The Code of Practice for Open Rescue Boats of Less than 15 Metres in Length

(The Rescue Boat Code)

THE CODE OF PRACTICE FOR OPEN RESCUE BOATS OF LESS THAN 15 METRES IN LENGTH

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1 FOREWORD

1.1 The Maritime & Coastguard Agency (MCA) and a number of Rescue Boat operators providing rescue facilities around the United Kingdom recognised that the role of the Rescue Boat operator was not specifically covered by any formally recognised national standard, given that the MCA's existing Codes for safety of small vessels were not applicable as these rescue boats did not operate on a commercial basis, and their exposure to risk was limited by both the short distances over which they operated, and the limited time over which they were in operation.

1.2 The original draft of this Code was completed in 2005 under the lead of the RNLI and a working group comprising representatives of:

- British Marine Federation (BMF)
- Maritime and Coastguard Agency (MCA)
- Royal Lifesaving Society UK (RLSS UK)
- Royal National Lifeboat Institution (RNLI)
- Royal Yachting Association (RYA)
- Surf Life Saving Great Britain (SLSGB)
- The boat manufacturing industry
- Independent Rescue Boat operators.

1.3 The working group identified the benefits in developing the Code as:

- Improved Rescue Boat safety;
- Harmonisation of operations and standards across the Rescue Boat field;
- MCA validation of Rescue Boat operations; and
- Clarification of legal standing of Rescue Boat operations.

1.4 In 2011 the MCA re-drafted the Code, taking into account updates to technical standards, and clarifying the requirements and responsibilities for initial and renewal surveys and MCA audits. There has been no change to the technical requirements for rescue boats other than those that are consequential to other regulatory changes. The opportunity has been taken to remove operational guidance which does not relate to the rescue boat itself, as well as restructure the Code so that it follows the chapter headings of other MCA small vessel codes. The principal change has been to implement the government commitment to reduce costs for the voluntary sector; reflecting the philosophy that the "Big Society" should take a more proactive role in managing provision of services to the public; and recognizing that those best able to manage the safety of a boat are those who run it on a regular basis. As a result, the requirement for independent surveys of the rescue boat has been removed, and replaced by self

certification by a Responsible Person of the Rescue Boat Organisation, on the advice of a Competent Person.

1.5 The safety of Rescue Boat Organisations and those they assist is dependent upon the successful integration of many factors, not simply the design of the equipment. Therefore this Code also includes sections on Equipment, Safety Procedures, Training and Maintenance.

1.6 The level of safety that this Code sets out to achieve is considered to be commensurate with the current expectations of Rescue Boat Organisations, those to whom they give assistance, and of the MCA that tasks those operators that are Declared Facilities for UK SAR. It is recognised that a Rescue Boat is intended to provide a rapid response platform for persons in distress and to render assistance in the most practical and appropriate fashion. It is also recognised that this may compromise survivor comfort in the need for expeditious action, however the safety and welfare of survivors is to be considered at all times.

1.7 The safety assessment employed throughout the development of the Code relates only to the rescue boat and those on board the rescue boat at any time.

1.8 The International Maritime Rescue Federation (IMRF) unites the world's maritime search and rescue organisations in one body, accredited at the International Maritime Organization (IMO). It is developing Guidelines for maritime SAR units under 24m in length. These Guidelines are not a technical standard for rescue boats, but rather a risk management tool to enable SAR organisations to develop technical standards for their operations, taking into account local risks and requirements. This Rescue Boat Code is intended to be the MCA response to these Guidelines for open vessels up to 15 m in length.

1.9 **The development of the Rescue Boat Code** was based on:

- Risk assessment and identification of mitigating actions covering the generic design, construction and operation of Rescue Boats;
- Identification of relevant and related existing codes and standards;
- Standards specific to Rescue Boats.

1.10 The Risk Assessment Guidelines used in the development of this Code are explained in Appendix 3.

1.11 Although the scope of the safety assessment is extensive it should not be assumed that the assessments are exhaustive. Therefore, the Code requires that each Rescue Boat Organisation undertake its own specific risk assessments.

1.12 Every Rescue Boat Organisation is to demonstrate compliance with each section of the Code, either by following the requirements indicated or by offering measures that provide an equivalent level of safety. The compliance checklist given in Appendix 5 should be completed by the Rescue Boat Organisation.

1.13 Requirements in the Code reflect the collective decisions of the working group. These requirements are clearly stated. “Should” is used more generally to reflect a considered best course of action, but it is recognised that an equivalent alternative may be acceptable. The Code permits operators to develop and operate procedures appropriate to their functions, however, the onus is on the operator to ensure that they identify and manage any risks inherent in these procedures.

1.14 It is to be noted that to avoid repetition (where requirements affect a number of areas) each requirement is generally only detailed in one place.

1.15 The Code is to be read in its entirety: in some cases a part of the Code which does not appear relevant to a particular Organisation may contain certain relevant requirements or advice.

1.16 Whilst the Code provides an indication of current perceived best practice, total safety at sea cannot be guaranteed. Therefore, it is most strongly recommended that the Rescue Boat operator/owner should take out appropriate insurance.

1.17 Interpretation

1.17.1 Where there is a question of application of the Code, or of interpretation of a part of the Code, the Organisation concerned should in the first instance seek clarification from the local HMCG Liaison Manager, if appropriate, or the Code Boat Surveyors in the local MCA Marine Office. In situations where it is not possible to resolve an issue of interpretation, a decision may be obtained on written application to the Head of Vessel Standards Branch, MCA, who may consult with others as deemed appropriate.

1.17.2 Compliance with the Code in no way obviates the need for vessels to comply with the relevant Bye Laws of either the Local Authority, or the port / harbour authority in which the vessel is certificated to operate. In particular Local Authorities have powers to require vessels to have Passenger Liability and Third Party insurance cover, and to set the level of cover. Also, Local Authorities may have power over the use of the foreshore and landing places, and to issue licences for their use. A Police check may also be required of the crew.

1.18 Updating the Code

1.18.1 The MCA will be responsible for maintaining, updating and issuing amendments to the Code. Amendments will take into account changes in legislation, reference Codes of Practice and feedback from Code users and the working group. The Code will be reviewed at suitable intervals, dependant on necessity.

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

2. DEFINITIONS

In the Code:

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

"Annual examination" means a general or partial examination of the vessel, its machinery, fittings and equipment, as far as can readily be seen, to ascertain that it had been satisfactorily maintained as required by the Code and that the arrangements, fittings and equipment provided are as documented in the Compliance Matrix (Appendix 5) and RB2 endorsement (Appendix 8). The hull, shell fittings, external steering and propulsion components of the vessel should be examined out of the water at intervals not exceeding 5 years. The Rescue Boat Organisation should examine the boat out of the water on a lesser interval in consideration of hull construction material or the age or the type and service of the vessel;

"Boats fitted with a buoyant collar" means a rigid inflatable vessel, or a vessel of similar hull form, where, in place of inflatable tubes, solid, or hollow buoyant sections or tubes are fitted;

"Boat documentation" means training documentation and boat operating manual;

"Carriage of additional personnel to facilitate rescue services/training" means a person taken aboard a Rescue Boat in addition to the usual crew, to provide additional services in a rescue scenario or for training purposes;

"Casualty" means person or vessel requiring the services of a rescue boat;

"Code" means this Code unless another Code is specified;

"Commercial", for the purposes of this Code only, describes the use of a vessel on a voyage or excursion which is one for which the owner / organisation receives money for or in connection with operating the vessel or carrying any person, other than as a contribution to the direct expenses of the operation of the vessel incurred during the voyage or excursion;

"Competent Person" means a person who by reason of relevant professional qualifications, practical experience and expertise is recognised by the Responsible Person as competent to carry out any examinations required under the Code. Competent Person also includes a consultancy or survey organization experienced in the survey of small vessels in commercial use;

"Compliance Examination" means an examination of the vessel, its machinery, fittings and equipment, and the operational effectiveness of the vessel and crew, by a Competent Person, or persons, to ascertain that the vessel's structure, machinery, equipment and fittings comply with the requirements of the Code and that the vessel, its crew and shore support arrangements meet the required operational standard. Part of the examination should be conducted when the vessel is out of the water;

"Co-ordinating Authority" means the Organisation or Body responsible for co-ordinating search and rescue facilities in a specific area: e.g. HM Coastguard, or the Beach Manager or Head Lifeguard for a beach rescue facility;

"Crew (Rescue Boat)" means personnel nominated by the Rescue Boat Organisation to operate in a Rescue Boat;

"Corrective maintenance" means activity to correct a defect, problem or damage, rather than a planned activity;

"Daylight" means from one hour before sunrise until one hour after sunset;

"Declared Facility" means a facility that has been designated as being available for civilian maritime search and rescue (SAR) under the direction of HM Coastguard according to a specific standard or set criteria. Each Rescue Boat Organisation declaring a facility is responsible for:

- Declaring the standard of capability and availability for that facility;
- Maintaining the facility to the declared standard;
- Informing HM Coastguard when there is any change in the declared standard of availability of each facility;

- Informing HM Coastguard of any reason for not making available the facility which has been requested by HM Coastguard;

"Efficient", in relation to a fitting, piece of equipment or material, means that all reasonable and practicable measures have been taken to ensure that it is suitable for the purpose for which it is intended. The builder, repairer or owner of a vessel, as appropriate, should take all reasonable measures to ensure that a material or appliance fitted in accordance with the requirements of this Code is suitable for the purpose intended, having regard to its location in the vessel, the area of operation and the weather conditions which may be encountered;

"Existing vessel" means a vessel already operating as a Rescue Boat prior to the date of publication of the Code;

"External/Outside bodies" means any Organisation with which the Rescue Boat Organisation will interface;

"Favourable weather", for the purposes of this Code, means wind, sea, and visibility conditions which are deemed by the helmsman to be safe for the rescue boat to operate within the limits applied to it. In any other case means conditions existing throughout a voyage, or excursion, in which the effects either individually or in combination of swell height of waves, strength of wind and visibility are assessed not to cause any unacceptable risks.

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

"Flank stations/assets" means other Declared and available Rescue Boats/Facilities in the same area which may be able to support the Rescue Boat taking into consideration the prevailing conditions;

"Flood Relief Vessel" is a rescue craft used in flooding situations on inland rivers and lakes;

"Freeboard" means for an open vessel, the distance measured vertically downwards from the lowest point of the gunwale to the waterline;

"Helmsman" means the crew member in charge of the Rescue Boat, and for the avoidance of doubt carries the same meaning and responsibility as the "Master" in Merchant Shipping Legislation;

"HM Coastguard" means Her Majesty's Coastguard, the organisation within the MCA that has responsibility for United Kingdom civilian maritime search and rescue (SAR);

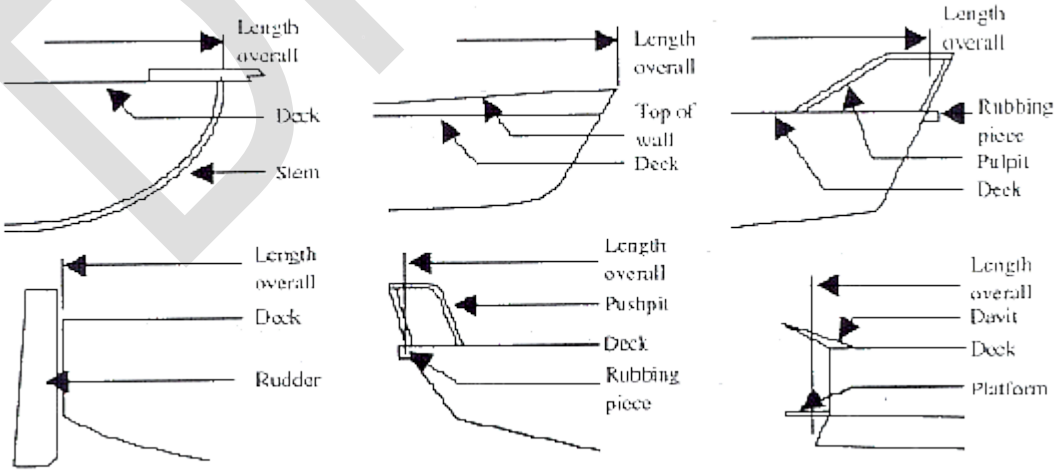
"Immersion suit" means a protective suit which reduces the body heat loss of a person wearing it in cold water and complies with the requirements of Schedule 10, Part 1 of MSN 1676 (M) as amended by MSN 1757 (M);

"IP–Ingress Protection (watertight rating)" means watertight rating of electrical equipment, including electrical cable;

"IP"XY" – The degree of protection provided by an enclosure to electrical equipment, as indicated in the International Protection (IP) Code, where "X" and "Y" are characteristic numerals. See the latest version of IEC 60529 – "Degree of Protection provided by enclosure (IP Code);

"Launching/Deployment Authority" means the person nominated as the Launching Authority responsible for authorising the operation of the Rescue Boat. It is the responsibility of this person to ensure that the Rescue Boat is not tasked for services beyond pre-defined limits unless all reasonable measures are taken to minimise the potential risks. Further details are given in the safety procedures section;

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



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

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

"Maritime and Coastguard Agency" means the Maritime and Coastguard Agency (MCA), an executive agency of the Department for Transport;

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

"MED" means the Council Directive 96/98/EC of 20 December 1996 on Marine Equipment, amended by 98/85EC of 11 November 1998, 2001/53/EC of 10 July 2001, 2002/75/EC of 2 September 2002, 2002/84/EC of 5 November 2002, 2008/67/EC of 30 June 2008, EC Regulation 596/2009 of 18 June 2009, 2010/68/EU of 22 October 2010 and 2011/75/EU of 2 September 2011, as amended;

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

"Merchant Shipping Notice" (MSN) means a Notice described as such and issued by the MCA, and reference to a specific Merchant Shipping Notice includes reference to any Merchant Shipping Notice amending or replacing that Notice which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice;

"MoB" means Man Overboard;

"Open Rescue Boat" means a rescue boat without an enclosed cabin;

"Operation Limit Categories" are as defined in 4.2.1;

"Out of the water" in the context of this Code, means, in or on the boat in the damaged condition, including being able to sit on the deck edge or tube, with the

torso out of the water. It is accepted that with the boat in a damaged or swamped condition personnel may get wet;

"Passenger" means any person carried on a Rescue Boat except:

(a) a person employed or engaged in any capacity on the business of the vessel,

(b) a person on board the vessel either in pursuance of the obligation laid upon the Helmsmen to carry shipwrecked, distressed or other persons, or by reason of any circumstance that neither the master nor the owner nor the charterer (if any) could have prevented or forestalled,

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

Persons carried to assist in the response of an incident (for example firemen) are considered to fit into paragraph (a) above; Persons on board the vessel due to the response of the crew and business of the vessel who can be considered as survivors are deemed to fit under paragraph (b) above; Volunteer crew are considered to be engaged;

"Positive Stability" means having a righting moment tending to turn the vessel to the upright position;

"PPE" means Personal Protective Equipment;

"Protected Waters" means waters not categorised in Merchant Shipping (Categorisation of Waters) Regulations 1992, SI 1992 No. 2356 and Merchant shipping Notice MSN 1827 (M), but the location of which are explicitly defined and accepted as protected by the Area Operations Manager of the MCA responsible for the specified UK coastal area, having regard for the safety of the small vessels which operated in those waters;

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

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

"Rescue Boat Certificate" means the certificate appropriate to a vessel to which the Code is applied (see Appendix 10);

"Rescue Boat Organisation" (RBO) means the whole Organisation involved in operating and supporting the Rescue Boat. The term applies to all Rescue Boats, including those that operate as a Declared Facility to HM Coastguard;

"Rescue Boat/Rescue vessel" means a boat designed, constructed, maintained and operated to the Rescue Boat Code and includes rescue boats operated by life-saving/ life guarding clubs. A Rescue Boat can be defined as operating for the 'public good', either on a voluntary or professional basis, but not on a commercial basis. It may be appropriate for some other organisations that operate dedicated Rescue Boats, such as the Fire Brigade, Airport Authorities, Police etc. to come under the terms of this Code;

"Rescue Water Craft" are personal water craft typically used in surf lifesaving operations;

"Responsible Person" is the person appointed by the Rescue Boat Organisation, and a member of its management board, who is responsible for the technical management of the vessel(s), for completing audits, the validity and content of certificates, checklists and risk assessments, for assigning a suitably experienced person to undertake the annual examinations and for appointing the Competent Person. The Responsible Person is also to ensure that at all times a vessel is maintained, manned and operated in accordance with the requirements of the Code, the arrangements as documented in the Compliance Examination and Declaration report form RB2 and any conditions stated on the vessel's certificate. Additionally, it is the responsibility of the Responsible Person to ensure that the vessel is maintained in accordance with manufacturer's recommendations or best engineering practice; The Responsible Person is also responsible for ensuring the Rescue Boat Organisation and Rescue Boat's comply with national and local anti pollution requirements;

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

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

"Service" means an operation to effect rescue or render assistance;

"Self Certify" is the act of completing the necessary examinations and certification for the rescue boat by the Rescue Boat Organisation;

"Shore crew" mean personnel nominated by the Rescue Boat Organisation to provide assistance in launching, recovering or maintaining the rescue boat;

"Shore interfaces" means a facility, structure or equipment used to support a rescue boat and assist in the launch/recovery of the boat, crew, survivors or shore helpers. It is not necessarily the responsibility of the Rescue Boat Organisation to maintain such interfaces (e.g. pontoons, moorings, slipways, etc). Shore interface equipment is distinct from launch and recovery equipment;

"Single point failure" means the failure of any one item in a system that can cause total failure of the system to carry out its function;

"Standards" means those such as BS (British Standard), EN (European Standard accepted by the European Committee for Standardization, CEN), IEC (International Electrotechnical Commission) and ISO (International Organization for Standardization). Where these are identified in the Code, they should be taken as referring to any standards which amend or replace them;

"Survivor(s)" means ship wrecked, distressed or other person(s) carried by the Rescue Boat in response to an incident; and not considered as passengers;

"Swift water vessels" are vessels used in inland white water rescue situations;

"To Sea" means, for the purposes of this Code, beyond UK Category D waters or Category C waters if there are no Category D waters as defined in Merchant Shipping Notice (M) 1827 (as amended by correction) "Categorisation of Waters";
"Watertight" means capable of preventing the passage of water in either direction;

3 APPLICATION AND INTERPRETATION

3.1 Application

3.1.1 This Code of Practice applies to open Rescue Boats of less than 15 metres in length, which are one of the following:

- Boats fitted with a buoyant collar;
- Inflatable Boats;
- Rigid Hull Boats;
- Rigid Inflatable Boats;

and which are operating for the 'public good', either on a voluntary or professional basis and which are engaged specifically for a rescue activity; and which carry 12 or fewer passengers.

All HMCG Declared Facilities which are less than 15m in length should meet this Code. This includes declared Rescue Water Craft which are expected to meet this Code.

3.1.2 It represents best practice and it is recommended that other organizations operating open rescue boats of less than 15 metres in length on a non commercial basis (for example those operated by lifesaving/life guarding clubs) should follow this Code.

3.1.3 This Code does not apply to safety boats which are used to support water-based activities and which are not for the general 'public good'. Nor does this Code apply to rescue boats which are in commercial use.

3.1.4 The rationale for not including safety boats is that the Code is written using the whole basis of Management Structure, Training, Equipment, Operational Procedures, etc. available to Rescue Boats, some of which may not be available to safety boats. Additionally, safety boats tend to be 'event based' rather than response orientated and as such may not be suitably equipped, or manned by appropriate personnel, to fulfill the range of activities typically undertaken by Rescue Boat facilities.

3.1.5 The following craft are **excluded** from the provisions of the Code:

- Declared all weather life boats
- Flood water rescue and fast water rescue (swift water) vessels and other vessels used on non-navigable waters
- Rescue Boards, canoes or any other non-mechanically powered floating device
- Workboats on a semi permanent patrol deployed in a rescue capacity

It is appreciated that some Rescue Boat Organisations may currently use craft of the above excluded types to facilitate rescues. Organisations are advised to carry out local risk assessments on the use of this equipment. Although this Code is intended for open rescue boats those aspects of the Code not relating to the vessel construction, equipment and layout[, such as training, boat storage, equipment stowage, protection of personnel by design, medical care, owners manual, maintenance, examination regime, safety procedures, clean seas] are equally relevant to any rescue boat and it is recommended that, where appropriate, these aspects are followed by the Rescue Boat Organisation of these types of vessel.

3.1.6 This Code has been developed largely for sea-going Rescue Boats. Alternative provisions may be accepted for Rescue Boats which operate in restricted

environments, where full compliance with the provisions of the Code is unreasonable, based on the local risk assessment.

3.2 Applicability of Other Codes of Practice, Standards and Legislation

3.2.1 Where a Rescue Boat is certificated under another Code of Practice e.g. MCA Small Commercial Vessel and Pilot Boat Code, the requirements of that Code apply when it is used commercially. A Rescue Boat which is operating in a non commercial capacity should be certificated under this Code.

3.2.2 The general mutual recognition clause adopted by the Contracting Parties to the European Economic Area Agreement should be accepted. The clause states: 'Any requirement for goods or materials to comply with a specified standard should be satisfied by compliance with:

- a relevant Standard or Code of Practice of a national standards body or equivalent body of a Member State of the European Economic Area Agreement; or
- any relevant international standard recognised for use in any Member State of the European Economic Area Agreement; or
- a relevant specification acknowledged for use as a standard by a public authority of any Member State of the European Economic Area Agreement; or
- traditional procedures of manufacture of a Member State of the European Economic Area Agreement where these are the subject of a written technical description sufficiently detailed to permit assessment of the goods or materials for the use specified; or
- a specification sufficiently detailed to permit assessment of goods or materials of an innovative nature (subject to innovative processes of manufacture such that they cannot comply with a recognised standard or specification) and which fulfill the purpose provided by the specified standard; provided that the proposed Standard, Code of Practice, specification or technical description provides, in use, equivalent levels of safety, suitability and fitness for purpose.

3.2.3 Compliance with this Code in no way obviates the need for operators to comply with local requirements where these are applied under relevant legal authority.

3.2.4 The Rescue Boat operator is responsible for the health and safety of anyone working on the vessel (this includes volunteers). All relevant Health and Safety legislation applies. See Chapter 22 for further details.

3.2.5 Adherence to the requirements of the Code does not absolve the organisation of any liability that may apply to persons rescued. However, rescued persons are

NOT passengers as defined elsewhere in Merchant Shipping legislation. Rescue boats are operated with the specific purpose of rescuing persons who will be on board the rescue boat for a limited period only. The Rescue Boat Organisation is not bound to look after their comfort, however consideration must be given to risk of increased injury when bringing the rescued to safety.

3.2.6 Recognising that some vessels operate across the margins of the sea into inland waterways, attention is drawn to the common approach to the vessel safety scheme adopted by the major UK inland navigation authorities. The Boat Safety Scheme of the British Waterways Board / Environment Agency (BWB/EA) sets safety standards and certification and inspection requirements. Owners of vessels complying with this Code and requiring them to operate on inland waterways should obtain formal clearance from the appropriate inland navigation authority.

3.2.7 The Rescue Boat Organisation must keep itself informed of and apply relevant standards. When appropriate, MCA will promulgate changes to the Code, in consultation with the Technical Committee, on the MCA website.

3.3 Certification and Audit

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

3.3.2 The certification process, for which the Responsible Person is responsible is based on self-regulation. The Responsible Person should complete the compliance matrix (Appendix 5, see also Appendix 4 Para 5.13) which should be kept under constant review. The Responsible Person should nominate a Competent Person to carry out an initial (compliance) survey of the rescue boat which is informed by the compliance matrix. The Competent Person should then complete the RB2 Form (Appendix 8). The Responsible Person should sign the Declaration informed by the survey (Appendix 9) and issue the certificate for the vessel (Appendix 10). The Responsible Person should annually nominate an officer of the Rescue Boat Organisation to undertake an annual survey (this can be himself) and complete the annual endorsement in Part 6 of the RB2 Form. At the second or third anniversary the Rescue Boat Organisation's Responsible Person should nominate a Competent Person to undertake an intermediate survey who should complete a RB2 Part 5 Declaration and the RB2 Part 6 endorsement. At the fifth anniversary the process starts again with a renewal survey which is the same level of survey as the compliance survey. The Compliance, Intermediate and Renewal Examinations and Declarations (Appendix 8, RB2) should be completed by the Competent Person. A Rescue Boat Certificate (Appendix 10) should be posted on display in a prominent location relevant to the Rescue Boat. A Competent Person can be engaged to provide all Declarations and Rescue Boat

Certificates. Each Matrix, Declaration (RB2) and Certificate for an HM Coastguard declared rescue boat facility must be kept on file by the Rescue Boat Organisation and once in five years these documents shall be audited by HM Coastguard, including at the compliance stage.

3.3.3 The MCA will retain the power to inspect and audit HMCG approved Rescue Boat facilities at short notice to ensure compliance with this Code. This may include a full operational exercise.

3.3.4 The following documentation should be held by a Rescue Boat facility under the terms of this Code and be available for audit if requested by the MCA. (See Appendix 4 for further guidance.) Where some of the listed information is held remotely, on a central data base for example, as may be the case for the larger organisations, the information must be readily accessible at the remote station.

- Training Plan
- Maintenance Plan
- Standard and Emergency Safety Procedures
- Compliance matrix
- Certificate of Compliance (Rescue Boat Certificate)
- Management Structure and plan
- Record of Services
- All associated formal safety assessment documentation including Risk Assessments.
- Operation manuals relevant to the boat's machinery and equipment
- Any other supporting calculations or documentation required by this Code.

3.3.5 The above documents are required under the terms of this Code but are not intended as definitive list; other statutory bodies may require further documentation.

3.3.6 Rescue Boat Organisations should certify their Rescue Boat(s) and its operation as compliant with the Rescue Boat Code on an annual basis in accordance with the schedule of compliance, renewal and annual inspections in Section 27 of this Code. The Responsible Person is responsible for this process.

3.3.7 Where a defect has been identified that affects the safe operation of the rescue boat the Rescue Boat Certificate should be suspended by the Responsible Person, and the boat withdrawn from operation, until such time as the defect is rectified and re-inspected, or the vessels operating limit is restricted.

3.4 Compliance

3.4.1 The design, construction, equipment, operation and maintenance of all open Rescue Boats less than 15 metres that are declared facilities, should meet this Code. Where an existing boat cannot fully comply the Rescue Boat Organisation may accept existing boats on an individual basis if the following can be demonstrated as applicable for the period prior to the publication of the Code:

- The boat has been operating as a Rescue Boat safely and effectively for at least 5 years
- There has been a rolling program for training crew for at least 5 years
- The management structure of the rescue boat has been effective for at least 5 years
- A complete operational, training, maintenance, defect, accident/ incident log for the Rescue Boat can be presented
- The operational requirements for the Rescue Boat remain unchanged
- The operating limits for the Rescue Boat remain unchanged

3.4.2 Where non-compliances (Appendix 5) are identified by a Rescue Boat Organisation, it is to propose a plan to address these. This plan should include a suitable timescale.

3.4.3 Rescue Boat Organisations having had facilities for less than five years before the date of publication of the Code or newly formed after publication should specially consider rescue boats that have been in service previously. Any consideration is also subject to 3.4.2. The Rescue Boat Organisation may wish to employ the services of a Competent Person to assist in assessing compliance. These newly established Rescue Boat Organisations will need to put in place effective procedures, manuals and training regime prior to signing the appropriate declarations for the vessels operated. MCA may apply additional audits to these organizations to ensure that their management processes and controls are sufficient to ensure the effectiveness of their boats and equipment.

3.4.4 All new and pre-owned boats entering service with a Rescue Boat Organisation, or boats undertaking a change in operational role within an organisation after the publication of the Code are to be fully compliant with the Code.

3.5 Areas of Operation

3.5.1 As part of the establishment of the Rescue Boat facility, the organisation will be required to designate a nominal geographic area of operation that under normal circumstances, and within weather limitations, the co-ordinating authority will be able to request deployment of the vessel.

3.5.2 Due consideration is to be given to operating the vessel outside of that area. The operator is therefore to agree a communications protocol with the co-coordinating

authority to facilitate the deployment of the vessel beyond the nominal area of operations, at the discretion of the Helmsman, with due regard to the limitations of the prevailing weather, the vessel, its crew, and the capability of the surrounding backup facilities.

3.5.3 The operational limitations for Rescue Boats, which in this Code are weather defined, are stated in 4.2.1 and 4.2.2.

3.5.4 Rescue Boat Organisations should consider the need to provide mutual support to neighbouring flank station rescue boats.

3.6 Management

3.6.1 A suitable and effective Management structure shall be in place in all Rescue Boat facilities and organisations to ensure that the Rescue Boat is run in an appropriate and safe manner.

3.6.2 The Formal Safety Assessment undertaken in the development of this Code has identified a number of management areas as critical to the safety of Rescue Boat facilities. These are identified in Appendix 4 of the Code.

3.7 Training

3.7.1 Notwithstanding any specific requirements within this Code, the Rescue Boat Organisation is to ensure that every person employed (including volunteers) should be aware of any risks affecting them and ensure that appropriate measures are taken to minimise them, through training and improving procedures or equipment where necessary.

3.7.2 Each Rescue Boat Organisation shall have a nominated Training Manager responsible for ensuring that all relevant personnel undergo appropriate training.

3.7.3 Specific training requirements and considerations are identified in the relevant sections of the Code and minimum requirements are detailed in Appendix 4. Section 26 on Manning contains information on training, Appendix 2 details the training requirements and Appendix 4 gives information on a structured training plan.

3.7.4 The Training Manager is responsible for ensuring that training within the organisation is kept up to date, recorded, and that all certification is valid.

3.8 Standard Operating Procedures and Incident Action Plans

3.8.1 Rescue Boat Organisations are to have a set of Standard Operating Procedures and Emergency Operating Procedures that define the operational tasks and actions required to ensure safe Rescue Boat operations.

3.8.2 The Operating Procedures are to identify and state any operational limits to be imposed taking into account, but not limited to, design of equipment, training of the crew and weather.

3.9 Emergency Procedures

3.9.1 The Rescue Boat Organisation is to undertake a risk assessment of their activities and to identify foreseeable events that may give rise to an emergency onboard the Rescue Boat e.g. capsize, and have a written set of Emergency Procedures.

3.10 Maintenance Requirements

3.10.1 Where essential maintenance tasks have been identified through the Formal Safety Assessment used to develop this Code, they are stated as requirements under the appropriate section.

3.10.2 The organisation is to identify maintenance needs for all relevant equipment, and to ensure that the maintenance is carried out.

3.11 Record of Services

3.11.1 An accurate and detailed record of services is to be kept to assist in developing the risk management strategy, identify training needs and evaluate effectiveness.

4 CONSTRUCTION AND STRUCTURAL STRENGTH

4.1 Introduction

4.1.1 This Code does not aim to be wholly prescriptive about the choice and specification of Rescue Boats and associated equipment.

4.1.2 The philosophy of this Code is to assist the application of good practice to rescue equipment design and selection. Due to the local nature of equipment acceptability, in most cases good practice can be achieved through the use of accepted risk assessment procedures. Where possible this Code offers advice on how to facilitate this process. Advice is rarely exhaustive.

4.1.3 If the Rescue Boat operates in a different capacity at any time, it must be fully compliant with relevant legislation and Codes of Practice for that operation.

4.1.4 Where certain tests required by this Code are identical to those required by another Code with which the boat is already certificated, those tests do not need to be repeated.

4.2 Operational and Design Limits

4.2.1 The following operational limits have been defined in ISO 12217-1.

Operational Limit Category:	**A**	**B**[1]	**C**	**D**
Description[2]	Ocean	Offshore	Inshore	Sheltered Waters
Significant wave height maximum (m), $H_{1/3}$	7	4	2	0.3
Beaufort wind force maximum	10	8	6	4

4.2.2 The Code is only applicable to boats operating within Operational Limit Categories B, C and D. An open Rescue Boat is not expected to operate in conditions that exceed Category B.

4.2.3 Operational limits for a Rescue Boat must be stated in all documentation associated with the boat. It should always be borne in mind that the capability of a rescue boat is a function of both its design and the capability of its crew.

4.2.4 Achieving Rescue Boat Code requirements for a particular operational limit is not interchangeable with certification for those conditions as a recreational craft.

4.2.5 It might be necessary for a Rescue Boat to work beyond its specified operational limit. The following information must be provided to the boat operators:

- Identification of operational limits;
- Possible consequences of operating beyond operational limits; and
- Appropriate action to be taken to reduce the risks to crew and survivors.

4.2.6 Operation in surf may require a Rescue Boat to operate in wave heights beyond its stated operational limits. Boats and equipment may only be considered acceptable for this if a positive local risk assessment has been carried out and implemented.

[1] See 4.6.3 .
[2] For further description see ISO 12217-1, 7.2.

4.2.7 Many surf Rescue Boats operate in surf greater than the notional wave height to which they have been designed, and have been proven to be appropriate for this, subject to certain mitigations which may be of the form:

- Crew capability
- Boat tests in anticipated conditions
- Training
- Operational back up
- Operation in proximity to the beach

4.3 General Requirements

4.3.1 The vessel and all associated equipment must be designed and constructed to allow for its operation as a Rescue Boat up to the specified operational limit.

4.3.2 The design of the Rescue Boat and associated equipment (including launch and recovery equipment and shore interfaces) are to take full account of the operational procedures, and must ensure that the risks posed to crew, shore crew, the general public and survivors are minimised.

4.3.3 Applicable legislation and standards (ISO, BS, EN) referring to equipment design, construction and fitting must be adhered to wherever relevant.

4.3.4 Standards are referenced in the appropriate places throughout the Code, and have been gathered in the bibliography attached as at Appendix 7. Compliance with these standards is usually required as a minimum. It is accepted that some standards only cover boats up to certain lengths; however in the absence of an acceptable alternative, the philosophy of the proposed tests may be appropriate.

4.3.5 Modifications/additions to craft must be carried out in accordance with best practice, taking account of operational, structural and stability requirements.

4.4 Boat Construction and Structural Strength

4.4.1 The Rescue Boat Organisation shall be able to demonstrate that the structural design, scantlings, choice and combination of materials, construction method and production quality of the Rescue Boat is strong enough in all respects to operate as a Rescue Boat in the agreed operating conditions. See paragraphs 4.5 and 4.6.

4.4.1.1 This applies in particular to the following:

- Hull
- Deck

- Buoyancy chambers and partitioning
- Hull subdivision

The structural design of the above shall take account of the following:

- Operational limits for use as a Rescue Boat
- Maximum recommended load
- Engine Power and machinery
- Boat size
- Environmental degradation
- Structural redundancy by design
- Maintenance
- Operational pressure loading, including slamming
- Point loads (such as equipment and people)

4.4.1.2 The following operational and environmental considerations should also be addressed:

All boats:

- Damage and damage survivability
- Impact, collision (other vessels)
- Grounding
- Structural degradation
- Environmental degradation: UV, cold/ heat, age, chemical, pollution etc.
- Vibration, flexing and fatigue
- Construction technique
- Temperature
- Extreme conditions (wind & wave)
- Abrasion
- Fittings
- Materials
- Overloading of the boat
- Flooding
- Maintenance
- Fire and explosion
- Osmosis, where appropriate
- The influence of ancillary equipment
- Supporting structure to fixings
- Location of fixings
- Engine type
- Wear pads/ sacrificial layers to account for storage, launch and recovery

Inflatable/ rigid inflatable boats:

- Puncture
- Incorrect tube pressure
- Temperature affecting pressure in tubes
- Seam failure
- Stretching
- Valve failure
- Propagation of damage
- Detachment of tube from rigid hull
- Tube attachment method and design

4.4.2 Construction Material

4.4.2.1 Appropriate proven or approved marine grade materials should be used throughout. The manufacturer's recommendations in respect of material compatibility, protection from environmental degradation and replacement are to be followed.

4.4.2.2 To reduce the risk of fire the flammability of materials used in the construction of the boats shall be taken into consideration by the Rescue Boat Organisation in its Risk Assessment.

4.4.3 Quality Assurance

4.4.3.1 When boats are built in batches to a standard design, structural and production tests on one boat may be accepted for a boat of the same design submitted for compliance with the Code.

4.4.3.2 Unless the craft is fitted out by the boat manufacturer then the fit out process must be completed to at least the same approved standard.

4.5 Construction and Structural Strength: Rigid Hull Boats and Boats fitted with a Buoyant Collar

4.5.1 The structure of rigid hull boats should comply with a suitable design standard or with the requirements of a UK Load Line Assigning Authority (American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, Germanischer Lloyd, Lloyds Register of Shipping and Registro Italiano Navale).

4.5.2 The structure of a rigid hull boat not in accordance with 4.5.1 may be accepted by the Rescue Boat Organisation on the advice of a Competent Person who has specially considered the full structural information. This must include relevant calculations, drawings, and details of materials and construction.

4.6 Construction and Structural Strength: Inflatable Boats and Rigid Inflatable Boats

4.6.1 The design and construction of inflatable boats and rigid inflatable boats should comply (as a minimum) with parts 1 – 4 of ISO 6185: inflatable boats, or should be of a design and construction which would meet the requirements of Chapter III of the 1974 SOLAS Convention, as amended, and the parts of the Annex to IMO Resolution MSC.81(70) – Testing 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.

4.6.2 The structure of an inflatable or rigid inflatable boat not in accordance with ISO 6185 may be accepted by the Rescue Boat Organisation on the advice of a competent person who has specially considered full structural information. This must include relevant calculations, drawings, and details of materials and construction.

4.6.3 Fully inflatable boats are not appropriate for Operational Limit Category B waters.

4.6.4 Inflatable tubes must be protected wherever possible from on-board equipment, and in areas vulnerable to damage. Consideration should be given to fitting outboard fendering and wear pads.

4.6.5 Valves must be located or protected to avoid damage in all scenarios likely to be encountered by the Rescue Boat.

4.6.6 Rip-stop fabrics, rip-stop strips or reinforcing patches should be used if possible.

4.6.7 In an inflatable boat or RIB the upper surface of the buoyancy tube should be provided with a non-slip finish.

4.7 Recesses

4.7.1 Any recess not provided with a watertight closure should be self-draining.

4.7.2 Any effect of a flooded recess on stability must be addressed.

4.8 Fixings

4.8.1 The positioning, supporting structure and detailed design of all fixings to the main boat structure must be designed to be strong enough in all respects for boat use in the designated operating conditions.

4.8.2 Particular attention should be paid to the following, which is not an exhaustive list:

- Lifting points
- Hatches and openings
- Collar (RIB)
- Console attachment
- Engine securing
- Equipment securing
- Mooring, anchoring and towing strong points
- Seating
- Hand holds
- Roll bar.

5 WEATHERTIGHT INTEGRITY

5.1 Openings

5.1.1 The location, size, number and specification of all closing devices to openings to spaces (and associated structure) that are considered watertight must be designed to be strong enough in all respects for boat use up to the operational limits.

5.1.2 The closing devices and their attachment should be of strength at least equivalent to the surrounding boat structure, and should be provided with sufficient locking devices to enable them to be positively secured in the closed condition.

5.1.3 Deck freeing ports (where applicable) must be of an appropriate size and type, and be considered in association with the freeboard stability sections of the Code.

5.1.4 Any penetrations of watertight structure for pipes, cables etc. must be provided with valves and/ or watertight glands as appropriate.

5.2 Skin Fittings

5.2.1 All openings below the waterline leading to pipes including exhausts must be fitted with a seacock, valve or other efficient means of closure, which is readily accessible in an emergency.

5.2.1.1 Reference can be made to:

- ISO 9093, Small craft – Seacocks and through-hull fittings

5.2.2 All openings below the waterline *not* leading to pipes must be treated as part of the hull envelope, with consistent structural integrity. This applies to logs, transducers etc. and consideration should be given to the use of cofferdams.

5.2.3 Metallic skin fittings must be cathodically protected where appropriate. This requirement is less applicable if the boat is stored out of the water.

5.2.4 All clipped connections leading up to a skin fitting (sea water system, bilge system etc.) should be double clipped.

5.2.5 Every piped overboard discharge should have a non return valve adjacent to the skin fitting.

5.3 Ventilation

5.3.1 Ventilation closures must be designed to withstand capsize. The following should be addressed:

- Structure to withstand flooding of watertight spaces
- Ventilation must not prevent the engine from being re-started following capsize
- Location of ventilation openings
- Roll over envelopes
- Air pipes and ventilators should generally be kept as near the centreline as possible and as high as possible
- Air pipes and ventilators should be fitted with an automatic means of closure when down flooding to the spaces served would endanger the safety of the boat
- Provision of a permanently attached means of weather-tight closure

5.3.2 Any inboard ‘dry’ engine compartment shall be ventilated. The dangerous ingress of water into the engine compartment through all inlets must be prevented.

5.3.3 Inboard engine compartment ventilation systems must reflect its fire suppression system, where appropriate.

6 WATER FREEING ARRANGMENTS

6.1 Structures and spaces not considered as being weather-tight should be provided with efficient means of drainage.

6.2 The effects of trapped water must be minimised wherever possible by design.

7 MACHINERY

7.1 Propulsion: General Requirements

7.1.1 The propulsion system must reflect the specific operation of the boat.

7.1.2 The operational limits of the propulsion system cannot be less than those of the boat.

7.1.3 A Category B boat must have at least 2 wholly independent propulsion systems, including the starting arrangements, fuel supplies and engines. The boat must be able to be safely operated up to the specified limiting conditions on one of its engines.

7.1.4 Single engine boats may be appropriate for use as Rescue Boats operating in Categories C and D.

7.1.5 All propulsion systems must have an emergency stop facility.

7.1.6 All engines and support systems must be capable of being restarted following capsize.

7.1.7 Start up (routine and post-capsize) procedures must be clearly marked.

7.1.8 Any modification to standard propulsion systems must be supported by a local risk assessment.

7.1.9 Boats operating in surf or shallow water have different requirements and may need a propulsion system with specific characteristics such as:

- Disabled engine lock-down
- Engine strengthening
- Fitting of a bather guard when operating in waters close to shore
- Fitting of a propeller guard

Removal of the ‘start in gear inhibit’ function. Time can be saved re-starting the engine in gear. Incorporating a device to limit the thrust to a maximum of 500N at the time of starting the engine could also mitigate risks. Conversely, if ‘in gear inhibit’ is fitted ISO 11547 can be referenced.

7.1.10 Electric motors and LPG motors are not specifically considered under this Code.

7.2 Engine Stop Cords

7.2.1 Although the use of engine stop cords is generally recommended, due to the nature of Rescue Boat operations, their use must be optional. A local risk assessment must be carried out to determine the use of engine stop cords and the following risks must be locally addressed, in terms of probability and consequence:

- Helmsman is lost over the side (no engine stop cord fitted), resulting in the boat being out of control
- Engine stop cord is accidentally pulled, resulting in engine shut down at a critical moment, such as in big surf

7.2.2 If engine stop cords are NOT provided with the engine:

- Throttles must be sprung loaded to return to idle

7.2.3 If engine stop cords ARE provided with the engine:

- A spare engine stop cord must be carried on board
- An over-ride capability must be present
- Associated electrics must be designed to reduce the chance of a short on the system

7.3 Inboard Engines

7.3.1 Inboard petrol engines **MUST NOT** be used on Rescue Boats.

7.3.2 Inboard engines must be of a marinised type and operate on fuel with a flashpoint in excess of 55° C.

7.3.3 A capsize switch must return inboard engines to idle (or off - as long as the engine can be re-started) on capsize.

7.3.4 Inboard engines must have at least two means of starting. The following options are acceptable:

- Hand crank can be used as a secondary means
- When the sole means of starting is by battery, the battery should be in duplicate and connected to the starter motor via a “change over switch” so that either battery can be used for starting the engine. Charging facilities for the batteries should be available. Under normal circumstances it is not recommended to discharge both batteries in parallel

7.3.5 All inboard engines must be placed in an enclosure to minimise the risk and spread of fire. Any insulation in this enclosure is to be non-combustible.

7.3.6 The latest versions of the following may be referenced:

- ISO 8846, Small craft - electrical devices, protection against ignition of surrounding flammable gases.
- ISO 9094, Small craft - Fire protection.
- ISO 7840, Small craft - Fire resistant fuel hoses.
- ISO 10088, Small craft - Permanently installed fuel systems
- ISO 21487 - Permanently installed petrol and diesel tanks
- ISO 10133, Small craft - Electrical systems.

7.3.7 Inboard engine installations must have a fire detection and suppression system.

7.4 Outboard Engines

7.4.1 Outboard engines must have two means of starting. The following options are acceptable:

- Pull start, with a spare cord carried as a back-up
- An electric start, with a pull start as back-up
- Where there is only electric start, there must be a dual-redundancy starting system with cross connection. An electric starting system could provide cross-connection to an appropriately specified secondary battery. This battery need not be dedicated, but must remain charged at all times

7.4.2 Where a pull start facility is provided, the engine cover must be quickly detachable, allowing fast access to the recoil start mechanism.

7.4.3 There must be adequate attachment of engines to the transom, designed to withstand capsize This may entail oversized clamp screws or through-bolting. Where it is not through-bolted, the engine should also be attached to the boat by a suitable wire strop.

7.4.4 The motor type used must be suitable for the transom design. It should be noted that outboard motors powered by different fuels exhibit different power and weight characteristics. The weight differences between two stroke outboards, four strokes and diesels are significant.

7.4.5 The boat (transom in particular) design and engine selection should reduce the chance of engine swamping. For inflatable boats, RIBs and boats with a buoyant collar, this can be assisted through appropriate buoyancy tube volumes aft of the transom.

7.4.6 Where used, the throttle twist grip must be firmly attached to the engine/ throttle arm, particularly when a standard production outboard motor is used in surf.

7.5 Emergency Propulsion

7.5.1 All boats must have a secondary form of propulsion capable of propelling the boat at a safe speed for a sufficient amount of time to return to port, and be wholly effective in the operational area conditions.

7.5.2 For multiple engine installations, the secondary form of propulsion can be to use a single engine only, providing each engine is part of a wholly independent propulsion system.

7.5.3 Where supported by a risk assessment, the Rescue Boat Organisation may accept a less effective method of emergency propulsion, such as oars or paddles, taking into account any relevant factors including the following:

- Ground tackle
- Sea anchor
- Limited operating area
- Operational support, tandem operations
- Communications protocol
- Standard of fitness of crew

If oars are provided, particular attention should be paid to the effectiveness of their operation. Reference can be made to ISO 6185-1, -2, -3 and -4.

7.6 Engine Cooling Systems

7.6.1 For Category B multiple inboard engine installations, each engine must have its own cooling system. A crossover facility should be incorporated to allow the engines to be cooled by one cooling system.

7.6.2 For inboard engine installations, a ‘low cooling water flow’ alarm must be fitted.

7.6.3 For inboard engine installations, an engine overheat alarm must be fitted.

7.6.4 For outboard engine installations, an engine overheat alarm should be considered.

7.7 Exhaust Systems

7.7.1 Exhaust systems must be designed to withstand capsize. The following should be considered within the design:

- Structural arrangement to prevent flooding of watertight spaces through exhausts
- Ability of the engine to be re-started following capsize
- Location of exhaust openings
- Roll-over envelopes
- Positioning the exhausts near the centreline, and as high as possible
- Closure of exhaust openings
- Non-return capability of exhausts

7.7.2 Where exhausts are cooled, there must be a cooling failure alarm.

7.7.3 Crew must be protected from hot exhausts and appropriate visual warnings must be displayed.

7.7.4 Any insulation of hot equipment must be of non-combustible type.

7.8 Fuel

7.8.1 General Requirements

7.8.1.1 Where relevant the following should be adhered to:

- ISO 7840 - Small craft - Fire resistant fuel hoses (to minimise fuel vapour permeating pipes)
- ISO 10088 - Small craft - Permanently installed fuel systems and fuel tanks
- ISO 11105 - Small craft - Ventilation of petrol engines and/or petrol tank compartments
- ISO 9094 - Small craft - Fire protection
- ISO 13591 - Portable fuel systems for outboard motors.

7.8.1.2 The fuel system must be designed to withstand capsize and minimise any resultant leaks. Tank ventilation systems should incorporate a capsize valve or means to restrict/ prevent water entering the fuel supply.

7.8.1.3 The fuel system must be designed to resist damage or restriction of flow and the following factors should be considered:

- Armoured fuel pipe
- Pipe run channels
- Securing fixings
- Flexible mounts
- Fuel lines to have a specific route and be of the correct length to achieve this

- Location of fuel bulbs

7.8.1.4 All elements of the fuel system must be adequately secured.

7.8.1.5 The fuel system must be pressure tested, and the test pressure must reflect the working pressure of the system.

7.8.1.6 A means should be provided to ascertain the amount of fuel in any tank.

7.8.1.7 A fuel filter must be present in the fuel system and a spare filter should be carried.

7.8.1.8 The fuel filter must be easily accessible.

7.8.1.9 Fuel type should be clearly marked at the fill point.

7.8.1.10 The fuel filling point shall be so located and arranged that no overflowing fuel can enter the craft when it is in its static floating position.

7.8.2 Fire Prevention

7.8.2.1 The filling, storage, venting and fuel-supply design, arrangements and installations must minimise the risk of fire and explosion.

7.8.2.2 Fuel tanks, lines and hoses shall be either separated or protected from any source of significant heat.

7.8.2.3 Any compartment into which flammable gas may leak and accumulate must be provided with a hydrocarbon gas detector and alarm. The detector and alarm should comply with a recognised standard.

7.8.2.4 BS EN 60079-29-1 Explosive atmospheres. Gas Detectors. Performance requirements of detectors for flammable gases, can be referenced.

7.8.2.5 Hydrocarbon gas detectors should be placed under or adjacent any tank where hydrocarbon gas is likely to accumulate.

7.8.2.6 If this is not the case, an adequate ventilation policy must be demonstrated. A ventilation policy may entail a watertight vent to be opened (whilst ashore) on a regular basis.

7.8.2.7 Any compartment not permanently ventilated in which petrol vapour can accumulate must not contain an ignition source.

7.8.2.8 All fuel vent positions must be readily accessible, and vented into fresh air. Petrol tank vent pipes to atmosphere must be protected by flameproof gauze.

7.8.2.9 Petrol systems should be protected against electrical/static discharge.

7.8.3 Fuel Tanks

7.8.3.1 Portable fuel tanks for outboard petrol engines should be 27 litres or less in capacity, in compliance with the requirements of ISO 13591 – Portable fuel systems for outboard motors. It may be a design feature in some vessels to exceed this capacity, however where this is the case the Rescue Boat Organisation should seek advise from a Competent Person.

7.8.3.2 Fuel tanks must be sized to reflect the anticipated range of the boat and fuel consumption.

7.8.3.3 Fuel tanks must be safely located.

7.8.3.4 The tank materials and method of construction shall be according to their capacity and type of fuel to be used.

7.8.3.5 Fixed inboard petrol fuel tanks are acceptable in a rigid hull vessel, a RIB or a boat with a buoyant collar subject to the following:

- The tank is constructed in accordance with ISO 10088 or other designed standard.
- Foils should not be used.
- Any spillage during fuel handling is not allowed to accumulate.

7.8.3.6 Petrol shall be kept in tanks that do not form part of the hull and that are insulated from the engine compartment and from all other sources of ignition.

7.8.3.7 Rigid petrol tanks should have all connections and fittings at the top of the tank.

7.8.3.8 Fixed diesel tanks must have inspection hatches. See ISO 21487.

7.8.3.9 Small outboard motors (usually less than 5hp) with integral tanks may be used.

7.8.3.10 Foam filled fixed fuel tanks should be considered.

7.8.3.11 Provisions shall be made to enable the fuel level or quantity in the tank to be determined.

7.8.4 Fuel Pipes and Connectors

7.8.4.1 For boats with outboard engines, all fuel line and tank connectors are to be quickly detachable, self-sealing, snap-on fittings.

7.8.4.2 For boats with inboard engines all fixed fuel connections must be double clipped.

7.8.4.3 For multiple engine installations, pipes and tanks must be inter-connectable for extra redundancy between fuel lines and tanks.

7.8.4.4 It must be possible to shut off the flow of fuel remotely from the engine, thereby isolating the fuel supply either at the tank or at the engine. Tank isolation should be able to be activated from outside the engine space. The valve or cock must be as close as possible to the fuel tank.

7.8.4.5 For portable tanks, disconnection of the fuel line from the tank with self-sealing connectors is acceptable.

7.8.4.6 In the case of an integral outboard tank, one fuel line valve is acceptable.

8 ELECTRICAL ARRANGEMENTS

8.1 General Requirements

8.1.1 Electrical systems shall be designed and installed to minimise the risk of fire and electric shock.

8.1.1.1 Spark sources should be sited as far from fuel pipes and tanks as possible.

8.1.2 A risk assessment on the electrical system must be carried out. It must be ensured that there is an appropriate level of redundancy.

8.1.3 Electrical installations should conform to the requirements of all applicable ISO standards. The following may be referenced:

- ISO 10133, Small Craft - Electrical systems, Extra low voltage DC installations.
- ISO 13297, Small Craft - Electrical systems, Alternating current installations.
- ISO 8846, Small craft - Electrical devices - Protection against ignition of surrounding flammable gases.
- BS EN 28846, Small Craft - Electrical devices, Protection against ignition of surrounding flammable gases.
- BS EN 60079-29-1 Explosive atmospheres. Gas Detectors. Performance requirements of detectors for flammable gases

- ISO 9097, Electric fans.
- ISO 8849, Electrically operated bilge pumps.
- BS 8450, Code of Practice for Installation of Electrical and Electronic Equipment in Ships.
- British Marine Federation Code of Practice for Electrical and Electronic Installations in Boats, 4th Edition.

- IEC 60092-350, General construction and test methods of power control and instrumentation cables for shipboard and offshore applications.
- BS EN 60079-14, Explosive atmospheres. Electrical Installations design, selection and erection.

8.1.4 Appropriate Ingress Protection (IP) standards of water resistance are to be applied throughout the electrical systems.

8.1.5 Systems should be two-wire, except that single wire systems are acceptable for engine circuits comprising engine mounted equipment and which have a return connection made at the engine itself.

8.1.6 A 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 may be used in the final sub-circuit.

8.1.7 The insulation resistance, measured using a low voltage instrument, so as not to cause damage, should not be less than 0.3 MΩ.

8.1.8 All circuits except the main supply from the battery to the starter motor should be provided with electrical protection from overload and short circuit. Cross-linking circuits are an exception.

8.2 Batteries

8.2.1 Ventilation through a flame-proof gauze shall be provided to prevent the accumulation of flammable gases that might be emitted from batteries. To ensure that any evolved hydrogen is expelled, battery compartments, lockers and containers should be exhausted from the higher point of the space and air supplied at a level below the top of the batteries.

8.2.1.1 The following should be considered:

- The space in which the battery or vented box sits is in turn vented.
- Battery boxes are made as small as possible to inhibit the build up of large quantities of gases.

- Where battery charging capacity exceeds 2kW, the batteries must be placed in a suitably ventilated dedicated compartment. Where mechanical means are employed to ventilate a battery compartment, the components must not present a source of ignition. Reference should be made to the requirements of the ATEX Directive (EC Directive 94/9/EC concerned with equipment and protective systems intended for use in potentially explosive atmospheres).

8.2.1.2 Battery charging systems should be fitted with circuitry to prevent over-charging.

8.2.2 If the system has a charging facility, a battery charging indication should be provided, though this may not be available for outboard motors. A battery capacity monitor should also be considered.

8.2.3 Equipment must be provided to allow the battery to be charged and its charge to be monitored in the boathouse.

8.2.4 Gel type or 'sealed' batteries must be used on Rescue Boats.

8.2.4.1 'Sealed' or 'Maintenance free' batteries still produce small amounts of flammable gases, and are fitted with valves to relieve internal pressure. Future standards will refer to this type of battery as a 'valve regulated sealed' type.

8.2.5 Battery capacity must reflect the operational requirements of the boat.

8.2.5.1 An anticipated service use and charging capability calculation must be carried out to determine battery requirements to allow for full operational ranges.

8.2.5.2 The calculation should encompass electric start engines: the battery size must have sufficient charge to start the engine(s) an appropriate number of times without recharging.

8.2.6 Engine starting batteries must be matched to the engine.

8.2.7 An engine-starting battery must be used solely for this purpose, and a second battery must be provided for any other uses. The use of a single battery for engine starting and other use is acceptable provided that an effective secondary means of engine starting is in place.

8.2.7.1 System redundancy can be provided through battery cross-connection.

8.2.7.2 Battery terminals should be protected against accidental contact with metallic objects.

8.2.8 When the sole means of starting is by battery, the batteries should be in duplicate and connected to the starter motor via a 'change over switch' so that either battery can be used for starting the engine. Charging facilities for the batteries should be available. Under normal circumstances it is not recommended to discharge both batteries in parallel.

8.2.8.1 A battery cut-out switch should be provided for all systems. It is preferred that this switch act as an isolator i.e. it is double pole. However, single pole is acceptable on the positive conductor. If a battery change-over switch is fitted and is provided with an 'off' position, this may serve as the cut-out switch also.

8.2.9 Each battery and charging circuit must be able to be isolated.

8.2.10 Isolators must be specifically maintained.

8.2.11 Batteries must be firmly secured.

8.2.11.1 Batteries shall be protected from ingress of water.

8.2.11.2 The battery box shall be acid splash proof.

8.2.12 A risk assessment of Rescue Boat batteries should address the following:

- Flat battery
- Battery explosion
- Damage
- Leaks
- Poor connections
- Over voltage
- Over-use
- Under-charged
- Alternator failure
- Corrosion
- Shorting
- Salt up
- Environmental issues
- Ventilation blockage
- Regulator/ alternator failure
- Cable failure
- Isolator switch failure
- Capsize
- Impact
- Fluid level
- Maintenance

8.3 Cables

8.3.1 Cabling must be appropriate for the application and matched to the power source.

8.3.2 All cabling must be to a recognised standard for marine use in small boats.

8.3.3 Cabling must be appropriately protected, physically and electrically.

8.3.3.1 All electronic equipment cabling should be effectively screened. Alternatively trials can be carried out to demonstrate that there are no interference problems.

8.3.3.2 Cables which are not provided with electrical protection should be kept as short as possible and should be 'short-circuit proofed', e.g. single core with additional insulated sleeve over the insulation of each core. Normal marine cable, which is single core, will meet this requirement without an additional sleeve, since it has both conductor insulation and a sheath.

8.3.3.3 Cable runs should be continuous where possible.

8.3.3.4 Bends in cable runs should be provided with suitable radii.

8.3.3.5 Conduits must be used where possible, or cabling recessed in the structure.

8.3.3.6 A risk assessment of Rescue Boat cabling should address the following:

- Physical damage due to fatigue, impact, fire, environment, flexing etc.
- Burn out
- Connection failure
- EMC and cross-talk
- Ageing
- Maintenance

8.4 Electrical Protection

8.4.1 Protection shall be provided to guard against overload and short-circuit of all components in the electrical system except for engine starting circuits.

8.4.2 All fuses and circuit breakers should be clearly labeled and identifiable.

8.4.3 Fuses must be easily accessible for shore-side replacement.

8.4.3.1 It is not anticipated that fuses will be changed at sea. This may however need to occur in an emergency, if the benefits of restoring power to the system outweigh the risk of exposing all remaining fuses to water. The carriage of emergency fuses should be addressed.

8.4.4 A risk assessment of Rescue Boat electrical protection should address the following:

- Overheating
- Fuses don't blow
- Fuses blow too quickly
- Circuit breakers trip due to boat motion.
- Mechanical failure
- Incorrect fuse
- Operational environment – ie. slamming
- Surges in power
- Dirty supply (affecting sensitive electronics)
- Corrosion
- Quality issues
- Fire
- Maintenance

8.5 Switches

8.5.1 Wiping contacts or relays should be used where possible.

8.5.2 All switches should be clearly labeled, identifiable and accessible.

8.5.3 Switches should be sited to avoid accidental switching.

8.5.4 A risk assessment of Rescue Boat switches should address the following:

- Switch failure
- Fail-safe circuits
- Circuits are continuously live
- Water
- Impact
- Environment and seawater protection
- Surges in power
- Switch quality
- Contact burning/ arcing (HV)
- Maintenance

8.6 Earthing and Lightning Protection

8.6.1 All equipment must be earthed appropriately. 12V and 24V DC systems do not require separate earthing.

8.6.2 Where a considerable risk of lightning strike is identified, it is recommended that attention is paid to lightning strike protection. For information on lightning protection, reference should be made to ISO 10134 'Small Craft - Electrical Devices - Lightning Protection Systems'.

8.6.3 A risk assessment of Rescue Boat earthing should address the following:

- Corrosion
- Interference with navigation
- Interference with communications
- Interference with engine management system
- Corrosion of skin fittings
- Incorrect sizing of anodes
- Bonding
- Impact leading to loss of earthing
- Incorrect location
- Bond broken
- Shore supply
- Incompatibility
- Design, maintenance and training

8.7 Electrical Spaces

8.7.1 Spaces containing electrical equipment should be vented, and accessible to prevent corrosion and allow maintenance.

8.7.2 Electrical equipment or cables should not share enclosed spaces where fuel vapour may be able to accumulate. Where this is not possible, equipment must comply with a recognised standard for prevention of ignition in a flammable atmosphere.

8.7.3 A risk assessment of spaces on Rescue Boats containing electrical equipment should address the following:

- Fuel lines giving off fuel vapour – refer to ISO 7840
- Current leakage
- Arcing
- Damage to cables
- Corrosive environment
- Incorrect fit

- Maintenance and training

8.8 Lighting

8.8.1 If the boat has a night time capability, it must be possible to operate at night following a total failure of the electrical system.

8.8.1.1 The following should be considered:

- Fundamental lights should have back up, in the form of torches, chemical lighting, nightglow strips, route marking etc.
- Spare bulbs should be carried

8.8.1.2 When designing any lighting system the following should be considered:

- The use of wandering leads
- The specification of the lights should be appropriate in terms of wattage and colour
- Lights should be positioned to provide light where required, yet avoid loss of night vision

9 STEERING AND PROPELLER SYSTEMS

9.1 Propeller Bather Guards

9.1.1 A guard should be fitted in the following cases:

- If required by any operational risk assessment
- If required by a launch and recovery risk assessment
- If operating in shallow waters when consideration should be given to detaching the lock-down pin and strengthening the engine structure

9.1.2 Some propeller guards have been known to affect the steering of some craft causing unexpected changes of direction due to asymmetric loadings on the guard face. Additionally some loss of speed/power/fuel efficiency will be experienced. Therefore the Rescue Bat Organisation should assess the possible consequences and impacts of fitting propeller guards and incorporate these consequences into the crew training and relevant guidance procedures to mitigate any risks.

9.1.3 Any propeller guard must be made of appropriate marine grade materials and be designed to match the propeller and the characteristics of the craft.

9.1.4 The carriage of a spare propeller, associated tools, shear pins etc. is recommended.

9.2 Water Jets

9.2.1 Waterjet inlets must be physically protected with appropriate grills.

9.2.2 Bars/guards/railings should be fitted to the aft of the boat to deter waterborne casualties from grabbing the moving/steering parts of the waterjet.

9.2.3 If possible a method, such as back-flushing, should be provided to clear debris from intake grills.

9.2.4 It should be possible to access the jets by feel or visual means to check for debris.

9.3 Steering

9.3.1 The boat should be provided with an efficient means of steering.

9.3.2 Steering systems and supporting structure shall be designed, constructed and installed in order to allow the transmission of steering loads under operating conditions, including after capsize.

9.3.3 The steering system should conform to the requirements of the appropriate BS, EN and ISO standards. The following standards can be referenced:

- ISO 8847 - Small craft - Steering gear-cable and pulley systems
- ISO 8848 - Small craft - Remote steering systems
- ISO 10592 - Small craft - Hydraulic steering
- ISO 9775 - Small craft - Remote Systems for single outboard motors 15-40 kW
- ISO 13929 - Small craft - Geared link systems

9.3.4 The steering position should be located so that the Helmsman, under normal operating conditions, has a clear view for the safe operation of the boat. This must include towing operations. The following standard can be referenced:

- ISO 11591 - Engine driven small craft - Field of vision from helm position

9.3.5 Hydraulic remote steering systems should be fitted with a by pass valve to allow for emergency steering.

9.3.5.1 Emergency steering should be based on any of the following:

- A redundant system
- A re-configured system
- A temporary rig
- An emergency tiller to fit to the head of a rudder stock.
- A rod attachment which may be fitted to a Z-drive framework
- Some twin-engine boats may be able to demonstrate adequate emergency steerage by engine manoeuvring. If fitted with Z or stern drives, these should be fitted with a locking device in case of steering system failure
- For boats with twin outboards using vectored steering, it must be possible to steer with one engine, having lifted the other, and be able to use full lock in both directions
- If a boat has two rudders, they must be sized to allow effective steering with one rudder only

9.3.6 Emergency steering equipment must be simple to rig and use.

9.3.7 On boats fitted with powered hydraulic steering systems the crew should be able to easily inspect the pump and fluid level, or pressure and fluid alarms shall be provided.

10 BILGE PUMPING

10.1 The boat must be designed to minimise the risk of sinking. Special attention is to be paid to:

- Self draining wells
- Ventilation fittings (Battery housing)
- Removal of water using pumps or other means

10.2 A system must be provided whereby water can be removed from spaces nominated as dry. Watertight lockers that contribute to damaged buoyancy of the boat are to be considered as dry spaces.

10.3 Machinery spaces nominated as dry must have a bilge system that is able (as a minimum) to control flooding as a result of a single skin fitting failure or sea water system rupture.

10.4 The bilge alarm system and bilge system itself must be designed such that it can function if any compartment (containing any component of the system) is flooded.

10.5 Any water freeing (bilge) system must incorporate an appropriate level of redundancy, and the following are to be considered:

- Float malfunction should be considered as a possibility
- Redundancy may extend to providing an alternative means of bailing the boat
- If the primary means is a hand bilge pump, a second is suggested

10.6 Any bilge pump system must be designed to cope with debris in the bilges.

10.7 Bilge suction valves should be non-return.

10.8 A powered automatic bilge pumping system is recommended, but only in combination with a back up.

10.9 An auto-start bilge pump should be fitted with an alarm at the control position such that the reasons for pumping can be investigated.

10.10 It is accepted that pollution is a potential problem; however in each case the level of risk should be determined. To prevent pollution, automatic bilge pumps must not be fitted in compartments containing pollutants.

10.11 Reference can be made to:

- ISO 8849, Electrically operated direct-current bilge pumps
- ISO 11582, Small craft - Bilge pumping systems

10.12 Where applicable spare bungs must be carried for all dry spaces.

11 STABILITY

11.1 Intact Stability

11.1.1 Intact stability: All boats

11.1.1.1 The boat shall have sufficient stability and buoyancy considering both its design category (see 4.2.1) and the maximum recommended load specified on the capacity plate.

11.1.1.2 A range of realistic and relevant loading scenarios, including ‘worst cases’ must be considered. Conditions must include the following:

- Maximum load condition specified on the capacity plate i.e. maximum crew and survivors, full fuel, engine, all operational on-board equipment etc.
- Lightest condition as permitted by the operating manual
- Any intermediate case that may be worse for any reason
- Any other operational considerations that might affect stability

11.1.1.3 Fuel free surface moments should be minimised as far as possible by design.

11.1.1.4 Intact and damaged stability tests can be carried out with the engine and fuel tank either installed or replaced with an equivalent mass. Each crewman may be substituted by a representative mass (see Para 11.1.6) and each survivor by 90kg for the purpose of the tests.

11.1.1.5 Intact and damaged stability tests are to be carried out on the boat whilst floating in still water and should be witnessed by the Rescue Boat Organisation and a Competent Person. Stability Calculations are to be verified by a Competent Person.

11.1.1.6 If a boat is completely in accordance with a standard production type certificates of approval may be provided and considered for any tests already completed. However personnel weights appropriate to Rescue Boats as specified in Para 11.1.6, or appropriate corrections, must have been applied.

11.1.1.7 All intact stability information must be included in associated documentation.

11.1.1.8 If a boat wishes to operate in Operational Limit Category B waters (as defined in 4.2.1, noting 4.6.2), it should also adhere to wind heeling and wave requirements set out in ISO 12217-1 - Sections 6.3 and 7.

11.1.2 Intact Stability: Rigid Hull Boats

11.1.2.1 Rigid hull boats of hull length greater than or equal to 6m should comply with the stability requirements of ISO 12217-1.

11.1.2.2 Rigid hull boats of hull length less than 6m should comply with the stability requirements of ISO 12217-3.

11.1.2.3For all rigid hull boats, and for each condition specified by Para 11.1.1.2, all personnel up to the maximum number of persons for which the boat is certified (except the Helmsman, who may be assumed to be at the steering position) should be crowded to one side, with half this number seated on the side deck. This procedure should be repeated on the other side and at each end of the boat. In each case, the following must be addressed:

- Positive stability must be maintained
- The angle of heel and the position of the waterline should be recorded
- The freeboard to top of the gunwale must never be less than 250mm at any point

11.1.3 Intact Stability: Inflatable Boats, RIBs and Boats with a Buoyant Collar

11.1.3.1 For each condition specified by Para 11.1.1.2, personnel up to the maximum number of persons for which the boat is certified (except the helmsman, who may be assumed to be at the steering position) should be crowded to one side, with half this number seated on the buoyancy tube. This procedure should be repeated on the other side and at each end of the boat. In each case, the following must be addressed:

- Positive stability must be maintained
- The freeboard to the top of the buoyancy tube should be recorded
- The freeboard should be positive around the entire periphery of the boat, including the transom, unless the boat complies with Para 12.3.2
- The boat should not display an inherent tendency to lift the buoyancy tube and loss of stability due to wind pressure under the buoyancy tube should be determined

11.1.3.2 Static stability tests must include a factor of safety to take account of the influence of wind, waves etc.

11.1.3.2.1 An appropriate number of additional people may be added to leeward to simulate an additional worst case wind heeling moment. By calculation a 40 knot wind heeling force generates a 14-degree heel on a 7.5m RIB. This equates to 2 crew, each of 100kg, on the buoyancy tube.

11.1.4 Intact Stability: Survivor Recovery – All Boat Types

11.1.4.1 Referring to the realistic operating scenarios generated in Para 11.1.1.2, positive stability must be maintained throughout the process with an appropriate number of crew (the Helmsman may be assumed to be at the steering position) recovering one, two (or more) persons from the water. The operational validity of the number chosen must be demonstrated. The rescued persons should feign to be unconscious which can be defined as ‘not being able to help oneself’, with their backs turned to the boat so as not to assist the rescuers. Each person involved should wear an approved lifejacket. If dummies are used, they must be of an appropriate weight.

11.1. 4.2 Survivor recovery heel tests should be carried out on the boat whilst floating in still water.

11.1.4.3 Survivor recovery tests in Para 11.1.4.1 should be repeated for the boat in a fully swamped condition – see Section 11.2.

11.1.5 Maximum personnel capacities

11.1.5.1 The following options are available to determine the maximum number of persons allowed on board the Rescue Boat:

11.1.5.1.1 As a guide, ISO 6185 Parts 1 to 4 contains a formula to determine the maximum number of persons allowed on board an inflatable boat. However person weights specified below, in 11.1.6, must be substituted into this formula. ISO 14946 also provides guidance.

11.1.5.1.2 The intact and damaged stability requirements of this Code must be satisfied, which may be used to determine the number of persons allowed. This may result in a reduction in the number of persons allowed by ISO 6185 Parts 1 to 4.

11.1.5.2 The maximum number of persons on board will be determined by the lesser of Paragraphs 11.1.5.1.1 or 11.1.5.1.2.

11.1.6 Crew and Survivor Weight Definitions

11.1.6.1 For calculation purposes the weight of a fully equipped and dressed Rescue Boat crew member is assumed to be 100kg.

11.1.6.2 It is recognised that in certain instances e.g. surf rescue crews equipped with minimal PPE, this average weight could be assumed to be less: if so, the Rescue Boat Organisation may approve on an individual basis a lower figure (to a minimum of 85 kg).

11.1.6.3 The weight of an adult survivor and passenger is assumed to be 90kg, the weight of a child survivor is assumed to be 37.5 kg. A reduced weight for passengers may be considered (to a minimum of 75kg).

11.2 Swamping and Drainage

11.2.1 Swamping

11.2.1.1 In the fully loaded swamped condition a Rescue Boat should not be seriously deformed.

11.2.1.2 In the fully loaded swamped condition, a rigid hull boat should have positive freeboard around the boat.

11.2.1.3 In the fully loaded swamped condition, an inflatable boat, RIB or boat with a buoyant collar should have positive freeboard around the periphery of the buoyancy tubes.

11.2.1.4 If a boat does not have positive freeboard at the transom at any point during swamping tests then it must be shown that all openings etc. are watertight and that the structure is able to withstand the head of water. The drainage requirement specified in Para 11.2.2.3 must be satisfied.

11.2.1.5 All swamping tests must be repeated for at least one condition where the boat is partially swamped. This can be interpreted as 50% swamped. This is a free surface test. The stability of the boat must be positive at all times. It must be demonstrable that capsize cannot be induced by free flowing water.

11.2.2 Drainage

11.2.2.1 The boat must be equipped with a suitable drainage system.

11.2.2.2 The drainage system should be demonstrated at the conclusion of the swamping test. It must be shown that a swamped boat can be drained or bailed at sea.

11.2.2.3 If a rigid inflatable boat or rigid boat does not have positive freeboard at the transom at any point in the swamp tests the boat must be shown to drain without interference to 'almost dry' in less than 30 seconds.

11.2.2.4 If the boat has a dynamic system of drainage (e.g. transom drain socks) a necessary part of the buoyancy test is to demonstrate that the engine or drainage power system still works when the boat is swamped.

11.2.2.5 A form of secondary bailing must be provided.

11.3 Damage Stability

11.3.1 General Requirements

11.3.1.1 All damage stability information must be included in associated documentation.

11.3.1.2 All damage stability tests should be carried out with the boat loaded with the maximum number of persons (crew and survivors) stated on the capacity plate. The engine and (full) fuel tank should be fitted, or replaced by an equivalent mass, as should all equipment appropriate to the intended use of the boat.

11.3.1.3 A damage survival 'book' must be generated, detailing mitigations and capabilities associated with the various damage states. This information can be based on a risk assessment of each damage state and should form part of the boat manual.

11.3.1.4 The carriage of a recovery kit comprising of, for instance, a spare inflatable bladder, pump etc is at the discretion of the operator and is likely to be dependent on the area and conditions of operation. A risk assessment of the specific operation of the boat will determine this requirement.

11.3.2 Damage Stability: Rigid Hull Boats

11.3.2.1 The Code approaches rigid hull boats as one-compartment vessels and if damage occurs it is assumed that hull form buoyancy is entirely lost.

11.3.2.2 Although from a 'damage' point of view, Rescue Boats are assumed to be one-compartment vessels, from a practical point of view sub-division is desirable. However Rescue Boats must not have a configuration that is likely to give rise to stability problems, particularly in the case of asymmetric flooding, that could cause capsize or a severe angle of loll.

11.3.2.3 A rigid hull boat must have sufficient residual buoyancy, with 50% of its reserve floatation/buoyancy lost, to be able to support 100% of the weight of the boat, equipment, crew and survivors detailed as a maximum on the capacity plate. Residual buoyancy may take the form of tanks, bags, solid foam, etc.

11.3.3 Damage Stability: Inflatable Boats

11.3.3.1 In each of the following cases it must be demonstrated that 100% of the weight of the boat, equipment, crew and survivors detailed as a maximum on the capacity plate can be supported 'out of the water' in an upright position by the undamaged remainder of the boat. A five-compartment buoyancy tube has been used in the following illustrations; however the principal must apply to all variants of buoyancy tube design. The shaded spaces represent those buoyancy tube volumes that have been damaged.

11.3.3.1.1 With the forward buoyancy deflated (i.e. both sides, if there is a central baffle).

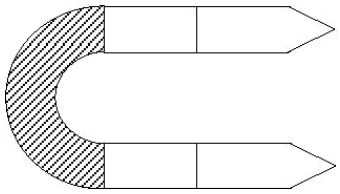
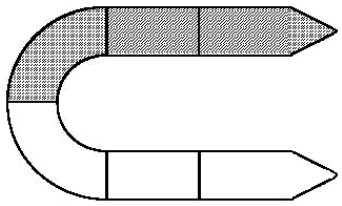


Fig. 11.3.3.1.1

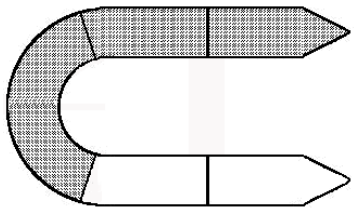
11.3.3.1.2 With the entire buoyancy from the centreline at the stem to the transom on one side of the boat deflated, as shown in Fig.11.3.3.1.2(a).

Fig. 11.3.3.1.2(a)



For boats without a central baffle this must be achieved by deflating both the side compartment(s) and the bow compartment as shown in Fig. 11.3.3.1.2(b).

Fig. 11.3.3.1.2(b)



11.3.3.2 The keel chamber on an inflatable boat must be deflated for damaged condition tests.

11.3.3.3 It is to be assumed that if the boat is damaged it will also be swamped. It also is assumed that if a part of the buoyancy tube is lost, the form buoyancy of the buoyancy tube is lost. As such, no benefit can be gained by manually holding up a deflated buoyancy tube.

11.3.4 Damage Stability: RIBS and Boats with a Buoyant Collar

11.3.4.1 In each of the following cases it must be demonstrated that 100% of the weight of the boat, equipment, crew and survivors detailed as a maximum on the capacity plate can be supported 'out of the water' by the undamaged remainder of the boat.

- With the hull damaged and where applicable not providing any form or residual buoyancy.
- With the hull intact but the buoyancy tube damaged as shown in Paragraphs 11.3.3.1.1 and 11.3.3.1.2.

11.3.5 **Buoyancy Tube Sub-Division of Inflatable Boats, RIBS and Boats with a Hollow Buoyant Collar**

11.3.5.1 The subdivision of inflatable boats must appropriately reflect horsepower, length and breadth. However this is subject to a minimum of 5 subdivision compartments (not including the keel).

11.3.5.2 On an individual basis Rescue Boat Organisations may specially consider boats with 4 subdivision compartments or less. However, all other intact requirements must still be satisfied.

11.3.5.2.1 Although not exhaustive, the following list of measures to provide an equivalent level of safety may be considered:

- Personal Protective Equipment (PPE)
- Operational back up, such as a mother boat, or supervision from the shore able to call up support
- Specific operational conditions, such as limited range of operation
- Specific crew training
- Seasonal Operation
- Group working

11.3.5.3 An inflatable boat or rigid inflatable boat loaded to the maximum load capacity shall be capable, on a sudden deflation of any one of its compartments, of being propelled by its primary means. This must be tested by propelling the boat in a generally straight line for at least 400m in calm water.

11.3.6 Sub-Division of RIBs and Boats with a Buoyant Collar

11.6.1 Although no subdivision of the hull of a rigid inflatable boat is specifically required attention should be drawn to the damage stability requirements of Para 11.3.4.

11.3.7 Damage Stability: Survivor Recovery

11.3.7.1 A damaged boat is not expected to continue its rescue mission, and recover survivors. However it should be noted that the maximum number of survivors allowed are assumed to be on board for all damaged stability tests.

11.4 Dynamic Stability

11.4.1 The speed and manoeuvrability barrier avoidance tests detailed in ISO 11592 should be carried out for all conditions specified in Para 11.1.2.

11.4.2 Operational limits have been defined in Para 4.2.1.

11.4.3 Boats in each category must be designed and constructed to withstand these parameters in respect of stability and buoyancy, and have satisfactory handling

characteristics', bearing in mind that dynamic stability is directly related to the conditions of operation of the boat.

11.4.4 By meeting the stability requirements of this Code, the boat is approved from a stability aspect for operation in Operational Limit Category C or D, as defined in 4.2.1.

11.4.5 If dynamic crew positioning is a critical influence on the stability of the boat, the design should reflect this. Other factors, such as ergonomics, footrests handholds etc., should also be addressed.

11.4.6 Where applicable, maximum propulsion power for inflatable boats, RIBs and boats with a buoyant collar should be determined by ISO 6185 Parts 1 to 4 bearing in mind that excessive horsepower can have an adverse effect on dynamic boat stability, especially on smaller boats.

11.4.7 Where applicable maximum propulsion power for rigid hull boats should be determined by ISO 11592, bearing in mind that excessive horsepower can have an adverse effect on dynamic boat stability, especially on smaller boats.

11.5 Boat Righting Systems

11.5.1 A Rescue Boat must be able to return to upright following a capsize, using one of the following approaches:

- Manual righting (using an agreed training manual procedure). The number and capability of crew that are required to right the boat must be determined. To prevent the boat being at sea with less than this capability, the relevant information must be included in documentation and training
- Automatic and semi-automatic righting
- Inherent self-righting by design

It is important to ensure autonomy following capsize. A Rescue Boat Organisation must provide mitigations to use a Rescue Boat that cannot be righted. These may be of the following form:

- Demonstration that the probability of capsize is very low
- Two boat operation
- Operation in close proximity to a beach that affords a safe refuge to boat crews following capsize
- Provision of a life raft – if a life raft is carried it must be accessible when the boat is capsized

11.5.2 Demonstration of righting capability – practically or by calculation.

11.5.3 The ability of the crew to re-enter the boat from the water following capsize must be demonstrated.

11.5.4 Any single crewmember must be able to climb unassisted into the boat at any accessible point around the perimeter, without capsizing the boat.

11.5.5 The effects of trapped water must be considered in terms of stability and righting the boat.

11.6 Stability When Using Onboard Lifting Devices

11.6.1 If the boat is fitted with a lifting device it must be able to operate at maximum safe working load, with a realistic worst case placement of people in the boat. The following must be true throughout the lifting operation:

- The boat must have positive stability;
- Inflatable boats, RIBs and boats with a buoyant collar must have positive freeboard;
- The freeboard to top of the gunwale for a rigid boat must not be less than 250mm at any point, throughout the lifting operation.

11.6.2 Information and instructions to the helmsman on boat safety when using any lifting device should be included in the boat documentation. This information should be replicated and displayed in an appropriate position, on the lifting device or adjacent to the controls.

11.7 Ice Accretion

11.7.1 Stability of a boat that will operate in sea areas where ice accretion can occur should be specially considered by a Competent Person with regard to icing allowance and stability standard.

11.8 Stability Trials

11.8.1 A stability trials proforma has been generated and can be found in Appendix 1.

11.8.2 Achieving Rescue Boat Code stability requirements for a particular operational limit is not interchangeable with certification for those conditions as a recreational craft (RCD) or as a Small Commercial Vessel.

11.9 Capacity Plate

11.9.1 **The Rescue Boat must display a clearly and indelibly printed or engraved plate displaying the following:**

- Name of boat manufacturer or importer and country of origin
- Date of build
- Design Category
- Maximum all up load capacity in kg
- Maximum recommended number of persons (as defined in Para 11.1.5) that the boat is designed to carry when under way
- Maximum engine power in HP and/or kW
- Recommended working pressure of buoyancy tubes (inflatable and RIBs)
- Maximum engine mass on transom

11.9.2 Maximum number of personnel calculation must take into account the maximum all up load capacity, crew weight and any additional fittings as stores etc.

11.9.3 Crew and survivor weights must reflect those specified by Para 11.1.6, but to allow flexibility the plate may detail various permutations of the form:

- crew and other persons @ 100kg each
- survivors and passengers (adult) @ 90 kg each
- survivors (child) @ 37.5 kg each

11.9.4 Attention should be drawn to the fact that the other standards assume a crew weight of 75kg, and this Code necessitates that a figure of 100kg normally be used. This detail should be reflected clearly on the capacity plate.

11.9.5 **If the boat displays an RCD determined capacity plate and/or an ISO 6185 capacity (builders) plate, to avoid ambiguity a separate clearly marked Rescue Boat Code capacity plate is required.**

11.9.6 The details on the capacity plate must be replicated in all relevant boat and training documentation.

11.9.7 If exceptional circumstances require any of the capacities specified on the plate to be exceeded, it is at the discretion of the Helmsman. This must be stated explicitly in all documentation. The Rescue Boat Organisation shall prepare guidance for crew training and to inform the Helmsman on the consequences of overloading.

11.9.8 The following can be referenced: ISO 7000, ISO 11192, ISO 6185

12 FREEBOARD

12.1 All boats

12.1.1 The boat shall have sufficient freeboard considering its operational limit and the maximum recommended load specified on the capacity plate.

12.1.2 Freeboard markings are not required for Rescue Boats. The minimum freeboards recorded during the tests and the permissible maximum weight which can be carried should be recorded on the certificate for the vessel.

12.2 Rigid Hull Boats

12.2.1 A rigid hull open boat in sea water, when loaded to the maximum all up weight specified on the capacity plate, must have a minimum freeboard giving a clear height of side (water to the lowest point of the gunwale) of not less than 400mm for boats under 7m LOA and not less than 690mm for boats of 15m LOA.

12.2.2 Intermediate lengths should be interpolated.

12.3 Inflatable Boats, RIBs and Boats with a Buoyant Collar

12.3.1 The freeboard of an inflatable boat or boat fitted with a buoyant collar should be not less than 300mm measured from the upper surface of the buoyancy tubes and not less than 250mm at the lowest part of the transom with all its equipment, fuel, cargo, activity related equipment and the number of persons for which it is to be certificated onboard, with the boat re-trimmed as necessary to represent a normal operating condition, and with the drainage socks (if fitted) tied up.

12.3.2 Boats operating in Operational Limit Category D only, which, at the transom, do not meet the freeboard requirements of 12.3.1, may still be accepted by the Rescue Boat Organisation provided it can be demonstrated that the boat is self-draining (i.e. it is not possible to accumulate and retain water in the boat) when moving ahead, and has a substantial reserve of buoyancy.

12.3.3 In addition to 12.3.2, boats operating in Operational Limits Category B and C may still be accepted by the Rescue Boat Organisation provided they are specially assessed by the Competent Person taking into account operational experience, a proven risk assessment and a stringent safety management system which follows best practices with regard to training and other aspects. Attention is drawn to 4.2.3 of this Code.

13 LIFE SAVING APPLIANCES INCLUDING PERSONAL PROTECTIVE EQUIPMENT (PPE)

13.1 General Requirements

13.1.1 PPE must be provided to adequately protect the crew at all times, particularly in the water.

13.1.2 If no liferaft is provided with the Rescue Boat, PPE must provide an alternative 'haven'. One of the following should be chosen, appropriate to the tasks being undertaken:

- An approved immersion suit
- A dry suit
- A wet suit
- Any other efficient garment to reduce the likelihood of hypothermia should the wearer enter the water

13.1.3 Liferafts, if carried, should be to a recognised standard, and be serviced at a service station approved by the manufacture at appropriate intervals (including its hydrostatic release unit where fitted). The Small Commercial Vessel and Pilot Boat Code (MGN 280) provides guidance on acceptable types of liferaft, their stowage location, and service intervals.

13.1.4 PPE must not detract from the capability of the crew and should, if possible, enhance it.

13.1.5 Waders should not be worn.

13.2 Lifejackets

13.2.1 Rescue Boat crew must wear appropriate lifejackets at all times whilst aboard the Rescue Boat or in the water.

13.2.2 The only exception to Para 13.2.1 is where, the Rescue Boat Organisation concludes that the encumbrance of a lifejacket would preclude safe operation in the Rescue Boat environment, in specific cases such as:

.1 Crews engaged in underwater operations
.2 Surf: The rationale for a surf dispensation is that there is evidence to suggest that a lifejacket may inhibit the ability of such crew to swim through a breaking wave. It is noted that fit, trained crew stand a better chance of survival by swimming through large breaking waves, rather than remaining on the surface.

This dispensation should not be granted lightly and mitigations must include the following as a minimum:

- The crew must be sufficiently physically fit and trained to cope with the environmental conditions of surf
- The crew must be able to handle the boat in surf
- The Rescue Boat must be visually monitored from the shore by appropriately qualified staff
- The shore support must have access to emergency communication facilities
- There must be an emergency procedure in place

13.2.3 Gas inflatable lifejackets must be serviced annually at a service station approved by the manufacturer.

13.2.4 Lifejackets should be MCA or Marine Equipment Directive (MED) approved ("wheelmarked") or comply with BS EN 396 of 150N or BS EN 399 of 275N and be fitted with a minimum of whistle, light and retro-reflective devices. Where the lifejackets are of the inflatable type, they must be fitted with a compressed gas inflation system.

13.2.5 Where boats are operated at night, each crew member must be provided with Day/ Night mini flare(s).

13.2.6 Crew may wear buoyancy aids on inland waters during daylight if a local risk assessment proves this to be appropriate.

13.3 Operationally Specific PPE

13.3.1 The following should be carried if appropriate:

- Gloves
- Helmets
- Personal locator beacons

13.3.2 Rescue Boats must carry appropriate provision of PPE for survivors and should reflect operational survivor handling protocol. As a minimum this should include thermal protective aids and lifejackets.

13.3.3 If it is likely that a crewmember will transfer to a casualty vessel, appropriate PPE must be provided.

13.3.3.1 A harness should be provided so that the crewmember can clip on to the casualty vessel.

13.3.3.2 Bulky kit may need to be avoided to facilitate escape from a casualty.

13.3.4 Appropriate PPE must be provided if it is anticipated that the crew will enter the water in the course of service.

13.3.4.1 It may be that a crewman must operationally enter the water to carry out the following:

- Assist a survivor into the Rescue Boat
- Boarding a casualty
- Going ashore etc.

13.3.4.2 The following may assist this process:

- Swimming lines/rescue tubes.
- Additional communications equipment

13.3.5 A local risk assessment must be carried out to determine appropriate PPE to be worn by shore crew.

13.4 Use of Retro-Reflective Materials on Life Saving Appliances

13.4.1 The reflective tape used should comply with the requirements of the European Directive 96/98/EC, as amended, on Marine Equipment (MED) (although the wheelmark need not appear on the tape itself).

13.4.2 Buoyant Apparatus

13.4.2.1 Buoyant apparatus should be fitted with retro-reflective materials in the same manner as liferafts without canopies, always depending on the size and shape of the object. Such materials should be visible both from the air and from a ship.

13.4.3 Lifejackets

13.4.3.1 Lifejackets should be fitted with patches of retro-reflective materials with a total area of at least 400cm^2 distributed so as to be useful for search from air and surface craft from all directions. In the case of a reversible lifejacket, the arrangement should be complied with no matter which way the lifejacket is put on. Such material should be placed as high up on the lifejacket as possible.

13.4.4 Immersion Suits

13.4.4.1 Immersion suits should be fitted with patches of retro-reflective material with a total area of at least 400cm^2 distributed so as to be useful for search from air and surface craft from all directions. For an immersion suit that does not automatically

turn the wearer face up, the back of the suit should be fitted with retro-reflective material of at least 100cm^2.

13.5 Pyrotechnics

13.5..1 Illumination flares should be carried when operating at night.

13.5.2 Appropriate emergency flares should be carried. See Small Commercial Vessel and Pilot Boat Code (MGN 280) for guidance.

13.5.3 The stowage of pyrotechnics should prevent degradation and premature activation of flares.

13.5.4 Flares must have a suitable stowage in the boathouse as well as on the boat.

13.6 Training Manual

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

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

.1 donning of lifejackets;
.2 boarding, launching, and clearing the survival craft from the vessel;
.3 illumination in launching areas;
.4 use of all survival equipment;
.5 use of all aids to location
.6 use of sea anchors;
.7 recovery of persons from the water;
.8 hazards of exposure and the need for warm clothing;
.9 best use of the survival craft facilities in order to survive;
.10 methods of retrieval, including the use of helicopter rescue gear (slings, baskets, stretchers) and shore life-saving apparatus;
.11 instructions for emergency repair of the life-saving appliances; and
.12 "Personal Survival at Sea" booklet, e.g. MCA Booklet MCA/075.

13.7 Instruction Manual (on board maintenance)

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

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

13.7.2 The manual may be kept ashore by the Rescue Boat Organisation.

13.8 Additional Equipment Requirements

13.8.1 A risk assessment must be carried out to identify any additional equipment that must be carried to aid survivor recovery from the water with minimum risk to the crew.

13.8.2 An appropriate knife should be carried. The knife should be secured and covered.

13.8.3 Every vessel that is provided with lifting devices shall have such gear properly installed having regard to the intended service of the vessel. All lifting devices and related equipment shall satisfy the requirements of The Merchant Shipping and Fishing Vessels (Provisions and Use of Work Equipment) Regulations 2006 (SI 2006/2183) and the Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006 (SI 2006/2184) as applicable. All lifting equipment should be used only by a trained person and must be tested and examined at regular intervals. See also 11.6.2.

13.8.4 Appropriate damage control equipment (to stabilise either a casualty boat or the Rescue Boat) should be carried. The following should be considered for carriage:

- A puncture repair kit and pump on board an inflatable boat or RIB
- Spare drainage bung(s)

13.8.5 The boat storage design must reflect the operational list of additional equipment that has been specified.

13.8.6 If additional equipment is to be carried, it must be included in the relevant load calculations of the stability section. The carriage of additional equipment could be as a result of supernumerary crew.

13.8.7 Equipment carried should be as compatible as possible with interacting authorities.

13.8.7.1 This is particularly the case with medical equipment such as stretchers, but may also apply to equipment relating to rescue helicopters, cliff rescue, etc.

13.8.8 A buoyant heaving line should be carried. Its design must minimise potential injury to crew and survivors.

13.8.9 Bolt croppers or wire cutters should be considered for carriage, particularly for rescue from sailing boats.

13.8.10 If night operations are anticipated, it must be ensured that all necessary equipment is visible (lit, glow in the dark etc).

13.8.11 If the boat is to operate at night, it should be provided with an efficient waterproof and robust electric torch.

13.8.12 If the boat is to operate at night, it should be provided with an efficient fixed and/or portable searchlight; this may be an appropriate torch, suitable for use in MoB search and recovery operations. This searchlight can be the same piece of equipment as the signaling lamp required in Chapter 18.

13.8.13 Retro-reflective materials should be fitted on top of the gunwale as well as on the outside of the boat as near to the gunwale as possible. The materials should be sufficiently wide and long to give a minimum area of 150 sq cm and should be spaced at suitable intervals (approximately 80cm from centre to centre).

14 FIRE SAFETY

14.1 The type of equipment installed and the layout and design of the boat shall reduce the risk and spread of fire wherever possible.

14.1.1 In doing so the following must be addressed:

- Hot areas, engines and auxiliary machines
- Oil and fuel overflows
- Uncovered oil and fuel pipes
- Positioning of electrical wiring
- Sources of ignition on the boat
- Use of fire retardant materials in high risk areas
- Stowage of combustible materials, including cleaning rags
- Storage of the boat ashore
- Provision of warning systems where appropriate

14.2 Smoking must not be allowed on board a Rescue Boat.

15 FIRE APPLIANCES

15.1 The boat should be provided with efficient fire fighting equipment, appropriate to the fire hazards, both on and off the boat.

15.2 Where there is an enclosed machinery space, unless there is a fixed fire extinguishing system, provision should be made in the boundary of the space for discharging a fire-extinguishing medium into the space without opening hatches.

15.2.1 Fixed fire extinguishing systems in machinery spaces should be an MCA or equivalent approved type appropriate to the space to be protected. Further guidance may be found in MGN 280.

15.2.2 If any fire detection and suppression system is automatic, the extinguishing system must also be able to be activated manually.

15.2.3 Appropriate secondary manual fire extinguishers must be provided.

15.2.4 Adequate fire extinguishers for outboard engines must be provided and stowed appropriately.

16 RADIO COMMUNICATIONS EQUIPMENT

16.1 Radio communication equipment carried by the boat must be capable of fulfilling operational functions.

16.1.1 At least two VHF, GMDSS and Digital Selective Calling (DSC) capable of radio telephone communication must be carried, where practical one of these must be a fixed VHF installation. Fixed VHF radios shall comply with EN301-825-1, -2 and -3. Portable radios shall comply with EN302-885-1, -2 and -3.

16.2 Any secondary communications system must not rely solely on the main battery, thus maintaining communication capability during any single point failure.

16.3 Where the boat has only a single battery or no battery, a hand held torch and portable VHF DSC radio must be carried on board. Battery minimum duration / capacity should be stated and should not be less than 12 hours, particularly if one of the radios is fixed.

16.4 Aerials and cables should be installed to avoid interference from engines or other electrical / electronic systems.

16.5 For boats with fixed VHF installations, a secondary aerial should be carried. The secondary aerial may be shared with a hand-held radio.

16.6 It must be possible to effect radio communications following immersion as a result of capsize.

16.6.1 All radios including the microphone and speakers should be water resistant to a minimum of Ingress Protection (IP) Standard IPX-7.

16.7 Hand-held radios must be able to float or be permanently attached to the user.

16.7.1 If hand-held VHF is the primary means of communication, a waterproof pack is not considered as adequate waterproofing. However a waterproof pack can be used to provide floatation.

16.8 VHF radios should be selected and positioned to minimise the risk of accidental transmission.

16.9 Aerials should be mounted as high as is practicable to maximise performance.

16.9.1 If relevant, aerials must not interfere with helicopter operation requirements.

16.9.2 For fixed aerials, sprung bases should be considered.

16.9.3 Fold down aerials should be considered.

16.10 Communication, either internal or external, must be effective in relation to noise levels on board.

16.10.1 It must be possible for the helmsman to hear VHF communications.

16.10.2 Repeaters are acceptable, as are curly cords and headsets.

17 LAUNCH AND RECOVERY EQUIPMENT

17.1 Appropriate equipment is to be designed and constructed to allow safe launch and recovery of the boat and safe access to the boat in all conditions required for operation.

17.2 The design and operation of the launch and recovery equipment will be affected by the unique local conditions and must therefore be subject to local risk assessment and consultation with the relevant Local Authorities.

17.2.1 It is recommended that launch and recovery equipment should be subject to a local risk assessment if new equipment is being used, or if existing equipment is

being used in a new way. Also if the equipment is being used for lifting persons then the Machinery Directive (2006/42/EC) should be followed.

17.3 Launch and recovery equipment should comply with relevant legislation and BS, EN and ISO standards.

- SOLAS (Safety of Life At Sea Convention)
- LOLER (Lifting Operations and Lifting Equipment Regulations)
- Health and Safety at Work Act

17.4 Service connections should be designed with weak links that can easily part.

17.5 Davits must be referred to a recognised engineering consultant or davit supplier.

17.6 Launch and Recovery equipment should have an acceptable number of handholds.

17.7 Operators and crew must be made aware of any inherent instability of the boat as a result of the launch and recovery method.

18 NAVIGATIONAL EQUIPMENT AND NAVIGATION LIGHTS

18.1 The Rescue Boat is to be equipped with appropriate navigation equipment for the area of operation and anticipated operating conditions..

18.2 Where navigation lights are fitted, they shall comply with the Merchant Shipping (Distress signals and prevention of collisions) Regulations 1996, SI 1996 No. 75, as amended, or Local/Navigation Authority requirements, as appropriate. A vessel which operates only between sunrise and sunset, and in favourable weather, is not required to carry navigation lights where it can be demonstrated that the vessel will not be caught in fog or other conditions of restricted visibility.

18.3 Where practical a vessel is to be provided with an active radar reflector, approved to current IMO performance standards, or other equivalent means to enable detection by ships navigating by radar. Where it is not practicable to achieve such performance, they must not put to sea in fog, and if visibility starts to deteriorate they are to return to shore. The reflector should be mounted as high as practicable for maximum detection range, and following the manufacturer's instructions.

18.4 Magnetic Compass

18.4.1 A vessel should be fitted with an efficient magnetic compass, or other means of determining its heading, as well as means of correcting heading and bearings to true at all times (e.g. a valid deviation card for a magnetic compass):-

.1 A properly adjusted standard magnetic compass or other means, independent of the vessels main power supply, to determine the ship's heading and display the reading at the main steering position.

.2 The magnetic compass or a repeater should be positioned so as to be clearly readable by the helmsman at the main steering position. For vessels operating up to 20 miles from a safe haven and not in favourable weather, a compass light should be fitted.

.3 Means should be provided for taking bearings as nearly as practicable over an arc of the horizon of 360 degrees. (This requirement may be met by the fitting of a pelorus or, in a vessel other than a steel vessel, a hand bearing compass.)

18.4.2 Each magnetic compass required to be carried by this Code shall be properly adjusted and its table or curve of residual deviations available at all times. Magnetic compasses should be adjusted when:

.1 they are first installed;

.2 they become unreliable;

.3 the vessel undergoes structural repairs or alterations that could affect its permanent and induced magnetism;

.4 electrical or magnetic equipment close to the compass is added, removed or altered; or,

.5 a period of two years has elapsed since the last adjustment and a record of compass deviations has not been maintained, or the recorded deviations are excessive or when the compass shows physical defects.

18.4.3 Vessels operating to sea, within 3 miles from their departure point(s) and never more than 3 miles from land, in favourable weather and daylight need not comply with the requirements of 18.4.1.1, and 18.4.1.2, and 18.4.2 provided that a suitable marine compass, similar to a fluxgate or a magnetic compass, with consistent deviation is carried on board, installed at the main steering position. For the purposes of this paragraph 'consistent deviation' is considered to be

when there has been no appreciable change observed within the two years preceding the date of inspection by the Helmsman.

18.5 The boat must be provided with the equipment required to allow operational compliance with the requirements of the Merchant Shipping (Distress signals and prevention of collisions) Regulations 1996 (SI 1996/75), as amended.

18.6 Navigational equipment must be provided such that navigation is not solely dependent on an electronic means.

18.7 The following should be carried or fitted as a minimum:

- Appropriate charts to reflect the operation of the boat. Charts must be adequately waterproofed. Where a chart plotter is carried it must be in addition to these charts;
- An efficient magnetic compass (and deviation card if necessary); and
- A hand bearing compass, or similar equipment for taking bearings

18.7.1 The following should also be considered on a risk based assessment:

- An echo sounder;
- A back up compass;
- A distance-measuring log. A GPS may fulfill this role; and
- Radar

18.7.2 For vessels operating at night, a compass light should be fitted.

18.7.3 Surf Rescue Boats may mitigate the need to carry navigational equipment by remaining within defined operating limits.

18.8 It must be possible to manually override any Autopilot or computer controls, if fitted.

18.9 A means of making sound signals shall be provided.

18.10 A signaling lamp shall be provided, this can be the same instrument as that in 13.8.12.

18.11 Fluxgate Compass

18.11.1 A fluxgate compass is acceptable under the Code, as an alternative to those required in 18.4 provided that a suitable back-up power supply is available to power the compass in the event of failure of the main electrical supply.

18.11.2 Where a fluxgate compass incorporates a capability to measure magnetic deviation by undertaking a calibration routine, and where the deviation figures are recorded within the device, a deviation card is not required.

18.11.3 The fluxgate compass or a repeater should be positioned so as to be clearly readable by the helmsman at the main steering position.

19 BOAT STORAGE

19.1 A dedicated and appropriate boat storage facility should be provided.

19.2 Where boats are moored afloat or when stored on shore, it should be ensured that environmental degradation is minimised.

20 ANCHORS AND TOWING

20.1 Towing

20.1.1 All Rescue Boats should have a towing capability, however, see 28.4.6.

20.1.1.1 Design of the towing system must reflect the Rescue Boat size and horsepower, size and types of craft that may be towed and the conditions in which tows may take place. Bollard pull should be determined and used to assist the towing gear specification. The range of towing capabilities must be communicated to the operators.

20.1.2 Towing limitations must be determined, and guidance must be provided.

20.1.3 In general, all Rescue Boats shall be fitted with at least two strong points, one forward and one aft, capable of being used for towing purposes.

20.1.3.1 Strong points designed for towing can also be used for anchoring, mooring etc. Reference can be made to:

- ISO 15084, Small craft - Anchoring mooring and towing, strong points

20.1.4 Towing equipment, must be kept on board at all times, and be kept ready for use.

20.1.5 The design and operation of the towing arrangement and gear must minimise the detrimental effect on stability.

20.1.6 Guidance must be provided on how to fit and rig a tow given the equipment provided.

20.1.7 A quick release option must be demonstrated, this could be a nearby knife or a dedicated towing slip.

20.1.8 The towrope should be of a type appropriate to the operation of the boat.

20.1.9 If the boat has a night-time capability it must be possible to illuminate the tow.

20.1.9.1 Towing shapes and lights are not required for use on board Rescue Boats.

20.1.10 The carriage of a casualty drogue should be considered.

20.1.11 All boats shall also be able to *be* towed, and must have a suitable strong point for securing a towline.

20.2 Anchors

20.2.1 It must be possible to safely stabilise the boat to allow appropriate corrective maintenance, including post capsize.

20.2.1.1 This could be implemented through provision of an anchor or alternatively a sea anchor.

20.2.2 All boats must carry an appropriate anchor, warp and chain suited to the operating conditions.

20.2.2.1 Category B boats should consider carriage of an appropriate kedge anchor in addition to the main anchor.

20.2.2.2 Guidelines for anchor selection can be found in the Small Commercial Vessel and Pilot Boat Code (MGN 280). If considered excessive, mitigations for their reduction should be determined.

20.2.3 The anchor should be provided with dedicated stowage and be ready for easy access and deployment at all times. It must also be adequately secured in its stowage to ensure that it cannot become a hazard in rough conditions, or after capsize.

20.2.4 There should be an anchor strong point in an appropriate place, and a practical fairlead.

20.2.5 Reference can be made to:

- ISO 15084, Small craft – Anchoring mooring and towing, strong points

21 EQUIPMENT STOWAGE

21.1 All equipment must be securely stowed to withstand the operating conditions for the boat, including capsize.

21.2 Equipment selection and stowage must reflect the boat design, its operation and the equipment itself, i.e. no sharp edges on inflatable boats or RIBs.

21.3 Essential equipment stowage positions must be clearly labeled.

21.4 Equipment stowage should be designed for access in all likely situations, including capsizes.

21.5 The inverted waterline should be determined and used to position critical equipment such as righting controls, radios, sea anchors etc.

21.5.1 The position of righting controls should be clearly marked on the outside of the hull to allow rapid access.

21.5.2 It should be ensured that these markers are above the inverted waterline and that the equipment can be accessed with the boat upside down.

21.6 It must be ensured that non-watertight stowages are able to drain, and are ventilated.

21.7 The provision of a grab bag may allow additional equipment to be carried and stowed acceptably.

21.7.1 Any grab bag should be 3-point secured.

21.7.2 Any grab bag should preclude the contents falling out when the bag is upside down.

22 PROTECTION OF PERSONNEL BY DESIGN

22.1 Health and Safety at Work

22.1.1 The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 (SI 1997 No. 2962), as amended, apply wherever "workers" are employed on ships. Further Guidance can be found in MGN 20 (M+F)[3] and

[3] MGN 20 (M+F) – "Implementation of EC Directive 89/391. Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997".

MGN 175 (M+F)[4]. This Code does not aim to provide definitive guidance on these Regulations, and it is the duty of the owner/manager and skipper to ensure that they are familiar with the requirements which include risk assessments.

22.1.2 Other Merchant Shipping regulations apply similar principles in the context of particular areas of risk to both workers and others onboard. It is the responsibility of the owner/managing agent and skipper to ensure that they are familiar with the requirements of those regulations. These regulations are similar to land based legislation but are separately provided for under Merchant Shipping legislation. Such regulations include, but may not be limited to:

- *.1 control of noise at work[5];*
- *.2 control of vibration at work[6] [7] (particularly with regard seat design);*
- *.3 provision and use of work equipment[8];*
- *.4 lifting operations and lifting equipment[9];*
- *.5 working at height[10];*
- *.6 manual handling[11];*
- *.7 personal protective equipment[12];*
- *.8 entry into dangerous spaces[13];*
- *.9 safe movement onboard[14];*
- *.10 working with carcinogens and mutagens[15];*
- *.11 working with biological agents[16];*

[4] MGN 175 (M+F) – "Health and Safety Regulations for Ships: Merchant Shipping and Fishing Vessel (Health and Safety at Work) (Amendment) Regulations".
[5] MGN 352 (M+F) – "The Merchant Shipping and Fishing Vessels (Control of Noise at Work) Regulations 2007".
[6] MGN 353 (M+F) – "The Merchant Shipping and Fishing Vessels (Control of Vibration at Work) Regulations 2007"
[7] MGN 436 (M+F) – 'WHOLE-BODY VIBRATION: Guidance on mitigating against the effects of shocks and impacts on small vessels'.
[8] MGN 331 (M+F) – "The Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006".
[9] MGN 332 (M+F) – "The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006".
[10] MGN 410 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Work at Height) Regulations 2010".
[11] MGN 90 (M+F) – "Implementation of EC Directive 90/269/EC Merchant Shipping and Fishing Vessels (Manual Handling Operations) Regulations 1998".
[12] MSN 1731 (M+F) - The Merchant Shipping and Fishing Vessels Personal Protective Equipment Regulations 1999 - SI 1999/2205".
[13] MGN 423 (M+F) – "Entry into Dangerous Spaces".
[14] SI 1988 No. 1641 The Merchant Shipping (Safe Movement on Board Ship) Regulations 1998, as amended.
[15] MGN 356 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Carcinogens and Mutagens) Regulations 2007".

.12 working with chemical agents[17];

.13 safe means of access[18];

.14 employment of young persons[19]; and

.15 new and expectant mothers[20];

.16 artificial optical radiation[21]; and

.17 asbestos[22]

22.1.3 There should be a provision for a complaints procedure.

22.1.4 Much of the Health and Safety Legislation relates to workers, however it is recommended that, for the purposes of this Code, Rescue Boat Organisations should aim to treat "volunteers" as "workers".

22.2 All aspects of the boat must be designed to minimise the risk to all persons on board during operation, including survivors, up to the operational limit of the boat.

22.2.1 The provision, specification, positioning and attachment of the following should reflect this:

- Seating
- Bulwarks
- Guard rails (if fitted)
- Hand-holds
- Foot-holds
- Padding
- Hazard signs
- Lighting
- Rounded edges
- Appropriate recovery access for survivors
- Personal protective equipment etc.

[16] MGN 408 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Biological Agents) Regulations 2010".
[17]MGN 409 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Chemical Agents) Regulations 2010".
[18] MGN 337 (M+F) – "Provision of Safe Means of Access to Fishing and Other Small Vessels"
[19] MGN 88 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Employment of Young Persons) Regulations 1998".
[20] MGN 112 (M+F) – "New and expectant mothers: Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 and Merchant Shipping (Medical Examinations) Regulations 1983"
[21] MGN 428 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Artificial Optical Radiation) Regulations 2010".
[22] MGN 429 (M+F) – "The Merchant Shipping and Fishing Vessels (Health and Safety at Work) (Asbestos) Regulations 2010".

22.2.2 Personnel protection measures should have minimal interference with the operation of the boat, both routinely and following capsize.

22.2.2.1 Guard rails etc. should not present a hazard of the crew becoming entangled following capsize.

22.2.3 Grab handles or lifelines should be provided to allow the crew to move fully around the perimeter of the boat when capsized.

22.2.4 The provision of restraints and harnesses should be on the basis of a local risk assessment.

22.2.4.1 In a harness risk assessment, the following should be addressed:

- MoB
- Level of PPE worn by the crew
- Crews are to be fully trained in MoB procedure (both as the rescuer and the MoB)
- There is a risk of propeller injury if MoB is wearing a harness
- There is a risk of entanglement if the boat capsizes and crew are attached

22.2.4.2 In certain cases it may be judged more hazardous to suffer MoB with a harness than without.

22.2.5 The boat must be designed to minimise the risk of a MoB.

22.2.6 All surfaces that may be stepped on should be designed to reduce slipping.

22.2.6.1 The following should be addressed:

- Areas where hydraulic fluid or fuel may leak or be spilled
- The surface finish of hatch covers on a working deck
- If the boat is righted through the crew standing on the upturned hull, non-slip patches should be considered
- The provision of non-slip boots
- The upper surface of an inflated buoyancy tube should be provided with a non-slip finish
- Areas where engines may be hand-started

22.2.7 The location of any recesses must minimise the risk of tripping.

22.2.8 The boat must be designed such that the ergonomics of operating the boat minimizes any potential chronic and acute crew injury risks. Seating and posture

should be addressed. Issues associated with buoyancy tube riding or riding within the boat should be investigated where relevant.

22.2.9 The boat must be designed to minimise manual handling risks at all time, particularly during survivor recovery.

22.2.9.1 The boat must be designed to avoid injury to survivors and crew whilst recovering people from the water.

22.2.10 The boat is to be designed to minimise danger to persons during normal movement about the boat, with due regard being paid to moving parts, hot surfaces and other hazards. Snags and hooks where PPE webbing can catch are to be avoided

22.2.11 Machinery must be suitably guarded to prevent injury.

23. MEDICAL CARE

23.1 An appropriate First Aid kit should be carried and be easily accessible in all conditions.

24. OWNER'S MANUAL

24.1 An owner's/operators manual must be provided with the boat.

24.2 Instruction for writing the manual can be found in ISO 10240.

24.3 See 13.6 and 13.7 for guidance on life saving appliances training and instructions manuals.

25. MAINTENANCE

25.1 A Rescue Boat Organisation must be able to provide a maintenance and survey plan.

25.1.1 The plan should cover the following aspects of maintenance:

- Planned
- Preventative
- Unplanned
- Corrective

25.2 On this basis the maintenance and survey plan should determine the approach of the Rescue Boat Organisation, taking into account the following:

- Manufacturers maintenance instructions
- Operation
- Equipment storage
- Risks associated with different maintenance approaches for each item

25.3 The maintenance plan is likely to involve elements of both planned routine preventative maintenance and unplanned corrective maintenance (at sea or ashore).

25.4 A routine maintenance plan can vary from a simple (yet inconvenient) collection of manufacturers maintenance requirements, to a specific maintenance schedule incorporating perhaps daily, weekly, monthly and longer periodic job cards.

25.5 The corrective maintenance plan can be used to determine the tools and spares to be carried at sea, and associated training requirements. See Para 3.3.8.

25.6 All aspects of the boat, systems and equipment must be designed to allow specified routine maintenance and anticipated corrective maintenance to take place.

25.7 Rescue Boats should carry a basic tool kit and an appropriate level of spares to allow for corrective maintenance at sea. Floating tools are beneficial, and lanyards should be used.

25.8 As a minimum, the following corrective maintenance action should be considered:

- Post immersion/ capsize engine restart
- Emergency engine re-start (manual/electric)
- Spark plug replacement (kit in sealed container)
- Water repellent spray
- Propeller clearing and replacement/blade straighten – address engine lock-up pin
- Emergency buoyancy tube or hull repair
- Steering repair and emergency steering
- Fuel line repair
- Oil filter replacement.
- Aerial replacement
- Light bulbs and fuses/circuit breakers
- Propeller debris clearance – jet propulsion

26 MANNING

26.1 The minimum number of crew required will be determined by the requirements of Paragraph 28.2 and 28.5.1.6 but will never be less than two. It is appreciated that there may be occasions during operations where only one crew member is left in the boat. This is sometimes an operational necessity; however, all missions are to begin with the requisite number of crew in the boat.

26.2 At least one member of the Rescue Boat crew is to be appropriately trained in First Aid.

26.3 Appropriate training is to be provided to the Rescue Boat crew and the shore crew so that they may safely launch, recover and operate the boat in all anticipated conditions.

26.4 The training provided should aim to ensure the greatest availability of appropriately skilled crew.

26.5 The Rescue Boat operator is to have policies and procedures to ensure that boat crew and shore crew meet appropriate medical and physical fitness standards.

26.6 No boat crew or shore crew member who is unfit to perform the duties expected of them is permitted to assist in the launch, recovery or operation of the Rescue Boat.

26.7 Further specific training requirements are noted in the relevant parts of sections 28.3 to 28.4.8.

26.8 Appendix 2 details the training requirements and Appendix 4 gives information on a structured training plan.

27 PROCEDURES, CERTIFICATION, EXAMINATION, MAINTENANCE AND REPORTING OF ACCIDENTS

27.1 Introduction

27.1.1 An example of the format of the Rescue Boat Certificate is provided in Appendix 10.

27.1.2 For the purposes of this Section:

RB2 - means the report form for a Compliance Examination and Declaration Report For a Less Than 15 m Open Rescue Boat, see Appendix 8.

27.1.3 Definitions of different types of survey, Competent Person and Responsible Person can be found in Section 2.

27.1.4 The Rescue Boat Organisation should decide the extent of the examination based on the type, age and history of the vessel and may give credit for any recent and detailed competent examination of a vessel for which a report is available.

27.2 Requirements and Procedures for Vessels to be Examined and Certificated

27.2.1 The Responsible Person of a Rescue Boat Organisation should select a Competent Person to examine a rescue boat that is to operated and certificated under the Code. The Competent Person is to examine the boat for compliance with the Code and the results of the examination is to be documented on the form for a Compliance Examination and Declaration.

27.2.2 Prior to entering into service, the Responsible Person for the Rescue Boat Organisation should issue a Rescue Boat Certificate for the vessel. The Certificate, or a signed authenticated copy, should be displayed in a prominent location relevant to the rescue boat. It should be available for inspection by a relevant authority and by users of the vessel.

27.3 Compliance Examination and Issue of a Certificate of Compliance under the Code

27.3.1 Rescue boats should be subject to a compliance examination by the Competent Person, as designated by the Rescue Boat Organisations' Responsible Person, before entry into service. Declared Rescue Boat facilities must be audited by HM Coastguard prior to being accepted as such, for details see the UK SAR Framework Document.

27.3.2 The arrangements, fittings and equipment provided on the vessel are to be documented on the Appendix 5 Compliance Checklist and on the Appendix 8 Compliance Examination and Declaration report form RB2 by the Competent Person. Upon satisfactory completion and documentation of the compliance examination, and the required declarations, a copy of the signed report form RB2 should be kept on file by the Rescue Boat Organisation.

27.3.3 The Rescue Boat Organisation should make readily available information necessary to confirm that the stability of the vessel meets the standard required by the Code for the permitted area of operation and/or intended use of the vessel.

27.3.4 Upon satisfactory review of the documented arrangements, fittings and equipment provided in compliance with the Code, also the required declarations in the completed report form RB2 and agreement of the required stability

information, the Responsible Person will issue the Appendix 10 Rescue Boat Certificate.

27.3.5 A Certificate should be valid for not more than five years from the date of examination of the vessel out of the water by the Competent Person. For a newly constructed vessel, built under full construction survey for the purposes of this Code, the Certificate may begin from the final in-water compliance survey. The Certificate may be valid for a lesser period of time as determined by the Rescue Boat Organisation. The Responsible Person is responsible for the validity and content of the certificates.

27.4 Renewal Examinations

27.4.1 The Responsible Person should arrange for a renewal examination to be carried out by a Competent Person. The Renewal interval is five years. At this examination the vessel should be examined out of the water and in the water. Upon satisfactory completion and verification that the arrangements, fittings and equipment documented in the Compliance Examination and Declaration report form RB2 remain in compliance with the Code and that the vessel, its machinery and equipment are in a sound and well maintained condition, the Certificate in force may be endorsed to indicate a 3 month extension. A report recommending the renewal of the Certificate should be produced.

27.4.2 The Responsible Person should renew the vessel's Certificate if it is satisfied that the arrangements, fittings, and equipment documented in the report form RB2 are in compliance with the Code.

27.5 Intermediate Examinations

27.5.1An examination equivalent to the annual examination, detailed in Section 27.6.1 must be carried out on behalf of the Rescue Boat Organisation by a Competent Person at least once during the life of the 5 year certificate, in order that the interval between successive examinations by an competent person does not exceed three years. The Responsible Person must arrange for this examination to be carried out.

27.5.2 On satisfactory completion of the examination, the Competent Person must enter a record of the examination on the report form RB2.

27.5.3 More frequent examinations, and examinations both in an out of the water, may be required by the Competent Person if deemed necessary.

27.6 Annual Examinations

27.6.1 Annual Examination by an Officer of the Rescue Boat Organisation

27.6.1.1 The Responsible person will appoint an officer of the Rescue Boat Organisation to carry out an annual examination of a vessel within 3 months either side of the anniversary date of the compliance/renewal examination, at intervals not exceeding 15 months, to confirm that the arrangements, fittings and equipment provided on board are in a satisfactory condition and remain as documented in the report form RB2. Also that the vessel, its machinery, fittings and equipment are in a sound and well maintained condition, and where necessary serviced at the required period. On satisfactory completion of the annual examination, the officer should enter a record of the examination on the Compliance Examination and Declaration report form RB2. Alternatively this examination can be done by a Competent Person.

27.6.1.2 The officer should not complete details on the report form RB2 if the examination reveals that either the vessel, its machinery, fittings or equipment are not sound or they do not comply with those documented in the Compliance Examination and Declaration report form RB2, or have not been serviced at the required period. The defects or deficiencies should be rectified as necessary immediately by the Rescue Boat Organisation. Also, see Section 27.9.2.

27.7 Additional Requirements for Inflatable and Rigid inflatable Boats

27.7.1 Inflatable and rigid inflatable boats should additionally be tested in accordance with the requirements in section 4.6 and 30.

27.8 Appeal Against the Findings of an Examination

27.8.1 If a Rescue Boat Organisation is dissatisfied with the findings of an examination and agreement can not be reached with the Competent Person who carried out the examination, the Rescue Boat Organisation may appeal to the Director of Maritime Safety and Standards of the MCA to review the findings. At this review, the Rescue Boat Organisation may call a representative or professional adviser to give opinions in support of the argument against the findings of the examination.

27.9 Maintaining and Operating the Vessel

27.9.1 The MCA[23] or HMCG may inspect a certificated vessel at any time.

27.9.2 It is the responsibility of the Responsible Person to ensure that at all times a vessel is maintained and operated in accordance with the requirements of the Code, the arrangements as documented in the Compliance Examination and

[23] Merchant Shipping Act 1995 (Ch. 21), section 258.

Declaration report form RB2 and any conditions stated on the vessel's certificate. Additionally, it is the responsibility of the Responsible Person to ensure that the vessel is maintained in accordance with manufacturer's recommendations or best engineering practice. If for any reason the vessel does not continue to comply with any of these requirements, the Rescue Boat Organisation should rectify and document the problem. Also see Section 27.11.3.

27.9.3 In cases where the vessel suffers major damage, for example as a result of a collision, grounding, fire or other event, the Rescue Boat Organisation must notify the HMCG immediately, explaining the circumstances by which the vessel became damaged. The nature and extent of major repairs are subject to the approval of the Competent Person.

27.9.4 Minor damage, detrimental to the safety of the vessel, must also be documented by the RBO and measures proposed to effect repairs.

27.9.5 The Rescue Boat Organisation should notify and seek approval from the Competent Person prior to implementing any change or modification to the vessel or its equipment which is covered by the requirements of the Code.

27.10 Accident Reporting

27.10.1 In addition, the Rescue Boat Organisation has a statutory requirement to report accidents. The statutory requirements are given in the Merchant Shipping (Accident Reporting and Investigation) Regulations 1999 (SI 2005 No.881), as amended. MGN 289 (M+F)[24] explains the Regulations and the requirement to report accidents to the Department for Transport's Marine Accident Investigation Branch (MAIB).

27.11 Other Conditions Applying to Certificates - Validity and Cancellation of Certificates

27.11.1 The validity of a certificate is dependent upon the vessel being maintained, equipped and operated in accordance with the documented arrangements contained in the Compliance Examination and Declaration report form RB2. Proposals to change any of the arrangements should therefore be agreed in writing with the Competent Person before a change is implemented. Copies of the written agreement detailing changes(s) should be appended to the report form RB2, which is to be retained.

27.11.2 If a vessel is not examined within the period in which an examination must take place for an intermediate or annual examination, or if the Rescue Boat

[24] MGN 289 (M+F) – "Accident Reporting and Investigation".

Organisation fails to carry out a self-declaration within the required period, the Certificate will become invalid.

27.11.3 When the vessel is found not to have been maintained or equipped or operated in accordance with the arrangements documented in Compliance Examination and Declaration report form RB2, the Rescue Boat Organisation's Responsible Person must suspend the Certificate until satisfactory rectification of deficiencies has taken place, or the Rescue Boat Organisation's Responsible Person may cancel the Certificate.

27.11.4 If the MCA has reasonable grounds to believe that a vessel issued with a Certificate by a Rescue Boat Organisation no longer fulfils the requirements of this Code, they may require the Rescue Boat Organisation to suspend or cancel the Certificate.

27.11.5 When a vessel is sold, the certificate issued by the Rescue Boat Organisation on the basis of the compliance examination and Rescue Boat Organisation declarations documented in the Compliance Examinations and Declaration report form RB2 is cancelled automatically and the selling Rescue Boat Organisation should formally cancel the certificate and records. A new certificate may be issued by the new Rescue Boat Organisation subject to compliance with the Code. A Competent Person should decide the extent of any examination, of the vessel which may be required before a new certificate is issued.

27.11.6 The MCA's Search and Rescue Branch should be informed when a certificate is issued or renewed. When a certificate is cancelled, the circumstances should also be reported, for action to be taken as deemed necessary.

27.11.7 The Rescue Boat Organisation may transfer to another Competent Person at any time.

27.12 Vessels Other than UK[25] Vessels Operating in UK Waters.

27.12.1 This Code applies to vessels other than UK vessels operating from UK ports whilst in UK waters. When Certificates are issued to such vessels, it should be clearly stated on the Certificate "this Certificate is applicable within UK territorial waters only".

28 SAFETY PROCEDURES

28.1 Applicability of Other Codes of Practice

[25] UK does not include the UK's Overseas Territories and Crown Dependencies which are: Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Falkland Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Montserrat, St. Helena and Turks and Caicos Islands.

28.1.1 If the rescue vessel is operating under another Code of Practice for other reasons (such as the MCA Small Commercial Vessel and Pilot Boat Code (MGN 280), the operational requirements of that Code must be adhered to.

28.2 General Requirements

28.2.1 The safety procedures adopted are to take full account of the design of the Rescue Boat and associated equipment (including launch and recovery equipment and shore interfaces) to ensure that the risks posed to crew, shore crew, the general public and equipment are minimised.

28.2.2 The operation of Rescue Boats and associated equipment will be affected by unique local conditions and must therefore be subject to local risk assessment and consultation with the relevant Local Authorities.

28.2.3 In addition to local risk assessments appropriate to the operation of Rescue Boats the Rescue Organisation is to demonstrate compliance with each section of the Code, either by following the requirements of the text or by offering an acceptable alternative mitigation in each case.

28.2.4 Issues to be considered in local risk assessments are typically: -

For launching: -

- Off a trolley: - Crew safety in water around trolley/boat interface, controlling third parties and shore crew, hazards due to change of balance on trolley as boat floats off
- Alongside mooring:- influence of tides, currents, passing traffic, adequate moorings (including alternative moorings), slips and trips, access times, service connections
- Offshore mooring:- exposed environment for boat transfer, boat accessibility from water, different operational/daylight limitation for boat transfer, fitness levels for water/boat transfers, mooring design
- Davit: - man-riding requirements, design limitations, operational expertise.
- Beach: - propeller/bather guard protection, access to boat, crowd control, damage to boat and injury to personnel on launch
- Transit to launch site – Road Traffic Act regulations
- Compliance with Health and Safety at Work Act

For under way: -

- Effect on operations of local conditions (sea/weather, obstacles, traffic, surf)

- Coping with emergencies (such as loss of power and/or steering, collision, capsize, swamping, man overboard, fire, equipment failure, worsening conditions, grounding)
- Carriage of non-crew members on rescues
- Reliability of navigation, communications (internal/external) and search methods
- Operations with external bodies, including helicopters

For rescue: -

- Crew/survivor injuries during survivor recovery or landing
- Minimum number of crew members to retain effective control of the boat during rescue operations
- PPE, procedural and training requirements if crew leave the boat during a rescue operation (in water, to another boat or ashore)
- Specific landing sites for survivors (i.e. to meet helicopter/ambulance)

For towing: -

- Assessment, implementation and monitoring of tow
- Training and procedures for range of conditions including the potential use of drogues by the towed vessel and stability issues relating to towing for the Rescue Boat

For operation in surf: -

- Operating conditions
- Specialist/local training requirements

For recovery operations: -

- Similar range to launching, taking into account non-crew members on board, crew fatigue, faster moving boat entering shallow water, following seas etc.

28.3 Launch of Rescue Boat on Service

28.3.1 Pre-launch Requirements

28.3.1.1 A primary and secondary means of communication must be available to assemble crew and helpers for launching the boat on service.

28.3.1.2 A procedure must be in place with the Coordinating Authority to control the request for launch e.g. for crew to either assemble and prepare for launch, or to launch immediately, etc.

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28.3.1.3 Each member of the shore and boat crew is to be assigned specific roles prior to a launch.

28.3.1.4 Authorisation to assemble is not to be treated as an order to launch the Rescue Boat. The decision to launch the Rescue Boat lies with the Launching Authority and must be made with due consideration of the following points, for which an operational procedure must be in place:

- The minimum number of adequately trained, fit crew to safely operate the Rescue Boat in the conditions to be encountered has been assembled. Once authorised to launch by the Launching Authority, the Helmsman shall have the final decision whether to launch or not
- The minimum number of adequately trained, fit shore crew to safely launch the Rescue Boat in the conditions to be encountered has been assembled
- The launch site has been selected from the list of nominated sites available. Alternative launch sites are to be drawn up in advance as a result of local knowledge and liaison with Local Authorities, and training at the selected site is to have been undertaken
- The prevailing and forecast weather/sea conditions are within the operational limits of the Rescue Boat, both at the launch site and area of passage to and from the casualty. Operating a boat above its stated operating limit will place crew and boat at increased risk and should only be considered in exceptional circumstances, and should be a joint decision by the Coordinating Authority, the Launching Authority and the Helmsman who should **all** be in agreement. The Helmsman has the final decision. Conditions affecting the operation of the boat may include sea state, air temperature, the likely service duration, distance of casualty from launch site, visibility, and daylight hours remaining

28.3.1.5 The points in Para 28.3.1.4 should always be fully considered and fully adhered to, other than in exceptional circumstances where there is direct knowledge of immediate danger to life and where any delay would substantially increase the risk of life being lost. In some organisations, the Launching Authority may be the duty Helmsman or the Duty Officer.

28.3.1.6 The following must be addressed during training:

- Identification of operational limits
- Possible consequences of operating beyond operational limits
- Appropriate action to be taken to reduce risks to crew and survivors

- All assembled crew and shore crew to wear appropriate, serviceable PPE for launching and operating the Rescue Boat in the conditions to be encountered
- All equipment required for launching, operating and recovering the Rescue Boat in the conditions to be encountered is to be serviceable, properly located and stowed
- The boat is to be fully fuelled, or have sufficient quantity of fuel in the boat fuel tanks to successfully complete the service
- All boat and essential equipment batteries to be fully charged, or sufficiently charged to successfully complete the service
- All applicable service connections to the boat to be disconnected

28.3.1.7 A procedure is to be in place to ensure that serviceable PPE is always available for crew to operate the Rescue Boat and that unserviceable PPE cannot be picked up in error.

28.3.1.8 The serviceability of PPE is to be checked following each time it is used, or at the start of each shift, and returned to its dedicated stowage.

28.3.1.9 A procedure is to be in place to ensure that all appropriate Rescue Boat equipment is available and properly stowed and secured ready for use.

28.3.1.10 A procedure is to be in place to ensure that only fuel of the correct specification, free from contaminants and correctly mixed, where appropriate, is put into the fuel tanks of the Rescue Boat. All Portable fuel tanks, including flexible tanks (on board and in the boat house) should be appropriately marked to reflect fuel type/mixture held.

28.3.1.11 Fuel procedures are to take account of national legislation, including the Road Traffic Act and the Health and Safety at Work Act.

28.3.1.12 The number of crew onboard the Rescue Boat, when launched, is to be communicated to the Co-ordinating Authority. The Rescue Boat Organisation is to maintain an up-to-date crew list which is to be available to the Launching Authority or Duty Officer at all times when the Rescue Boat is on service or training.

28.3.2 Transit to Launch Site

28.3.2.1 The Rescue Boat Organisation is to develop and adhere to a safe launch procedure.

28.3.2.2 As far as practicable, a nominated person from the shore crew is to ensure that the route from the boat stowage to the launch site is clear and remains clear of

obstructions and the general public. Assistance from an outside body (e.g. Police) may also be considered necessary as it is recognised that the Rescue Boat Organisation may not possess the necessary authority to enforce such a requirement.

28.3.2.3 Locations that are likely to be congested and difficult to keep clear will require visual/audible warnings such as signs, signals, sirens, flashing lights between the boat stowage facility, and the launch site. Route and contingency planning, with involvement from Local Authorities, may assist in speeding progress to the launch site.

28.3.2.4 Due consideration should be given to the location of the boat stowage facility to minimise launching delays.

28.3.2.5 The Rescue Boat Organisation is to ensure that all personnel are made aware of their obligations to comply with the relevant Road Traffic Regulations.

28.3.2.6 The boat and shore crew must have a working knowledge of the launch site (in and out of the water) and transit areas to the launch site.

28.3.2.7 A nominated person is to be responsible for the transit of the Rescue Boat and launching equipment from stowage to the launch site. Where this person is not the Helmsman, there should be a specified instant from which the Helmsman shall assume command of the launching operation on completion of transit until the boat is completely clear of the launching equipment. The launching equipment should then pass to the responsibility of one shore crew member for the preparations for recovery of the boat.

28.3.3 Launching

28.3.3.1 The operation of launching equipment is to be subject to local risk assessment.

28.3.3.2 The crew are to be made aware through training of any inherent instability in the boat as a result of the launch and recovery method. Suitable practices to avoid potential difficulties are to be adopted.

28.4 Rescue Boat Under Way

28.4.1 Communications

28.4.1.1 The Rescue Boat Organisation is to develop a communications procedure with the Coordinating Authority and any other relevant bodies. The procedure is to address at least the following:-

28.4.1.2 As soon as possible after launch the Rescue Boat is to inform the Co-ordinating Authority.

28.4.1.3 The Rescue Boat should continue to report its position and intended movements as agreed with the Co-ordinating Authority. Any incident resulting in a reduction in operational effectiveness should be reported as soon as practicable.

28.4.1.4 A secondary means of communications must be available if the primary means fails. Appropriate training and procedures must take account of any changes in operating procedures due to the use of the secondary means of communications.

28.4.1.5 Should Para's 28.4.1.2 to 28.4.1.4 not be appropriate to the operational circumstances, such as surf rescue, of the Rescue Boat Organisation, alternative safety measures must be demonstrated.

28.4.1.6 Radio watch is to be kept throughout the service or training in accordance with the communications procedure.

28.4.1.7 Effective communications within the boat must be maintained.

28.4.1.8 The procedure is to ensure that effective communications can be established and maintained with casualty vessels and other relevant nominated external bodies.

28.4.1.9 Effective portable communications equipment must be available for crew operating off the Rescue Boat ashore or on board a casualty vessel.

28.4.1.10 The Co-ordinating Authority is to have an agreed procedure to follow if communications with a launched Rescue Boat are lost.

28.4.1.11 Additional communications requirements are covered in the following sections.

28.4.2 Boat Handling

28.4.2.1 The Helmsman is in command of the Rescue Boat at all times and has responsibility for the safety of all on board and for the boat.

28.4.2.2 The requirements of the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs) are to be met.

28.4.2.3 Consideration is always to be given to other water users.

28.4.2.4 Handling and manoeuvring of the Rescue Boat should be modified to suit the sea conditions, visibility and local traffic conditions.

28.4.2.5 Appropriate training should be given to and experience should be gained by all crew to enable them to cope with the anticipated operating conditions, manoeuvres, emergencies and rescue scenarios.

28.4.2.6 Boat Handling training should include :-

- Tight turns
- Propeller Cavitation, aeration and ventilation
- Loss of power and/or steering
- Broaching
- Collision
- Capsize
- Swamping
- Man Overboard
- Fire
- Equipment failure
- Worsening conditions
- Grounding
- Anchoring and anchor recovery
- Establishing a tow, shortening and lengthening a tow and towing alongside• Change of crew roles when underway
- Procedures to maintain the watertight and structural integrity of the boat (particularly when needed for righting the boat following capsize)

28.4.3 Navigation

28.4.3.1 Crew are to be trained in the use of the navigation equipment carried and have experience relative to the area of operations, appropriate to their role.

28.4.3.2 The Rescue Boat's position is to be continuously monitored by the crew.

28.4.3.3 Reliance is not to be placed entirely on electronic aids to navigation (e.g. GPS).

28.4.4 Search

28.4.4.1 Search procedures are to be appropriate to the area and conditions of operation and interfacing external organisations. Reference should be made to the International Aeronautical and Maritime SAR Manual (IAMSAR).

28.4.4.2 Appropriate training in search procedures is to be given and conducted as part of regular crew training.

28.4.5 Rescue

28.4.5.1 Boat handling for the approach and rescue of survivors in the water is to be the subject of specific training.

28.4.5.2 Training is to be given in recovering survivors from the water safely. This training is also to take account of the requirements of the Stability Section of this Code (including damage scenarios) and the changes in handling characteristics of the Rescue Boat during and after survivor recovery.

28.4.5.3 Specific procedures (and any appropriate physical fitness requirements) are to be developed and training given if crew are expected to enter the water to assist in survivor recovery. Appropriate equipment is to be provided and properly used. Consideration should be given to procedures for survivor recovery by manual handling.

28.4.5.4 Specific procedures and communications requirements are to be developed and training given if crew are expected to come alongside and board a casualty vessel to assist in survivor recovery or towing. Appropriate PPE and equipment is to be provided and properly used.

28.4.5.5 The Rescue Boat crew is to ensure that survivors wear PPE as appropriate.

28.4.5.6 Survivors are to be briefed on how and where to hold on/brace themselves while the Rescue Boat is under way and prior to the boat being recovered/beached.

28.4.5.7 Handling of the Rescue Boat is to be moderated to reflect the carrying of survivors, particularly if injury has been sustained.

28.4.5.8 The Rescue Boat's capacity as stated on the capacity plate is to be adhered to in normal operation. If exceptional rescue circumstances require that any of the capacity figures specified on the plate are exceeded (and thus placing crew and boat at increased risk), and should be a joint decision by the Coordinating Authority, the Launching Authority and the Helmsman who should **all** be in agreement. The Helmsman has the final decision. This must be stated explicitly in all associated boat documentation.

28.4.5.9 The well-being of survivors should be regularly monitored until they are handed over to the appropriate authorities ashore.

28.4.5.10 The Rescue Boat Organisation should have a survivor-handling plan. Rescue Boat crew and shore crew should train to meet the plan.

28.4.6 Towing

28.4.6.1 With the exception of RIBS and inflatable boats the danger of deck edge immersion generally makes an open boat unsuitable for towing other vessels or objects. However, if there is no other viable option then provisions should be made as follows:-

- The towing capabilities of the Rescue Boat, in terms of vessel size and type are to be documented and the Rescue Boat crew trained in the boat's capabilities
- The effects of towing on the stability of the Rescue Boat are to be documented and communicated to crew
- Towing procedures are to be developed in conjunction with the design of the towing system
- Training in these procedures is to be undertaken in a controlled environment.

28.4.6.2 Contingency planning and training should be carried out to reduce the risk of injury or damage during towing operations and should include as appropriate:

- Recovery from a range of likely towing failures
- Adjusting the length of the tow whilst underway
- Planning for getting casualty into a safe haven and alternative havens, given a change in conditions
- Transferring the tow from astern to alongside and vice-versa

28.4.6.3 Effective communications with the casualty vessel before, while establishing and during the tow must be maintained.

28.4.6.4 The most effective and safe manner to establish and maintain a tow is to be determined prior to a casualty being taken under tow. This should be undertaken in conjunction with the crew of the casualty vessel.

28.4.6.5 Training should ensure that the following are considered prior to commencing the tow (this is not an exhaustive list):-

- Size (length, beam, draft, displacement), type and stability of casualty
- Prevailing weather conditions
- Capability of crew on casualty – need to transfer personnel to and from the casualty
- Manner of tow (alongside tow appropriate?)
- Means of communication throughout tow
- Nominated personnel for particular tasks (look out, communications, etc.)

- Manner of quick releasing tow in emergency (if safest thing to do)

28.4.6.6 The location and safety of personnel aboard the Rescue Boat and towed casualty is to be monitored throughout the towing operation.

28.4.7 Operation in Surf

28.4.7.1 Engine operating techniques for Rescue Boats operating in surf should be designed to minimise the risk of loss of power or engine failure.

28.4.7.2 Taking into account anticipated surf conditions, training is to address the following:

- Assessment of conditions
- The position and movement of crew for safe transit through surf (i.e. dynamic ballasting)
- Manoeuvring and timing in surf including throttle control
- Emergency survival techniques (controlled halt, drainage, capsize and recovery, obstructed propeller, engine failure in the surf and sponson / keelson failure)
- Recovery of Casualties and survivors
- Operating in surf with survivors on board
- Surf-specific features of the engine, such as no engine lock down and the removal of the ingear inhibit mechanism

28.4.7.3 The Helmsman of an outboard engine powered boat must never let go of the throttle/steering arm, when in gear, except to prevent capsize by dynamic ballasting.

28.4.7.4 Observation by and communications with the shore crew / Co-ordinating Authority are to be maintained when operating in surf.

28.4.7.5 Operational limitations for Rescue Boats operating in surf conditions are to be specified separately to those developed for open sea conditions.

28.4.8 Helicopter Operations

28.4.8.1 Standard operational procedures are to be adopted for operating with helicopters in consultation with the relevant helicopter operator(s). Standard Operating Procedures for helicopter operations published in IAMSAR Volume 3 should be followed.

28.4.8.2 Specific training in helicopter operations should be undertaken on at least an annual basis.

28.4.8.3 Rescue Boat organisations wishing to exercise with helicopters must establish an insurance protocol with the operators.

28.4.9 Cliff/Cave Rescue

28.4.9.1 Procedures and training are to be developed specifically to suit the local conditions if cliff or cave rescue is to be undertaken or supported by the crew of the Rescue Boat. The Rescue Boat Organisation's communications procedure is to reflect the need to liaise with external bodies and the Co-ordinating Authority (see Para. 28.4.1).

28.4.9.2 Entry to caves to rescue casualties should only be undertaken where there is sufficient depth of water and head room, and sea conditions allow the boat to enter. Rescue of casualties from caves or cliffs should only be undertaken by specialist cave or cliff rescue teams e.g. HM Coastguard Coast Rescue Teams.

28.4.10 Carriage of Passengers

28.4.10.1 Passengers may only be carried on a Rescue Boat carrying out a rescue or training if explicitly covered by the operational procedures of the Rescue Boat Organisation. These procedures are to consider the following requirements (subject to local risk assessment):-

- Training with outside organisations
- Requirement for briefing
- Contingency planning
- Need to change handling of boat to take into account non-crew members on board
- Carriage and stowage of equipment brought on by passenger
- Type of PPE to be worn
- Capacity reduction

28.4.10.2 Open Rescue Boats are not considered suitable to undertake commercial activities. Attention is drawn to Para. 3.2.1. Whilst it may be necessary or desirable for Rescue Boats to carry passengers as part of a fact finding experience, or an "open day", this should only be done with another power boat in company capable of carrying the Rescue Boat passengers and crew in emergency. The number of passengers shall be restricted to 12 and the number of persons on board shall not exceed the capacity plate, while maintaining a minimum functional crew at least. No fare should be charged for either boat activity. The carriage of passengers is not expected to be a regular event and on **every** occasion is to be subject to a specific risk assessment.

28.4.11 Fuel Management Afloat

28.4.11.1 Fuel is to be managed afloat to ensure that the engine is never starved of fuel.

28.4.11.2 The endurance of the Rescue Boat in terms of time and distance at various speeds is to be documented and communicated to all crew.

28.4.11.3 The Rescue Boat should not operate with less than 10% fuel remaining. Where more than one tank is used, it is considered advisable to alternate the supply between the tanks rather than running until each is empty.

28.4.11.4 Measures to prevent and fight fire during all routines involving fuel are to be included in the Rescue Boat Organisation's procedures.

28.4.11.5 Procedures and training is to be in place to safely shut off fuel supply to the engine and from the tank(s) in an emergency.

28.4.12 Battery Management Afloat

28.4.12.1 During any operation, the battery capability should be managed to ensure that the craft can complete its mission with all essential systems (that require battery support), still functioning.

28.4.13 Maintenance Afloat

28.4.13.1 Procedures are to be developed for equipment that may require emergency maintenance at sea, appropriate to the conditions encountered. Procedures may cover:

- Lost buoyancy – emergency buoyancy tube or hull repair
- Lost steerage – steering repair, emergency steering
- Change of spark plugs
- Propeller change/clearance/blade straighten
- Shear pin replacement
- Fuel line repair
- Post immersion engine restart
- Emergency engine re-start (manual/electric)
- Oil filter replacement
- Spare aerial fit
- Light bulbs and fuses. Circuit breakers are best served with trip switches rather than fuses.
- Propeller debris clearance – jet propulsion

28.4.14 Pyrotechnics

28.4.14.1 There is to be a procedure for the safe stowage, operation, inspection, disposal and replacement of pyrotechnics.

28.4.14.2 Appropriate training is to be provided.

28.4.15 Ballasting

28.4.15.1 Appropriate procedures are to be developed to ensure that ballasting is undertaken in a safe manner.

28.4.15.2 Where crew are the primary means by which the Rescue Boat is ballasted, they are to be trained and briefed to ensure that they are aware of their appropriate position within the boat and the subsequent effect on stability.

28.4.15.3 Where other means of ballasting are used, operational scenarios and limitations for using the system are to be clearly defined and communicated to crew.

28.4.15.4 Appropriate training in the use of the ballast system is to be given.

28.4.16 Anchoring and Veering

28.4.16.1 Maintenance, operating procedures and training is to be provided for anchoring and veering equipment.

28.4.16.2 Equipment dedicated for anchoring and veering should not be used for other purposes. Rescue boats operating in surf may have to dual-role some equipment due to weight and stowage considerations.

28.4.17 Operation of Equipment

28.4.17.1 Training and procedures are to be in place to cover the safe operation of all equipment and systems on the Rescue Boat.

28.5 Emergencies Onboard The Rescue Boat

28.5.1 Capsize

28.5.1.1 Appropriate procedures are to be developed and trained for to recover the crew and boat following capsize.

28.5.1.2 Procedures are to cover:-

- Access to equipment when in the water
- Securing the boat (i.e. sea anchor)
- Righting the boat (operating righting system)
- Recovering crew and survivors
- Crew and survivor separation
- Trapped crew
- Communications (including operation of emergency alerting and locating devices carried by the rescue boat and/or crew members (e.g. EPIRB, PLB, etc).
- Re-starting the engine(s)
- What to do if the system doesn't work

28.5.1.3 Crew must be trained in the Rescue Boat Organisation's policy and procedures on the wearing and use of harnesses and/or safety lanyards.

28.5.1.4 Training in a realistic but controlled environment is to be undertaken to enforce capsize procedures.

28.5.1.5 All crew must be able to:-

- Assist in righting the boat
- Get back in the boat
- Assist in the recovery of other crew
- Re-start the engine
- Use a radio to communicate the capsize to the Co-ordinating Authority, and/or operate any emergency alerting and locating devices (e.g. EPIRB).
- Use pyrotechnics
- Deploy a sea anchor

28.5.1.6 The minimum number of crew required to right the Rescue Boat is to be determined. This number will help determine the minimum number of crew required to operate the vessel.

28.5.1.7 The boat should be stabilised head to sea during post capsize recovery to reduce the risk of a second capsize, or separation from the boat. In surf conditions wave action can be utilised to help right the boat but crew must be practised in this technique to avoid injury.

28.5.2 Engine Failure

28.5.2.1 Procedures are to be developed to ensure that engines in Rescue Boats are operated to reduce the risk of propulsion failure on service.

28.5.2.2 Procedures are to be developed to ensure that Rescue Boat engines can be correctively maintained on service and training undertaken to achieve this.

28.5.2.3 Where a Rescue Boat is equipped with two engines, it must be capable of safe operation to the limit of its permitted operating conditions on one engine.

28.5.2.4 Procedures to safely stop the engine in an emergency must be developed and the case for “run stop” versus “engine stop” cords should be explored. Refer to the Machinery Section of the Code (7.2) for a fuller explanation.

28.5.2.5 In the event of total engine failure, the boat must be adequately stabilised prior to work commencing on the engine afloat. This could be by the use of an anchor or sea anchor.

28.5.2.6 Any engine failure is to be communicated as soon as practicable to the Co-ordinating Authority.

28.5.3 Man Overboard (MoB)

28.5.3.1 Procedures for recovering MoB (crew or survivors) must be developed and communicated to all crew (see also Para. 28.5.5).

28.5.3.2 Procedures should include:-

- Keeping contact with the MoB (use of equipment)
- Manoeuvring to reduce the risk of losing MoB
- Mitigating for the Helmsman being the MoB (including carriage of a second engine stop cord, as appropriate)
- Bringing the MoB back on to the Rescue Boat
- Making a MoB alert by DSC and Radio and activating emergency locating equipment (e.g. EPIRB).

28.5.3.3 At least two crew embarked on a Rescue Boat are to have been trained in handling that particular craft.

28.5.3.4 Training in MoB procedures must be undertaken in controlled conditions and with the appropriate PPE/safety equipment being used.

28.5.3.5 Training must take place with the full knowledge and participation of all crew on board the Rescue Boat. A trained and experienced crew member must remain on board the vessel during MoB training if ‘live’ personnel are to enter the water.

28.5.3.6 Procedures are to be in place to minimise the risk of MoB, these may include:

- Training crew and briefing survivors on the correct way to sit/kneel in/on the boat and where to hold on
- Avoiding sudden or violent motions
- Communicating with all on board prior to an unavoidable sudden/violent motion
- Agreeing and designating positions in the boat for crew and survivors
- Monitoring crew and survivors

28.5.3.7 Crew placed on board casualty vessels are to be suitably equipped, protected and trained to overcome their unfamiliarity with the vessel to reduce the risk of MoB occurring.

28.5.3.8 Communications are to be retained with the Rescue Boat at all times when operating on board a casualty vessel.

28.5.3.9 All MoB incidents are to be communicated as soon as practicable to the Co-ordinating Authority.

28.5.4 Fire

28.5.4.1 Procedures are to be developed and training undertaken to minimise the risk of fire in all operational and maintenance scenarios, whether ashore or afloat.

28.5.4.2 Procedures and training is to be given to safely tackle or react to fire in all operational and maintenance scenarios, including boat houses.

28.5.4.3 Procedures are to include evacuation (i.e. abandoning the boat house or Rescue Boat).

28.5.4.4 If the Rescue Boat is expected to operate in an environment where fires are anticipated or if the crew are expected to tackle fires off the Rescue Boat, appropriate equipment selection, by design and training and procedures will need to be developed. It must be risk assessed and given special consideration and approval by the Rescue Boat Organisation.

28.5.4.5 Operators are to be aware of the performance of their boat when exposed to fire.

28.5.4.6 Crew safety on having to abandon the Rescue Boat as a result of severe damage or fire etc. must be demonstrated.

28.5.5 Crew Disablement

28.5.5.1 Adequate procedures and training are to be in place to ensure that the risk of chronic and acute injury to boat crew and shore crew is addressed. These could include attention to manual handling regulations, appropriate posture, etc. It is good practice to try to comply with the Vibration Regulations as if they do apply (this regulation is non mandatory because the crew are not employed and rescue boats are not subject to these regulations either) as this will provide appropriate protection from spinal injuries.

28.5.5.2 Adequate procedures and training are to be provided to minimise the risks of boat and shore crew suffering medical conditions due to exposure to the environment. These could include use of PPE, medication and First Aid training and how to avoid or combat sunburn, sunstroke, hypothermia, debilitating seasickness and fatigue.

28.5.5.3 The Rescue Boat crew must be able to function satisfactorily with the loss of capability of any one crew member.

28.5.6 Collision and Damage

28.5.6.1 The requirements of the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs) are to be followed to ensure that the risk of collision with other water users is minimised. Additional procedures are to be developed and training given to suit the operational profile of the Rescue Boat. Departures from the regulations to undertake essential rescues are at the Helmsman's discretion, who should be aware of the potential liabilities associated with such actions.

28.5.6.2 Damage procedures and training are to be provided to suit the operating environment, boat design and equipment carried on board.

28.5.6.3 Any collision or damage affecting the performance of the Rescue Boat is to be communicated as soon as practicable to the Co-ordinating Authority.

28.5.7 Operating in Shallow Water and Grounding

28.5.7.1 Adequate procedures and training are to be provided if grounding or beaching is anticipated. These may address the following:

- Grounding/beaching techniques for crew
- Assessment of conditions for manoeuvring
- Changes required to engine configuration
- Re-launching
- Safe disembarkation
- Communications protocol

- Assessment of damage to boat and equipment
- Reduced stability and damage control

28.5.8 Operation During Pollution Incidents.

28.5.8.1 Rescue Boats may be called to incidents involving hazardous substances (Hazchem incidents). In such cases the Rescue Boat should stand off up-wind and seek urgent advice from the Co-ordinating Authority.

28.5.8.2 Procedures and training are to be in place to cover the safe operation of a Rescue Boat in a polluted environment. This should include:-

- Communications with the Co-ordinating Authority
- Go/no go to entering polluted area
- Identifying hazards associated with pollution types
- Use of adequate PPE
- Need for inoculations before and after operating in the polluted area
- Administering First Aid to those exposed to hazardous pollution covering the range of likely pollutants
- The need to modify operation in polluted areas

28.5.9 Alarms

28.5.9.1 Procedures and training is to be in place to ensure that the meaning of alarms and the subsequent action to take is known by all crew and shore crew.

28.6 Boat Recovery

28.6.1 The operation of recovery equipment is to be subject to local risk assessment.

28.6.2 Procedures to cover all nominated means of recovering the boat are to be developed and training provided to all personnel involved.

28.6.3 Contingency plans are to be in place to cover alternative recovery sites. Training to meet the contingency plans is to be undertaken.

28.7 Restoring the Boat to a Ready Status

28.7.1 Maintenance and operational procedures and training are to be in place to ensure that the Rescue Boat is made ready for service, following an operation or shift.

28.7.2 These procedures should include:-

- Cleaning and protection of boat and equipment from environmental degradation (UV, temperature extremes, salt water, pollution etc)
- Checking buoyancy tube pressures (in changing weather conditions)
- Equipment checks
- Watertight/structural integrity checks
- Refuelling
- Re-charging batteries

28.7.3 Defects and missing equipment and any necessary reduction in the operational capability of the Rescue Boat are to be logged and effectively communicated to the Launching Authority.

28.7.4 The Co-ordinating Authority is to be informed of the operational state of the Rescue Boat, crew and shore crew.

28.7.5 Records of Service/Patrol are to be completed at the earliest opportunity.

28.7.6 An inventory of standard parts and items and the quantities for which spares are to be held at the Rescue Boat facility is to be prepared and procedures put in place to ensure that the inventory is maintained.

29. CLEAN SEAS

29.1 General

29.1.1 A vessel complying with the Code should meet international, national, regional and local requirements for the prevention of marine pollution which are applicable to the area in which the vessel is operating.

29.1.2 The following issues are to be given special consideration:

- Fuel Storage, containment and dealing with leakage
- Containment and disposal of spillage during charging and emptying of fuel containers
- Disposal of used cleaning agents
- Garbage

29.1.2 Responsibility for the vessel to be properly equipped and maintained to meet the prevailing requirements rests with the Rescue Boat Organisation.

29.1.3 It is also the responsibility of the Rescue Boat Organisation to ensure that a charterer of a vessel receives up-to-date and adequate information on prevention of pollution in the area in which the charterer intends to operate. The information

may include the need to seek advice from local or harbour authorities, for which contact details should be given.

29.1.4 The disposal of ship generated waste to port reception facilities is regulated in the UK through the Merchant Shipping and Fishing Vessels (Port Waste Reception Facilities) Regulations 2009 (SI 2009 No./1776), as amended. Further guidance on the applicability of these Regulations can be found in MGN 387 (M+F) - Port Waste Reception Facilities Regulations 2003 and the "Port Waste Management Planning – A Guide to Good Practice" booklet available from Marine Offices. Rescue Boat Organisations should ensure they manage their wastes in a sustainable manner and fulfil the applicable requirements (if any) of these Regulations.

29.1.5 It should be noted that emissions necessary for securing the safety of the vessel during an incident or for the saving of life at sea are covered by a statutory defence in UK law.

29.2 Requirements for Preventing Pollution of the Sea

29.2.1 Garbage

29.2.1.1 The disposal of garbage into the sea is prohibited by the Merchant Shipping (Prevention of Pollution by Sewage and Garbage by Ships) Regulations 2008, SI 2008 No. 3257, as amended. Arrangements for the retention of garbage on board and for discharge to shore waste reception facilities should be provided. Further guidance on storage and disposal of garbage can be found in Part 2 of MGN 385 "Guidance on the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008.

29.2.1.2 Every vessel over 12m in length overall must display placards which notify the crew and passengers of the disposal requirements set out in regulations 26 to 28 and regulation 30 of the SI 2008 No. 3257, as amended. An example of a garbage placard is provided in Appendix 6.

29.2.2 Oil

29.2.2.1 The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996, (SI 1996 No. 2154), as amended, explain the extent to which a vessel operating in accordance with this Code should comply with the Regulations. Guidance and additional information is provided in 29.3.

29.2.2.2 The Annex to MEPC.1/Circ 511 provides "Revised Guidelines For Systems For Handling Oily Wastes In Machinery Spaces Of Ships". The guidelines apply to vessels of which the keels were laid on or after 1 January 1992.

29.2.2.3 Means to prevent pollution by oil should be acceptable to Administrations / authorities in the area in which a vessel operates.

29.2.2.4 Merchant Shipping Notice 1197[26] provides information on additional recording and documentation.

29.2.3 Use of Antifouling Paints

29.2.3.1 On the 5th October 2001 the International Maritime Organization adopted the International Convention on the Control of Harmful Anti-Fouling Systems on Ships. This Convention prohibits the use of environmentally harmful organotins (for example, Tributyl Tin) in antifouling paints applied on ships and prevents the possible use in the future of other harmful substances in anti-fouling systems. The Merchant Shipping (Anti-fouling Systems) Regulations 2009 (SI 2009 No. 2796)[27] apply.

29.2.3.2 As a result of EC Regulation on The Prohibition of Organotin compounds on Ships (EC 782/2003) it became compulsory for all ships in the EEA not to apply or re-apply organotin compounds which act as biocides in anti-fouling systems from 1st July 2003. For ships less than 24 metres in length it is not necessary to provide for a specific survey or declaration.

29.2.4 Air Emissions

29.2.4.1 All engines with a power output of greater than 130kW, installed on a vessel which is a Rescue Boat of any size, constructed after 1st January 2000 should be issued with an Engine International Air Pollution Prevention (EIAPP) Certificate and a Technical File.

29.2.4.2 Further guidance on air emissions regulations can be found in MSN 1819 (M+F)[28] and the Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 (SI 2008 No. 2924), as amended.

29.3 MARPOL Oil Pollution Prevention Information

29.3.1 Discharge Limits and Equipment

29.3.1.1 Vessels should, as far as practicable, retain on board oil or oily mixtures for discharge in accordance with 1.3 below, or discharge them in accordance with

[26] MSN. 1197 – "The Merchant Shipping (Prevention Of Oil Pollution) Regulations 1983 Additional Recording And Documentation For Oil Record Books.
[27] MGN 398 (M+F) The Merchant Shipping (Anti-fouling Systems) Regulations 2009 provides further guidance.
[28] MSN 1819 (M+F) – "The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008".

the requirements of 1.1.2 and 1.2 below. (Reference: Annex I of MARPOL, Reg 14.4.)

29.3.1.2 Where oil and oily mixtures are to be discharged into the sea they should be discharged in accordance with the following provisions:

.1 the ship is proceeding en route; and

.2 the ship has in operation equipment approved by that Administration that ensures that the oil content of the effluent without dilution does not exceed 15 parts per million (ppm) (Reference: Annex I of MARPOL, Reg 15.6).

29.3.2 Chemicals

29.3.2.1 No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of the allowed discharge (Reference: Annex I of MARPOL, Reg 15.8)

29.3.3 Exceptions

29.3.3.1 The above shall not apply to:

29.3.3.2 the discharge into the sea of oil or oily mixture necessary for the purpose of securing the safety of a ship or saving life at sea; or

29.3.3.3 the discharge into the sea of oil or oily mixture resulting from damage to a ship or its equipment:

29.3.3.3.1 provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimising the discharge; and

29.3.3.3.2 except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result; or

29.3.3.3.3 the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur. (Reference: Annex I of MARPOL, Reg 4)

30 TESTING

30.1 In addition to the survey regime, (Ch. 27 and ISO 6185), the following should be applied annually during the life of the certificate for inflatable / inflatable collar craft:-

An airtightness test as follows by the Rescue Boat Organisation:

- Inflation of the boat to 120% of working pressure
- Check of the integrity of tubes and seams with soapy water and, in the case of RIBs, the integrity of the joints between the tubes and hull
- Allow a four hour stretch period and then re-set the working pressure
- Check that after 30 minutes the pressure is still 120%
- After 24 hours, check that the pressure is not less than 100% of working pressure
- A declaration to be kept in the Rescue Boat's maintenance record for inspection

The test should be performed at 20°C ±3°C. Where the temperature and atmospheric pressure difference between the start of the test and the test readings should not exceed ±3°C for the temperature or ±1% for the pressure. For each rise and fall of 1°C in ambient temperature an allowance of 0.004 bar may be respectively subtracted from or added to the recorded boat pressure. (ISO 6185).

APPENDIX 1 – INFLATABLE BOAT STABILITY TRIALS

Trial Ref. Trial details

These details in this Appendix are intended for inflatable and rigid inflatable boats however a similar protocol should be developed locally for other types of boat.

1 PREPARATION

The following preparations must be carried out prior to commencing trials:

1.1 General

1.1.1 The trial should follow an agreed plan.

1.1.2 Appropriate trials flags must be flown.

1.1.3 A hose and water should be provided on the pontoon.

1.1.4 In the case of boats with dynamic drainage systems, a pump or other means of draining the boat must be available.

1.2 Site

1.2.1 The trials site must have adequate depth of water to allow for both capsize of the boat and personnel in the water.

1.2.2 Conditions are to be calm, with no significant wind, tide or current.

1.2.3 There must be easy egress for personnel from the water at the trials site.

1.2.4 The boat must be able to float with adequate clearance from obstacles in all direction.

1.2.5 The boat must be able to come alongside.

1.2.6 There must be convenient places for rope handlers (positioning the boat) to stand.

1.3 Boat

1.3.1 All equipment and ballast on board the boat at any point in the trials must be secured appropriately, in particular to withstand capsize. The equipment will be that most likely to be carried on a service operation.

1.3.2 Equipment required for righting the boat must be operational and accessible to crew in the water following capsize.

1.3.3 Masses equivalent to equipment and engine may be substituted if necessary providing they are adequately secured for the capsize condition. Each crewman may be substituted by a mass of 100kg and each survivor by a mass of 90kg if required.

1.3.4 If an engine is not substituted by an equivalent mass, it should be able to be immersed without damage. If appropriate the engine must be locked down prior to the trials commencing.

1.3.5 If fuel is used, precautions must be taken to avoid spillage.
1.3.6 If water is used instead of fuel, measures should be taken to avoid subsequent contamination.

1.3.7 Dynamic drainage systems, such as drainage socks, should be closed. Bungs should be in place.

1.3.8 Correct buoyancy tube and keel pressure should be ensured at the start and where applicable, throughout the trial.

1.3.9 The boat should be dry prior to the trial commencing.

1.3.10 Throughout the trials the boat is to be kept in place (allowing adequate clearance and depth of water) using ropes attached to the bow and stern of the boat. The shore ends of the ropes are to be held by trials personnel, not tethered, but cleats should be available to ensure that the ropes can be secured quickly if necessary.

1.3.11 The boat is to be secured alongside during any change to its condition.

1.4 Personnel

1.4.1 The minimum number of personnel which can carry out the trials is as follows:

- Trials Manager/Safety Officer.
- One Diver.
- One Diver's assistant.
- Two line handlers.

- One Recorder and 1 assistant.
- Boat personnel to make up the crew and survivors required for full load condition.
- If not present at the trial, a person qualified in First Aid must be readily available.

1.4.2 All boat personnel must be fully trained for capsize drill, prior to commencing the trials.

1.4.3 If 'live' personnel are being used they must wear appropriate PPE. For those entering the water this should be a minimum of a life jacket and helmet.

1.4.4 Each crewmember is to be weighed prior to commencing trials. An average of as near 100kg as possible per crewmember should be achieved.

1.4.5 All trials personnel are to be briefed prior to commencing the trial, including procedure to be followed in case of an accident.

1.4.6 Trials personnel must be made aware of the position of the nearest telephone.

1.4.7 Ambulance access to the trials area must be considered.

1.5 Determination of Load Condition

1.5.1 The maximum number of crew and survivors to make up the fully loaded condition must be determined, using guidance from ISO 6185. A figure of 100kg must be used for crew weight.

2 STABILITY TRIALS

2.1 Checking the Freeboard for the following conditions

2.1.1 Ballast the boat to the conditions listed below and carry out theses checks for each condition:-

- Ensure that there is positive freeboard right around the boat
- Check that there is no tendency to instability
- Measure the freeboard around the buoyancy tube or the gunwale. The minimum value should be greater than 300mm for inflatable boats; other figures apply for solid boats
- Measure the freeboard at the transom, which should be greater than 250mm.

Note: All measurement of the freeboard should be done from outside the boat.

2.1.2 **Bare Boat Condition**

- No fuel
- Minimum operating crew
- All fixed structure in place
- Engine mass in place
- All portable kit off the boat

2.1.3 **Lightest Operating Condition**

- 10% fuel
- Minimum operating crew
- Full kit on board

2.1.4 **Fully Loaded Condition**

- Full fuel
- Full crew
- Maximum allowed number of survivors
- Full kit on board

2.1.4.1 In the fully loaded condition if the requirements of positive freeboard and resistance to instability cannot be achieved the number of survivors allowed on board must be reduced until the conditions are met.

2.1.5 Any other condition that may be worse in terms of stability or freeboard.

3 CHECKING THE INTACT STABILITY

3.1 Bring the boat to the fully loaded condition, but **without** the personnel on board.

3.1.1 Ensure that any single crewmember can enter the boat unassisted from the water at any accessible point around the perimeter.

3.1.2 Ensure the following throughout:

- Check that the freeboard is positive around the entire periphery of the boat.
- Check and record that the boat has positive longitudinal and transverse stability, i.e. the boat does not have a tendency to ‘pitch pole’ or capsize, and that one side does not tend to ‘lift’ unexpectedly from the water.

3.2 Bring the boat to the fully loaded condition **with all** personnel on board.

3.2.1 Position all personnel (except the helmsman, who must remain at the steering position) to the same side, and seat half the number on the buoyancy tube. Add compensating wind heeling weight/personnel to the same side. This should be achieved by adding two additional persons to those seated on the buoyancy tube in each case. Alternatively, 200kg in weight could be securely tethered.

3.2.2 Ensure the following throughout:

- Check that the freeboard is positive around the entire periphery of the boat.
- Check and record that the boat has positive longitudinal and transverse stability, i.e. the boat does not tend to 'pitchpole' or capsize, and that one side does not tend to 'lift' unexpectedly from the water.

3.2.3 If paragraph .3.2.2 is not satisfied, reduce the number of persons on board until successful, and update the maximum number of persons allowed on board.

3.2.4 Record the freeboard to the top of the buoyancy tube around the periphery of the boat.

3.2.5 Repeat paragraphs. 3.2.2 to 3.2.4 in the following conditions:-

- Position all personnel except the Helmsman to the opposite side, and seat half the number on the buoyancy tube
- Position all personnel except the Helmsman to the front of the boat, and seat half the number on the buoyancy tubes
- Position all personnel except the Helmsman to the back of the boat, and seat half the number on the buoyancy tubes.

3.3 Repeat the above tests for the **Bare Boat** and **Lightest Operating** conditions.

4 Checking the Stability During Survivor Recovery

4.1 Return the boat to its fully loaded condition, but with no survivors on board.

4.2 Use an appropriate number of crew (the Helmsman may be assumed to be at the steering position) to recover an appropriate number of persons from the water on the same side of the boat as the helm. The operational validity of the number chosen must be demonstrated prior to the trials. Compensate as before for the effect of the wind. In the case of small inflatable Rescue Boats, the worst case is expected to be that of the simultaneous recovery of two persons over the same side as the Helmsman is seated.

4.2.1 The rescued persons should feign not being able to help themselves. Their backs should be turned to the boat so as not to assist the rescuers.

4.2.2 Each person involved should wear an approved lifejacket (inflated if not permanent buoyancy type).

4.3 Check and record that positive stability is maintained throughout the recovery.

4.4 Repeat paragraph's. 4.2 to 4.3 for an appropriate variety of survivor recovery scenarios.

5 Checking the Damage Stability

5.1 Ensure that the boat is in its fully loaded condition, including the maximum number of survivors.

5.2 The boat must be brought alongside and moored securely.

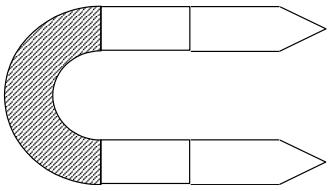
5.3 Air should be released from buoyancy chambers to meet the conditions specified by the following sections in a controllable and orderly manner. A pump or other suitable means e.g. wet and dry vacuum cleaner, should be used to 'fully' deflate buoyancy chambers. Evacuation of air should not be sufficient to cause damage to the boat.

5.4 In all cases, deflation of the specified chambers, and preparation of the boat in a damaged state should be completed prior to any embarkation of crew and survivors.

5.5 The valve of each chamber should be closed when it has been deflated.

5.6 Deflate the keel compartment.

5.7 Deflate the forward buoyancy chamber. Deflate both sides if there is a central bow baffle. The shaded area illustrates this:



5.7.1 If a pontoon is to being used, the deflated side of the boat should be positioned away from it to prevent the boat from passing under the edge. The boat should still be held on ropes by hand.

5.7.2 Demonstrate and record that the crew and survivors are supported 'not in the water' by the undamaged remainder of the boat up to the fully loaded condition. Personnel should embark one at a time over the 'damaged' side.

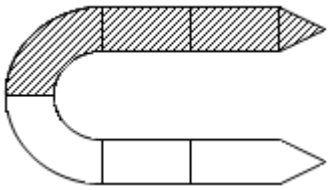
5.7.3 Water must not be prevented from entering the boat over the deflated buoyancy tube.

5.7.4 If paragraph 5.7.2 is not satisfied, reduce the number of persons on board until successful, and update the maximum number of persons allowed on board.

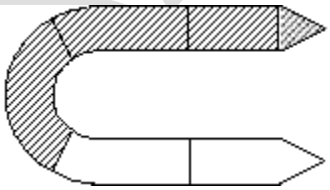
5.7.5 Disembark all personnel and bring boat alongside ready for next test.

5.8 Deflate the entire buoyancy from the centreline at the stem to the transom on one side of the boat, as shown by the shaded area of 5.8(a). For boats without a central baffle this must be achieved by deflating both the side compartments and the bow compartment as shown by the shaded area of 5.8(b). Although a five-compartment buoyancy tube has been used in the illustrations, the principal must apply to all variants of buoyancy tube design.

(a)



(b)



5.8.1 Repeat paragraphs. 5.7.1 to 5.7.5.

5.9 Paragraphs. 5.7 and 5.8 should be repeated for the opposite side of the boat if the chambers are arranged asymmetrically.

5.10 In a controlled manner and alongside, with no persons on board, re-inflate all the buoyancy tube chambers in the boat.

6 Checking the Dynamic Stability

6.1 Carry out the speed and manoeuvrability barrier avoidance tests detailed in ISO 11592 for the initial fully loaded condition (including survivors), the light condition, and any other condition previously highlighted.

6.2 Trials are to be conducted with all due regard for other water users and in the presence of a safety boat.

6.3 Deflate one of the compartments following the procedure in Section 5.

6.4 Attempt to propel the boat using its primary means in a generally straight line for 400m.

6.5 Assess and record the success of this manoeuvre.

6.6 Re-inflate the deflated compartment.

6.7 Repeat paragraphs 6.3 – 6.6 for all compartments in the boat in turn.

7 Swamping Tests

7.1 Return the boat to its fully loaded condition, including survivors.

7.2 Swamp the boat 50% up the height of the transom using an external source. Equipment that may be damaged in a swamping test may be replaced by suitable weights if this is felt appropriate.

7.3 Add an additional 10% of the total weight of crew, survivors and boat (in the fully loaded condition).

7.3.1 Assess and record whether the boat provides a stable platform in this condition.

7.3.2 Assess and record whether the boat is seriously deformed.

7.3.3 Record freeboard around the boat. Freeboard should be positive around the perimeter.

7.4 Swamp the boat fully and repeat Para's. 7.3.1 to 7.3.3.

8 Testing the Boat's Drainage

8.1 Demonstrate that the boat can be drained or bailed at sea.

8.1.1 If the boat has a dynamic system of drainage (e.g. transom drain socks), demonstrate that the engine or drainage power system still works when the boat is swamped.

8.1.2 If the boat has a dynamic system of drainage, some form of secondary bailing must be demonstrated.

9 Testing a Boat's Lifting Equipment

9.1 If the boat is fitted with a lifting device, demonstrate that it is able to lift any likely operational load with a realistic worst-case placement of people in the boat.

9.1.1 The following must be demonstrated and documented throughout the lifting operation:

- The boat remains stable
- The boat must have positive freeboard.

10 Testing the Launch and Recovery Methods

10.1 Demonstrate proposed launch and recovery methods.

10.2 Document any vessel instabilities during these processes.

11 Testing Boat Righting Method

11.1 Capsize the vessel.

11.2 Demonstrate the proposed righting method.

11.3 Document the number of crew required to right the boat, and their capabilities.

11.4 Demonstrate the access to critical equipment in a capsized condition.

11.5 Demonstrate that the crew can re-enter the boat from the water once the boat has been righted.

APPENDIX 2 – TRAINING REQUIRMENTS

1. General

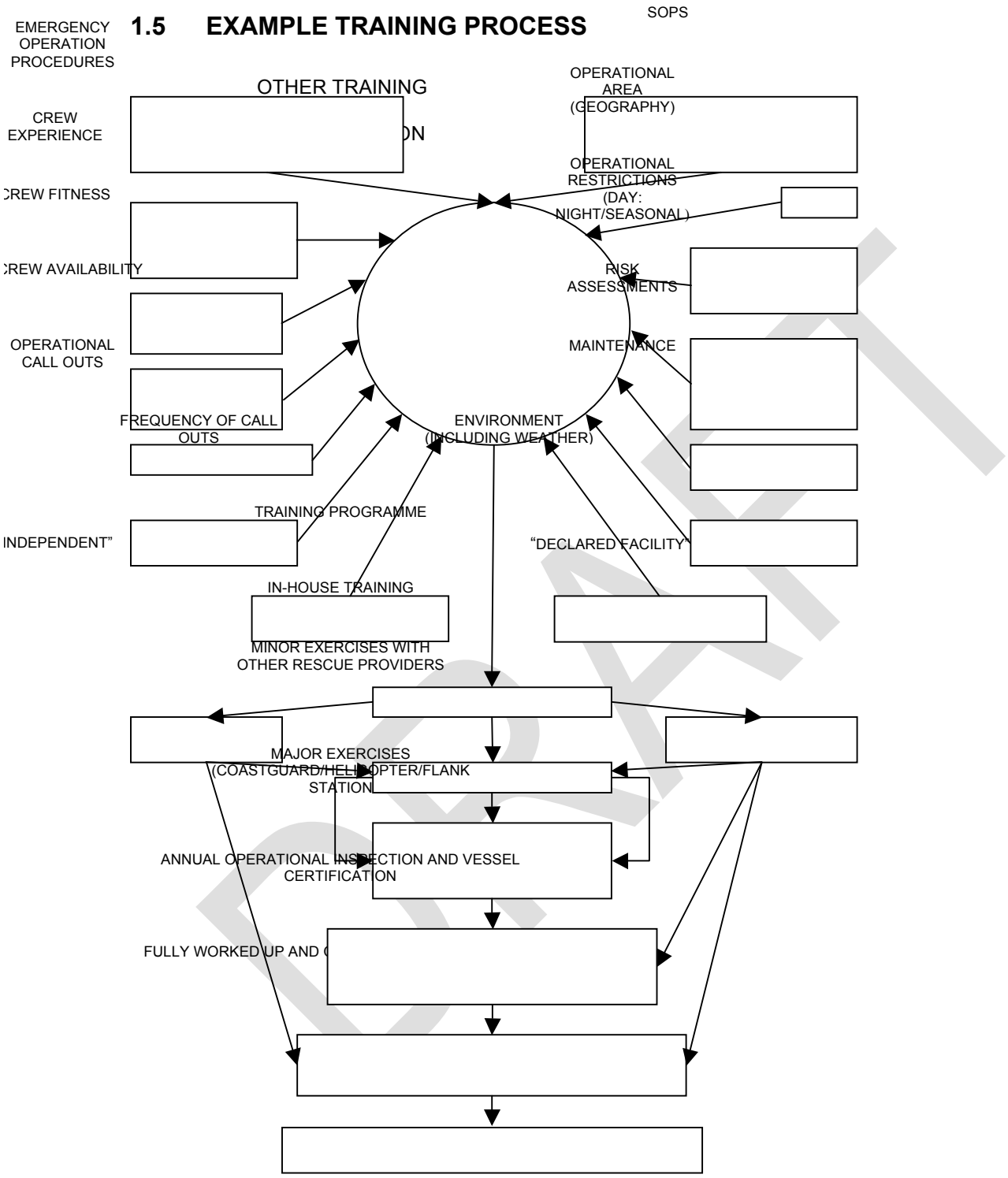
1.1 Training is a continuous process. Even those boats' crews that receive regular call out must still be kept familiar with unfamiliar operations, such as onboard Rescue Boat emergencies, coxswain falling overboard, boarding a stranded vessel etc. Training Managers will need to continually assess the training needs for their own organisation and plan accordingly. For information on a structured training plan see Appendix 4.

1.2 The Rescue Boat Organisation is to ensure that every person employed (including volunteers) should be aware of any risks affecting him or her and ensure that appropriate training is undertaken to minimize them.

1.3 Each Rescue Boat Organisation is to ensure that the Training Manager provides a fully auditable training regime that addresses the risks identified in the Rescue Boat Code as being mitigated by training.

1.4 The Training regime of each Rescue Boat Organisation is to be established using a formula typical of that shown in the schematic below at paragraph 1.5.

1.5 EXAMPLE TRAINING PROCESS



2. All crew should be trained in local Health and Safety procedures, including:

- Familiarisation with local Risk Assessments
- Actions to be taken in the event of fire in the boathouse
- Actions to be taken in the event of fire in the Rescue Boat either on the slipway or on the water
- Shore Crew should be trained in the launch and recovery procedures required at the launch site

3. All Rescue Boat Helmsmen should be trained as follows:

- The relevant competencies listed in the RYA's national syllabus for Power Boat Level 2 or any other standard approved by the MCA
- The Helmsman or a member of the crew should hold an approved MCA Elementary First Aid Certificate, or equivalent, such as the RYA Elementary First Aid Certificate
- Operation of the Rescue Boat to its stated operational limits and consequences of operating outside these said limits
- The safe operation of all equipment fitted or carried on the Rescue Boat
- The importance of safety management and defect reporting
- Standard Operating Procedures developed for the operating area, also emergency action procedures
- Use and procedures for the VHF radio (one crew member must hold a Short Range Radio Certificate or a licence compatible with the radio equipment carried by the craft)
- Local knowledge and known hazards
- Undertake exercises with local rescue services as appropriate.
- In addition to the above, all Rescue Boat Helmsmen operating during the hours of darkness, must be trained to the competencies listed in the RYA's National Syllabus of the Advanced Power Boat Certificate
- Helmsmen who may be reasonably expected to operate at an appreciable distance off shore (>3nm) must have the RYA Day Skipper standards.

5. Competent crew should be trained in the following:

- Start and stop the engine. Manoeuvre the boat to a place of safety
- A basic level of First Aid
- Operation of all equipment
- Standard Operating Procedures developed for the operating area, also Emergency Operating Procedures
- The use of communication equipment carried
- Local knowledge and known hazards

Trainees should undertake a period of basic skills training onshore including the use of PPE prior to being taken afloat

A Training Plan should be developed by the Training Officer / Authority to take account of the specific training needs of the particular Rescue Boat and shore crew and may include:

- Anchors and anchoring (including veering)
- Approaching capsized craft
- Blind navigation
- Boat preparation – fuel level and pumps / fast idle / choke / oil / buoyancy tubes / set radio /GPS etc
- Boat handling – coming alongside
- Boat handling – slow speed manoeuvres
- Boat handling – high speed manoeuvres
- Boat handling – holding off
- Boat handling – securing to a buoy
- Boat handling – turning in own length
- Boat handling – warping
- Bylaws and Regulations
- Canoe rescue
- IALA Buoyage System “A”
- Charts
- Communications (VHF DSC)
- Emergency Procedures
- Equipment fitted on board and its use
- Fire Fighting
- First Aid – CPR / collars / splints / suction pump / defibrillator / Oxygen / Entonox / etc
- Global Positioning System – waypoints / track back / MoB / OS or Lat-Long grid ref.
- Helicopter Working – formatting, winching
- Launch / Recovery
- Lee shore rescue
- Major Incident procedures
- Man Overboard (uninjured or casualty) recovery
- Navigation
- Onboard equipment
- Operational area familiarisation
- Ordnance Survey maps (used by Inland Waterways)
- Personal Water Craft (Jet ski) - rescue of the craft
- Personal Protection Equipment (PPE)
- Personnel fitness
- Pyrotechnics

- Rescue using tube and fins
- Ropes and knots
- Safety equipment including First Aid kit
- Sail boat rescue
- Search zones and techniques (Search and Rescue)
- Standing off another craft / coming alongside under way
- Surf rescue
- Throwing lines
- Tides and tidal streams
- Towing
- VHF radio procedures / phonetics / Mayday and Pan Pan / International and local channels
- Wind-surfer rescue

APPENDIX 3 - RISK ASSESSMENT GUIDELINES

1. Introduction

1.1 This report details one example of how formal safety assessment methods can be applied to Rescue Boat, equipment and procedures. The methods described adhere to the International Code of Safety for High Speed Craft - HSC Code (International Maritime Organization, London 1995) and the 2000 HSC Code (International Maritime Organization, London 2001). Other recognised systems for conducting risk assessments may be used, as appropriate.

2. Functional assessment

2.1 Carry out a functional assessment of the system in question. This process can be assisted by first generating a diagrammatic functional breakdown. Define 'systems', 'sub-systems' and 'components' and determine identification numbers: these items can represent not only physical equipment, but also the associated procedures and the surrounding environment. Functional flow diagrams can be created if considered useful for understanding the relationships between items in a system. Each specified 'system', 'sub-system' or 'component' must be explored and its significant features and functions documented. By carrying out both procedural and equipment assessments, a certain amount of overlap occurs between systems, helping to reduce the chance that any item will be overlooked.

2.2 The breakdown of a system defines to a large extent the level of ensuing safety assessment. However there is no 'correct' level: engineering judgement must be used to balance the time taken to carry out the safety assessment with the results achieved. In many cases an appropriate level will automatically be reached.

3. Failure mode, effect and criticality analysis

3.1 'Failure mode, effect and criticality analysis' (FMECA) is used to systematically determine and record the safety information. The standard FMECA as defined by the HSC Code has been expanded and manipulated to fit Rescue Boat requirements more accurately.

3.2 The functional analysis provides a systematic structure for investigating possible failures. A methodical brainstorm involving relevant design and operational personnel can then be used to generate the information required by the FMECA.

3.3 Each item specified in the functional analysis must be studied in turn, with the initial aim of identifying all possible failure modes that could occur. A failure mode is a way in which an item can fail, and each failure mode must be given a

separate row in the FMECA table. For each failure mode, immediate causes must be generated. The effects of each failure mode must also be determined. The aim is to determine the overall effect of the failure at the highest level: these final effects are named 'end events' and must be determined at the outset of the FMECA. A qualitative measure of the severity of each event must also be determined at the outset. As such 'local' effects can be described as all the effects that occur as a result of the failure that are prior to the end event. The appropriate end events can then be simply chosen from the list.

3.4 By looking at causes and effects associated with each identified failure mode, possible failure paths ('a combination of basic events which occur together to produce an end event') are being determined. The failure path leading to a specified end event is also known as a 'hazard'. In order to facilitate the identification of hazards, key words can be used during the brainstorm to 'trigger' thought processes. A list of key words that normally form the basis of a standard HAZOP (HAZard and OPerability) assessment can be used.

3.5 The probability of each identified failure path occurring can be judged using accepted qualitative criteria. The probability is the likelihood that the failure mode will occur and lead to the end event i.e. the probability of the path, and not just the failure mode in isolation. Risk is a combination of the likelihood of a failure path occurring and the severity of consequence of the associated end event. Using a risk matrix, a measure of risk (or criticality) can be associated to each identified failure path.

3.6 A failure mitigation process must be carried out whereby risks considered unacceptable by the FMECA can be mitigated to a level of at least 'as low as reasonably practicable'.

3.7 This guide details definitions for HAZOP identifiers, failure probabilities, consequence severities and risks. A spreadsheet should be created to store the FMECA information, see Para 8 of this Appendix.

4. HAZOP keywords

Key Word	Parameter
Operation - No action	Intended action did not occur; action not possible
Operation - More action	More than intended occurs; Other actions affecting this action occur – operator assumes that he is intended to conduct additional actions
Operation - Less action	Action does less than intended – equipment does not perform as required – insufficient time to complete action.
Operation - Extra action	Extra actions carried out other than what was intended – operator assumes that he is intended to conduct several actions.

Operation - Incorrect action	Operator conducts wrong action – misses out a step in action process etc.
Environment – Wind	What is the effect of wind – what is the limiting speed?
Environment – Waves	What is the effect of waves – what is the limiting size?
Environment – Surf	What is the effect of surf – what are the limiting factors?
Environment – Night	What effect does night time have?
Environment – Day	Are we limited to day time only?
Environment – Visibility	Is visibility a limiting factor?
Environment – Temperature	Does heat/cold have an effect – what are the limits?
Effect – Stability	Will anything have an effect on boat stability?
Effect – Structure	Will anything have an effect on boat structure / fittings?
Effect – Fire	Will anything induce a fire?
Effect – Safety	Will anything require personal protective eqp't, etc.
Effect – Training	Requirements for specific training?

5. Probability definitions

FMECA Code	PROBABILITY	Definition
F	**Frequent**	Likely to occur often during the operational life of a particular craft.
RP	***Reasonably probable***	Unlikely to occur often but may occur several times during the total operational life of a particular craft.
R	***Remote***	Unlikely to occur to every craft but may occur to a few craft of a type over the total operational life of a number of craft of the same type.
ER	***Extremely remote***	Unlikely to occur when considering the total operational life of a number of craft of the type, but nevertheless should be considered as being possible.
EI	***Extremely improbable***	An event that is so extremely remote that it should not be considered as possible to occur.

6. Severity definitions

FMECA Code	SEVERITY	Definition
MI	***Minor***	An event or failure which can be readily compensated for by the crew A small increase in operational duties or in the difficulty of performing duties. A moderate degradation in operational performance. A slight modification of the permissible operating conditions.
MA	***Major***	A significant increase in operational duties or in the difficulty of performing those duties: but not beyond their capability provided another major effect doesn't occur simultaneously. A significant degradation in operational performance. A significant modification of the permissible operating conditions but will not preclude a safe mission.
H	***Hazardous***	A dangerous increase in operational duties or in the difficulty of performing those duties: crew cannot be expected to cope. A dangerous degradation in operational performance and strength of the rig. Marginal conditions for crew. Injury to crew or public. An essential need for outside assistance.
C	***Catastro--phic***	Crew fatality Public fatality Loss of the boat

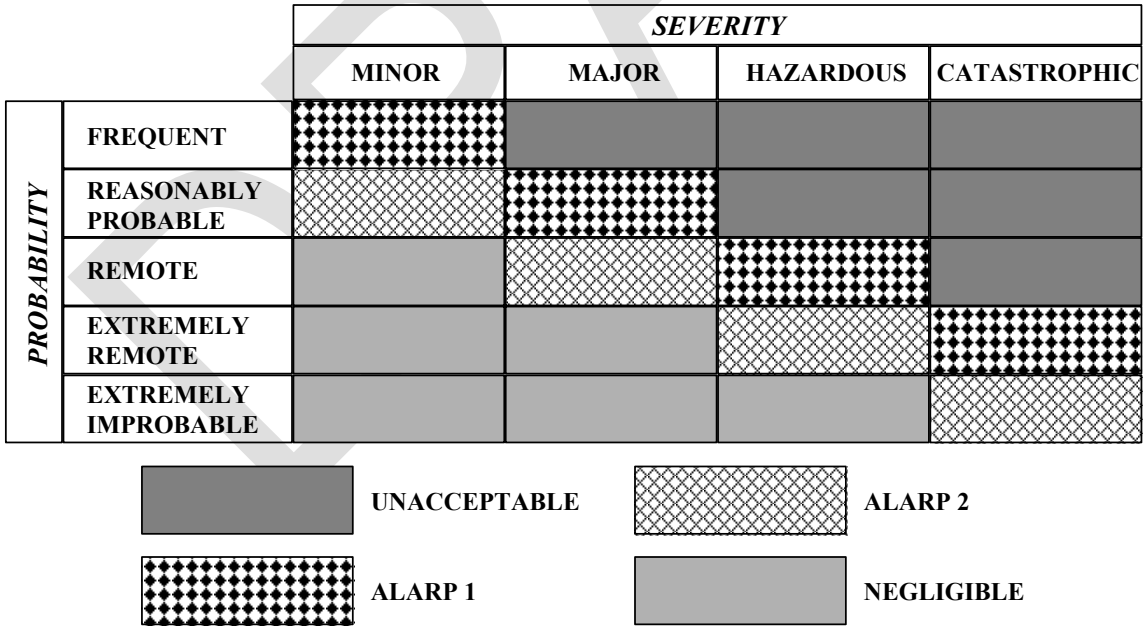
7. End events

7.1 The following list demonstrates how end events are created prior to beginning the FMECA. Each end event is coded and a severity associated. Appropriate end events of this form must be created for each FMECA.

FMECA Code	End effect	Details	Severity	
E1	Boat off service, i.e. cannot embark on service, taken off station	Boat cannot be sent to sea Boat cannot be recovered Boat off service due to trailer fault Boat off service due to crew fault Boat off service due to tractor fault Boat off service due to boat fault	Major	**MA**
E2	Greatly reduced operational effectiveness	Mission threatening damage or equipment failure on boat, i.e. loss of all propulsive or electrical power, total	Hazardous	**H**

		loss of comms., man overboard, reduced stability or buoyancy, capsize		
E3	Loss of boat	Uncontrollable fire, boat sinks, boat won't right after capsize, separation from boat	Hazardous	**H**
E4	Reduced operational effectiveness	Equipment failure on boat but not mission threatening	Minor	**MI**
E5	Death or disability	Permanent or life-threatening injury of boat crew, shore crew, public or survivors Loss of limbs Death	Catastrophic	**C**
E6	Hospitalisation	Broken limbs, major cuts	Hazardous	**H**
E7	Major personnel injury	Requires First Aid and possible trip to casualty Time off work required	Major	**MA**
E8	Minor personnel injury	Small cuts and bruises Anything that can be treated by minor First Aid	Minor	**MI**

8. Risk Matrix



9. Risk Definitions

Code		Definition
U	**Unacceptable**	Risk cannot be justified on any grounds
A1	**ALARP 1**	Tolerable only if risk reduction is impractical or if penalties are disproportionate to the improvement gained
A2	**ALARP 2**	Tolerable if penalties of reduction would exceed the improvement gained
N	**Negligible**	No need for detailed working to demonstrate ALARP

10. FMECA Spreadsheet

10.1 The codes shown in this document should be used to fill in 'probability' and 'severity' slots. 'End' under the 'Failure effects' column represents the end event and can be entered as the appropriate code. The risk / criticality ('C' column) should then be created.

FREQUENT
REASONABLYPROBABLE
REMOTE
EXTREMELY
REMOTE
EXTREMELY
IMPROBABLE
MINOR MAJOR HAZARDOUS CATASTROPHIC
SEVERITY
PROBABILITY
ALARP 2
ALARP 1
NEGLIGIBLE
UNACCEPTABLE

APPENDIX 4 - GUIDANCE ON SAFETY MANAGEMENT SYSTEM AND DOCUMENTATION

INTRODUCTION

1. The purpose of this Section is to provide basic guidance on how to develop an effective Safety Management System (SMS) coupled with appropriate documentation. Since the aim of the Rescue Boat Code has been to move away from a prescriptive approach to regulation to allow organisations to identify and adopt suitable risk based mitigations for their operations, it is essential that the risks and mitigations are continually reviewed. This is because changes in equipment, personnel, operational requirement etc. can lead to new risks or changes to the severity of existing ones. It is essential that Code compliance is not seen as a 'one off' exercise, but a continuous process open to review and audit.' The Safety Management System should be given the highest priority by the organisation management.

2. The aims of a SMS should be:

    - To achieve an organisation operating within levels of risk to personnel, equipment and the environment that is as low as reasonably practicable.

3. Given that Rescue Boat operations are often inherently risky, absolute safety is unrealistic, therefore the following objectives are appropriate:

    - Ensuring that equipment designs are appropriate to the stated tasks and that they remain so after modification.
    - Ensuring that equipment is appropriately constructed and maintained in a safe condition.
    - Ensuring that personnel are appropriately trained to the required level of competency, and that training is reinforced at appropriate intervals.
    - Equipment is operated within parameters of agreed procedures.
    - Emergency procedures are developed and trained for.

4. A crucial element of the SMS is continuous review and feedback. All procedures should be periodically reviewed. The organisation's risk assessment procedure should be used to identify any new risks or any changes to the severity of existing ones. Changes that require modifications to equipment, procedures and or training are to be implemented as appropriate. The organisational management are to be responsible for the development and implementation of the safety management system. Auditable records are to be maintained to be able to demonstrate the undertaking and implementation of SMS activities. The structure of the SMS shall be defined and documented by the organisation, including the persons (positions) responsible for the implementation of the SMS.

5. A Rescue Boat Organisation should consider and address the following subjects, incorporating those that may be appropriate to the organisation, which should be formally documented:

CONTENTS

These are elaborated as follows:

5.1 CONSTITUTION

The Constitution may include:

Objectives
Powers
Management Committee Membership
Officers
Termination of Membership
Proceedings of the Committee
Annual General Meeting
Appointment of Crew Members and Boat Officer
Indemnity
Dissolution
Amendments and Alterations to Constitution

5.2 MANAGEMENT SYSTEM

5.2.1 The Management System shall include names, official addresses and contacts details of individuals within the organisation with special duties and

responsibilities and shall include details of these duties and responsibilities and to whom they are accountable.

5.2.2 A management structure diagram may be included to graphically represent the hierarchy of authority.

5.2.3 The details of the following should be included as a minimum:

Chairman/Officer in Charge
Management Committee Members
Helmsman
Second Helmsman
Health and Safety Officer
Training Officer/Assistant Training Officer

5.3 HEALTH AND SAFETY

5.3.1 The Health and Safety Policy of the organisation shall be stated.

5.3.2 A means of assessment of the hazards should be developed and may include proforma for the following:

Risk Assessments
Care of Substances Hazardous to Health (COSHH) Assessments
Manual Handling Assessments
Personal Protective Equipment (PPE) Assessments
PPE Inspection Records
Equipment Inspection Records

5.3.3 The responsibility for the preparation and implementation of these assessments and recommendations shall be stated and reflected in the main duties and responsibilities of the individuals as stated in paragraph 5.2.1.

5.4 MEDICAL

5.4.1 All operational crew, including shore crew who may assist in launch and recovery operations, shall sign a declaration as to their current state of health and be medically examined by a suitably qualified person.

5.4.2 No crewmember that is unable to perform the duties expected of them is permitted to assist in the launch, recovery or operation of the Rescue Boat.

5.4.3 If the wearing of glasses is permitted, then the wearing of an elastic safety strap shall be obligatory for Helmsmen.

5.4.4 Each site shall maintain an Accident Book in accordance with requirements of the Health and Safety at Work Act.

5.5 EQUIPMENT

5.5.1 The major items of equipment used by the Rescue Boat, as detailed in the Code, that require particular consideration for reasons of safety and operational effectiveness should be addressed, as appropriate. The list may include, but is not restricted to:

The Rescue Boat
Launch and recovery systems
Propulsion systems including associated spares

5.5.2 Fuel

The following should be addressed:

Identification
Storage
Connection
Refuelling/Spillage

5.5.3 Electrical

Main considerations are:

Batteries
Protection
Switches
Lighting

5.5.4 Communications Equipment

Primary and back-up arrangements should be detailed:

VHF (DSC, when fitted)
Police radio (if carried)
Mobile phones and pagers

5.5.5 Navigation Equipment

Policies for the following, where fitted / carried should be included:

Compass
Depth Finder
Radar
GPS
Charts

5.5.6 Towing Gear / Arrangements

General towing policy and including:

Use of strong points
Towing equipment
Emergency release

5.5.7 Pyrotechnics

Policies to be included:

Carriage/disposal
Stowage
Handling
Usage
Accountability

5.5.8 Fire Fighting

Considerations should include:

Rescue from other burning vessel
Carriage of additional equipment

5.5.9 Medical – Additional Specific Equipment Carried

Additional carriage may include:

Stretcher and spinal board
Defibrillator
Oxygen and Entonox
Suction pump and splints

5.5.10 Personal Protective Equipment (PPE)

PPE supplied for the operational crew, shore crew and survivors should be detailed and include:

Dry / wet suit
Helmet (with visor)
Gloves
Body fleece
Life jacket
Thermal blanket

5.6 EQUIPMENT MAINTENANCE

5.6.1 Maintenance can be considered under three headings – preventative (lifed items), routine (regular checks and general application of lubricants etc.) and corrective (repair).

5.6.2 A dedicated person(s)/contact should be made responsible for all equipment maintenance.

5.6.3 All maintenance is to be recorded in a dedicated maintenance log book.

5.6.4 A maintenance schedule should be established, taking into account the equipments manufactures' recommendations, as well as locally developed requirements.

5.6.5 A Defect Log is to be established which should also record what and when any remedial action taken.

5.6.6 After each launch a post boat recovery maintenance schedule is to be established.

5.7 INTERFACES

5.7.1 Details of all internal and external authorities who interface with the Rescue Boat during normal Operational and Training activities shall be documented.

Operational interfaces may include:

HM Coastguard (MCA)
Ambulance Service
Fire Brigade
Search and Rescue Helicopter (Coastguard, Irish Coastguard, RAF, RN, Police)

RNLI
Local Authorities, Activity Centres, Boating Clubs etc.
Mountain Rescue Teams
Police
RYA

5.8 TRAINING

5.8.1 A structured training plan should be developed, appropriate to the Rescue Boat Organisation, with nominated person(s) responsible for training.

5.8.2 This section should detail the broad subjects to be covered, adapting as appropriate to the detail in Appendix 2, to best meet the demands of local conditions.

Local procedures should detail:

Amenities
Certification
Communications
First Aid
Location
Pre-user checks
Safety
Staffing
Training aids
Training area
Vessels to be used

5.9 OPERATIONAL AREA

5.9.1 The Rescue Boat's operational area should be documented and should include details of:

Authorised activities
Helicopter landing sites
Operational limits
Any key reference points
Search zones

5.10 OPERATIONS

5.10.1 Details of the normal operations of the Rescue Boat should be listed here and may include:

Standard Operations Procedures (SOPS)
Emergency Operations Procedures (Rescue Boat emergencies)
Rescue Operations for the Public Good
Co-ordination with HM Coastguard (to include call-out, reporting and communications protocol)
Assistance to the Police
Assistance to the Mountain Rescue Team
Local Bye Laws
Policy detail not covered in other sections

Note: SOPS and Emergency Operations Procedures should be detailed in a stand alone document for ease of access and amendment.

5.10.2 Operations Protocol

5.10.2.1 Support organisation for call-out and operation of the Rescue Boat should be clearly documented:

Primary and Secondary means of call-out
Incident Report proforma
Hierarchy of Authority (Helmsman detail)
Launching Authority
Minimum crew required to launch and operate the Rescue Boat

5.11 SAFETY ASSESSMENT

5.11.1 Each Rescue Boat Organisation should conduct Risk Assessments of the whole operation, including:

Road Trailing (if applicable)
Launch
On water operations (including out-of-area emergency deployment)
Recovery/return to boat house or mooring

5.11.2 Risk Assessments should be conducted in accordance with a suitable recognised standard, some example guidelines of which are at Appendix 3. Whatever method is adopted, it is beholden on the organisation to mitigate risks to as low as reasonably practicable.

5.12 INSURANCE

5.12.1 A general outline of the Rescue Boat Organisation's insurance policy for boat, crew and Third Parties including other SAR operators should be documented. Subjects covered may include:

The Insured
The Insurer
Policy No.
Policy Cover and Conditions
Schedule of Vessel covered
Limits of Indemnity including Public Liability

5.13 COMPLIANCE MATRIX

5.13.1 The Compliance Matrix at Appendix 5 may be used as a check-off for application of variances (equivalences) to the Code, rather than trying to list all compliances.