



Life-Saving Appliances - Lifeboats, Rescue Boats, Launching Appliances, Winches and On-load Release Gear - Operational and Test Procedures

Notice to all Ship Owners, Ship Operators and Managers, Masters, Officers and Crews of Merchant Ships, authorised service providers, lifeboat equipment manufacturers, and UK authorised Recognised Organisations.

This Note replaces MSN 1803 (M) - Lifeboats - Measures to prevent accidents

Please Note:-

Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

Summary

This Marine Guidance Note compiles current guidance on the safe servicing, testing maintenance and drilling of lifeboats.

- This MGN replaces MSN1803 (M) and accounts for MCA policy from September 2015.
- This Notice provides an explanation of how the MCA applies to UK ships the provisions of International Maritime Organization (IMO), Maritime Safety Committee (MSC) Circular 1206/Revision 1, Measures to Prevent Accidents with Lifeboats.
- This MGN provides further guidance on the use of a static test in place of dynamic 5yr tests and it also provides guidance on how to prevent injury during the hook release test.
- This MGN removes mention of UK Independent Lifeboat Service and Testing Organizations which no longer exist after a change in UK Policy in 2014.

1. Background

- 1.1 Over the past 10 years the maritime industry has observed an unacceptably high number of accidents with lifeboats in which crew were injured, sometimes fatally, whilst participating in lifeboat drills and/or inspections. The IMO has been working to introduce measures to reduce the likelihood and severity of such incidents, and the main publications seeking to



achieve this are MSC.1/Circ.1206/Rev.1 and MSC.1/Circ.1277, upon which this Note is based. It has been observed that most accidents fall under the following categories:

- Failure of on-load release mechanism;
- Inadvertent operation of on-load release mechanism;
- Inadequate maintenance of lifeboats, davits and launching equipment;
- Communication failures;
- Lack of familiarity with lifeboats, davits, equipment and associated controls;
- Unsafe practices during lifeboat drills and inspections; and
- Design faults other than on-load release mechanisms.

1.2 The MCA and surveyors of UK authorised Recognised Organisations (ROs) are often questioned with regard to which personnel are required to be in attendance during 5 yearly load testing of lifeboats. This MGN highlights the most pertinent IMO guidance and provides some additional guidance with respect to 5 yearly load testing on board UK vessels. This MGN replaces MSN 1803 (M) and additionally clarifies the latest MCA policy on static testing of lifeboats. It also provides further explanation of the measures that can be taken to reduce the possibility of injury to personnel during testing. MCA research and consultation with industry in this area has identified a number of points of interest and these will be incorporated into a further revision of this MGN at a future date. The future revision of this MGN will also account for the latest IMO Resolution on the operational and test procedures described in this Note, following the decisions made at the 96th Session of the IMO's Maritime Safety Committee.

1.3 The following bullet points are key considerations for the maintenance, operation and testing of lifeboats:-

- Lifeboat drills are conducted in accordance with SOLAS regulation III/19.3.3 for the purpose of ensuring that ship's personnel will be able to safely embark and launch the lifeboats in an emergency;
- Personnel undertaking inspections, maintenance and adjustment of lifeboats, launching appliances and associated equipment are fully trained and familiar with these duties;
- All appropriate documentation for the maintenance and adjustment of lifeboats, launching appliances and associated equipment is available on board;
- Maintenance of lifeboats, launching appliances and associated equipment is carried out in accordance with approved established procedures;
- The principles of health and safety at work apply to lifeboat drills;
- Personnel undertaking maintenance and repair activities are appropriately qualified;
- Hanging-off pennants are only used for maintenance purposes and not during training exercises;
- All tests required for the design and approval of life-saving appliances are conducted rigorously, according to the guidelines developed by the Maritime and Coastguard Agency, in order to identify and rectify any design faults at an early stage;
- The equipment to be easily accessible for inspections and maintenance and is proven durable in harsh operational conditions, in addition to withstanding prototype tests;



- The Maritime and Coastguard Agency pays close attention to proper workmanship and technology when assessing equipment for approval; and
- Ship owners, when undertaking maintenance and repair activities, to employ qualified personnel, preferably certified by the manufacturer.

1.4 This MGN provides an explanation of how the MCA applies the provisions of MSC.1/Circ.1206/Rev.1 to UK registered ships. MSC.1/Circ.1206/Rev.1 supersedes the guidance contained in Circulars; MSC/Circ.1049, MSC/Circ.1093, MSC/Circ.1136, MSC.1/Circ.1206 and MSC/Circ.1137.

1.5 The guidance below is to be read in conjunction with the requirements of SOLAS Chapter III, with particular reference to Regulations 20 and 36.

2. Format of Guidance within this MGN

2.1 Specific guidance for 5 yearly load testing on board UK vessels and relevant extracts from the text of the pertinent IMO guidance document are included in the form of an annex to this MGN as follows:

ANNEX	MEASURES TO PREVENT ACCIDENTS WITH LIFEBOATS
PART 1	GUIDELINES FOR PERIODIC SERVICING AND MAINTENANCE OF LIFEBOATS; LAUNCHING APPLIANCES AND ON-LOAD RELEASE GEAR
	APPENDIX 1: SPECIFIC PROCEDURES FOR MAINTENANCE AND SERVICING
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PART 2	GUIDELINES ON SAFETY DURING ABBANDON SHIP DRILLS USING LIFEBOATS
PART 3	FREE-FALL LIFEBOATS



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ANNEX: MEASURES TO PREVENT ACCIDENTS WITH LIFEBOATS

PART 1: GUIDELINES FOR PERIODIC SERVICING AND MAINTENANCE OF LIFEBOATS, LAUNCHING APPLIANCES AND ON-LOAD RELEASE GEAR

1. General

- 1.1 The objective of these Guidelines is to establish a uniform, safe and documented performance of periodic servicing and maintenance of lifeboats, launching appliances and on-load release gear.
- 1.2 These Guidelines relate to the application of the ISM Code to periodic servicing and maintenance of lifeboat arrangements and should therefore be reflected in procedures developed for a ship under that Code.
- 1.3 The general principle in these Guidelines may also be applied to the periodic servicing and maintenance of liferafts, rescue boats and fast rescue boats and their launching appliances and release gear. See also MGN 548 (M+F) *Life-Saving Appliances - Inflatable SOLAS Certificated Liferafts, Lifejackets, Marine Evacuation Systems, and repair of Inflated Rescue Boats - Servicing Requirements and Approved Service Stations*.
- 1.4 Details guidance regarding some procedures covered by these Guidelines is provided in the appendices 1 and 2.

2. SOLAS Regulation

These Guidelines relate to the requirements contained in:

- 2.1 SOLAS regulation III/20. Operational readiness, maintenance and inspections; and
- 2.2 SOLAS regulation III/36. Instructions for on-board maintenance.

3. Responsibilities

- 3.1 Both the shipping company and the company contracted to undertake the servicing are responsible for servicing and maintenance on board its ships and for the establishment and implementation of health, safety and environment (HSE) procedures covering all activities during servicing and maintenance.
- 3.2 The personnel carrying out servicing and maintenance are responsible for the performance of the work as authorised in accordance with the system specified in 4.1. The above personnel are also responsible for complying with HSE instructions and procedures. An in-depth risk assessment should be provided by the service provider covering all aspects of the inspection and testing. This risk assessment should include the following key elements;
 - i. Dangers of personnel within the vicinity of the lifeboat while the test is carried out.
 - ii. Possible free surface movement of water in the water weight bags.
 - iii. Possible failure mode of the equipment during the test and its effect on the equipment and personnel carrying out the test.



4. Authorisation for Service and Maintenance Personnel

- 4.1 Only organisations authorised by either the Original Equipment Manufacturer (OEM) or a UK authorised RO in accordance with MGN 555 (M) (*Life-Saving Appliances, Lifeboats, Rigid Rescue Boats, Launching Appliances and On-load Release Gear – Authorisation of Service Providers*); may conduct the 5 yearly servicing and maintenance of lifeboats described in this Note and in MSC.1/Circ. 1206 Rev.1.
- 4.2 Where these Guidelines require certification of authorised service personnel, such certification should be issued by the OEM or a UK authorised RO, in accordance with MGN 555 (M).

5. Qualification Levels

- 5.1 Weekly and monthly inspections, and routine maintenance as defined by the manufacturer, should be conducted under the direct supervision of a senior ship's officer in accordance with the instructions provided by the manufacturer.
- 5.2 All other inspections, servicing, testing and repair should be conducted by **a service provider authorised in accordance with MSC.1/Circ.1277.**

6. Reports and Records

- 6.1 All reports and checklists should be correctly completed out and signed by the person who carries out the inspection and maintenance work and should also be signed by the company's representative or the ship's master.
- 6.2 Records of inspections, servicing, repairs and maintenance should be updated and filed on board the ship.
- 6.3 When repairs or servicing are completed, a statement confirming that the lifeboat arrangements remain fit for purpose should be issued by the authorised service provider.



APPENDIX 1: SPECIFIC PROCEDURES FOR MAINTENANCE AND SERVICING

App1.1. GENERAL

App1.1.1 Any inspection, servicing and repair should be carried out according to the system for inspection and services developed by the manufacturer.

App1.1.2 A full set of maintenance manuals and associated documentation issued by the manufacturer should be available on board for use in all operations involved in the inspection, maintenance, adjustment and re-setting of the lifeboat and associated equipment, such as davits and release gear.

App1.1.3 The manufacturer's system for inspection and services should include the items contained in App1.2, App1.3 and App1.4 as a minimum.

App1.1.4 All the inspections, testing and servicing required in App1.2, App1.3 and App1.4 should be conducted by the authorised service provider and all unnecessary personnel should be prohibited from entering the area of risk.

App1.2 ANNUAL THOROUGH EXAMINATION

App1.2.1 Items listed in checklists for the weekly/monthly inspections also form the first part of the annual thorough examination. When carrying out this examination the inspection of these items should be performed by the ship's crew in the presence of the authorised service provider and any recommendations or new procedures should be demonstrated then.

App1.2.2 Inspection and maintenance records of inspections and routine maintenance carried out by the ship's crew and the applicable certificates for the launching appliances and equipment should be available.

App1.2.3 Repairs and replacement of parts should be carried out in accordance with the manufacturer's instructions and standards.

App1.2.4 Lifeboats

The following items should be examined and checked for satisfactory condition and operation:

- (a) Condition of lifeboat structure including fixed and loose equipment (including a visual examination of the external boundaries of the void spaces as far as is practicable);
- (b) Engine and propulsion system;
- (c) Sprinkler system, where fitted;
- (d) Air supply system, where fitted;
- (e) Manoeuvring system;
- (f) Power supply system;
- (g) Bailing system;
- (h) It's also recommended that the fender/skate arrangements; and rescue boat righting system, where fitted, are examined and checked for satisfactory condition.



App1.2.5 Release Gear

The following should be examined for satisfactory condition and operation after the annual winch brake test with the empty boat, as required by paragraph 3.1:

- (a) Operation of devices for activation of release gear;
- (b) Excessive free play (tolerances);
- (c) Hydrostatic interlock system, where fitted;
- (d) Cables for control and release; and
- (e) Hook fastening; including link plate, keel shoe, bolts and etc.

Notes:

1. The setting and maintenance of release gear are critical operations with regard to maintaining the safe operation of the lifeboat and the safety of personnel in the lifeboat. All inspection and maintenance operations on this equipment should therefore be carried out with the utmost care.
2. No maintenance or adjustment of the release gear should be undertaken while the hooks are under load.
2. Hanging-off pennants may be used for this purpose but should not remain connected at other times, such as when the lifeboat is normally stowed and during training exercises. The crew needs to be assured that the structure is safe when loaded by hanging off pennants.
3. The release gear is to be examined prior to its operational test. The release gear is to be re-examined after its operational test and the dynamic winch brake test. Special consideration should be given to ensure that no damage has occurred during the winch brake test, especially to the hook closure and its fastening.
4. It is recommended that particular care should be taken to verify that the master links are in accordance with the manufacturer's recommendations.

App1.2.6 Operational test of on-load release function:

- (a) Position the lifeboat partially into the water such that the mass of the boat is substantially supported by the falls and the hydrostatic interlock system, where fitted, is not triggered;
- (b) Operate the on-load release gear;
- (c) Reset the on-load release gear; and
- (d) Examine the release gear and hook fastening to ensure that the hook is completely reset and no damage has occurred.

App1.2.7 Operational test of off-load release function:

- (a) Position the lifeboat fully waterborne;
- (b) Operate the off-load release gear;
- (c) Reset the on-load release gear; and
- (d) Recover the lifeboat to the stowed position and verified ready for launching in an emergency

Note: Prior to hoisting, ensure that release gear is completely and properly reset with interlocks in place. The final turning-in of the lifeboat should be done without any persons on board.



An alternative method of testing on load release mechanisms may be available using specialist equipment. Some authorized service providers have developed bespoke test equipment for this purpose. The applied load can be simulated hydraulically and the mechanism released in the usual way. This has the advantage that it can be done ashore and avoids the risk of damage to the boat or injury to personnel on loaded release in to the water. Use of such equipment must be agreed by the Recognized Organization and the authorized service provider in consultation with the OEM. Any required calibration of such equipment must be verified in accordance with instructions from the authorized service providers and OEM to ensure that the equipment and its use are compatible for the particular boat and hook arrangement; and relevant certificate of calibration shall be verified by the RO or Administration attending on board.

To ensure that the complete system, from the winch to the structural fixing of the disengaging apparatus in the lifeboat has been tested, this alternative testing method should only be utilized if the lifeboat was used for the dynamic winch brake test as detailed in App 1.3.

App1.2.8 Operational test of free-fall lifeboat release function:

- (a) Engage the simulated launching arrangements as specified in the manufacturer's operating instructions;
- (b) The operator should be properly seated and secured in the seat location from which the release mechanism is to be operated;
- (c) Operate the release mechanism to release the lifeboat;
- (d) Reset the lifeboat in the stowed configuration;
- (e) Repeat procedures b) to d) above, using the back-up release mechanism, when applicable;
- (f) After ensuring that the boat is safely re-stowed remove the simulated launching arrangements; and
- (g) Verify that the lifeboat is in the ready to launch stowed configuration.

App1.2.9 Davit

The following items should be examined for satisfactory condition and operation:-

- (a) Davit structure, with particular regard to corrosion, particularly behind head sheaves and in other hard to paint places, misalignments, deformations and excessive free play, ego in bearings or track rollers;
- (b) Wires and sheaves, possible damage such as kinks and corrosion;
- (c) Lubrication of wires, sheaves and moving parts;
- (d) Functioning of all limit switches;
- (e) Stored power systems including a check on capacity;
- (f) Hydraulic systems;
- (g) Inspections for correct termination of fall wire ends;
- (h) Verification of fall wire end for ending or replacement of wire (checking the relevant certification confirming the ultimate tensile strength in the process); and
- (i) Condition and reeving or remote control wires, pulleys etc.

App1.2.10 Winch

The following items should be examined for satisfactory condition and operation:-

- (a) Open and inspect brake mechanism where possible (some cannot be readily opened, in which case instructions should be sought from the OEM);
- (b) Replace brake pads, if necessary;
- (c) Remote control system;
- (d) Power supply system;
- (e) Winch foundation;
- (f) Winch crank handle interlocks; and



- (g) The angles / clearances of "dead mans" brake levers to be checked upon reassembly;
- (h) Functioning of all limit switches if fitted on the winch.

App1.3 DYNAMIC WINCH BRAKE TEST

App1.3.1 Annual operational testing should preferably be done by lowering the empty boat. When the boat has reached its maximum lowering speed and before the boat enters the water, the brake should be abruptly applied.

App1.3.2 The five-year operational test should be done by lowering the boat loaded to a proof load equal to 1.1 times the weight of the survival craft or rescue boat and its full complement of persons and equipment, or equivalent load. When the boat has reached its maximum lowering speed and before the boat enters the water, the brake should be abruptly applied.

App1.3.3 Following these tests, the brake pads and stressed structural parts should be re-inspected.

Note:

In loading the boat for this test, precautions should be taken to ensure that the stability of the boat is not adversely affected by free surface effects or the raising of the centre of gravity.

App1.3.4 In addition to the dynamic winch brake test under App1.3.2 for the secondary launching system of freefall lifeboats, every freefall lifeboat shall be freefall- launched every 5 years loaded to a proof load equal to 1.1 times the weight of the freefall boat and its full complement of persons and equipment. If the boat is launched unmanned without use of its own release system, the release system has to load- tested separately.

App1.4 OVERHAUL OF ON-LOAD RELEASE GEAR

Overhaul of on-load release gear includes:

- (a) Dismantling of hook release units;
- (b) Examination with regard to tolerances and design requirements;
- (c) Adjustment of release gear system after assembly;
- (d) Operational test as above and with a load according to SOLAS regulation III/20.11.2.3 at least once every 5 years; and
- (e) Examination of vital parts with regard to defects and cracks.

Note: Non-destructive examination (NDE) techniques, such as dye penetrants (DPE), may be suitable. Alternative methods of testing the on load release function may be used in accordance with App1.2.6 and 1.2.7.



APPENDIX 2: GENERAL GUIDANCE ON THE CONDUCT OF 5 YEARLY LOAD TESTS ON UK VESSELS

- App2.1** UK Regulation and SOLAS requires that “at least once every five years rescue boats and lifeboats shall be turned out and lowered when loaded with weights to simulate 1.1 times the total mass of the lifeboat or rescue boat when loaded with its full complement of persons and equipment or with an equivalent load.”
- App2.2** This test is to be applied to all lifeboats, liferaft davits and rescue boats. The procedure used must test the adequacy of all parts of the survival craft system – this includes boat, disengaging gears, davit, winch and foundations. In the case of liferafts there is a separate test carried out by the service stations. Load testing can be hazardous if not carried out correctly and therefore the role of all persons involved must be clear.
- App2.3** The test is to be carried out by **the authorised service provider** with a ship’s officer in charge (OIC) and witnessed by **an MCA surveyor or other person appointed by the MCA.**

The OIC is in charge of the test at all times and should brief those carrying out the test on what is required.

The surveyor or other person appointed by the MCA should take no part in the test and should not be the OIC. The authorised person may be an MCA surveyor, a Classification Society Surveyor appointed by MCA, or other persons authorised by MCA to witness such tests. If the authorised person is not an MCA surveyor, then the individual concerned will require a letter of appointment from Survey Branch in MCA headquarters.

MCA authorised Class Societies should be aware of these procedures as this will have been given as part of a general authorisation.

- App2.4** All such tests are to be planned in advance. All routine maintenance and records are to be updated before the test. The surveyor or authorised service provider must check this. It may be necessary to have a rolling programme for vessels with a large number of appliances. The boat, launching appliance and all relevant components are to be inspected on the day of the test by the OIC or Authorized Service Provider to ensure that all is in order.

Lifeboats must be weighed before testing to confirm that the weight remains as previously recorded and that it is no more than the certificated production test weight. Any increase in weight should be investigated and must be reported to MCA’s Marine Technology Branch so that trends in overweight lifeboats may be monitored. Water seepage into foam buoyancy is one possible cause, especially if benches have cracked or fittings have deteriorated.

If weight growth has occurred particular consideration has to be given to the safe working loads of all elements of the system and how they have been affected by the increased weight.

Where it is identified that weight growth has occurred all reasonable steps should be taken to return the lifeboat to its original approved weight.



App2.5 The lifeboat test may be carried out in various ways, each of which tests the whole system from boat to davit foundation. It is most important that all involved agree the actual detailed procedure in advance of the test. There are two main methods:

(a) Boats should be loaded up at the embarkation position. Where this is not the stowed position then the boat should be brought alongside the ship with the bowsing gear arranged for release from the ship, rather than the boat as usual. Tricing pennants should be removed before loading commences. The boat should then be loaded with weights, distributed around the boat, until the boat and weights amount to a load of 1.1 times the weight of the boat when fully loaded with persons, equipment and stores. On roller track and all gravity pivoting davits where the embarkation position is the stowed position, extreme caution should be taken when pivoting the lifeboat, particularly when carrying out overload testing, this element should form part of the risk assessment.

Where the lifesaving capacity of the boat has been voluntarily reduced to a lower number of persons than that for which it was originally certified the full load weight may be calculated based on the lower number of persons, provided that the revised carrying capacity is marked on the boat and used on the passenger or safety equipment certificate. The weights may be either solid weights or water bags. The method of loading weights must be such that no-one enters the boat once the 70% load is reached.

If this cannot be achieved then the weight of the boat must not be taken by the falls during loading but by a crane (of capacity at least 2.2 times the loaded weight of the boat) and a spreader bar. Once loaded, the OIC should agree the test procedure with the attending authorised person and this subsequently explained to the accredited service personnel prior to the test. The attending surveyor should take no further part in the proceedings until the test is complete.

If a crane and spreader bar is used, this should then be lowered so the weight of the boat is taken on the falls. **Under no circumstances should anyone enter the boat at this time.** The boat is to be eased out on the bowsing tackles. The tricing lines should have been removed when the bowsing tackle was fitted. This must all be done from the vessel – which may require the rigging of temporary lines. **The OIC should now check the area under and around the boat is clear of persons and obstructions.** Once ready, the boat is to be lowered lifting the brake fully to enable the boat to reach maximum speed on the centrifugal brake. The mechanical brake is then applied suddenly and the test paused to ensure that the position of the boat is held at least 1 m above the water. If space permits, then it is repeated before the boat reaches the water. The boat is then lowered until the keel of the boat is just **touching the water.**

Boats fitted with on-load release mechanisms are to have these tested. The positioning of the boat is a matter of judgement depending on hull shape, but the weight of the boat should still be on the falls with the boat just touching the water surface. **On no account should the boat be dropped from above the water surface** and it is preferred by the MCA for alternative methods of testing the on load release function using mechanical or hydraulic load simulation approved by the OEM. If ship's crew or authorised service personnel know of cases when a surveyor or service engineer has demanded that the boat be dropped from above the water surface on a UK ship, then this should be reported to Marine Technology Branch so



that the safety concerns of such action may be drawn to the attention of the individual.

Personnel can then enter the boat from another tender and override the release mechanism to release the boat to test that both hooks release simultaneously under load. Every care should be taken in this process. The personnel on the boat should wear protective clothing including safety helmets and life-jackets and should be sitting down when the boat is released. Davits should be visually checked at this stage. **Only the minimum operating crew should enter the boat to operate the release mechanism.**

Once released the weights may be removed from the boat. **Under no circumstances should the ship's davits be used to lift the loaded boat.**

If the unloaded boat is to be raised on the falls, the hooks should be reset and the falls attached. The boat should be raised just clear of the water and the hook and interlock mechanism double checked and the secure location of the falls confirmed prior to full recovery. **No persons should be in the boat while it is being hoisted on the falls until the hook mechanisms have been thoroughly examined by a competent person.** Where the boat is to be hoisted before thorough examination of the hooks then it should be stowed securely by gripes or hanging off pennants while the competent person confirms that the boat and associated launching appliance (hooks, boat, davits, winches, etc.) have not been damaged during the test.

Once the boat is stowed and secured on the vessel the boat and davit should be inspected by the authorised person for any signs of test damage or straining (Non-destructive examination is strongly recommended at this point). The results of the test should be recorded on a test certificate produced by the competent persons and signed by the witnessing authorised person.

(b) Alternatively the boat and davits can be tested separately. This is more time consuming but can be useful in dry-dock situations and it means that lifeboats are not overloaded while on board which can be safer and present less of a risk to damage on board, nevertheless, the entire system must be tested – the only difference is that they are tested in stages. With this method the boat is tested by suspending it from a spreader bar and it is loaded to a weight equivalent to the peak load established during one dynamic test.

Separate tests are made of the davit and winch using weights, and a spreader bar suspended from the falls. A load equivalent to 110% of the weight of the boat when fully loaded with persons, equipment and stores should be applied before the dynamic test is applied to the davits, wire and winch as in (a).

Historically the MCA permitted the use of a 200% default load during the static overload test as an equivalence to the required 5-yearly 110% dynamic overload test. The actual peak loads experienced during dynamic tests can, in some cases, be far less than 200% but in any case will vary considerably depending on the type of winch and braking system, number of fall wire sheaves and many other variables. Due to concerns that the 200% static overload test could cause overstressing of the structure of lifeboats, the procedure has been replaced as described below. It must be appreciated that these tests are separate to the 110% mechanical hook release test required for hook replacement in MSC.1/Circ1392, which is not affected by the policy decisions explained below.



The purpose of the test is to provide assurance that if the boat is required in an emergency, it can be used in its fully loaded condition without risk to those on board. The test should simulate the actual fully loaded condition (plus 10%), lowered and capable of stopping under the brake without damage. Therefore any alternative test should achieve the same result. In all physical tests of lifeboats/rescue boats and associated launching systems; the boat, hook foundations, hooks, davits, fall wire, winch and sheaves must be thoroughly inspected for signs of any deterioration and or damage before the test, and any findings dealt with as appropriate. The above thorough examination should be repeated following the test after removal of any test weights to ensure that no damage had occurred as a result of the physical test. Further, with all physical tests of lifeboats/rescue boats and associated launching systems, it's also important to avoid unnecessary damage that the test duration should be as short as possible.

In accordance with UK regulations, the recommended method of testing is still a 110% dynamic test every 5 years to include all aspects of the loaded system – boat, davit, falls, sheaves, winch and their foundations.

Acceptable Equivalence to the 110% Dynamic Test

If, for operational reasons, the dynamic test is not practicable, the MCA will accept the testing of lifeboats/rescue boats and davits separately but this must be agreed in consultation with the lead surveyor for the vessel, and in accordance with the policy described below. The alternative method acceptable to the MCA is where:

- (i) the hook release is tested under a 110% static load using a hydraulic ram (not required on single hook systems used in combination with a painter),
- (ii) the lifeboat/rescue boat is statically load tested ashore by suspending the loaded boat momentarily from its hooks (using a static load representing the peak load that would have been experienced in a 110% dynamic test, see details below), and
- (iii) the davit, fall wire, sheaves and winch are tested to 110% dynamically with the use of a spreader bar (only necessary on double head davits) and weights (including a load cell, the use for which is described below).

Ideally, to start this process, the in service weight of the fully loaded and equipped lifeboat/rescue boat must be measured for every individual lifeboat/rescue boat because certified prototype weights have proved to be unreliable (there is also the likelihood for weight growth with age due in part to the ingress of water to voids in the craft structure). However, it may not be possible to do this in every case so surveyors should make a judgement based on the age and condition of the lifeboat/rescue boat prior to the test. Any significant deviation from the certificated weight should be notified to the manufacturer and Marine Technology Branch.

When a ship operator requests the use of a static overload test then the additional load applied during the test must be determined by the ship operator and agreed in advance with the lead surveyor but in any case the weight inserted into the lifeboat/rescue boat must not load it to greater than 200% of the in-service weight of the fully loaded and equipped lifeboat/rescue boat. The overload applied should be based upon the maximum weight of the boat plus equipment plus persons and this must be checked during tests.

The change in MCA policy is that simply applying a standard overload of 200% may not be appropriate and could cause unnecessary damage. Evidence supporting the equivalent static load must be demonstrated by the ship operator to the lead surveyor's



satisfaction. It should be determined from the maximum (peak) load measured using the load cell in an initial 110% dynamic test on the davit (using waterbags for example). In this way, the static overload can be shown to be equivalent to that which the components would be subjected to during the prescribed 110% dynamic test. The initial dynamic test to determine equivalent static load should be conducted for each different launching system so that only like-for-like systems may apply the same determined equivalent static load. This is because of the variations in loading that may be experienced with differences in launching systems.

Dynamic tests indicating peak loads in excess of 200% should be raised with the ship operator as a concern because there is potential for over-stressing of components e.g. the davit or boat. Refer to LSA Code Ch IV, 4.4.1.7. Static tests must not be carried out using loads in excess of 200%.

(c) Liferafts and some inflatable or partly inflatable rescue boats are subjected to load testing ashore during their regular servicing. The authorised person may waive on board load testing of boats when satisfied that testing has been done ashore with test loads and frequencies equivalent to that required in SOLAS III R20.11. Particular care must be taken where the on load release gear is part of the boat to ensure that it is test loaded and operated as per that regulation, either during servicing or on board. In such cases all that will need to be carried out on the ship is a 110% dynamic load test of the davit and brake using weights as per paragraph 3 of method (b) above. The test load will have to be calculated on the maximum load expected to be used with the davit in cases where the davit is shared by rafts and rescue boat.

On load release gear for rescue boats should be treated as for lifeboats and either tested as part of the davit and winch test, with operation at 110% load demonstrated afterwards or using an alternative means as per App 2.6.

App2.6 An alternative method of testing on load release mechanisms may be available using specialist equipment. Some Authorized Service Providers have developed bespoke test equipment for this purpose. The applied load can be simulated hydraulically and the mechanism released in the usual way. This has the advantage that it can be done ashore and avoids the risk of damage to the boat or injury to personnel on loaded release in to the water. Use of such equipment must be agreed by the nominated body and the authorised service personnel. Any required calibration of such equipment must be verified.

This test should also be witnessed by the Authorized Service Provider. The results of the test should be recorded on a test certificate produced by the Authorized Service Providers or accredited service personnel and signed by the witnessing authorised person. In the case of boats without on-load release gear, the release gear should only be tested when the boat is fully waterborne.

App2.7 Variations on the above methods may be used with the agreement of the MCA once assessed by the Marine Office and approved by Marine Technology Branch; however each part of the survival craft and its launching appliance must be tested.

App2.8 On completion of all testing the assembled boat and davit should be operationally tested to the satisfaction of the OIC before vessel departs or re-enters service.



Part 2: GUIDELINES ON SAFETY DURING ABANDON SHIP DRILLS USING LIFEBOATS

1 GENERAL

1.1. Introduction

1.1.1 It is essential that seafarers are familiar with the life-saving systems on board their ships and that they have confidence that the systems provided for their safety will work and will be effective in an emergency. Frequent periodic shipboard drills are necessary to achieve this.

1.1.2 Crew training and rotation is an important component of drills. As a supplement to their initial shore side training, on board training will familiarise crew members with the ship systems and the associated procedures for use, operation and drills. On these occasions, the objective is to develop appropriate crew competencies, enabling effective and safe utilisation of the equipment required by the Regulations. The time limits set out in Regulations for ship abandonment should be considered as a secondary objective when conducting drills.

1.2 Drill Frequency

1.2.1 Experience has shown that holding frequent drills furthers the goal of making the crew familiar with the life-saving systems on board their ships and increasing their confidence that the systems will work and will be effective in an emergency. Drills give the crew opportunity to gain experience in the use of the safety equipment and working in co-operation with each other.

1.2.2 The ability to cope with an emergency and handle the situation, if the ship needs to be abandoned, needs to be well rehearsed. However, frequent crew changes sometimes make it difficult to ensure that all on board have had the opportunity to participate in drills if the minimum required drills are conducted. Therefore, consideration needs to be given to scheduling drills as required to ensure all on board have an early opportunity to become familiar with the systems on board.

1.3 Drills Must be Safe

1.3.1 Abandon ship drills should be planned, organised and performed so that the recognized risks are minimised and in accordance with relevant shipboard requirements of occupational health and safety.

1.3.2 Drills provide an opportunity to verify that the life-saving system is working and that all associated equipment is in place and in good working order, ready for use.

1.3.3 Before conducting drills, it should be checked that the lifeboat and its safety equipment have been maintained in accordance with the manufacturer's instructions, as well as noting all the precautionary measures necessary. Abnormal conditions of wear and tear or corrosion should be reported to the responsible officer immediately.

1.4 Emphasis on learning

1.4.1 Drills should be conducted with an emphasis on learning and be viewed as a learning experience, not just as a task to meet a regulatory requirement to conduct drills.



- 1.4.2** Whether they are emergency drills required by SOLAS or additional special drills conducted to enhance the competence of the crew members, they should be carried out at safe speed. During drills, care should be taken to ensure that everybody familiarises themselves with their duties and with the equipment. If necessary, pauses should be made during the drills to explain especially difficult elements. The experience of the crew is an important factor in determining how fast a drill or certain drill elements should be carried out.

1.5 Planning and organising drills

- 1.5.1** Regulations require that drills shall, as far as practicable, be conducted as if there were an actual emergency. This means that the entire drill should, as far as possible, be carried out. At the same time, it should be ensured that the drill can be carried out in such a way that it is safe in every respect. Consequently, elements of the drill that may involve unnecessary risks will need special attention or may be excluded from the drill.
- 1.5.2** In preparing for a drill, those responsible should review the manufacturer's instruction manual to assure that a planned drill is conducted properly. Those responsible for the drill should ensure that the crew is familiar with the guidance provided in the life-saving system instruction manual.
- 1.5.3** Lessons learned in the course of a drill should be documented and made a part of follow-up shipboard training discussions and planning for the next drill session.
- 1.5.4** The lowering of a boat with its full complement of persons is an example of an element of a drill that may, depending on the circumstances, involve unnecessary risk. Such drills should only be carried out if special precautions are observed.

2 ABANDON SHIP DRILLS

2.1 Introduction

- 2.1.1** It is important that the crew who operate safety equipment on board are familiar with the functioning and operation of such equipment. Regulations require that sufficiently detailed manufacturer's training manuals and instructions be carried on board, which should be easily understood by the crew. Such manufacturer's manuals and instructions should be accessible for everyone on board and followed closely during drills.

2.2 Guidance to the Shipowner

- 2.2.1** The shipowner should ensure that new safety equipment on board the company's ships has been approved and installed in accordance with UK regulations and that the different pieces of the lifeboat system (Lifeboat, hooks, davit, winch, etc) are all compatible and can work efficiently and safely together.
- 2.2.2** Procedures for holding safe drills should be included in the Safety Management System (SMS) of shipping companies. Detailed procedures for elements of drills that involve a special risk should be evident from workplace assessments adjusted to the relevant life-saving appliance.
- 2.2.3** Personnel carrying out maintenance and repair work on lifeboats should be qualified in accordance with part 1 of these Guidelines.



2.3 Lifeboats Lowered by Means of Falls

2.3.1 During drills, those responsible should be alert for potentially dangerous conditions and situations and should bring them to the attention of the responsible person for appropriate action.

Feedback and improvement recommendations to the ship-owner, the Administration and the system manufacturer are important elements of the marine safety system. If confidentially is required any reporting can be made through the Confidential Hazardous Incident Reporting Program (CHIRP, www.chirp.co.uk)

2.3.2 Before placing persons on board a lifeboat, it is recommended that the boat first be lowered and recovered without persons on board to ascertain that the arrangement functions correctly. The boat should then be lowered into the water with only the number of persons on board necessary to operate the boat.

2.3.3 To prevent lashings or gripes from getting entangled, proper release should be checked before swinging out the davit.

Part 3: FREE-FALL LIFEBOATS

1 Free-Fall Lifeboats Drill

1.1 The monthly drills with free-fall lifeboats should be carried out according to the manufacturer's instructions, so that the persons who are to enter the boat in an emergency are trained to embark the boat, to take their seats in a correct way and to use the safety belts; and also are instructed on how to act during launching into the sea.

1.2 When the lifeboat is free-fall launched as part of a drill, this should be carried out with the minimum personnel required to manoeuvre the boat in the water and to recover it. The recovery operation should be carried out with special attention, bearing in mind the high risk level of this operation. Where permitted, simulated launching should be carried out in accordance with the manufacturer's instructions, taking due note of this MGN. SOLAS III/19.3.3.4 allows for simulated launching or lowering to the water by secondary means in all circumstances.

2 Guidelines for Simulated Launching of Free-fall Lifeboats

Simulated launching is a means of training the crew in the free-fall release procedure for free-fall lifeboats and in verifying the satisfactory function of the free-fall release system without allowing the lifeboat to fall into the sea.

2.1 Purpose and Scope

The purpose of these Guidelines is to provide a basic outline of essential steps necessary to safely carry out simulated launching. These Guidelines are general; the lifeboat manufacturer's instruction manual should always be consulted before conducting simulated launching. Simulated launching should only be carried out with lifeboats and launching appliances designed to accommodate it, and for which the manufacturer has provided instructions. Simulated launching should be carried out under the supervision of a responsible person who should be an officer experienced in such procedures.



2.2 Typical Simulated Launching Sequence

- 2.2.1** Check equipment and documentation to ensure that all components of the lifeboat and launching appliance are in good operational condition.
- 2.2.2** Ensure that the restraining device(s) provided by the manufacturer for simulated launching are installed and secure and that the free-fall release mechanism is fully and correctly engaged.
- 2.2.3** Establish and maintain good communication between the assigned operating crew and the responsible person.
- 2.2.4** Disengage lashings, gripes, etc. installed to secure the lifeboat for sea or for maintenance, except those required for simulated free-fall.
- 2.2.5** Participating crew board the lifeboat and fasten their seatbelts under the supervision of the responsible person.
- 2.2.6** All crew, except the assigned operating crew, disembark the lifeboat. The assigned operating crew fully prepares the lifeboat for free-fall launch and secures themselves in their seats for the release operation.
- 2.2.7** The assigned operating crew activates the release mechanism when instructed by the responsible person. Ensure that the release mechanism operates satisfactorily and, if applicable, the lifeboat travels down the ramp to the distance specified in the manufacturer's instructions.
- 2.2.8** Re-secure the lifeboat to its stowed position, using the means provided by the manufacturer and ensure that the free-fall release mechanism is fully and correctly engaged.
- 2.2.9** Repeat procedures from 2.2.7 above, using the back-up release mechanism when applicable.
- 2.2.10** The assigned operating crew disembarks the lifeboat.
- 2.2.11** Ensure that the lifeboat is returned to its normal stowed condition. Remove any restraining and/or recovery devices used only for the simulated launch procedure.
- 2.2.12** The lifeboat should then be verified ready for launching in an emergency.

