



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 315-05-1192c

dated 12.02.2019

Re:

amendments to the Rules for the Classification and Construction of Sea-Going Ships, 2019,
ND No. 2-020101-114-E

Item(s) of supervision:

electrical and automation equipment

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Appendix(-ces):

text of amendments to Part XI "Electrical Equipment"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for the Classification and Construction of Sea-Going Ships shall be amended as specified in the Appendix 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.
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List of amended and introduced paras/chapters/sections (to specify in the List of Circular Letters (form 8.3.36)):

Part XI. paras 1.3.2.1.15, 1.3.2.2.19, 1.3.2.4.3, 1.3.3.1.19, 2.2.1.2.7, 2.2.1.3, 4.3.1.23, 5.7.5, 7.5.1, 7.5.8.2, 7.6.1, 12.2.1, 15.2.6, 16.5.1, Table 16.8.2.2, paras 16.8.6.4, 19.4.3.4

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RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS

ND No. 2-020101-114-E

PART XI. ELECTRICAL EQUIPMENT

1 GENERAL

Para 1.3.2.1.15 shall be amended to read:

“**.15** other primary essential services needed to ensure that the ship is used in compliance with its purpose and class notation.”.

Para 1.3.2.2.19 shall be amended to read:

“**.19** other secondary essential services needed to ensure that the ship is used in compliance with its purpose and class notation.”.

Paras 1.3.2.4.3 and **1.3.3.1.19** shall be deleted.

2 GENERAL REQUIREMENTS

Para 2.2.1.2.7 shall be amended to read:

“**.7** microsecond voltage pulse with the duration of 1,2/50 μ s in supply circuits with an amplitude of 1 kV when fed via the coupling decoupling device between each circuit and casing and of 0,5 kV when fed via the coupling decoupling device between the circuits.”.

Para 2.2.1.3 shall be amended to read:

“**2.2.1.3** The total harmonic distortion shall not exceed 8 % and shall be determined by the formula

$$K_u = \sqrt{\sum_{k=2}^{40} \left(\frac{U_{p,k}}{U_{p,1}}\right)^2} \cdot 100\%, \quad (2.2.1.3.1)$$

where $U_{p,k}$ – mean square value of k harmonic subgroup voltage;
 k – harmonic component order

$$U_{p,k} = \sqrt{U^2_k + \sum_{h=-1}^{h=+1} U^2_{c,k+h}}, \quad B \quad (2.2.1.3.2)$$

where U_k – mean square voltage value of k harmonic component;
 $U_{c,k}$ – mean square value of spectral component adjacent to k harmonic component;
 h – spectral component order.

The value of K_u is specified for the complete electrical power system of a ship.

For circuits of electric propulsion plants not directly connected to ship's general consumers the total harmonic distortion shall not exceed 10 %.

Busbars with $K_u > 10$ % may be used for power supply to powerful sources of voltage curve harmonic components and to electrical equipment not sensitive to such harmonic components, provided that the busbars are connected to the main busbars through isolating devices (refer to 2.2.2.2).

When the specified value of the total harmonic distortion is exceeded, all electrical equipment shall be designed for such excess, which shall be supported by the documentation.”.

4 DISTRIBUTION OF ELECTRICAL POWER

Para 4.3.1.23 shall be deleted.

5 ELECTRIC DRIVES FOR SHIPBOARD MECHANISMS AND EQUIPMENT

Para 5.7.5 shall be amended to read:

“**5.7.5** Local starting of fire and bilge pumps shall be possible even in case of failure of their remote control circuits, including protection equipment (refer also to 6.6.8.3, Part VI “Fire Protection”).”.

7 INTERNAL COMMUNICATION AND SIGNALLING

Para 7.5.1 shall be amended to read:

“**7.5.1** Fire detection and fire alarm systems used on ships shall be of the Register-approved type and, in addition to the requirements of this Chapter, meet the requirements of 4.1.1 and 4.2.1, Part VI “Fire Protection”, the Code for Fire Safety Systems and the Code on Alerts and Indicators (refer to 1.2, Part VI “Fire Protection”).”.

Para 7.5.8.2 shall be amended to read:

“.2 means are provided to ensure that any fault (e.g. power break, short circuit, earth) occurring in the loop will not render the whole loop ineffective. It means that a fault occurring in the loop only renders ineffective a part of the loop not being larger than a section of a system without means of remotely identifying each detector (refer also to 2.2.6.5, Part VI “Fire Protection”).”.

Para 7.6.1 shall be amended to read:

“**7.6.1** The release indication system shall comply with the requirements of 3.8.3.9 and 4.3, Part VI "Fire Protection".”.

12 POWER SEMICONDUCTOR UNITS

Para 12.2.1 shall be amended to read:

“**12.2.1** The total harmonic distortion in the ship mains depending upon the operation of the power semiconductor units shall not exceed the values specified in 2.2.1.3.”.

15 ELECTRICAL COOKING AND HEATING APPLIANCES

Para 15.2.6 shall be amended to read:

“**15.2.6** Sauna shall be fitted with the temperature limiter, which shall cut off the electrical heater from the mains (at that, electrical heater control circuits shall also be de-energized), if the temperature in the area of 0,3 m from the ceiling exceeds 140 °C. In this area the electrical heater control devices (thermostats and temperature limiters) and associated cables withstanding a temperature not less than 170 °C may only be installed.

Electric sauna heaters shall comply with the requirements of 2.1.5.1, Part VI “Fire Protection”.”.

16 CABLES AND WIRES

Para 16.5.1 shall be amended to read:

“**16.5.1** Metal shielding braid shall be made of tinned copper wire or polymer-coated aluminium strip with drainage tinned copper wire. If plain copper wire is used, it shall be protected by suitable sheath. Non-shielding braids may be made of galvanized steel wires. The braid shall be uniform and its density shall be such that its mass is at least equal to 90 % of the mass of tube of equal diameter made of the same material and with a wall thickness equal to the braiding wire diameter.”.

Table 16.8.2.2 shall be amended to read:

Table 16.8.2.2

Maximum permissible conductor operating temperature, °C	Factor α for nominal cross-sectional area S , mm ²	
	$\geq 2,5$	$< 2,5$
60	9,5	8
65	11	10
70	12	11,5
75	13,5	13
80	15	15
85	16	16
90	17	18
95	18	20

New para 16.8.6.4 shall be introduced reading as follows:

“**16.8.6.4** Internal cross-section of each penetration shall be filled with cables to not more than 40 %. For module packing systems the extent of filling the penetration shall be determined in accordance with the approved design.”.

19 REQUIREMENTS FOR ELECTRICAL EQUIPMENT PROCEEDING FROM SHIP PURPOSE

New para 19.4.3.4 shall be introduced reading as follows:

“**19.4.3.4** Storerooms for explosives shall be fitted with automatic heat detectors operating at temperatures rising above 40 °C (refer to 6.2.2.17, Part VI “Fire Protection”).”.