



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 315-05-1283c

dated 07.11.2019

Re:

amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2019, ND No. 2-020101-118-E

Item(s) of supervision:

electrical equipment, automation equipment

Entry-into-force date:

from the date of publication

~~Valid till:~~

~~Validity period extended till:~~

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

~~dated~~

Number of pages:

1+4

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 required specification of the RS requirements 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. Familiarize the RS surveyors with the content of the Circular Letter.
2. Bring the content of the Circular Letter to the notice of interested organizations in the area of the RS Branch Offices' activity.
3. Apply provisions of the Circular Letter.

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

Section 10: Table 10.5.1.1, paras 10.5.4.3.2, 10.5.4.7.1, 10.7.4.6, 10.7.12.5.1 and 10.7.18.4, Table 2.1.6 of Appendix 17

Section 12: para 12.4.2.13, paras 3.4.2.5, 3.4.2.6 and 3.6.2 of Appendix 1

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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	Table 10.5.1.1	Amendments regarding list of mechanical tests have been introduced	315-05-1283c of 07.11.2019	07.11.2019
2	Para 10.5.4.3.2	Parameters of tests for exposure to temperature changes have been specified	315-05-1283c of 07.11.2019	07.11.2019
3	Para 10.5.4.7.1	Application of electrical equipment subjected to tests for mould growth has been specified	315-05-1283c of 07.11.2019	07.11.2019
4	Para 10.7.4.6	Temperature value for heat stability tests of accumulator batteries has been specified	315-05-1283c of 07.11.2019	07.11.2019
5	Para 10.7.12.5.1	Temperature value for tests for constancy of material characteristics of lighting fixtures has been specified	315-05-1283c of 07.11.2019	07.11.2019
6	Para 10.7.18.4	Reference to para of the Rules has been specified	315-05-1283c of 07.11.2019	07.11.2019
7	Section 10, Appendix 17, Table 2.1.6	References to paras of the Rules have been specified	315-05-1283c of 07.11.2019	07.11.2019
8	Para 12.4.2.13	Test name has been amended	315-05-1283c of 07.11.2019	07.11.2019
9	Section 12, Appendix 1, para 3.4.2.5	Requirement regarding test performance in compliance with standard IEC 61000-4-2 has been deleted	315-05-1283c of 07.11.2019	07.11.2019
10	Section 12, Appendix 1, para 3.4.2.6	Requirement regarding test performance in compliance with standard IEC 61000-4-2 has been introduced	315-05-1283c of 07.11.2019	07.11.2019
11	Section 12, Appendix 1, para 3.6.2	Requirements regarding performance of tests for resistance to the effect of vibration loads have been specified	315-05-1283c of 07.11.2019	07.11.2019

RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS, 2019,

ND No. 2-020101-118-E

PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS

10 ELECTRICAL EQUIPMENT

1 **Table 10.5.1.1.** Heading of column "Detection of resonance frequencies" is replaced by heading "Vibration tests", in line "Cables and wires" symbol "-" is replaced by symbol "(+)". Heading of column "Shock resistance" is replaced by heading "Shock tests", in line "Cables and wires" symbol "-" is replaced by symbol "(+)". Columns "Vibration resistance", "Vibration strength" and "Shock strength" are deleted.

2 **Para 10.5.4.3.2** is replaced by the following text:

"**10.5.4.3.2** The test procedure is as follows:

.1 a product is held in a humidity chamber during 5 days under conditions of stabilization time of the test for humidity resistance (95 – 100 % at a temperature of 25 °C);

.2 after the holding in the chamber during 2 – 3 h under normal environmental conditions, the product is subjected in succession to at least two cycles of the following tests:

gradual cooling in the chamber down to the temperature of – 25 °C;

switching-on under the rated load with a temperature at the end of tests elevated up to + 55 °C).

On reaching the thermal equilibrium, the cycle is completed;

.3 after completing the last cycle, the product is placed in the humidity chamber and the test for humidity resistance is carried out in a full scope according to 10.5.4.4."

3 **Para 10.5.4.7.1** is replaced by the following text:

"**10.5.4.7.1** All the products intended for continuous operation under tropical conditions (if all components of a product have passed such tests, the tests of the product in assembly may be omitted), shall be subjected to tests for mould growth."

4 **Para 10.7.4.6** is replaced by the following text:

"**10.7.4.6** In the test for heat stability, the battery shall be charged and discharged at a temperature of + 55 °C. The charge and discharge modes may be normal or accelerated, being selected in each particular case. However, the obtained values of voltage, current and capacity shall be consistent with those specified in the technical documentation for the battery.

The test for cold endurance is carried out in a similar way.

Starter batteries shall be discharged in a starter mode."

5 **Para 10.7.12.5.1** is replaced by the following text:

".1 temperature in the chamber is + 55 °C;".

6 **Para 10.7.18.4** is replaced by the following text:

"**10.7.18.4** The efficiency of radio-frequency interference suppression is defined by the conformity of the product with the filter fitted with the requirements in 10.6.3."

REQUIREMENTS FOR DESIGN SIMULATION OF MECHANICAL TESTS

7 **Table 2.1.6.** References to paras 10.5.3.3 and 10.5.3.4 are replaced by reference to para 10.5.3.2. References to paras 10.5.3.5 and 10.5.3.6 are replaced by reference to para 10.5.3.3.

12 AUTOMATION EQUIPMENT

8 **Para 12.4.2.13** is replaced by the following text:

".13 resistance to mould growth – for the automation equipment intended for continuous operation under tropical conditions (if all components being part of the system or device have passed such tests, the tests of the equipment in assembly may be omitted);".

APPENDIX 1

STANDARDS AND METHODS OF TESTING AUTOMATION EQUIPMENT

9 **Para 3.4.2.5** is replaced by the following text:

"**3.4.2.5** Resistance to microsecond pulse interference due to slow transient processes in the a.c. electric power supply circuits.

These tests simulate effects of the pulse voltages induced by switching on and out of the powerful inductive consumers.

Testing shall be carried out in accordance with IEC 61000-4-5. The equipment shall retain its performance (performance criterion B), when pulses of the following characteristics are applied to its power lines indicated for the idle run mode:

rise time: 1,2 us (at the level of 10 % – 90 % of an amplitude);

width: 50 us (at the level of 50 % of an amplitude);

amplitude – 1 kV – when applied through the coupler decoupler between each circuit and casing; 0,5 kV – when applied through the coupler-decoupler between the circuits;

recurrence frequency – at least 1 pulse per min;

duration: 5 min for each of positive and negative polarity pulses.

Test parameters of impulsive current for short circuit mode:

rise time – 8 us (at the level of 10 % – 90 % of an amplitude);

width – 20 us (at the level of 50 % of an amplitude);

recurrence frequency – at least 1 pulse per min;

number of pulses – 5 min for each of positive and negative polarity pulses."

10 **Para 3.4.2.6** is replaced by the following text:

"**3.4.2.6** Resistance to electrostatic discharges.

Tests shall be carried out in compliance with standard IEC 61000-4-2.

During these tests the discharges of the static electricity are simulated which can arise when a man is in contact with the casing of the equipment.

The tests shall be carried out with the use of an electrostatic discharge generator (discharging capacity — 150 pF and discharge resistance – 330 Ohm to be connected to the discharge terminal). The test site shall be equipped with a wooden table of 0,8 m in height, installed on the earthing plane. A horizontal coupling plane with dimensions of 1,6 x 0,8 m shall be placed on the table. The coupling planes shall be connected with the earthing plane by wires equipped with resistors of 470 kOhm at each end. The equipment and cables shall be isolated from the coupling plane by an insulating pad of 0,5 mm in thickness.

The discharges from the generator shall be applied to those points and surfaces of the equipment which are accessible for the personnel during normal operation. During the tests the generator shall be located normally to the surface and the discharge application points may be chosen so that 20 discharges per second may be possible. Each chosen point shall be subjected to tests for 10 positive and 10 negative discharges with an interval of at least 1 s between the discharges in order to provide revealing any malfunctions of the equipment. In testing the preferable method is the contact discharge. If use of the contact method is impossible (where painted surfaces are available) air discharge shall be used.

In order to simulate discharges on the objects located or installed in the neighbourhood of the equipment, 10 positive and 10 negative contact discharges shall be applied to the horizontal coupling plane. The discharge application points shall be at 0,1 m away from the equipment being tested. The next 10 discharges shall be applied to the centre of the vertical coupling plane of 0,5 x 0,5 m in dimensions. These tests shall be carried out for all four sides of the equipment.

The equipment shall retain operable (functioning criterion B), at voltage of 6 kV — for contact discharge, and 2 kV, 4 kV and 8 kV — for air discharge. If voltage test is satisfactory of 8 kV for air discharge, air discharge voltage tests of 2 kV and 4 kV may not be carried out."

11 **Para 3.6.2** is replaced by the following text:

"3.6.2 Tests for resistance to the effect of vibration loads shall be conducted on prototypes at the acceleration $\pm 4,0g$ for the items subject to enhanced vibration and $\pm 0,7g$ for the remaining equipment.

The tests shall be conducted on the frequency of 30 Hz during 30 min."