



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 340-24-1235c

dated 03.06.2019

Re:

amendments to the Rules for the Classification Surveys of Ships in Service, 2019, ND No. 2-020101-012-E

Item(s) of supervision:

ships and offshore installations in service

Entry-into-force date:

from the date of publication

Valid till:

01.01.2020

~~Validity period extended till:~~

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

~~dated~~

Number of pages:

1+10

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Part I "General Provisions", Part II "Survey Schedule and Scope", Part III "Additional Surveys of Ships Depending on their Purpose and Hull Material", Appendix 4 "Instruction on Residual Thickness Measurements of Ship's Elements"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for the Classification Surveys of Ships in Service shall be amended as specified in the Appendix 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.

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

Part I: Chapter 2.1, para. 3.1.2.8;

Part II: paras 2.2.5.11, 2.2.5.12, 2.3.3.7, 2.3.3.8, 2.4.4.1.5, 2.4.4.3.10, 2.4.5.1.8, 2.4.5.1.9, 2.7.1.2.2, 2.7.2.2.1.6, 2.7.2.2.1.7, 2.7.2.2.1.8, 2.7.2.2.2.3, 2.7.2.2.2.4, 2.7.2.2.2.5, 2.7.2.3.2, 2.7.2.3.3, 2.7.2.3.4, 2.7.2.3.5, 2.7.2.3.6, 2.7.3.1.1, 2.7.3.1.4, 2.7.3.2.1.2.5, 2.7.3.2.1.3, 2.7.3.2.1.4, 2.7.3.2.1.5, Chapters 2.8 — 2.10, paras 4.8.5.1.3, 4.8.5.3.2;

Part III: para 8.3.2.1.3;

Appendix 4: paras 5.4.1 and 7.1.3

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"Thesis" System No.

19-110320

**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 I, Chapter 2.1	New definitions relating to condition monitoring (CM), technical diagnostics systems, technical diagnostics, maintenance, condition based maintenance(CBM) have been introduced in accordance with IACS UR Z27 considering GOST 20911-89, GOST 13372-2013, GOST 18322-2016	340-24-1235c of 03.06.2019	03.06.2019
2	Part I, para 3.1.2.8	A new type of survey on a CM/CBM basis has been introduced	340-24-1235c of 03.06.2019	03.06.2019
3	Part II, para 2.2.5.11	A new para has been introduced considering IACS UR Z18 (Rev.8 July 2018) in respect of survey of machinery installation/machinery on a PMS basis	340-24-1235c of 03.06.2019	03.06.2019
4	Part II, para 2.2.5.12	A new para has been introduced considering IACS UR Z18 (Rev.8 July 2018) in respect of survey of machinery installation/machinery on a CM/CBM basis	340-24-1235c of 03.06.2019	03.06.2019
5	Part II, para 2.3.3.7	A new para has been introduced considering IACS UR Z18 (Rev.8 July 2018) in respect of survey of machinery installation/machinery on a PMS basis	340-24-1235c of 03.06.2019	03.06.2019
6	Part II, para 2.3.3.8	A new para has been introduced considering IACS UR Z18 (Rev.8 July 2018) in respect of survey of machinery installation/machinery on a CM/CBM basis	340-24-1235c of 03.06.2019	03.06.2019

7	Part II, para 2.4.4.1.5	The amendments have been made relating to hydraulic tests of the water fire main pipes	340-24-1235c of 03.06.2019	03.06.2019
8	Part II, para 2.4.4.3.10	The requirements for the procedure of replacing bellows-type flexible metal hoses have been specified	340-24-1235c of 03.06.2019	03.06.2019
9	Part II, para 2.4.5.1.8	A new para has been introduced IACS UR Z18 (Rev.8 July 2018) in respect of survey of machinery installation/machinery on a PMS basis	340-24-1235c of 03.06.2019	03.06.2019
10	Part II, para 2.4.5.1.9	A new para has been introduced considering IACS UR Z18 (Rev.8 July 2018) in respect of survey of machinery installation/machinery on a CM/CBM basis	340-24-1235c of 03.06.2019	03.06.2019
11	Part II, paras 2.7.1.2.2, 2.7.2.2.1.6, 2.7.2.2.1.7, 2.7.2.2.1.8, 2.7.2.2.2.3, 2.7.2.2.2.4, 2.7.2.2.2.5	Paras 2.7.1.2.2, 2.7.2.2.1.6 — 2.7.2.2.1.7, 2.7.2.2.2.3 have been deleted considering IACS UR Z20 (Rev.1 July 2018). Para 2.7.2.2.1.8 has been renumbered 2.7.2.2.1.6. Paras 2.7.2.2.2.4 and 2.7.2.2.2.5 have been renumbered 2.7.2.2.2.3 and 2.7.2.2.2.4 accordingly	340-24-1235c of 03.06.2019	03.06.2019
12	Part II, paras 2.7.2.3.2, 2.7.2.3.3, 2.7.2.3.4, 2.7.2.3.5, 2.7.2.3.6, 2.7.2.3.7	New para 2.7.2.3.2 has been introduced considering 2.3.3 of IACS UR Z20 (Rev.1 July 2018). Existing paras 2.7.2.3.2, 2.7.2.3.3, 2.7.2.3.4, 2.7.2.3.5, 2.7.2.3.6 have been renumbered 2.7.2.3.3, 2.7.2.3.4, 2.7.2.3.5, 2.7.2.3.6, 2.7.2.3.7 accordingly	340-24-1235c of 03.06.2019	03.06.2019
13	Part II, para 2.7.3.1.1	The amendments have been made considering 3.1.1 of IACS UR Z20 (Rev.1 July 2018)	340-24-1235c of 03.06.2019	03.06.2019
14	Part II, para 2.7.3.1.4	The amendments have been made	340-24-1235c of 03.06.2019	03.06.2019

		considering 3.1.3 IACS UR Z20 (Rev.1 July 2018)		
15	Part II, para 2.7.3.2.1.2.5	The amendments have been made on the basis of introduction of the new para 2.7.2.3.2	340-24-1235c of 03.06.2019	03.06.2019
16	Part II, paras 2.7.3.2.1.3, 2.7.3.2.1.4, 2.7.3.2.1.5	Paras 2.7.3.2.1.3 and 2.7.3.2.1.4 have been deleted in compliance with IACS UR Z20 (Rev.1 July 2018) Para 2.7.3.2.1.5 has been renumbered 2.7.3.2.1.3	340-24-1235c of 03.06.2019	03.06.2019
17	Part II, Chapters 2.8 — 2.10	New Chapter 2.8 regarding condition monitoring systems and condition based maintenance systems has been introduced considering IACS UR Z27 (July 2018). The existing Chapters 2.8 — 2.10 (as well as all references thereto) have been renumbered 2.9 — 2.11 accordingly	340-24-1235c of 03.06.2019	03.06.2019
18	Part II, para 4.8.5.1.3	The requirements for shipowner notification of the application of the SSR to a ship have been specified	340-24-1235c of 03.06.2019	03.06.2019
19	Part II, para 4.8.5.3.2	The requirements for notification of the SSR cancellation have been specified	340-24-1235c of 03.06.2019	03.06.2019
20	Part III, para 8.3.2.1.3	Para has been deleted due to absence of its equivalent in IACS UR Z7.2	340-24-1235c of 03.06.2019	03.06.2019
21	Appendix 4; para 5.4.1	The procedure of recording the areas with deep/intensive pitting corrosion has been specified	340-24-1235c of 03.06.2019	03.06.2019
22	Appendix 4; para 7.1.3	The amendments have been made due to deletion of reference to the revision of IACS UR Z7	340-24-1235c of 03.06.2019	03.06.2019

RULES FOR THE CLASSIFICATION SURVEYS OF SHIPS IN SERVICE

PART I. GENERAL PROVISIONS

2 DEFINITIONS AND EXPLANATIONS

2.1 DEFINITIONS APPLIED TO ALL SHIPS

1 The following definitions are introduced:

"Automated technical diagnostics (technical condition monitoring) system is a diagnostics (monitoring) system providing diagnostics (monitoring) with automation and human involvement.";

"Automatic technical diagnostics (technical condition monitoring) system is a diagnostics (monitoring) system providing diagnostics (monitoring) without human involvement.";

"(Technical) condition monitoring (CM) is acquisition and processing of information and data that indicate the state of machinery over time. (Note. The machinery state deteriorates if faults or failures occur). It is also a process that makes it possible to determine the current operational availability of machinery and units without dismantling or examination thereof.";

"Technical diagnostics (technical condition monitoring) system is a complex of means, items of technical supervision and responsible persons, required for diagnostics (monitoring) in accordance with the requirements specified in the technical documentation.";

"Technical diagnostics is a process of determination of technical condition of an item of technical supervision. Analysis of diagnostic indicators or sets of diagnostic indicators to determine the nature of fault or failure (type, location, degree of development).";

"Maintenance is a complex of technological operations performed and a system of measures taken on a regular or irregular basis for maintaining the operability of items of technical supervision listed in the RS Nomenclature, in accordance with their purpose and performance characteristics. Maintenance of an item may include the item technical diagnostics, adjustment, control of functioning, replacement of service and lubricating fluids, replacement of removable seals, cleaning and flushing, both with complete or partial item disassembly, with or without such, as well as similar operations. For the purpose of these Rules, repair of an item or its components (including replacement), the requirements for which are regulated by the RS rules, shall not be regarded as maintenance.";

"Technical condition-based maintenance (CBM) is a maintenance performed as governed by the data on the equipment technical condition and in compliance with condition monitoring and maintenance schemes.".

3 TYPES OF CLASSIFICATION SURVEYS

2 New **para 3.1.2.8** is introduced reading as follows:

".2.8 survey on a CM/CBM basis;".

PART II. SURVEY SCHEDULE AND SCOPE

2 PERIODICAL SURVEYS

2.2 ANNUAL SURVEY

3 New **paras 2.2.5.11 — 2.2.5.12** are introduced reading as follows:

"**2.2.5.11** Survey of machinery installation/machinery may be carried out on a PMS basis in accordance with 2.7.

2.2.5.12 Survey of machinery installation/machinery may be carried out on a CM/CBM basis in accordance with 2.8."

2.3 INTERMEDIATE SURVEY

4 New **paras 2.3.3.7 — 2.3.3.8** are introduced reading as follows:

"**2.3.3.7** Survey of machinery installation/machinery may be carried out on a PMS basis in accordance with 2.7.

"**2.3.3.8** Survey of machinery installation/machinery may be carried out on a CM/CBM basis in accordance with 2.8."

2.4 SPECIAL SURVEY

5 **Para 2.4.4.1.5** is replaced by the following text:

"**2.4.4.1.5** During survey, the fire protection items shall be prepared for survey with access, opening-up or dismantling. At special surveys, starting from the third special survey, the pipeline of the water fire main shall be tested by hydraulic pressure equal to 1,5 times the maximum working pressure of the system but not less than 1,0 MPa with mandatory removal of insulation materials from all sections where they are fitted. At the surveyor's request all required drawings, descriptions, diagrams, files and passports shall be submitted."

6 **Para 2.4.4.3.10.** Text of the fourth paragraph is replaced by the following text:

"At least 10 % of all high pressure carbon dioxide cylinders shall be subjected to hydraulic testing after 10 years. If one or more carbon dioxide cylinders fail, a total of 50 % of the onboard cylinders shall be subject to hydraulic tests. Flexible hoses shall be replaced at intervals recommended by the manufacturer and not exceeding 10 years, except for bellows-type flexible metal hoses. Bellows-type flexible metal hoses shall be subject to annual visual examination and when required upon examination results, replaced."

7 New **paras 2.4.5.1.8 — 2.4.5.1.9** are introduced reading as follows:

"**2.4.5.1.8** Survey of machinery installation/machinery may be carried out on a PMS basis in accordance with 2.7.

2.4.5.1.9 Survey of machinery installation/machinery may be carried out on a CM/CBM basis in accordance with 2.8."

2.7 PLANNED MAINTENANCE SCHEME FOR MACHINERY (PMS)

8 **Para 2.7.1.2.2** is deleted.

9 **Paras 2.7.2.2.1.6 and 2.7.2.2.1.7** are deleted, **para 2.7.2.2.1.8** is renumbered **2.7.2.2.1.6**.

10 **Para 2.7.2.2.2.3** is deleted, paras **2.7.2.2.2.4** and **2.7.2.2.2.5** are renumbered **2.7.2.2.2.3** and **2.7.2.2.2.4** accordingly.

11 New **para 2.7.2.3.2** is introduced reading as follows:

"2.7.2.3.2 The annual report, covering the years' service and including the information as required under 2.7.2.2.1.3 and 2.7.2.2.1.5 as well as the information on changes to other paras in 2.7.2.2.1, shall be reviewed by the RS surveyor during the ship survey."

12 **Paras 2.7.2.3.2 — 2.7.2.3.6** are renumbered **2.7.2.3.3 — 2.7.2.3.7** accordingly.

13 **Para 2.7.3.1.1** (existing) is replaced by the following text:

"2.7.3.1.1 The PMS implementation survey shall be carried out by the RS surveyor within one year from the date of approval of the PMS."

14 **Para 2.7.3.1.4** (existing) is replaced by the following text:

"2.7.3.1.4 When the PMS implementation survey is carried out and the PMS implementation is found in order, a report describing the PMS shall be submitted to the Register and the approved PMS may replace the CSS."

15 **Para 2.7.3.2.1.2.5** is replaced by the following text:

".5 annual report made in accordance with 2.7.2.3.2."

16 **Paras 2.7.3.2.1.3 and 2.7.3.2.1.4** are deleted, **para 2.7.3.2.1.5** is renumbered **2.7.3.2.1.3**.

17 **New Chapter 2.8** is introduced reading as follows:

"2.8 CONDITION MONITORING SYSTEMS AND CONDITION BASED MAINTENANCE

2.8.1 General.

2.8.1.1 Application.

2.8.1.1.1 These requirements apply to the approved condition monitoring (CM) and condition based maintenance (CBM) schemes where the condition monitoring results are used to influence the scope and/or frequency of surveys.

2.8.1.1.2 These schemes may be applied to components and systems covered by CSS of machinery, and other item of technical supervision as requested by the shipowner taking into account the requirements of Section 10 of Part VII "Machinery Installations" of the Rules for the Classification and Construction of Sea-Going Ships. The extent of CBM and associated monitoring equipment to be included in the maintenance scheme is decided by the shipowner.

2.8.1.1.3 These requirements can be applied only to ships operating on approved PMS (refer to 2.7).

2.8.1.1.4 The schemes may be applied to any individual items and systems. Any items not covered by the schemes shall be surveyed and credited in accordance with the basic requirements of these Rules for the survey of items of the RS technical supervision and/or 2.6 (CSS), and/or 2.7 (PMS).

2.8.1.2 Condition Monitoring system (CM system).

2.8.1.2.1 The CM system is fitted on board the ship at the shipowner's discretion and shall be approved and subject to the relevant surveys performed by the Register upon the shipowner's written request in accordance with the requirements of this Chapter. The Register approval is also required where the shipowner wishes to change the survey cycle based on CM/CBM.

2.8.1.2.2 The CM system shall provide an equivalent or greater degree of confidence in the condition of the machinery as compared to traditional survey techniques.

2.8.1.2.3 Limiting parameters of diagnostics shall be based on the original equipment manufacturers (OEM) requirements/guidelines, or a recognised national or international standard.

2.8.1.2.4 Software products approved by the Register may be used for CM systems. Software systems for CM systems can use complex algorithms, machine learning and knowledge of global equipment populations/defect data in order to identify acceptability for continued service or the requirement for maintenance. These systems may be independent of the OEM recommended maintenance and condition monitoring suggested limits. Approval of this type of software by the Register shall be based on OEM recommendations, industry standards and RS experience.

2.8.1.2.5 The CM results shall be reviewed by the RS surveyor during the annual audit (annual survey). Where the RS-approved CM system is fitted on board, the results of condition monitoring of the item of the RS technical supervision may be credited by the RS surveyor during survey of the item based on acceptable condition monitoring results and the item general condition.

2.8.1.2.6 The RS surveyor retains the right to test or open-up the machinery, irrespective of the CM results, if deemed necessary.

2.8.1.3 Condition based maintenance system (CBM system).

2.8.1.3.1 The CBM system is used on board to obtain machinery/equipment maintenance efficiency. Where a shipowner wishes to base their equipment maintenance on a CBM approach, this shall meet the requirements of the ISM Code. The CBM system is fitted on board the ship at the shipowner's discretion and shall be approved and subject to the relevant surveys performed by the Register upon the shipowner's written request in accordance with the requirements of this Chapter. The Register approval is also required where the shipowner wishes to change the survey cycle based on CM/CBM.

2.8.1.3.2 Where an agreed planned maintenance and CBM scheme is in operation, the CSS and other survey intervals may be extended based on OEM maintenance recommendations and acceptable CM results.

2.8.1.3.3 Limiting parameters (alarms and warnings) shall be based on the OEM guidelines, or a recognised international standard.

2.8.1.3.4 The CBM scheme shall provide an equivalent or greater degree of confidence in the condition of the machinery to traditional maintenance techniques.

2.8.1.3.5 Software products approved by the Register may be used for CBM systems. Software systems for CBM systems can use complex algorithms, machine learning and knowledge of global equipment populations/defect data in order to identify acceptability for continued service or the requirement for maintenance. These systems may be independent of the OEM recommended maintenance and condition monitoring suggested limits. Approval of this type of software by the Register shall be based on OEM recommendations, industry standards and RS experience.

2.8.2 **Procedures and conditions for approval of CM and CBM systems.**

2.8.2.1 Onboard responsibility.

2.8.2.1.1 The shipowner shall assign a responsible person on board in charge of the CM and CBM. As a rule, the chief engineer shall be the responsible person. The equipment monitoring shall be carried out by the qualified personnel. When assigning the responsible personnel, the requirements of national and international standards for qualification and assessment of personnel involved in the equipment monitoring (for the ships flying the RF flag: GOST R 18436 series) shall be taken into account.

2.8.2.1.2 Documentation on the overhaul of items covered by CM and CBM schemes shall be developed in accordance with 2.8.2.3 and signed by the responsible person assigned in accordance with 2.8.2.1.1, and submitted by the shipowner to the Register together with the appropriate request for the documentation review and approval.

2.8.2.1.3 Access to computerized systems for updating of the maintenance documentation and maintenance program shall only be permitted by the chief engineer or other person authorized by the shipowner.

2.8.2.1.4 All personnel involved in CM and CBM shall be appropriately qualified.

2.8.2.1.5 CM does not replace routine surveillance or the chief engineer's responsibility for taking decisions in accordance with his judgement.

2.8.2.2 Equipment and CM/CBM system requirements.

2.8.2.2.1 CM equipment and systems shall be approved in accordance with a procedure established by the Register.

2.8.2.2.2 The CM/CBM schemes and their extent shall be approved by the Register.

2.8.2.2.3 The CBM scheme shall be capable of producing a condition report, and maintenance recommendations.

2.8.2.2.4 The CM/CBM systems shall be provided to identify where limiting parameters (alarms and warnings) are modified during the operation of the scheme.

2.8.2.2.5 Where CM and CBM schemes use remote monitoring and diagnosis (i.e. data is transferred from the ship and analysed remotely), the system CM/CBM shall meet the applicable standards for cyber safety and security. The system CM/CBM shall be capable of continued onboard operation in the event of loss of the communication function.

2.8.2.2.6 CBM schemes shall identify defects and unexpected failures that were not prevented by the CM system.

2.8.2.2.7 CM/CBM systems shall include a method of backing up data at regular intervals.

2.8.2.3 Documentation and Information.

2.8.2.3.1 The following documentation shall be made available to the Register for review and approval of the scheme:

- .1 procedure for changes to system software and CM parameters;
- .2 listing of equipment to be included in the scheme CM/CBM;
- .3 listing of acceptable CM parameters;
- .4 description of CBM scheme;
- .5 listing, specifications and maintenance procedures for CM equipment;
- .6 baseline (initial) data for equipment with CM;
- .7 qualification of personnel and organization responsible for analysing CM results.

2.8.2.3.2 In addition to the above documentation the following information shall be available on board:

- .1 all descriptions/listings, etc. in 2.8.2.3.1 in an up-to-date fashion;
- .2 maintenance instructions (manufacturer's and shipyard's);
- .3 CM data including all data since last opening of the machinery and the original baseline data;
- .4 reference documentation (trend investigation procedures, technologies, etc.);
- .5 records of maintenance including repairs and renewals carried out;
- .6 records of changes to system software and parameters;
- .7 sensors calibration records/certification/status.

2.8.2.3.3 When developing the software documentation, the applicable provisions of the national and international standards shall be met. A generic procedure for implementing a condition monitoring programme is shown in diagrammatic form in GOST R ISO 17359-2009 and identical international standard ISO 17359:2003. The main terms and definitions relating to condition monitoring and diagnostics of machinery are given in GOST R ISO 13372-2013 (ISO 13372:2012). With regard to data interpretation and diagnostics techniques, the requirements of GOST R ISO 13379-2009 (for ships flying the RF flag) or identical international standard ISO 13379:2003 shall be met.

2.8.2.4 CM/CBM system approval validity.

2.8.2.4.1 An annual audit¹ shall be carried out to maintain the validity of the CM/CBM scheme (annual survey) by the Register.

2.8.2.4.2 The survey of machinery according CM/CBM can be cancelled by the Register if the CM/CBM system is not being satisfactorily carried out either from the maintenance records or the general condition of the machinery.

2.8.2.4.3 The case of change of the shipowner shall cause the RS previous approval to be invalid and the scheme approval to be reconsidered upon written request of the new shipowner. In case of suspension/withdrawal of RS class as well as transfer of the ship from RS class, the RS approval of the CM/CBM scheme becomes invalid.

2.8.2.4.4 The shipowner may, at any time, cancel the application of CM/CBM scheme, by informing the RS Branch Office for in-service supervision in advance (not later than 1 month prior to cancellation) in writing. For this case, the items under CM/CBM scheme, inspected by the

¹The term audit, in this context, is not related to ISM audit.

Register during the last annual audit (annual survey), may be credited during survey of these items by decision of the RS Branch Office for in-service supervision.

2.8.3 Surveys of CM/CBM systems.

2.8.3.1 Installation survey.

2.8.3.1.1 CM equipment shall be installed and surveyed in accordance with the RS rules, and a set of baseline readings shall be taken and recorded (in the RS reporting documents (report as per form 6.3.10), ship log books).

2.8.3.2 CM/CBM implementation survey.

2.8.3.2.1 The CM/CBM implementation survey shall be carried out by the RS surveyor no earlier than 6 months after installation survey and no later than the first class annual survey following the installation.

2.8.3.2.2 During the CM/CBM implementation survey the following shall be verified by the RS surveyor:

.1 the CM/CBM scheme is implemented according to the documentation approved by the Register, including a comparison with baseline data;

.2 the CM/CBM scheme is provided with the documentation required for the annual audit (annual survey) and the requirements of surveys and testing for the retainment of class are complied with;

.3 the onboard personnel are familiar with operating the CM/CBM scheme;

.4 records of any limiting parameters (alarms and warnings) modified during the operation of the CM/CBM scheme;

.5 records of any failures of monitored equipment shall be reviewed to ensure that the CM scheme is effective/sufficient.

2.8.3.2.3 When CM/CBM implementation survey is carried out and the CM/CBM implementation is found in order, a report describing the CM/CBM scheme shall be submitted to the Register and the system may be put into service.

2.8.3.3 Annual audit (Annual survey).

2.8.3.3.1 An annual audit (annual survey) of the CM and CBM scheme shall be carried out by the RS surveyor concurrently with the class annual survey.

2.8.3.3.2 The purpose of this audit (survey) shall be to verify that the CM/CBM scheme is being correctly operated and that the machinery has been functioning satisfactorily since the previous audit (survey). This shall include any limiting parameters (alarms and warnings) that have been modified since the previous audit (survey). In addition, a general examination of the items under the CM/CBM scheme shall be carried out

2.8.3.3.3 The performance, condition monitoring and maintenance records shall be examined to verify that the machinery has functioned satisfactorily since the previous survey, or action has been taken in response to machinery operating parameters exceeding acceptable tolerances.

2.8.3.3.4 Written details of break-down or malfunction shall be made available, if any.

2.8.3.3.5 At the discretion of the RS surveyor, function tests (operational tests), confirmatory surveys and random check readings, where CM/CBM equipment is in use, shall be carried out as far as practicable and reasonable.

2.8.3.3.6 The familiarity of the chief engineer and other personnel involved with the CM system shall be verified.

2.8.3.3.7 Calibration status of sensors shall be verified.

2.8.3.3.8 Verification that the suitability of the CM/CBM scheme has been reviewed following defects and failures shall be carried out.

2.8.3.4 Damage and repairs.

2.8.3.4.1 Damage to components or items of machinery shall be reported to the Register in no delay. The repairs of such damaged components or items of machinery shall be carried out and submitted to the satisfaction of the RS surveyor.

2.8.3.4.2 Details of repairs and necessary maintenance of the CM/CBM system carried out shall be agreed upon and examined by the Register. Any machinery part, which has been replaced by a spare one, due to damage, shall be retained on board until examined by RS surveyor.

2.8.3.4.3 Defect and failure data shall be reviewed by the RS surveyor in order to ensure the CM/CBM system output is appropriate. Where necessary, following review of the failure data, there shall be a method of amending the CM and CBM scheme."

18 Existing **Chapters 2.8 — 2.10** (and also all existing references thereto) are renumbered **Chapters 2.9 — 2.11** accordingly.

4.8 ADDITIONAL MEASURES AIMED AT MAINTENANCE AND IMPROVEMENT OF THE TECHNICAL CONDITION OF SHIPS

19 **Paras 4.8.5.1.3 and 4.8.5.3.2** are replaced by the following texts:

"4.8.5.1.3 RHO shall notify the shipowner in writing of the application of the SSR to a ship and of the applicable requirements of these Rules. A copy of this notification shall be addressed to the RS Branch Office for in-service supervision.";

"4.8.5.3.2 RHO shall notify the shipowner and the RS Branch Office for in-service supervision in writing of the SSR cancellation.".

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

8 SURVEYS OF GAS CARRIERS

8.3 INTERMEDIATE SURVEY

20 **Para 8.3.2.1.3** is deleted.

APPENDIX 4 INSTRUCTION ON RESIDUAL THICKNESS MEASUREMENTS OF SHIP'S ELEMENTS

21 In **para 5.4.1** the text of the last para is replaced as follows:

"Where pitting corrosion is found, the results of the plate thickness measurements in pits shall be recorded in accordance with the provisions of Section 7. In case when areas with deep and/or intensive pitting corrosion are found — such areas shall be recorded using a particular form provided in the "VOLNA" software or using form RTM8 (refer to Section 7). The RS surveyor shall be notified of such areas on board. The surveyor shall take a decision whether the renewal of the plate or a plate area is required.".

22 **Para 7.1.3** is replaced by the following text:

"7.1.3 For structures of cargo hold hatch covers, ship's hull structures and other ship's elements, which are not subject to the provisions of 7.1.2 and which scantlings are determined using net-thickness approach, the TM report forms recommended by Annex II of IACS UR Z7 shall be used.".