



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 340-02-1367c

dated 01.04.2020

Re:

amendments to the Rules for the Classification Surveys of Ships in Service, 2020, ND No. 2-020101-012-E and Annexes thereto

Item(s) of supervision:

ships and offshore installations in service

Entry-into-force date:

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Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Part II "Survey Schedule and Scope", Part III "Additional Surveys of Ships Depending on Their Purpose and Hull Material", Annex 2 "Instructions for Determination of the Technical Condition and Repair of the Hulls of Sea-Going Ships"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for the Classification Surveys of Ships in Service and Annexes thereto shall be amended as specified in the Appendices to the Circular Letter.

It is necessary to do the following:

1. Familiarize the RS surveyors and interested organizations in the area of the RS Branch Offices' activity with the content of the Circular Letter.
 2. Apply provisions of the Circular Letter during surveys of ships and offshore installations in service.
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List of the amended and/or introduced paras/chapters/sections:

Part II: paras 2.4.5.7.5.1 and 2.4.5.8.11;

Part III: para 1.3.1.6, Appendix 1.3-2, para 19.2.2.3.1.12, Section 24;

Annex 2: paras 1.1.1, 2.2.7, 2.3.5, 3.2.2.3 — 3.2.2.8, 5.1.4, 5.1.5, 5.1.7, 5.2.1.1, 5.2.1.4, 5.2.1.6, 5.3.1.1, 5.4.1.1, 5.4.1.2, 5.4.1.3 and 5.4.1.4

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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	Part II, para 2.4.5.7.5.1	Requirements for the periodicity of hydraulic testing of heat exchangers and pressure vessels have been specified	340-02-1367c of 01.04.2020	01.05.2020
2	Part II, para 2.4.5.8.11	Requirements for the periodicity of hydraulic testing of steam pipelines of auxiliary boilers have been specified	340-02-1367c of 01.04.2020	01.05.2020
3	Part III, para 1.3.1.6	Amendments have been made due to removal of the necessity of sending authorizations for development/review of enhanced survey programmes	340-02-1367c of 01.04.2020	01.05.2020
4	Part III, Appendix 1.3-2, Table 1.3-2.3	Amendments have been introduced in Table 1.3-2.3 due to transfer of the text regarding the shipowner's signature outside the table	340-02-1367c of 01.04.2020	01.05.2020
5	Part III, para 19.2.2.3.1.12	Scope of application of the provisions of this para has been specified	340-02-1367c of 01.04.2020	01.05.2020
6	Part III, Section 24	New Section with the requirements for surveys of hulls of ships and floating facilities made of aluminium alloys has been introduced	340-02-1367c of 01.04.2020	01.05.2020
7	Annex 2, para 1.1.1	Scope of application of the Instructions has been specified	340-02-1367c of 01.04.2020	01.05.2020
8	Annex 2, para 2.2.7	New para regulating the application of the Instructions for the structures from aluminium alloys has been introduced	340-02-1367c of 01.04.2020	01.05.2020
9	Annex 2, para 2.3.5	New para regulating the application of Instructions for the structures from aluminium alloys has been introduced	340-02-1367c of 01.04.2020	01.05.2020
10	Annex 2, paras 3.2.2.3 — 3.2.2.8	Para 3.2.2.3 has been deleted. Paras 3.2.2.4 — 3.2.2.8 and references thereto have been renumbered 3.2.2.3 — 3.2.2.7, accordingly	340-02-1367c of 01.04.2020	01.05.2020

11	Annex 2, para 5.1.4	The para has been supplemented with requirements for repair of hull structures using three-layer panels	340-02-1367c of 01.04.2020	01.05.2020
12	Annex 2, para 5.1.5	Terminology has been specified	340-02-1367c of 01.04.2020	01.05.2020
13	Annex 2, para 5.1.7	Terminology has been specified	340-02-1367c of 01.04.2020	01.05.2020
14	Annex 2, para 5.2.1.1	The para has been supplemented with the requirements for repair of structures from aluminium alloys	340-02-1367c of 01.04.2020	01.05.2020
15	Annex 2, para 5.2.1.4	Terminology has been specified	340-02-1367c of 01.04.2020	01.05.2020
16	Annex 2, para 5.2.1.6	New para with requirements for repair of hull structures using three-layer panels has been introduced	340-02-1367c of 01.04.2020	01.05.2020
17	Annex 2, para 5.3.1.1	The para is supplemented with the requirements for repair of structures from aluminium alloys	340-02-1367c of 01.04.2020	01.05.2020
18	Annex 2, para 5.4.1.1	Requirements for repair of structures with fractures and ruptures have been specified	340-02-1367c of 01.04.2020	01.05.2020
19	Annex 2, para 5.4.1.2	Requirements for repair of structures with fractures and ruptures have been specified	340-02-1367c of 01.04.2020	01.05.2020
20	Annex 2, para 5.4.1.3	The para has been supplemented with the requirements for repair of structures with fractures and ruptures have been supplemented	340-02-1367c of 01.04.2020	01.05.2020
21	Annex 2, para 5.4.1.4	The para has been supplemented with the requirements for repair of structures with fractures and ruptures have been supplemented	340-02-1367c of 01.04.2020	01.05.2020

RULES FOR THE CLASSIFICATION SURVEYS OF SHIPS IN SERVICE, 2020

ND No. 2-020101-012-E

PART II. SURVEY SCHEDULE AND SCOPE

2 PERIODICAL SURVEYS

1 **Para 2.4.5.7.5.1** is replaced by the following text:

"**2.4.5.7.5.1** Hydraulic testing of heat exchangers and pressure vessels inaccessible for internal survey (refer to 2.4.5.7.4.2) shall be carried out starting from the second special survey and thereafter — at each second special survey, however vessels filled with exhaust gases shall be subjected to hydraulic testing at each special survey of the ship."

2 **Para 2.4.5.8.11** is replaced by the following text:

"**2.4.5.8.11** Steam pipelines.

Main boiler steam pipes irrespective of the diameter and auxiliary boiler steam pipes with working pressure of 1 MPa and above, inner diameter of 75 mm and above shall be subject to hydraulic tests with test pressure of $1,25P_{\text{working}}$ starting from the second special survey and thereafter — at each second special survey. Fittings shall be flaw detected and repaired. Safety valves shall be adjusted and sealed. Spring hangers shall be surveyed in dismantled condition and measurements shall be submitted. Operational testing, if possible, shall be carried out simultaneously with the operational testing of the power plant and the respective machinery and boilers."

PART III. ADDITIONAL SURVEYS OF SHIPS DEPENDING ON THEIR PURPOSE AND HULL MATERIAL

1 GENERAL

3 **Para 1.3.1.6** is replaced by the following text:

"**1.3.1.6** A written request for the development by the Register of the Survey Planning Document (Survey Programme) or the programme worked out by the shipowner or authorized shipowner's representative shall be forwarded by the shipowner to the Register together with the completed and duly signed Survey Planning Questionnaire based on the information set out in Appendix 1.3-2, in advance (recommended not later than 1 month) prior to the commencement of the intermediate survey or the special survey. Programmes shall be reviewed by the RS Branch Office for in-service supervision or the RS Branch Office which will perform the survey of the ship (according to the request). Based on satisfactory review results, the programmes shall be approved by the Register and stamped as appropriate. Programmes development at the shipowner's request shall be carried out by the RS Branch Office, having in its staff relevant specialists for such work in accordance with the provisions of the RS internal procedure for training and competence maintenance of RS personnel. Upon development by the RS personnel, the programmes shall be endorsed by the head of the RS Branch Office. The programmes shall be made in English and may include translation into Russian at the shipowner's discretion. If the

ship having the RF flag is not and will not be engaged on international voyages, the programme is allowed to be made only in Russian."

4 **Appendix 1.3-2.** The following text of **Table 1.3-2.3** shall be transferred outside the table to form a separate paragraph:

"Name of shipowner's representative: _____
Signature: _____
Date: _____".

19 HULL, EQUIPMENT AND MACHINERY SURVEYS OF MODU AND FOP

5 **Para 19.2.2.3.1.12** is replaced by the following text:

«**19.2.2.3.1.12** For assessment of technical condition of structures of MODU and FOP the class notations of which contain descriptive notations specified in 2.5.1, Part I "Classification" of the Rules for the Classification, Construction and Equipment of MODU/FOP, the requirements of Section 5, Part I "General Provisions" of these Rules and the following requirements shall be considered:

.1 when the thickness of any MODU/FOP special or primary structural element is reduced anywhere throughout the entire cross section by more than 10 % as compared with the initial (as-built) thickness, the structure fitness for further operation is subject to special consideration by the Register in each particular case. In this case, the MODU/FOP owner shall submit all necessary technical calculations;

.2 for MODU/FOP secondary structural elements, the standards for hull with the defects given in Annex 2 to these Rules shall be applied;

.3 damage to special structural elements shall be eliminated in all cases;

.4 damage to primary and secondary structural elements shall not exceed the allowable standards and shall be repaired in accordance with the provisions of Section 5 in Annex 2 to these Rules.".

6 **New Section 24** is introduced reading as follows:

"24 SURVEY OF HULLS OF SHIPS AND FLOATING FACILITIES MADE OF ALUMINIUM ALLOYS

24.1 GENERAL

24.1.1 Definitions.

Definitions and explanations which are common to ships and offshore installations are given in Section 2, Part I "General Provisions" and 1.1, Part III "Additional Surveys of Ships Depending on their Purpose and Hull Material" of these Rules and in the Guidelines. Terms and definitions specific to dynamically supported craft and high-speed craft (HSC) are given in Part I "Classification" of the Rules for the Classification and Construction of High-Speed Craft (hereinafter referred to as the HSC Rules).

24.1.2 Application.

24.1.2.1 These requirements apply to all ships and offshore installations made of aluminium alloys regardless of their gross tonnage.

24.1.2.2 The scope of periodical surveys and intervals between them are given, depending on the ship's type:

for dynamically supported craft and HSC — in Table 3.4, Part I "Classification" of the HSC Rules which forms a summarized list of items of technical supervision related to classification;

for items of technical supervision not covered by the scope of application of the HSC Rules or not listed in Table 3.4, Part I "Classification" of the HSC Rules, the provisions of Table 2.1.1-1 and Table 2.1.1-2, Part II "Survey Schedule and Scope" of these Rules shall be considered.

The extent of particular examinations, measurements, testing, etc. is set forth as minimal and may be changed by the RS surveyor based on the valid instructions and specific conditions. In case the disputes regarding the determination of scope and schedule of surveys arise, the final decision shall be made on the basis of the requirements set forth in the relevant Sections of the Rules.

24.1.2.3 During survey of ship hulls made of aluminium alloys, the general requirements of Part I "General Provisions" shall be met as well as the requirements of 2.2, 2.4, 2.5.2, 2.5.4 and 2.5.6.5, Part II "Survey Schedule and Scope" of these Rules taking into account the additions and amendments stipulated in this Section.

24.1.2.4 These requirements apply to surveys of hull structures and piping systems, cofferdams, void spaces, fuel oil and lube oil tanks, fresh water tanks, ballast, grey and black water tanks (sanitary/domestic waste water and sewage holding tanks).

24.1.2.5 The requirements contain the minimum extent of examination, thickness measurements and compartment testing. The survey shall be extended when corrosion, fractures or other damages are found, and shall include additional close-up survey of details and structures in the area of detected damages.

24.1.3 Repair.

Applicable provisions of these Rules, the Guidelines as well as of the internal normative documents on repair intended for the use of the RS surveyors shall be considered during repair.

24.1.4 Thickness measurements and close-up survey.

In any kind of survey, i.e. special, intermediate, annual, survey of the outside of the ship's bottom or other surveys having the scope of the foregoing ones, the necessity and extent of thickness measurements shall be determined by the RS surveyor based on the results of thorough examination and, where applicable, close-up survey of hull structures (refer to Table 24.2.2.2) and, where necessary, random thickness measurements in suspect areas carried out at the RS surveyor's discretion.

24.1.5 Assessment of technical condition of hull structures.

The relevant provisions of these Rules and Annex 2 thereto shall apply for the assessment of technical condition of hull structures.

24.2 SPECIAL SURVEY OF THE HULL

24.2.1 Periodicity.

The procedure for assigning period of class during special surveys shall comply with the applicable requirements listed in 2.4, Part II "Survey Schedule and Scope" of these Rules.

24.2.2 Scope.

24.2.2.1 General.

24.2.2.1.1 Scope of the special survey of the hull shall include the scope of annual survey, as well as examinations, tests and checks to ensure that the hull and the related piping, as defined in 24.2.2.1.3, are in satisfactory condition and fit for the intended purpose for a new period of class of 5 years to be assigned, subject to proper maintenance and operation and to periodical surveys being carried out at the due dates.

24.2.2.1.2 All hull structures and piping specified in Table 3.4 Part I "Classification" of the HSC Rules or Table 2.1.1-1, Part II "Survey Schedule and Scope" of these Rules, whichever is applicable, shall be examined, and this examination shall be supplemented by testing of compartments as required by Annex 10 to the Guidelines, to ensure that the structural integrity remains effective. The examination shall be sufficient to reveal corrosion, deformations, fractures, damages and other structural deterioration that may be present.

24.2.2.1.3 All piping systems within the above spaces shall be examined in accordance with Annex 26 to the Guidelines (where applicable) and operationally tested under working pressure to the RS attending surveyor's satisfaction to ensure that tightness and condition remain satisfactory.

24.2.2.2 Overall and close-up survey.

24.2.2.2.1 An overall survey of all ship's spaces shall be carried out at each special survey. The minimum requirements for close-up surveys at special survey are given in Table 24.2.2.2.

24.2.2.2.2 The RS surveyor may extend the close-up survey, as deemed necessary, taking into account maintenance of the spaces under survey, the condition of the corrosion prevention system and where spaces have structural arrangements or details, which have suffered defects in similar spaces or on similar ships according to available information.

Table 24.2.2.2

Minimum requirements to close-up survey at special hull surveys of ships made of aluminium alloys including dynamically supported craft and high-speed craft

Nos.	Item of close-up survey	Damages that are most likely to occur in service
1	Shell plating: <i>a)</i> in way of steps; <i>b)</i> in way of hydrofoil installation fastening ; <i>c)</i> in way of wave impacts in the fore and midship regions of the ship; <i>d)</i> in way of vibration (aft end and location of the main and auxiliary engines); <i>e)</i> at the ends of longitudinals and other intercoastal structures; <i>f)</i> in way of intermittent welds of hull members attachment to the shell plating; <i>g)</i> in areas of contact with wet wood, the environment and heterogeneous materials; in areas that are difficult to maintain	<i>a)</i> shell plating fractures or leakage of riveted joints (if any); <i>b)</i> deformation, fractures and/or ruptures in the shell plating; <i>c)</i> deformation and/or fractures in the bottom and side shell plating; <i>d)</i> fractures in the shell plating; <i>e)</i> fractures in the shell plating; <i>f)</i> fractures in the shell plating; <i>g)</i> local corrosion of the shell plating
2	Intersections of longitudinal and transverse framing	Fractures in the welded joints of framing flanges with the extension to webs and shell plating
3	Openings for free passage of flanges of continuous stiffeners	Fractures in the corners of openings
4	Floating framing system	Fractures in the welds of transverse flanges (of frames, beams) attachment to the longitudinal flanges where the intersection of transverse and longitudinal framing is reinforced by one bracket
5	Welded joints of bottom and side parts of frame (the detail is reinforced by a bracket)	Fractures in the bottom part frame flange at the bracket end with the extension of fracture to the frame web
6	Non-reinforced welded joints of all-pressed hull panels stiffeners	Fractures in the butt joints of stiffener flanges and stiffener webs caused by difficult accessibility to welded joints due to low stiffener height (< 90 mm). It shall be noted that panels with angle profile stiffeners have the minimum lifetime and those with bulb profile stiffeners have the maximum lifetime
7	Welded joints of all-pressed hull panels and transverse watertight bulkheads	Possible fractures in the welded joints of panel stiffeners and bulkheads (at bracket ends)
8	Internal surfaces of inlet-outlet branch pipes and rudder trunk	Corrosion with further propagation up to through holes
9	Hydrofoil installation and stabilization controls (stanchions, flaps, etc.)	<i>a)</i> foil cavitation and cracks, stanchion cracks; <i>b)</i> damage of insulation components between the hydrofoil installation flanges and shell plating; securing bolt unfastening or break
10	Deck areas under WC bowls and different coatings	Local corrosion

Nos.	Item of close-up survey	Damages that are most likely to occur in service
11	Air-cushion flexible skirt	a) tuck-under and pulling of flexible skirt under the hull, that may cause an emergency situation; b) quick break of flexible skirt especially at tripping speed; c) damage to the flexible skirt attachment to the ship's hull; d) rupture of flexible skirt material due to force impact (impacts on obstacles and wave top), wear, as well as due to the effect of high-frequency vibration on unstressed sections of flexible skirt
12	Glued-welded joints	The following defects of spot welds may occur in the joint: lack of penetration, internal cracks, holes and cavities; interface expulsion, burns through, break or breakaway; rupture or crushing the edges with outer cracks at overlap edge; glueline defects
13	Riveted and glue-riveted joints	Refer to the internal normative documents on repair intended for the use of the RS surveyors
14	Transverse watertight bulkheads shall be subject to close-up survey at three levels: in the lower part; at mid-height of the bulkhead; upper part	—

24.2.3 Testing of compartments.

24.2.3.1 All hull compartments used for water ballast, fuel and other liquid cargoes shall be tested for tightness at special survey in compliance with the requirements of Annex 10 to the Guidelines.

24.2.3.2 The testing of compartment not intended for the carriage of liquids may be omitted, provided a satisfactory internal examination together with an examination of the upper parts is carried out.

24.2.3.3 During the tightness tests of hull structures the following preparation work shall be performed: surfaces of the structures subject to testing including welded and riveted joints shall be thoroughly cleaned and dried up.

24.3 ANNUAL SURVEY

24.3.1 Periodicity.

24.3.1.1 The procedure and scope of the annual surveys shall comply with the applicable requirements of 2.2, Part II "Survey Schedule and Scope" of these Rules.

24.3.2 Scope.

24.3.2.1 General.

24.3.2.1.1 The survey shall consist of an examination for the purpose of ensuring, as far as practicable, that the hull, weather decks, hull closures and systems piping are maintained in a satisfactory condition and should take into account the service history, condition and extent of the corrosion prevention system.

24.3.2.2 Hull survey.

24.3.2.2.1 When assigning the scope of close-up survey, requirements of Table 24.2.2.2 shall be considered, as far as reasonable and practicable.

24.3.2.2.2 Overall survey shall consist, as far as practicable, of external examination of the mentioned below structures, but not limited to:

.1 side and bottom shell plating in the underwater and above-water parts of the hull, including the areas of intense vibration, impact loads, hydrofoil installation location, stiffeners and foils attachments, propeller shaft brackets, angular propellers, rudder stock, foil pivot mechanism; shell plating in way of discharge valves, sea chests and hulls connecting catwalks; stem, transom, bilges, skegs, steps, niches;

- .2 rigid air ducts and wells, landing pads, hull components intended for ship lifting and reinforcements for them;
- .3 rigid structures supporting and dividing the air cushion, flexible skirt of the air cushion, attachment points and lifting mechanisms of the flexible skirt;
- .4 hydrofoil installations and stabilization controls;
- .5 deck plating enclosing buoyancy compartments and ensuring overall strength;
- .6 spaces inside the hull: peaks, void spaces, cofferdams; fuel oil tanks, lube oil tanks, grey and black water tanks (sanitary/domestic waste water and sewage holding tanks) ; machinery spaces, passenger and public spaces, other spaces of the hull, superstructures and wheelhouses;
- .7 structures inside hull compartments, including bottom, side and deck framing; transverse bulkheads;
- .8 hatch and manhole covers of the open deck areas and inside the superstructures, outer doors of superstructures and wheelhouses, portholes, covers of ventilators bell-mouth and openings;
- .9 systems piping within the above mentioned spaces shall be examined in accordance with Annex 26 to the Guidelines (where applicable) to confirm that their tightness and condition remain satisfactory.

24.4 INTERMEDIATE SURVEY

24.4.1 Periodicity.

24.4.1.1 The procedure and scope of the intermediate surveys shall comply with the applicable requirements of 2.3, Part II "Survey Schedule and Scope" of these Rules.

24.4.1.2 The scope of survey of hull structures at intermediate survey consists of the scope of the annual hull survey and the scope of additional hull surveys taking into account that for ships over 10 years of age, an additional examination for particular structures shall be carried out with access, opening-up or dismantling being provided, where necessary.

24.5 SURVEY OF THE OUTSIDE OF THE SHIP'S BOTTOM

24.5.1 At survey of the outside of the ship's bottom applicable requirements of 2.5, Part II "Survey Schedule and Scope" of these Rules shall be considered."

ANNEX 2

INSTRUCTIONS FOR DETERMINATION OF THE TECHNICAL CONDITION AND REPAIR OF THE HULLS OF SEA-GOING SHIPS

1 PURPOSE

7 **Para 1.1.1.** The second paragraph is replaced by the following text:

"The requirements of the Instructions apply to the hulls, superstructures and deckhouses of steel ships and made of aluminium alloys."

2 INSTRUCTIONS ON ASSESSMENT OF THE HULL TECHNICAL CONDITION

8 **New para 2.2.7** is introduced:

2.2.7 For ships of aluminium alloys hull structure scantlings shall be determined based on the calculation of overall and local strength taking into consideration the requirements of 2.2, 3.2 and 4.2 of these Instructions, where applicable, as well as Sections 2 and 5, Part II "Hull Structure and Strength" of the Rules for the Classification and Construction of High-Speed Craft."

9 **New para 2.3.5** is introduced:

"**2.3.5** Requirements of 2.3 of these Instructions in connection with hull structure deformation apply to ships made of aluminium alloys, where reasonable and applicable, taking into account the requirements of 3.3, 4.3 and Section 5 of these Instructions."

3 PROCEDURE OF INSPECTION (FLAW DETECTION) OF THE SHIP'S HULL

10 **Para 3.2.2.3** is deleted.

Paras 3.2.2.4 — 3.2.2.8 and references thereto are renumbered **3.2.2.3 — 3.2.2.7**, accordingly.

5 INSTRUCTIONS AND GUIDELINES FOR THE HULL REPAIRS

11 **Para 5.1.4** is supplemented by a new paragraph reading as follows:

"Subject to compliance with the requirements of 5.2.1.6, three-layer panels (so called sandwich panels) may be used for repair of hull structures upon the shipowner's request and by agreement with RHO. The method consists of reinforcement of scantlings by forming three-layer structures with self-curing filling compound neutral to metal. Deteriorated or damaged plating, doubler plate and filling compound are the three-layer panel components. Depending on the properties of the applicable filling compound, application of three-layer panels for repair of flame-resistant or fire-proof members shall be agreed with the Register in each particular case. Application of the method under consideration is practicable in the areas where replacement of plating is difficult due to significant amount of the associated work."

12 **Para 5.1.5** is replaced by the following text:

"**5.1.5** The repair method shall be determined on the basis of the following:
type of damage and its numerical parameters;
grade of the structure material;
area of damaged structure and its location in the hull;
possible reasons of damage;
ship's age and period of its subsequent service;
workmanship of ship repair to be carried out."

13 **Para 5.1.7**. In the second paragraph the text "of steel with a grade" is replaced by the following:

"of material with a grade", and the rest remains as it stands.

14 **Para 5.2.1.1** is supplemented by a new paragraph and Table 5.2.1.1 reading as follows:

"The detailed information in connection with repair of structures made of aluminium alloys is given in Table 5.2.1.1.

Table 5.2.1.1

Wear of hull structures of aluminium alloys, methods of their repair and control

Items Nos.	Types of wear	Possible repair	Control norms and methods
1	Pitting and through holes as separate pits of shell plating or framing in inaccessible and hard-to-reach places, on internal surfaces of branch pipes and rudder trunk	1. a) Preparation and building up welding of pitting. Refer also to 5.2.3.3 of Annex 2 to these Rules b) Corrosion protection of damaged area shall be provided by application of protective coating or sacrificial anodes, where applicable.	1, Annex 2 to these Rules, 4.2.2.3, 4.2.6.5 and 4.2.6.8, where applicable, taking into account Table 4.2.2.1-1

Items Nos.	Types of wear	Possible repair	Control norms and methods
		2. Replacement of damaged area/product in case of fusing or pitting of large area	2. Annex 2 to these Rules, 4.2.2.3, 4.2.3.5, 4.2.6.8 and 5.2.5.2, taking into account Table 4.2.2.1-1
2	Local spot wear as loosening over the surface: in the points of contact with heterogenic materials, at deck areas under WC bowls and different coatings	1. Application of epoxy coating to damaged areas of structures not included into overall strength 2. Replacement of damaged area of the essential structures, as well as in case of significant wear of the sizeable area of structures specified in item 1 above. Note. Building up welding of sections in case of local wear is not recommended	1. Internal normative documents on repair intended for the use of the RS surveyors 2. Annex 2 to these Rules, 4.2.6.4, 4.2.6.7 и 5.2.5.2 taking into account Table 4.2.2.1-1
3	Total wear (if present)	Repair in compliance with 5.2 of Annex 2 to these Rules, where applicable	Annex 2 to these Rules, 4.2.6.3, 4.2.6.6, 5.2.3.1 and 5.2.4.1

15 **Para 5.2.1.4.** In the first sentence the text "steel grade, of which" is replaced by the following:

"grade of material, of which" and the rest remains as it stands.

16 **New para 5.2.1.6** is introduced reading as follows:

5.2.1.6 When, according to 5.1.4, a RHO agreement in principle is available for performing temporary repair of ship structures using three-layer panels, one shall be guided by the following requirements given below.

5.2.1.6.1 Repair using the suggested procedure may be accepted for the following structures:
decks and platforms having ordinary and primary framing;
decks and walls of superstructures/wheelhouses;
funnel coamings;
double bottom plating.

5.2.1.6.2 According to the process control documentation for repair agreed by the Register together with all necessary calculations and diagrams/plans, the repair shall be carried out by a firm recognized by the Register or ACS – IACS member, and under the RS supervision.

5.2.1.6.3 Application of this procedure during the repair is not permitted for the following ships types: gas carriers; ships having **ESP** descriptive notation in the class notation; ships intended for the carriage of solid bulk cargoes possessing chemical hazards and/or materials hazardous only in bulk (MHB); ships constructed according to the IACS Common Structural Rules (**CSR** ships).

5.2.1.6.4 Repair procedure using three-layer panels is not permitted:
during the repair of shell plating and bottom structures, as well as any corrugated structures;
during the repair of platings with through corrosion. When through corrosion is present, the relevant plate areas shall be repaired in compliance with the requirements of these Rules.

5.2.1.6.5 All materials, applied during such repair, shall meet the requirements of Part XIII "Materials" of the Rules for the Classification and Construction of Sea-Going Ships and have the appropriate RS Type Approval Certificates. When Part XIII "Materials" of the above-mentioned Rules does not contain the requirements concerning particular materials, the application of which is conditioned by the need of repair based on this procedure, such materials may be applied based on the manufacturer's certificates. When three-layer panels are used as fire structures, they shall meet the requirements of Part VI "Fire Protection" of the Rules for the Classification and Construction of Sea-Going Ships.

5.2.1.6.6 Three-layer panels shall be installed in such a way that the existing framing shall be a support for a new structure. Technical condition of the existing framing in way of three-layer panel application shall comply with the requirements of these Rules.

5.2.1.6.7 When the application of three-layer panels is necessary for the entire main deck area from the fore to aft and from side to side or between the engine room and peak bulkhead and from side to side, it is necessary to make additional calculations in compliance with the International Convention on Load Lines, 1966, as amended by the Protocol of 1988 relating thereto (2003 revision), Load Line Rules for Sea-Going Ships, Part IV "Stability" of the Rules for the Classification and Construction of Sea-Going Ships, as applicable.

5.2.1.6.8 Upon completion of repair, the structures repaired using three-layer panels shall be documented in the RS reporting documents in compliance with the requirements of Section 3, Part II "Carrying Out Classification Surveys of Ships" of the Guidelines. In addition, the following shall be specified in the List of Survey's Status: structure name, frame number, repair method, Number of RS Conclusive Letter concerning the approval of the repair procedure using three-layer panels, introducing test approval mode for the period of at least the next intermediate or special survey, whichever comes first, as well as notification that the structures are subject to annual monitoring by RS and shipowner and, in case of unforeseen situation related to such repair and that may affect the safety of the ship, passengers on board, etc., the ship shall be promptly repaired in compliance with the RS rules, i.e. using the traditional thorough repair practice."

17 **Para 5.3.1.1** is supplemented with a new paragraph reading as follows:

"In addition, peculiarities of repair of ships made of aluminium alloys are specified in the internal normative documents on repair intended for the use of the RS surveyors."

18 **Para 5.4.1.1** is replaced by the following text:

5.4.1.1 For hull members with fractures and ruptures, the following repair methods are recommended:

replacement of the hull member section, in which a fracture or rupture is contained, without further reinforcement/modification;

replacement of the hull member section containing a fracture or rupture with further reinforcement/modification of the structure;
welding-up."

19 **Para 5.4.1.2** is replaced by the following text:

5.4.1.2 Replacement of the hull member section with a fracture without further reinforcement/ modification is recommended when the fractures are caused by:

- .1 internal defects or low quality of material;
- .2 low quality of welding or poor manufacturing quality of the structure;
- .3 overheating or burning of material (due to fire, flattening and welding);
- .4 lean-on, grab or cargo impact, etc.;
- .5 metal lamination.

Detailed information is given in the internal normative documents on repair intended for the use of the RS surveyors.

The dimensions of member section to be replaced shall be determined as the greater of the following: the section and the fracture shall completely overlap in length with an addition of at least 30 mm along the direction of the crack propagation from its peak (refer to additional the internal normative documents on repair intended for the use of the RS surveyors);

the border of the section shall lie outside the hull member area with stress concentration due to its shape;

the dimensions of the section shall render technological operations possible on the level of workmanship required for the repair.

Hull members with ruptures shall be repaired by replacement. Hull members not subjected to forces due to the longitudinal bending of hull with ruptures may be repaired with doublers as temporary strengthening until the next scheduled repair provided the rupture is welded up taking into account 5.4.1.4. In this case, a doubler shall go beyond the edge of a rupture for at least $2S + 25$ mm, where S is the smaller thickness, in mm, of the plates joined."

20 **Para 5.4.1.3** is replaced by the following text:

5.4.1.3 Replacement of the hull member section with a fracture together with reinforcement/modification is recommended in the following cases:

- .1 when rigid points, stress concentration and other structural failures are present;
- .2 in case of hull or machinery vibration;
- .3 in case of branched progressing fractures where possible reasons of cracking are the failures stated in 5.4.1.3.1 and 5.4.1.3.2.

Replacement of the hull member section with a fracture together with structural modification/reinforcement may also be recommended based on the experience of technical supervision of ships of the series or similar ships.

Structural modification/reinforcement consists in improving the structure for the purpose of cracking elimination in future.

The efficiency of structural design suggested shall be substantiated, and the design shall be agreed with the Register."

21 **Para 5.4.1.4.** The following text is deleted:

"an isolated crack (not branched) emerging for the first time;" and

"the ship is over 20 years of age." and the rest remains as it stands.