration should be made for vessels engaged in towing by the owner / managing agent to ensure that a person can be recovered efficiently from the water. Such arrangement should be demonstrated to the satisfaction of the Certifying Authority

25.2.1.5 The owner/managing agent should ensure that the Master is aware of and has copies on board the vessel of relevant Merchant Shipping Notices and other documents which give guidance on safety of vessels engaged in towing.

25.2.1.6 Attention of the owner/managing agent, and therefore the Master, is drawn in particular to the following guidance¹³⁷:-

MGN 199 (M+F) – “Dangers of Interaction”;

MGN 308 (M+F) “Mooring, Towing or Hauling Equipment on all Vessels – Safe Installation and Safe Operation”;

Load Line Instructions to Surveyors (MSIS 1), section 8.11 “Tugs”

Load Line Instructions to Surveyors (MSIS 1), section 8.12 “Safety of Towed Ships and Other Floating Objects”;

IMO Resolution A.765(18) “Guidelines on the Safety of Towed Ships and other Floating Objects”

IMO MSC/Circular.884 “Guidelines on Safe Ocean Towing”; and

¹³⁴MGN 410 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work)(Work at Height) Regulations 2010.

¹³⁵MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006.

¹³⁶ MGN 331 (M+F) – “The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2010.

¹³⁷.

IMO MSC/Circular.1175 "Guidance on Shipboard Towing and Mooring Equipment"

The Use of Workboats for Towage – Good Practice Guide, 12/6/16 including the Vessel Stability Annex, 08/18.

25.2.1.7 Due regard should be given to other relevant Marine Guidance Notes which may be issued from time to time, which provide guidance on the safety of vessels engaged in towing.

25.2.2 Towing Arrangements

25.2.2.1 The design of towing gear should minimise the overturning moment due to the lead of the towline.

25.2.2.2 Towing at sea by towline should only be done using a towing hook, towing winch or towline which should have a positive means of immediate release which can be relied upon to function correctly under all operating conditions.

25.2.2.3 The emergency release mechanism should be controlled and tested from all conning positions and – if safe and practicable - at the winch or hook itself. Where there is local control at a tow hook or winch it should be of the direct mechanical type capable of independent operation. The emergency release system is independent of normal powered operation. The vessel shall have a documented and drilled procedure and any necessary equipment to achieve a safe and rapid release of the tow in emergency conditions, which shall be verified by the Certifying Authority.

25.2.2.4 Sections 25.2.2.2 and 25.2.2.3 need not be applied to a vessels towing less than twice its displacement but the vessel shall have a documented and drilled procedure and any necessary equipment to achieve a safe and rapid release of the tow in emergency conditions, which shall be verified by the Certifying Authority.

25.2.2.5 The owner / managing agent should have in place a structured or documented procedure for the maintenance, inspection and routine testing of its vessels' towing equipment, including the towing hook, towing winch and emergency release system.

25.2.2.6 The winch, bollards, fairleads, windlass, towing hook (or equivalent fitting), gogging arrangements and the supporting structure should be strong enough to withstand the loads imposed during towing operations. Specifically, a towing winch should be able to withstand a force equal to the breaking load of the tow line acting at its maximum height above the deck, without over-stressing either the winch or the deck connections.

25.2.2.7 The towing winch brake should be capable of preventing the towing line from paying out when the towing vessel is towing at its maximum continuous static bollard pull and shall not release automatically in case of power failure (but should be capable of release).

25.2.2.8 When towing on a line, the winch line must only be secured to the winch drum by such methods that would allow the tow to be fully released under load. The

towline should be connected by a weak-link to the drum to allow it to run free in an emergency.

25.2.2.9 Vessels in all categories of operation should be of such a design to allow them to operate safely and effectively when undertaking a tow. For offshore and ocean tows, an effective tug will need adequate propeller and forefoot immersion to minimise slamming.

25.2.2.10 The operator or Master should document a tow-plan and risk assessment. The extent of this will depend on the complexity of the tow and a generic plan and risk assessment may be appropriate for small vessels repeatedly working within the one area consistently doing the same kind of work. The plan and risk assessment should consider, as appropriate to the vessel and the operation:

.1 Selection of the vessel engaged in towing should be on the basis of bollard pull and resistance of the towed object. Adequate power should be available to maintain a safe speed appropriate to the particular object to be towed, taking account of the environmental conditions to be expected and any restrictions applicable to the towed object that may limit the safe speed, in conjunction with the necessary Risk Assessments for the tow;

.2 Selection of towing equipment based on Safe Working Loads and suitable safety factors for intended purpose making consideration for any snatching loads;

.3 Sufficient and suitable Passage Planning (including weather and sea state limitations), in particular where towed vessel is over twice the displacement of the towing vessel, or for any voyages beyond Category 5 limits;

.4 Availability and control over the towline length;

.5 Effectiveness of communications;

.6 Design of the towing system is designed to reduce to a minimum the danger to personnel during towing operations; The means of safe access to the vessel engaged in towing including crew safety in snap back zones and include risk assessments required by MGN308;

.7 The means of safe access to the towed vessel;

.8 Mitigating any other risks identified by the risk assessment;

.9 The availability of suitable safe havens on the planned route should be identified;

.10 A Towage Survey should be carried out where practicable by a competent person to confirm the safety of the tow as a whole. This person could be a warranty surveyor, a Certifying Authority examiner or another person engaged or employed by the owner/managing agent having the necessary experience and training to carry out such a survey.

25.2.3 Weathertight Integrity and Stability

25.2.3.1 The watertight integrity of the vessel engaged in towing and the vessel being towed should be maintained and downflooding points considered.

25.2.3.2 Doorways in superstructures, deckhouses and exposed machinery casings situated on the weather deck, and which enclose accesses to spaces below deck, should be provided with efficient weathertight doors. Weathertight doors, skylights and hatch covers should be secured in the closed position when the vessel is towing and the doors should be marked clearly to this effect on both sides. Deck manhole covers should be checked for secure closing both on the vessel engaged in towing and on the towed vessel.

25.2.3.3 Machinery air intakes and machinery space ventilators which must be kept open during towing operations, on the towing vessel and the tow, should be served by means of high coaming ventilators as protection from downflooding. Any ventilators which must be kept open during towing operations should be indicated in the stability information and assumed to be downflooding points for the purposes of stability calculations. All other ventilators, ship side valves, sea inlets / outlets, hatches, covers, portable closing plates and other openings above and below the water, on the towed vessel, should be identified and securely closed, blanked or sealed prior to departure, and the maximum watertight and weathertight integrity are maintained at all times. All watertight doors below the main deck and all weathertight doors, are to be securely closed and fully dogged at sea, those on the vessel engaged in towing should have signage to this effect.

25.2.3.4 Generally, air pipes and ventilators on the vessel engaged in towing should be kept as far inboard as possible and be fitted with automatic means of closure when downflooding to the compartments served would endanger the safety of the vessel.

25.2.3.5 The provisions of sections 25.2.3.2 to 25.2.3.4 above may be relaxed for vessels engaged in towing vessels of less than twice their displacement, in harbour areas or within Category 4, 5 and 6 areas in favourable weather, provided all practical measures are taken to protect the vessel from downflooding in the event of its taking up a high heel angle, and any particular downflooding risk areas being highlighted by the Certifying Authority on the SWB2 or SCV2 record.

25.2.4 The Towed Vessel or Floating Object

25.2.4.1 A vessel, pontoon, barge or floating object which is towed to sea from a place in the UK should be surveyed and issued by the Administration with an appropriate conditional Load Line or Load Line Exemption Certificate for the towed voyage; and possibly a condition survey of the object being towed. Certification for non-self-propelled vessels which make voyages under tow is permitted in accordance with section 25.5.

25.2.4.2 A copy of the certificate should be kept on board the vessel engaged in towing during passage and the Tow Master should be provided with a copy of the conditions therein such that he is aware of these conditions and his responsibility for complying with them.

- 25.2.4.3 Towed objects should not be manned at sea unless they have accommodation designed to be occupied at sea and that it has appropriate life saving appliances, fire safety and emergency escape provision. However, boarding the towed object at sea may necessarily be undertaken for the purpose of inspection or maintaining safe navigation. Where transfer of crew is necessary, consideration should be given to the necessity of wearing a survival suit.
- 25.2.4.4 Where the operator deems it necessary for the towed vessel in a “dead ship” condition to be manned, by a minimum of 2 crew, then proposals should be submitted to the Administration stating the reason for the necessity, provision of lifejackets, survival suits and direct communication with the vessel engaged in towing. This should be done in good time for consideration as to whether this might be permitted, and in good time so that alternatives can be put in place if permission is not granted.
- 25.2.4.5 A means of safe access from the vessel engaged in towing or a support vessel should be provided to the tow. The location and means of boarding should be suitable for both for daylight and night time operations, where required.
- 25.2.4.6 The towed vessel should be assessed to establish a suitable margin of safety on the (positive) stability and freeboard for the tow.
- 25.2.4.7 Two lifebuoys and lines shall be provided on the towed object to aid lifesaving capability behind the vessel towing.
- 25.2.4.8 The towed vessel should have an anchor / cable suitable for simple deployment and for holding the tow in an emergency.
- 25.2.4.9 The quantities of any oil and pollutants carried on board should be reduced to a minimum required for safe operation.

25.3 Cargo Carrying

- 25.3.1 When a vessel is engaged in carrying cargo all such cargo should be stowed and secured in a manner which will not adversely affect the safe operation of the vessel.
- 25.3.2 Particular attention should be paid to the means for supporting and securing the cargo and the strength of securing points, the free drainage of water from cargo stowed on open deck, safe access in way of cargo stows and unobstructed visibility from the wheelhouse.
- 25.3.3 Cargo hatchways to dry cargo holds or spaces should be of an efficient weathertight construction. Refer also to section 29.2.
- .1 In general, a cargo hatch coaming should be not less than 760mm in height. Hatch covers and coamings should be designed to withstand (without permanent deformation) a hydrostatic load of not less than 1.5 tonnes/metre² overall and associated buckling stress, and be fitted with efficient means to be closed and secured weathertight to the coaming. In any case, the coaming and hatch cover should be sufficiently strong to withstand the hydrostatic loading and/or the loading due to cargo stowed on the hatch cover, whichever loading is limiting.

- .2 Proposals for a cargo hatchway with a reduced coaming height or a flush hatch should be subject to special consideration by the Certifying Authority and may be approved when the safety of the vessel is judged to be at least equivalent to section 25.3.3.1.
- 25.3.4 Special consideration should be given to the securing of cargo on vessels that operate at high speed due to vessel accelerations.
- 25.4 Vessels Fitted with a Deck Crane or Other Lifting Device**
- 25.4.1 Design and Installation**
- 25.4.1.1 Reference should be made to section 11.6 for requirements for safety standards for vessel stability during lifting operations (and consideration should be given to re-examining the stability booklet if modifications are made to the lifting device); and with 25.7 for vessels fitted with diver lifts; and 4.2.1.4 for the attachment of a lifting appliance to the hull structure.
- 25.4.1.2 The Certifying Authority should verify that the structural design of the crane attachment (referred to in 25.4.1.1) to the vessel conforms to appropriate standards for new installations and for any in service modifications involving increased local loading. See also 4.2.1.4 and associated footnotes. The owner / managing agent should notify the Certifying Authority of any changes to the loading or structure or arrangement of the lifting appliances or associated vessel structure. Section 27.11.5 refers.
- 25.4.1.3 *The owner / managing agent should consider the use of a suitable design code (see Appendix 13) for new installations and for any in service modifications with survey and certification carried out by a Certifying Authority to ensure careful design and selection of lifting equipment. MGN 332¹³⁸ refers.*
- 25.4.1.4 *Information should be obtained by the operator / owner, and followed, regarding the amount of list and freeboard allowable under both the rated capacity and overload capacity of the crane from a competent person or an authority experienced in marine vessel design with knowledge of installing cranes on ships / vessels. In addition, where a crane is normally intended for land based use, confirmation should be obtained from the crane manufacturer or designer on how far the crane is de-rated from land based ratings whilst on the pontoon / barge / vessel, they should also provide detail of the load radius charts in a sea state. A crane that is marinised¹³⁹ will have lift/radius charts that explain that the lifts are based on Sea State 0 or Harbour Conditions with a simple graph showing how the load decreases with increasing amounts of vessel heel.*

¹³⁸ MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006”.

¹³⁹ For the purposes of this chapter a “marinised” crane should be understood to mean it is a type originally designed for use ashore, typically lorry mounted, that has been modified to better withstand the rigours of the marine environment. It will have been subject to a marine paint scheme and the hydraulic cylinder rams will either be manufactured of stainless steel, or of mild steel with multiple chrome coatings to reduce the risk of corrosion. In addition the crane will either have been de-rated by a significant amount, typically 30% to take account of the dynamic loading effect of being vessel mounted, or the vessel will be supplied with load charts, based on harbour conditions.

- 25.4.1.5 Generally, a vessel fitted with a deck crane or other lifting device which will be used when the vessel is at sea should be a decked vessel with a watertight weather deck in accordance with section 4.1.1 and 4.3.1. or be considered under section 4.1.4.
- 25.4.1.6 *Agreement should be obtained from the Administration for any proposal to fit a deck crane or other lifting device on a vessel which is not a decked vessel.*
- 25.4.1.7 *The vessel's structure, the crane or other lifting device and the supporting structure should be of sufficient strength to withstand the loads that will be imposed when operating at its maximum overturning moment and maximum vertical reaction. Note that lorry loaders rely not only on the structural integrity of the mountings, but also on the hull structure.*
- 25.4.1.8 A lifting system which incorporates counterbalance weight(s) should be specially considered through the Certifying Authority by the Administration.
- 25.4.1.9 The Certifying Authority should be satisfied that the safety of the vessel is not endangered by lifting operations. Means should be provided for the efficient securing of cargo and loose equipment on board during lifting operations. Instructions on safety procedures to be followed by the Master should be provided to the satisfaction of the Certifying Authority.
- 25.4.1.10 *Where mobile cranes are operated on board a workboat (e.g. on the deck of a barge), special consideration should be given to worst case scenarios with regard to stability, structural strength of the deck and safe limits of the deck operating area.*

25.4.2 Certification and Testing

- 25.4.2.1 *The Merchant Shipping (Lifting Operations and Lifting Equipment) Regulations 2006 (SI 2006 No. 2184), as amended apply to lifting equipment and its operation. The guidance is general in nature; employers should give more detailed consideration to the various aspects of their specific operations and take appropriate measures to safeguard health and safety. Further guidance can be found in MGN 332 (M+F)¹⁴⁰. This Code does not aim to replicate those regulations or guidance and it is the responsibility of the owner / managing agent / employer to ensure that they are in compliance with them.*

Additional information on maintenance and lifting operations is available in the Code of Safe Working Practices for Merchant Seafarers, Chapter 19.

- 25.4.2.2 The Merchant Shipping (Lifting Operations and Lifting Equipment) Regulations 2006 (SI 2006 No. 2184), as amended, apply and should be considered in accordance with the Merchant Shipping (Provision and Use of Work Equipment) Regulations 2006 (SI 2006 No. 2183), as amended, which are highlighted in 22.1 of this Code.
- 25.4.2.3 Load tests and inspections to verify the safe operation of the crane or other lifting device, its foundation and supporting structures should be carried out to the satisfaction of the competent person (see definition in Section 2 of this code who should also have experience of fitting and operation of lifting equipment

¹⁴⁰MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006”.

on ships / vessels) in accordance with LOLER¹⁴¹. Tests should be conducted in accordance with a recognised standard for the installation. Such tests should be repeated after modifications, including any structural modifications, take place. A thorough examination of the crane or lifting device, including functional test, should be carried out annually.

- 25.4.2.4 *The crane or other lifting device should be subjected to a 25% overload test¹⁴² at maximum load moment. Following this static overload test, the hoist, slew and luff performance should be tested at low speed, as appropriate, at 110% load; the crane shall be tested through the full operating arc of the crane which should be shown on the load test report, or as a minimum every 30 degrees of radius where continuous slewing with the test weight is difficult. Tests for a variable load-radius type of crane or other lifting device should correspond to its rated performance (e.g. load radius chart).*

The relief valve system, rated capacity indicator and rated limiter, should be overridden or disconnected before the test. Thorough examinations should be carried out by a competent person taking account of any instructions with respect to the crane limiting criteria. If the competent person does not have the skills or tools to override or disconnect the limiting items a makers representative should be present. Where seals need to be broken, resealing of relief valves should be done on completion of overload test.

LOADER CRANE: A powered crane comprising a column which slews about a base, and a boom system which is attached onto the top of the column. Overload testing and dynamic testing of loader cranes to be carried out in accordance with BS 7121-2-4¹⁴³.

- 25.4.2.5 *Attention is drawn to the requirements of BS 7121-2:2013 - Code of Practice for Safe Use of Cranes. Inspection, Maintenance and Thorough Examination, parts of which have particular relevance to vessels certificated in accordance with this Code. See Appendix 13. Maintenance should be carried out in accordance with the manufacturers instruction manual. Repair and maintenance should only use parts made or recommended by the crane manufacturer.*

- 25.4.2.6 *Overload testing shall be carried out upon installation, after the crane has been in service for 4 years, 8 years, 10 years and 12 years, and annually thereafter if the crane has not been marinised¹⁴⁴. If the crane has been marinised and the requirements of BS EN 13852^{145,146} and EN 12999¹⁴⁷ are met then a loader crane should be tested, according to the LOLER Regulations, at least every 5 years. See also 25.4.2.7.*

¹⁴¹ MGN 332 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006.

¹⁴² It is anticipated that BS 7121-2-4 will remove this overload test in the future, in which case, this overload test will continue to be required under industry best practice (such as Lloyd’s Registers’ Code for Lifting Appliances in the Marine Environment) from the date that that standard comes into force. At that point the new BS 7121 requirements for other testing and frequency for different crane types should be followed.

¹⁴³ BS 7121-2-4:2013 Code of Practice for the Safe Use of Cranes. Inspections, Maintenance and Thorough Examination – Loader Cranes

¹⁴⁴ Refer to BS 7121-2-4:2013 Part 2-4, 9.1 for testing regime of loader cranes.

¹⁴⁵ BS EN 13852-1 Cranes – Offshore Cranes – General Purpose Offshore Cranes

¹⁴⁶ BS EN 13852-2 Cranes – Offshore Cranes – Loader Cranes

¹⁴⁷ EN 12999 Cranes - Loader cranes

25.4.2.7 Consideration should be given by the owner / managing agent of a land based hydraulic crane that is not supplied with marine environment features (see footnote in 25.4.1.4 for definition used here) and is fitted on board small workboats in the marine environment, to an enhanced maintenance schedule suitable for the environment and usage, as per BS 7121 and the Provision and Use of Work Equipment Regulations (PUWER) 1998. This should include a more frequent inspection regime and should include inspecting electrical connectors and components, drive train, structural components, fasteners and wire ropes. See also 25.4.2.6.

25.4.2.8 An appropriate risk assessment should be carried out by the owner / managing agent before any examination and testing is carried out.

25.4.2.9 *All inspections, thorough examinations and tests must be properly documented under an "Examination Scheme" drawn up by the owner / managing agent. MGN332¹⁴⁸ refers.*

25.4.3 Operational Considerations

25.4.3.1 An inclinometer or other efficient device to display heel angle should be provided on board for guidance to the crane or lifting device operator when controlling the lifting of items of unknown weight.

25.4.3.2 A prominent clear notice should be posted on or near the crane or lifting device and contain the following information and instructions:-

- .1 the maximum permitted load and outreach which satisfy the requirements of section 11.6.4, or the safe working load (SWL), whichever is the lesser (operating performance data, i.e. load radius performance chart for a crane or other lifting device of variable load-radius type should be included as appropriate);
- .2 any crane whose safe working load varies with its operating radius is provided with a means of accurately determining the radius at any time, clearly visible or accessible to the driver of the crane, showing the radius of the load lifting attachments at any time. Provision should be made to enable the driver to ascertain the safe working load corresponding to that radius;
- .3 details of all openings leading below deck which should be secured weathertight; and
- .4 instructions for all personnel to be above deck before lifting operations commence.

25.4.3.3 It is acceptable, to enable load indication for a hydraulic loader crane, to fit a pressure gauge to monitor the pressure in the load bearing cylinder with a relief valve to prevent overload.

25.4.3.4 Where a saturated load is required to be lifted, consideration should be given by the Master, prior to the lifting operation taking place, to the additional

¹⁴⁸ MGN 332 - The Merchant Shipping And Fishing Vessels (Lifting Operations And Lifting Equipment) Regulations 2006

weight due to the item being saturated. Where a load is being lifted from the seabed consideration should be given to suction and snagging.

25.5 Non-Self-Propelled Vessels

25.5.1 General

25.5.1.1 It is permissible for a Small Workboat Certificate to be issued to cover the transit voyages under tow of an unmanned non-self-propelled vessel or floating object of defined rigid form. The valid life of the certificate should be decided by the Certifying Authority but in no case should it exceed 5 years.

25.5.1.2 It is permissible for a Small Workboat Certificate to be issued to cover the safety of a non-self-propelled vessel of defined rigid form which is a working platform for equipment and/or power producing plant. The vessel should be assessed for compliance with the parts of the Code which are appropriate to its commercial operation.

25.5.1.3 A vessel of defined rigid form includes a vessel which comprises an assembly of separate units held together by an efficient engineered joining system appropriate to the mode of operation of the vessel.

25.5.1.4 A vessel which has the capability of a jack-up to operate clear of the surface of the water falls under the jurisdiction of the Health and Safety Executive when it is jacked up, and should be equipped and certificated to meet the appropriate requirements.

25.5.1.5 A small non-self-propelled vessel which is not covered by section 25.5.1.1, 25.5.1.2 or 25.5.1.3 should be referred to the Administration for consideration of safety standards and certification to be applied.

25.5.2 Stability

25.5.2.1 When the stability standards of section 11, or the IMO Intact Stability Code, are not appropriate for assessment of a particular small non-self-propelled vessel, the case should be referred to the Administration for consideration of stability standards to be applied.

25.5.3 Freeboard

25.5.3.1 Generally, freeboard should be assigned in accordance with the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), as amended.

25.5.3.2 An existing non-self-propelled vessel with a valid United Kingdom Load Line Exemption Certificate but having an assigned freeboard less than that required by the Merchant Shipping (Load Line) Regulations 1998 (SI 1998 No. 2241), as amended should be accepted for a Small Workboat Certificate under the same conditions given on the Exemption Certificate.

25.5.3.3 Load Line marking should be applied in accordance with section 12.3 (but see section 25.5.3.5).

25.5.3.4 An unmanned pontoon barge on which the freeboard deck is penetrated only by small access openings which are closed by gasketed watertight covers should have freeboard determined in accordance with the Merchant Shipping (Load

Line) Regulations 1998 (SI 1998 No. 2241), as amended, as if it was a Type "A" ship and omitting any correction for minimum bow height. At the discretion of the Certifying Authority, having due regard for safe voyages of the unmanned barge under conditions which should be explicitly recorded on the Small Workboat Certificate, the freeboard thus determined may be reduced by up to 25%.

25.5.3.5 No requirement is made for the provision of draught marks. In order that the towing Master can readily recognise change in the condition of the tow, the towed vessel should be marked at the forward end with one or more white bars 2000mm in length and 150mm high (or alternative marking which is clearly visible from the towing vessel) to the satisfaction of the Certifying Authority.

25.6 Vessels Engaged as a Pilot Boat

25.6.1 General

25.6.1.1 A vessel engaged as a pilot boat may be recognised as either a dedicated pilot boat which is certificated as a pilot boat or a certificated Workboat which is engaged as a pilot boat from time to time. In such latter case, the vessel will be certificated as a Workboat with a Pilot Boat Endorsement; see also section 25.6.2.

25.6.1.2 A pilot boat should be certificated even if it does not operate at sea. Where such a Pilot Boat Certificate is issued to a pilot boat which does not go to sea, the vessel should meet the minimum requirements for a Pilot Boat operating in Area Category 6, except where there are exceptions to the requirements in 25.6.3.1 for non-seagoing pilot boats. Non-seagoing pilot boats operating at night should meet the equipment carriage requirements of a vessel operating in category 3.

25.6.1.3 The requirements of the Code apply generally to all vessels. Requirements for a pilot boat are, in certain matters of safety, either additional or alternative to the requirements of the Code.

25.6.1.4 Under the Merchant Shipping (Small Workboats and Pilot Boats) Regulations 1998 (SI 1998 No. 1609), as amended, the Secretary of State may exempt any pilot boat from any or all of the provisions of the part of the regulations dealing with pilot boats. In granting an exemption, the Secretary of State may do so on such terms (if any) as he may specify if he is satisfied that compliance with such provision is either impracticable or unreasonable in the case of a pilot boat and may, subject to giving reasonable notice, alter or cancel any such exemption. Applications for exemption should be submitted through the Certifying Authority to the MCA for consideration. The MCA is empowered to grant exemptions on behalf of the Secretary of State.

25.6.1.5 Those operating pilot boats should be aware of the dangers of interaction. MGN 199 – "Dangers of Interaction" provides guidance.

25.6.2 A Small Workboat Engaged as a Pilot Boat

25.6.2.1 A Small Workboat engaged as a pilot boat from time to time should comply with the Code as it applies to its duties as a Small Workboat and, in addition, comply with the requirements for a dedicated pilot boat which are marked with * in section 25.6.3.

25.6.2.2 Such a vessel should be in possession of a Workboat Certificate which carries a 'PILOT BOAT ENDORSEMENT'.

25.6.2.3 In the event that the safety rail system required by * 22.4 of section 25.6.3 is considered to be inappropriate because of other measures provided to prevent persons on deck from falling overboard (e.g. extent and height of bulwarks or rails), the Certifying Authority should be satisfied that the provisions for the safe movement of pilots and other persons on deck during transfers are adequate.

25.6.3 Dedicated Pilot Boat

25.6.3.1 A dedicated pilot boat should comply with the following requirements. The requirements refer to the appropriate sections of the Code:-

*5.3.1.3 The normal means of access from the open deck to accommodation space, provided for the use of pilots should be a weathertight door which is not forward facing;

*5.4 Pilot boarding activities should be visible from the pilot boat helmsman's position. Visibility should be adequate in both the vertical and horizontal planes;

*5.5 Where a vessel is required to have efficient storm shutters for all front and side facing wheelhouse windows, this can be moderated on the basis of recorded safe operating experience of pilot boats in their particular area of operation;

*7.3 A pilot boat should not be fitted with a petrol engine;

*11.3 A seagoing pilot boat should carry an approved Stability Information Booklet which meets the requirements of section 11.3.

*11.4 A non-seagoing pilot boat should undergo a heeling test in the fully loaded condition and be demonstrated to meet the requirements of section 11.4;

12 A dedicated pilot boat need not be marked with a freeboard mark;

*13.5 Pilot boats are to be provided with immersion suits for all persons on board, meeting the requirements of 13.5.3.1 and 13.5.3.2;

*13.12 4 parachute white illuminating flares should be provided for emergency use in rescues at night (the use of pyrotechnics must be considered having regard to the environment in which the pilot boat is being operated e.g. where a flammable atmosphere could be present);

*13.12 6 red rocket parachute flares should be provided;

*13.12 2 line throwing appliances (half a set) should be provided. This requirement may be waived for pilot boats operating in categorised waters only, subject to a satisfactory risk assessment by the operator;

*13.13 Rescue retrieval equipment should be provided as follows:

- .1 Transom steps and/or ladder or equivalent side ladder or scrambling net;
- .2 At least 2 buoyant lifelines of not less than 18 metres in length. Each of the lifelines should have a quoit, or similar efficient throwing device, of appropriate weight secured to one end;

- .3 Efficient mechanical means for the retrieval of any person who falls overboard and means to bring the person in the water to the retrieval point. Where practicable, the arrangement should enable the person to be retrieved in the horizontal position, in order to reduce the risk of heart failure associated with hypothermia. The quality of materials, design and workmanship of construction of the mechanical means of retrieval should ensure that it can be rapidly deployed and will operate efficiently in an emergency. The efficiency of the equipment should be ensured by regular maintenance and testing. (Functional tests are detailed in .6 below.);

- .4 All ladders and outside fittings such as overside steps or booms etc. should be of suitable materials, design and workmanship. Such equipment should be rigged on board and inspected at regular intervals;
 - .5 Arrangements should be provided to protect a person in the water from injury by the propeller(s). When it is impractical to fit a guard to the propeller(s), consideration should be given to alternative measures such as the fitting of a drop down gate/ladder to screen the propeller(s) or operational procedures which include the means to stop the propeller immediately. (The arrangements should be approved by the Certifying Authority for the pilot boat);
 - .6 Rescue retrieval equipment should be demonstrated by functional tests carried out under controlled safe conditions, to the satisfaction of the Certifying Authority. The functional tests should include a simulation of the pilot boat in the minimum manned condition with the coxswain and deckhand on board and the event when the deckhand falls overboard and is recovered. (In this particular simulation, the deckhand can be assumed to be conscious); and
 - .7 It is recommended that competent harbour authorities (or pilotage provider, in the absence of a competent harbour authority) require man overboard retrieval exercises to be conducted and recorded by each pilot boat crew every 6 months;
- *19.5 A searchlight should be provided which is permanently mounted so as to be capable of illuminating the ships side in way of the pilot ladder or the sea area around the boat;
 - *19.6 Pilot boarding activities should be visible from the pilot boat helmsman's position. Visibility should be adequate in both the vertical and horizontal planes;
 - *20 When the Code requirements for anchors and cables are considered excessive, the competent harbour authority should seek the approval of the Certifying Authority for alternative provisions appropriate to the size of vessel and its area of operation;
 - *22.2 For the safe access of personnel, the minimum width of side deck inboard of the bulwark or rails or toe-rail on new vessels should be 400mm but regard should be given to the height and shape of adjacent superstructure or deckhouse. Side decks should be adequately illuminated;
 - *22.2.3 An efficient, uninterrupted/continuous safety rail system for clip-on safety harnesses should be provided. The system should allow the harness traveller to move freely and without adjustment over the full length of the safety rail. The rail system, its attachment to the vessel structure and the clip-on safety harnesses should be designed, constructed, installed, tested and maintained to appropriate personal protective equipment standards, to the satisfaction of the Certifying Authority;
 - *23 In addition to the medical stores required by section 23, a compact stretcher should be carried on a pilot vessel.
 - *25.8 For seagoing pilot boats, individual shock absorbent seating with headrests, footrests and movable armrests should be provided for all members of the crew and the pilots to be carried. Seat belts should be provided for the safety of seated passengers, industrial personnel and crew. For non-seagoing pilot boats, seating, commensurate with the vessels expected operating conditions, should be provided for all passengers, industrial personnel and crew;
 - *26.5 Subject to Marine Guidance Note MGN 50 (M) - Manning of Pilot Boats;-
A pilot boat should be manned by a minimum of 2 adult persons, namely a coxswain, and a deck hand who can assist the pilot when boarding or landing. The competent harbour authority or owner(s)/managing agent(s) of the pilot boat should be satisfied as to the competence and fitness for duty of these persons; and all pilot boat crew members should;

- .1 hold a Proficiency in Medical First Aid Certificate issued by an MCA approved training provider equivalent predecessor (i.e. Department for Transport First Aid Certificate); or
- .2 hold a First Aid Certificate for appropriate first aid or emergency first aid training in accordance with Regulation 3(2) of the Health and Safety (First Aid) Regulations 1981 (SI 1981 No.917) and the Health and Safety Executive publication "First Aid at Work – Approved code of Practice" 2013 edition¹⁴⁹.

25.7 Vessels Fitted with Diver Lifts

- 25.7.1. The installation of the diver lift may require an alteration to the construction of the vessel and may, as a result, alter the strength of the construction. The requirements of 27.11.5 should be considered.
- 25.7.2. The installation of the diver lift may also alter the stability of the vessel and the integrity of the bulwarks. The stability should be assessed considering the installation of the lift and the weight that it is certified to carry.
- 25.7.3 The deployed lift system on a transom, in air, with the maximum intended number of divers fully equipped, should not cause a reduction in freeboard at the aft end of more than 50% of the minimum permitted freeboard.
- 25.7.4 When conducting a heel test, the deployed lift system, in air, with the maximum intended number of divers fully equipped, should not cause the vessel to exceed 7 degrees heel. If a heel angle of more than 7 degrees is accepted by the Certifying Authority, the criteria of 11.4 of this Code must be complied with.
- 25.7.5 Diver lifts are considered as "person retrieval systems" under section 11.6 of this Code.
- 25.7.6 The lift will be subject to the requirements of the Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment Regulations) 2006, SI 2006/No. 2184, as amended. It may also be subject to the Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006, SI 2006/No. 2183, as amended. See 22.1.2 and 25.4.16 for further guidance.
- 25.7.7 Additional guidance on personnel lifting equipment can be found in the MCA's Code of Safe Working Practice for Merchant Seafarers, Ch.19.
- 25.7.8 For vessels engaged in diving operations, all practicable precautions should be taken by the owner/managing agent and the Master to minimise the risk of persons in the water receiving injury from rotating equipment. The risk is particularly significant where stern entry and exit of the vessel is the operational system.
- 25.7.9 Special consideration should be given to ensure that the diver and/or equipment cannot become crushed, trapped or struck and that the lift is controlled at all stages of ascent and descent. Safe means of access from the water should also be considered.

¹⁴⁹ ISBN 978 0 7176 6560 0, or available on line - <http://www.hse.gov.uk/pubns/books/l74.htm>

25.7.10 For the purpose of assigning a Safe Working Load, this should relate to the specific diving operations to be carried out but with a minimum SWL of 150kg per diver. The overload test should be carried out at 2 x SWL.

25.8 Workboats Operating at Speed or Operating in a Planing Mode

25.8.1 Where a vessel is to be operated at speed, or operated in a planing mode, it must be suitably constructed for that purpose, noting the requirements of section 4.

25.8.2 The Certifying Authority should ensure that vessels have suitable inboard seating for all persons on board that allow them to effectively brace themselves and provide lateral support, which should be located so that persons avoid the greatest shock loads. These loads will normally be greatest at the forward part of the vessel. Owner/managing agents should remind persons to remain seated (or stood over jockey seats, as appropriate) during operation unless moving about the boat for a specific purpose. Owner/managing agents of RIBs and open boats should ensure that persons only sit in designated seats. Inboard seats do not include the gunwale or the tubes of a vessel fitted with a buoyant collar.

25.8.3 Appropriately positioned handholds and foot placements can improve the ability for persons to brace effectively.

25.8.4 Further guidance can be found in the publications “Small Passenger Craft High Speed Experience Rides”¹⁵⁰, “Passenger Safety on Small Commercial High Speed Craft”¹⁵¹ and MGN 436 (M+F)¹⁵².

25.8.5 A risk assessment should be carried out to mitigate the hazards of whole body vibration and that the exposure limits in the Merchant Shipping and Fishing Vessels (Control of Vibration at Work Regulations) 2007 are not exceeded. Reference should be made to section 22.1.2.2.

25.9 Offshore Energy Service Vessels

25.9.1 Structural Strength

25.9.1.1 Offshore Energy Service Vessels (OESVs) should be designed, built and maintained to take account of the specific global and local loads to be encountered in service. Some specific requirements are specified below - 25.9.2 & 25.9.3.

¹⁵⁰

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/527972/small_passenger_high_speed_craft_experience_rides_guidance.pdf

¹⁵¹<http://www.rya.org.uk/SiteCollectionDocuments/training/Web%20Documents/RYA%20Training/Training%20centres/Powerboat%20PW%20and%20IW/Passenger%20Safety%20on%20Small%20High%20Speed%20Craft.pdf>

¹⁵²MGN 436 (M+F) – WHOLE-BODY VIBRATION: Guidance on mitigating against the effects of shocks and impacts on small vessels

25.9.2 Bow Contact for Personnel or Cargo Transfer

25.9.2.1 When the vessel is intended for operations to transfer personnel / industrial personnel or cargo over the bow, the bow structure should be suitably arranged and strengthened for this purpose.

25.9.2.2 Foredeck and bow fendering arrangements are to be suitably arranged to minimise the risk to industrial personnel / personnel engaged in transfer operations. Special care should be taken in the arrangement of handrails, 'step-across' arrangements and flush deck fittings positioned within walkways.

25.9.2.3 Bow structures supporting fenders for bow push up operations are to be robust. Deck, wet-deck, bulwarks and framing should be designed to accommodate the foreseen dynamic loads.

25.9.2.4 Bow structures are to be designed for contact with a single 350mm diameter vertical bar.

25.9.2.5 For general guidance, the minimum quasi-static design loads on the bow structures are to be:-

- 0.4 x Displacement along the axis of the vessel
- 0.2 x Displacement vertically
- 0.2 x Displacement transversely

These loads are to be applied as independent loading conditions.

25.9.2.6 Calculations to demonstrate that the bow structures will not yield or buckle when subject to the loads defined above are to be submitted to the Certifying Authority for consideration and approval.

25.9.3 Drivetrain Foundations and Reinforcement for Bow push-up Operations

25.9.3.1 When the vessel is intended for push up operations to transfer personnel / industrial personnel and cargo, the structure in way of main propulsion machinery, shaft bearings, A and P brackets, propellers and rudders should be suitably arranged and strengthened taking into account the possibility of contact shock loading.

25.9.3.2 Vessels often operate at high engine power with no boat speed during push up operations. Operating this way can lead to high local vibrations from the propeller at zero speed, maximum thrust. This may affect propulsion performance, shorten component life and may expose crew to excess vibration.

When intended for this type of operation, the structure in way of main propulsion machinery and stern gear should be carefully considered to avoid vibrations which could damage the local and surrounding structure. The structure should be robust with scantlings in excess of those typically required from a recognised Classification Society. The panel size should be small to minimize any potential for resonance. Connection details should be carefully considered to minimise stress concentrations.

25.9.4 Automatic Identification Systems (AIS)

25.9.4.1 A vessel which operates more than 20 miles from land (Area Category 0, 1 or 2) should be provided with a suitable AIS transceiver Class 'A' AIS the equipment should be installed in accordance with manufacturers guidelines and IMO COMSAR/Circ.32¹⁵³. See 18.4.3 for guidance on testing.

25.9.5 Visibility

25.9.5.1 All docking, personnel, cargo, stores and fuel transfer activities should be visible from the helmsman's position. Visibility should be adequate in both the vertical and horizontal planes.

25.9.6 Personnel Safety

25.9.6.1 Transferring personnel should have a safe, clear passage to the embarkation station

25.9.6.2 Due attention should be paid to the safety of transfer personnel / industrial personnel by thorough briefing and by continual assessment throughout the voyage, with due regard to the ambient sea conditions and with due account of the effects of whole body vibration.

25.9.6.3 For vessels engaged in personnel transfer at sea to offshore structures (e.g. of industrial personnel), individual ergonomic seating should be provided for all persons on board, with due regard to the provision of seat belts, headrests, footrests and movable armrests following a comprehensive Risk Assessment. For smaller, conventional vessels further mitigation measures to reduce the effects of vibration, such as shock absorbent seating.

25.9.6.4 Efficient means should be provided for the retrieval of any person who falls overboard with means to bring the person in the water to the retrieval point. Where practicable, the arrangement should enable the person to be retrieved as quickly as practicable in order to reduce the risk of heart failure associated with hypothermia. The quality of materials, design and workmanship of construction of the means of retrieval should ensure that it can be rapidly deployed and will operate efficiently in an emergency. The efficiency of the equipment should be ensured by regular maintenance and testing. (Functional tests are detailed in .6 below.);

Arrangements should be provided to protect a person in the water from injury by the propeller(s). This may be by means of operational procedures which include the means to stop the propeller immediately.

Rescue retrieval equipment should be demonstrated by regular functional tests carried out under controlled safe conditions and recorded, at least every three months. Refer also to section 22.7.

25.9.7 Anchor(s)

High speed, twin propulsion OESVs may operate with only one anchor. The size of the anchor is to be agreed between the Owner / Builder and the Certifying /

¹⁵³ IMO COMSAR/Corc.32 Harmonization of GMDSS Requirements for Radio Installations on Board SOLAS Ships

Class Authority. Minimum size and weight of anchor and chain to be in accordance with that required by a recognised Classification Society for a vessel of that size, shape and displacement, see also 20.5.3.1.

25.9.8 Carriage of Dangerous Goods

25.9.8.1 *Where Packaged Dangerous Goods under the International Maritime Dangerous Goods (IMDG) Code are carried for use in connection with the maintenance of offshore structures, appropriate certification must be carried as required in section 29, to the satisfaction of the Administration.*

25.9.8.2 *Third party carriage of Dangerous Goods (e.g. by industrial personnel carrying equipment in personal hand baggage). At the point of embarkation the industrial personnel and passengers (note restriction in 29.1.6) should declare the contents of their baggage to the Master/crew of the vessel and any dangerous goods would have to be included in the quantities permitted under 29.3.2 and the crew should take the appropriate action for safe stowage. Operators should bring this requirement to the attention of industrial personnel and passengers i.e. by providing relevant signage posted at the point of embarkation.*

25.10 Vessels operating with a Small Commercial Vessel Certificate wishing to operate as “Light Duty Workboats”

25.10.1 Vessels certified under another Small Commercial Vessel Code may be issued with a Light Duty Workboat Certificate (see Appendix 15), for the same “Area Operating Category” for which it is already certified under that Code or Standard. This is subject to the continued validity of the vessels existing certification. These vessels however should meet the manning and training and other operational requirements of the Workboat Code.

25.10.2 The intention of section 25.10 is principally to accommodate those vessels that are necessarily issued with other certification under the Small Commercial Vessel Codes of Practice due to the types of their core operation whilst applying appropriate technical, manning and training standards to address the full range of operations undertaken by small workboats.

25.10.3 A vessel issued with a Light Duty Workboat Certificate is not required to have an approved Stability Information Booklet unless this is a requirement of the applicable Code of Practice.

25.10.4 Such vessels must not:

- Carry more than 1 tonne of cargo;
- Be fitted with a crane or other lifting device;
- Tow vessels greater than twice their own displacement;
- Carry out frequent towing duties;
- Carry out duties that impose severe local structural loadings e.g. static pushing operations; or
- Carry dangerous goods.

25.10.5 In order for light duty workboats to be engaged in towing (beyond force majeure) the Certifying Authority must examine towing equipment as required by section 25.2 of this Code and be restricted to towing in harbour or inshore areas and meet the relevant part of section 11.7 of this Code.

25.10.6 Refer to section 27.7.3 for examination requirements.

25.10.7 Where a vessel falls outside of the limitations in 25.10.4 a Workboat Code Certificate will be required.

25.11 Commercial Sailing Vessels

25.11.1 It is appreciated that there are a small number of small sailing vessels in commercial use other than recreational vessels e.g. sailing cargo ships. These can be certificated under this Code, but the special requirements related to sailing, including stability, weathertight integrity, etc. should be as per the equivalent requirements of the Small Commercial Vessel Codes of Practice, or any subsequent Code published by the MCA. Guidance should be sought from the Administration on the survey and certification of these specialist vessels.

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26 Manning

26.1 General

- 26.1.1 A vessel should be safely manned.
- 26.1.2 Vessels operating in Area Categories 3, 4, 5 and 6, unless operating in the single handed mode in accordance with 26.9, should have a second person on board deemed by the Master to be capable of assisting the Master in an emergency.
- 26.1.3 Vessels operating in Area Category 2 should have a second person on board deemed by the owner/managing agent to be experienced and competent.
- 26.1.4 Vessels operating in Area Categories 0 and 1 should have an additional qualified person on board as required by Table A3.1 in Appendix 3.
- 26.1.5 The Master of a vessel should ensure that each person on board is briefed on Health and Safety appropriate to their role on board, Appendix 7, section 5 refers.
- 26.1.6 If completion of the relevant mandatory courses cannot be proven by the owner/managing agent or crew, then the MCA may detain the vessel.
- 26.1.7 The qualifications of the Master and, if appropriate, other members of the crew are given in Appendix 3.
- 26.1.8 The possession of a Certificate of Competency or Service should not, on its own, be regarded as evidence of the ability to serve in a particular rank on a specific vessel. The owner/managing agent must ensure that there are sufficient trained personnel on board to work the vessel having due regard for the nature and duration of the voyage.
- 26.1.9 The Master should be aware that as a commercial Master, he or she has taken on all the professional responsibilities of a professional Master and the liabilities that accompany that role.
- 26.1.10 Where a higher category vessel is operating in a lower category area the owner / managing agent may crew the vessel according to the lower category operation. The details of the manning differences should be noted on their Workboat Certificate and any Safe Manning Document prepared in excess of the requirements of this Code.

26.2. Responsibility of the Owner/Managing Agent for Safe Manning of the Vessel

- 26.2.1 It is the responsibility of the owner/managing agent to ensure that the Master, and where necessary, the crew of the vessel have, in addition to any qualifications required in Appendix 3, recent and relevant experience of the type and size of vessel, the machinery on the vessel, and the type of operation in which the vessel is engaged. The owner/managing agent should also ensure that there are sufficient additional crew on board having regard to the type and duration of voyage/excursion being undertaken.

26.3. Keeping a Safe Navigational Watch

26.3.1 The Master and every person in charge of a navigational watch serving on small workboats shall hold an appropriate certificate of competency.

26.3.2 The Master of every small workboat shall ensure that watchkeeping arrangements are adequate for maintaining a safe watch or watches, taking into account the prevailing circumstances and conditions such as;

- .1 the present and forecast state of the weather, visibility and sea;
- .2 the proximity of navigational hazards; and
- .3 the density of traffic in the area.

and that, under the Master's general direction, persons in charge of the navigational watch are responsible for navigating the vessel safely during their periods of duty, when they shall be physically present at the control position or in a directly associated control location at all times.

26.3.3 The owner/managing agent and the Master of a vessel should ensure that any person who assists the Master in navigational watchkeeping duties is qualified to carry out such duties.

26.4 Vessels with Lifting Gear and Winches Associated with Lifting

26.4.1 Owner/managing agents of vessel(s) should ensure that Masters, crew and operators of winches and lifting gear are familiar with the stability issues detailed in section 11.6 as applied to the type of vessel being operated and the nature of the duties being undertaken. Refer also to Section 25.4.

26.5 Pilot Boats

26.5.1 Pilot Boats should be manned as specified in 25.6.3¹⁵⁴.

26.6 Stability Training

26.6.1 The Master of every vessel should be familiar with the vessel's Stability Guidance Booklet¹⁵⁵, should insert the information required of the Master, and should ensure that it is drawn to the attention of all watch keepers on board. In the case of vessels also required to be provided with an approved Stability Information Booklet (SIB), masters should have a knowledge and understanding of its contents and should ensure that the vessel is operated within the limiting conditions of the SIB.

26.6.2 The Master of any workboat which is required to be provided with an Stability Information Booklet should have attended an approved Stability Course for Workboats, see Appendix 3, section 2.4.

26.7 Towing Endorsements

26.7.1 A system of voluntary towing endorsements has been developed by the MCA with industry for the Masters of vessels engaged in towing. Owners and Masters

¹⁵⁴MGN 50 (M) – "Manning of Pilot Boats" provides further guidance.

¹⁵⁵ Stability Guidance Booklets are MCA publications 'MCA 133' for powered vessels.

are recommended to consider these Towing endorsements as evidence of competence for those engaged in towing. See MGN 468(M)¹⁵⁶ for details.

26.8 Carriage of Dangerous Goods Training

26.8.1 The owner/managing agent shall determine which staff will be trained, what levels of training they require and the training methods used to enable them to comply with the provisions of the IMDG Code Chapter 1.3. This training shall be provided or verified upon employment in a position involving dangerous goods transport. For personnel who have not yet received the required training, the owner/managing agent shall ensure that those personnel may only perform functions under the direct supervision of a trained person. The training shall be periodically supplemented with refresher training to take account of changes in regulations and practice. The Administration, may audit the owner/managing agent to verify the effectiveness of the system in place, in providing training of staff commensurate with their role and responsibilities. See also section 29.5.1.

26.8.2 General awareness/familiarization training:

.1 each person shall be trained to be familiar with the general provisions of dangerous goods transport provisions; and

.2 such training shall include a description of the classes of dangerous goods (see section 29 Informative Note) and associated labelling, marking, placarding, packing, stowage, segregation and compatibility provisions; a description of the purpose and content of the dangerous goods transport documents and the format and location on board of the appropriate emergency response documents and actions to be taken in the event of an incident.

26.8.3 Function-specific training: Each person shall be trained in specific dangerous goods transport provisions which are applicable to the function that person performs.

26.8.4 Records: Records of training received according to section 26.8 shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept by the employer and made available for up to five years to the employee or the Administration, upon request.

26.9 Single Handed Operations

26.9.1 MCA does not recommend single handed operations.

26.9.2 In all cases where single handed operations take place the owner/managing agent and the skipper should be satisfied that it is safe to do so.

26.9.3 A single handed operation is considered to be taking place when either:

.1 there is only one person on board the vessel; or

¹⁵⁶ MGN 468(M), Voluntary Towing Endorsement Scheme

- .2 there is a skipper on board with passengers or industrial personnel, and there is no one else on board capable of assisting the skipper in an emergency.

26.9.4 Where a watch system is necessary to maintain the safe navigation of the vessel due to extended periods at sea, single handed operations are not permitted.

26.9.5 Vessels operating under this Code, other than those engaged in towing or as Pilot Boats or in any other business which involves the transfer of personnel at sea, may be operated single handed providing that the person operating the vessel complies fully with the minimum requirements for a skipper (appropriately qualified for the operating area) and the following conditions:

- .1 the area of operation is restricted to Area Category 3, 4, 5 or 6 in conditions of favourable weather and subject to favourable official weather forecasts for the area throughout the period of operation; and
- .2 the duration of the voyage should not exceed 8 hours; and
- .3 the vessel is not operated single handed in conditions of restricted visibility; and
- .4 an acceptable lifejacket is worn at all times by the skipper; and
- .5 no overside working takes place whilst the vessel is being operated single handed; and
- .6 details of the time and point of departure, voyage plan and the Expected Time of Arrival (ETA) of every single handed voyage are left with a suitable person ashore and that person is notified of the safe arrival on completion of each voyage; and
- .7 communication should be made with a person ashore or with a vessel in company at regular agreed intervals; and
- .8 On all open inflatable boats, boats fitted with a buoyant collar and open boats that achieve planing speed including tenders, engine kill-cords should be fitted and used at all times during navigation and whilst the engine is on. A spare kill cord is to be carried on board or the kill system should be capable of override to facilitate the rescue of the person going overboard with the cord attached. See 7.6.5 for exclusions to the fitment and use of kill cords.

- .9 Skippers are most strongly recommended to wear 406 MHz personal locator beacons (PLB)^{157, 158} with GPS and a light whilst on the open deck at sea.

26.9.6 In some cases, because of the size and arrangement of the vessel, the Certifying Authority may deem the vessel not to be suitable for single handed operations.

26.9.7 The vessel's Workboat Certificate should also be endorsed "suitable for single handed operation" to indicate that it is suitable for single handed operation. Where a Small Workboat with a Pilot Boat Endorsement is considered safe for single handed operation, the conditions on the Certificate should be suitably endorsed so that it is clear that the vessel should not be used for single handed operation when being used as a Pilot Boat.

26.10 Vessels Not Engaged In Single Handed Operations

26.10.1 Where the vessel is not suitable for single handed operations, and there is only one member of crew onboard (the Master), Appendix 3 Table A3.1 requires that "a second person should be capable of assisting the skipper in an emergency should also be onboard". The skipper should brief the second person who will be sailing on the voyage. Such a brief, as a minimum, will include the following (on the requirements provided as follows):

1. location of liferafts and method of launching; and
2. procedures for the recovery of a person from the sea; and
3. location and use of pyrotechnics; and
4. procedures and operation of radios carried on board; and
5. location of navigation and other light switches; and
6. location and use of firefighting equipment; and
7. method of starting, stopping, and controlling the main engine; and
8. method of navigating into a suitable port of refuge; and
9. the location of the Stability Guidance Booklet/Stability Information Booklet as applicable.

26.11 Minimum Hours of Rest Provisions¹⁵⁹

26.11.1 *Fatigue at sea is a serious safety issue and operators should ensure that all vessels certificated under the Code are sufficiently manned to avoid the need to work excessive hours. The Master is responsible for ensuring, so far as is reasonably practicable, that he/she and all crew members comply with the minimum hours of rest and are properly rested when they begin work and obtain adequate rest when not on duty. The minimum hours of rest for anyone employed on board should be not less than:*

¹⁵⁷ This has a global range and alerts the nearest Coastguard Station to a Man Overboard situation. It will typically take 5 minutes for the Coastguard to be aware of your position and they can then locate a casualty in the water to an accuracy of 100m.

¹⁵⁸ Registration of Devices. 406MHz PLBs should be registered with the EPIRB Registry, details of which are given in MSN 1816 (M+F) – Mandatory Registration of Emergency Position Indicating Radio Beacons (EPIRBs). VHF DSC devices should be registered with Ofcom, details of which are also given in MSN 1816(M+F).

¹⁵⁹ Further requirements on hours of rest can be found in MSN 1842 (M) – "Maritime Labour Convention, 2006: Hours of Work and Entitlement to Leave Application of the Merchant Shipping (Hours of Work) Regulations 2002 and the Merchant Shipping (Maritime Labour Convention) (Hours of Work)(Amendment) Regulations 2014".

- 1 10 hours in any 24-hour period; and
- 2 77 hours in any seven day period.

- 26.11.2 *The periods of rest should be broken down into no more than 2 periods at least one of which should be at least 6 hours. Longer periods of rest are far more effective in combating fatigue than several short periods.*
- 26.11.3 *These limits should be observed as minimum periods, bearing in mind that the noise and vibration which are inevitable from working on some small vessels are likely to increase fatigue.*
- 26.11.4 *For boats operating on the basis of watchkeeping arrangements, a schedule of duties should be drawn up setting out the hours of work and rest periods. In drawing up a schedule, factors to be taken into account may include:*
1. *type of operation;*
 2. *details of the watchkeeping arrangements;*
 3. *the total workload;*
 4. *the seriousness of irregular working hours and their contribution to causing fatigue and the importance of scheduling reasonably stable working hours.*
- 26.11.5 *A record of seafarer's hours of rest must be kept, and endorsed by the Master or a representative of the Master, and by the seafarer.*
- 26.11.6 *Hours worked ashore, alongside, preparing and storing the vessel, on other vessels or in other employment accumulate towards the total number of hours worked by those employed on board a vessel. This should be taken into account when ensuring that sufficient hours of rest are provided.*
- 26.11.7 *MSN 1868 (M)¹⁶⁰ provides full details of the hours of rest requirements.*

26.12 Vessels Used as Diving Platforms¹⁶¹

- 26.12.1 *It is strongly recommended that for vessels used as a diving platform, that the second hand should be a person deemed a responsible person by the Master, over 16 years of age, who can assist the Master in an emergency. There are obvious benefits for that additional person to have diving and diving emergency training and experience. Vessels used as diving platforms should NOT have their Certificates endorsed for single handed operations as over side working could take place.*

26.13 Alternative Safety Standards (Appendix 4)

- 26.13.1 *Where a vessel is certified to operate under the provisions of Appendix 4 to this Code, the Master of a vessel operating under that arrangement should be qualified as if he were operating a vessel certified for Area Category 6 as a minimum.*

¹⁶⁰ MSN 1868(M) – Standards of Training, Certification and Watchkeeping Convention: UK Requirements for Safe Manning and Watchkeeping

¹⁶¹ MGN 424 (M) – “Safety Responsibilities on board Dive Boats”.

26.14 Employment of Young Persons

26.14.1 *The employment, engagement or work on board a vessel of any person under the age of 16 years old is not permitted¹⁶². See 22.1.2 for information on where to find guidance on the employment of persons under 18 years of age.*

26.14.2 *A record should be made of any person under the age of 18 years who is working on the vessel, and a risk assessment should be carried out to ensure that any additional risks arising from their immaturity or inexperience are identified and appropriate measures put in place for their protection. Persons under the age of 18 years old are not permitted to work at night.*

Current requirements are in SI1998/2411 Merchant Shipping (Employment of Young Persons) Regulations 1998 and MLC requirements are published in MSN 1838(M)¹⁶³.

26.15 Seafarer Employment Agreements (SEAs)

26.15.1 *Every person working on a vessel (unless they are the owner or joint owner) should have a written employment agreement with the owner. For vessels operating outside the UK, a copy should be kept on board for inspection by port state control officers. MGN 477(M)¹⁶⁴ gives further information, including the minimum contents of an SEA.*

26.15.2 *For those working in the UK, as an alternative to the SEA, the Master and crew members may have a statement of particulars setting out:*

- .1 names of the employer and employee;*
- .2 date when the employment began;*
- .3 the date on which the employee's period of continuous employment (taking into account any employment with a previous employer which counts towards that period);*
- .4 rate of wages, or method of calculation of wages, and how often they are paid;*
- .5 any terms and conditions relating to hours of work, including any terms and conditions relating to normal working conditions;*
- .6 entitlement to holidays, including public holidays, and holiday pay;*
- .7 provisions about sickness or injury, including and provision for sick pay;*
- .8 information about any pensions or pension schemes attached to the employment;*
- .9 notice period for both the employee and the employer;*
- .10 the title of the job which the employee is employed to do, or a brief description of the work for which they are employed;*
- .11 for temporary employment, the period for which it is expected to continue, or if it is for a fixed term, the date when it is to end;*
- .12 the place of work, or where the employee is required or permitted to work at various places, an indication of that and the address of the employer;*
- .13 any collective agreements that directly affect the terms and conditions of the employment including, where the employer is not a party, the persons by whom they were made;*

¹⁶²Merchant Shipping Act 1995 (Ch. 21), Section 55 (1A).

¹⁶³ MSN 1838(M), Maritime Labour Convention, 2006: Minimum Age

¹⁶⁴ MGN 477(M), Maritime Labour Convention, 2006: Seafarers' Employment Agreements

- .14 *where the employee is required to work outside the UK for a period of more than one month;*
 - .1 *the period they are required to work outside the UK;*
 - .2 *the currency in which remuneration will be paid while they are working outside the UK;*
 - .3 *any additional remuneration payable to them, and any benefits to be provided to or in respect of him, by reason of his being required to work outside the UK; and*
 - .4 *any terms and conditions relating to their return to the UK.*

26.15.3 *There is a model format for a Seafarer Employment Agreement which may be useful for small businesses, such as many in this industry, in Appendix 2. MGN 477(M) provides further information.*

26.16 Complaints procedure

26.16.1 *The shipowner must have an on board complaints procedure, to allow seafarers to raise any problems regarding their living and working conditions (see MSN 1849(M)¹⁶⁵).*

If the seafarer is unable to obtain a satisfactory response from the shipowner, they have the right to make a complaint to an MCA surveyor or a port state control officer (see MGN 487(M)¹⁶⁶).

26.17 Recruitment and Placement

26.17.1 *Only seafarer recruitment and placement services which are compliant with the Maritime Labour Convention, 2006, A1.4. should be used. Any recruitment and placement service in a ratifying country can be assumed to be compliant, subject to evidence to the contrary. If a recruitment and placement service in a non-ratifying country is used ship owner(s) should assure themselves that they are compliant. MGN 475(M)¹⁶⁷ provides the standards for a recruitment and placement service under the MLC.*

26.18 Entitlement to Leave

26.18.1 *Anyone working on a vessel is entitled to 2.5 days per month of employment, plus 8 additional days in respect of public holidays. Justified absences should not be considered as part of the annual leave entitlement.*

26.19 Repatriation

26.19.1 *Shipowners should ensure that seafarers do not have to meet the costs of their repatriation at the end of their contract, or, if a shorter period, as a minimum after 11 months on board. The details of repatriation arrangements are set out in MGN 479(M)¹⁶⁸.*

¹⁶⁵ MSN 1849(M), Maritime Labour Convention, 2006: On Board Complaints Procedure

¹⁶⁶ MGN 487(M), Maritime Labour Convention, 2006: On-Shore Complaints

¹⁶⁷ MGN 475(M), Maritime Labour Convention, 2006: Recruitment and Placement

¹⁶⁸ MGN 479(M), Maritime Labour Convention, 2006: Repatriation

26.20 Seafarer Compensation for the Vessel's Loss or Foundering

26.20.1 *If the vessel is lost, the shipowner is liable to pay seafarers wages for up to two months and to compensate them for loss of possessions. The level of such compensation should be specified in the seafarer's employment agreement. See MGN 480(M)¹⁶⁹.*

26.21 Maritime Labour Certificates

26.21.1 *Maritime Labour Certificates are required on all vessels of 500GT and over. However, owners/managing agents of vessels of less than 500GT may voluntarily apply for their vessels be issued with such certificates to avoid Port State Control complications when operating overseas. Whilst elements of the compliance procedure may be carried out by the Certifying Authorities, such certificates may only be issued to UK vessels by the MCA. However MLC compliance is a requirement for vessels of less than 500 gt that operate outside UK waters and those operating more than 60 miles from a UK safe haven, and all non UK vessels operating in UK waters. For further details see Section 21, 21A or 21B of this Code, MSN 1848(M)¹⁷⁰ and MGNs 490(M)¹⁷¹, as amended, and 491(M)¹⁷², as amended.*

¹⁶⁹ MGN 480(M), Maritime Labour Convention 2006: Shipowners' Liabilities including Seafarer Compensation

¹⁷⁰ MSN 1848(M), Maritime Labour Convention 2006, Survey and Certification of UK Ships

¹⁷¹ MGN 490(M) Amendment 1, Maritime Labour Convention: Application to Small Vessels of less than 200GT that are ordinarily engaged in commercial activities

¹⁷² MGN 491(M) Amendment 2, Maritime Labour Convention: Application to workboats of 200 GT to less than 500GT

27 Procedures, Certification, Examination, Maintenance and Reporting of Accidents.

27.1 Introduction

27.1.1 An example of the format of the Workboat and Pilot Boat Certificates is provided in Appendix 15.

27.1.2 For the purposes of this section:

SWB1 - means the form for an Application for Examination of a vessel.
SWB2 - means the report form for a Compliance Examination and Declaration.

27.1.3 Definitions of different types of survey and authorised person can be found in section 2.

27.1.4 The Certifying Authority should decide the extent of the examination based on the type, age and history of the vessel and may give credit for any recent and detailed competent examination of a vessel for which a report is available.

27.2 Requirements and Procedures for Workboats to be Examined and Certificated

27.2.1 The owner/managing agent of a vessel, to be operated under the Code, should;

- .1 choose a Certifying Authority and contact them to obtain a copy of their Application for Examination form, SWB1;
- .2 complete form SWB1 and return it to the Certifying Authority; and
- .3 arrange with the Certifying Authority for the vessel to be examined by an authorised person and documented on the report form for a Compliance Examination and Declaration report form, SWB2, as being in compliance with the Code.

27.2.2 Prior to entering into service, the owner/managing agent should be in receipt of a Certificate for the vessel. The Certificate should be in force and displayed in a conspicuous place on board. Where it is not possible to display the Certificate, due to the nature of the vessel (such as open boats), it should be available on board for inspection by a relevant authority and by users of the vessel.

27.2.3 A signed and authenticated copy of the SWB2 form is to be retained on board the vessel. Where it is not reasonable to keep form SWB2 aboard, it may be retained on shore, but must be made available if requested by a relevant authority.

27.3 Compliance Examination and Issue of a Certificate under the Code

27.3.1 The authorised person, as directed by the Certifying Authority, should undertake a compliance examination of the vessel.

27.3.2 The Certifying Authority must be satisfied that the vessel has been designed and built to the appropriate standard as detailed in section 4.

- 27.3.3 For vessels considered on the basis of safe history of vessel or of design, the Certifying Authority must be satisfied that the requirements of section 4.2.2.6 are fulfilled with regard to confirmation of that safe history and supported by an appropriate structural survey and technical specification.
- 27.3.4 The arrangements, fittings and equipment provided on the vessel are to be documented on the Compliance Examination and Declaration report form SWB2. Upon satisfactory completion and documentation of the compliance examination, and the required declarations, a copy of the signed report form SWB2 should be forwarded to the Certifying Authority.
- 27.3.5 Where a vessel is required to have approved stability information, the owner/managing agent must be in possession of an approved Stability Information Booklet before the Certificate is issued.
- 27.3.6 For all other vessels, the owner/managing agent should provide the Certifying Authority with information necessary to confirm that the stability of the vessel meets the standard required by the Code for the permitted area of operation and/or intended use of the vessel.
- 27.3.7 Upon satisfactory review of the documented arrangements, hull structure, fittings and equipment provided in compliance with the Code, also the required declarations in the completed report form SWB2 and approval as appropriate of either the Stability Information Booklet or required stability information and fee payments, the Certifying Authority will issue the Certificate.
- 27.3.8 A Certificate should be valid for not more than five years from the date of examination of the vessel out of the water by the authorised person. For a newly constructed vessel, built under full construction survey for the purposes of this Code, the Certificate may begin from the final in-water compliance survey. The Certificate may be valid for a lesser period of time as determined by the Certifying Authority.
- 27.3.9 In addition to the Certificate, the Certifying Authority will issue annually an identification disc to be prominently displayed and visible from outside the vessel. This will act as a ready indication to vessel users and any inspectors that the named vessel has been examined and issued with a Certificate valid for the period of time stated on the disc.

27.4 Renewal Examinations

- 27.4.1 The owner/managing agent should arrange for a renewal examination to be carried out by an authorised person from the chosen Certifying Authority prior to the expiry of the existing certificate. At this examination the vessel should be examined out of the water. Upon satisfactory completion and verification that the arrangements, fittings and equipment documented in the Compliance Examination and Declaration report form SWB2 remain in compliance with the Code and that the vessel and its machinery are in a sound and well maintained condition, the Certificate in force may be endorsed to indicate a 3 month extension. A copy of the report recommending the renewal of the Certificate should be sent to the Certifying Authority.
- 27.4.2 The Certifying Authority should renew the vessel's Certificate if it is satisfied that the arrangements, fittings, and equipment documented in the report form SWB2 are in compliance with the Code. The Certificate should be valid for not

more than five years from the expiry of the existing Certificate, so long as the renewal examination was completed within three months prior to the expiry of the existing Certificate. If the renewal examination is conducted more than three months prior to the expiry of the existing Certificate, the Certificate should be valid for not more than five years from the completion date of the renewal examination.

27.4.3 Where a renewal examination is completed beyond the expiry of the existing certificate, the new Certificate should be valid for not more than five years from the expiry of the existing certificate, unless it has been agreed in advance with the Certifying Authority that the new Certificate may be dated from the date of completion of the renewal examination.

27.4.4 The Certifying Authority should issue a new SWB2 for the vessel following a renewal survey.

27.5 Intermediate Examinations

27.5.1.1 An examination equivalent to the annual examination, detailed in section 27.6.1.1, with the vessel to be additionally examined out of water, must be carried out on behalf of the Certifying Authority by an authorised person at least once during the life of the certificate, in order that the interval between successive out of water examinations by an authorised person does not exceed three years. The owner/managing agent must arrange with the Certifying Authority for this examination to be carried out.

27.5.1.2 On satisfactory completion of the examination, the authorised person must enter a record of the examination on the report form SWB2 and report the results of the examination to the Certifying Authority.

27.5.1.3 When a vessel cannot be presented for the intermediate survey out of water by the due date, a divers/in water survey may be accepted in lieu at the discretion of the Certifying Authority. See MGN 546 (M)¹⁷³ (as amended) for guidance including Appendix B which addresses preparations in anticipation of an in water survey. Special consideration must be given before in-water survey can be considered for vessels which are more than 15 years of age. A submission to the Certifying Authority should be made for consideration if fully justified and supported by the Authorised Persons' reports concerning the condition of the hull.

ROV (Remotely Operated Vehicle) survey with CCTV/Video link to surface may also be considered in whole or part provided the required scope of survey can be achieved.

Such survey should be carried out by a diving company maintaining a valid certificate for such specific activities issued by a Classification Society which is a United Kingdom Recognised Organisation. See MSN 1672(M+F)¹⁷⁴, as amended.

Diving operatives should also be so certified.

¹⁷³ MGN 546 In- Water Surveys.

¹⁷⁴ MSN 1672 Ship Inspection and Survey Organisations and European Directive 2009/15/EC

The Authorised Person overseeing, and attending, this survey should have appropriate experience, or have received specific training in conducting such surveys to recognised Classification Society standards and scope.

The dive company will present findings during or on completion of the survey followed by a written report of findings, to the satisfaction of the Authorised person.

On the basis of the findings of this survey, the limit date for the out of water survey to follow will meet that procedure described in MGN 546(M), as amended, and be confirmed to the Owner/Managing Agent by the Certifying Authority.

27.6 Annual Examination of a Workboat

27.6.1 Annual Examination by an Authorised Person

27.6.1.1 The owner/managing agent should arrange for an annual examination of a workboat to be carried out by an authorised person, on behalf of the Certifying Authority, within 3 months either side of the anniversary date of the initial/renewal examination, at intervals not exceeding 15 months. On satisfactory completion of the annual examination, the authorised person should enter a record of the examination on the Compliance Examination and Declaration report form SWB2 and report the results of the examination to the Certifying Authority.

27.6.2 Annual Examination of a Pilot Boat by the Owner/Managing Agent

27.6.2.1 The owner/managing agent must carry out, or arrange for, an annual examination of a vessel within 3 months either side of the anniversary date of the initial/renewal examination, at intervals not exceeding 15 months, to confirm that the arrangements, fittings and equipment provided on board are in a satisfactory condition and remain as documented in the report form SWB2. Also that the vessel, its machinery, fittings and equipment are in a sound and well maintained condition, and where necessary serviced at the required period.

27.6.2.2 In the case of a vessel issued with a Pilot Boat Certificate, and under certain circumstances a vessel issued with a Workboat Certificate with Pilot Boat Endorsement, the hull and associated fittings are, additionally, to be examined out of the water.

27.6.2.3 The owner/managing agent is to enter a record of a successful examination on the form SWB2 and report the results of the examination to the Certifying Authority.

27.6.2.4 The owner/managing agent should not complete details on the report form SWB2 if the examination reveals that either the vessel, its machinery, fittings or equipment are not sound or they do not comply with those documented in the Compliance Examination and Declaration report form SWB2 or have not been serviced at the required period. The reasons for the owner/managing agent not being allowed to enter details of the examination on the report form SWB2 should be reported immediately to the Certifying Authority for action as necessary. Also, see section 27.11.2.

27.7 Examination Regime.

- 27.7.1 Table 27.1 provides details of the minimum examination regime applicable to all vessels. For vessels satisfying more than one of the service types, the most onerous survey regime will apply.
- 27.7.2 Where it is deemed necessary by the authorised person or Certifying Authority, the vessel may need to be examined more often than required by the survey regime Table 27.1. This may require additional examination out of the water at intervals of less than three years, paying special attention to the exterior hull condition, through-hull valves, and exterior steering and propulsion equipment.
- 27.7.3 For vessels issued with a Light Duty Workboat Certificate as described in section 25.10, annual examinations may be carried out by the owner/managing agent, with a report of findings submitted to the Certifying Authority in a form agreed by the Certifying Authority. At the discretion of the Certifying Authority the mid-term examination carried out by an authorised person may be carried out with the vessel in water.

Table 27.1
Examination Regime

Type of Service	Carrying Cargo >1000 kg	Towing	Fitted with a lifting device	Carrying 15 or less persons and carrying cargo ≤1000kg	Carrying 16 or more persons	Pilot Boat Endorsement	Dedicated Pilot Boat
Area Category							
Category 0	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE (OW)
Category 1	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE (OW)
Category 2	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE (OW)
Category 3	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE (OW)
Category 4	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE (OW)
Category 5	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE (OW)
Category 6	AP + IE (OW)	AP + IE(OW)	AP + IE (OW)	AP + IE(OW)	AP + IE (OW)	AP + IE (OW)	Self (OW) + IE(OW)

Where: AP = Authorised Person
 AP + Intermediate Examination (IE) (OW) = Compliance/Renewal, Intermediate Out of Water Intermediate and Annual In-Water surveys are conducted by an authorised person.

Self (OW) + Intermediate Examination (IE) (OW) = Compliance/Renewal and Out of Water Intermediate surveys are conducted by an authorised person. Annual Out of Water surveys are conducted by the owner/managing agent.

Such self-surveys should only be undertaken where it is impracticable to undertake normal survey arrangements.

27.8 Additional Requirements for Inflatable and Rigid inflatable Boats

27.8.1 Inflatable and rigid inflatable boats should additionally be tested in accordance with the requirements in section 4.5.3.

27.9 Examination and Certification Requirements and Procedures for Pilot Boats

27.9.1 When a vessel is examined for the issue of a Pilot Boat Certificate or Workboat Certificate with Pilot Boat Endorsement the following requirements are applicable.

27.9.2 The competent harbour authority or the owner/managing agent should arrange for a dedicated pilot boat to be examined by an authorised person at intervals not exceeding 3 years.

27.9.3 An application for the examination of a pilot boat should be made by the competent harbour authority or the owner/managing agent of the boat to the Certifying Authority.

27.9.4 On receipt of the application, the Certifying Authority should arrange for an authorised person to examine the vessel in the manner prescribed in the Code and satisfy themselves that:

.1 the form of construction, machinery installation and safety equipment is consistent with the standards specified in the Code; and

.2 the vessel is in all respects satisfactory for the service for which it is intended, having regard to the period for which the Pilot Boat Certificate or Workboat Certificate with Pilot Boat Endorsement is to be issued.

27.9.5 Propeller shaft(s) (other than shaft(s) running in oil) should be drawn for examination at compliance examination and at intermediate survey examinations, at intervals not exceeding three years. An initial survey carried out on a vessel more than three years old should also include an examination of the propeller shaft.

27.9.6 Propeller shafts running in oil should be withdrawn for examination at intervals not exceeding 10 years, provided that an intermediate examination shows that wear has been insignificant.

27.9.7 The authorised person should record all examinations on the record of particulars for a pilot boat or Compliance Examination Declaration report form (SWB2) for a workboat as appropriate.

27.9.8 When survey examination of repairs, replacements or modifications are undertaken, the authorised person should make records of them on the form of Compliance Examination and Declaration report form SWB2.

27.9.9 The authorised person, if satisfied from the examination that it is proper to do so, should forward to the Certifying Authority the completed forms containing such particulars of the vessel and its equipment as are required to enable the Certifying Authority to issue a Pilot Boat Certificate or make a Pilot Boat Endorsement on a Workboat Certificate, together with a certified copy or copies of certificates issued in respect of the vessel.

27.9.10 Pilot Boat Certificate and Pilot Boat Endorsement of a Workboat Certificate

- 27.9.10.1 A Pilot Boat Certificate for a dedicated pilot boat, unless the vessel, its machinery or safety equipment is found to be deficient, should have a period of validity not exceeding 5 years from the date of examination of the vessel out of the water by the authorised person. For a newly constructed vessel, built under full construction survey for the purposes of this Code, the Certificate may begin from the final in-water compliance survey. The Certificate may be valid for a lesser period of time as determined by the Certifying Authority.
- 27.9.10.2 The Pilot Boat Endorsement of a Workboat Certificate should have a period of validity not exceeding 5 years (see 27.3.8), unless the vessel, its machinery or safety equipment are found to be deficient.
- 27.9.10.3 The Pilot Boat Certificate or Workboat Certificate with Pilot Boat Endorsement should be displayed in a prominent position within the vessel, and a certified copy of the certificate should be retained by the competent harbour authority, and, where appropriate, by the owner/managing agent of the boat.
- 27.9.10.4 A Pilot Boat Certificate issued to a non-seagoing pilot boat should be issued with an Area Category 5 certificate, with a further limitation on the certificate of the port pilotage limits from where the pilot boat is based. These may be a more restricted area than categorised waters.

27.9.11 Intermediate Examination of a Dedicated Pilot Boat

- 27.9.11.1 The competent harbour authority or the owner/managing agent of a dedicated pilot boat should arrange for the boat to undergo an intermediate examination, which must be carried out on behalf of the Certifying Authority by an authorised person at least once during the life of the certificate, in order that the interval between successive examinations by an authorised person does not exceed 3 years. For details of the intermediate examinations for dedicated pilot boats, see section 27.7.3.
- 27.9.11.2 The authorised person should examine the boat in the manner prescribed in sections 27.6.2.1; 27.6.2.2; and 27.9.4 and be satisfied that;
- .1 such parts of the vessel, its machinery and equipment as are specified in the Code and are subject to the survey, remain in good working condition; and
 - .2 no major alterations have been made to the vessel, its machinery or equipment, to which the Pilot Boat Certificate relates, without the approval of the Administration.
- 27.9.11.3 On completion of a satisfactory intermediate examination, the authorised person should endorse the Pilot Boat Certificate accordingly.

27.9.12 Annual Examination by the Owner/Managing Agent of a Dedicated Pilot Boat

- 27.9.12.1 In lieu of the examination required by 27.6.1, the owner/managing agent of a Pilot Boat must carry out, or arrange for, an annual examination of a vessel within 3 months either side of the anniversary date of the initial/renewal examination, at intervals not exceeding 15 months, to confirm that the arrangements, fittings and

equipment provided on board are in a satisfactory condition and remain as documented in the report form SWB2. Also that the vessel, its machinery, fittings and equipment are in a sound and well maintained condition, and where necessary serviced at the required period.

27.9.12.2 In the case of a vessel issued with a Pilot Boat Certificate, or a vessel issued with a Workboat Certificate with Pilot Boat Endorsement, when the Certifying Authority has concern with the hull and associated fittings of the vessel, may additionally, to be examined out of the water by the Certifying Authority.

27.9.12.3 The owner/managing agent is to enter a record of a successful examination on the form SWB2 and report the results of the examination to the Certifying Authority.

27.9.12.4 The owner/managing agent should not complete details on the report form SWB2 if the examination reveals that either the vessel, its machinery, fittings or equipment are not sound or they do not comply with those documented in the Compliance Examination and Declaration report form SWB2 or have not been serviced at the required period. The reasons for the owner/managing agent not being allowed to enter details of the examination on the report form SWB2 should be reported immediately to the Certifying Authority for action as necessary. Also, see section 27.11.2.

27.9.13 Procedure if a Pilot Boat, its Machinery or Safety Equipment is Deficient

27.9.13.1 When an authorised person determines that the condition of a pilot boat, its machinery or equipment does not correspond substantially with the requirements in the Code, or is such that the vessel is not fit for service, he should advise the competent harbour authority and, where appropriate, the owner/managing agent of the vessel of the corrective action which is required.

27.9.13.2 If a pilot boat is not fit for service, the authorised person should notify the Certifying Authority, and if any corrective action deemed to be required is not taken within a specified period, the Certifying Authority will suspend the validity of the Certificate for the pilot boat, and notify the competent harbour authority in writing. The authorised person should notify the Master of the vessel and, where appropriate, the owner/managing agent of the vessel.

27.9.13.3 The Master of the vessel and, where appropriate, the owner/managing agent of the vessel should deliver to the authorised person, respectively, the Certificate and certified copy of the Certificate. The competent harbour authority should deliver the certified copy of the certificate to the Certifying Authority.

27.9.13.4 When satisfied that corrective action has been taken, the Certifying Authority should restore the validity of the certificate.

27.9.14 Exemptions for Pilot Boats (see 25.6.1)

27.9.14.1 The MCA, acting on behalf of the Secretary of State, may exempt a pilot boat from all or any of the requirements of this Code as may be specified in the exemption on such terms (if any) as may be specified if the MCA is satisfied that compliance with such requirements is either impracticable or unreasonable in the case of that pilot boat and may, subject to giving reasonable notice, alter or cancel any such exemption.

27.10 Appeal Against the Findings of an Examination of a Workboat or Pilot Boat

- 27.10.1 If an owner/managing agent or competent harbour authority is dissatisfied with the findings of an examination and agreement cannot be reached with the authorised person who carried out the examination, the owner/managing agent or competent harbour authority may appeal to the Certifying Authority to review the findings. At this review, the owner/managing agent or competent harbour authority may call a representative or professional adviser to give opinions in support of the argument against the findings of the examination.
- 27.10.2 Should the above procedures fail to resolve the disagreement, the owner/managing agent or competent harbour authority may refer the disagreement to the Administration.

27.11 Maintaining and Operating the Vessel

- 27.11.1 The vessel's Certifying Authority may examine, and the Administration¹⁷⁵ may inspect¹⁷⁶, a certificated vessel at any time.
- 27.11.2 It is the responsibility of the owner/managing agent to ensure that at all times a vessel is maintained and operated in accordance with the requirements of the Code, the arrangements as documented in the Compliance Examination and Declaration report form SWB2 and any conditions stated on the vessel's certificate. Additionally, it is the responsibility of the owner/managing agent to ensure that the vessel is maintained in accordance with manufacturer's recommendations or best engineering practice. If for any reason the vessel does not continue to comply with any of these requirements, the owner/managing agent should notify the Certifying Authority immediately. Also see section 27.13.3.
- 27.11.3 In cases where the vessel suffers major damage, for example as a result of a collision, grounding, fire or other event, the owner/managing agent must notify the Certifying Authority immediately, explaining the circumstances by which the vessel became damaged. The nature and extent of major repairs are subject to the approval of the Certifying Authority.
- 27.11.4 Minor damage, detrimental to the safety of the vessel, must also be reported to the Certifying Authority, together with the measures proposed to effect repairs. The Certifying Authority, who may take action as it may deem appropriate, which may include a full or partial examination of the vessel if considered necessary.
- 27.11.5 The owner/managing agent should notify and seek approval from the Certifying Authority prior to implementing any change or modification to the vessel or its equipment which is covered by the requirements of the Code.

27.12 Accident Reporting

- 27.12.1 In addition, the owner/managing agent has a statutory requirement to report accidents. The statutory requirements are given in the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 (SI 2012 No.1743), as

¹⁷⁵Merchant Shipping Act 1995 (Ch. 21), section 258.

¹⁷⁶Merchant Shipping Act 1995 (Ch. 21), section 258.

amended. MGN 458 (M+F)¹⁷⁷ explains the Regulations and the requirement to report accidents to the Department for Transport's Marine Accident Investigation Branch (MAIB).

27.13 Other Conditions Applying to Certificates - Validity and Cancellation of Certificates

- 27.13.1 The validity of a certificate is dependent upon the vessel being maintained, equipped and operated in accordance with the documented arrangements contained in the Compliance Examination and Declaration report form SWB2. Proposals to change any of the arrangements should therefore be agreed in writing with the Certifying Authority before a change is implemented. Copies of the written agreement detailing changes(s) should be appended to the report form SWB2, which is to be retained on board the vessel.
- 27.13.2 The Certificate will cease to be valid if the intermediate or annual examination as appropriate, including examination of the vessel out of the water, are not completed within the periods specified in the Code. The validity of the certificate should be restored by carrying out the appropriate examination, which, in such circumstances, should consist of the requirements of the examination that was not carried out, but its thoroughness and stringency should have regard to the time this examination was allowed to lapse. Where an examination has been requested more than one month after the required specified period, authorised persons should refer to the Certifying Authority for advice on the enhanced level of examination required. Normally it would be expected that such an examination would be to the same extent as a renewal examination.
- 27.13.3 When the vessel is found not to have been maintained or equipped or operated in accordance with the arrangements documented in the Compliance Examination and Declaration report form SWB2, the Certifying Authority which issued the Certificate may suspend the Certificate until satisfactory rectification of deficiencies has taken place, or the Certifying Authority may cancel the Certificate.
- 27.13.4 If the MCA has reasonable grounds to believe that a vessel issued with a Certificate by a Certifying Authority no longer fulfils the requirements of this Code, they may require the Certifying Authority that issued the Certificate to suspend or cancel the Certificate.
- 27.13.5 When a vessel is sold, the certificate issued by the Certifying Authority on the basis of the compliance examination and owner's declarations documented in the Compliance Examinations and Declaration report form SWB2 is cancelled automatically and the selling owner/managing agent should return the certificate to the Certifying Authority for formal cancellation and records., A new certificate may be issued to the new owner on receipt by the Certifying Authority of the appropriate application form completed by the new owner. The Certifying Authority should decide the extent of any examination, of the vessel which may be required before a new certificate is issued.
- 27.13.6 The Administration should be informed, by the Certifying Authority, when a certificate is issued, renewed, cancelled or modified. When a certificate is cancelled, the circumstances should also be reported, for action to be taken as deemed necessary.

¹⁷⁷MGN458 (M+F) – "Accident Reporting and Investigation".

27.13.7 The owner of a vessel may transfer to another Certifying Authority at any time. It is for the losing Certifying Authority to decide if it should refund any portion of the fees already paid. On transfer of a vessel, the losing Certifying Authority shall provide information to the gaining Certifying Authority of the status of declarations, examination examinations and inspections; particularly with regard to any areas where the vessel may be deficient or a dispute exists. The extent of any examination required upon transfer, when the vessel is between examinations, in the examination regime in Table 27.1 is to be decided by the gaining Certifying Authority. The unique number allocated by the first Certifying Authority is not to be changed.

27.13.8 Interim Certificates

27.13.8.1 An interim certificate may be issued by a Certifying Authority in order to permit a vessel to trade upon satisfactory completion of the survey in every respect, either for the period while the permanent/full term certificate is being prepared; or upon satisfactory completion of a survey in every respect with the exception of:

- .1 where the vessel is subject to section 11.3 and the lightship weight has been determined by calculation but is still to be finally determined or confirmed in the inclining experiment; and/or
- .2 the ship is required to have approved stability information in accordance with section 11.1.1.2 and the information has been submitted to the Certifying Authority, is on board and complete in all respects, but is still subject to the approval process.

27.13.8.2 The period of validity of any interim certificate may extend for up to five months from the date of issue, at which time or before; it may only be replaced by the full-term certificate, subject to all outstanding exceptions from the survey being completed to the satisfaction of the Certifying Authority. No additional or subsequent interim certificates may be issued until after the next renewal survey.

27.14 UK Vessels Operating Outside the UK

27.14.1 The Workboat Certificate, Pilot Boat Certificate or Workboat Certificate with a Pilot Boat Endorsement is a UK certificate.

27.14.2 Generally, international Conventions do not consider these small vessels and therefore other Maritime Administrations or Port State Authorities are under no obligation to accept UK certificates for vessels in their waters, although some Maritime Administrations or Port State Authorities may accept UK certificates as an equivalent standard to their own.

27.14.3 Guidance for owners/managing agents and Masters wishing to operate their vessels outside the UK has been produced as MGN 416 (M)¹⁷⁸.

¹⁷⁸ MGN 416 (M) – "Inspection, Survey and Certification Guidance for United Kingdom Small Commercial Vessels Operating Overseas".

27.15 Vessels Other than UK¹⁷⁹ Vessels Operating in UK Waters.

27.15.1 This Code applies equally to vessels other than UK vessels operating from UK ports whilst in UK waters. When Certificates are issued to such vessels, it should be clearly stated on the Certificate “this Certificate is applicable within UK territorial waters only”.

27.16 Letters/Statements of Compliance for Non-UK vessels

27.16.1 This Code does not apply to non-UK vessels while they are not operating from UK ports or in UK waters. Such vessels should not be issued with a Certificate. If the owner/managing agent of such a vessel requires confirmation of compliance with the requirements of this Code they may be issued with a Letter/Statement of Compliance (see Appendix 15) that clearly states that it is not a trading Certificate for the purposes of this Code, and that has no reference to authorisation by the MCA, DfT or the UK.

¹⁷⁹UK does not include the UK’s Overseas Territories and Crown Dependencies which are: Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Falkland Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Montserrat, St. Helena and Turks and Caicos Islands.

28 Prevention of Pollution

28.1 General

- 28.1.1 *A vessel complying with the Code should meet international, national, regional and local requirements for the prevention of marine pollution which are applicable to the area in which the vessel is operating.*
- 28.1.2 *Responsibility for the vessel to be properly equipped and maintained to meet the prevailing requirements rests with the owner/managing agent.*
- 28.1.3 *It is also the responsibility of the owner/managing agent to ensure that a charterer of a vessel receives up-to-date and adequate information on prevention of pollution in the area in which the charterer intends to operate. The information may include the need to seek advice from local or harbour authorities, for which contact details should be given.*
- 28.1.4 *The disposal of ship generated waste to port reception facilities is regulated in the UK through the Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2003 (SI 2003 No.1809), as amended, these Regulations apply to all vessels that proceed to sea. Further guidance these Regulations can be found in MGN 563 (M+F)¹⁸⁰ which includes at Annex E a current version of the "Port Waste Management Planning – A Guide to Good Practice". Vessel operators should ensure they manage their waste in a sustainable manner and fulfil the applicable requirements of these Regulations.*

28.2 Requirements for Preventing Pollution

28.2.1 Sewage

- 28.2.1.1 *When the direct overboard discharge from a water closet is prohibited by administrations/authorities in an area of operation, the provision of "holding tanks" of sufficient capacity to store waste for discharge to shore facilities may be needed for a vessel to comply.*
- 28.2.1.2 *Vessels certified to carry more than 15 persons that operate internationally should comply with the requirements of The Merchant Shipping (Prevention of Pollution by Sewage and Garbage) Regulations, SI 2008 No. 3257. Note should be taken of the following:*
- .1 Schedule 1 of MSN 1807 (M+F)¹⁸¹ contains information on the requirement referred to in regulation 22 for standardised discharge connectors on board ships, for the discharge of sewage to shore side facilities and on the potential for non-standard couplings on ships in dedicated trades. (a 210mm diameter flange plate according to International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL), Annex IV regulation 11 or a discharge fitting having an inner diameter of 38mm).*
 - .2 Schedule 2 of MSN 1807 (M+F) states the United Kingdom requirements (referred to in regulation 25(3) of SI 2008 No. 3257) in relation to a moderate*

¹⁸⁰ MGN 563(M+F) - Guidance on the Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2003 and amendments

¹⁸¹ MSN 1807 - Prevention of Pollution by Sewage and Garbage from Ships

rate of discharge of sewage which has been stored in holding tanks or which originates from spaces containing living animals.

- 28.2.1.3 *SI 2008 No. 3257 requires an International Sewage Pollution Prevention Certificate (ISPP) to be issued by the Administration for vessels falling into subsection 28.2.1.2. Where a vessel is required to carry an ISPP, the survey and certification should be undertaken in accordance with the guidance provided by MGN 385 (M+F)¹⁸².*

28.2.2 Garbage

- 28.2.2.1 *The disposal of garbage into the sea is prohibited by the Merchant Shipping Regulations, SI 2008 No. 3257. Arrangements for the retention of garbage on board and for discharge to shore waste reception facilities should be provided.*
- 28.2.2.2 *Every vessel over 12m in length overall must display placards which notify the crew, industrial personnel and passengers of the disposal requirements set out in regulations 26 to 28 and 30 of SI 2008 No. 3257. An example of a garbage placard is provided in Appendix 6.*
- 28.2.2.3 *Every vessel over 100 Gross Tonnes or certified to carry 15 persons or more must carry a Garbage Management Plan. SI 2008 No. 3257 states that this Plan must be in accordance with the guidelines developed by the IMO and set out in Schedule 3 to MSN 1807 (M+F).*
- 28.2.2.4 *Every vessel certified to carry 15 or more persons engaged in international voyages must also carry and maintain a Garbage Record Book. SI 2008 No. 3257, regulation 13 also imposes a duty to make entries about certain operations. Regulation 35 allows for certain ships to be exempt from the requirements about holding Garbage Record Books and making entries. MGN 385 (M+F) provides details of the MCA's current policy on exemption criteria.*

28.2.3 Oil

- 28.2.3.1 *The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996 (SI 1996 No. 2154), as amended, explain the extent to which a vessel operating in accordance with this Code should comply with the Regulations. Guidance and additional information is also provided in Appendix 6 of this Code.*
- 28.2.3.2 *The Annex to the International Maritime Organisation (IMO) MEPC.1/Circ 511 provides "Revised Guidelines For Systems For Handling Oily Wastes In Machinery Spaces Of Ships". The guidelines apply to ships of which the keels were laid on or after 1 January 1992.*
- 28.2.3.3 *Certifying Authorities are requested to verify sections 1.1.2, 1.2, and 1.3 in Appendix 6 by recording the arrangement such as the size of the holding tank, documentation of the approvals of the equipment and that the vessel has established record keeping of all related operations, it's maintenance and repair. These records for survey and inspection purposes shall be kept by the*

¹⁸² MGN 385 - Guidance on the Merchant Shipping (Prevention of Pollution by Sewage and Garbage on Ships) Regulations 2008

Master of the vessel and made available during Certifying Authorities annual examination.

28.2.3.4 *Means to prevent pollution by oil should be acceptable to Administrations¹⁸³/authorities in the area in which a vessel operates.*

28.2.4 Use of Antifouling Paints

28.2.4.1 *On the 5th October 2001 the IMO adopted the International Convention on the Control of Harmful Anti-Fouling Systems on Ships. This Convention prohibits the use of environmentally harmful organotins (for example, Tributyl Tin) in antifouling paints applied on ships and prevents the possible use in the future of other harmful substances in anti-fouling systems. The Merchant Shipping (Anti-fouling Systems) Regulations 2009 (SI 2009 No. 2796)¹⁸⁴, as amended, apply.*

28.2.4.2 *As a result of EC Regulation EC 782/2003 on the prohibition of organotin compounds on ships, it became compulsory for all ships in the EEA not to apply or re-apply organotin compounds which act as biocides in anti-fouling systems from 1st July 2003. For ships less than 24 metres in length it is not necessary to provide for a specific survey or declaration.*

28.2.5 Air Emissions

28.2.5.1 *All engines with a power output of greater than 130kW, installed on a vessel which is a workboat of any size, constructed after 1st January 2000 should be issued with an Engine International Air Pollution Prevention (EIAPP) Certificate and a Technical File, see MSN 1819(M+F)¹⁸⁵.*

28.2.5.2 *Further guidance on air emissions regulations can be found in MSN 1819 (M+F) and the Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 (SI 2008 No. 2924), as amended.*

¹⁸³ It is anticipated that MCA will publish an MGN giving guidance to <400 gt vessels on oil pollution prevention equipment that is acceptable to the MCA under MARPOL Annex I amendments.

¹⁸⁴ MGN 398 (M+F) The Merchant Shipping (Anti-fouling Systems) Regulations 2009 provides further guidance.

¹⁸⁵ MSN 1819 (M+F) - The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008"

29 Carriage and Transfer of Cargoes (including Dangerous Goods)

29.1 General Information

29.1.1 *The carriage and transfer of cargoes (including dangerous goods) by sea is controlled in order to prevent injury to persons or damage to ships and their cargoes and to prevent pollution of the marine environment under normal operating conditions. Dangerous goods are cargoes classified in the International Maritime Dangerous Goods (IMDG) Code which is given force of law through the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No. 2367), as amended and applies to all vessels irrespective of size in UK (navigable) waters. For operation outside the UK refer to 29.1.7. The Merchant Shipping (Carriage of Cargo) Regulations (SI 1999 No 336) also apply to small workboats and the requirements are dealt with in detail in Section 25.3.*

The following requirements have been developed, noting the provisions in regulation 22(2) of the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No. 2367), as amended. The basic philosophy of these requirements is to apply standards contained in Regulations 54 or 19 of Chapter II-2 of SOLAS to the extent that is practicable and reasonable taking into account the design features and service characteristics of these vessels, as well as the limitation placed on the operation of the vessels, subject to the vessels complying fully with the stowage and segregation requirements of the IMDG Code. The requirements below will only apply to workboats whilst operating in UK waters.

Section 29 is divided into the following sub-sections:

- *Governing statutes and limitations, 29.2*
- *Exceptions and UK relaxations, 29.3*
- *Construction and certification requirements, 29.4*
- *Operational Considerations, 29.5*
- *Emergency Schedules for Fire and spillage provisions, 29.6*
- *Transfer arrangements of Marine Gas Oil (MGO), UN1202 (GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT) from designated oil fuel tanks, 29.7*
- *Transfer arrangements from portable tanks (greater than 450 litres) or intermediate bulk containers (IBCs) less than 3000 litres, 29.8*
- *Transfer arrangements for receptacles containing less than 205 kg or 205 litres of dangerous goods, 29.9*
- *Dangerous Goods Document of Compliance, 29.10.*

29.1.2 *Control of dangerous goods is intended to cover all dangerous goods carried as cargo on a vessel. Operators and Masters should be aware that Dangerous Goods includes any specialist equipment which may be classified as dangerous cargoes when carried by crew, passengers or industrial personnel (see section 2). See also 25.9.8.*

29.1.3 *For the purposes of this Chapter any goods carried on board, such as activity related equipment or materials used in commercial operations, that are not ship's stores (see 29.3.1) are considered to be cargo.*

- 29.1.4 *When carrying dangerous goods identified in the IMDG Code, above the quantities and outside the Classes described in 29.3.2, the vessel is required to have a Document of Compliance for the Carriage of Dangerous Goods (DoC DG) issued by the Administration. A Document of Compliance is not required for transfer operations carried out in accordance with section 29.7.*
- 29.1.5 *The carriage of Class 1 explosives, with the exception of Class 1.4, compatibility group S, is not permitted. Owners / managing agents wanting to carry DG of Class 1 (other than 1.4S) may be permitted to do so by the MCA's headquarters, on a case by case basis, and they should note that a qualified military or explosive expert should be present when explosives are being loaded, carried and unloaded or used on-board the vessel. No other dangerous goods will be permitted to be carried when carrying Class 1 explosives.*
- 29.1.6 *When the quantities and classes exceed those in 29.3.2, dangerous goods may only be carried at the same time as industrial personnel (i.e. not passengers), on Workboats holding a DoC DG, where such industrial personnel (for example offshore workers, surveyors etc.) are carried on the vessel on the business of the vessel. Procedures in accordance with 25.9.8 should be followed.*
- 29.1.7 *For workboats engaged on voyages outside the United Kingdom continental shelf or between two ports, one of which is outside the United Kingdom continental shelf: The carriage of dangerous goods is subject to international regulations (IMDG Code), SOLAS, MARPOL and National Regulations of other Administrations. Where a vessel wishes to carry dangerous goods permitted by the DoC DG issued by the MCA under the provisions of this Chapter it is essential that the owner / managing agent contacts the other Administration to confirm that this standards of safety is acceptable.*

Note: Both the DoC DG and the IMDG Code need to be consulted to determine the safety standard required on international voyages.

As Workboats are "Non-convention" size vessels, there is no international standard for the carriage of Dangerous Goods on these vessels. It will be for each Coastal / Port State to decide whether to accept this Document of Compliance for the carriage of Dangerous Goods issued by the Maritime and Coastguard Agency, see 29.1.6 of the Code.

29.2 Governing Statute and Limitations.

- 29.2.1 *Vessels where bulk cargo is loaded into and carried in the vessels hold or tanks are considered to be small tankers or bulk carriers shall **not** be certified under the provisions of this Code, see also 1.8.5. The only exception is the carriage of Marine Gas Oil (MGO) and UN1202 (GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT), which is addressed under Transfer Arrangements section 29.7 of this Code. Refer also to section 25.3.*

29.3 Exceptions and UK relaxations

The carriage of cargoes is the process whereby a vessel is loaded, or intended to be loaded, with any item for delivery to, or collection from, one location and loading/unloading at another location. Cargoes can be divided into:

*(i) **General cargo** – securing and other carriage requirements are Regulated through the Merchant Shipping (Carriage of Cargoes) Regulations 1999 (SI*

1999 No. 336). The carriage and transfer of oils¹⁸⁶ not classified as dangerous goods is addressed in 29.8, Transfer arrangements from portable tanks (greater than 450 litres) or intermediate bulk containers (IBCs).

(ii) Dangerous goods – in addition to the requirements of (i), cargoes which are classified as dangerous goods according to the criteria given in the IMDG Code are regulated through the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No. 2367), as amended. Dangerous goods are assigned, and identified by, United Nations (UN) Numbers and Proper Shipping Names according to their hazard classification. Their system of containment systems, e.g. portable tanks, IBCs, drums etc. must comply with the requirements of the IMDG Code.

29.3.1 Ships stores

The IMO definition of ships' stores (MSC.1/Circ.1216) is as follows:

Ships stores, for the purposes of the carriage of dangerous goods, means materials which are on board a ship for the upkeep, maintenance, safety, operation or navigation of the ship (except for fuel and compressed air used for the ship's primary propulsion machinery or fixed auxiliary equipment) or for the safety or comfort of the ship's passengers or crew. Materials intended for use in commercial operations by a ship are not considered as ships' stores (e.g. materials used for diving, surveying and salvage operations such as IMDG Code classified dangerous goods - for example Class 1 – Explosives and the other eight classes of dangerous goods).

29.3.2 Materials intended for use in commercial operations

For the purpose of this Code, when a net total quantity of not more than 30 kg/litres of the following dangerous goods are carried or used on board, of UN Classes 1.4S, 2.1, 2.2, 3, 6.1, 6.2, 8 and 9, see Information Note for details of Classes, such materials can be considered as ships' stores and the vessel does not require a Doc DG. However, the vessel is required to meet all other aspects of Chapter 29 including construction, equipment and procedures. These materials can be part of specialist equipment to support the function of the vessel, in order to facilitate the specific tasks for which they are designed. Examples of such materials/specialist equipment would be diving bottles, portable generators/compressors etc. The quantity restrictions referred to in this section do not apply to fuel transfer operations referred to in section 29.7, see 29.1.4.

Further detailed guidance including segregation requirements on the storage and use of such dangerous goods on board workboats described in the above paragraph is given in MGN 497¹⁸⁷.

¹⁸⁶ Note many oils with a flash point greater than 60°C are now classified as Class 9 UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. and the suppliers Safety Data Sheet (SDS) should be consulted to confirm its classification

¹⁸⁷ MGN 497 Dangerous Goods – including Chemicals and other Materials – Storage and Use on Board Ship.

29.4 Construction requirements

This section applies to all small workboats carrying dangerous goods in any quantity.

29.4.1 Scuppers and Drains

29.4.1.1 *The scupper and drainage arrangements are to be directed overboard with no connections to internal spaces. (See also 29.7.2).*

29.4.2 Electrical Equipment

29.4.2.1 *Electrical equipment installed in the area of the vessel where cargo is carried should be of the certified safe type for the cargo being carried, or be capable of being securely isolated during the carriage of packaged dangerous goods.*

29.4.3 Structural Fire Protection

29.4.3.1 *Bulkheads and decks forming boundaries containing fuel tanks, machinery spaces and accommodation spaces are to be insulated to A-60 standard unless the dangerous goods are stowed three metres or more from such bulkheads, decks and boundaries. Certain classes of dangerous goods could have additional requirements, as described in the IMDG Code, that may prevent it being stowed next to accommodation regardless of A-60 insulation.*

29.4.3.2 *Where an A-60 insulation is required for an aluminium structure insulation should be an approved 'A' Class type tested under Part 3 of the FTP Code and be fitted in accordance with the conditions stated in the approval certificate. Alternatively, the insulation and structure should be type approved for the appropriate structure material for use on High Speed Craft (HSC) as tested and approved to Annex 1 Part 11 of the FTP Code 2010 – Test for fire resisting divisions for HSC (see Standards Appendix 13). Acceptable insulations will have the notation of 'Fire-resisting divisions 60'. The approval shall state the orientation of the division and whether the division is load bearing or non-load bearing.*

29.4.3.3 *Where an A-60 insulation is required for a fibre reinforced plastic (FRP) structure reference should be made to the performance standard in MGN 407. An acceptable alternative to this for FRP is an insulation that has been type approved for the appropriate structure material for use on High Speed Craft (HSC) as tested and approved to Annex 1 Part 11 of the FTP Code 2010 – Test for fire resisting divisions for HSC (see Standards Appendix 13). Acceptable insulations will have the notation of 'Fire-resisting divisions 60". The approval shall state the orientation of the division and whether the division is load bearing or non-load bearing.*

29.4.3.3.1 *Refer to section 14.2.3.9 for the use of intumescent materials.*

29.4.4 Wheelhouse Visibility

29.4.4.1 *For wheelhouse visibility requirements refer to 19.6.*

29.4.5 Means of Escape

29.4.5.1 *Means of escape whilst carrying dangerous goods should be provided, see section 14.9.6.*

29.4.6 Vessel Certification

29.4.6.1 *Prior to carrying dangerous goods in quantities in excess of those specified in 29.3.2 or where different UN Classes of dangerous goods other than those specified in 29.3.2 are required to be carried, and subject to the exception in 29.1.4, the vessel should be surveyed and a Document of Compliance for the Carriage of Dangerous Goods issued upon successful completion of the survey. The details of any Document of Compliance on board should be recorded on the Workboat Certificate by the Certifying Authority.*

29.4.6.2 *Operators are recommended to undertake their own safety assessment before applying for a DoC DG; this assessment procedure should be discussed with the Administration before proceeding. The survey by the Administration to carry dangerous goods will necessarily consider additional requirements for the vessel including the carriage of additional safety equipment, number of persons on board and additional emphasis on structural fire protection, fire suppression, separation between dangerous goods and accommodation, stability, positioning of life saving appliances, assembly stations and emergency exit routes. It may be necessary for the operator to submit a safety case.*

29.4.6.3 *This survey may only be undertaken by the Administration unless it has been specifically delegated to a Recognised Organisation, and will be valid for a maximum of 5 years. See section 29.10 for further details. Upon successful completion of a survey, a Document of Compliance for the Carriage of Dangerous Goods harmonised with expiry date of the vessels Workboat Certificate will be issued to the vessel indicating the Class of goods that can be carried with a list of equipment fitted. Where the Workboat Code certificate has less than 2 years to run, and prior to 1 January 2020, it will be acceptable to give the Document of Compliance a 5 year validity provided that the Document of Compliance is marked with "DoC DG remains valid subject to the Workboat Code Certificate remaining valid." For annual inspection requirements see also 29.10.*

29.4.6.4 *The Administration should be contacted if the vessel wishes to carry both dangerous goods and passengers at the same time, other than in accordance with 29.1.5.*

29.5 Operational considerations

29.5.1 Crew Training

29.5.1.1 *The crew should undergo training in the carriage of dangerous goods and the IMDG Code, commensurate with their responsibilities, and records kept of the training undertaken. See section 26.8 for details.*

29.5.2 Stowage and Segregation requirements

29.5.2.1 *Dangerous goods are to be carried on deck only.*

29.5.2.2 *They shall be secured to the vessels to prevent movement during the voyage.*

29.5.2.3 *A workboat is suitable for the carriage of dangerous goods as specified in the Doc DG subject to any additional stowage and segregation requirements of the IMDG Code which will take precedence over the table in the DoC DG and shall be followed at all times.*

29.5.2.3.1 *The IMDG weather deck stowage segregation requirements are included in Table 29.1 for guidance and should be read in conjunction with the IMDG Code as above.*

29.5.3 Packaging (including portable tank and IBCs)

29.5.3.1 *Dangerous goods shall be packed in accordance with the IMDG Code.*

29.5.4 Documentation

29.5.4.1 *When carrying dangerous goods, a full manifest of the cargo shall be retained ashore by the Small Commercial Vessel's owner, or designated person, in case of an incident. The manifest should contain the UN Number, Proper Shipping Name, Packing Group and Quantity for each dangerous good being carried. The designated person ashore should have a list of contact numbers for the emergency services and relevant manufacturers/suppliers of the dangerous goods. The designated person should be employed by the Code vessel's owner and be aware of the details of the voyage. Prior to accepting back-loaded cargoes, the designated person should establish that their carriage will be in compliance with this Code.*

29.6 Emergency Schedules for Fire and Spillage

29.6.1 *When dangerous goods are carried, details of the emergency fire fighting equipment and First Aid medical procedures should be provided on board. The IMDG Code and its supplement will give guidance on such items, to ensure that if an emergency occurs, it can be dealt with effectively.*

29.6.2 Fire Fighting Equipment

29.6.2.1 *There should be an immediate availability of water from the fire main provided by an engine driven fire pump or a separate powered pump. An additional powered fire pump should be provided in the event of the loss of one pump. Also refer to 15.4.1 or 15.5.1. Each pump shall be capable of supplying two hoses and nozzles, required in accordance with the Code, one of the nozzles should be a spray/jet type.*

29.6.2.2 *At least two portable dry powder extinguishers each rated at least at 34B, in addition to those required by 15.4.2 or 15.5.2, are to be provided and be readily available to the cargo area.*

29.6.3 First Aid Kit Requirements

29.6.3.1 *The provisions of Annex 4 – "Medicines to be carried on ships carrying dangerous cargoes" to MSN 1768 (M+F)¹⁸⁸, should be taken into consideration when carrying dangerous goods.*

¹⁸⁸ MSN 1768 (M+F) Ships' Medical Stores.

29.6.3.2 *When a vessel is carrying a dangerous substance or substances, in quantities in excess of those defined in column 7 of the Dangerous Goods list of the IMDG Code, as whole or part of the cargo, the Master must ensure the correct antidote to the substance (plus the necessary ancillary equipment e.g. syringes) is carried. The correct antidote can be found in the IMO Medical First Aid Guide for Ships (MFAG), as amended.*

29.7 *Transfer Arrangements of Marine Gas Oil (MGO), UN1202¹⁸⁹, from Designated Oil Fuel Tanks (Oil fuel as defined in Regulation 12A.3.1 of MARPOL Annex I)¹⁹⁰*

29.7.1 *Vessels which are adapted and used for the transfer of MGO from designated¹⁹¹ oil fuel tanks to other external facilities (e.g. a wind turbine) should demonstrate that they comply with MARPOL's requirements as far as practically possible taking into account that pollution of the seas is an offence. The following are the minimum requirements these vessels should follow:*

29.7.1.1 *The vessel should carry on board an up to date ship specific plan, verified by the Certifying Authority, which includes provisions to deal with oil spill accidents both during the transfer of oil within the workboat and from the workboat to the receiving facilities. IMO Resolution MEPC.54(32)¹⁹² as amended by Resolution MEPC.86(44) may be used in developing the plan;*

29.7.1.2 *The vessel should carry suitable clean up equipment, readily available when transferring fuel, with drains and scuppers plugged during that operation to prevent oil entering the water, should a spill take place;*

29.7.1.3 *The fuel pump should have an emergency shut-down button that is easily accessible from a permanently manned position during fuel transfers;*

29.7.1.4 *The fuel hose should have a dry break coupling so that NO spillage occurs. The fuel transfer hose should comply with an acceptable standard (see Appendix 13), be bonded and be of a suitable type for the product being transferred, system pressure and height of usage. The hose should be maintained in good condition, and inspected regularly in accordance with the manufacturer's instructions, or at least annually. Worn or damaged hoses should be replaced;*

29.7.1.5 *There should be transfer records kept of the fuel transferred providing times, start and finish quantities on board and quantities transferred e.g. by use of a Cargo Records Book (ISBN 978 011 5531576);*

29.7.1.6 *There should be a full risk assessment carried out for the particular vessel and operation, including but not limited to, the hose not breaking free, pollution, fire safety and training;*

29.7.1.7 *The cargo pipes, including venting and filling pipes, should comply with section 7.9;*

¹⁸⁹UN1202 GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT

¹⁹⁰ When the fuel is being transferred it is considered to be dangerous goods under the IMDG Code.

¹⁹¹ Part of the structure of the ship and should be bolted to the ship e.g. not portable tanks (cells).

¹⁹² MEPC.54(32) Guidelines For the Development of Shipboard Oil Pollution Emergency Plans

- 29.7.1.8 *Vessels should have procedures covering the loading, discharging and transferring of fuel. The crew should be trained in bunkering and transferring operations which should include safe use of the equipment to minimise fire risks and pollution, appropriate weather windows in which to use the equipment, and use of an up to date Material Safety Data Sheet (MSDS), provided by the fuel supplier which the vessel should carry for the fuel on board;*
- 29.7.1.9 *The installation should be surveyed by the Certifying Authority, including those requirements of 29.4.1 to 29.4.3, 29.5.1 and 29.6, and the vessel's Workboat Certificate should be endorsed to permit this operation. The endorsement should be reported by the Certifying Authority to the Administration; and*
- 29.7.1.10 *For vessels delivering fuel from their own bunker tanks, metering or equivalent arrangements, together with procedures, should be in place to ensure that sufficient fuel remains on board for all normal and emergency operations.*
- 29.7.2 *The tank/s should be of suitable design and construction and have protection adequate for the service for which they are intended; construction and fittings should be to an appropriate standard, to the satisfaction of the Certifying Authority. Provision should be made to retain any oil leakage within the confines of the vessels hull to protect persons on board and the marine environment. Tanks should be tested to class standards.*
- 29.7.3 *A Stability assessment on the impact of the tanks on the vessels stability should be carried out and the free surface effect considered.*
- 29.7.4 *Where a vessel is operating outside of the UK the transfer arrangements carried out according to 29.7 are subject to agreement and any requirements of the Coastal / Port State/s in which the vessel is operating. Section 29.1.7 refers. It will be for each Coastal / Port State to decide whether to accept the Endorsement of the Workboat Code issued by the Certifying Authority.*
- 29.7.5 *Action by Certifying Authorities*
- 29.7.5.1 *Certifying Authorities are requested to ensure that, where MGO transfers are being undertaken by a coded vessel, the above measures are put in place on the vessel.*
- 29.8 *Transfer Arrangements of MGO (UN 1202), other oils (UN 3082) and products posing a risk to the environment (e.g. lubricating oils) in Portable Tanks (greater than 450 litres) or Intermediate Bulk Containers (IBCs) (less than 3000 litres).***
- 29.8.1 *When considering proposals for the transport and transfer of MGO, UN1202 and other oils¹⁹³, UN 3082, and products posing a risk to the environment, in portable tanks or IBCs, the following points should be addressed:*
- 1. Portable tanks or IBCs shall meet the constructional requirements of the IMDG Code for the carriage of MGO, UN1202 or oils classified as*

¹⁹³ Note many oils with a flash point greater than 60 degrees C are now classified as Class 9 UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCES LIQUIDS, N.O.S. and the suppliers Safety Data Sheet (SDS) should be consulted to confirm its classification.

dangerous goods or products posing a risk to the environment. Portable tanks or IBCs which are intended to be lifted, should comply with the requirements of MSC.1/Circ.860 - GUIDELINES FOR THE APPROVAL OF OFFSHORE CONTAINERS HANDLED IN OPEN SEAS, especially in respect of the lifting arrangements which are subject to additional dynamic forces in the offshore environment, which should be appropriately certificated.

2. *It should be verified that the intended stowage location is designed for the carriage of cargo and that the loads / point loads are within design limits of the deck. In the absence of such evidence, or the area is not designed for the stowage of cargo, the vessels Certifying Authority should assess that the ships structure can support the weight taking into account the dynamic forces imposed whilst in a seaway and during landing of the tanks units on board.*
3. *Stability – assessment on the impact on vessels stability should be carried out and free surface effect considered.*
4. *“On board” filling of tanks - The filling and transfer arrangements including pipe work, transfer pumps, portable hoses, control of transfer, tank gauging and venting would need to be to the satisfaction of the vessel’s Certifying Authority taking into consideration the following:*
 - *Flexible Fuel hoses – hoses used for filling tanks shall be approved for such use and suitable stowage provided for both discharge and filling hoses. Refer to 29.7.1.4, see also Appendix 13.*
 - *Filling arrangements using flexible hose and nozzle / triggers shall be fitted with an automatic shut off function to prevent overfilling / overflow and the tank filling/venting arrangements should be compatible with this functionality. Refer to 29.7.1.4.*
 - *Tanks in which filling is by other means, should be fitted with continuous level gauging of a type, which if damaged, will not result in leakage.*
 - *Suitable independent venting arrangements which prevent water ingress may be required depending on the filling arrangements and tank design.*
 - *Powered pumps used for on board transfer, are to be provided with a remote stop in a suitable location.*
 - *A Save-all is to be provided around the portable tank and removable connections if filling / refilling is undertaken whilst the tank is on board.*
 - *Tank filling connections etc. which are to be disconnected prior to lifting are to be of a quick release, non drip type.*
5. *The portable tank, IBC and any portable equipment associated with its lifting / securing should be considered as cargo in respect of any limitation applied to the code vessel certification.*
 - .1 *Satisfactory securing of a portable tank or IBC in its stowage position is to be provided taking into account the forces, directions and accelerations likely to be encountered. Portable lashing equipment if used should be appropriate for the intended purpose. It should be certificated and a procedure for routine verification of its condition be implemented.*

- .2 MGO, UN1202, transfer and lifting procedures to be developed and documented based on the principles of risk assessment which may include checklists. All fuel, and products posing a risk to the environment, transferred to and from the portable tank should be documented in a record book / log book.
- .3 Emergency response and contingency plans to be developed for spills, fire etc., and
- .4 For wheelhouse visibility requirements refer to 19.6.

29.8.2 Action by Certifying Authorities

- 29.8.2.1 Certifying Authorities are requested to ensure that, where these transfers are being undertaken by a coded vessel, the above measures are put in place on the vessel.

29.9 Transfer arrangements for receptacles containing less than 205 kg or 205 litres of dangerous goods

- 29.9.1 Receptacles should be adequately secured for the expected environment and any lifting to be carried out using appropriate equipment.

29.10 Dangerous Goods Document of Compliance

The following describes the format and criteria for issuing a Document of Compliance for the carriage of Dangerous Goods (DoC DG).

The Certificate should remain valid for a maximum of 5 years and be harmonised with the Workboat Code Certificate or Load Line Exemption Certificate, as appropriate. The conditions on the DoC DG Schedule 2, should be confirmed annually by the Certifying Authority to ensure the vessel remains "Fit for Purpose" and can continue to carry IMDG Code Dangerous Goods in accordance with UK Legislation. This annual inspection should address items such as fire hoses, sprinkler systems and structural arrangements, and subject to the structural and safety systems remain in place and functionally operable (eg 29.4, 29.5 and 29.6 are met) then the DoC DG will remain valid. Where the annual inspections are carried out under MGN 280 this particular DoC DG annual examination shall not be carried out by the owner / managing agent.

Informative Note

UN Hazard Classes

Dangerous Goods are divided into nine United Nations (UN) classes based on the major danger presented by the substance, other risks may be present and these are known as subsidiary risks. The numbering system is not ordered in level of risk.

Owners/managing agents and crew should be aware of the dangerous goods classes. The title of the dangerous good classes is given below – for fuller descriptions the IMDG Code should be consulted.

- Class 1 Explosives¹⁹⁴ (six sub-divisions 1.1, 1.2, 1.3, 1.4, 1.5 and 1.6)
- Class 2 Gases
 - Class 2.1 Flammable gases
 - Class 2.2 Non-flammable, non-toxic gases
 - Class 2.3 Toxic gases
- Class 3 Flammable Liquids
- Class 4 Flammable solids; substances liable to spontaneous combustion; substances which, in contact with water emit flammable gases
 - Class 4.1 Flammable solids
 - Class 4.2 Substances liable to spontaneous combustion
 - Class 4.3 Substances which, in contact with water, emit flammable gases
- Class 5 Oxidising substances and organic peroxides
 - Class 5.1 Oxidizing substances
 - Class 5.2 Organic peroxides
- Class 6 Toxic and infectious substances
 - Class 6.1 Toxic substances
 - Class 6.2 Infectious substances
- Class 7 Radioactive material
- Class 8 Corrosive Substances
- Class 9 Miscellaneous dangerous substances and articles

Note :

The term Limited Quantities has a specific meaning within the IMDG Code and refers to the inner receptacle/package and cannot not exceed the size limit set out in Column 7a of the IMDG Code Dangerous Goods List. The term Limited Quantity does not refer to the quantity allowed to be carried on board a ship.

¹⁹⁴ Only Class 1.4S is allowable on board.

See below for labelling information of the various classes of dangerous goods.

Labels measure 100mm x 100mm

Placards are large labels measuring 250mm x 250mm

Class 1 - Explosive substances or articles



(No. 1)
Divisions 1.1, 1.2 and 1.3

Symbol (exploding bomb): black. Background: orange. Figure '1' in bottom corner.



(No. 1.4)
Division 1.4



(No. 1.5)
Division 1.5



(No. 1.1)
Division 1.1

Background: orange. Figures: black. Numerals shall be about 30 mm in height and be about 5 mm wide (for a label measuring 100 mm x 100 mm). Figure '1' in bottom corner.

** Place for division - to be left blank if explosive is the subsidiary risk.

* Place for compatibility group - to be left blank if explosive is the subsidiary risk.

Class 2 - Gases



(No. 2.1)
Class 2.1
Flammable gases

Symbol (flame): black or white
(except as provided for in 5.2.2.2.1.6.4).
Background: red. Figure '2' in bottom corner.



(No. 2.2)
Class 2.2
Non-flammable, non-toxic gases

Symbol (gas cylinder): black or white
Background: green. Figure '2' in bottom corner.



(No. 2.3)
Class 2.3
Toxic gases

Symbol (skull and crossbones): black.
Background: white. Figure '2' in bottom corner.

Class 3 - Flammable liquids



(No. 3)

Symbol (flame): black or white.
Background: red. Figure '3' in bottom corner.

Class 4



(No. 4.1)
Class 4.1
Flammable solids

Symbol (flame): black.
Background: white with seven vertical red stripes.
Figure '4' in bottom corner.



(No. 4.2)
Class 4.2
Substances liable to spontaneous combustion

Symbol (flame): black.
Background: upper half white, lower half red.
Figure '4' in bottom corner.



(No. 4.3)
Class 4.3
Substances which, in contact with water, emit flammable gases

Symbol (flame): black or white.
Background: blue.
Figure '4' in bottom corner.

Class 5



(No. 5.1)
Class 5.1
Oxidizing substances
Symbol (flame over circle): black; Background: yellow.
Figure '5.1' in bottom corner.



(No. 5.2)
Class 5.2
Organic peroxides
Symbol (flame): black or white
Background: upper half red; lower half yellow
Figure '5.2' in bottom corner

Class 6



(No. 6.1)
Class 6.1
Toxic substances

Symbol (skull and crossbones): black.
Background: white. Figure '6' in bottom corner.



(No. 6.2)
Class 6.2
Infectious substances

The lower half of the label may bear the inscriptions **INFECTIOUS SUBSTANCE A**
In case of damage or leakage immediately notify Public Health Authority
Symbol (three crescents superimposed on a circle) and inscriptions: black.
Background: white. Figure '6' in bottom corner.

Class 7: Radioactive Material

Category I – White
– Yellow



Category II – Yellow



Category III



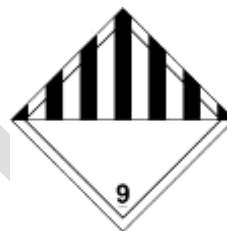
Fissile Material



Class 8: Corrosive Substances Dangerous Substances & Articles

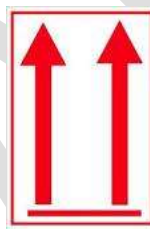
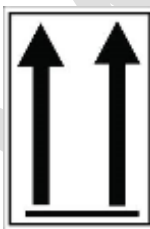


Class 9: Miscellaneous



Marks including Limited Quantities

Marks, in this context, are everything else which appears on the exterior surface of a package, IBC or large packaging, examples are given below:
Marine Pollutant Orientation Labels



Limited Quantities

Packages containing Limited Quantities shall be marked with the following symbol.

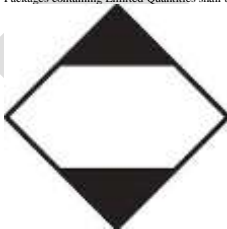


Table 29.1 IMDG Weatherdeck Stowage Segregation Requirements (see Note 1)

WORKBOAT - WEATHER DECK STOWAGE																	
Table 7.2.4 IMDG Code																	
IMDG CODE CLASS	1.1	1.3	1.4	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8	9
EXPLOSIVE	+	+	+	C	B	B	C	C	C	C	C	C	B	C	B	C	X
EXPLOSIVES	+	+	+	C	B	B	C	C	C	C	C	C	B	C	B	B	X
EXPLOSIVES	+	+	+	B	A	A	B	B	B	B	B	B	X	C	B	B	X
FLAMMABLE GASES	C	C	B	X	X	X	B	A	B	X	B	B	X	C	B	A	X
NON TOXIC, NON FLAMMABLE GASES	B	B	A	X	X	X	A	X	A	X	X	A	X	B	A	X	X
2.1																	
TOXIC GASES	B	B	A	X	X	X	B	X	B	X	X	B	X	B	A	X	X
2.3																	
FLAMMABLE LIQUIDS	C	C	B	B	A	B	X	X	B	A	B	B	X	C	B	X	X
3																	
FLAMMABLE SOLIDS	C	C	B	A	X	X	X	X	A	X	A	B	X	C	B	A	X
4.1																	
SPONTANEOUSLY COMBUSTIBLE	C	C	B	B	A	B	B	A	X	A	B	B	A	C	B	A	X
4.2																	
DANGEROUS WHEN WET	C	C	B	X	X	X	A	X	A	X	B	B	X	B	B	A	X
4.3																	
DANGEROUS WHEN WET	C	C	B	B	X	X	B	A	B	B	X	B	A	C	A	B	X
5.1																	
OXIDIZING SUBSTANCES	C	C	B	B	X	X	B	B	B	B	X	B	A	C	A	B	X
5.2																	
ORGANIC PEROXIDES	C	C	B	B	A	B	B	B	B	B	X	A	C	C	B	B	X
6.1																	
TOXIC SUBSTANCES	B	B	X	X	X	X	X	X	A	X	A	A	X	A	X	X	X
6.2																	
INFECTIOUS SUBSTANCES	C	C	C	C	B	B	C	C	C	B	C	C	A	X	C	C	X
7																	
RADIOACTIVE MATERIALS	B	B	B	B	A	A	B	B	B	B	A	B	X	C	X	B	X
8																	
CORROSIVES	C	B	B	A	X	X	X	A	A	A	B	B	X	C	B	X	X
9																	
MISCELLANEOUS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X																	
NO SEGREGATION REQUIRED																	
AWAY FROM:																	
A																	3 Metres
B																	6 Metres
C																	
+																	
CLASS 1 EXPLOSIVES																	

Note 1: This Table is included for reference only and should be read in conjunction with the IMDG Code as described in 29.5.2.

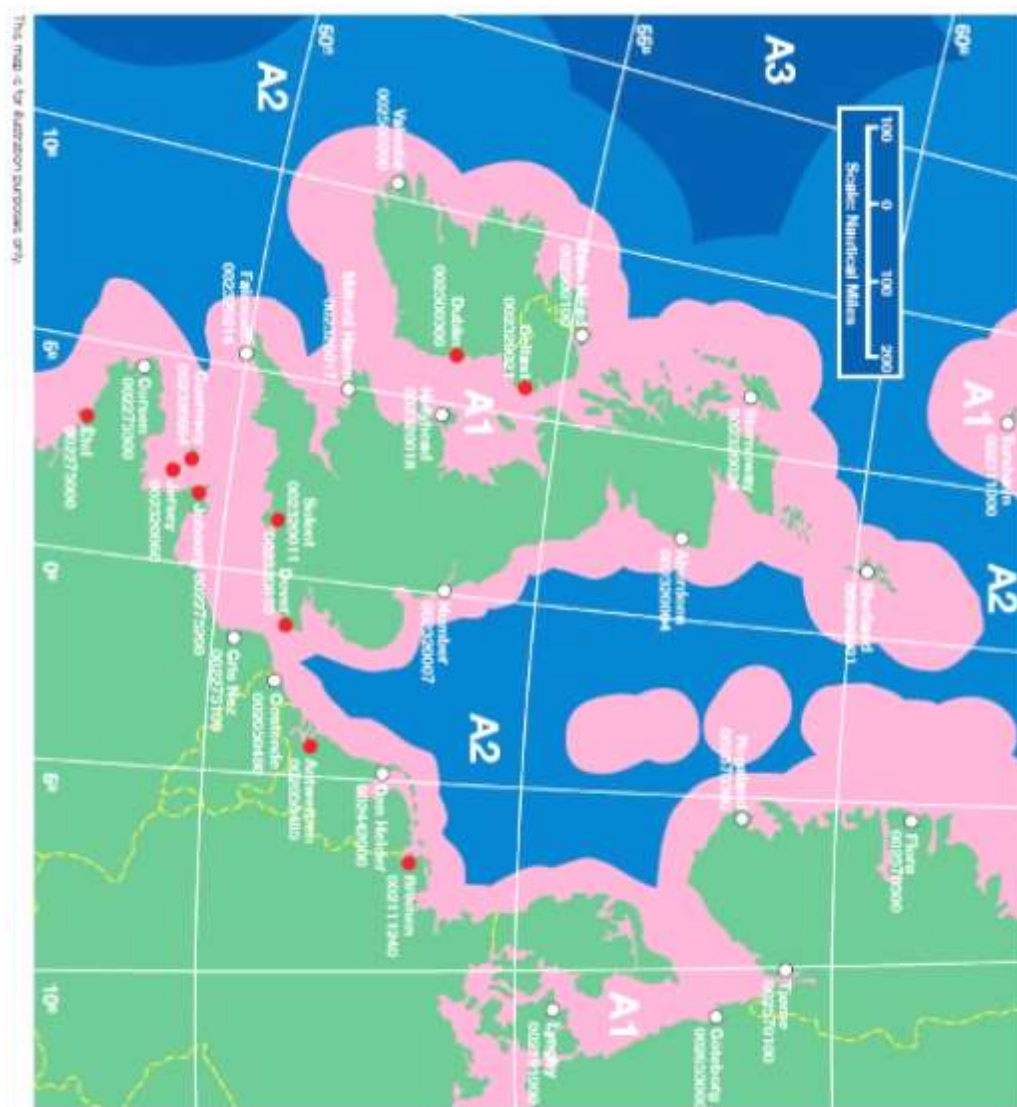
30 Safety Management

- 30.1 All vessels operating under this code are recommended to implement a Safety Management System (SMS) which complies with the principles of the ISM Code, but is commensurate with the size and complexity of the vessels and company's operations. See Appendix 7 for details of the areas which should be addressed by a SMS.

DRAFT

APPENDIX 1

GMDSS SEA AREAS AROUND THE UK



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

Sea Area A1 The radio telephone coverage of 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 DSC is available;

Sea Area A3 The coverage of an Inmarsat geostationary satellites in which continuous alerting is available.

Note: For VHF the Sea Area A1 relates to the location of the Coast Guard antenna and the height of the antenna on the vessel. MGN 22¹⁹⁵ also refers. VHF Range will be reduced from those shown in pink above when the height of the antenna above sea level reduces below 4m. In these cases refer to the Admiralty List of Radio Signals Volume 5 for Range Calculations, see the section on Management of VHF. This is further described in the first footnote to Table 16.8.1.

¹⁹⁵ MGN 22 (M+F) Proper Use of VHF Channels at Sea

APPENDIX 2

MARITIME LABOUR CONVENTION, 2006

SEAFARER EMPLOYMENT AGREEMENT

*** Guidance ONLY ***

1. The terms and conditions for employment of a seafarer shall be set out or referred to in a clear written legally enforceable agreement and shall be consistent with the standards set out in the Code.
2. Seafarers' employment agreements shall be agreed to by the seafarer under conditions which ensure that the seafarer has an opportunity to review and seek advice on the terms and conditions in the agreement and freely accepts them before signing.
3. To the extent compatible with the member's national law and practice, seafarers' employment agreements shall be understood to incorporate any applicable collective bargaining agreements.

Source : Maritime Labour Convention, 2006

RECOMMENDED FORMAT FOR SEAFARER EMPLOYMENT AGREEMENT PARTICULARS REQUIRED TO BE INCLUDED BY THE MLC

This Agreement is between:-

..... (insert Seafarer's full name)
..... (insert date of birth or age (see [Note 1](#))
..... (insert place of birth – town and
country)
AND

..... (insert Shipowner's name)
OF..... (insert Shipowner's full address)

Capacity in which seafarer is to be employed

The capacity in which you are initially employed is
(insert capacity)(see [Note 2](#))

Place of Work

You will be employed on(see [Note 3](#))

Wages

Your wages will be (insert amount and currency) per
week*/month*/year* (delete as appropriate) or formula for determining wages (see [Note 4](#))

Means of payment of Wages

Your wages will be payable by..... [insert method of payment] at
weekly*/monthly* (delete as appropriate) intervals on the[insert number]
day of each week*/month* (delete as appropriate)

[Overtime hours i.e. hours worked outside of normal working hours will be paid at a rate
of(insert overtime rate] (Delete this sentence if not applicable)

Paid Annual Leave

You are entitled to take(insert number) (see Note 5) working days as paid leave in each year of employment.

If your employment commenced or terminates part way through the holiday year, your entitlement to paid annual leave will be assessed on a pro rata basis. Deductions from final salary due to you on termination of employment will be made in respect of any paid annual leave taken in excess of your entitlement.

There is no provision for the carry over of paid annual leave from one year to the next. All paid annual leave must be taken in the year in which it accrues. There is also no provision for payment to be made in lieu of untaken leave except where paid annual leave has accrued but has not been taken at the date of termination of employment.

Notice of Termination of Employment (Delete whichever is not applicable) (See Note 6)

Definite Period Agreement

Your employment is for a period commencing on[insert date] and ending on [insert date] unless it is terminated for justified reasons in advance of this point or the ship is at sea at that point time in which event it will continue until its arrival in port at which point it will terminate,

OR

Indefinite Agreement

The length of notice which you are obliged to give to terminate your employment is [insert notice period which is to be not less than seven days].

The length of notice which you are entitled to receive from the shipowner to terminate your employment is [insert notice period which is to be not less than seven days].

OR

Voyage Agreement

Your employment is for the length of the voyage of [ship] commencing on[insert date] from the port of.....[insert name of port] until[insert date] or the vessel's arrival in the port of[insert name of port]] at which point it will terminate, unless it is terminated for justified reasons in advance of this point.

Health and Social Security Benefits (see Notes 7 and 8)

If you become sick or injured whilst on a voyage, you will be paid your normal basic wages until you have been repatriated in accordance with the repatriation provisions set out below. After you have been repatriated you will be paidper cent .[insert number] of your normal basic wages up to a maximum ofweeks [insert number which shall be 16 or above] less the amount of any Statutory Sick Pay or Social security

Sickness Benefit to which you may be entitled for[insert number] working days in total in any one sick pay year]

If you require medical care while you are on-board this will be provided free of charge, including access to necessary medicines, medical equipment and facilities for diagnosis and treatment and medical information and expertise. Where practicable and appropriate, you will be given leave to visit a qualified medical doctor or dentists in ports of call for the purpose of obtaining treatment.

In the event of sickness or incapacity, you will be provided with medical care, including medical treatment and the supply of necessary medicines and therapeutic devices and board and lodging away from home until your recovery or until your sickness or incapacity has been declared of a permanent character, subject to a maximum period ofweeks [insert number which shall be 16 or above]. In addition the shipowner will meet the cost of the return of your property left on board to you or your next of kin.

In the event of your death occurring on board or ashore during a voyage, the shipowner will meet the cost of burial expenses, or cremation where appropriate or required by local legislation, and the return of your property left on board to your next of kin.

Repatriation (see Note 9)

You will be entitled to repatriation, at the expense of the shipowner, if you are away from your country of residence when this agreement is terminated:-

by the shipowner by you in the event of illness or injury or other medical condition requiring your repatriation, the event that the ship is proceeding to a Warlike Operations Area or the event of termination or interruption of employment in accordance with an industrial award or collective agreement.

In circumstances where you are no longer able to carry out your duties under this agreement or cannot be expected to do so e.g. shipwreck, the sale of your ship or a change in your ship's registration.

The entitlement to repatriation entails transport by(insert means of transport) to.....(insert place name or country):.

NOTE - You may not be entitled to repatriation at the expense of the shipowner in circumstances where you have been dismissed on disciplinary grounds or have breached your obligations under this Agreement. In such circumstances the shipowner will still be liable to repatriate you but is entitled to recover from any wages due to you the cost of doing so.

Maximum duration of service periods after which you are entitled to repatriation
The maximum period of service following which you will be entitled to repatriation at no cost to you isweeks (insert number of weeks) (See Note 10)

Applicable Collective Bargaining Agreement(s)(delete if not applicable)(see Note 11)

Your employment will also be subject to the Collective Bargaining Agreement(s) entered into on.....(insert date(s)) between the shipowner and(insert details of the other parties to the collective bargaining agreement(s)) except that where any provision(s) of such collective bargaining agreement(s) conflicts with International or UK law such provision(s) shall not apply to your employment under this Agreement..

ADDITIONAL PARTICULARS REQUIRED TO BE INCLUDED BY THE UNITED KINGDOM LAW

Hours of Work (see Note 12)

Your normal hours of work are from[insert time] to[insert time] on[insert day of week] to[insert day of week] inclusive.

Your hours of work will be arranged such as to ensure that you receive a minimum of 10 hours available for rest in each 24-hour period and a minimum of 77 hours rest in each seven-day period. This minimum period of rest may not be reduced below 10 hours except in an emergency.

You may be required, at the absolute discretion of the Master, to work additional hours during an emergency affecting the safety of the ship, its passengers, crew or cargo or the marine environment or to give assistance to other ships or persons in peril. You may also be required to work additional hours for safety drills such as musters, fire-fighting and lifeboat drills. In such circumstances you will be provided subsequently with (a) compensatory rest period(s).

Grievance and Disciplinary Procedures

(a) Grievances

If you have a grievance regarding your employment you should follow the ship owner's grievance procedure a copy of which will be provided to you when you join the vessel.

(b) Disciplinary Rules and Procedure

The disciplinary rules applicable to you are set out in the Code of Conduct for the Merchant Navy, which has been agreed between the Chamber of Shipping, Nautilus International and the National Union of Rail, Maritime and Transport Workers; or the Shipowner's Code of Conduct . (Delete as necessary)

If you are dissatisfied with any disciplinary decision taken in relation to you, you should refer to the disciplinary procedure set out in the Code of Conduct which can be obtained from[state from where Code of Conduct can be obtained].

Pension benefits (Delete whichever is not applicable) (see Note 13)

You will be entitled to the following pension or other benefits(insert full details including whether contributory (if so at what rate(s)) or non-contributory and when payable etc.).

OR

You will be entitled to join thepension scheme (insert details

OR

There is no pension or other benefit entitlement attached to this employment.

Compensation in respect of loss of personal property as a result of the loss or foundering of the vessel

Where you lose personal property, as a result of the vessel on which you are serving foundering or being lost, the shipowner will pay compensation up to a maximum of (insert amount).

ADDITIONAL PROVISIONS INCLUDED BY SHIPOWNER (See Note 14)

Signature of Seafarer
Signature of Shipowner or Shipowner's representative (State position held)
Place where this Agreement is entered into (see Note 15)
Date when this Agreement is entered into

NOTES

Note 1 - "insert date of birth or age" - Normally the date of birth should be inserted in full. Only in exceptional circumstances should the seafarer's "age" be inserted. This should be the seafarer's age at the time the SEA was signed and should be inserted only where there is no means of establishing the seafarer's actual date of birth e.g. because the seafarer comes from a country where birth records are not accurate or for various reasons no longer exist and the seafarer himself does not know his actual date of birth.

Note 2 - "Capacity in which seafarer is to be employed" - This will be the capacity in which the seafarer is to be employed at the time the SEA is signed by the parties to it. Given that an SEA may run for a considerable length of time if the seafarer remains with the same shipowner, it is possible that the capacity in which the seafarer is employed could change over time. The shipowner may wish to consider whether a new SEA will be issued at such time or alternatively include a provision indicating how any changes to capacity will be dealt with e.g. by means of a letter setting out the new capacity and the relevant wage scale.

Note 3 - "Place of Work" should state either the name of the vessel on which the Seafarer is to be employed where this is known or may state that "Place of Work may be on any vessel owned, managed or chartered by the shipowner." where the seafarer may be employed on more than one vessel.

Note 4 - "Wages" - As with "Capacity" (Note 2 above) wages payable to the seafarer are likely to change if employed by the same shipowner over a significant period of time. When completing the "Wages" entry in the SEA, the shipowner will therefore need to bear this in mind and include appropriate wording to cover any future wage increases e.g. by providing for the wage to increase as notified to the seafarer in writing.

Note 5 - "Paid Annual Leave" - The period of paid annual leave must be not less than that specified in the Maritime Labour Convention, 2006 Standard A2.4. Where it is more appropriate to do so, the formula to be used for calculating annual leave, e.g. 2.5 days per month of employment, may be inserted instead of an actual number of days.

Note 6 – “Notice of Termination of Employment” - The period of notice required to be given to the seafarer by the shipowner must not be less than that required to be given to the shipowner by the seafarer and, except in the case of a fixed term or voyage agreement, must be not less than seven days.

Note 7 – “Health and Social Security Benefits” - On a UK registered vessel the provision of medical care includes any surgical or medical treatment or such dental or optical treatment (including the repair or replacement of any appliance) as cannot be postponed without impairing efficiency.

Note 8 – “Social Security Benefits” - These include payment by the shipowner of any costs incurred in respect of any sickness or injury occurring between the date on which they commenced duty on board a ship and the date on which they are deemed to have been duly repatriated.

This also includes payments that shipowners are required to make in respect of the death or long term disability of a seafarer due to an occupational injury, illness or hazard occurring while the seafarer is serving under a seafarer’s employment agreement or arising from their employment under such agreement.

Where appropriate, account should also be taken of all current UK legislation governing health and social security protection benefits and the SEA should specify what, if any social security contributions are being made by the shipowner on the seafarer’s behalf and to which administration. If no contributions are being made, the SEA should state that the seafarer should make their own arrangements to pay social security contributions where appropriate.

Where appropriate it is recommended that details also be included of any entitlement to other benefits (e.g. State Sickness Benefit, State Maternity Benefit, etc.) to which a seafarer will be entitled and the level of seafarer contribution, if any, towards such benefits.

Note 9 - Repatriation - The terms and conditions governing entitlement or otherwise to repatriation for seafarers employed on UK registered vessels will be set out in new regulations amending the Merchant Shipping (Repatriation) Regulations 1979 to fully comply with Regulation 2.5 and Standard A2.5 of the Maritime Labour Convention. The destination for repatriation must be one of the following:

the place where the seafarer signed their employment agreement;
their country of residence;
the place specified in any applicable collective agreement; or, subject to the agreement of the shipowner, another place of the seafarer's choosing.

Note 10 - Maximum duration of service periods after which you are entitled to repatriation

The maximum period of service following which a seafarer will be entitled to repatriation is to be not more than 52 weeks minus the period of statutory paid annual leave - see note 5.

Note 11 - Applicable Collective Bargaining Agreement(s) - Seafarers Employment Agreements may, where applicable, incorporate any applicable collective bargaining agreements. Therefore the terms and conditions contained in a collective bargaining agreement should be appended to, or incorporated by reference into, and thus form part of a Seafarer Employment Agreement.

Collective bargaining Agreements may not however be substituted entirely for individual Seafarer Employment Agreements in respect of seafarers employed on UK registered vessels.

It should also be noted that in the event of any conflict between the provisions of a collective bargaining agreement and UK general or merchant shipping legislation, the relevant UK legislation will prevail.

Note 12 – “Hours of Work” - The hours of work for seafarers employed on UK registered vessels must comply with the requirements of the Merchant Shipping (Hours of Work) Regulations 2002 (as amended) or any subsequent Regulations which may further amend or replace those Regulations.

Note 13 – “Pension benefits” - Where appropriate it is recommended that details also be included of any entitlement to additional pension benefits (e.g. State Pension) to which a seafarer will be entitled and the level of seafarer contribution, if any, towards such benefits.

Note 14 – “Inclusion of Additional Provisions by Shipowner” – It is recognised that there will be occasions on which shipowners wish to include provisions additional to those set out in the Maritime Labour Convention. There is no objection to the inclusion of such additional provisions however any such provisions must not conflict with the provisions of UK general or merchant shipping legislation or any international instruments which have been ratified by the United Kingdom.

The Maritime and Coastguard Agency will not be checking and approving additional provisions, as it currently does for crew agreements, and it will therefore be the responsibility of the shipowner to ensure that there is no conflict. Failure to do so may result in refusal to issue a Maritime Labour Certificate or its cancellation if one has already been issued.

In the context of non-compliance, some provisions have previously been found in crew agreements which, if included in Seafarer Employment Agreements, could result in refusal to issue, or cancellation of, a Maritime Labour Certificate. Examples of these, which would apply also to Seafarer Employment Agreements, include:-

requiring that all seafarers belong to a union

– Under UK law there is no obligation on any worker to belong to a union requiring that seafarers join a specified union.

- Apart from the previous provision regarding choice on whether or not to join a union, such a provision would also conflict with the International Labour Organisation Convention on Freedom of Association. This Convention has been ratified by the UK and provides that workers shall be free to form and join organisations of their own choosing.

requiring that by signing the agreement seafarers automatically agree to medical information about themselves being passed to the shipowner or another party acting on behalf of the shipowner.

- This is not acceptable and may only be done with the specific prior authority of the seafarer on each occasion the shipowner requests that such information be made available

requiring that by signing the agreement seafarers automatically agree to sensitive personal data (as defined in the Data Protection Act) about them being passed to other individuals or organizations as determined appropriate by the shipowner or another party acting on behalf of the shipowner.

- This also is not acceptable as such individuals/organisations may potentially be located in countries that do not have data protection legislation or have legislation that does not provide similar protection to that of the UK. Such transfer of “sensitive personal information” may only be undertaken with the specific prior authority of the seafarer on each occasion the shipowner proposes that such information be passed to another individual or organisation

requiring that a seafarer bear the cost of his repatriation, and the cost of providing his replacement, should he terminate his employment prior to completing the specified period of employment even though he gave the period of notice to terminate his employment that was required by the agreement.

- Under UK legislation a seafarer can only be charged the cost of his repatriation if he has breached his obligations under the agreement or has been dismissed on disciplinary grounds. The giving of the period of notice specified in the agreement would not constitute breach of the seafarer’s obligations even if it terminated his employment before the date envisaged in the agreement.

This list is illustrative only and should not be taken as listing all provisions that would be considered unacceptable.

Note 15 – “The Place where Agreement is entered into” should state the name of village, town or city and country where Agreement is signed by the parties to it

APPENDIX 3

THE MANNING OF SMALL VESSELS

NOTE: This Appendix and any associated wording in section 26 may be subject to review, and subsequently amended, prior to the next substantive revision of the Workboat Code.

This Appendix gives information relating to the manning and operation of small vessels in commercial use as follows:

- Section 1 - Areas of Application
- Section 2 - Minimum Qualifications of the Person in Charge of the Vessel and the Additional Person When Required To Be Carried
- Section 3 - Revalidation of Certificates and Licences
- Section 4 - MCA Approved Engine Course

General

Vessels to which this Code applies and which comply with its requirements, will be exempt from the need to comply fully with the Merchant Shipping (Training and Certification) Regulations 1997, (SI 1997 No. 348), as amended, and the Merchant Shipping (Safe Manning, Hours of Work and Watchkeeping) Regulations 1997 (SI 1997 No.1320), as amended, provided the manning of the vessel is in accordance with the standards given in paragraph 2 below when operating in the areas described in paragraph 1 below.

1. Areas of Application

Commercially operated vessels operating within the following areas should carry at least the qualified personnel shown in section 2 below:-

Area Category 6	within 3 miles of land and not more than 3 miles radius from either the point of departure to sea or the seaward boundary of protected waters (see definition of "protected waters"), in favourable weather and daylight;
Area Category 5	within 3 miles of land and not more than 3 miles radius from either the point of departure to sea or the seaward boundary of protected waters (see definition of "protected waters") in favourable weather.
Area Category 4	Up to 20 miles from a safe haven, in favourable weather and in daylight
Area Category 3	Up to 20 miles from a safe haven
Area Category 2	Up to 60 miles from a safe haven
Area Category 1	Up to 150 miles from a safe haven
Area Category 0	Unrestricted service

2. Minimum Qualifications of the Person in Charge of the Vessel (Master) and of the Additional Persons required to be carried on Board

2. General

2.1.1 All Certificates and Licences of Competency or Service are to be appropriate to the type of vessel in which they are used.

2.1.2 Any person appointed as a Master must be a minimum age of 18 years.

2.1.3 All seafarers should be trained or certified or otherwise qualified to perform their duties. Training may include on board training or supervised experience, such that the seafarer is competent to perform their duties safely and without risk to others.

2.2 Commercial Endorsement of Certificates

2.2.1 RYA certificates of competency and/or service should carry the endorsement – “valid for commercial use on vessels subject to the Codes of Practice published by the Maritime and Coastguard Agency”. To receive such a commercial endorsement, holders of certificates of competency should hold a valid Medical Fitness Certificate (see 2.6 for the appropriate medical certificate for the area of operation), the Basic Sea Survival Course or the Personal Survival Techniques course (STCW Table A-VI/1-1), as appropriate, and the Professional Practices and Responsibilities requirements described in 2.6, 2.7 and 2.10 below.

2.2.2 Holders of International Yacht Training (IYT) certificates, or those with STCW certificates of competency should be aware of their designated safety and pollution prevention duties in the operation of the ship and are required to complete those elements of MCA approved basic training courses. The four elements of basic training are:

- .1 personal survival techniques (STCW Code – Table A-VI/1-1);
- .2 fire prevention and fire fighting (STCW Code – Table A-VI/1-2);
- .3 elementary first aid (STCW Code – Table A-VI/1-3); and
- .4 personal safety and social responsibilities (STCW Code A-VI/1-4).

2.3 Qualifications Required

2.3.1 A vessel should be manned, as a minimum, in accordance with the qualifications indicated in Tables A3.1 and A3.2 of this Appendix. Qualifications differing from those tabled, but of equal standing or specialist application, will be considered by the MCA.

2.4 Stability Training

2.4.1 Where a Stability Information Booklet (SIB) is required to be carried on board, it is required that as a minimum, the Master should complete an MCA approved stability course.

2.5 Radio Qualifications

- 2.5.1 *Every vessel should carry at least one person holding a Radio Operator's Certificate suitable for the radio equipment on board. See section 16 – radio communications.*

2.6 Medical Fitness Certificates

- 2.6.1 *All seafarers should hold a valid medical fitness certificate. The medical fitness certificate for anyone employed at sea is the seafarer's medical certificate (ENG1), following a medical examination, from an approved doctor appointed by the Secretary of State, listed on the MCA's website (www.gov.uk/mca) or a seafarer's medical fitness certificate obtained from a country whose medical certificates are accepted as being equivalent to the UK ENG 1 medical certificate, these countries are listed on the MCA website (www.gov.uk/mca). Seafarers on vessels that are required to comply with the MLC must hold an ENG 1 or a medical certificate accepted as equivalent to the ENG 1 by the MCA regardless of the category of operation.*

- 2.6.2 *For those employed on workboats and pilot boats that operate no further than 60 miles from a UK safe haven on a domestic voyage and are not subject to MLC requirements (Area Categories 2, 3, 4, 5, and 6) the alternative ML5 certificate is acceptable. The ML5 certificate is attached to the ML5 report which is completed by a GMC registered medical practitioner with a licence to practice on the basis of a satisfactory ML5 report. An ML5 certificate is valid for no more than 5 years. The ML5 report form must be downloaded from MCA's website (www.gov.uk/mca). Those of 65 years of age and over are required to re-validate their ML5 certificate annually.*

(Note - Additional guidance on both ENG1 and ML5 certificates can be found in MSN 1822(M). Marine Guidance Note MGN 264 (M)¹⁹⁶ and any subsequent amendment).

- 2.6.3 *As an alternative to section 2.6.2 above, for vessels operating no further than 60 miles from a safe haven, the following will be accepted as evidence of medical fitness:*

*CAA commercial pilot's licence,
HSE diving medical certificate,
DVLA Group 2 Drivers Licence.*

- 2.6.4 *The following conditions will also apply:*

- .1 The validity of the evidence of medical fitness would be that of the validity of the parent licence, e.g. one year in the case of a CAA commercial pilot's licence.*
- .2 In the case of the DVLA Group 2 Driver's licence, evidence of satisfactory colour vision will be required.*

¹⁹⁶ MGN 264 (M) – “Medical Fitness Requirements for Those Employed on Boats Certificated under MCA Codes of Practice, Crew of Seagoing Local Passenger Vessels and Non Seagoing Boatmasters” and any subsequent amendment.

- .3 *In the case of the above-named equivalent medicals, a declaration will be required, signed by the applicant confirming the following:*
- .1 *The contact details of the examining doctor, their consent for the MCA to obtain further medical information if required, and the date of the examination; and*
 - .2 *That they have not had any medical conditions requiring hospital admission, regular prescribed medication, or continuing medical surveillance, since the alternative medical was carried out; and*
 - .3 *That they have no conditions limiting strength, stamina, or flexibility, such that they could not cope with emergencies on board, such as recovering someone who has fallen overboard or fighting a fire; and*
 - .4 *That they will seek revised medical fitness certification and submit this to the Administration if the licence accepted as evidence of medical fitness is revoked for any reason, or if they suffer any illness or accident affecting their fitness to operate the vessel, during the period of the licence/certificate.*

2.7 Basic Sea Survival Course or Personal Survival Techniques Training Course

2.7.1 Masters of vessels to which the Code applies should hold an approved Survival Course Certificate. For operators following the STCW Certificate of Competence route, this should be the Personal Survival Techniques Training Certificate (STCW Table A-VI/1-1). Other operators may use the Basic Sea Survival Certificate.

2.7.2 All crew on vessels operating in category 0,1, or 2, including those carried as a second person according to Table A3.1 Deck Manning Requirements should have familiarisation training with LSA and emergency procedures on board to ensure that they are able to respond in emergency situations.

2.8 First Aid Training

2.8.1 Vessels that are required to comply with the MLC shall have either at least one seafarer on board who is in charge of medical care and administering medicine as part of their regular duties or at least one seafarer on board competent to provide medical first aid and hold the relevant STCW certificate. See MGN 147¹⁹⁷ for further guidance.

¹⁹⁷ MGN 147 (M+F) – Training in First Aid and Medical care for Fishing Vessel personnel, Boatmaster’s Licence holders and Small Commercial Vessel personnel (not covered by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 as amended.

2.8.2 The Master or a member of the crew on vessels which operate in Area Category 2, 3, 4, 5 or 6 and do not need to comply with MLC requirements should hold an MCA approved Elementary First Aid Certificate (STCW Table A-VI/1-3) (or the First Aid at Sea Certificate or Medical First Aid Certificate), an RYA First Aid Certificate, or a SeaFish Basic First Aid Certificate, provided the use of Category 'C' medical stores is covered in the course.

2.8.3 Masters of vessels operating in Area Category 0 or 1 should hold a Proficiency in Medical Care Certificate (STCW Table A-VI/4-2) (or its predecessor, the Ship Captain's Medical Certificate) unless another member of the crew holds a medical or nursing qualification of an equivalent or a higher standard. The Master or nominated first-aiders should undertake refresher training at least every five years.

2.8.4 In all cases the certificate held by the seafarer must relate to the category of medical chest on board regardless of the category of operation.

2.9 Fire Fighting Training

2.9.1 Every small workboat or pilot boat should have on board at least one crew member who has attended an MCA approved one day fire fighting course (e.g. the 1 day Boatmaster's Licence Course, or 1 day SeaFish Industry Authority course). Successful completion of a 3 day STCW Fire Fighting and Fire Prevention course (STCW Table A-VI/1-2) or the equivalent Royal Navy course will be deemed acceptable. The Master or nominated fire fighter who have undertaken Fire Fighting and Fire Prevention should undertake a refresher training course at least every 5 years.

2.9.2 All crew on vessels more than 15m should hold a valid 3 day STCW Fire Fighting and Fire Prevention Course or the equivalent Royal Navy course.

2.10 RYA Professional Practices and Responsibilities

2.10.1 Masters holding RYA certificates of competency and/or service should complete the online Professional Practices and Responsibilities Certificate as part of their commercial endorsement.

2.11 Radar Training

2.11.1 In any vessel that carries radar, the Master and any member of the crew who is likely to use the radar is strongly recommended to undertake appropriate training e.g. the Small Ships Navigation and Radar Course, the MSQ unit 'Use of Radar for Safe Navigation and Collision Avoidance on Domestic and Code Vessels', or other course subsequently approved by the MCA. This strong recommendation becomes a requirement 3 years after the publication of this Code.

2.12 Catering Training

- 2.12.1 All seafarers engaged in the preparation of food will be required to undertake a 'Basic Food Hygiene' or 'Food Safety' course, level 2, as listed in MIN 559¹⁹⁸.

2.13 Electronic Chart Plotters Training

- 2.13.1 It is strongly recommended that training appropriate to the type of equipment on the vessel must be undertaken by the Master and any other crew member responsible for navigation. This strong recommendation becomes a requirement 3 years after publication of this code.

Note: the MSQ unit 'Operate non-ECDIS marine Electronic Chart Systems', developed by the NWA has been approved by the MCA as meeting this requirement.

2.15 Navigation Equipment in Excess of Code Requirements Training

- 2.15.1 Where navigation equipment is carried in excess of the code requirements, the Master and any member of the crew likely to use the equipment should undertake appropriate training in the use of that equipment. e.g. ECDIS¹⁹⁹ see MIN 503(M)²⁰⁰, as amended.

3. Revalidation of Certificates of Competency or Service

- 3.1 All Certificates (whether of competency or service), must be revalidated every five years. Information on revalidation requirements can be found on the MCA website (<https://www.gov.uk/mca>) for STCW and other certificates of competency, or on the RYA website (rya.co.uk) for their certificates.

3.2 Refresher Training

From 1st January 2017 any seafarer holding certain STCW short courses will require to have these refreshed, information can be found on the MCA website (www.gov.uk/mca) and in MIN 535(M)²⁰¹ (and any subsequent amendment) and MSN 1865²⁰² (as amended).

The owner/manager of the vessel is responsible for ensuring that any on board training and other training is refreshed as necessary.

4. MCA Approved Engine Course

¹⁹⁸ MIN 559 (M) Maritime Labour Convention 2006: Food and Catering: Recognised Qualifications in Food Hygiene or Food Safety in Catering for Ship's Cooks and others processing Food in the Galley

¹⁹⁹ ECDIS Electronic Chart Display and Information Systems

²⁰⁰ MIN 503(M) Training for ECDIS as Primary Means of Navigation

²⁰¹ MIN 535(M) Final Clarification on the Requirements for Updating Ancillary & Safety Training and Completing Tanker Training.

²⁰² MSN 1865 (M) - Seafarer Training and Certification Guidance: UK Requirements for Emergency, Occupational Safety, Security, Medical Care and Survival Functions.

- 4.1 An Approved Engine Course (AEC) is a course of at least two weeks duration which is approved or recognised by the MCA, this is constituted by AEC Part 1 and Part 2. A "Certificate of Attendance" will be given by the course organisers to persons satisfactorily completing the course. The original AEC is now renamed the AEC Part 1. See Table A3.2 for engineering manning requirements.
- 4.2 The AEC Part 2, which includes additional practical tasks compared to the 30 hour AEC Part 1, has been developed as a new qualification, and details of this are published in MIN 524²⁰³. The Part 2 qualification is also a one week course, and existing candidates may upgrade their existing qualification after completing the necessary practical part of the course. It will not be a requirement, for persons crewing on workboats that the AEC Part 1 applies to, to attain this higher level Part 2 qualification.
- 4.3 Persons who are able to demonstrate to the satisfaction of the MCA that they have the appropriate engineering experience and competency may be granted exemption from the requirement to attend an Approved Engine Course. The syllabus for these courses are published on the www.gov.uk website.
- 4.4 In addition to the above, it is strongly recommended that for vessels where there is installed propulsion power greater than 1500 kW or the vessel is fitted with equipment, essential to its operation, that is not included in the syllabus of the engineering qualification held, an applicable manufacturer's, or equivalent, course should be attended.

²⁰³ MIN 524(M+F) Engineer Officer Small Vessel Certificate of Competency

TABLE A3.1 – Deck Manning Requirements for Small Workboats

AREA CATEGORY		6	5	4	3	2	1	0
MASTER / SKIPPERS QUALIFICATION ACCEPTABLE FOR GIVEN AREA CATEGORY	STCW Master (Workboat less than 500GT unlimited area)	Note G	√	√	√	√	√	√
	STCW Master (Code Vessels less than 200GT unlimited area)	Note E	√	√	√	√	√	√
	RYA/MCA Yachtmaster Ocean Certificate of Competence	Note A	√	√	√	√	√	√
	STCW Master (Code Vessels less than 200GT limited to 150 miles from a safe haven)	Note E	√	√	√	√	√	
	RYA/MCA Yachtmaster Offshore Certificate of Competence or Service	Note A	√	√	√	√	√	
	MCA Boatmasters Licence	Note B	√	√	√	√		
	RYA/MCA Yachtmaster Coastal Certificate of Competence or Service	Note A	√	√	√	√		
	RYA/MCA Powerboat Advanced Certificate of Competence	Note F 2 years relevant experience	√	√	√	√		
	RYA/MCA Powerboat Advanced Practical Certificate (only if issued before 1 st January 2005)	Note F 2 years relevant experience	√	√	√	√		
	Certificate of competence for appropriate area issued by Competent Authority	Note A Note C	√	√	√	√		
	RYA/MCA Day Skipper Theory & Practical Certificate (Daylight Operation Only)	Note A 12 months relevant experience	√					
	Local Authority Licence for appropriate area	Note A Note D	√					
	RYA/MCA Day Skipper Practical Certificate	Note A	√					
ADDITIONAL REQUIREMENTS	Unless operating in the single-handed mode in accordance with section 26.9, a second person capable of assisting the Master in an emergency should also be on board, see section 26.10 for these requirements.		√	√	√	√		
	There should also be on board a second person deemed by the owner/managing agent to be experienced and competent.						√	
	There should also be on board a second person holding at least an RYA/MCA Certificate of Competency or Service as Yachtmaster Coastal.							√
	There should also be on board another person holding at least an RYA/MCA Certificate of Competency as either Yachtmaster Offshore, STCW Master (Code Vessels less than 200GT limited to 150 miles from a safe haven), Yachtmaster Ocean or STCW Master (Code Vessels less than 200GT unlimited)							

- Note 1 Qualifications differing from those tabled, but of equal standing or specialist application will be considered by MCA. MGN 411 (M+F)²⁰⁴ provides accepted alternatives.
- Note 2 Vessels regularly engaged on near coastal voyages from ports outside the UK, have to abide by the manning requirements of the Administration regulating that coastal area.
- Note 3 Refer section 2.2.1 – RYA/MCA certificates of competency and/or service, and other MCA recognised certificates, should carry the endorsement – “valid for commercial use on vessels subject to the Codes of Practice published by the Maritime and Coastguard Agency”.
- Note A Certificate should be designated motor or sail as appropriate.
- Note B Holders of MCA Boatmaster's Licences are accepted for use on workboats and pilot boats, limited to the area of the licence and any endorsements on it. Such licences must be re-validated as appropriate. Refer to MSN 1853(M)²⁰⁵.
- Note C Competent Authority in respect of manning requirements means either the Maritime and Coastguard Agency or an organisation that issues Certificates of Competence which has applied for and granted recognition by the Maritime and Coastguard Agency as having the appropriate technical and administrative expertise.
- Note D Local Authority Licence - only those Local Authorities that have the approval of the MCA may issue Licences under this Code.
- Note E Only valid for use on vessels up to 200GT, and under this Code this restriction is further limited to vessels to which this Code is applicable. MCA qualification, for details refer to MSN 1858²⁰⁶.
- Note F Where the vessel is used in accordance with 26.7 (Towing Endorsements), the Master must have a minimum of an RYA/MCA Advanced Powerboat Certificate.
- Note G MCA qualification, for details refer to MGN 496²⁰⁷ (or subsequent amendment).

²⁰⁴ MGN 411 (M+F) – “Training and Certification Requirements for the Crew of Fishing Vessels and their Applicability to Small Commercial Vessels and Large Yachts”.

²⁰⁵ MSN 1853 (M) - The Merchant Shipping (Boatmasters' Qualifications, Crew and Hours of Work) Regulations 2015. Structure and Requirements

²⁰⁶ MSN 1858 (M+F) - Training & Certification Guidance: UK Requirements for Deck Officers on Large Yachts (over 24m)

²⁰⁷ MGN 496 (M+F) - Certificate of Competency for Master Workboat less than 500 GT unlimited

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TABLE A3.2 – Engineering Manning Requirements Small Workboats

	AREA CATEGORY <small>Note 3</small>	6	5	4	3	2	1	0
ENGINEERING REQUIREMENTS	RYA Diesel Engine Course or satisfied the Maritime and Coastguard Agency as to their appropriate engineering experience and competency <small>Note 1, 2</small>						Sail Vessel	Sail Vessel
	Approved Engine Course (Part 1) or satisfied the Maritime and Coastguard Agency as to their appropriate engineering experience and competency <small>Note 2</small>					Power Vessel W <small>Note 4</small>	Power Vessel SL <small>Note 5</small>	Power Vessel SL <small>Note 5</small>
	Marine Engine Operators Licence (MEOL) or other equivalent certification including STCW 111/4 Engine Ratings or AEC (Part 1 and 2) <small>Note 1, 7</small>						Power Vessel W	Power Vessel W <1500 kW
	Senior Marine Engine Operators Licence (SMEOL), STCW C/Eng (Y4) / small vessel second engineer Certificate of Competency <small>Note 6, 7</small>							Power Vessel W ≥1500 kW < 3000 kW

Note 1 Qualifications differing from those tabled, but of equal standing or specialist application will be considered by the MCA.

Note 2 The person holding the engineering requirement may be a crew member listed in Table A3.1.

Note 3 In all cases, one of the crew should be sufficiently familiar with the operation and maintenance of the vessel's machinery to ensure safe passage.

Note 4 Power Vessel W is a Power Vessel employed in towing operations, lifting operations or carriage of cargo greater than 1000 kg.

Note 5 Power Vessel SL is a Power Vessel other than Power Vessel designated by Power Vessel W.

Note 6 Over 3,000 kW and less than 6,000 kW registered propulsion power: the certificate holder is also required to have attended an approved engine manufacturer's course appropriate to the engine type and power range.

Note 7 MEOL / SMEOL applies to less than 750 kW registered power vessels of 24 m or more in LL length, in the case of small vessels <24 m LL length, this qualification can be used on more than 750 kW registered power vessels shown above.

APPENDIX 4

ALTERNATIVE SAFETY STANDARDS FOR VESSELS OPERATING IN PROTECTED WATERS AND/OR A RESTRICTED SERVICE

1. Introduction
- 1.1 Section 3.8 recognises that alternatives to the standards applied by the Code can be considered on the basis that they provide suitable standards of safety by taking into account specific local conditions which may exist. This Appendix is intended for assessing equivalence and is for use by Certifying Authorities.
- 1.2 Applications for the acceptance of alternatives must be supported by justifications and be formally made via the Certifying Authority to the Maritime and Coastguard Agency's headquarters who may consult with local MCA Marine Offices.
- 1.3 Justifications made formally in support of an application for acceptance of an alternative requirement are to be arranged in priority order, according to the judgement of the applicant.
2. **Guidance on the Assessment of Alternatives to the Standards Applied by the Code**
- 2.1 Alternative standards are expected to be either a direct alternative to a requirement or a reduced requirement based upon factors that compensate for the reduction as permitted by section 3.8 of this Code.
- 2.2 Although not an exhaustive list, factors which will be considered individually and combined by the MCA will include;
 - .1 an area of operations significantly reduced from the applicable area category;
 - .2 a guaranteed control of the vessel which restricts operations to sea and weather conditions such that there is a very low risk of an accident;
 - .3 the certainty of readily available means of emergency rescue;
 - .4 operations wholly within sight of the supervising body and means of emergency rescue;
 - .5 seasonal operations only, such as between 1 April and 31 October or some lesser period, or favourable weather restrictions;
 - .6 vessels operating in close proximity to one another and equipped to provide efficient safety back-up to each other in an emergency;
 - .7 the provision/wearing of additional (special) individual personal survival equipment/clothing which will protect lives in an emergency e.g. Personal EPIRBs / Personal Locator Beacons (PLBs) for persons working single-handed;
 - .8 enhanced communications between the vessel(s) and a constantly attended shore base with readily available emergency rescue craft at the base;
 - .9 the inherent safety of the vessel by design, test and experience, (not applicable as an equivalent for stability standards or a specified level of life saving equipment);
 - .10 a high ratio of professional Master and crew numbers to the number of other persons on board;
 - .11 the number of safety craft provided to protect the vessels operating commercially;
 - .12 enhanced provisions for distress alert and rescue;
 - .13 means provided for "dry" rescue from a vessel in emergency situations.

3 Specific Guidance for Vessels Involved in Group Working

- 3.1 This section gives guidance to circumstances where the MCA may allow equivalent safety provisions if they are considered appropriate. In all circumstances it is for the owner/managing agent to make application and present the case for the acceptance of the equivalent safety standard via the Certifying Authority.
- 3.2 Where two or more boats are operating in close proximity under the supervision of a single control and satisfactory communications are provided between all boats and the shore then single man operations may be accepted and the requirement for all boats to carry inflatable liferafts and the other safety equipment required by this code may be waived.
- 3.3 For the operation as a whole the following safety equipment meeting the standards of this Code should be provided:
- .1 rescue/retrieval equipment - arrangements will need to be suitable for the overall operation;
 - .2 a minimum of 2 lifebuoys/ or 2 throwing lines and quoits;
 - .3 2 red hand flares and 2 orange smoke flares; and
 - .4 a fixed or portable VHF radio.
 - .5 Other equipment as considered necessary for the particular operation, by the Administration.
- 3.4 Lifejackets/buoyancy aids are to be worn at all times. For operations where buoyancy aids may be considered more practical, their use may be accepted based on alternatives stated in section 2 above.
- 3.5 The support or lead vessel(s) should carry on board the following equipment.
- .1 An anchor of sufficient mass for the size of the vessel and sufficient cable for the area of operation should be provided.
 - .2 At least one bilge pump should be provided and on fully decked vessels a bilge alarm should be fitted. On small open or partially decked vessels an efficient bailing system may be acceptable as equivalent to a bilge pump, at the discretion of the Certifying Authority.
 - .3 A fire extinguisher meeting the requirements of section 15.2 of this Code should be carried.
- 3.6 The requirements for other aspects of the Code such as construction, weathertight integrity, machinery, electrical arrangements, steering gear, intact stability and freeboard may be waived by the Maritime and Coastguard Agency, if alternative arrangements suitable for the area and type of operation are provided.
- 3.7 Charts and nautical publications need not be provided where the area of operation is limited and the person in charge has demonstrated adequate local knowledge.

APPENDIX 5.A

LIQUID PETROLEUM GAS INSTALLATION FOR DOMESTIC MARINE USE

1. General Information

- 1.1 This guidance is based on ISO 10239 and a system constructed to the requirements of this standard or equivalent will be acceptable as long as additionally there is suitable gas detection equipment fitted.
- 1.2 Possible dangers arising from the use of liquid petroleum gas (LPG) open flame appliances in the marine environment include fire, explosion and asphyxiation due to leakage of gas from the installation.
- 1.3 Consequently, the siting of gas consuming appliances and storage containers and the provision of adequate ventilation to space containing them is most important.
- 1.4 It is dangerous to sleep in spaces where gas-consuming open-flame appliances are left burning, because of the risk of carbon monoxide poisoning. Signage in accordance with ISO 10239²⁰⁸ Should be posted.
- 1.5 LPG is heavier than air and if released, may travel some distance whilst seeking the lowest part of a space. Therefore, it is possible for gas to accumulate in relatively inaccessible areas, such as bilges, and diffuse to form an explosive mixture with air, this is also the case with petrol vapours.
- 1.6 A frequent cause of accidents involving LPG installations is the use of unsuitable fittings and improvised “temporary” repairs.

2. Stowage of Gas Cylinders

- 2.1 LPG cylinders, regulators and safety devices should be stowed on the open deck (where leakage will not accumulate) or in a compartment that is vapour-tight to the vessels interior and fitted with a vent and drain, so that gas which may leak can disperse overboard.
- 2.2 The vent should be installed near the top of the gas cylinder storage locker. The drain should be located at the bottom of the gas cylinder storage locker and not be less than 19mm in diameter, run to the outside of the craft and terminate 75mm or more above the 'at rest' waterline. The drain and locker ventilation should be 500mm or more from any opening to the vessels interior.
- 2.3 The cylinders and associated fittings should be positively secured against movement and protected from damage in any foreseeable event.

²⁰⁸Small craft – Liquefied petroleum gas (LPG) systems

2.4 Any electrical equipment located in cylinder lockers should be certified safe for use in the potential explosive atmosphere.

3. Cylinders and Attachments

3.1 Each system shall be fitted with a readily accessible, manually operated isolating valve in the supply pressure part of the system.

3.2 In multiple cylinder installations, in addition to each cylinder shutoff valve there should be non-return valves near the stop valves. Where there is a change over device (automatic or manual) it should be provided with non-return valves to isolate any depleted container.

3.3 When more than one container can supply a system, the system should not be used with a container removed unless the unattached pipe is fitted with a suitable gas tight plug arrangement.

3.4 Containers not in use or not being fitted into an installation should have the protecting cap in place over the container valve.

4. Fittings and Pipework

4.1 In general, systems should comprise rigid pipes made from solid drawn copper alloy or stainless steel tube. Steel tubing or aluminium or any materials having a low melting point should not be used.

4.2 Connection between rigid pipe sections should be made with hard solder (minimum melting point 450 degrees centigrade), appropriate compression or screwed fittings are recommended for general use for pipework in LPG installations.

4.3 Where a flexible hose is used, it must not exceed 1m in length, it should be protected from inadvertent damage where appropriate, it should meet the requirement of EN 1763 class 2, 3 or 4 or equivalent and be installed in a manner that gives access for inspection along its whole length.

4.4 Pipework, where led through dedicated accommodation sleeping areas, machinery spaces or high fire risk spaces, should be in solid piping without joints in those spaces. The piping should pass through bulkheads with a gas tight gland. Where the sleeping accommodation is common to the wheelhouse or galley then joints in the system should be kept to a minimum.

4.5 It is recommended to fit a bubble leak detector in the gas outlet pipe as close to the cylinder as possible.

5. Appliances

5.1 All appliances should be well secured to avoid movement.

5.2 All unattended appliances should be of the room sealed type, i.e. where the gas flames are isolated in a totally enclosed shield and where the air supply and combustion gas outlets are piped to open air.

5.3 Cookers and hobs are not considered to be unattended appliances.

5.4 All gas burners and pilot flames should be fitted with a flame supervision device which will shut off the gas supply to the burner or pilot flame in the event of flame failure.

5.5 Heaters of a catalytic type should not be used.

6. Ventilation

6.1 The ventilation requirements of a space containing an LPG appliance should be assessed against an appropriate standard (e.g. Annex B of ISO 10239) and should take into account gas burning equipment and persons occupying that space.

6.2 Where ventilators required for LPG appliances in intermittent use can be closed, there should be appropriate signs at the appliance warning of the need to have those ventilators open before the appliance is used.

7. Gas Detection

7.1 Suitable means for detecting the leakage of gas should be provided in a compartment containing a gas-consuming appliance or in any adjoining space or compartment into which the gas, of greater density than air, may seep.

7.2 Gas detectors heads should be securely fixed in the lower part of the compartment in the vicinity of the gas-consuming appliance and other space(s) into which gas may seep. In areas where the detector head is susceptible to damage in the lowest part of the compartment (e.g. machinery space bilge) the detector head should at least be fitted below the lowest point of ignition.

7.3 A gas detector system of a suitable type should, preferably, be actuated promptly and automatically by the presence of a gas concentration in air of not greater than 0.5 per cent (representing approximately 25 per cent of the lower explosive limit). The detection system should incorporate a visible and audible alarm, which can be heard in the space concerned and the control position with the vessel in operation.

7.4 Gas detection system components (i.e. gas detector head) likely to be in an explosive air/gas atmosphere should not be capable of igniting that atmosphere.

7.5 In all cases, the arrangements should be such that the detection system can be tested frequently whilst the vessel is in service and should include a test of the detector head operation as well as the alarm circuit, in accordance with the manufacturer's instructions.

7.6 The detection equipment should be maintained in accordance with the manufacturer's requirements.

7.7 Where open flame cooking or heating appliances are installed in or adjacent to accommodation areas, efficient Carbon Monoxide detector(s) should be fitted See section 14.5.7.

8. Emergency Action

- 8.1 A suitable notice, detailing the action to be taken when an alarm is given by the gas detection system, should be displayed prominently in the vessel.

The information given should include the following:

- .1 The need to be ever alert for gas leakage; and
- .2 When leakage is detected or suspected, all gas-consuming appliances should be shut off at the main supply from the container(s). NO SMOKING should be permitted until it is safe to do so (i.e. the gas leakage has been eliminated and the spaces fully ventilated)
- .3 NAKED LIGHTS SHOULD NEVER BE USED AS A MEANS OF LOCATING GAS LEAKS.

9. **Owner/Managing Agent Testing and Maintenance**

- 9.1 It is strongly recommended that LPG systems are tested for leakage regularly. All connections should be checked by;

- .1 routine observation of the bubble leak detector, if fitted,
- .2 observation of the pressure gauge for pressure drop with the appliance valves closed and cylinder valve opened then closed (if fitted with gauge on supply pressure side),
- .3 visual inspection,
- .4 manual leak testing, (without breaking into the system)
- .5 testing with soapy water or detergent solution (with appliance-burner valves closed, and cylinder and system valves open). CAUTION – Do not use solutions containing ammonia.
- .6 if leakage is present, close the cylinder valve and have the system repaired before further use. WARNING – NEVER USE A NAKED FLAME TO CHECK FOR LEAKS.
- .7 Personnel involved in the installation, maintenance, servicing or repairing of gas systems on boats must hold a current 'Gas Safe Marine' Technician qualification or equivalent.

APPENDIX 5.B

INFORMATION FOR FIRED HEATING APPLIANCES

1. The following information should be held on board:
 - .1 Instruction to read the heating appliance manual;
 - .2 Instruction to ensure heater's cool down cycle is not interrupted;
 - .3 Instruction for turning off heater fuel supply if manual valve is fitted;
 - .4 Instruction for refuelling and type of fuel used;
 - .5 Specify service intervals if required; and
 - .6 Warnings and cautions with at least the following information:
 - Heater exhaust components maybe hot during and directly after heater operation;
 - Ensure exhaust outlets are not obstructed while heater is in operation;
 - The air temperature at heater outlet maybe hot;
 - Ensure all heater outlets or intakes are kept clear during heater operation;
 - Turn heater off during refuelling.
 - .7 Instruction on action to be taken in the event of carbon monoxide alarm being initiated.

APPENDIX 6

MARINE POLLUTION PREVENTION INFORMATION

1. **MARPOL Requirements - Oil Pollution**

1.1 **Discharge Limits and Equipment ON BOARD**

1.1.1 Vessels should, as far as practicable, retain on board oil or oily mixtures for discharge in accordance with 1.3 below, or discharge them in accordance with the requirements of 1.1.2 and 1.2 below. (Reference: Annex I of MARPOL, Reg 14.4.)

1.1.2 Where oil and oily mixtures are to be discharged into the sea they should be discharged in accordance with the following provisions:

- .1 the ship is proceeding en route; and
- .2 the ship has in operation equipment approved by that Administration that ensures that the oil content of the oil or oily mixture without dilution does not exceed 15 parts per million (ppm)*;
(Reference: Annex I of MARPOL, Reg 15.6)

Note: * Refer to 1.1.2.2, the MCA may consider accepting equipment approved in accordance with the IMO's relevant Resolutions for type approval of the filter, the 15 ppm alarm and the automatic stopping device in meeting the requirement of 1.1.2.2 of this Appendix 6.

1.2 **Antarctic Area.**

1.2.1 Oil or oily mixtures shall not be discharged in this area.

1.3 **Retention of Oil or Oily Mixtures on Board**

1.3.1 Where oil or oily mixtures cannot be discharged into the sea in compliance with paragraph 1.1, it shall be retained on board or discharged ashore to reception facilities.
(Reference: Annex I of MARPOL, Reg 15.9)

1.4 **Chemicals**

1.4.1 No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of the allowed discharge.
(Reference: Annex I of MARPOL, Reg 15.8)

1.5 **Cleaning Agents and Additives**

- 1.5.1 Only cleaning agents and additives used to wash down cargo hold, deck and external surfaces, which are not classified as harmful to the marine environment (HME), may be discharged.

(Reference: Annex V of MARPOL, Reg 6.1.2.1, 4.2 and 6.2)

1.6 Exceptions

- 1.6.1 *The above shall not apply to:*

1.6.1.1 *the discharge into the sea of oil or oily mixture necessary for the purpose of securing the safety of a ship or saving life at sea; or*

1.6.1.2 *the discharge into the sea of oil or oily mixture resulting from damage to a ship or its equipment:*

1.6.1.2.1 *provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimising the discharge; and*

1.6.1.2.2 *except if the owner or the Master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result; or*

1.6.1.3 *the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur.*

(Reference: Annex I of MARPOL, Reg 4)

1.7 Special Areas (MARPOL Annex I, Regulation 1.11)

1.7.1 *For the purpose of this Appendix, the special areas are the Mediterranean Sea area, the Baltic Sea area, the Black Sea area, the Red Sea area, the "Gulfs area", the Gulf of Aden area, the Antarctic area, the North-West European waters, and the Oman area of the Arabian Sea, which are defined as follows:*

.1 The Mediterranean Sea area means the Mediterranean Sea proper including the gulfs and seas therein with the boundary between the Mediterranean and the Black Sea constituted by the 41°N parallel and bounded to the west by the Straits of Gibraltar at the meridian of 5°36' W.

.2 The Baltic Sea area means the Baltic Sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of the Skaw in the Skagerrak at 57°44.8' N.

.3 The Black Sea area means the Black Sea proper with the boundary between the Mediterranean and the Black Sea constituted by the parallel 41°N

.4 The Red Sea area means the Red Sea proper including the Gulfs of Suez and Aqaba bounded at the south by the rhumb line between RassiAne (12°28.5' N, 43°19.6' E) and HusnMurad (12°40.4' N, 43°30.2' E).

.5 The Gulfs area means the sea area located north-west of the rhumb line between Ras al Hadd (22°30' N, 59°48' E) and Ras al Fasteh (25°04' N, 61°25' E).

.6 The Gulf of Aden area means that part of the Gulf of Aden between the Red Sea and the Arabian Sea bounded to the west by the rhumb line between RassiAne (12°28.5' N, 43°19.6' E) and HusnMurad (12°40.4' N, 43°30.2' E) and to the east by the rhumb line between RasAsir (11°50' N, 51°16.9' E) and RasFartak (15°35' N, 52°13.8' E).

.7 The Antarctic area means the sea area south of latitude 60° S.

.8 The North West European waters include the North Sea and its approaches, the Irish Sea and its approaches, the Celtic Sea, the English Channel and its approaches and part of the North East Atlantic immediately to the west of Ireland. The area is bounded by lines joining the following points:

48°27' N on the French coast;
48°27' N, 6°25' W;
49°52' N, 7°44' W;
50°30' N, 12° W;
56°30' N, 12° W;
62° N, 3° W;
62° N on the Norwegian coast;
57°44.8' N on the Danish and Swedish coasts.

.9 The Oman area of the Arabian Sea means the sea area enclosed by the following co-ordinates:

22°30.00' N, 59°48.00' E;
23°47.27' N, 60°35.73' E;
22°40.62' N, 62°52.29' E;
21°47.40' N, 63°22.22' E;
20°30.37' N, 62°52.41' E;
19°45.90' N, 62°25.97' E;
18°49.92' N, 62°02.94' E;
17°44.36' N, 61°05.53' E;
16°43.71' N, 60°25.62' E;
16°03.90' N, 59°32.24' E;
15°15.20' N, 58°58.52' E;
14°36.93' N, 58°10.23' E;
14°18.93' N, 57°27.03' E;
14°11.53' N, 56°53.75' E;
13°53.80' N, 56°19.24' E;
13°45.86' N, 55°54.53' E;
14°27.38' N, 54°51.42' E;
14°40.10' N, 54°27.35' E;
14°46.21' N, 54°08.56' E;
15°20.74' N, 53°38.33' E;
15°48.69' N, 53°32.07' E;
16°23.02' N, 53°14.82' E;
16°39.06' N, 53°06.52' E.

.10 *The Southern South African waters means the sea area enclosed by the following co-ordinates:*

31°14' S; 017°50' E
31°30' S; 017°12' E
32°00' S; 017°06' E
32°32' S; 016°52' E
34°06' S; 017°24' E
36°58' S; 020°54' E
36°00' S; 022°30' E
35°14' S; 022°54' E
34°30' S; 026°00' E
33°48' S; 027°25' E
33°27' S; 027°12' E

2 Garbage placards

This section contains sample placards to be displayed on board a ship over 12 metres in length overall to notify the crew and passengers of the disposal requirements set out in regulations 26 to 28 and regulation 30 of the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 (SI 2008 No.3257), and in the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL), Annex V.

Small Workboat and Pilot Boats operating around the UK coast may use Garbage Placard 1, on the page below, until the UK regulations are amended to reflect the amendments to MARPOL Annex V.

GARBAGE PLACARD 1



Owners of Small Workboat and Pilot Boats operating in countries other than the UK are strongly recommended to display Garbage Placards 2 and 3 which reflect the international requirements.

GARBAGE PLACARD 2 – sample placard targeting crew and shipboard operations

**Discharge of all garbage into the sea is prohibited
except provided otherwise**

The MARPOL Convention and domestic law prohibit the discharge of most garbage from ships. Only the following garbage types are allowed to be discharged and under the specified conditions.

Outside Special Areas designated under MARPOL Annex V:

- Comminuted or ground food wastes (capable of passing through a screen with openings no greater than 25 mm) may be discharged not less than 3 nm from the nearest land.
- Other food wastes may be discharged not less than 12 nm from the nearest land.
- Cargo residues classified as not harmful to the marine environment may be discharged not less than 12 nm from the nearest land.
- Cleaning agents or additives in cargo hold, deck and external surfaces washing water may be discharged only if they are not harmful to the marine environment.
- With the exception of discharging cleaning agents in washing water, the ship must be *en route* and as far as practicable from the nearest land.

Inside Special Areas designated under MARPOL Annex V:

- More stringent discharge requirements apply for the discharges of food wastes and cargo residues; AND
- Consult Annex V and the shipboard garbage management plan for details.

For all areas of the sea, ships carrying specialized cargos such as live animals or solid bulk cargoes should consult Annex V and the associated Guidelines for the implementation of Annex V.

**Discharge of any type of garbage must be entered in
the Garbage Record Book**

Violation of these requirements may result in penalties

GARBAGE PLACARD 3 – sample placard targeting passengers

**Discharge of all garbage into the sea is prohibited
except provided otherwise**

The MARPOL Convention and domestic law generally prohibit the discharge of most forms of garbage from ships into the sea.

Violation of these requirements may result in penalties

**All garbage is to be retained on board and placed
in the bins provided**

APPENDIX 7

SAFETY MANAGEMENT SYSTEM

1. INTRODUCTION

The purpose of this Appendix is to provide guidance on how to develop and implement an effective safety management system for coded vessels up to 500GT, where full certification to the International Safety Management Code is not a requirement.

2. GENERAL

Each operator should create a safe working environment, which should include the following:

2.1 A Safety and Environmental Protection Policy.

This must address the issues of health, safety and the environment as they affect the company and its staff, both ashore and afloat. Such a policy might read along the following lines:

"The policy of (name of Company/Owner) is to conduct its activities taking full account of the health and safety of its employees and of all persons using or connected with the Company/Owner and with due regard for the protection of the environment. In implementing this policy, (name of Company/Owner) will ensure that the [vessel] is, at all times, properly maintained and operated by qualified personnel in full compliance with relevant legislation. In particular the [Company/Owner] will carry out an assessment of the risks to the health and safety of workers and others affected by [the undertaking], and will take the necessary measures to minimise the risks identified."

2.2 Risk Assessment

The owner /managing agent should develop an effective Risk Assessment system which will systematically identify risks to personnel, vessels and the environment. The outcomes from the risk assessment system will inform the development of safe systems of work.

The system should be simple to understand and implement such that Masters and crewmembers can carry out effective risk assessments, taking into account any deviations from the 'normal' method of operation. Further guidance can be found in Chapter 1, the Code of Safe Working Practices for Merchant Seafarers.

2.3 The owner/managing agent is recommended to develop and implement a Shipboard Oil Pollution Emergency Plan (SOPEP) to the same standard as the garbage management plan and to integrate it with the Health and Safety Protection Policy.

2.4 Procedures to ensure safe operation of vessels in compliance with the regulations and rules.

The regulations and rules, not addressed by this Code of Practice, which apply to all vessels include, but are not limited to:

- International Regulations for Preventing Collisions at Sea;
- Local Navigation Rules;
- National health and safety regulations;
- The Code of Safe Working Practices for Merchant Seafarers;
- All relevant national shipping or guidance notices.

2.4.1 The company should draw up simple procedures to ensure that safe working practices are carried out in the operation of the vessel. These may be in the form of checklists which can be followed by all personnel.

2.4.2 For some vessels, it might be appropriate to have permanently exhibited checklists, e.g. in the wheelhouse for navigational items. Alternatively, in a smaller vessel, the record could take any suitable form such as a diary as distinct from a specially printed logbook. Whatever form the record takes, such entries should be accepted as evidence of compliance with the ON BOARD PROCEDURES requirements.

2.5 **Lines of communication between personnel, ashore and afloat.**

Responsibility and authority of each employee should be clear. This may be best illustrated in a simple diagram, showing who reports to whom.

2.6 **Procedures for reporting accidents.**

The requirement for reporting accidents should be well understood by all personnel and in so doing improve the safety culture practiced on board.

2.7 **Procedures for responding to emergency situations.**

There should be clearly stated procedures for responding to emergency situations. These may include but not be limited to:

- fire
- collision
- grounding
- violent act
- main propulsion or steering failure
- man overboard

Checklists may be useful in this regard.

3. **HEALTH AND SAFETY PROTECTION POLICY**

One or more competent persons should be delegated to take responsibility for health and safety, and that person/persons should be clearly identified. It is the responsibility of the owner/managing agent to ensure that the policy is complied with, and that the responsibilities are understood.

The company/owner should develop a policy on prevention of alcohol and drug abuse.

All personnel both ashore and afloat have a duty to take care of themselves and other persons who may be affected by their acts or omissions.

It is essential that, in the event of an emergency, there is the ability to communicate with the emergency services via a shore base. The shore base may be the company office ashore, the local Coastguard, Police or Fire Station, or another office as may be agreed between the vessel and the shore base.

4. RESPONSIBILITIES

The Master must have authority at all times to make decisions with regard to the safety of the vessel and the persons on board. To ensure that there is no ambiguity regarding the authority of the Master, there should be a simple written statement to this effect.

5. PERSONNEL AND TRAINING

All personnel should receive training appropriate to the tasks they undertake. It is the responsibility of the company/owner to ensure that this training is given, and that the personnel have an understanding of the relevant regulations and rules.

As a minimum, this means:

- for the Master, the relevant qualifications;
- for the crew, relevant qualifications and any additional training appropriate to their designated duties.

Prior to the first occasion of working on the vessel, each employee must receive appropriate familiarisation training and proper instruction in on board procedures. This should include, but not necessarily be, limited to:

- mooring and unmooring;
- launching and recovery of survival craft;
- evacuation from all areas of the vessel;
- donning of lifejackets; and
- use and handling of fire-fighting equipment.

6. ON BOARD PROCEDURES

Simple procedures should be developed for the operation of the vessel. These should include, but not be limited to:

- testing of equipment, including steering gear, prior to commencing a passage;
- navigation and handling of the vessel;
- maintenance routines;
- bunkering operations;
- watertight/weathertight integrity;
- stability of the vessel;
- conduct of passengers and crew while on board;
- emergency towing (may be in a separate document);
- safe use and qualification of users for personal watercraft.

7. PREPARATION FOR EMERGENCIES

The potential emergencies likely to be encountered by the vessel should be considered. Exercises should then be carried out in the handling of these emergencies and evacuation from the vessel.

Where possible, all personnel should be involved in these exercises, both ashore and afloat.

The roles and responsibilities of all personnel in an emergency situation should be defined.

The exercises should be recorded. The names of those who participated should also be recorded.

8. REPORTING OF ACCIDENTS

Vessels operating under this Code are required to report any accidents to the Administration and the company must therefore have a procedure in place. Additionally, all accidents and near accidents should be recorded and reported to the owner/managing agent, who should implement corrective action, with the aim of improving safety.

9. MAINTENANCE OF THE VESSEL AND EQUIPMENT

Maintenance of the vessel and equipment is an essential ingredient of safety management. The equipment should be checked and tested daily when in use, in addition to the tests referred to in the ON BOARD PROCEDURES section of the Code.

There should be procedures for a more detailed inspection and maintenance programme of the vessel and equipment.

The frequency of the inspections should be determined by the owner/managing agent, but every event should be recorded.

A checklist could be employed as an aide memoir for the inspection of equipment.

10. REVIEW

Every company/owner should undertake a review of the safety management system of all vessels at least once in every three years.

APPENDIX 8

ALTERNATIVE COMPLIANCE STANDARDS FOR RIGID INFLATABLE BOATS AND OPEN BOATS WISHING TO OPERATE OUTSIDE THE HOURS OF DAYLIGHT WITHIN AREA CATEGORY 3 OR 5

The following are interpretations of the guidance provided by Figure A8.1. Section 4.5.2.3 refers:

'a secondary means of propulsion with totally independent systems' means a second means of propulsion should be provided that can be used to enable the vessel to return to a safe haven. This could mean a small outboard motor, provided it has adequate power to propel the vessel through the anticipated conditions likely to be encountered and while laden with the maximum certified persons and/or cargo.

'daylight' means one hour before sunrise until one hour after sunset. In tropical waters this is to be from sunrise to sunset.

'full risk assessment' means a written risk assessment that fully considers all risks that the vessel and persons on board could reasonably expect to encounter during the operation outside of the hours of daylight. Mitigation to reduce the risks to the vessel, where possible, should be provided.

'wearing of a lifejacket' means that all persons on board should wear an approved lifejacket in accordance with the requirements of the Codes of Practice. Where additional personal exposure protection clothing is worn, the lifejacket should be suitable to be worn with that clothing. The lifejacket should be fitted with a light.

'carrying of personal exposure protection clothing' means all persons on board should have available on board a dry suit, a floatation suit meeting EN ISO 15027-1 or other suitable foul weather clothing. MCA strongly recommends that this should not include the use of an immersion suit which is designed only for emergency situations – for example, SOLAS immersion suits are not considered appropriate for this purpose. Warm head wear should be provided and where the protective clothing is not insulated but is waterproof, warm clothing should also be available to wear beneath it.

'wearing of personal exposure protection clothing' means all persons on board should wear a dry suit, a floatation suit meeting EN ISO 15027-1 or other suitable foul weather clothing. MCA strongly recommends that this should not include the use of an immersion suit which is designed only for emergency situations – for example SOLAS immersion suits are not considered appropriate for this purpose. Warm head wear should be provided and where the protective clothing is not insulated but is waterproof, warm clothing should also be worn beneath it.

1. Certification

- 1.1 The Certificate that the vessel is issued with should be endorsed with "Restricted Category 3". The additional operational limitations and requirements as per Figure A15.1, and any further conditions considered necessary by the Certifying Authority, should be included within the 'conditions' section of the Certificate.

2. Manning

- 2.1 The minimum Master qualification for operation outside the hours of daylight is a commercially endorsed RYA/DfT Advanced Powerboat Certificate with 12 months relevant experience for operations up to 3nm from a safe haven, and with 2 years relevant experience for operations up to 10nm from a safe haven. Minimum manning requirements should be endorsed within the 'conditions' section of the Certificate for clarity to the owner/managing agent.

Figure A8.1 Acceptance Matrix for Restricted Category 3 RIBs and Open Boats without a Permanent Substantial Enclosure.

Daylight & Favourable Weather (Lower Service Area)	RESTRICTED CATEGORY 3 24/7 (without a Permanent Substantial Enclosure)					Un-restricted operation (Higher Service Area)
	Distance from a safe haven	Favourable Weather ²⁰⁹ & Seasonal Restrictions ²¹⁰	Favourable Weather ¹ & NO Seasonal Restrictions	NO Weather Restriction & NO Seasonal Restrictions	Distance from a safe haven	
From a Safe Haven CATEGORY 4	Up to 20nm	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED	Up to 20nm	CATEGORY 3
	Up to 10nm	1. Carrying of personal exposure protection clothing. To be worn at the discretion of the Master. 2. Wearing of lifejackets.	1. All vessels to have a secondary means of propulsion with totally independent systems. 2. Full Risk Assessment. 3. Carrying of personal exposure protection clothing. To be worn at the discretion of the Master. 4. Wearing of lifejackets.	NOT PERMITTED	Up to 10nm	
From a Point of Departure CATEGORY 6 From a Point of Departure CATEGORY 5	Up to 3nm	1. Carrying of waterproof and warm clothing. To be worn at the discretion of the Master. 2. Wearing of lifejackets.	1. Carrying of waterproof and warm clothing. To be worn at the discretion of the Master. 2. Wearing of lifejackets.	1. All vessels to have a secondary means of propulsion with totally independent systems. 2. Full Risk Assessment. 3. Carrying of personal exposure protection clothing. To be worn at the discretion of the Master. 4. Wearing of lifejackets.	Up to 3nm	

²⁰⁹ "Favourable weather" with respect to a small vessel means conditions existing throughout a voyage or excursion in which the effects either individually or in combination of swell, height of waves, strength of wind and visibility cause no hazard to the safety of the vessel, including handling ability.

In making a judgement on favourable weather, the Master should have due regard to official weather forecasts for the service area of the vessel or to weather information for the area which may be available from the Coastguard or similar coastal safety organisation;

²¹⁰ Seasonal Restrictions – Restricted to operation between 1st April and 31st October.

APPENDIX 9

FIRE TEST FOR FRP

1. Heat Source

- 1.1 The heat source for the fire test should be provided by a Butane or Propane fuelled Bunsen or Tirril burner with a nominal 9.525mm (3/8inch) inside diameter tube adjusted to give a pre-mixed air/gas flame of 38.1mm (1½ inch) length. The minimum temperature measured in the centre of the flame with a calibrated thermocouple pyrometer must be 843.33°C (1550°F).

2. Specimen

- 2.1 The specimen should be 500mm x 500mm. The edges of the specimen should be housed in a steel frame sufficiently to prevent them igniting during the test. The specimen should be cured for at least 7 days at ambient temperature or 1 day at ambient temperature and 16 hours at 40°C before testing. The lay-up of the panel should be representative of the structure being considered.

3. Test Procedure

- 3.1 The specimen should be oriented vertically in a draft free location. The flame should impinge on the centre of the specimen with the flame normal to its surface. The surface of the specimen affected by the fire risk should be exposed to the flame at a set distance of 19.1mm (¾ inch) from the end of the burner tube. The flame should not burn through the specimen within 15 minutes.

APPENDIX 10

IGNITABILITY TEST FOR COMBUSTIBLE MATERIAL

1. Test Specimens

- 1.1 One specimen is to be prepared
- 1.2 The specimen is to be a minimum of 150mm x 150mm and of the thickness which is used on the vessels, together with any facing with which it is normally covered.

2. Conditioning of Test Specimens

- 2.1 The conditioning atmosphere should have a temperature of $20 \pm 20^{\circ}\text{C}$ and relative humidity of $65 \pm 2\%$.
- 2.2 The specimen should be laid flat, in the conditioning atmosphere for a period of 24 hours, or for a sufficiently longer period in order to ensure that the mass of the specimen shows no progressive change greater than 0.25% when it is determined at intervals of 2 hours.

3. Atmosphere for Testing

- 3.1 The test is to be conducted in an atmosphere the same as for conditioning the specimen, or within 2 minutes of removal from the conditioning atmosphere.
- 3.2 Appropriate measures should be taken to prevent draughts in the vicinity of the testing equipment when testing is in progress.

4. Testing Procedure

4.1 Source of Ignition

The source should be obtained by using a burner consisting of a copper tube having a length of 150mm and inside and outside diameters of 5mm and 6mm respectively connected by a plastic or rubber tubing to a gas tap supplying natural gas. The copper tube is to have no opening for the supply of air.

4.2 Height of Flame

Before the test takes place the burner flame is to be adjusted to a height of 32mm.

4.3 Test Procedure

- 4.3.1 Place the specimen horizontally on a metal tripod stand with the upper surface of the specimen facing downwards (i.e. with normally exposed face on underside) such that the height of this surface of the specimen is approximately 8mm below the top of the burner flame. Apply the burner flame at right angles to the plane of the specimen in the centre of specimen. After one minute the

burner flame is to be removed clear of the specimen and the time in seconds to extinction of any flaming is to be recorded.

- 4.3.2 The test in paragraph 4.3.1 is to be repeated after any flaming or smouldering has ceased and the temperature of the specimen has returned to normal except that the centre of the burner flame is to be positioned at the midpoint of any edge of the specimen. Again the time in seconds to extinction of any flaming after the removal of the burner is to be recorded.

5 Pass Criteria

An insulation is deemed to be "not readily ignitable" when any flaming of the test specimen ceases within 20 seconds of the removal of the burner.

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APPENDIX 11

STABILITY INFORMATION BOOKLET CONTENTS

The outlines of the required stability information are set out in MSN 1752, schedule 6.

A Model Stability Information Booklet specifically for workboats is not available but sufficient information exists to enable the creation of one, using the guidance below.

It should be remembered that the primary purpose of the Stability Information Booklet is to assist the vessel's master and operator to use the vessel safely. Its secondary function is to enable a Naval Architect / consultant to confidently assess the stability characteristics of the vessel based on easily obtainable draft and loading data. It should not be used as a repository for superfluous data (as is often the case with automatically generated reports: Naval Architects should select the automated populating criteria appropriately). A competent Naval Architect should be able to compile a full stability book for most vessels which is less than 60 pages – including damaged survivability and crane operating conditions.

Where limiting KG curves / data is included including instructions on their use, and the vessel is of certain types (for example pontoon barges with no below deck tankage or loadable spaces, or propelled vessels with very limited possibilities of loading, or a dedicated pilot boat), it may be acceptable, at the discretion of the Certifying Authority, not to include a GZ curve and GZ based stability analysis for each example loading condition. In this case it would be sufficient to indicate the deadweight items, locations, and free surface moments etc., used in the loading condition; to calculate the final draught trim and heel; to demonstrate that the condition is compliant with the limiting KG requirements; and demonstrate the size of margin available. Crane conditions would need to show compliance with KG requirements (upright) and the resulting heel angle / minimum freeboard.

The Booklet should include the items below where applicable:

SCHEDULE of CONTENTS			Notes
Front Cover		Name of vessel	It should cover all essential items to assess the provenance and applicability of the SIB
		Intact stability information booklet (or Intact and damaged if applicable)	
		Date of issue	
		Version number	
		Name and address of Naval Architect	
Contents		Contents with page numbers	Reports without page numbers should not be accepted
General Particulars		Ships name	General particulars to confirm applicability of the book to the vessel, assess the operational envelope and identify responsible persons in the build and operation
		Official number	
		Port of registry	
		Certifying Authority	
		Number of persons carried	
		Maximum weight of cargo	

		Area of operation	
		Name and address of owners	
		Class	
		Material of construction	
		Yard number	
		Builder's name and address	
		Fitted out by (if different)	
		Date of build	
		Date of commissioning	
		Dimensions	
		Length overall	
		Length BP	
		Moulded beam	
		Depth	
		Rake of keel	
		Displacements: fully laden, Lightship	
		Draughts: fully laden, Lightship	
		Minimum freeboard: Lightship Freeboard	
		Gross and Net tonnage	
		<i>Nomenclature/Abbreviations/ Glossary</i>	Desirable but not essential if definitions are included
General Arrangement		Profile drawing - Including definition of FP, AP, midships, base line (when not included above) Protocol for trims +/-ve	Datums used throughout should be clearly indicated
		Plan drawing. Downflooding openings can be included in this or succeeding section	
Arrangement of Tanks and Ballast		Plan and profile views showing tank positions and position of any permanent ballast. Can be included in GA above or tank usage below in operating conditions	
Arrangement of Sections		An explanation of how the booklet is arranged.	Booklet arranged in sections so that the most essential matters are brought to the user's attention first. The criteria against which stability is assessed should be referenced (e.g. MGN 280 section 11; MGN 437; this document (The Safety of Small Workboats and Pilot
		Section 1 – Operational / stability information	
		Section 2 - Technical data and loading conditions	
		Section 3 - Reference information including Lightship and VCG derivation	
		Basis information: Name and version number of stability software used; responsible agent/cy for carrying out the inclining experiment (or VCG weight estimate in the case of	

		some multihulls) and supplying the dimensions/drawings for modelling.	Boats – a Code of Practice))
Section 1		Stability information	
	1.1	Special notes regarding the stability of the ship, including the Intact (and damaged if applicable) standard code reference criteria, ie section 11.3.8 or 11.3.9 herein:	
		Example of static stability curve with details of Area A, Area B, Area C, Point X, Maximum GZ and Initial GM	
		<i>Pass or fail status of the vessel and where 11.3.9 is used as alternative criteria</i>	
	1.2	General instructions for the Master: Keeping copy of SIB on board and in date; loading conditions not to be exceeded, Freeboard marks not to be immersed, record of minor modifications	Any modifications, minor or otherwise, should be advised to the CA. If necessary a SIB addendum to the approved SIB can be issued.
	1.3	Tank usage and free surface moments and effect on stability (where not already included above)	
	1.4	General precautions against capsizing and downflooding: Area of Operation, Stability Criteria, Weather, Reference to location of downflooding openings	
	1.5	Cargo condition summary, maximum load, height and position. Reference to Limiting KG data for non-standard conditions.	
	1.6	Sample load condition table and instructions for use.	
	1.7	Maximum VCG (KG) Curve / table with appropriate range of displacement and trim and instructions for use. Example showing the use of the maximum KG curve and trim calculation.	Blank calculation page/s also recommended. Others copies can be made.
	1.8	Statement ref. maximum crane load (kg) and maximum outreach (m) (if applicable) and any other relevant advice ref. crane operation, such as the provision and use of an inclinometer	
		Stability data	
	1.9	GZ Curve - condition 1 - Fully Laden Departure including critical downflooding angle. Data including DISP, <i>Draft FP</i> , <i>Draft AP</i>	GZ curve may be omitted from load the condition where KG curves / data and instructions for their use is included.

			<i>It is desirable but not essential to include WSA, WPA, LCB, VCB, GZ, LCF, TCF, TCF against heel angle 0 to 90 degrees</i>
		GZ data and assessment against criteria - Condition 1	
		Stability summary, detailing required criteria, achieved criteria, margin and pass/fail for following;	Or as modified by the alternative criteria followed (e.g. 11.6.7 of MGN 280; Brown code)
		Area 0 deg. to 30 deg.	
		Area 0 deg. to 40 deg. or Downflooding Angle	
		Area 30 deg. to 40 deg. or Downflooding Angle	
		GZ at 30 deg. or greater	
		Angle at GZ max	
		GM	
		Downflooding angle	
	1.10	GZ Curve - condition 2 - Arrival 10% Consumables including critical downflooding angle. Data including DISP, Draft FP, Draft AP	GZ curve may be omitted from load the condition where KG curves / data and instructions for their use is included. <i>It is desirable but not essential to include WSA, WPA, LCB, VCB, GZ, LCF, TCF, TCF against heel angle 0 to 90 degrees</i>
		Stability summary, detailing required criteria, achieved criteria, margin and pass/fail for following;	Or as modified by the alternative criteria followed (eg 11.6.7 of MGN 280; Brown code)
		Area 0 deg. to 30 deg.	
		Area 0 deg. to 40 deg. or Downflooding Angle	
		Area 30 deg. to 40 deg. or Downflooding Angle	
		GZ at 30 deg. or greater	
		Angle at GZ max	
		GM	
		Downflooding angle	
	1.11	GZ Curve, GZ data and assessment against criteria for any other relevant load condition, for instance different load/passenger combinations.	

		Limiting conditions which define the operational envelope should be included. Operational conditions including any crane usage and a condition showing the maximum deck cargo.	
		Summary of pass/fail margins and stability category for each load condition	
	1.12	Freeboard and draught marks	
		Depth from baseline to top of deck at midships (m)	
		Maximum fully laden draught at midships (m)	
		Minimum freeboard at midships (m)	
		Position of midships (metres aft of foreside of stem at deck level)	
		Diagram showing location and dimensions of freeboard mark	
		Where freeboard must be calculated by reference to Load Line Regulations 1998 (SI 1998 No. 2241), as amended (lifting device fitted; cargo over 1000kg) the calculation summary should be included either here or in an appendix (and referenced here)	
Section 2		Technical Data and Loading Conditions	
	2.1	Draught marks and hydrostatic datum	
		Drawing identifying draught marks and datum	
		Determination of draughts at AP and FP relative to Baseline from draughts read at marks	
	2.2	Angles of deck edge immersion and downflooding	
		Drawing identifying downflooding openings	
		Table listing each downflooding point, the area of each opening, the angle of immersion in each loadcase	
	2.3	Arrangement of tanks and ballast	
		Drawing showing tanks and ballast fitted	
		Table listing tank capacities, soundings, fluid, location, weight, LCG, VCG, TCG and maximum FSM	
		Notes on the use of Free Surface Moments	
		Include calculation of maximum free surface moment	

		Details of ballast weight and location	
		Reference to baseline, forward perpendicular, transverse origins and +ve -ve trim	
	2.4	Loading condition - Departure 100% consumables	
		Weights and centres table of lightship and deadweight items, referenced to LCG, VCG, TCG and Free Surface	
		Include Draught @ AP, Draught @ FP, Mean Draught, Trim, GM solid, Free Surface Correction GM fluid	
	2.5	Loading condition - Arrival 10% consumables	
		Weights and centres table of lightship and deadweight items, referenced to LCG, VCG, TCG and Free Surface	
		Include Draught @ AP, Draught @ FP, Mean Draught, Trim, GM solid, Free Surface Correction GM fluid	
		Make-up of all other load conditions which are presented in section 2 with weights and centres table of lightship and deadweight items, referenced to LCG, VCG, TCG and Free Surface	
Section 3		Reference information including Lightship and VCG Derivation	
	3.1	Hydrostatic data - Trim Forward (maximum envisaged in the operational envelope)	
		For an appropriate range of draughts: displacement, LCB, LCF, KB, KMT, KML, TPC, MTC. (WPA, WSA, dimensionless coefficients as desired may be included though are not necessary)	
	3.2	Hydrostatic data - Level Trim	
		For an appropriate range of draughts: displacement, LCB, LCF, KB, KMT, KML, TPC, MTC. (WPA, WSA, dimensionless coefficients as desired may be included though are not necessary)	
	3.3	Hydrostatic data - Trim Aft (maximum envisaged in the operational envelope)	

		For an appropriate range of draughts: displacement, LCB, LCF, KB, KMT, KML, TPC, MTC. (WPA, WSA, dimensionless coefficients as desired may be included though are not necessary)	
	3.4	<i>Intermediate trims should be included where maximum trim is over 0.3m, to enable reasonably accurate interpolations</i>	
	3.5	KN Data - Trim forward (maximum envisaged in the operational envelope)	
		For an appropriate range of displacement vs. appropriate range of heel angle	
	3.6	KN Data - Level Trim	
		For an appropriate range displacement vs. appropriate range of heel angle	
	3.7	KN Data - Trim aft (maximum envisaged in the operational envelope)	
		For an appropriate range displacement vs. appropriate range of heel angle	
		<i>Intermediate KN data should be included where maximum trim is over 0.3m, to enable reasonably accurate interpolations</i>	
	3.8	Notes on the use of KN Data	
		Insert hull section drawing illustrating the relative positions of K, M, G, GZ and B	
	3.9	Inclining Experiment Report	
		List Vessel, Type, Location, Date and Time, Weather, Sea state, SG of water, Condition of vessel,	
		Tank ullages, Persons present, Inclining weights, Pendulum length(s)	
		Forward and aft draughts, mean draught, trim	
		Lists of weights and centres (VCG, LCG) to come off and to go on	
		Inclined displacement derived from draughts and trims	Where lightship particulars of a sister vessel are based on a lightship check the inclining report for the

			'lead' sister vessel should be included in the stability information of the subsequent sister/s.
		List of pendulum readings	
		GM calculation (averaged)	
		Displacement, LCG, KMT, GMT, Free Surface Correction, VCG (KG) in inclined condition	
	3.10	Lightship derivation	
		Weights and centres table of items to be removed	
		Weights and centres table of items to be added	
		Weights and centres summary	
	3.11	Record of modifications to lightship	
	3.12	Crane	
		Crane Model	
		Crane Position	
		Load radius diagram	
		Including freeboard and angle of heel at maximum heeling moment, compliance with KG requirement	
		All personnel to be on deck when lifting	
		All principal openings to remain closed when lifting.	
		Restriction on lifting over "crane" side.	
		Vessel to have no residual heel prior to lift.	
		Variation from standard load-radius diagram for crane.	
		Any additional load and outreach data that may be relevant particularly if crane off centreline	
	3.13	Damaged stability condition.	
		Summary of worst damaged compartment condition and criteria assessed against, together with pass (or fail) margins and a sketch showing the equilibrium waterline	
		Equilibrium conditions of other damaged compartment conditions may also be included if relevant or pass fail margins are similar to the worst condition.	

	3.14	Beaufort scale of Wind Speeds and Corresponding Pressures	
	3.15	Metric/Imperial conversion	
		Appendix for Freeboard calculation to Load Line Regulations where required by Load Line Regulations 1998 (SI 1998 No. 2241), as Amended, under code section 12.2.4	

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APPENDIX 12

USE OF ISO “FIRST OF TYPE” RIGHTING MOMENT CURVE

FOR STABILITY ASSESSMENT

1. Introduction

- 1.1 Where the stability of a Small Workboat is assessed using the righting moment curve prepared to show compliance of the design with ISO 12217, this curve shall be subject to verification and, if necessary, correction, as set out below.
- 1.2 ISO 12217 normally requires the stability to be assessed in the Minimum Operating Condition. However, where the Loaded Displacement Mass is more than 15% greater than the former, the stability also has to be assessed in this heavier condition.
- 1.3 Where data is available for both conditions, the heavier should be used for the purposes of this Code.

2. Stability Verification Test

- 2.1 The vessel to be certified shall be subjected to the stability verification test when as close as practicable to the loading condition used for the righting moment curve to be checked, as defined in ISO 12217. The purpose of the test is to verify that the stability of the vessel is adequately described by the righting moment curve of the “First of Type” used for ISO 12217 assessment. Where this is not adequately demonstrated, this curve shall be corrected as described below before reassessment of the stability compliance.
- 2.2 The test shall be conducted in calm conditions. The vessel shall be heeled to both port and starboard as much as practicable by the application of a heeling moment sufficient to produce a heel angle of firstly at least three degrees in either direction, and secondly at least five degrees, i.e.: two heeling moments and four heel angles in all. The heeling moments and angles of heel shall be recorded as precisely as practicable.
- 2.3 The heeling moments shall be applied using weights that are part of the loaded condition of the vessel, and moved through a known amount. The righting lever deduced for that angle of heel is given by:

$$GZ = \frac{w.h. \cos \phi}{\Delta}$$

- where:
- GZ = righting lever (m)
 - w = mass moved to produce the heel angle (kg)
 - h = distance parallel to design waterline mass was moved through to produce heeling moment (m)
 - ϕ = angle of heel produced (degrees)

$\Delta =$ displacement of vessel as used to derive the GZ curve
in question (kg)

2.4 Where the weights used to create the heeling moment have to be moved vertically from their normal location in order to generate the necessary heeling moment, the resulting measured righting moment should be corrected for the change in the vertical centre-of-gravity of the craft. The correction = $GG_1 \sin \phi$, added to the measured GZ when the weights were raised during the heeling test, where GG_1 is the shift in vessel VCG due to the weights moved.

2.5 The First of Type righting moment curve shall be considered acceptable for stability assessment if the average deviation of the four values obtained at 2.3 and corrected according to 2.4 below the righting moment curve is equal to or less than 5%. Where the deviation is above the curve, no limit shall apply.

2.6 Where the average deviation of the four values obtained at 2.3 above from the righting moment curve is more than 5%, the First of Type righting moment curve shall be corrected throughout the range of heel angles by an amount equal to $GG_1 \sin \phi$, where ϕ is any heel angle. The value of GG_1 used for this correction shall be obtained as follows:

$$GG_1 = \{ (\delta_1 / \sin \phi_1) + (\delta_2 / \sin \phi_2) + (\delta_3 / \sin \phi_3) + (\delta_4 / \sin \phi_4) \} / 4$$

where: δ_n = difference in measured GZ from First of Type GZ curve at angle ϕ_n , for the four values obtained according to 2.2 and calculated according to 2.3 and 2.4 above.

2.7 Where the righting moment curve is modified in this way, the stability shall then be reassessed using the requirements of chapter 11 of the Code.

APPENDIX 13

STANDARDS APPENDIX

Numbering refers to appropriate section reference. Standards are for reference information. When referencing the standards for use during construction, or supply of equipment, the latest edition should be used but the whole of the standard does not necessarily need to be met depending on the circumstance, subject to the agreement of the Certifying Authority. Equivalent standards may be considered subject to the acceptance of the Certifying Authority.

- 2 BS 5306: Part 3 Code of practice for selection, installation and maintenance of portable fire extinguishers
- 4.1.4.2. ISO 11812 Small Craft. Watertight cockpits and quick-draining cockpits
- 4.2.2.5.2 & 4.5.2 ISO 12215-5²¹¹ Small Craft – Hull Construction and Scantlings Part 5: Design pressures for monohulls, design stresses, scantlings determination.

ISO 12215-4 Small Craft -Hull Construction and Scantlings - Workshop and Manufacturing
- 4.2.2.5.2 Seafish construction standards for 15-24m vessels

Seafish construction standards for <15m vessels

Seafish construction standards for multi-hull vessels.
- 4.3.2.2. ISO 11812 Small Craft. Watertight cockpits and quick-draining cockpits
- 4.5.2.5 ISO 6185-2 Inflatable Boats. Boats with a maximum motor rating of 4.5kW to 15kW inclusive

ISO 6185-3 Inflatable Boats. Boats with a maximum motor rating of 15kW and greater
- 4.5.3.3 As above
- 5.1.1 ISO 12216 Small craft. Windows, portlights, hatches, deadlights and doors. Strength and watertightness requirements.
- 5.9 BS MA 18 Specification for salt water piping systems in ships. Section 9 Pipework flexibility, support and installation

ISO 10497 Testing of Valves - Fire Type-Testing Requirements

ISO 15540 Fire Resistant Hose Assemblies – Test Methods

²¹¹ Where this standard is applied to fibre reinforced plastic (FRP) vessels, Annex C FRP Laminate Properties and Calculations should also be referred to. This Annex is intended to support the ISO standard and is part of the scantling requirements of that standard.

- ISO 13363 Rubber and plastics hoses for marine-engine wet-exhaust systems – Specification, or
- SAE J2006 R2 – Marine exhaust hose
- IMO A.753(18) Guidelines for the Application of Plastic Pipes on Ships
- 7.1.7.1&2 BS EN ISO 21487 Small craft -- Permanently installed petrol and diesel fuel tanks
- 7.1.7.1&2 BS EN ISO 10088 Small craft -- Permanently installed fuel systems
- 7.1.7.3 EN ISO 9094–2 Small craft — Fire protection — Part 2: Craft with a hull length of over 15 m
- ISO 11105 Small craft — Ventilation of petrol engine and/or petrol tank compartments
- 7.1, 7.3.1.2, 7.3.1.3 & 7.4.1 ISO 10088 Small Craft. Permanently installed fuel systems
- ISO 13591 Small craft. Portable fuel systems for outboard motors
- ISO 21487 Small craft. Permanently installed petrol and diesel fuel tanks
- 7.4.7 ISO 15540 Fire Resistant Hose Assemblies – Test Methods
- ISO 7840 Small Craft. Fire resistant fuel hoses
- 8.1.4 British Marine Electrical and Electronics Association Code of Practice, 5th Edition.
- BS 8450 Code of practice for installation of electrical and electronic equipment in ships.
- BS 6883 Specification for elastomer insulated cables for fixed wiring in ships. (Suitable for lighting, power, control, instrumentation and propulsion circuits.)
- BS EN 60092-507, Electrical Installations in Ships – Small Vessels
- IEC 600332-1 (all parts), Test on electrical and optical fibre cables under fire conditions – Part 1: Test for vertical flame propagation for a single insulated wire or cable.
- IEC 600332-3-22, Test on electrical cables under fire conditions – Part -3-22: Test for vertical flame spread of vertically mounted bunched wires or cable – Category A.
- IEC 61440, Protection against electric shock - Common aspects for installation and equipment.
- ISO 10133 Small Craft. Electrical systems. Extra-low voltage d.c. installations
- ISO 13297 Small Craft. Electrical systems. Alternating current installations

- BS EN 28846 Small craft. Electrical devices. Protection against ignition of surrounding flammable gases
- BS EN 60079 Explosive atmospheres. Gas detectors. Performance requirements of detectors for flammable gases
- 9.1.5 ISO 13929 Small craft. Steering gear. Geared link systems
- ISO 10592 Small craft. Hydraulic steering systems
11. & 12. ISO 12217-1 Small craft. Stability and buoyancy assessment and categorisation. Non-sailing boats of hull length greater than or equal to 6 metres
- ISO 12217-2 Small craft. Stability and buoyancy assessment and categorisation. Sailing boats of hull length greater than or equal to 6 metres
- 13.4.1 ISO 12402-2 Lifejackets, performance level 275 – Safety Requirements
- BS EN 399 – Lifejackets and Personal Buoyancy Aids. Lifejacket 275
- ISO 12402-3 Lifejackets, performance level 150 – Safety Requirements
- BS EN 396 – Lifejackets and Personal Buoyancy Aids, Lifejacket 150
- 13.6 to 13.9 See Table below against section 16 of Appendix 13 for portable VHF, EPIRB and locator beacon standards.
- 14.2.3.8.1 International Code for Application of Fire Test Procedures (FTP Code) – International Maritime Organization
- 14.5.2 ISO 10239: Small Craft. Liquefied Petroleum Gas (LPG) system
- 14.2.1, 14.3.2, 14.5.3, 14.7.2 International Code for Application of Fire Test Procedures (FTP Code) – International Maritime Organization
- 14.5.6 ISO 9094-1 Small Craft. Fire protection Craft with a hull length of up to and including 15m
- ISO 9094-2 Small Craft. Fire Protection Craft with a hull length of over 15m and up to 24m
- 14.6 ISO 14895 Small Craft – Liquid Fuelled Galley Stoves
- 14.7 See above on FTP Code, Part 8
- BS 5852-1 Assessment of the ignitability of upholstered furniture
- 14.8.5, 14.5.7, 14.6.13 BS EN 50291-1 Electrical apparatus for the detection of carbon monoxide in domestic premises. Test methods and performance requirements
- BS EN 50291-2 Electrical apparatus for the detection of carbon monoxide in domestic premises. Electrical apparatus for continuous operation in a fixed installation in recreational vehicles and similar premises including recreational craft. Additional test methods and performance requirements.

15.4.1.3, 15.4.2, 15.5.1.3 & 15.5.2 BS EN 3 Portable Fire Extinguishers
 ISO 9094-1 Small Craft – Fire Protection – Part 1 Craft with a Hull Length of up to and including 15m
 ISO 9094-2 Small Craft – Fire Protection – Part 2 Craft with a Hull Length of over 15m

15.4.4 & 15.5.3 BS EN 1869 Fire blankets

16. For R&TTE equipment the declaration of conformity shall include standards identified in column 3 below, for Marine Equipment Directive (MED) equipment the MED Approval certificate shall include reference to a particular section of the MED Annex defined in column 4. See also footnote in Section 16.2.1.

Equipment	Sub-system	R&TTE Declaration of conformity to include	MED Annex referenced by MED (Wheelmark) compliance certificate
VHF DSC Portable Radio			
		EN 302 885-3	n/a
Fixed VHF radio installation with DSC providing radio telephony; DSC transmission and reception; continuous watchkeeping on Ch.70; and capable of simultaneous watch on two voice channels, of which one can be selected to be Ch.16. Where a scanning receiver provides the Channel 16 watch, Ch.16 can be prioritised and the receiver can scan only one other channel. This may be a single unit or a combination of units			
	VHF DSC Transceiver	EN 301 025-3	A.1/5.1
	VHF DSC Watchkeeping receiver	EN 301 033	A.1/5.2
NAVTEX receiver installation with printer or appropriate display			
		EN 300 065 or IEC 61097-6	A.1/5.3
MF or MF/HF radio installation capable of digital selective calling, voice, narrow-band direct printing. For an MF only installation only the parts appropriate to operation on GMDSS MF frequencies are necessary. The installation may be a single unit or a combination of units.			
	Transceiver unit	EN 300 373-3 + EN 338-4 (class E)	A.1/5.10 for MF or A.1/5.10 and A.1/5.5 for MF and HF
	Watchkeeping receiver	EN 301 033	A.1/5.11 for MF or A.1/5.15 for MF/HF
An approved GMDSS satellite earth station with EGC or a mini-C with EGC receiver, distress alert capability and printer			
	Satellite Earth Station	1. IEC 60945 or EN 60945 2. IEC 61097-4 or EN 300 829, ETS 300 460, EN 301 843, or IEC 61097-13	A.1/5.13 or A.1/5.19

	EGC Receiver	IEC 61097-4 IEC 60945 or EN 60945	A.1/5.4
Satellite emergency position indicating radio beacon (EPIRBs) operating on 406MHz. Where a float-free type is required it shall conform to float free requirements included in the standards.			
		IEC 61097-2, or EN 300 066	A.1/5.6
AIS-SART			
		-	A.1/4.55
SART			
		-	A.1/4.18
Survival craft two-way VHF radiotelephone			
		EN 300 225	A.1/5.17
Personal Locator Beacons (PLB's)			
	406 MHz PLB with GPS and light	EN 302 152	
	Class M VHF DSC MOB with AIS and light	ITU M.493-14	

20.3 EN 24565 Small craft; Anchor chains covered by BS 7160 (BS 7160:1990, EN 24565:1989, ISO 4565²¹²:1986) - Specification for Anchor chains for small craft

22.2.3.8.2 ISO 15085 Small craft - Guardrails, lifelines and handrails

25.4.9, 25.4.10 & 25.4.20 BS 7121:- Code of Practice for Safe Use of Cranes. This BS is now divided in to subparts:

BS 7121-2-1 Part 2-1: Inspection, Maintenance and Thorough Examination – General. This is intended to be read in conjunction with the appropriate sub-part(s) of BS 7121-2 dealing with the relevant crane type(s). e.g.

BS 7121-2-4 Part 2-4: Inspection, Maintenance and Thorough Examination – Loader Cranes

BS 7121-2-9 Part 2-9: Inspection, Maintenance and Thorough Examination – Cargo Handling and Container Cranes

BS ISO 9928-1 Cranes – Crane Operating Manual Part 1: General

ISO 19354 Ships and marine technology — Marine cranes — General requirements

²¹² Note that ISO 4564 has been withdrawn but still forms part of the BS

Code for Lifting Appliances in the Marine Environment, Lloyd's Register

26.9.5.9 See Section 16 of Appendix 13.

29.4.3.2 & 3 International Code for Application of Fire Test Procedures (FTP Code) – International Maritime Organization

29.7.1.4 & 29.8.1.4 BS EN 13765 Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals, or EN 857 1SC Rubber hoses and hose assemblies - Wire braid reinforced compact type for hydraulic applications – Specification.

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APPENDIX 14

MERCHANT SHIPPING REGULATIONS THAT APPLY TO SMALL WORKBOATS AND PILOT BOATS

This Appendix provides an indicative list of the Merchant Shipping Regulations applicable at the time of publication of this Code. Other regulations may be in force, and may come into force which will also apply to Small Workboats and Pilot Boats. The footnotes provide references for further guidance and information. If this Code is not complied with, the Statutory Instruments dis-applied in Schedule 1 to SI 1998 No. 1609 also apply. Legal advice should be sought for clarification on whether a Statutory Instrument applies to a particular vessel. It is the responsibility of the owner/managing agent and Master to ensure that they are complying with the relevant applicable legislation.

SI 1957 No. 358 The Oil in Navigable Waters (Transfer Records) Regulations 1957, as amended.

SI 1979 No. 1577 The Merchant Shipping (Returns of Births and Deaths) Regulations 1979, as amended.

SI 1981 No. 569 The Merchant Shipping (Official Log Books) Regulations 1981, as amended.²¹³

SI 1987 No. 311 The Merchant Shipping (Submersible Craft Operations) Regulations 1987, as amended.²¹⁴

SI 1988 No. 1637 The Merchant Shipping (Means of Access) Regulations 1988, as amended.²¹⁵

SI 1988 No. 1638 The Merchant Shipping (Entry into Dangerous Spaces) Regulations 1988, as amended.²¹⁶

SI 1988 No. 1641 The Merchant Shipping (Safe Movement on Board Ship) Regulations 1998, as amended.

SI 1995 No. 2498 The Merchant Shipping (Reporting Requirements for Ships Carrying Dangerous or Polluting Goods) Regulations 1995, as amended.^{217, 218}

²¹³ M. 1391 – “Official Log Books”.

²¹⁴ MSN 1300 – “Safety of submersible craft”.

²¹⁵ MGN 337 (M+F) – “Provision of Safe Means of Access to Fishing and Other Small Vessels”.

²¹⁶ MGN 423 (M) – “Entry into Dangerous Spaces”.

²¹⁷ MSN 1817 (M+F) – “Consolidated European Reporting System (CERS) - Ship Arrival and Departure Notifications and Reporting Requirements in the Event of an Accident/Incident”.

²¹⁸ MGN 242 (M+F) – “Standard format and procedures for ship reporting, including reporting incidents involving dangerous goods, marine pollutants, other harmful substances or safety”.

SI 1996 No. 75 *The Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996, as amended.*^{219, 220, 221}

SI 1996 No. 2154 *The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996, as amended.*

SI 1997 No. 1510 *The Merchant Shipping (Tonnage) Regulations 1997, as amended.*

SI 1997 No. 2367 *The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997, as amended.*^{222, 223, 224, 225, 226, 227}

SI 1997 No. 2962 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, as amended.*^{228, 229, 230, 231}

SI 1998 No. 1609 *The Merchant Shipping (Small Workboat and Pilot Boat) Regulations 1998, as amended.*²³²

SI 2015 No. 1692 *The Merchant Shipping (Code of Safe Working Practices) (Amendment and Revocation) Regulations 2015, as amended.*^{233, 234}

SI 1998 No. 2411 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Employment of young Persons) Regulations 1998, as amended.*²³⁵

SI 1998 No. 2771 *The Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998, as amended.*²³²⁷

²¹⁹ MSN 1781 (M+F) – “The Merchant Shipping (Distress Signals and Prevention of Collisions) Regulations 1996”.

²²⁰ MGN 364 (M+F) – “Navigation: Traffic Separation Schemes - Application of Rule 10 and Navigation in the Dover Strait

²²¹ MGN 369 (M+F) – “Navigation: Navigation in Restricted Visibility”.

²²² MGN 36 (M) – “(M) Document of Compliance for ships carrying dangerous goods in packaged or dry bulk form”.

²²³ MGN 37 (M) – “The Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997”.

²²⁴ MGN 146 (M) – “The Carriage of Packaged Cargo and Cargo Units”.

²²⁵ MSN 1706 (M) – “The Carriage of Military and Commercial Explosives - **SI 1997/2367**”.

²²⁶ MSN 1705 (M) – “Portable tanks, road tank vehicles and rail tank wagons for the carriage by sea of liquid dangerous goods and liquefied gases - **SI 1997/2367**”.

²²⁷ MSN 1820 (M) – “The Carriage of Dangerous Goods and Marine Pollutants in Packaged Form: Amendment 34-08 to the International Maritime Dangerous Goods (IMDG) Code”.

²²⁸ MGN 20 (M+F) – “Implementation of EC Directive 89/391: Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997”.

²²⁹ MGN 112 (M) – “New and expectant mothers: Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 and Merchant Shipping (Medical Examinations) Regulations 1983”.

²³⁰ MGN 175 (M+F) – “Health and Safety Regulations for Ships: Merchant Shipping and Fishing Vessel (Health and Safety at Work) (Amendment) Regulations”.

²³¹ MGN 211 (M) – “Fatigue: Duties of Owners and Operators under Merchant Shipping legislation”.

²³² MGN 416 (M) – “Inspection, Survey and Certification Guidance for United Kingdom Small Commercial Vessels Operating in Foreign Waters”.

²³³ MIN 561 (M+F) – “Code of Safe Working Practices for Merchant Seafarers: Amendment 2017”.

²³⁴ MGN 539 (M) – “Code of Safe Working Practices for Merchant Seafarers”.

²³⁵ MGN 88 (M+F) - Implementation of EC Directive 94/33. Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Employment of Young Persons) Regulations”.

SI 1998 No. 2857 *The Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998, as amended.*²³⁶

SI 1999 No. 336 *The Merchant Shipping (Carriage of Cargoes) Regulations 1999, as amended.*²³⁷

SI 1999 No. 2205 *The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations 1999, as amended.*^{238, 239}

SI 1999 No. 2722 *The Merchant Shipping (Musters, Training and Decision Support Systems) Regulations 1999, as amended.*^{240, 241, 242}

SI 2000 No. 1850 *The Merchant Shipping (EPIRB Registration) Regulations 2000, as amended.*²⁴³

SI 2000 No. 3216 *The Merchant Shipping (Carriage of Packaged Irradiated Nuclear etc.) (INF Code) Regulations 2000, as amended.*

SI 2001 No. 3444 *The Merchant Shipping and Fishing Vessels (Safety Signs and Signals) Regulations 2001, as amended.*²⁴⁴

SI 2002 No. 1587 *The Merchant Shipping (Diving Safety) Regulations 2002, as amended.*^{245, 246, 247}

SI 2002 No. 2055 *The Merchant Shipping (Medical Examination) Regulations 2002, as amended.*²⁴⁸

SI 2006 No. 2183 *The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006, as amended.*^{249, 250, 251}

²³⁶ MGN 90 (M+F) – “Implementation of EC Directive 90/269/EC Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998”.

²³⁷ MGN 107 (M) – “Carriage of Cargoes Regulations 1999”.

²³⁸ MSN 1731 (M) – “(M+F) The Merchant Shipping and Fishing Vessels Personal Protective Equipment Regulations 1999 – see also SI 1999 No.2205 of the same name.

²³⁹ M.1428 – “Asbestos - health hazards and precautions”.

²⁴⁰ MGN 127 (M+F) – “Means of Recovering Casualties from the Sea When Involved in Ship to Ship Personnel Transfers”.

²⁴¹ MGN 544 (M) Life-saving Appliances – Means of Recovery of Persons from the Water by Ships and Boats – Acceptance of Recovery Equipment

²⁴² MGN 71 (M) – “Musters, Drills, On-board Training and Instructions, and Decision Support Systems”.

²⁴³ MSN 1816 (M+F) – “Mandatory Registration of Emergency Position Indicating Radio Beacons (EPIRBs)”.

²⁴⁴ MSN 1763 (M+F) – “- The Merchant Shipping and Fishing Vessels (Safety Signs and Signals) Regulations 2001”.

²⁴⁶ MGN 424 (M+F) – “Safety Responsibilities on board Dive Boats”.

²⁴⁷ MSN 1762 (M+F) – “The Merchant Shipping (Diving Safety) Regulations 2002”

²⁴⁸ MGN 264 (M) – “Medical Fitness Requirements for Those Employed on Boats Certificated under MCA Codes of Practice, Crew of Seagoing Local Passenger Vessels and Non-seagoing Boatmasters”

²⁴⁹ MGN 331 (M+F) – “- The Merchant Shipping and Fishing Vessels (Provision and Use Of Work Equipment) Regulations 2006”.

²⁵⁰ MGN 378 (M+F) – “Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) (Amendment) Regulations 2008 and Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) (Amendment) Regulations 2008”.

²⁵¹ MGN 422 (M) – “Use of Equipment to Undertake Work Over the Side on Yachts and Other Vessels”.

SI 2006 No. 2184 *The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006, as amended.*²⁵²

SI 2007 No. 1776 *The Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2007, as amended.*²⁵³

SI 2007 No. 3075 *The Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007, as amended*²⁵⁴.

SI 2007 No. 3077 *The Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007, as amended*^{255, 256}.

SI 2007 No. 3075 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Carcinogens and Mutagens) Regulations 2007, as amended*²⁵⁷.

SI 2008 No. 2924 *The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008, as amended*²⁵⁸.

SI 2009 No. 2796 *The Merchant Shipping (Anti-fouling Systems) Regulations 2009, as amended*²⁵⁹.

SI 2008 No. 3257 *The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008, as amended*²⁶⁰.

SI 2010 No. 323 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Biological Agents) Regulations 2010, as amended*²⁶¹.

SI 2010 No. 332 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Chemical Agents) Regulations 2010, as amended*²⁶².

SI 2010 No. 332 *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Working at Height) Regulations 2010, as amended*²⁶³.

²⁵² MGN 322 (M+F) – “The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006”

²⁵³ MGN 563(M+F) – “Guidance on the Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2003 and amendments”.

²⁵⁴ MGN 352 (M+F) – “- The Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007”.

²⁵⁵ MGN 353 (M+F) – “The Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007”

²⁵⁶ MGN 436 (M+F) – ‘WHOLE-BODY VIBRATION: Guidance on mitigating against the effects of shocks and impacts on small vessels’.

²⁵⁷ MGN 356 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Carcinogens and Mutagens) Regulations 2007”.

²⁵⁸ MSN 1819 (M+F) – “The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008”.

²⁵⁹ MGN 398 (M+F) – “Merchant Shipping (Anti-Fouling Systems) Regulations 2009”.

²⁶⁰ MSN 1807 (M+F) – “The Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 – SI 2008 No. 3257”.

²⁶¹ MGN 408 (M+F) – “- The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Biological Agents) Regulations 2010”.

²⁶² MGN 409 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Chemical Agents) Regulations 2010”.

²⁶³ MGN 410 (M+F) – “The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Work at Height) Regulations 2010”.

SI 2010 No. 737 The Merchant Shipping (Maritime Labour Convention) (Medical Certification) Regulations 2010, as amended.

SI 2010 No. 2984 The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Asbestos) Regulations 2010²⁶⁴.

SI 2010 No. 2987 The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Artificial Optical Radiation) Regulations 2010²⁶⁵

SI 2016 No. 1026 - The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016²⁶⁶

SI 2011 No. 1771 The Equality Act 2010 (Work on Ships and Hovercraft) Regulations 2011.

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²⁶⁴ MGN 429 (M+F) - "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Asbestos) Regulations 2010"

²⁶⁵ MGN 428 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Artificial Optical Radiation) Regulations 2010"

²⁶⁶ MGN 559 (M+F) - Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Electromagnetic Fields) Regulations 2016

APPENDIX 15

See sample certificates on the following pages

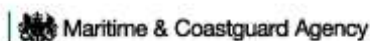
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PILOT BOAT CERTIFICATE

“NAME OF VESSEL”

Unique Number

Issued under the authority of the Maritime & Coastguard Agency, an Executive Agency of the United Kingdom
Department for Transport



Certifying Authority authorised by the MCA

Name of Owner/Managing Agent	
Address	

Type Of Vessel	
Use of Vessel	Dedicated Pilot Boat
Official Number	
Port of Registry	
Gross Tonnage	
Hull Identification Number	
Maximum number of persons on board	
Length Overall	
Load Line Length (if LOA > 24M)	
Date of Build	

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) at (Place) from (Date) to (Date) and found to be in accordance with the requirements of the 2nd Edition of *The Safety of Small Workboats and Pilot Boats - A Code of Practice*, published by the Maritime and Coastguard Agency of the Department for Transport.

This certificate will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition	Total loading of persons and equipment is not to exceed (load or refer to SIB) in kg
---------------------------	--

Permitted area of operation	(Category)	(GMDSS Area)
-----------------------------	------------	--------------

Intermediate examination by a (CA) Authorised Examiner due before	(Date)
---	--------

This certificate was issued at (CA Office) on: (Date)

This certificate expires on : (Date)

Name (Name) for and on behalf of (CA) Technical Committee.

Signature:

(CA) Official Stamp

This certificate is equivalent to a UK Load Line Exemption Certificate

Conditions and limitations: -

- To comply with the Documentation of Compliance SWB2.
- When the vessel is sold this certificate is automatically cancelled and must be returned to the (CA) Office
- All vessels that require stability information, must carry the relevant stability information on board the vessel

MLC Compliance Statements

Compliant:

This vessel is compliant with the UK national legislation implementing the Maritime Labour Convention, 2006.

or

Non Compliant

This vessel shall not proceed more than (N*) miles from a UK safe haven or on an international voyage, and shall only operate from UK ports"

* according to area category

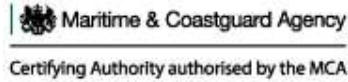
WORKBOAT CERTIFICATE

(WITH PILOT BOAT ENDORSEMENT)

“NAME OF VESSEL”

Unique Number

Issued under the authority of the Maritime & Coastguard Agency, an Executive Agency of the United Kingdom
Department for Transport



Name of Owner/Managing Agent	
Address	
Type Of Vessel	
Use of Vessel	
Official Number	
Port of Registry	
Gross Tonnage	
Hull Identification Number	
Maximum number of persons on board	
Length Overall	
Load Line Length (if LOA > 24M)	
Date of Build	
Date of last out of water examination	

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) **at** (Place) **from** (Date) **to** (Date) and found to be in accordance with the requirements of the 2nd Edition of *The Safety of Small Workboats and Pilot Boats – A Code of Practice*, published by the Maritime and Coastguard Agency of the Department for Transport.

This certificate will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition	Total loading of persons and equipment is not to exceed (load or refer to SIB) in kg
---------------------------	--

Permitted area of operation	(Category)	GMDSS Area
-----------------------------	------------	------------

Midterm examination by a (CA) Authorised Examiner due before	(Date)
--	--------

This certificate was issued at (CA Office) on: (Date)	
This certificate expires on : (Date)	
Name (Name) for and on behalf of (CA) Technical Committee.	
Signature:	(CA) Official Stamp

This certificate is equivalent to a UK Load Line Exemption Certificate

MLC Compliance Statements

Compliant:

This vessel is compliant with the UK national legislation implementing the Maritime Labour Convention, 2006.

or

Non Compliant

This vessel shall not proceed more than (N*) miles from a UK safe haven or on an international voyage, and shall only operate from UK ports”

* according to area category

Conditions and limitations: -

1. To comply with the Documentation of Compliance SWB2.
2. When the vessel is sold this certificate is automatically cancelled and must be returned to the (CA) Office
3. All vessels that require stability information, must carry the relevant stability information on board the vessel

In addition to the general requirements of the Safety of Small Workboats and Pilot Boats – A Code of Practice, this vessel has been examined with regard to section 27.9.10 of the Code and has been found satisfactory for use as a pilot boat in

With the carriage of not more than persons (including crew)

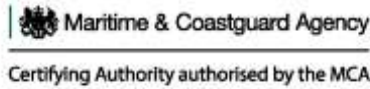
CA Stamp/Signature/date:

WORKBOAT CERTIFICATE

“NAME OF VESSEL”

Unique Number

Issued under the authority of the Maritime & Coastguard Agency of the United Kingdom Department for Transport



Name of Owner/Managing Agent	
Address	

Type Of Vessel	
Use of Vessel	
Official Number	
Port of Registry	
Gross Tonnage	
Hull Identification Number	
Maximum number of persons on board	
Length Overall	
Load Line Length (if LOA > 24M)	
Date of Build	
Date of last out of water examination	

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) **at** (Place) **from** (Date) **to** (Date) and found to be in accordance with the requirements of the 2nd Edition of *The Safety of Small Workboats and Pilot Boats – A Code of Practice*, published by the Maritime and Coastguard Agency of the Department for Transport.

This certificate will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition	Total loading of persons and equipment is not to exceed (load or refer to SIB) in kg
---------------------------	--

Permitted area of operation	(Category)	GMDSS Area
-----------------------------	------------	------------

Midterm examination by a (CA) Authorised Examiner due before	(Date)
--	--------

This certificate was issued at (CA Office) on: (Date)	
This certificate expires on : (Date)	
Name (Name) for and on behalf of (CA) Technical Committee.	
Signature:	(CA) Official Stamp

This certificate is equivalent to a UK Load Line Exemption Certificate

MLC Compliance Statements

Compliant:

This vessel is compliant with the UK national legislation implementing the Maritime Labour Convention, 2006.

or

Non Compliant

This vessel shall not proceed more than (N*) miles from a UK safe haven or on an international voyage, and shall only operate from UK ports"

* according to area category

Transfer of Marine Gas Oil Endorsement

In addition to the general requirements of the Safety of Small Workboats and Pilot Boats – a Code of Practice, this vessel has been examined with regard to section 29.7 of the Workboat Code Edition 2 and has been found satisfactory to undertake Transfer of Marine Gas Oil from Designated Fuel Oil Tanks from (name tanks)

CA Stamp / signature / date

Conditions and limitations: -

- To comply with the Documentation of Compliance SWB2.
- When the vessel is sold this certificate is automatically cancelled and must be returned to the (CA) Office
- All vessels that require stability information, must carry the relevant stability information on board the vessel

WORKBOAT STATEMENT OF COMPLIANCE

“NAME OF VESSEL”

Unique Number:

Issued to confirm compliance with the 2nd Edition of *The Safety of Small Workboats and Pilot Boats – A Code of Practice*, published by the Maritime and Coastguard Agency of the UK Department for Transport.

Name of Owner/Managing Agent	
Address	

Type Of Vessel	
Use of Vessel	
Official Number	
Port of Registry	
Gross Tonnage	
Hull Identification Number	
Maximum number of persons on board	
Length Overall	
Load Line Length (if LOA > 24M)	
Date of Build	
Date of last out of water examination	

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) **at** (Place) **from** (Date) **to** (Date) and found to be in accordance with the requirements of the 2nd Edition of *The Safety of Small Workboats and Pilot Boats – A Code of Practice*, published by the Maritime and Coastguard Agency of the Department for Transport.

This statement of compliance will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition	Total loading of persons and equipment is not to exceed (load or refer to SIB) in kg
---------------------------	--

Permitted area of operation	(Category)	(GMDSS Area)
-----------------------------	------------	--------------

Midterm examination by a (CA) Authorised Examiner due before	(Date)
--	--------

This statement of compliance was issued at (CA Office) on: (Date)

This statement of compliance expires on : (Date)

Name (Name) for and on behalf of (CA) Technical Committee.

Signature:

(CA) Official Stamp

This certificate is equivalent to a UK Load Line Exemption Certificate

Conditions and limitations: -

- To comply with the Documentation of Compliance SWB2.
- When the vessel is sold this statement of compliance is automatically cancelled and must be returned to the (CA) Office.
- All vessels that require stability information, must carry the relevant stability information on board the vessel.

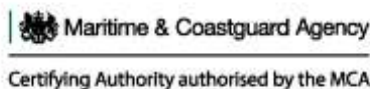
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LIGHT DUTY WORKBOAT CERTIFICATE

“NAME OF VESSEL”

Unique Number

Issued under the authority of the Maritime & Coastguard Agency of the United Kingdom Department for Transport



Name of Owner/Managing Agent	
Address	

Type Of Vessel	
Use of Vessel	
Official Number	
Port of Registry	
Gross Tonnage	
Hull Identification Number	
Maximum number of persons on board	
Length Overall	
Load Line Length (if LOA > 24M)	
Date of Build	
Date of last out of water examination	
Small Commercial Vessel Code or other that the vessel is certificated to.	

This is to certify that the above named vessel was examined by (CA) Approved Examiner, (Name) **at** (Place) **from** (Date) **to** (Date) and found to be in accordance with the requirements of a small commercial vessel code, or which comply with a Code or Standard which is acceptable to the Administration for the intended purpose, and conditions and restrictions described in 25.10 of the 2nd Edition of *The Safety of Small Workboats and Pilot Boats – A Code of Practice*, published by the Maritime and Coastguard Agency of the Department for Transport.

This certificate (may also be used for / may satisfy the requirements of) vessels issued with a certificate under The Merchant Shipping (Vessels in Commercial Use for Sport or Pleasure) Regulations 1998 (SI 1998 No 2771) and 25.10 of the Code named above.

This certificate will remain valid until (date) subject to the vessel, its machinery and systems and equipment being efficiently maintained, with examinations and manning as required by the Code of Practice, subject to the continued validity of the vessels existing certification, and that any modifications or damage to the vessel is reported to the Certifying Authority and any repair is approved as required and considered rectified by the Certifying Authority as required by the relevant part of the Code.

For limitations & Conditions please see the reverse of the certificate

Maximum loading condition	Total loading of persons and equipment is not to exceed (load or refer to SIB) in kg
---------------------------	--

Permitted area of operation	(Category)	GMDSS Area
-----------------------------	------------	------------

Midterm examination by a (CA) Authorised Examiner due before	(Date)
--	--------

This certificate was issued at (CA Office) on: (Date)

This certificate expires on : (Date)

Name (Name) for and on behalf of (CA) Technical Committee.

Signature:

(CA) Official Stamp

This certificate is equivalent to a UK Load Line Exemption Certificate

MLC Compliance Statements

Compliant:

This vessel is compliant with the UK national legislation implementing the Maritime Labour Convention, 2006.

Non Compliant

This vessel shall not proceed more than (N*) miles from a UK safe haven or on an international voyage, and shall only operate from UK ports"

* according to area category

Conditions and limitations: -

- To comply with the Documentation of Compliance SCV2.
- When the vessel is sold this certificate is automatically cancelled and must be returned to the (CA) Office.
- All vessels that require stability information, must carry the relevant stability information on board the vessel.

APPENDIX 16

SAVING AND TRANSITIONAL ARRANGEMENTS FOR EXISTING VESSELS

1. This Appendix allows for some vessels to be exempted from the requirements in the rest of this Code, as long as they meet the requirements set out in this Appendix.
2. Existing small workboats and pilot boats that are certificated under:-
 - 2.2 the Workboat Code Edition 1 (the "Brown Code"); or,
 - 2.3 its equivalent standard published in the technical Annex to Marine Guidance Note (MGN) 280 (M),do not need to comply with the requirements in the rest of this Code, and may continue operating in compliance with those previous standards.
3. Existing vessels that are certificated under the Workboat Code Industry Working Group Technical Standard, published in 2014 ('the 2014 Standard'), do not need to comply with the requirements in the rest of this Code, and may continue to operate under the 2014 Standard until their next due renewal examination after entry into force of the Workboat Code Edition 2, or three (3) years after entry into force date of the Workboat Code Edition 2, whichever date falls later. At the end of that period, they must phase-in to the requirements of the Workboat Code Edition 2 in full.
4. To the extent necessary for the operation of this Appendix, the Brown Code, MGN 280(M) and the 2014 Standard are incorporated into this Code. (For the avoidance of doubt, please note these standards are no longer recognised for new certifications, and will not apply after the entry into force date of the Workboat Code Edition 2).