

Guideline No.: L-04(202109)



# **L-04**

# **RESCUE BOATS**

Issued date: Sep 2, 2021

© China Classification Society

## Foreword

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 [mp@ccs.org.cn](mailto:mp@ccs.org.cn).

Historical versions and release date : L-04(201510)    October 20, 2015

L-04(201610)    October 28, 2016

### Main changes:

1. 2.1(4) is changed to: IMO Resolution MSC.481(102) Revised Recommendation on the Use and Fitting of Retro-reflective Materials on Life-saving Appliances;
2. Replace "A.658(16)" in Table 8.1 and Table 9.1 with "MSC.481(102)".

## CONTENTS

1 Application.....	4
2 Normative references .....	4
3 Terms and definitions.....	4
4 Plans and documents.....	5
5 Materials and components .....	6
6 Procedure approval and test equipment .....	6
7 Design and technical requirements .....	7
8 Type test.....	7
9 Delivery test items of products .....	12
10 Miscellaneous .....	13

## **RESCUE BOATS**

### **1 Application**

This Guideline applies to the approval and inspection of the rescue boats provided onboard ships engaged on international voyages.

### **2 Normative references**

For the purpose of this Guideline, the following documents apply:

- (1) MSC.47(66), 1996 Amendments to the International Convention for the Safety of Life at Sea, 1974, and MSC.216(82), MSC.317(89);
- (2) MSC.48(66), the International Life-saving Appliances Code (LSA Code), and MSC.218(82), MSC.272(85), MSC.320(89);
- (3) MSC.81(70), Recommendation on Testing of Life-saving Appliances, and MSC.226(82), MSC.274(85), MSC.321(89), MSC.323(89) ;
- (4) IMO Resolution MSC.481(102) Revised Recommendation on the Use and Fitting of Retro-reflective Materials on Life-saving Appliances;
- (5) IMO Resolution A.760(18), Symbols Related to Life-saving Appliances and Arrangements, and its amendments.
- (6) MSC/Circ.1006, Guidelines on Fire Test Procedures for Acceptance of Fire-retardant Materials for the Construction of Lifeboats.
- (7) CCS "Rules for Materials and welding" as amendments.

### **3 Terms and definitions**

3.1 Length means a horizontal distance measured between the fore and aft outer hull plates of a rescue boat.

3.2 Overall length means a length of boat plus the outboard motor where a motor is attached outboard.

3.3 Breadth means a horizontal distance measured between the widest outer hull plates of a rescue

boat.

3.4 Depth means a vertical distance measured at the mid-boat from the lower edge of keel to the upper edge of the gunwale angle.

3.5 Freeboard means a distance measured at the mid-boat from the full-load waterline to the upper edge of the side.

#### **4 Plans and documents**

4.1 The following documents are to be submitted to CCS for approval:

- (1) general arrangement;
- (2) hydrostatic curves;
- (3) lines and offsets;
- (4) cross-sectional area;
- (5) stability calculations (light loading, full loading, open to sea and capsizing (for self-righting boats) conditions to be calculated respectively);
- (6) arrangement of reserve buoyancy;
- (7) calculation of reserve buoyancy volume;
- (8) hull construction strength calculation;
- (9) strength calculations of boat-hooks fixed base (where applicable);
- (10) arrangement and installation plans of engine, shafting and propeller (where applicable);
- (11) arrangement and installation plans of steering system;
- (12) arrangement and installation plans of releasing system (where applicable);
- (13) arrangement and installation plans of painter release mechanism;
- (14) arrangement and installation of vessels and tanks;

(15) arrangement and installation of draining valves (where applicable);

(16) arrangement and installation of electrical system;

(17) type test program.

4.2 The following documents are to be submitted to CCS for information:

(1) a list of raw materials and accessories (names, models, performance parameters and suppliers);

(2) a list of attachments and spares;

(3) instruction manual;

(4) maintenance and repair manual.

(5) molding technical documents

## **5 Materials and components**

5.1 Materials and components are to comply with relevant requirements of CCS Rules.

## **6 Procedure approval and test equipment**

6.1 In the initial approval for a manufacturer, the molding procedure of glass fiber reinforced plastic is to be approved in accordance with the requirements in Chapter 3, PART TWO of CCS Rules for Materials and Welding.

6.2 factory should be have following test equipment:

(1) crane for rescue boat test;

(2) test pool;

(3) flushing device (nozzle diameter is 16mm, water pressure is not less than 0.1MPa, the distance between flushing object and test object is not more than 3m or equivalent method);

(4) air compressor;

(5) a weighed block / object / bag for weighing;

(6) stop watch;

(7) analysis balance and oven for checking moisture content of fiber reinforced material;

(8) universal material testing machine for trial test (suggestion).

## 7 Design and technical requirements

The design and manufacturing of the rescue boats are to at least comply with the applicable requirements of 2(1), (2) and (3) of this Guideline.

## 8 Type test

### 8.1 Selection of samples

In type approval, each model of the rescue boat as specified in this Guideline is to be selected for type test.

### 8.2 Type test items and requirements

The rescue boats for type test are subject to tests, as appropriate, given in Table 8.1, 8.2, 8.3 and 8.4.

**Rescue boat type test items – visual examination**

**Table 8.1**

No.	Test items		Test methods and requirements
1	Persons and seats	Seat size	Paragraphs 4.4.2.2.2 and 5.1.1.3.2 of LSA Code
		Indication	Paragraph 4.4.2.3 of LSA Code
2	Power units	Engine, battery casing (where applicable)	Paragraphs 4.4.6.2, 4.4.6.9 of LSA Code
		Exhaust pipeline protection (where applicable)	Paragraph 4.4.6.6 of LSA Code
		Propulsion system safety protection	Paragraph 4.4.6.7 of LSA Code
3	Release mechanism (where applicable)	Reset indication	Paragraph 4.4.7.6.3 of MSC.218(82); Paragraph 4.4.7.6.8 of MSC.320(89)
		Operation instruction and warning indication	Paragraph 4.4.7.6.5 of MSC.218(82); Paragraph 4.4.7.6.11 of MSC.320(89)
		Operational handle	Paragraph 4.4.7.6.6 of MSC.218(82); Paragraph 4.4.7.6.12 of MSC.320(89)

## Rescue boat type test items – visual examination

## Continued table Table 8.1

No.	Test items		Test methods and requirements
3	Release mechanism (where applicable)	Maintenance equipment	Paragraph 4.4.7.6.7 of MSC.218(82); Paragraph 4.4.7.6.13 of MSC.320(89)
4	Retro-reflective material		Paragraph 1.2.7 of LSA Code; MSC.481(102)
5	Fittings	Ladder	Paragraph 4.4.3.3 of LSA Code
		Draining valve <sup>①</sup>	Paragraph 4.4.7.1 of LSA Code
		Rudder (where applicable)	Paragraph 4.4.7.2 of LSA Code
		Lifeline	Paragraph 4.4.7.3 of LSA Code
		Handholds on hull underside (for not a self-righting boat)	Paragraph 4.4.7.4 of LSA Code
		Fitting of antenna (where applicable)	Paragraph 4.4.7.10 of LSA Code and MSC.218(82)
		Position-indicating light	Paragraph 4.4.7.11 of LSA Code and MSC.218(82)
		Illumination light	Paragraph 4.4.7.11 of LSA Code
	Non-skid finish	Paragraph 4.4.3.5 of LSA Code	

① Below the rescue boat floor, the watertight structure shall be provided with a drain valve near the lowest point of the boat body. If the floor is provided with only one compartment, or is provided with a plurality of compartments and communicated with each other, then a drain valve should be set at the lowest point, if the floor under a number of cabins and is not connected with each other, then set a drain valve at the bottom of each compartment. In this case, one cannot achieve self-function, so it should be equipped with a hand pump. Rescue boat floor following the watertight structure, if there is no rescue boat cabin under the floor, the floor under the cabin or rescue boat, but the water tightness seal, the lowest point set on the floor drain valve, the drainage valve also has self-bailing device, it can no longer be equipped with hand pump, but it should comply with the following requirements arranged at the lowest point; with the prevention of seawater intrusion; in the rescue boat open position with a cover or plug, and connected in a fixed position by a rope or chain.

## Rigid rescue boat type test items

## Table 8.2

No.	Test items		Rigid rescue boat	Rigid fast rescue boat	Test methods and requirements
1	Rescue boat material test	Material fire-retardant performance	X	X	Paragraph 6.2, PART 1 of MSC.81(70); MSC/Circ.1006
2	Rescue boat overload test	Davit-launched rescue boat	X	X	Paragraph 7.1.4, PART 1 of MSC.81(70)

## Rigid rescue boat type test items

## Continued table Table 8.2

No.	Test items		Rigid rescue boat	Rigid fast rescue boat	Test methods and requirements
3	Impact test, drop test of davit-launched rescue boat		X	X	Paragraph 6.4.1, 6.4.3, 6.4.4, PART 1 of MSC81(70); Paragraph 4.4.1.5.2 of LSA Code
4	Inspection after impact and drop tests		X	X	Paragraph 6.4.7, PART 1 of MSC.81(70)
5	Rescue boat seating strength test	Davit-launched rescue boat	X	X	Paragraph 6.6.1, PART 1 of MSC.81(70)
6	Rescue boat seating test		X	X	Paragraph 7.1.3, PART 1 of MSC.81(70); MSC.226(82)
7	Rescue boat and freeboard stability tests	Flooded stability test	X	X	Paragraphs 6.8.1 to 6.8.3, PART 1 of MSC.81(70); MSC.226(82); Paragraph 4.6.3.3 of LSA Code
		Freeboard test	X	----	Paragraphs 6.8.4, 6.8.5, PART 1 of MSC.81(70); Paragraph 4.4.5.2 of LSA Code
		Freeboard test	----	X	Paragraphs 6.8.4, 6.8.5, 7.2.4.2, PART 1 of MSC.81(70); Paragraph 4.4.5.2 of LSA Code
8	Release mechanism test (where applicable)	Davit-launched rescue boat	X	X	Paragraphs 6.9.1 to 6.9.3, 6.9.6, PART 1 of MSC.81(70); Paragraph 6.9.4, PART 1 of MSC.226(82); Paragraphs 4.4.7.6.2, 4.4.7.6.5 of LSA Code; Paragraphs 6.9.1 to 6.9.5, PART 1 of MSC.321(89)
9	Rescue operation test	Speed and fuel consumption tests	X	----	Paragraphs 7.1.5, 7.1.6, PART 1 of MSC.81(70); Paragraph 5.1.1.6 of MSC.218(82)
		Speed and fuel consumption tests	----	X	Paragraphs 7.1.6, 7.4.2, PART 1 of MSC.81(70); Paragraph 5.1.4.4 of MSC.218(82)
		Engine-out-of-water test	X	X	Paragraphs 6.10.5 and 7.7.10, PART 1 of MSC.81(70)
		Compass performance test	X	X	Paragraph 6.10.7, PART 1 of MSC.81(70)
		Survival recovery test	X	X	Paragraph 6.10.8, PART 1 of MSC.81(70); Paragraph 4.4.3.4 of LSA Code
10	Rescue boat towing and painter release test		X	X	Paragraph 6.11, PART 1 of MSC.81(70)
11	Righting test	Righting the inverted rescue boat	X	X	Paragraph 7.1.7, PART 1 of MSC.81(70); MSC.226(82)
				X	Paragraph 5.1.4.5 of MSC.218(82)
12	Rowing test		X	X	Paragraph 7.1.8, PART 1 of MSC.81(70)
13	Towing liferaft test		X	X	Paragraph 7.1.2, PART 1 of MSC.226(82)
14	Self-righting test	Self-righting in the light condition	----	X	Paragraphs 6.14.1 and 7.4.1, PART 1 of MSC.81(70); MSC.226(82); Paragraph 5.1.4.5 of MSC.218(82)
15	Additional requirements for fast rescue boats			X	Paragraph 5.1.4 of MSC.218(82)

Rigidity + inflatable rescue boat type test items

Table 8.3

No.	Test items	Rigidity + inflatable rescue boat	Rigidity + inflatable fast rescue boat	Test methods and requirements	
1	Rescue boat material test	Material fire-retardant performance	X	X	MSC/Circ.1006; Paragraph 7.2.14, PART 1 of MSC.81(70)
2	Rescue boat overload test	Davit-launched rescue boat	X	X	Paragraph 7.1.4, PART 1 of MSC.81(70)
3	Rescue boat impact test		X	X	Paragraph 6.4.1, PART 1 of MSC.81(70); Paragraph 4.4.1.5.2 of LSA Code
	Drop test		X		Paragraphs 7.2.2 and 7.2.3, PART 1 of MSC.81(70); Paragraph 4.4.1.5.2 of LSA Code
4	Inspection after impact and drop tests		X	X	Paragraph 6.4.7, PART 1 of MSC.81(70)
5	Rescue boat seating strength test	Davit-launched rescue boat	X	X	Paragraph 6.6.1, PART 1 of MSC.81(70)
6	Rescue boat seating test		X	X	Paragraph 7.1.3, PART 1 of MSC.81(70); MSC.226(82)
7	Rescue boat freeboard and stability tests	Flooded stability test	X	X	Paragraphs 7.2.6 and 7.2.7, PART 1 of MSC.81(70); Paragraph 4.6.3.3 of LSA Code
		Freeboard test	X	X	Paragraphs 7.2.4, 7.2.5, PART 1 of MSC.81(70); Paragraph 4.4.5.2 of LSA Code
8	Release mechanism test (where applicable)	Davit-launched rescue boat	X	X	Paragraphs 6.9.1 to 6.9.4, 6.9.6, PART 1 of MSC.81(70); Paragraphs 4.4.7.6.2, 4.4.7.6.5 of LSA Code
9	Rescue boat operation test	Speed and fuel consumption tests	X	----	Paragraphs 7.1.5, 7.1.6, PART 1 of MSC.81(70); Paragraph 4.4.6.8 of LSA Code
		Speed and fuel consumption tests	----	X	Paragraphs 7.1.6, 7.4.2, PART 1 of MSC.81(70); Paragraph 4.4.6.8 of LSA Code
		Engine-out-of-water test	X	X	Paragraph 6.10.5, PART 1 of MSC.81(70)
		Compass performance test	X	X	Paragraph 6.10.7, PART 1 of MSC.81(70)
		Survival recovery test	X	X	Paragraph 6.10.8, PART 1 of MSC.81(70); Paragraph 4.4.3.4 of LSA Code
10	Rescue boat towing and painter release test		X	X	Paragraph 6.11, PART 1 of MSC.81(70)
11	Righting test	Righting the inverted rescue boat	X	X	Paragraph 7.1.7, PART 1 of MSC.81(70)
12	Rowing test		X	X	Paragraph 7.1.8, PART 1 of MSC.81(70)
13	Towing liferaft test		X	X	Paragraph 7.1.2, PART 1 of MSC.81(70); MSC.266(82)
14	Self-righting test		----	X	Paragraph 6.14, PART 1 of MSC.81(70)
15	Flooded capsizing test		----	X	Paragraph 6.14, PART 1 of MSC.81(70)
16	Damage test	The test is not applicable where the boat has its waterline below the lower side of the inflated tube	X	X	Paragraphs 7.2.8, 7.2.9, 7.3.2, PART 1 of MSC.81(70)
17	Simulated heavy weather test		X	X	Paragraph 7.2.10, PART 1 of MSC.81(70)

Continued Table 8.3

No.	Test items		Rigidity + inflatable rescue boat	Rigidity + inflatable fast rescue boat	Test methods and requirements
18	Swamp test		X	X	Paragraph 7.2.11, PART 1 of MSC.81(70); MSC.323(89)
19	Mooring test	The test is not applicable where the boat has its waterline below the lower side of the inflated tube	X	X	Paragraph 7.2.15, PART 1 of MSC.81(70)
20	Additional requirements for fast rescue boats			X	Paragraph 5.1.4 of MSC.218(82)

Inflatable rescue boat type test items

Table 8.4

No.	Test items		Inflatable rescue boat	Inflatable fast rescue boat	Test methods and requirements
1	Rescue boat material test	Material fire-retardant performance	X	X	Paragraphs 6.2 and 7.1.14, PART 1 of MSC.81(70)
2	Rescue boat overload test	Davit-launched rescue boat	X	X	Paragraphs 7.2.12, 7.2.13, PART 1 of MSC.81(70); Paragraph 4.4.1.6 of LSA Code
3	Rescue boat impact test		X	X	Paragraph 6.4.1, PART 1 of MSC.81(70); Paragraph 4.4.1.5.2 of LSA Code
4	Drop test		X	X	Paragraphs 7.2.2 and 7.2.3, PART 1 of MSC.81(70); Paragraph 4.4.1.5.2 of LSA Code
5	Inspection after impact and drop tests		X	X	Paragraph 6.4.7, PART 1 of MSC.81(70)
6	Rescue boat seating strength test	Davit-launched rescue boat	X	X	Paragraph 6.6.1, PART 1 of MSC.81(70)
7	Rescue boat seating test		X	X	Paragraph 7.1.3, PART 1 of MSC.81(70)
8	Rescue boat freeboard and stability tests	Flooded stability test	X	X	Paragraphs 7.2.6, 7.2.7, PART 1 of MSC.81(70); Paragraph 4.6.3.3 of LSA Code
		Freeboard test	X	X	Paragraphs 7.2.4, 7.2.5, PART 1 of MSC.81(70); Paragraph 4.4.5.2 of LSA Code
9	Release mechanism test (where applicable)	Davit-launched rescue boat	X	X	Paragraphs 6.9.1 to 6.9.4, 6.9.6, PART 1 of MSC.81(70); Paragraphs 4.4.7.6.2, 4.4.7.6.5 of LSA Code
10	Rescue boat operation test	Speed and fuel consumption tests	X	----	Paragraphs 7.1.5, 7.1.6, PART 1 of MSC.81(70); Paragraph 4.4.6.8 of LSA Code
		Speed and fuel consumption tests	----	X	Paragraphs 7.1.6, 7.4.2, PART 1 of MSC.81(70); Paragraph 4.4.6.8 of LSA Code
		Engine-out-of-water test	X	X	Paragraphs 6.10.5, 7.7.10, PART 1 of MSC.81(70);
11	Rescue boat towing and painter release test		X	X	Paragraph 6.11, PART 1 of MSC.81(70)

Continued Table 8.4

No.	Test items		Inflatable rescue boat	Inflatable fast rescue boat	Test methods and requirements
12	Righting test	Righting the inverted rescue boat	X	X	Paragraph 7.1.7, PART 1 of MSC.81(70)
13	Rowing test		X	X	Paragraph 7.1.8, PART 1 of MSC.81(70)
14	Towing liferaft test		X	X	Paragraph 7.1.2, PART 1 of MSC.81(70)
15	Self-righting test		----	X	Paragraph 6.14, PART 1 of MSC.81(70)
16	Flooded capsizing test		----	X	Paragraph 6.14, PART 1 of MSC.81(70)
17	Damage test	The test is not applicable where the boat has its waterline below the lower side of the inflated tube	X	X	Paragraphs 7.2.8, 7.2.9, 7.3.2, PART 1 of MSC.81(70)
18	Simulated heavy weather test		X	X	Paragraph 7.2.10, PART 1 of MSC.81(70)
19	Swamp test		X	X	Paragraph 7.2.11, PART 1 of MSC.81(70)
20	Mooring test	The test is not applicable where the boat has its waterline below the lower side of the inflated tube	X	X	Paragraph 7.2.15, PART 1 of MSC.81(70)

### 9 Delivery test items of products

9.1 Each rescue boat is subject to a unit/batch inspection as required by Table 9.1.

9.2 Additional test items may be required where deemed necessary by the Surveyor.

9.3 The certificates of materials, components and attachments are to be examined as required in 5 of this Guideline.

Rescue boat delivery test items

Table 9.1

No.	Test items		Test requirements
1	Visual examination	Hull appearance, identification	IMO A.760(18); Paragraphs 4.4.6.12, 4.4.7.6.2.2 of LSA Code; Approved procedure
		Retro-reflective material	Paragraph 1.2.7 of LSA Code; MSC.481(102)

## Rescue boat delivery test items

## Continued Table 9.1

No.	Test items		Test requirements
2	Rescue boat release test	1.1 times its related load and suspended from its release mechanism(where applicable)	Paragraph 5.3.1, PART 2 of MSC.81(70); Paragraph 4.4.7.6 of LSA Code; MSC.218(82)
		Release when fully waterborne in the light condition	Paragraph 5.3.1, PART 2 of MSC.81(70); Paragraph 4.4.7.6 of LSA Code; MSC.218(82)
		Release when fully waterborne in a 10% overload condition(where applicable)	Paragraph 5.3.1, PART 2 of MSC.81(70); Paragraph 4.4.7.6 of LSA Code; MSC.218(82)
3	Operation test	All transmission gears, ahead and astern	Paragraph 5.3.3, PART 2 of MSC.81(70)
		Hand steering test	Paragraph 5.3.3, PART 2 of MSC.81(70)
		Inspection of electrical system	Paragraph 5.3.3, PART 2 of MSC.81(70)
		Speed measurement	Paragraph 5.3.3, PART 2 of MSC.81(70); Paragraph 5.1.4.4 of MSC.218(82) (fast rescue boats)
4	Load test	Strength test of the connection of the release gear fixed to the boat	Paragraph 5.3.4, Part 2 of MSC.226(82)

- ① According to the requirements of MSC.272(85) and MSC.274(85), the average body weight of passenger on the rescue boats above is assumed to be 82.5 kg instead of 75 kg.

## 10 Miscellaneous

Upon installation onboard, the rescue boat is to be tested in accordance with Paragraph 5.4, Part 2 of MSC.81(70) – Recommendation on Testing of Life-saving Appliances (where applicable), to confirm it is fully equipped and the attachments are valid, and the boat identification is to be examined in accordance with 4.4.9 of LSA Code.