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REVISED STANDARDIZED LIFE-SAVING APPLIANCE EVALUATION AND TEST REPORT FORMS (OTHER LIFE-SAVING APPLIANCES)

1 The Maritime Safety Committee, at its 102nd session (4 to 11 November 2020), approved the *Revised standardized life-saving appliance evaluation and test report forms*.

2 The original forms, as set forth in the *Standardized life-saving appliance evaluation and test report forms* (MSC/Circ.980) and its addenda, were developed on the basis of the requirements of the International Life-Saving Appliance (LSA) Code and the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) by the Maritime Safety Committee, at its seventy-third session in 2001, with a view to providing guidance on how to conduct tests, record test data and verify tests. The Committee has since adopted seven amendments to the LSA Code and eight amendments to resolution MSC.81(70). These amendments have been incorporated in the original forms which, due to their volume, are now presented in six separate circulars, i.e. MSC.1/Circ.1628, MSC.1/Circ.1629, MSC.1/Circ.1630, MSC.1/Circ.1631, MSC.1/Circ.1632 and MSC.1/Circ.1633, pertaining to the equipment addressed in chapters II to VII of the LSA Code, respectively. The forms annexed to this circular apply to the equipment addressed in chapter VII of the LSA Code, i.e. other life-saving appliances (line-throwing appliances).

3 The use of the revised forms will continue to be of benefit to Administrations and other parties, such as manufacturers, test facilities, owners and surveyors, and will be a major help in mutually accepting the type approval of appliances approved by other Administrations.

4 Member Governments are invited to bring the annexed, revised forms to the attention of all parties concerned with approving, manufacturing and testing life-saving appliances and to encourage them to use the forms.

5 This circular supersedes MSC/Circ.980.

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ANNEX

REVISED STANDARDIZED LIFE-SAVING APPLIANCE EVALUATION AND TEST REPORT FORMS (OTHER LIFE-SAVING APPLIANCES)

INTRODUCTION

Reference

These standardized life-saving appliance evaluation and test report forms have been revised on the basis of the requirements of the International Life-Saving Appliance (LSA) Code, as amended through resolution MSC.425(98), the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)), as amended through resolution MSC.427(98), and the *Recommendation on means of rescue on ro-ro passenger ships* (MSC/Circ.810).

Status

In general, the tests described in the Revised Recommendation (resolution MSC.81(70)) constitute the test procedures and the LSA Code sets the acceptance criteria. The evaluation and test report forms are guidelines on how to conduct tests, record test data and verify tests. These forms are not intended to change the standards given in the LSA Code and the Revised Recommendation, as amended. In the case of inconsistency between the forms and the LSA Code or the Revised Recommendation, the text of the Code/resolution should prevail over that of the forms.

Layout

Each Administration may use electronically distributed evaluation and test report forms as the basis for customising the layout to reflect the profile of the approving body, without changing the original contents.

Internal references

The evaluation and test report forms should be stand-alone documents. Therefore, all internal references in the original text from the LSA Code or the Revised Recommendation have been replaced by either the full-length text or a reference to other relevant evaluation and test report forms. However, in some of the forms, external references are kept for updating purposes.

Documentation of tests

For approval purposes, all detailed records of test data are to be enclosed with the report forms.

Verification of tests

Each test is to be verified passed or failed by an Administration representative's initials (e.g. recognized organization or surveyor) and date of testing. Each page is to be verified on completion by the Administration representative's signature and its date of completion.

Reporting of type approval

To facilitate unified reporting procedures, the completed evaluation and test report forms are to be seen as a documented verification of required type approval tests for each type of equipment. When documentation of type approval is required by a third party, the verified evaluation and test report forms should constitute the complete documentation of the type approval together with the relevant approval certificates.

REVISED STANDARDIZED LIFE-SAVING APPLIANCE EVALUATION AND TEST REPORT FORMS (OTHER LIFE-SAVING APPLIANCES)

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7.1 LINE-THROWING APPLIANCES

EVALUATION AND TEST REPORT

Manufacturer	
Type	
Date	
Place	
Name Surveyor printed	
Signature	
Approving Organization	

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.1 Submitted drawings, reports and documents

Submitted drawings and documents			**Status**
Drawing No.	**Revision No. & date**	**Title of drawing**	

Submitted reports and documents			**Status**
Report/Document No.	**Revision No. & Date**	**Title of report/document**	
		Maintenance Manual -	
		Operations Manual -	

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.1.1 Quality assurance	**Regulations: MSC.81(70) 2/1.1, 1.2**
Except where all appliances of a particular type are required by chapter III of the International Convention for the Safety of Life at Sea, 1974, as amended, or the International Life-Saving Appliance (LSA) Code, to be inspected, representatives of the Administration should make random inspections of manufacturers to ensure that the quality of life-saving appliances and materials used comply with the specification of the approved prototype life-saving appliance. Manufacturers should be required to institute a quality control procedure to ensure that life-saving appliances are produced to the same standard as the prototype life-saving appliance approved by the Administration and to keep records of any production tests carried out in accordance with the Administration's instructions.	Quality assurance Standard Used: _____ Quality assurance Procedure: _____ Quality assurance Manual:_____ Description of System: Quality assurance System acceptable Yes/No Comments/Observations

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.1.2 Visual inspection		**Regulations: LSA Code Chapter I/1.2 and MSC.81(70) 1/ 9.4**
Test Procedure	Acceptance Criteria	Significant Test Data
Visual examination:	Line-Throwing Appliance should:	
Approval markings	Be clearly marked with approval information including the Administration which approved it, date of manufacture and expiry and operational restrictions, markings are to be indelible;	Passed _____ Failed _____
Operating instructions	Be provided with clear and precise instructions or diagrams printed on the casing clearly illustrating the use of the line-throwing appliance;	Passed _____ Failed _____
Outer casing	Be so designed as not to cause discomfort to the person holding the casing when used in accordance with the manufacturer's instructions; does not depend on adhesive tapes or plastic envelopes for its water-resistant properties;	Passed _____ Failed _____
Comfort	Be so constructed that the end from which the rocket is ejected can be positively identified by day or night and be capable of throwing a line with reasonable accuracy;	Passed _____ Failed _____
Ignition System	be in the case of a pistol-fired rocket, or the assembly, in the case of an integral rocket and line, contained in a water-resistant casing. In addition, in the case of a pistol-fired rocket, the line and rockets together with the means of ignition should be stowed in a container, which provides protection from the weather.	Comments/Observations

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.1.3 General Data and Specifications		**Regulations: LSA Code 1.2; MSC.81(70) 1 /9.1**
General Information	Line-Thrower Dimensions	Line-Thrower Weight
Construction Material: Rocket Casing:_____ Outer Casing (If applicable): _____ Line Material:	Dimensions: Length of Rocket: _____ Diameter of Rocket: _____ Length of Line: _____ Number of Strands:_____ Diameter of Line: _____	Design Weight: Rocket: _____ Weight as Tested: Fully Equipped: _____ Comments/Observations

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

TEST ITEMS CONDITIONING SEQUENCE	**SPECIMEN NUMBER**								**REFERENCES**	**REMARKS**
Specimen No. >>	1-3	4	5	6	7-9	10-12	13-15	16	**MSC.81(70)**	
Measuring dimensions and mass	A	A	A	A	A	A	A	A	LSA Code 1.2	
Temp cycling test (7.1.2)	B								1.2.1, 4.2.1	
Low temp cond. (7.1.3)		B							9.5, 4.2.2	
High temp cond. (7.1.4)			B						9.5, 4.2.3	
Humidity conditioning (7.1.5)				B					9.5, 4.2.4	
1 m for 24 hours (7.1.6.1)					B				9.1, 4.3.1	
Salt water spray (7.6.1.2)						B			9.1, 4.3.3	
Drop test (7.1.7.1)							B		9.5, 4.4.1	
Safety inspection (7.1.10)	C	C	C	C	C	C	C	C	9.1, 4.5.1, 4.5.5, 4.5.6	
Visual inspection (7.1.1.2)	C	C	C	C	C	C	C	C	9.4	
Operation at ambient temp.	D				D	D	D		9.5, 1.2.1, 4.2, 1.9.1,4.3.1, 4.3.3, 4.4.1	
Operate at conditioning temp.		D	D	D					9.5, 4.2.2, 4.2.3,.4.2.4	

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

TEST ITEMS CONDITIONING SEQUENCE	**SPECIMEN NUMBER**								**REFERENCES**	**REMARKS**
Specimen No. >>	1-3	4	5	6	7 - 9	10-12	13-15	16	**MSC.81(70)**	
Operational test using immersion suit (7.1.7.2)							E		9.1, 4.4.2	May be carried out with any specimen and the number recorded on the test sheet.
Function test Line firing	E	E	E	E	E	E	E	E	9.2	
Double charge firing test (7.1.8)								F	9.2	
Line tensile test (7.1.9)		G	G	G					9.3	May be carried out by an independent laboratory acceptable to the Administration and report submitted.

Note: The letters in the above 'boxes' refer to the sequence of testing of each specimen Line-Throwing Appliance Projectile.

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.2 Temperature cycling test		**Regulations: LSA Code 1.2 and 7.1; MSC.81(70) 1/9.5 & 4.2.1**		
Test Procedure	Acceptance Criteria	Significant Test Data		
The three specimens of projectiles should be alternately subjected to surrounding temperatures of -30°C and +65°C. These alternating cycles need not follow immediately after each other and the following procedure, repeated for a total of 10 cycles, is acceptable: .1 an 8 h exposure at a minimum temperature of +65°C to be completed in 1 day; and .2 the specimens removed from the warm chamber that same day and left exposed under ordinary room conditions at a temperature of 20°C ± 3°C until the next day; .3 an exposure at a maximum temperature of -30°C to be completed the next day; and .4 the specimen removed from the cold chamber that same day and left exposed under ordinary room conditions at a temperature of 20°C ± 3°C until the next day. The three projectiles should be fired connected to a line and should then function effectively.	Each specimen should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical properties. The projectiles should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	1	2	3
		Condition after conditioning (Pass/Fail)		
		Distance travelled by line (metres)		
		Lateral deflection (%)		
		Comments/Observations Passed_____ Failed_____		

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.3 Low temperature conditioning test		**Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.5 & 4.2.2**
Test Procedure	Acceptance Criteria	Significant Test Data
A line-throwing appliance unit, consisting of projectiles, firing system and line should be subject to a temperature of -30°C for at least 48 h. and should then function effectively at that temperature.	The specimen should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities. The specimen should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	Specimen 4 Condition after conditioning (Pass/Fail) Distance travelled by line (metres)_____ Lateral deflection (%)_____ Comments/Observations Passed _____ Failed _____

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.4 High temperature conditioning test		**Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.5 & 4.2.3**
Test Procedure	Acceptance Criteria	Significant Test Data
A line-throwing appliance unit consisting of projectiles, firing system and line should be subject to a temperature of +65°C for at least 48 h. The specimens should function effectively at that temperature.	The specimen should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities. The specimen should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	Specimen 5 Condition after conditioning (Pass/Fail) Distance travelled by line (metres)_____ Lateral deflection (%)_____ Comments/Observations Passed_____ Failed _____

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.5 Humidity conditioning		**Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.5 & 4.2.4**
Test Procedure	Acceptance Criteria	Significant Test Data
One individual line-throwing appliance unit consisting of projectiles, firing system and line should subjected to a temperature of +65°C and 90% relative humidity for at least 96 h, followed by 10 days at 20°C to 25°C at 65% relative humidity and should then function effectively at that temperature. The specimen should be fired connected to a line.	The specimen of line thrower should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities. The specimen should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	Specimen 6 Condition after conditioning (Pass/Fail) Distance travelled by line (metres)_____ Lateral deflection (%)_____ Comments/Observations Passed_____ Failed _____

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.6.1 1 m immersion for 24 hours test — **Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.1 & 4.3.1**

Test Procedure	Acceptance Criteria	Significant Test Data		
Three rockets used in the line-throwing appliance units, should be immersed horizontally for 24 h under 1 m of water. The specimens should be fired connected to a line and should function efficiently at that temperature.	The three specimens should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities. The three specimens should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	7	8	9
		Condition after conditioning (Pass/Fail)		
		Distance travelled by line (metres)		
		Lateral deflection (%)		
		Comments/Observations		
		Passed_____ Failed _____		

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.6.2 Salt spray test — **Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.1 & 4.3.3**

Test Procedure	Acceptance Criteria	Significant Test Data
Three rockets used in line-throwing appliance units, should be subjected to a salt spray (5% natrium chloride solution) at a temperature of +35±3°C for at least 100 h. The specimens should be fired connected to a line and should function correctly at ambient temperature. Note: Natrium and sodium are the same compound.	The three specimens should be inspected after the test, each specimen should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities. The three specimens should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	10 | 11 | 12 Condition after conditioning (Pass/Fail) Distance travelled by line (metres) Lateral deflection (%) Comments/Observations Passed_____ Failed _____

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.7.1 2 m drop test — **Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.1 & 4.4.1**

Test Procedure	Acceptance Criteria	Significant Test Data		
Three line-throwing appliances rockets should be dropped in turn end-on and horizontally from a height of 2 m on to a steel plate about 6 mm thick cemented on to a concrete floor. The specimens should be fired connected to a line.	The three specimens should remain in a safe condition after the drop test and should show no sign of damage such as cracking, swelling, dissolution or change of mechanical qualities. The three specimens should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	13	14	15
		Condition after conditioning (Pass/Fail)		
		Distance travelled by line (metres)		
		Lateral deflection (%)		
		Comments/Observations Passed_____ Failed _____		

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.7.2 Immersion suit glove test — **Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.1 & 4.4.2**

Test Procedure	Acceptance Criteria	Significant Test Data		
		13	14	15
Three specimens of line-throwing appliance rockets should be activated in accordance with the manufacturer's operating instructions by an operator wearing an insulated buoyant immersion suit or the gloves taken from an insulated buoyant immersion suit. The specimens should be fired connected to a line.	The three specimens should be capable of being operated effectively without injury to the operator, or any person in close proximity during firing. The three specimens should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	Condition after conditioning (Pass/Fail)		
		Distance travelled by line (metres)		
		Lateral deflection (%)		
		Operation using immersion suit glove (Pass/fail)		
		Comments/Observations Passed_____ Failed _____		

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.8 Double charge test		**Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.2**
Test Procedure	Acceptance Criteria	Significant Test Data
If the line-throwing appliance projectile is fired using an explosive charge, then one of the projectiles should be fired using double the normal charge. The specimen should be fired connected to a line.	The launcher should remain in a safe condition after the double charge test. This test should establish that it can be operated with a double charge effectively without injury to the operator, or any person in close proximity during firing or burning. The specimen should carry the line at least 230 m in calm conditions. The lateral deflection from the line of firing should not exceed 10% of the length of flight of the projectile.	Specimen 16 Normal weight of charge (grams)_____ Double weight of charge (grams) _____ Double charge test (Pass/Fail) Launcher remaining in safe condition after double charge test (Pass/Fail) Distance travelled by line (metres)_____ Lateral deflection (%) _____ Comments/Observations Passed_____ Failed _____

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.9 Line tensile test		**Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 9.3**
Test Procedure	Acceptance Criteria	Significant Test Data
The fired lines from specimen 4, 5 and 6 with a knot in the middle of the test length should be subjected to a tensile test.	The line should have a breaking strain of not less than 2 kN.	Line manufacturer Diameter of line_____mm Number of strands _____ Breaking strain_____kN. Line acceptable (Pass/Fail) Comments/Observations Passed_____Failed _____

Line-throwing appliances	Manufacturer: _____ Model: _____ Lot/Serial Number: _____	Date: _____ Time: _____ Surveyor: _____ Organization: _____

7.1.10 Safety inspection		**Regulations: LSA Code 1.2 & 7.1; MSC.81(70) 1/ 4.5.1, 4.5.5 & 4.5.6**
Test Procedure	Acceptance Criteria	Significant Test Data
It should be established by visual inspection that the line-throwing appliance: .1 is indelibly marked with clear and precise instructions on how it should be operated and that the danger end can be identified by day or night; .2 does not depend on adhesive tapes or plastic envelopes for its water-resistant properties; and .3 can be indelibly marked with means of determining its age.	Clear and precise operating instructions are marked on the line-throwing appliance clearly identifies the danger end. Adhesive tapes or plastic envelopes are not used to maintain water-resistant properties. Date of manufacturing and date of expiry indelible printed on the outside.	Markings and identification of ends acceptable. (Pass/Fail) _____ Water resistant without the use of envelopes or adhesive tape. (Pass/Fail) _____ Line-throwing appliance rocket and striker unit indelible date stamped. (Pass/Fail) _____ Comments/Observation Passed _____ Failed _____

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