Maritime & Coastguard Agency

MARINE INFORMATION NOTE

MIN 592 (M)

The Differences between the technical Standards Contained in Workboat Code Industry Working Group Technical Standard and Workboat Code Edition 2

Notice to all designers, builders, owners, operators, employers, crews, masters of small commercial workboats, and Certifying Authorities

This notice should be read with MSN 1892
This MIN expires 1 May 2023

Summary

• This Notice provides information on the differences between the revised text of the MCA "The Safety of Small Workboats and Pilot Boats – A Code of Practice, Edition 2" (The Workboat Code Edition 2) published in 2018 and Workboat Industry Working Group Technical Standard (Workboat IWGTS) published in 2014.

1. Introduction/ Background

1.1 In 2014 the Maritime and Coastguard Agency published the Workboat Code IWGTS which provided an equivalent standard to the Brown Code (also known as Workboat and Pilot Boat Code, published in 1998).

1.2 In 2018, the Maritime and Coastguard Agency published its Workboat Code Edition 2 which replaced, for new vessels, the Brown Code and its published equivalences MGN 280 and Workboat IWGTS. This revision considered all comments from a public consultation with the workboat and pilot boat industry.

1.3 The Workboat Code Edition 2 is given statutory force by the Merchant Shipping (Small Workboat and Pilot Boat) Regulations 1998/1609 and Merchant Shipping Notice 1892(M) (the Workboat Code). MSN 1892 requires existing vessels certificated to the Workboat IWGTS to phase-in to certification under Workboat Code Edition 2.

2. Key Differences

2.1 This notice sets out the principle differences between the text of the Workboat Code Edition 2 and Workboat IWGTS. The information on the differences between the text of the

Workboat IWGTS and the Workboat Code Edition 2 is provided to assist industry stakeholders to phase-in their certification. These key differences are documented in Annex 1 and Annex 2 to this Marine Information Note.

2.2 When the phase-in date in MSN 1892 described for the Workboat IWGTS has passed that equivalent standard will cease to exist.

2.3 This Marine Information Note does not cover every change between the two standards but looks to identify the technical and operational uplifts in regulation that an owner or operator should be aware of in order to comply with the Workboat Code Edition 2. An owner or operator of a workboat that has been assessed under the Workboat IWGTS has the responsibility to comply with the full requirements of Workboat Code Edition 2 and the absence of any requirement within this MIN does not alleviate an owner or operator from compliance.

More Information

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Safer Lives, Safer Ships, Cleaner Seas

ANNEX 1

Old reference	**Content**	**New reference**	**Content**	**Operational / Technical**
	No previous text	1.8.5	Vessels where bulk cargo[4] 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.	Operational
Definitions	No previous text	Definitions	*""A" class"* divisions are those divisions formed by bulkheads and decks which comply with the criteria described in SOLAS Chapter II-2 Regulation 3	Operational
Definitions	No previous text	Definitions	""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	Operational
Definitions	"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	Definitions	"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, <u>industrial personnel and their equipment and personal baggage;</u>	Operational
Definitions	No previous text	Definitions	"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;	Operational
Definitions	No previous text	Definitions	"Cooker" means a galley stove designed for cooking that makes use of burners, an oven, a broiler or any combination of these items;	Operational

[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.

Definitions	No previous text	Definitions	"Diesel" means Marine Gas Oil and refers to gas oil, diesel fuel and heating oil, light which are categorised under UN 1202;	Operational
Definitions	No previous text	Definitions	"*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.	Operational
Definitions	No previous text	Definitions	"Heater" and "Heating appliance" means an appliance designed to heat air or water or a solid medium by means of combusting liquid fuel;	Operational
Definitions	No previous text	Definitions	"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 activities[8]; .2 are able bodied and meet appropriate medical standards[9];	Operational

[8] 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).

[9] 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.

			.3 have received basic safety training, according to relevant industry standards[10]; .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).	
Definitions	No previous text	Definitions	“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;	Operational
Definitions	No previous text	Definitions	“Liquid fuel” means fuel that is liquid at atmospheric pressure and used for heating or for a cooker;	Operational
Definitions	No previous text	Definitions	“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	Operational
Definitions	No previous text	Definitions	"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.	Operational

[10] 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.

Definitions	No previous text	Definitions	“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;	Operational
Definitions	“MED” means European Council Directive 96/98/EC of 20 December 1996 on Marine Equipment, as amended;	Definitions	“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	Operational
Definitions	No previous text	Definitions	“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	Operational
Definitions	“Pilot boat” means a vessel, of whatever size, employed or intended to be employed in pilotage services, and “Dedicated pilot boat” means a vessel used, or intended to be used, solely as a pilot boat	Definitions	“Pilot boat” means ~~a vessel, of whatever size~~,boat employed or intended to be employed in pilotage services, and “Dedicated pilot boat” means a ~~vessel used, or intended to be used, solely as 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	Operational
Definitions	No previous text	Definitions	“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.	Operational
Definitions	“Restricted Service Workboat” - means a vessel that is certificated under the Small Commercial Vessel codes, which can also be issued with a “Restricted Service Workboat”	Definitions	deleted	Operational

	certificate under the conditions stated in Section 25.10.			
Definitions	No previous text	Definitions	“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.)	Operational
Definitions	No previous text	Definitions	“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	Operational
3.2.1	Area Category 6 - to sea, within 3 miles of a nominated departure point(s) named in the certificate and never more than 3 miles from land, in favourable weather and daylight;	3.2.1	Area Category 6 - ~~to sea~~, within 3 miles of ~~a nominated departure point(s) named in the certificate~~ land and ~~never~~ not more than 3 miles radius from ~~land~~, either the point of departure to sea or the seaward boundary of protected waters (see definition of “protected waters”), in favourable weather and daylight;	Operational
3.11.1	No previous text	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	Operational/ Technical

			Certifying Authority(s) conducting the examinations prior to plan approval so that they too may take account of the risks identified.	
	No previous text	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.	Operational
4.1.2	A vessel which is not fitted with a watertight weather deck in accordance with Section 4.1.1 should normally be restricted to Area Category 3, 4, 5 or 6 and 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). An open boat should normally be restricted to service in Area Categories 4, 5 and 6. Sections 4.1.3 and 4.1.4 apply to a vessel referred to in section 4.1.2.	4.1.2	A vessel which is not fitted with a watertight weather deck in accordance with ~~Section~~ section 4.1.1 should ~~normally~~ 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). ~~An open boat should normally be restricted to service in Area Categories 4, 5 and 6. Sections 4.1.3 and 4.1.4 apply to a vessel referred to in section 4.1.2.~~	Operational
	No previous text	4.2.1.4	The vessel structure and the equipment fitted to that structure should be verified[16] by the Certifying	Technical

[16] 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

			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. PUWER[17], MGN 331(M+F)[18] 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 LOLER[19] 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.	
4.5.2	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	4.5.2	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	Technical

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.

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

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

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

	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.		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 12215[21] 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.	
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	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~~ section 4.2.2 or vessels in Area Category 4, 5 or 6 should be of a design and construction which would meet the requirements of ISO 6185 Part 4. See Appendix 13.	Technical

[21] 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.

4.6.3	Where those persons on board such a vessel cannot be safely transferred to the parent vessel, 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. See also section 24.	4.6.4	Where those persons on board such a vessel cannot be safely transferred to the ~~parent~~ 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 Type 1 Tender. See also section 24.5 and 24.6 requirements for Type 1 Tenders	Operational
	No previous text	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.	Operational
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 readily accessible	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 ~~readily accessible~~ either remotely operated or readily accessible in an emergency. Discharge lines should also have an automatic non-return valve	Technical
5.9.1	A valve or similar fitting attached to the side of the vessel below the waterline, within an engine space or other high fire risk area, should be normally of steel, bronze, copper, or other non-brittle fire resistant material or equivalent.	5.9.1	A valve or similar fitting attached to the side of the vessel below the waterline, within ~~an engine~~ 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.	Technical

5.9.2	When plastic piping is used it should be of good quality and of a type suitable for the intended purpose	5.9.2	When plastic[22] piping or flexible[23] 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.	Technical
5.9.3	Flexible or non-metallic piping, engine room bulkhead and deck penetrations, which present a risk of flooding, fitted in an engine space or fire risk area should be efficiently insulated against fire, or be of fire resistant material, e.g. ISO Standard 7840, or exhaust quality rubber hosing	5.9.4	Any Flexible or non-metallic piping, and engine room bulkhead and deck penetrations, ~~which~~ where failure would present a risk of flooding, which contribute any additional risk of spread of fire, fitted in ~~an engine~~ a machinery space or fire risk area should be efficiently insulated against fire, or be of fire resistant material~~, e.g~~ in accordance with ISO Standard ~~7840~~15540 or IMO A.753(18)[24] 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	Technical

[22] 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.

[23] 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.

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

			being damaged, operable from outside the space. (See section 5.9.1 for valve requirements).	
	No previous text	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 oC 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.	Technical
	No previous text	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	Technical
	No previous text	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.	Technical
	No previous text	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	Technical
	No previous text	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	Technical

			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	
	No previous text	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	Technical
	No previous text	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 11105[25] shall be fulfilled. See Appendix 13 and 7.3.1.2.	Technical
	No previous text	7.4.4	The recommended material for fuel pipes is stainless steel or equivalent.	Technical
	No previous text	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.	Technical
	No previous text	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	Technical

[25] ISO 11105 Small craft — Ventilation of petrol engine and/or petrol tank compartments

			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	
	No previous text	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.	Operational
	No previous text	7.4.9	Where lengths of conductive materials are used in pipework, consideration should be given to the requirements of Section 8.1.1.	Operational
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 7.3.3), the quantity should be kept to a minimum (e.g. maximum of two 5 litre containers),, the containers should be 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.	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.~~3.3~~1.6), the quantity should be kept to a ~~minimum (e.g~~. 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).	Operational

7.8.2	In small vessels where Section7.8.1 is not practicable, a 5 litre container of petrol may be stowed in a deck locker which meets the requirements of 7.7.1.1.	7.8.2	In small vessels where ~~Section~~ section 7.8.1 is not practicable, ~~a~~an approved 5 litre container of petrol may be stowed in a deck locker which meets the requirements of 7.7.1.1.	Operational
	No previous text	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	Technical

			ventilation is used, Ex rated[26] 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	
	No previous text	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 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.	Technical

[26] 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.

8.2.1	DC systems should be two conductor, except that single conductor systems are acceptable for engine circuits comprising engine mounted equipment which have a return connection made at the engine itself.		deleted	
8.2.2	AC systems should normally be two wire insulated for single phase, or three or four wire 3 phase system, with insulated neutral in the case of a four wire system. Alternative arrangements with earthing of neutral conductor may be specially considered by the Certifying Authority.		deleted	
8.2.3	A single phase AC or 2 wire DC system in which there is no intentional connection of the circuit to earth (an insulated system) should be provided with double pole switches, except that single pole switches protection may be used in the final sub-circuits in dry accommodation spaces		deleted	
8.2.4	Single pole switches are only acceptable when used in the 'live' (+) conductor in a system with one pole earthed. Fuses or circuit breaker protection should not be installed in an earthed conductor.		deleted	
8.2.5	All circuits, except the main supply from the battery to the starter motor and electrically driven steering motors and final sub circuits, should be provided with electrical protection		deleted	

	against overload and short circuit on all insulated poles, (i.e. fuses or circuit breakers should be installed). The rating of over current protection devices should not exceed the rated current capacity of the conductor being protected. Short circuit protection should be suitable for the total rated current of the consumers in the circuit protected. Where a single outboard engine is installed, and fitted with in-line fuses, suitable procedures should be established to enable the engine to be started in the event of a damaged fuse.			
8.2.6	Steering circuits, the loss of which would lead to steering failure, should have an overload alarm in lieu of overload protection (this does not apply to auto-pilot motors). However all circuits should be protected against short circuit.		deleted	
8.2.7	AC circuits supplying domestic consumers and socket outlets should be provided with earth leakage protection with maximum trip setting of 30mA.		deleted	
8.2.8	Shore supply circuits should be provided with earth leakage protection with maximum trip setting of 30mA		deleted	
8.2.9	Shore supply systems should be protected against overloads & short circuits, with protection on all insulated poles		deleted	

8.2.10	Three phase shore supplies should be fitted with phase indication to ensure correct phase sequence		deleted	
8.2.11	On metal vessels, shore supply systems should be fitted with efficient galvanic isolation		deleted	
8.2.12	On all vessels consideration should be given to the efficient bonding of metal components in contact with sea water to minimise galvanic corrosion.		deleted	
	renumbered	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.	Operational
	renumbered	8.2.2	The electrical equipment and installations shall be maintained to ensure that the vessel is in an operational and habitable condition	Operational
	renumbered	8.2.3	Multihulls and vessels fitted with multiple engine rooms should refer to Section 7.1.5.	Operational
8.5.5	renumbered	8.5.4		
	No previous text	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.	Technical
8.8.1.1	When general lighting within a vessel is provided by a centralized 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:-	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;	Technical

	.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		.2 illuminate survival craft launching and embarkation; .3 illuminate man-overboard rescue equipment and rescue areas; .4 permit work on essential machinery; .5 <u>illuminate emergency control and communication centres.</u>	
	No previous text	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.	Operational
	No previous text	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.	Technical

10.5.4	The alarm should provide an audible warning and preferably a visual warning also, at the control position.	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	Operational
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 45o North), The Bering and Okhost Seas and the Straits of Tartary, as well as the Southern Ocean south of 60^{o} 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	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 45o North), The Bering and Okhost Seas and the Straits of Tartary, as well as the Southern Ocean south of 60^{o} 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.	Operational
11.6.4.1	.1 With the crane or other lifting device operating at its maximum load moment, 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	11.6.4.1	.1 With the crane or other lifting device operating at its maximum load ~~moment~~ 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	Technical

	variable load-radius type and the load moment with respect to the vessel for lifting devices situated off centreline).		with respect to the vessel for lifting devices situated off centreline).	
11.6.7	Vessels fitted with stern gantries or fitted with lifting devices over the ship's side are not required to have a stability book, provided it can be demonstrated to the satisfaction of the Certifying Authority that	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	Operational
11.6.7.2	The SWL of the lifting device does not exceed 1% of the vessel's displacement. Where the displacement of the vessel is not known it may be estimated from the following formula:	11.6.7.2	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:	Technical
11.6.7.3	A practical test has been conducted with the gantry/lifting device at the maximum rated load/radius, which demonstrates the maximum heel angle of 7 degrees and minimum heeled freeboard of 250mm around the periphery of the vessel are achieved.	11.6.7.3	A practical test ~~has been~~ 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 ~~7~~ degrees and minimum heeled freeboard of 250mm around the periphery of the vessel are achieved..	Operational
	No previous text	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;	Technical
	No previous text	11.6.8.1	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;	Technical
	No previous text	11.6.8.2	the area under the curve of residual righting lever, up to 40 degrees or the downflooding angle, if this	Technical

			is less than 40 degrees, is equal to or greater than 0.10 metre-radians;	
	No previous text	11.6.8.3	GM should be positive and greater than or equal to 0.05m	Technical
	No previous text	11.6.8.4	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	Technical
	No previous text	11.6.8.5	the freeboard to deck edge anywhere on the periphery of the vessel is at least 250mm.	Technical
11.8.4	Guidance on Stability Assessment	11.8.4	Guidance on Stability Assessment Please note Appendix 11 has significantly changed. Please read Annex 2 in MIN 592.	Operational
	No previous text	13.2.1.1.5	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 water[40] in the shortest practicable time[41]. 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.	Operational
13.2.2.1.5	should be fitted with float free arrangements (hydrostatic release units) so that the liferafts float free, inflate and break free automatically. Other stowage and release	13.2.2.1.5	Liferafts should be fitted with float free arrangements~~(hydrostatic release units)~~[44] 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	Technical

[40] 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.

[41] The MCA is preparing guidance which will define suitable maximum demonstration time.

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

	mechanisms will be considered when they can be demonstrated, to the satisfaction of the Administration, to provide an equivalent level of safety.		arrangements, weak links and attachments of raft painters. Other stowage and release mechanisms ~~will~~ may be considered ~~when~~ if they can be demonstrated, to the satisfaction of the Administration, to provide an equivalent level of safety.	
	No previous text	13.2.2.1.6	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 water[45] in the shortest practicable time[46]. 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.	Operational
13.6.1	Each vessel should carry a portable Very High Frequency (VHF) radio fitted with a Digital Selective Calling (DSC) facility, and charging facilities for the radio battery or batteries, or a spare battery or batteries. Arrangements should be made to protect the portable VHF and spare battery or batteries from water damage e.g. waterproof cover.	13.6.1	Each vessel should carry a portable Very High Frequency (VHF) radio fitted with a Digital Selective Calling (DSC) facility[61], 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.	Technical

[45] 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.

[46] The MCA is preparing guidance which will define suitable maximum demonstration time.

[61] Ofcom require that such radios are licensed.

<table>
<tr><td>13.6.2</td><td></td><td>13.6.3</td><td>renumbered</td><td></td></tr>
<tr><td></td><td>No previous text</td><td>13.6.2</td><td>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 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.</td><td>Technical</td></tr>
<tr><td>13.7.2</td><td>Where compliance with Section 13.7.1 is not practicable, and the vessel carries fewer than 16 persons, the EPIRB may be stowed in an accessible place, and be capable of being placed readily in a liferaft without being capable of floating free</td><td>13.7.2</td><td>~~Where compliance with Section 13.7.1 is not practicable, and the vessel carries fewer than 16 persons,~~ ~~the~~The second EPIRB ~~may~~ required for a Category 0 vessels should be stowed in an accessible place, ~~and be~~ where it is capable of being placed readily in a liferaft ~~without being~~ and need not be capable of floating free.
See Table 13.1
<table>
<tr><td>Area of Operation Category</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
<tr><td>EPIRB[36]</td><td>No</td><td>No</td><td>No</td><td>No</td><td>1</td><td>1</td><td>~~1~~ 2</td></tr>
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</td><td>Technical</td></tr>
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			(see 13.7) ne ne ne ne	
	No previous text	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)[63, 64] with GPS and a light whilst on the open deck at sea. Other crew are strongly recommended to wear a Class M VHF DSC MOB (Man Overboard) with AIS[165], 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.*	Technical

[63] 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.

[64] 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).

[36] 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.

[65] 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.

			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*	
	No previous text	13.9.2	For PLB's fitment during single handed vessel operations see 26.9.5.	Operational
	No previous text	13.10	Float Free Arrangements, Weak Links and attachment of Liferaft Painters	Operational
	No previous text	13.10.1	Owner / managing agents should consult manufactures instructions for fitting of HRUs, where they are fitted	Technical
	No previous text	13.10.2	Ships operating in shallow waters or in favourable weather	Operational
	No previous text	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.	Technical
	No previous text	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	Technical

			considered, bearing in mind the possibility of accidental launching if the ship is likely to roll	
	No previous text	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 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.	Technical
	No previous text	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	Technical

			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	
	No previous text	13.10.3	Multiple liferafts on a single HRU	Operational
	No previous text	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.	Technical
	No previous text	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	Technical
	No previous text	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	Technical

			liferaft capacity to accommodate the persons on the vessel	
	No previous text	13.10.4	Tensioning of HRUs	Operational
	No previous text	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	Technical
	No previous text	13.10.5	Vessels carrying liferafts which are not approved under the Maritime Equipment Directive (MED)	Operational
		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.	Technical
	No previous text	13.10.6	HRU and weak links	Operational
	No previous text	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.	Technical
	No previous text	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	Technical
	No previous text	13.10.6.3	There are essentially two concerns with the weaker weak link that the Owner and Certifying Authority should consider:	Technical

			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?	
	No previous text	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.	Technical
	No previous text	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	Technical
14.2.2 – 14.2.7	Fibre Reinforced Plastic (FRP) Construction: Machinery space boundaries should prevent the passage of smoke and flame for 15 minutes when tested in accordance with the procedure shown in Appendix 9. 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; however, solvent borne intumescent	14.2.2 – 14.2.6	~~Fibre Reinforced Plastic (FRP) Construction:Machinery space~~ Aluminium construction: 14.2.2.1 Vessels constructed in aluminium should be insulated in way of the hull, bulkheads and deck boundaries ~~should~~ 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 Procedures[72], 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	Technical

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

	paints are not acceptable. The Certifying Authority may waive the requirement for the test described in Appendix 9 (Fire Test) if the construction complies with the equivalent standard provided by MGN 407 MGN 407 may be used as an equivalent to the Annex 9 standard. Once the construction scantling is known it may be possible to select an insulation tested on another structure as per IMO A.754(18), on a worst case scenario, as per MGN 407. For instructions on this refer to sections 1 and 2 of MGN 407. Aluminium and Wood Construction: Machinery space boundaries should have an equivalent level of fire protection when compared to FRP construction. 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 & flame in either direction for a period of 15 minutes.		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 Procedures[73], 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)	

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

	Where insulation is fitted to provide an equivalent level of fire protection to that required in Section 14.2.2 or 14.2.3, 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. Alternative Arrangements Where it is not possible for the vessels described in 14.2.2 to meet the fire test prescribed in Appendix 9, or those vessels described in 14.2.3 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 hull sides.		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 ~~however, solvent~~ 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. ~~The Certifying Authority may waive the requirement for the test described in Appendix 9 (Fire Test) if the construction complies with the equivalent standard provided by MGN 407~~ 14.2.3 ~~MGN 407~~.4 Refer to MCA guidance on fire testing of structural boundaries for use with composite and wooden construction[74]. 14.2.3.5 The Certifying Authority may ~~be used as~~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).	

[74] "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."

			14.2.3.6 Where insulation is fitted to provide an equivalent ~~to the Annex 9 standard. Once the construction scantling is known~~ 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 ~~may be~~ is not possible ~~to select an insulation tested on another~~ 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 ~~per IMO A.754(18), on a worst case scenario~~, '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℃. This temperature could be considerably exceeded before they became effective; • they may lose their intumescing properties in spaces having high ambient temperatures such as ~~per MGN 407. For instructions on this refer to sections 1 and 2 of MGN 407~~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 ~~Aluminium and~~ 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 Where insulation is fitted to provide an equivalent level of fire protection to that required in Section 14.2.2 or 14.2.3, 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.~~ ~~14.2.7 Alternative Arrangements~~ ~~14.2.7.1 Where it is not possible for the vessels described in 14.2.2 to meet the fire test prescribed in Appendix 9, or those vessels described in 14.2.3 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 hull sides~~ 14.2.6 Vessels that carry Dangerous Goods should note section 29.3.2 and 29.4.3.	
	No previous text	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.	Technical
	No previous text	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.	Technical
	No previous text	14.6.3	Fuel tanks shall not be fitted in spaces which contain heating appliances	Technical
	No previous text	14.6.4	Fuel pipes for Liquid Fuelled Galley Cookers and Heating Appliances should comply with sections 7.4.4 to 7.4.12	Technical
	No previous text	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).	Technical
	No previous text	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	Technical

			direction; - have overheat control devices; - have a flame failure device if the fuel supply is pressurized, unless it is a wick type burner	
	No previous text	14.6.7	Heaters and their exhaust systems should be installed outside spaces where flammable vapours can accumulate	Technical
	No previous text	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.	Technical
	No previous text	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	Technical
	No previous text	14.6.10	Appliances operating controls should be located to be accessible, and to minimise possible injury from burners when not in use	Technical
	No previous text	14.6.11	Heaters should be installed so that the outgoing products of combustion pass through sealed ductwork terminating outside the vessel	Technical
	No previous text	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	Technical
	No previous text	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	Technical
	No previous text	14.6.14	Reference should be made to Appendix 5.B and	Operational

			Appendix 13	
14.8.1	In all vessels efficient fire detectors should be fitted in the engine space(s), galley areas and spaces containing open flame devices	14.8.1	In all vessels efficient fire detectors should be fitted in the ~~engine~~ 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.	Technical
	No previous text	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.	Technical
	No previous text	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.	Operational
	No previous text	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	Operational

			openings which should be closed down in a fire emergency.	
	No previous text	14.10.2	As far as practical, symbols used on the plans should comply with a recognised international standard.	Operational
	No previous text	14.10.3	The plan(s) should be kept up to date.	Operational
	No previous text	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	Operational
15.4.1.1	one hand fire pump (outside engine space)* or one power driven fire pump (outside engine space)*, 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 nozzleor.	15.4.1.1	~~one hand fire pump (outside engine space)* or one power driven fire pump (outside engine space)*,~~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; or. Fitment of a power driven pump is considered current best practice.	Technical
	No previous text	15.4.1.2	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	Technical
15.4.1.2	one multi-purpose fire extinguisher to a recognised standard, see Appendix 13, 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;	15.4.1.3	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	Technical

			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;	
15.4.3	At least two fire buckets with lanyards. Buckets may be of metal, plastic or canvas and should be suitable for their intended service	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	Technical
15.5.1.1	one hand fire pump (outside engine space) or one power driven fire pump (outside engine space)*, 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	15.5.1.1	~~one hand fire pump (outside engine space) or one~~ a power driven self-priming fire pump(s)*, in a suitable arrangement which ensure that the fire ~~pump (outside engine space)*,~~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 par of the ship through hose and nozzle, and one fire hose of adequate length with a 10mm nozzle and a suitable spray nozzle~~; or~~Fitment of a power driven pump is considered current best practice.	Technical
	No previous text	15.5.1.2	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	Technical
15.5.1.2	not less than two multi-purpose fire extinguishers to a recognised standard, , 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	15.5.1.3	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	Technical

			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.	
15.6.3.2	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 Surveyors"[77], as amended. Further requirements for the installation of fixed fire fighting systems can be found in MSN 1666 (M)[78] "The Merchant Shipping (Fire Protection) Regulations1998: Fixed fire detection alarm and extinguishing systems".	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 Surveyors"[77], as amended. Further requirements for the installation of fixed fire fighting systems can be found in MSN 1666 (M)[78] ~~"The Merchant Shipping (Fire Protection) Regulations1998: Fixed fire detection alarm and extinguishing systems".~~as amended[79].	Technical

[77] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292107/msis012ch7rev1012.pdf
[78] MSN 1666 (M)– "The Merchant Shipping (Fire Protection) Regulations 1998: Fixed fire detection alarm and extinguishing systems
[79] Amended by MSN 1733 (M) – "The Merchant Shipping (Fire Protection) (Amendment) Regulations 1999

16.2.1	Each vessel should carry sufficient radio communications equipment[81] to perform the following distress and safety communications functions throughout its intended voyage:		~~Each~~ Unless otherwise stated in 16.2.2, each vessel should carry sufficient radio communications equipment[81] to perform the following distress and safety communications functions throughout its intended voyage	Technical
16.2.1.1	transmitting ship-to-shore distress alerts;	16.2.1.1.i	Provide for the safety of the vessel by:- i) transmitting ship-to-shore distress ~~alerts~~alerting by two independent means at least one of which is primary;	Technical
16.2.1.2	Receiving shore-to-ship distress alerts;	16.2.1.2	deleted	
16.2.1.3	transmitting and receiving ship-to-ship distress alerts;	16.2.1.1.ii	transmitting ~~and receiving~~ ship-to-ship distress ~~alerts~~ alerting;	Technical
16.2.1.4	transmitting and receiving search and rescue co-ordinating communications	16.2.1.4	deleted	
16.2.1.5	transmitting and receiving on-scene communications,	16.2.1.1.iii	transmitting and receiving on-scene communications, including appropriate search and rescue co-ordinating communications; and	Technical
16.2.1.6	transmitting and receiving maritime safety information; and	16.2.1.1.iv	transmitting locating signals;	Technical
16.2.1.7	transmitting and receiving bridge-to-bridge communications.	16.2.1.7	deleted	
	No previous text	16.2.1.2	Assist other vessels in distress by:- i) receiving shore-to-ship distress alerting; and ii) receiving ship-to-ship distress alerting; and~~receiving maritime~~	Technical

[81]A Marine Guidance Note, providing guidance on the radiocommunications equipment that meets these functional requirements, will be published during 2014.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.

	No previous text	16.2.1.3	Receive navigational and meteorological warnings and urgent safety information; ~~and~~ (Maritime Safety Information (MSI)).	
16.2.2.1	No previous text	16.2.2.1	Exceptions to 16.2.1 are; 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.	Technical
16.2.2.2	No previous text	16.2.2.2	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.	Technical
16.2.2.3	No previous text	16.2.2.3	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	Technical
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. The GMDSS Sea Areas[82] are defined as follows:	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~~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 16.10). The GMDSS Sea Areas[82] are defined as follows:	Operational
16.3.3	VHF transmission and reception ranges are reliable only within the line of sight ranges of the aerials	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	Operational

[82] Defined in SOLAS Chapter IV, Regulation 2.

<table>
<tr><td></td><td></td><td></td><td>MGN 324[83], 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 16.7.1 and MGN324, as amended, VHF Range diagrams. Iridium satellite phones do not fulfil GMDSS requirements</td><td></td></tr>
<tr><td>16.6.1</td><td>No previous text</td><td>16.6.1</td><td>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</td><td>Operational</td></tr>
<tr><td>16.7.1</td><td>No previous text</td><td>16.7.1</td><td>Area of operation: category 0, 1, 2, 3 and 4
<table><tr><td></td><td>Equipment</td><td colspan="4">GMDSS Sea Area</td></tr><tr><td></td><td></td><td>A1[84]</td><td>A1+ A2</td><td>A1+ A2+ A3</td><td>A1+ A2+ A3+A 4</td></tr></table></td><td>Operational</td></tr>
</table>

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

[84] 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.

			1	Fixed VHF radio installation with DSC	1	1	1	1			
			2	VHF Channel 70 DSC watch installation[85]	1	1	1	1			
			3	MF radio installation with DSC		1[Note C] or					
			4	INMARSAT – C or mini-C with Enhanced Group Call (EGC)[86]		1 or 1	1 or 1				
			5	MF/HF radio installation with DSC with Narrow Band Direct Printing (NBDP)				1			
			6	EPIRB[87]	1[Note A]	1	1	1			

[85] This may be part of the fixed VHF equipment item 1

[86] Note the general requirement in 16.2.1 for MSI

[87] Maybe fulfilled by EPIRB carried as part of LSA requirement.

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<tr><td>7</td><td>NAVTEX receiver</td><td>1 Note B</td><td>1</td><td>1</td><td>1</td></tr>
</table>
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.
Note C = Achieving satisfactory performance from an MF GMDSS radio on smaller vessels can be complex. Such matters should be considered during design and construction
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Area of operation: category 5
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<tr><td>1</td><td>Fixed VHF radio installation with DSC</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>2</td><td>VHF Channel 70 DSC</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
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<td>Operational</td>
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				watch installation[88]				
			3	MF radio installation with DSC		1 Note A 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[89]	R or	1 or		
			8	EPIRB	R	1	1	1
			9	NAVTEX	C1	C1	C1	C1
			10	INMARSAT – C or mini-C with EGC		C1	C1	C1
			1 = Number required to be fitted. 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.					

[88] This may be part of the fixed VHF equipment item 1

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

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<td>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.
Note A = Achieving satisfactory performance from an MF GMDSS radio on smaller vessels can be complex. Such matters should be considered during design and construction.</td>
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<td>16.7.3</td>
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<tr><td>1</td><td>Portable VHF DSC radio</td><td rowspan="2">1 or 1</td><td rowspan="2">1 or 1</td><td rowspan="2">1 or 1</td><td rowspan="2">1 or 1</td></tr>
<tr><td>2</td><td>Fixed VHF radio installation with DSC</td></tr>
<tr><td>3</td><td>VHF Channel 70 DSC watch installation[90]</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
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<td>Operational</td>
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[90] This may be part of the portable or fixed VHF equipment items 1 or 2

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<tr><td>4</td><td>PLB[91] or EPIRB</td><td>C2</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>5</td><td>NAVTEX</td><td>C1</td><td>C1</td><td>C1</td><td>C1</td></tr>
<tr><td>6</td><td>INMARSAT – C or mini-C with EGC</td><td></td><td>C1</td><td>C1</td><td>C1</td></tr>
</table>
1 = Number required to be fitted.
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.
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<tr>
<td>16.12.1</td>
<td>No previous text</td>
<td>16.12.1</td>
<td>Owners / managing agents are recommended to undertake a survey (see MSIS 5[98]) 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</td>
<td>Operational</td>
</tr>
</table>

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

[98] MSIS 5 Instructions for the Guidance of Surveyors (Radio Installations on GMDSS Ships)

18.5.1	A 3 cm Radar, complying with EN 62252, EN 302 248 and the R&TTE Directive[102]	18.4.4	A 3 cm Radar, complying with EN 62252[101] (Class A standard), EN 302 248 and the R&TTE Directive[2] 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	Technical
20.2.4	For vessels of unusual or non-conventional ship form (including pontoon barges) the anchor and cable size should 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	Technical
24.4	Type 1 Tenders should:	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:	Operational
24.4 (b)	be coded independently of the parent vessel • fit a kill cord and use it all times during navigation as per 7.6.5	24.4 (b)	be coded and certified independently of the ~~parent~~ 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	Operational

[102] Radio and Telecommunications Terminal Equipment Directive (~~1999/5~~2014/53/EC)

[101] 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.

	• treat the parent vessel as a safe haven		limitations applied in (d) and (e) below, see also Note 1; • ~~fit a kill cord and use it all times during navigation as per 7.6.5~~ • ~~treat the parent vessel as a safe haven~~	
	No previous text	24.4 (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	Operational
	No previous text	24.4 (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	Technical
	No previous text	24.4 (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	Operational
	No previous text	24.4 (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	Operational

			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 16.7) 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	relies on the mother ship as its "safe haven" the lifting equipment must be capable of recovering the daughter craft in ALL anticipated weather and sea conditions . 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.	24.5	Where a Type 1 tender relies on the mother ~~ship~~ 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.	Technical
24.7	In order to be able to consider Type 2 Tenders not as Workboats, then the following should be met: • The parent vessel to be codednot be required to be certified under the Code of Practice but should be fit for the purpose intended, regularly inspected by the operator, owner or managing agent and maintained in a safe condition; • be considered as work equipment under PUWER[138]; • be clearly marked "Tender to [***parent vessel name***]" and must be clearly marked with the	24.7	In order to be able to consider Type 2 Tenders not as Workboats, then the following should be met: • The ~~parent~~ mother vessel ~~to~~ should be ~~coded~~; • ~~not be required to 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 ~~but~~ 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 PUWER[138];	Technical

[138] MGN 331 (M+F) – "The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2010.

	permissible maximum weight which can be safely carried; • Fit a kill cord and use it all times during navigation (as per section 7.6.5) if the tender is an inflatable boat, a boat fitted with an inflatable collar or a boat that achieves planing speedsand fitted with remote throttle controls.; • 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 vessel[139]. 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.		• It should be clearly marked "Tender to [***parent 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 ~~an inflatable~~ a buoyant collar or ~~a~~ an open boat that achieves planing speeds~~and fitted~~. 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 ~~remote throttle controls~~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 vessel[139]. A Type 2 Tender is not required to meet the requirements for inflatable boats or rigid inflatable boats in 4.5.	

[139] MGN 332 (M+F) – "The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006.

			It is not anticipated that it will be necessary for a Type 2 Tender to carry any more than a ready use fuel tank.	
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.	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.	Technical
25.2.2.6	The winch, bollards, fairleads, windlass, towing hook (or equivalent fitting) 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	25.2.2.6	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	Technical
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.	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	Technical
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	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	Technical

	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 weathertightdoors, are to be securely closed and fully dogged at sea		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 ~~weathertightdoors~~ 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.	
25.4.1.1	Reference should be made to Section 11.6 for requirements for safety standards for vessel stability during lifting operations, and with 25.7 for vessels fitted with diver lifts.	25.4.1.1	Reference should be made to ~~Section~~ 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	Technical
	No previous text	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	Technical

			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	
	No previous text	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 332 [144] refers	Technical
	No previous text	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 marinised[145] 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	Technical

[144] MGN 332 (M+F) – "The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006".

[145] 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.

	No previous text	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	
	No previous text	25.4.1.8	A lifting system which incorporates counterbalance weight(s) should be specially considered through the Certifying Authority by the Administration	Technical
	No previous text	25.4.1.9	The Certifying Authority should be satisfied that the safety of the vessel is not endangered by lifting operations. Instructions on safety procedures to be followed by the Master should be provided to the satisfaction of the Certifying Authority.	Operational
	No previous text	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.	Technical
25.4.4	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)[146]. This	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)[3]. This Code does not aim to replicate those regulations or guidance and it is the responsibility of the owner / managing agent /	Operational

[146] MGN 332 (M+F) – "The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006".

	Code does not aim to replicate those regulations or guidance and it is the responsibility of the employer to ensure that they are in compliance with them		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	
25.4.6	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.	25.4.6	deleted	
25.4.7	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 in accordance with LOLER[147]. 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 visual inspection of the crane or lifting device should be carried out annually	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 on ships / vessels) in accordance with LOLER[147]. 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 ~~visual inspection~~ thorough examination of the crane or lifting device, including functional test, should be carried out annually	Technical
25.4.8	Typically, the *crane or other lifting device should be subjected to a 25% overload test*. (In special circumstances a reduced overload	25.4.2.4	~~Typically, the~~.The crane or other lifting device should be subjected to a 25% overload test. (In special circumstances a reduced overload may have to be	Technical

[147] MGN 332 (M+F) – "The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006.

	may have to be accepted but in no case should this be less than 10 %.) During the overload test, the hoist, slew and luff performance should be tested at low speed, as appropriate. Tests for a variable load-radius type of crane or other lifting device should correspond to its rated performance (e.g. load radius chart).		accepted but in no case should[148] at maximum load moment. Following this ~~be less than 10 %.) During the~~ 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 7121-2-4[149].	

[148] 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.

[149] BS 7121-2-4:2013 Code of Practice for the Safe Use of Cranes. Inspections, Maintenance and Thorough Examination – Loader Cranes

25.4.9	Attention is drawn to the requirements of BS 7121-2:2013 - Code of Practice for Safe Use of Cranes. Inspection, Testing and Examination, parts of which have particular relevance to vessels certificated in accordance with this Code. See Annex 13.	25.4.2.5	Attention is drawn to the requirements of BS 7121 2:2013 - Code of Practice for Safe Use of Cranes. Inspection, ~~Testing~~ Maintenance and Thorough Examination, parts of which have particular relevance to vessels certificated in accordance with this Code. ~~See Annex 13~~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.	Technical
	No previous text	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 marinised[150]. If the crane has been marinised and the requirements of BS EN 13852[151,152] and EN 12999[153] 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.*	Technical
	No previous text	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	Technical

[150] Refer to BS 7121-2-4:2013 Part 2-4, 9.1 for testing regime of loader cranes.

[151] BS EN 13852-1 Cranes – Offshore Cranes – General Purpose Offshore Cranes

[152] BS EN 13852-2 Cranes – Offshore Cranes – Loader Cranes

[153] EN 12999 Cranes - Loader cranes

			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	
	No previous text	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.	Operational
	No previous text	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. MGN332[154] refers*	Operational
25.4.12	A lifting system which incorporates counterbalance weight(s) should be specially considered through the Certifying Authority by the MCA.		deleted	
25.4.13	The Certifying Authority should be satisfied that the safety of the vessel is not endangered by lifting operations		deleted	
	No previous text	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.	Technical
25.4.3.4	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 skipper should be provided to the satisfaction of the Certifying Authority	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 weight due to the item being saturated. Where a load is being lifted from the seabed consideration should be given to suction and snagging. ~~Means should be provided for the efficient securing of cargo and loose equipment on board during lifting operations. Instructions on safety procedures to be~~	Technical

[154] MGN **332 -** The Merchant Shipping And Fishing Vessels (Lifting Operations And Lifting Equipment) Regulations 2006

			~~followed by the skipper should be provided to the satisfaction of the Certifying Authority~~	
25.4.14	Where mobile cranes are operated on board a workboat (eg on the deck of a barge), special consideration should be given to worst case scenarios with regard to stability, structural strength of deck & safe limits of the deck operating area		deleted	
	No previous text	25.6.3 *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	Operational
	No previous text	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.	Operational
	No previous text	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.	Technical
25.8.1	Where a vessel is to be operated at speed it must be suitably constructed for that purpose, noting the requirements of Section 4.	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~~ section 4.	Technical
25.8.2	Vessels should have suitable inboard seating for all persons on board that allow them to effectively brace themselves and provide lateral support. Seating should be located so that personnel avoid the greatest shock loads. These loads will normally be greatest at the front on the boat.	25.8.2	~~Vessels~~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 . ~~Seating~~, which should be located so that ~~personnel~~ persons avoid the greatest shock loads. These loads will normally be greatest at the ~~front on~~ forward part of the vessel. Owner/managing agents should remind persons to remain seated	Technical

			(**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.	
25.9.8.2	3rd *party carriage of Dangerous Goods (e.g. by* technicians *carrying equipment*). *At the point of embarkation the* technicians *should declare the contents of their baggage to the* master*/crew of the vessel and the crew should take the appropriate action for safe stowage.* Relevant *signage* should be *posted at the point of embarkation*	25.9.8.2	~~3rd~~*Third party carriage of Dangerous Goods (e.g. by* ~~technicians~~*industrial personnel carrying equipment*~~).~~ *in personal hand baggage). At the point of embarkation the* ~~technicians~~ *industrial personnel and passengers (note restriction in 29.1.6) should declare the contents of their baggage to the* ~~master~~ *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.* ~~Relevant~~ *Operators should bring this requirement to the attention of industrial personnel and passengers i.e. by providing relevant signage* ~~should be~~ *posted at the point of embarkation*	Operational
25.10.1	Vessels that are certified under the Small Commercial Vessel Codes of Practice can be issued with a Restricted Service Workboat Certificate .	25.10.1	Vessels ~~that are~~ certified under ~~the~~ another Small Commercial Vessel ~~Codes of Practice can~~ Code may be issued with a ~~Restricted Service~~ 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.	Operational
25.10.2	The intention of this section is to accommodate those vessels that are issued with dual certification under the Small Commercial Vessel Codes	25.10.2	The intention of ~~this~~ section ~~is~~ 25.10 is principally to accommodate those vessels that are necessarily issued with ~~dual~~ other certification under the Small Commercial Vessel Codes of	Operational

	of Practice whilst applying appropriate technical standards to address the full range of operations undertaken by Workboats		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 ~~Workboats~~ small workboats	
25.10.4	• Carry more than 1 tonne of cargo. • Tow vessels greater than twice their own displacement; • Be fitted with a crane or other lifting device • Carry out frequent towing duties • Carry out duties that impose severe local structural loadings e.g. static pushing operations	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; ~~• Be fitted with a crane or other lifting device~~ • Carry out frequent towing duties; • Carry out duties that impose severe local structural loadings e.g. static pushing operations; or • Carry dangerous goods.	Operational
	No previous text	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	Operational
	No previous text	25.10.6	Refer to section 27.7.3 for examination requirements	Operational
	No previous text	25.10.7	Where a vessel falls outside of the limitations in 25.10.4 a Workboat Code Certificate will be required.	Operational
	No previous text	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.	Operational

	No previous text	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.	Operational
	No previous text	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.	Operational
	No previous text	26.8.3	**Function-specific training:** Each person shall be trained in specific dangerous goods transport	Operational

			provisions which are applicable to the function that person performs	
	No previous text	26.8.3	**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	Operational
26.9.5.8	On all open sports boats, inflatable craft and RIBs, inflatable boats, boats fitted with a buoyant collar and open boats that achieve planning speed including tenders, when fitted with remote throttle controls, engine kill cords should be fitted and used at all times during navigation. A spare kill cord is to be carried on board .	26.9.5.8	On all open ~~sports boats, inflatable craft and RIBs,~~ inflatable boats, boats fitted with a buoyant collar and open boats that achieve ~~planning~~ planing speed including tenders, ~~when fitted with remote throttle controls,~~ 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.	Technical
	No previous text	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	Operational

			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.	
26.12.1	*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*.	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~~ *Master, over 16 years of age, who can assist the* ~~master~~ *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.	Operational
	No previous text	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 Master of the vessel and made available during Certifying Authorities annual examination.*	Operational
29.3.2	***Materials intended for use in commercial operations* by a ship** *For the purpose of this Code, when a total quantity of* 25kg/25litres *of the*	29.3.2	***Materials intended for use in commercial operations*~~by a ship~~** *For the purpose of this Code, when a net total quantity of* ~~25kg/25litres~~ *not more than 30 kg/litres*	Technical

	following dangerous goods are carried and used on board a workboat, *of Classes 2.1, 2.2, 3, 6.1, 8 and 9, such materials can be considered as ships' stores and the vessel does not require a* dangerous goods document of compliance. *These materials can be 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.* *Further detailed guidance on the storage and use of such dangerous goods on board workboats is given in MGN 497*.		*of the following dangerous goods are carried* ~~and~~ *or used on board*~~a workboat~~*, 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* dangerous goods document of compliance. *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 497*[195]*.*	
29.4.3.2	No previous text	29.4.3.2	*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*	Technical

[195] MGN 497 Dangerous Goods – including Chemicals and other Materials – Storage and Use on Board Ship.

			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.	
29.6.2.1	*There should be an immediate availability of water from the fire main provided by an engine driven fire pump or a separate powered pump* and, in addition, from a manual fire pump. *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.*	29.6.2.1	*There should be an immediate availability of water from the fire main provided by an engine driven fire pump or a separate powered pump* and, in addition, from a manual fire 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.*	Technical
29.7.1.1	No previous change	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)[200] as amended by Resolution MEPC.86(44) may be used in developing the plan;*	Operational
29.7.1.2	*The vessel should carry suitable clean up equipment should a spill take place;*	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;*	Technical
29.7.1.4	*The fuel hose should have a dry break coupling so that NO spillage occurs*	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*	Technical

[200] MEPC.54(32) Guidelines For the Development of Shipboard Oil Pollution Emergency Plans

			regularly in accordance with the manufacturer's instructions, or at least annually. Worn or damaged hoses should be replaced	
29.7.1.9	*The installation should be* surveyed *by the Certifying Authority and the vessel's Workboat Certificate should be endorsed to permit this operation*; *and*	29.7.1.9	*The installation should be* ~~surveyed~~ *examined 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*	Operational
	No previous text	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*	Operational

Appendix 3 2.7.1	Masters of vessels to which the Code applies should hold an approved Survival Course Certificate.	Appendix 3 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	Operational
Appendix 3 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 or the equivalent Royal Navy course will be deemed acceptable.	Appendix 3 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.	Operational
Appendix 3 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 5 years after the publication of this course.	Appendix 3 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 ~~5~~ 3 years after the publication of this ~~course~~ Code.	Operational
Appendix 3 2.13.1	It is strongly recommended that training appropriate to the type of equipment on the vessel must be	Appendix 3 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	Operational

	undertaken by the Master and any other crew member responsible for navigation. This strong recommendation becomes a requirement 5 years after publication of this code.		crew member responsible for navigation. This strong recommendation becomes a requirement ~~5~~ 3 years after publication of this code.	
Appendix 3 2.14.1	Where a Stability Information Book (SIB) is required to be carried on board, it is required that as a minimum , the Master should complete the 1 day MCA approved stability course.	Appendix 3 2.14.1	Where a Stability Information Book (SIB) navigation equipment is ~~required to be~~ carried ~~on board, it is required that as a minimum~~ excess of the code requirements, the Master and any member of the crew likely to use the equipment should ~~complete the 1 day MCA approved stability course.~~ undertake appropriate training in the use of that equipment. e.g. ECDIS[207] see MIN 503(M)[208], as amended.	Operational
	No previous text	Appendix 3 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 524[211]. 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.	Operational
Appendix 5.A 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.	Appendix 5.A 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 10239[216] Should be posted	Technical

[207] ECDIS Electronic Chart Display and Information Systems

[208] MIN 503(M) Training for ECDIS as Primary Means of Navigation

[211] MIN 524(M+F) Engineer Officer Small Vessel Certificate of Competency

[216] Small craft – Liquefied petroleum gas (LPG) systems

	No previous text	Appendix 5B	**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.	Technical

Appendix 8 heading	ALTERNATIVE COMPLIANCE STANDARDS FOR RIGID INFLATABLE BOATS WISHING TO OPERATE OUTSIDE THE HOURS OF DAYLIGHT WITHIN AREA CATEGORY 3	Appendix 8 heading	ALTERNATIVE COMPLIANCE STANDARDS FOR RIGID INFLATABLE BOATS AND OPEN BOATS WISHING TO OPERATE OUTSIDE THE HOURS OF DAYLIGHT WITHIN AREA CATEGORY 3 OR 5	
Appendix 13	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. Equivalent standards may be considered subject to the acceptance of the Certifying Authority	Appendix 13	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	Operational
Appendix 13 2	BS 5306: Part 3: 2009 Code of practice for selection, installation and maintenance of portable fire extinguishers	Appendix 13 2	BS 5306: Part 3~~: 2009~~ Code of practice for selection, installation and maintenance of portable fire extinguishers	Operational
Appendix 13 4.2.2.5.2 & 4.5.2	ISO 12215 Small Craft – Hull Construction/Scantlings, as published. Seafish construction standards for 15-24m vessels Seafish construction standards for <15m vessels Seafish construction standards for multi-hull vessels	Appendix 13 4.2.2.5.2 & 4.5.2	ISO 12215-5[219] Small Craft – Hull Construction/ and Scantlings~~, as published~~Part 5: Design pressures for monohulls, design stresses, scantlings determination. ISO 12215-4 Small Craft -Hull Construction and Scantlings - Workshop and Manufacturing Seafish construction standards for 15-24m vessels Seafish construction standards for <15m vessels Seafish construction standards for multi-hull vessels	Operational

[219] 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.

Appendix 13 4.5.1.2	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	Appendix 13 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 ISO 6185-4 Inflatable Boats. Boats with a hull length of between 8m and 24m with a motor power rating of 15kW and greater	
Appendix 13 7.3.1.2.1	ISO 10088	Appendix 13 5.9	BS MA 18 Specification for salt water piping systems in ships. Section 9 Pipework flexibility, support and installation ISO ~~10088~~10497 Testing of Valves - Fire Type Testing Requirements ISO 15540 Fire Resistant Hose Assemblies – Test Methods 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	Operational
Appendix 13 7.1.7.1.& 2	Small Craft. Permanently installed fuel systems and fixed fuel tanks	Appendix 13 7.1.7.1.& 2	BS EN ISO 21487 Small ~~Craft.~~craft -- Permanently installed ~~fuel systems~~petrol and fixeddiesel fuel tanks BS EN ISO 10088 Small craft -- Permanently installed fuel systems	Operational
Appendix 13 7.1.7.3	No previous text	Appendix 13 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	Operational
Appendix 13 7.3.1.2.2	ISO 13591 Small craft. Portable fuel systems for outboard motors ISO 13591 Small craft. Portable fuel systems for outboard motors	Appendix 13 7.1, 7.3.1.2~~.2~~7. 3.1.3 & 7.4.1	ISO ~~13591~~10088 Small ~~craft.~~ ~~Portable~~ Craft. Permanently installed fuel systems~~for outboard motors~~ ISO 13591 Small craft. Portable fuel systems for outboard motors	Operational

			ISO 21487 Small craft. Permanently installed petrol and diesel fuel tanks	
Appendix 13 7.4.7	No previous text	Appendix 13 7.4.7	ISO 15540 Fire Resistant Hose Assemblies – Test Methods	Operational
Appendix 13 8.1.3	The Institution of Electrical Engineers Regulations for the Electrical and Electronic Equipment of Ships with Recommended Practice for their Implementation, 6th Edition 1990 and subsequent supplements. British Marine Federation Code of Practicefor Electrical and Electronic Installations in Boats, 4th Edition. BS 6883 Specification for elastomer insulated cables for fixed wiring in ships. (Suitable for lighting, power, control, instrumentation and propulsion circuits.) IEC 60092 – 350, Electrical Installations in Ships – part 350:Shipboard Power Cables General Construction and Test Requirements. 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	Appendix 13 8.1.4	The Institution of Electrical Engineers Regulations for the Electrical and Electronic Equipment of Ships with Recommended Practice for their Implementation, 6th Edition 1990 and subsequent supplements. British Marine ~~Federation~~ Electrical and Electronics Association Code of Practice~~ for Electrical and Electronic Installations in Boats, 4th Edition.~~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.) ~~IEC~~ BS EN 60092 – 350-507, Electrical Installations in Ships – ~~part 350:Shipboard Power Cables – General Construction and Test Requirements~~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.	Operational

	22: Test for vertical flame spread of vertically mounted bunched wires or cable – Category A ISO 10133 Small Craft. Electrical systems. Extra-low voltage d.c. installations ISO 13297 Small Craft. Electrical systems. Alternating current installations BS EN 28846:1993 Small craft. Electrical devices. Protection against ignition of surrounding flammable gases BS EN 61779-4:2000 Electrical apparatus for the detection and measurement of flammable gases		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~~:1993~~ Small craft. Electrical devices. Protection against ignition of surrounding flammable gases BS EN ~~61779-4:2000 Electrical apparatus~~ 60079 Explosive atmospheres. Gas detectors. Performance requirements of detectors for ~~the detection and measurement of~~ flammable gases	
Appendix 13 14.2.1, 14.6.2	International Code for Application of Fire Test Procedures (FTP Code) – International Maritime Organisation Document	Appendix 13 14.21, 14.3.2, 14.5.3, 14.7.2	International Code for Application of Fire Test Procedures (FTP Code) – International Maritime Organization	Operational
	No previous text	Appendix 13 13.6 to 13.9	See Table below against section 16 of Appendix 13 for portable VHF, EPIRB and locator beacon standards.	Operational
	No previous text	Appendix 13 14.6	ISO 14895 Small Craft – Liquid Fuelled Galley Stoves	Operational

	No previous text	Appendix 13 14.7	See above on FTP Code, Part 8	Operational
	No previous text	Appendix 13 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	Operational
Appendix 13 15.4.2	BS EN 3 Portable Fire Extinguishers	Appendix 13 15.4.~~2~~.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	Operational
Appendix 13 15.5.2	BS EN 3 Portable Fire Extinguishers		deleted	
Appendix 13 15.5.4	BS EN 1869 Fire blankets		deleted	
	No previous text	Appendix 13 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.	Operational

			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			
	No previous text	Appendix 13 20.3	EN 24565 Small craft; Anchor chains covered by BS 7160 (BS 7160:1990, EN 24565:1989,ISO 4565[220]:1986) – Specification for Anchor chains for small craft			Operational		
Appendix 13 25.4.7	BS7121: Part 2:2003 – Code of Practice for Safe Use of Cranes	Appendix 13 25.4~~.7~~	~~BS7121: Part 2:2003 –~~ 9, 25.4.10 & 25.4.20 BS7121:– 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			Operational		

[220] Note that ISO 4564 has been withdrawn but still forms part of the BS

			ISO 19354 Ships and marine technology — Marine cranes — General requirements Code for Lifting Appliances in the Marine Environment, Lloyd's Register	
	No previous text	Appendix 13 26.9.5.9	See Section 16 of Appendix 13	Operational
	No previous text	Appendix 13 29.4.3.2 &.3	International Code for Application of Fire Test Procedures (FTP Code) – International Maritime Organization	Operational
	No previous text	Appendix 13 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.	Operational

Annex 2

APPENDIX 11 was deleted and replaced with the following text

STABILTIY 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
		Official number	

		Port of registry	book to the vessel, assess the operational envelope and identify responsible persons in the build and operation
		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	
		Nomenclature/Abbreviations/ Glossary	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 Boats – a Code of Practice))
		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.	
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	
		Pass or fail status of the vessel and where 11.3.9 is used as alternative criteria	
	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, *Draft FP, Draft AP*	GZ curve may be omitted from load the condition where KG curves / data and instructions for their use is included. *It is desirable but not essential to include WSA, WPA, LCB, VCB, GZ, LCF, TCF, TCF against heel angle 0 to 90 degrees*
		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. *It is desirable but not essential to include WSA, WPA, LCB, VCB, GZ, LCF, TCF, TCF against heel angle 0 to 90 degrees*
		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	*Intermediate trims should be included where maximum trim is over 0.3m, to enable reasonably accurate interpolations*	
	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	
		Intermediate KN data should be included where maximum trim is over 0.3m, to enable reasonably accurate interpolations	
	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	