



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 313-69-1779c

dated 30.05.2022

Re:

amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2022, ND No. 2-020101-156-E

Item(s) of supervision:

steering gear, internal combustion engines, crankcase safety explosion relief valves, systems and piping

Entry-into-force date:

01.07.2022

~~Cancels / amends / adds Circular Letter No.~~

~~dated~~

Number of pages: 1 + 8

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Part IV "Technical Supervision during Manufacture of Products"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that in connection with coming into force of IACS Unified Requirements M42 (Rev.5 Feb 2021 Corr.1 Oct 2021), M44 (Rev.10 Feb 2021), M66 (Rev.4 Feb 2021 (Corr.1 Oct 2021)), M78 (Rev.1 Feb 2021), P2.11 (Rev.5 Jan 2021) and P3 (Rev.5 Apr 2021) the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships shall be amended as specified in the Appendices to the Circular Letter.

It is necessary to do the following:

1. Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and persons in the area of the RS Branch Offices' activity.
2. Apply the provisions of the Circular Letter during review and approval of the technical documentation on products of steering gears, internal combustion engines, crankcase safety explosion relief valves, systems and piping installed on board the ships contracted for construction or conversion on or after 01.07.2022, in the absence of a contract, during review and approval of the technical documentation on the specified products installed on board the ships requested for review on or after 01.07.2022.

List of the amended and/or introduced paras/chapters/sections:

Part IV: Chapter 5.10, Appendices 1, 3, 7 and 10 to Section 5; Table 8.5.4.4, paras 8.5.4.8.8, 8.10.1.2 and 8.10.1.3

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**Information on amendments introduced by the Circular Letter
(for inclusion in the Revision History to the RS Publication)**

Nos.	Amended paras/chapters/ sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
1	Chapter 5.10	Requirements have been introduced considering IACS UR M42 (Rev.5 Feb 2021 Corr.1 Oct 2021)	313-69-1779c of 30.05.2022	01.07.2022
2	Appendix 1 to Section 5	Titles have been specified considering IACS UR M44 (Rev.10 Feb 2021)	313-69-1779c of 30.05.2022	01.07.2022
3	Appendix 3 to Section 5	Titles and standards have been specified considering IACS UR M44 (Rev.10 Feb 2021)	313-69-1779c of 30.05.2022	01.07.2022
4	Appendix 7 to Section 5	Requirements for test conditions of DF engines have been specified considering IACS UR M78 (Rev.1 Feb 2021)	313-69-1779c of 30.05.2022	01.07.2022
5	Appendix 10 to Section 5	References to standards have been specified considering IACS UR M66 (Rev.4 Feb 2021 (Corr.1 Oct))	313-69-1779c of 30.05.2022	01.07.2022
6	Table 8.5.4.4	Types of mechanical joints have been specified in the footnote	313-69-1779c of 30.05.2022	01.07.2022
7	Para 8.5.4.8.8	Explications on application of standards have been specified considering IACS UR P2.11 (Rev.5 Jan 2021)	313-69-1779c of 30.05.2022	01.07.2022
8	Para 8.10.1.2	Requirements for testing of air pipe automatic closing devices have been specified considering IACS UR P3 (Rev.5 Apr 2021). Figures have been introduced	313-69-1779c of 30.05.2022	01.07.2022
9	Para 8.10.1.3	Requirements for testing of air pipe automatic closing devices have been specified considering IACS UR P3 (Rev.5 Apr 2021).	313-69-1779c of 30.05.2022	01.07.2022

**RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS
AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS, 2022,**

ND No. 2-020101-156-E

PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS

5 MACHINERY

1 **Table 5.10.1** is replaced by the following:

"Table 5.10.1

Nos.	Item of technical supervision	Examination of materials, blanks, assemblies, components	Verification of accompanying documents ¹	Flaw detection	Hydraulic tests	Special tests	Bench tests
1	Steering gear (engine):						+
	tillers of main and standby gear	+	+	+			
	steering segments	+	+				
	rudder stock yoke	+	+				
	cylinders	+	+		+		
	pinions, gear wheels and tooth rims	+	+	+			
	pistons with rods	+	+				
	fittings and piping	+	+		+		
	drive shafts	+	+				
connecting pins of tiller drive	+	+	+				
2	Windlasses and anchor capstans:						+
	driving and intermediate shafts, spindles	+	+				
	chain sprockets	+	+				
	pinions, gear wheels of power drives	+	+	+			
	disengaging and safety clutches	+	+				
band and disk brakes	+	+					
3	Mooring capstans and winches:						+
	spindles, output shafts	+	+				
	pinions, gear wheels of power drives	+	+				
	safety clutches	+	+				
band and disk brakes	+	+					
4	Towing winches:						+
	output and intermediate shafts	+	+				
	pinions and gear wheels of power drives	+	+	+			
	towline tension governing devices and fairleads	+	+				
brakes	+	+					
5	Boat winches:						+
	output and intermediate shafts	+	+				
	pinions, gear wheels of power drives	+	+				
	automatic and hand brakes	+	+				
stoppers	+	+					

¹ When performing the survey, the following accompanying documents shall be verified: reports by Technical Control Department on performance of visual and measurement control, certificates issued by the Register or manufacturer depending on the group of product.

2 **Para 5.10.2.1** is replaced by the following text:

5.10.2.1 Tillers of the main and standby gear.

During external examination of the finished tillers, it is necessary to make sure that:
treated surfaces for mounting on the rudder stock, interference fits and key ways comply with the technical documentation;

perpendicular position of the axis of bore for mounting to the end face;

compliance with the approved technical documentation on perpendicular position of the axis of bore for mounting to the end face, parallelism of the key way axes one to another and to the mounting bore axis, and for the hydraulic steering gear – perpendicular position of the tiller axis to the mounting bore axis."

3 **Para 5.10.2.2** is replaced by the following text:

5.10.2.2 Steering segments.

During external examination of the finished steering segments, it is necessary to make sure that:

treated surfaces for mounting on the rudder stock, key ways, surfaces for fastening tooth rims, guides, where tiller rope is used, comply with the technical documentation;

compliance with the approved technical documentation on perpendicular position of the mounting bore axis to the end face of the hub, parallelism of the key way axes one to another and to the mounting bore axis, parallelism of the generatrices of the surfaces for tooth rim to the rudder stock axis."

4 **Para 5.10.2.3** is replaced by the following text:

5.10.2.3 Slides, yoke.

During external examination of the finished slides, it is necessary to make sure that:

treated sliding surfaces, surfaces for connection with the plungers, bores for mounting the hinge pivot bushes and tiller bushes comply with the technical documentation;

compliance with the approved technical documentation on alignment of the bores for the hinge pivot bushes, perpendicular position of the pivot axes to the axis of the bore for the tiller bush, parallelism of the surfaces for connection with the plungers one to another and their perpendicular position to the sliding surface of the slide."

5 **Para 5.10.2.4.1** is replaced by the following text:

5.10.2.4.1 During external examination of the finished cylinders, it is necessary to make sure that:

treated surfaces for the gland seals and fastening comply with the technical documentation;

alignment of the bores, perpendicular position of the bore axis to the end faces have been checked by the approved methods."

6 **Para 5.10.2.5** is replaced by the following text:

5.10.2.5 Pinions, gear wheels and tooth rims.

During external examination of the finished pinions, gear wheels and tooth rims, it is necessary to make sure that:

treated surfaces for mounting, interference fits and heat treatment comply with the technical documentation;

compliance with the approved technical documentation on tooth shape, tooth contact, perpendicular position of the mounting bore axis to the end faces, heat treatment;

stipulated flaw detection has been carried out by an approved method."

7 **Para 5.10.2.6** is replaced by the following text:

"5.10.2.6 Pistons with rods.

During external examination of the finished pistons with rods, it is necessary to make sure that:

treated surfaces for mounting and gland seals comply with the technical documentation;
compliance with the approved technical documentation on concentricity of the surfaces, mating of the mounting surfaces, alignment or perpendicular position of the mounting surfaces to the axis."

8 **Para 5.10.2.7** is replaced by the following text:

"5.10.2.7 When mounting the steering gear, in order to meet the requirements of the working documentation, it is necessary to make sure that:

hydraulic cylinders have been installed coaxially in pairs and their axis is parallel to the bearing surface of the slide and to the datum plane;

bearing surface of the slide is parallel to the bearing surface of the frame;

tiller axis is parallel, while the axis of bore for the rudder head is perpendicular to the datum plane;

mounting and tests of the hydraulic system comply with the technical documentation;

safety valves have been checked and adjusted;

input shaft of the reduction gear has been aligned with the prime mover;

required contact in the engagement of the output reduction gear shaft pinion with the tooth rim of the steering segment and their centre-to-centre distance have been provided;

for reduction gears, refer to 5.7;

results of the mounting measurements and checks have been submitted by the technical control body;

checks have been carried out in compliance with the approved technical documentation."

9 **Para 5.10.2.8** is replaced by the following text:

"5.10.2.8 When conducting bench tests of the steering gear, the prototype shall be tested during not less than 100 hours. The test bench shall ensure operation of the unit for verification of requirements according to 5.10.2.8.1 — 5.10.2.8.11 and 5.12. In case of a single approval of the steering gear, the tests shall be performed to the extent of the prototype."

10 **Para 5.10.2.8.9** is replaced by the following text:

"5.10.2.8.9 When testing the steering gear, it is necessary to check:

oil temperature, oil level and electric motor overloading alarm;

operation of the safety valves;

zero position of the control.

During the tests no abnormal heating, excessive vibration or other irregularities are permitted."

11 **Appendix 1** is renamed as follows:

"APPENDIX 1

**TERMS AND DEFINITIONS (APPLICABLE TO SECTION 5 "MACHINERY")
(INTRODUCED IN STRICT CONFORMITY WITH APPENDIX 1 "GLOSSARY" OF
IACS UR M44 (REV.10 FEB 2021))"**

12 Definition "Quality assurance" in the Table of Appendix 1 to Section 5 is replaced by the following text:

"All the planned and systematic activities implemented within the quality system, and demonstrated as needed to provide adequate confidence that an entity will fulfil requirements for quality. Refer to ISO 9001:2015."

13 **Appendix 3** is renamed reading as follows:

"APPENDIX 3

INTERNAL COMBUSTION ENGINE TYPE APPROVAL APPLICATION FORM AND BASIC DATA SHEET (IN COMPLIANCE WITH APPENDIX 3, IACS UR M44 (REV.10 FEB 2021))

UR M44 (REV.10 FEB 2021) – APPENDIX 3 – Internal Combustion Engine Approval Application Form and Data Sheet".

14 The last paragraph of the **second column in section 1.a** "Типовое одобрение/Type Approval Application" of the Table in **Appendix 3** is replaced by the following text:

"Например, национальные/конвенционные требования МА т.е. MSC.81 (70) с поправками резолюций ИМО вплоть до MSC.472(101) для двигателей, используемых в качестве аварийного привода / e.g. National / Statutory Administration requirements i.e. MSC.81 (70), as amended by IMO resolutions up to MSC.472(101) for emergency engines".

15 The last line in the first column of section 2 in Table of **Appendix 3** is replaced by the following text:

"Имеющаяся сертификация (Свидетельство соответствия СК ИСО 9001:2015 и т.д.) Existing Certification (e.g. Manufacturer's quality certification ISO 9001:2015, etc.)".

16 The last line in the first column of section 3a in Table of **Appendix 3** is replaced by the following text:

"Тип топлива (по ISO 8216-1:2017)
Fuel Types (in acc.to ISO 8216-1:2017)".

17 **Appendix 7 to Section 5. Para 4.4.2** is supplemented with the following text:

"**4.4.2** For Dual Fuel (DF) engines the test conditions specified in 4.4 shall be carried out at in gas mode at relevant share loads regarding the maximum continuous power available in gas mode (refer to 9.13.1.1, Part IX "Machinery" of the Rules for the Classification and Construction of Sea-Going Ships). The 110% load tests are not required in the gas mode for DF engines."

18 **Appendix 10 to Section 5. Section 2 "Recognized Standards and Normative References"** is supplemented with the following text:

"2. RECOGNISED STANDARDS AND NORMATIVE REFERENCES.

2.1 The procedure has been developed on the basis of IACS Unified Requirements M66 (Rev.4 Feb 2021, Corr.1 Oct 2021) "Type Testing Procedure for Crankcase Explosion Relief Valves". Where appropriate, the following normative documents may be used:

- .1** standard ISO 16852:2016;
- .2** standard ISO/IEC EN 17025:2017;
- .3** standard ISO 12100:2010;
- .4** standard VDI 3673-1:2002;

.5 IMO Circular MSC/Circ. 677 as amended by MSC/Circ.1009 and MSC.1/Circ.1324".

19 **Para 4.1.1** is replaced by the following text:

"4.1.1 The testing laboratory where testing is carried out shall be recognized by the Register and also to comply with the requirements of applicable national and international standards (e.g., ISO/IEC 17025:2017).".

8 SYSTEMS AND PIPING

20 **Table 8.5.4.4.** Footnote "4" is replaced by the following text:

"4 except press type and swage type".

21 **Para 8.5.4.8.8** is replaced by the following text:

"8.5.4.8.8 Fire endurance test.

In order to establish capability of the mechanical joints to withstand effects of fire which may be encountered in service, mechanical joints shall be subjected to a fire endurance test. The fire endurance test shall be conducted on the selected test specimen as per the following standards:

ISO 19921:2005(E): Ships and marine technology – Fire resistance of metallic pipe components with resilient and elastomeric seals – Test methods;

ISO 19922:2005(E): Ships and marine technology – Fire resistance of metallic pipe components with resilient and elastomeric seals – Requirements imposed on the test bench.

Clarification for standards requirements.

1. If the fire test is conducted with circulating water at a pressure different from the design pressure of the joint (however at least 0,5 MPa), the subsequent pressure test shall be carried out to 1,5 times the design pressure.

2. If the fire test is required in Table 2.4.5.11-1, Part VIII of the Rules for the Classification and Construction of Sea-Going Ships to be "8 min dry + 22 min wet" or "30 min dry", i.e. conducted for a period of time without circulating of water, the following test conditions apply:

Test condition "8 min dry + 22 min wet".

The test piece is not required to be rinsed with the test medium (water) in preparation for the test as required in 7.2 of ISO 19921:2005. The exposure to fire shall be started and continued for 8 min with the sample dry; after 8 minutes of dry test condition the piping system shall be filled with water and test pressure shall be increased up to at least 0,5 MPa within 2 min, then maintained to at least 0,5MPa. After further 22 min (i.e. 30 min from initial exposure to fire) the exposure to fire shall be stopped and a hydrostatic pressure test as specified in 1 shall be carried out.

Test condition "30 min dry".

After 30 min the exposure to fire shall be stopped and a hydrostatic pressure test as specified in 1 shall be carried out.

For fire tests in dry condition the pressure inside the test specimen shall be monitored for a rise due to heating of the enclosed air. Means of pressure relief shall be provided where deemed necessary. High pressures created during this test can result in failure of the test specimen. Precautions shall be taken to protect personnel and facilities.

Paragraph 7.5 of ISO 19921:2005 does not apply to the dry tests and no forced air circulation shall be arranged. For fire endurance test requiring exposure time greater than 30 min test conditions are adjusted to meet the extended required total exposure time. In all cases for dry-wet test the minimum dry test exposure time is 8 min.

3. A selection of representative nominal bores may be tested in order to evaluate fire-resistance of a series or range of mechanical joints of the same design. When a mechanical joint with a given nominal bore DN shall be tested, then other mechanical joints falling in the range DN to 2DN (both inclusive) are considered accepted.

4. Alternative test methods and/or test procedures considered to be at least equivalent may be accepted at the discretion of the Register in cases where the test pieces are too large for the test bench and cannot be completely enclosed by the flames.

5. Where thermal insulation is applied as a means of providing fire resistance, following requirements apply:

.1 thermal insulation materials applied on couplings shall be non-combustible according to ISO 1182:2010 as required by the Fire Test Procedures Code defined in Regulation 3 of SOLAS Chapter II-2 as amended by IMO resolutions up to MSC.421(98). Precautions shall be taken to protect the insulation from being impregnated with flammable oils.

.2 at least the fire endurance and the vibration testing according to Table 8.5.4.4 shall be carried out with thermal insulation in place."

22 Para 8.10.1.2 is supplemented with the following text:

".2 tightness test during immersion/emerging in water.

An automatic closing device shall be subjected to a series of tightness tests involving not less than two (2) immersion cycles under each of the following conditions:

the automatic closing device shall be submerged slightly below the water surface at a velocity of approximately 4 m/min. and then returned to the original position immediately. The quantity of leakage shall be recorded;

the automatic closing device shall be submerged to a point slightly below the surface of the water. The submerging velocity shall be approximately 8 m/min and the air pipe vent head shall remain submerged for not less than 5 min.

Each of the above tightness tests shall be carried out in the normal position as well as at an inclination of 40 degrees under the strictest conditions for the device. In cases where such strictest conditions are not clear, tests shall be carried out at an inclination of 40 degrees with the device opening facing in three different directions: upward, downward, sideways (left or right) (refer to Figs. 8.10.1.2-1 — 8.10.1.2-4);

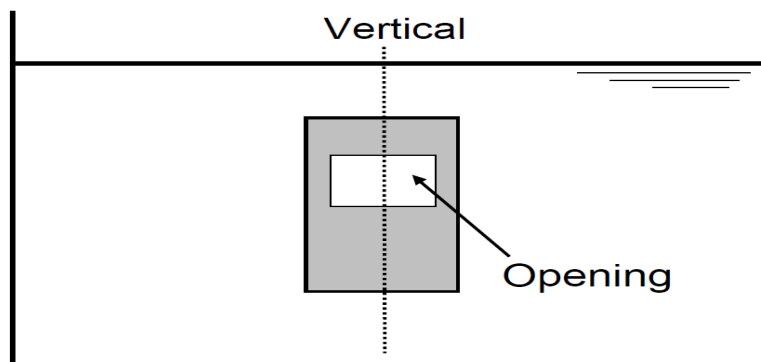


Fig. 8.10.1.2-1
Example of normal position

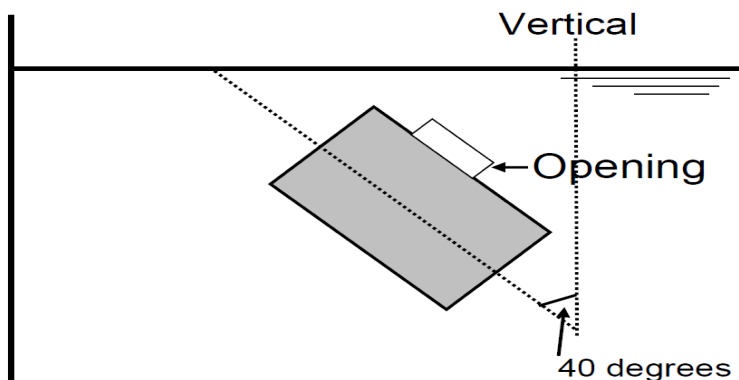


Fig. 8.10.1.2-2
Example of inclination 40 degrees opening facing upward

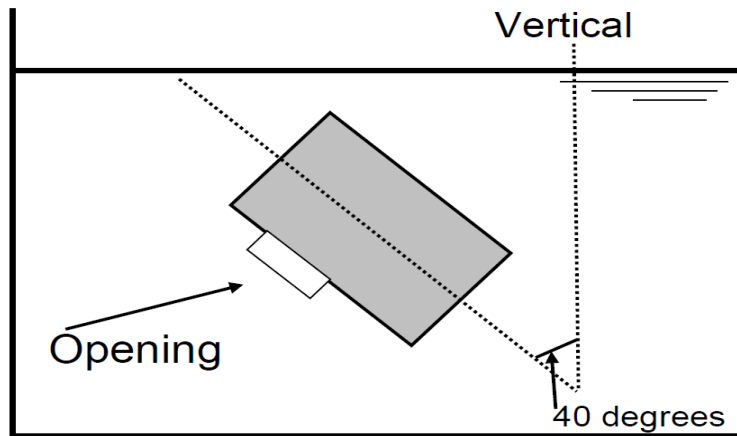


Fig. 8.10.1.2-3
Example of inclination 40 degrees opening facing downward

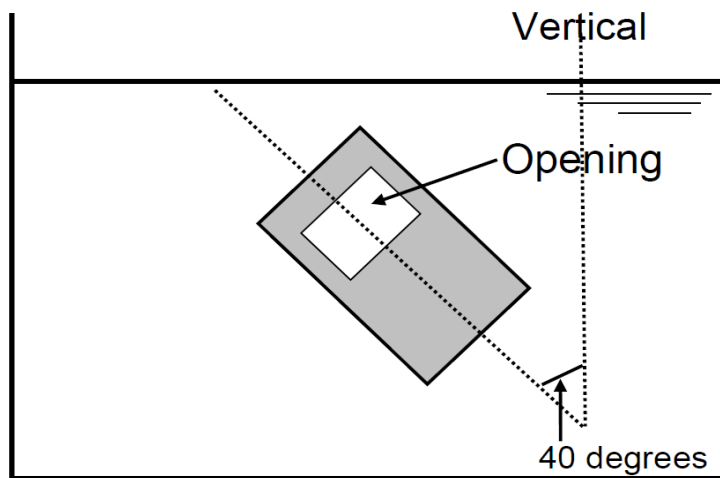


Fig. 8.10.1.2-4
Example of inclination 40 degrees opening facing sideways

The maximum allowable leakage per cycle shall not exceed 2 ml/mm of nominal diameter of inlet pipe during any individual test;".

23 **Para 8.10.1.3** is replaced by the following text:

".3 discharge / reverse flow test.

A vacuum pump or another suitable device shall be connected to the opening of the air pipe leading to the tank. The flow velocity shall be applied gradually at a constant rate until the float gets sucked and blocks the flow. The velocity at the point of blocking shall be recorded. 80 % of the value recorded shall be stated in the certificate.

For pipe heads of 400 mm nominal diameter and above, as an alternative to the reverse flow test, a numerical simulation test based on computational fluid dynamics (CFD), to be carried out in conjunction with limited representative testing to establish the validity of the CFD modelling and results, may be accepted. CFD predictions for air pipe heads can be validated against the available actual reverse flow test results of same size and type of air pipe heads. The accuracy of the CFD modelling and the major assumptions used for the calculation shall be documented."