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L-08

LIFEBOAT RELEASE MECHANISM

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Foreword:

China Classification Society (hereinafter referred to as CCS) Product Inspection and Testing Guideline (hereinafter referred to as this Guideline) contains the technical requirements, inspection and testing criteria related to classification and statutory survey of marine products to be applied for CCS approval/inspection.

This Guideline frees the users to adopt other test methods and requirements which are equivalent to or are stricter than this Guideline.

This Guideline is published and updated by CCS, and is released at http://www.ccs.org.cn. Your comments or suggestions are welcomed and may be sent to our email addressed service@ccs.org.cn .

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Main changes and effective date:

1. Add the MSC.554 (108) into this guideline, this Resolution will take effect on January 1, 2026.

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LIFEBOAT RELEASE MECHANISM

1 Application

1.1 This Guideline is applicable to the approval and inspection of the release mechanisms of the following lifeboats equipped on ships engaged in international voyage: each lifeboat launched by one or more falls other than free fall lifeboats.

2 Normative references

2.1 The reference documents for approval and inspection of lifeboat release mechanisms described in this Guideline are as follows:

(1) Chapter III of SOLAS 1974 and MSC.47(66), MSC.216(82), MSC.317(89)

(2) Chapters I &IV of MSC.48(66) International Life-saving Appliances Code and MSC.218(82), MSC.320(89), MSC.554 (108)

(3) Section 6, Part 1 of MSC.81(70) Revised Recommendation on Testing of Life-saving Appliances and MSC.226(82), MSC.321(89)

(4) MSC.1/Circ.1529 UNIFIED INTERPRETATIONS OF PARAGRAPH 4.4.7.6 OF THE LSA CODE,AS AMENDED BY RESOLUTION MSC.320(89)

3 Definitions

(1) Release mechanism of load over center type: a release mechanism which is held fully closed by the weight of the lifeboat;

(2) Cam type: a method utilizing the cam shaft to either directly or indirectly securing the tail of the movable hook component;

(3) Normal (off-load) release: release of the lifeboat when it is waterborne or when there is no load on the hooks, which does not require manual separation of the lifting ring or shackle from the jaw of the hook;

(4) On-load release: release of the lifeboat with a load on the hooks, which generally means the emergency release required in case of failure or when the boat has not reached the water surface.

4 Drawings and documentation

4.1 When the approval is being applied for, the following drawings and documentation are to be submitted to CCS for approval:

(1) Product main properties and specifications;

(2) General assembly drawing;

(3) Main parts diagram;

(4) Warning/operation/control instruction board and arrangement plan;

(5) Calculations;

(6) Type test plan.

4.2 When approval is being applied for, the following drawings and documentation to be submitted are to be submitted to CCS for review:

(1) Relevant main acceptance criteria;

(2) Technical specification for acceptance of delivered products;

(3) Product description (to include maintenance manual).

5 Critical components

5.1 The following critical parts, materials and equipment of the release mechanism are to be furnished with CCS certificates:

(1) Stainless steel materials (when applicable)

(2) Operating cables, hook release box (purchased), hook.

6 Welding procedure qualification

6.1 The welding procedure of critical welded structural members of the release mechanism is to be qualified by CCS prior to commencement of manufacturing.

7 Design and technical requirements

7.1 The release mechanisms are to be designed and manufactured at least in accordance with the applicable requirements of 2.1(1), (2) and (3) of this Guideline.

8 Type test

8.1 Selection of test specimens

(1) For type approval, the release mechanisms of each type and specification are to be type tested.

8.2 Type test items

（1）Visual inspection see table 8.2 (1)

Type Test Items-Visual inspection Table 8.2(1)

No.	Test item	Technical requirements and test method
1.1	On-load release safety interlock	LSA4.4.7.6.2; LSA4.4.7.6.7.2
1.2	Locking range (if applicable)	LSA4.4.7.6.3;
1.3	Boat hook weight transfer analysis	LSA4.4.7.6.4;
1.4	Stability of hook lock component	LSA4.4.7.6.5
1.5	Boat hook reset indicator	LSA4.4.7.6.10
1.6	Instructions for operation	LSA4.4.7.6.11
1.7	Release control marks	LSA4.4.7.6.12
1.8	The release mechanism is to be provided with auxiliary lifting point	LSA4.4.7.6.13

(2) Confirmation of material: Technical requirements and test methods based on LSA4.4.7.6.9

① When the material is made of stainless steel, and its PREN≥22. Do not have to carry out salt spray test.

② Where stainless steel having a PREN < 22, or another corrosion resistant material/alloy is chosen, the material is to be qualified by corrosion test according to ISO 9227:2012 or other equivalent recognized national standard. When the test is carried out in accordance with ISO 9227:2012, neutral salt spray (NSS) is to be used, with 1000 hours test duration for components outside the lifeboat, and 160 hours for those inside the lifeboat. The salt spray tests may be conducted by using round specimens (diameter is 14mm) according to IACS URW2.4.2.

③ After the salt spray test, the release mechanism shall be subjected to load and release test as described in resolution MSC.81(70), as amended by resolution MSC.321(89), part 1,paragraph 6.9.4.1 to demonstrate satisfactory operation. The load and release shall be repeated 10 times. Where specimens are used for the salt spray tests, tensile tests shall be conducted in lieu of the load and release test. The results from the tests shall be in order to verify that the reduction in the ultimate tensile strength and reduction in cross sectional area ratio is less than 5% between corrosion tested and non-corrosion tested specimens.

④ Where austenitic stainless steels (e.g. 316L or 316) are used for welded structures, the risk of sensitisation to intergranular corrosion is to be addressed by the component manufacturer'squality control system.

⑤ Austenitic stainless steels 201, 304, 321, 347 are susceptible to pitting and crevice corrosion and, therefore, unsuitable for these applications. For operating cables covered with sheath and installed inside the lifeboat, inner cables made of austenitic stainless steels 304 are acceptable without the corrosion test above.

(3) Performance tests are shown in table 8.2 (2)

Type Test Items-Performance Tests **Table 8.2 (2)**

No.	Test item	Technical requirements and test method
2.1	On-load release	MSC81(70)Part1 6.9.1; LSA4.4.7.6.7.2;
2.2	Normal (off-load) release	MSC81(70)Part1 6.9.2; LSA4.4.7.6.7.1
2.3	Simulated towing and release test	MSC81(70)Part1 6.9.3；
2.4	Load test	MSC81(70)Part1 6.9.4.1；
2.5	Disassembly and inspection	MSC81(70)Part1 6.9.4.2；

Continued Table 8.2 (2)

2.6	Periodic load release test	MSC81(70)Part1 6.9.4.3；
2.7	Test of the starting force of the release mechanism after load test	MSC81(70)Part1 6.9.4.4；
2.8	Test of the starting force of new release mechanism	MSC81(70)Part1 6.9.5.1；
2.9	6 times working load test	MSC81(70)Part1 6.9.5.2; LSA4.4.7.6.14

(4) Additional tests are shown in table 8.2 (3).

Type Test Items-Additional Tests Table 8.2 (3)

No.	Test item	Technical requirements and test method
3.1	Hydrostatic interlock test	LSA4.4.7.6.6
3.2	Boat hook reset force test	LSA4.4.7.6.8
3.3	Test of the resistance of material to marine environmental erosion	MSC81(70)Part1 8.2.3; LSA4.4.7.6.9
3.4	Hydrostatic interlock device and cable strength test	LSA4.4.7.6.15
3.5	Operating cable strength test	LSA4.4.7.6.16

9 Unit/batch inspection

9.1 Sampling proportion

(1) Unit/batch inspection of lifeboat release mechanisms will not be carried out by CCS after approval and the lifeboat release mechanisms are to be furnished with CCS approval certificates and manufacturer quality certificates for installation on board.

(2) Where unit/batch inspection of some components is to be carried out, one test specimen of

each type and specification is to be selected from the products qualified through manufacturer inspection/test.

9.2 Inspection and test items for components

(1) Each batch of components is to be subject to inspections and tests, such as visual and dimensional inspection.

(2) The boat hook is to be static load tested to 2.5 times working load.

(3) Operating cables are to be subject to push-pull force test and idle stroke test.

(4) Hook release box is to be subject to load release test and operating force test.

(5) Hook is to be subject to material tests.

(6) Additional test items may be included as deemed necessary by the surveyor.

(7) Material certificates are to be checked as required by 8.5.